PROJECT FILE REPORT

Schedule "B" Municipal Class Environmental Assessment Study, Bridge 16-WG on 5th Line Over Irvine Creek, Township of Centre Wellington, Ontario

MP Project No.: CCO-21-3823

Prepared for:

Centre Wellington

Township of Center Wellington
1 Macdonald Square
Elora, Ontario, N0B 1S0

Prepared by:

McINTOSH PERRY

McIntosh Perry Consulting Engineers
2010 Winston Park Drive, Suite 400
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PROJECT FILE REPORT
SCHEDULE "B" MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT STUDY, BRIDGE 16-WG ON 5TH LINE OVER IRVINE CREEK, TOWNSHIP OF CENTRE WELLINGTON, ONTARIO

Prepared for:

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Elora, Ontario, N0B 1S0

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McIntosh Perry Consulting Engineers Ltd.
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January 20, 2022

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January 20, 2022
MP Project No.: CCO-21-3823

Township of Centre Wellington
1 Macdonald Square
Elora, Ontario, N0B 1S0

Attention: Adam Gilmore, Manager of Engineering

RE: Project File Report: Schedule "B" Municipal Class Environmental Assessment Study, Bridge 16-WG on 5th Line Over Irvine Creek, Township of Centre Wellington, Ontario.

Dear Mr. Gilmore,

McIntosh Perry Consulting Engineers Ltd. (McIntosh Perry) is pleased to submit this Project File Report for the Schedule "B" Municipal Class Environmental Assessment to the Township of Centre Wellington.

This Project File Report provides a comprehensive review of the various solutions, the evaluation criteria, and the final recommendation for the technically preferred solution for Bridge 16-WG located on 5th Line over Irvine Creek. Our team has conducted an in-depth review of the study area, bridge conditions, servicing needs, and stakeholder/public requirements. In particular, this report is intended to:

- Provide a background to the study;
- Define the nature and extent of the problem or opportunity, and explain the source of the concern or issue and the need for a solution;
- Outline the existing structural engineering and environmental (natural, social, cultural) conditions within the study area;
- Provide the alternative solutions considered;
- Provide evaluation followed and selection of the technically preferred solution;
- Define follow-up commitments, and
- Summarize the public consultation program employed.

If you have any questions or require any additional information, please contact the undersigned.

Sincerely,

Lisa Marshall, P.Eng.
McIntosh Perry Consulting Engineers Ltd.
Project Manager

EXECUTIVE SUMMARY

The Township of Centre Wellington (Township) retained McIntosh Perry Consulting Engineers Ltd. (McIntosh Perry) to undertake a Schedule "B" Municipal Class Environmental Assessment (MCEA) in accordance with the Municipal Class Environmental Assessment (MCEA) process (October 2000, amended 2011, 2015 and 2017), approved under the Ontario Environmental Assessment Act, in order to identify and develop a technically preferred solution for addressing concerns related to Bridge 16-WG located on 5th Line over Irvine Creek in the Township of Centre Wellington, as shown on the key map below.

The existing Bridge 16-WG is in an advanced state of deterioration and has been closed for public use at this time. The existing bridge is also a single-lane bridge with other functional and operational deficiencies. McIntosh Perry was retained by the Township to conduct this MCEA, to identify and evaluate alternative solutions to determine a preferred solution to address the aging infrastructure within the Bridge 16-WG area.

This Project File Report has been prepared to present the results of the transportation engineering and environmental assessment study and has been prepared to document the consultation program, findings of technical background studies, the evaluation of alternative design solutions and the selected technically preferred alternative design.

This MCEA study considered four (4) alternative design concepts to address issues withing the Bridge 16-WG study area:

- **Alternative 1:** Do nothing.
- **Alternative 2:** Remove the existing Bridge 16-WG and provide new turn around areas on either side of the existing bridge.
- **Alternative 3:** Remove the existing Bridge 16-WG and provide a new structure in its place.
- **Alternative 4:** Rehabilitate the existing Bridge 16-WG to meet engineering and public safety standards, and reinstate the existing crossing.

Consultation in accordance with the requirements of a Schedule "B" MCEA project was carried out to provide members of the community, government agencies, municipal staff, emergency services, Indigenous Communities and other key interest groups an opportunity to review the study process, alternatives and preliminary technically preferred solution.

Based on the comprehensive review of the four (4) alternative design concepts against a multiple bottom line evaluation process that took into consideration environmental, social, constructability, financial, and operational factors, Alternative Solution 3 - remove the existing Bridge 16-WG and provide a new structure in its place, has been identified as the Technically Preferred Alternative.

During this MCEA study, it was identified that considerations shall be given during the Detail Design phase of this project for permitting and approvals (i.e., Grand River Conservation Authority , Department of Fisheries and Oceans, Transport Canada, and the Ministry of Environment, Conservation and Parks). During Detail Design, heritage considerations will be required (i.e., Cultural Heritage Resource Documentation Report, commemorative plaque, etc.) and the Township's Heritage Committee must be consulted in any sympathetic design and commemorative strategy. Additionally, during Detail Design consideration for public safety shall be given due to concerns with speeding along 5th Line identified during the consultation program.

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1.0 INTRODUCTION

The Township of Centre Wellington (Township) retained McIntosh Perry Consulting Engineers Ltd. (McIntosh Perry) to undertake a Schedule "B" Municipal Class Environmental Assessment (MCEA) in accordance with the Municipal Class Environmental Assessment (MCEA) process (October 2000, amended 2011, 2015 and 2017), approved under the *Ontario Environmental Assessment Act*, in order to identify and develop a technically preferred solution for addressing concerns related to Bridge 16-WG located on 5th Line over Irvine Creek in the Township of Centre Wellington.

The existing Bridge 16-WG is in an advanced state of deterioration and has been closed for public use at this time. The existing bridge is also a single-lane bridge with other functional and operational deficiencies. McIntosh Perry was retained by the Township to conduct this MCEA, to identify and evaluate alternative solutions to determine a preferred solution to address the aging infrastructure within the Bridge 16-WG area (Figure 1).

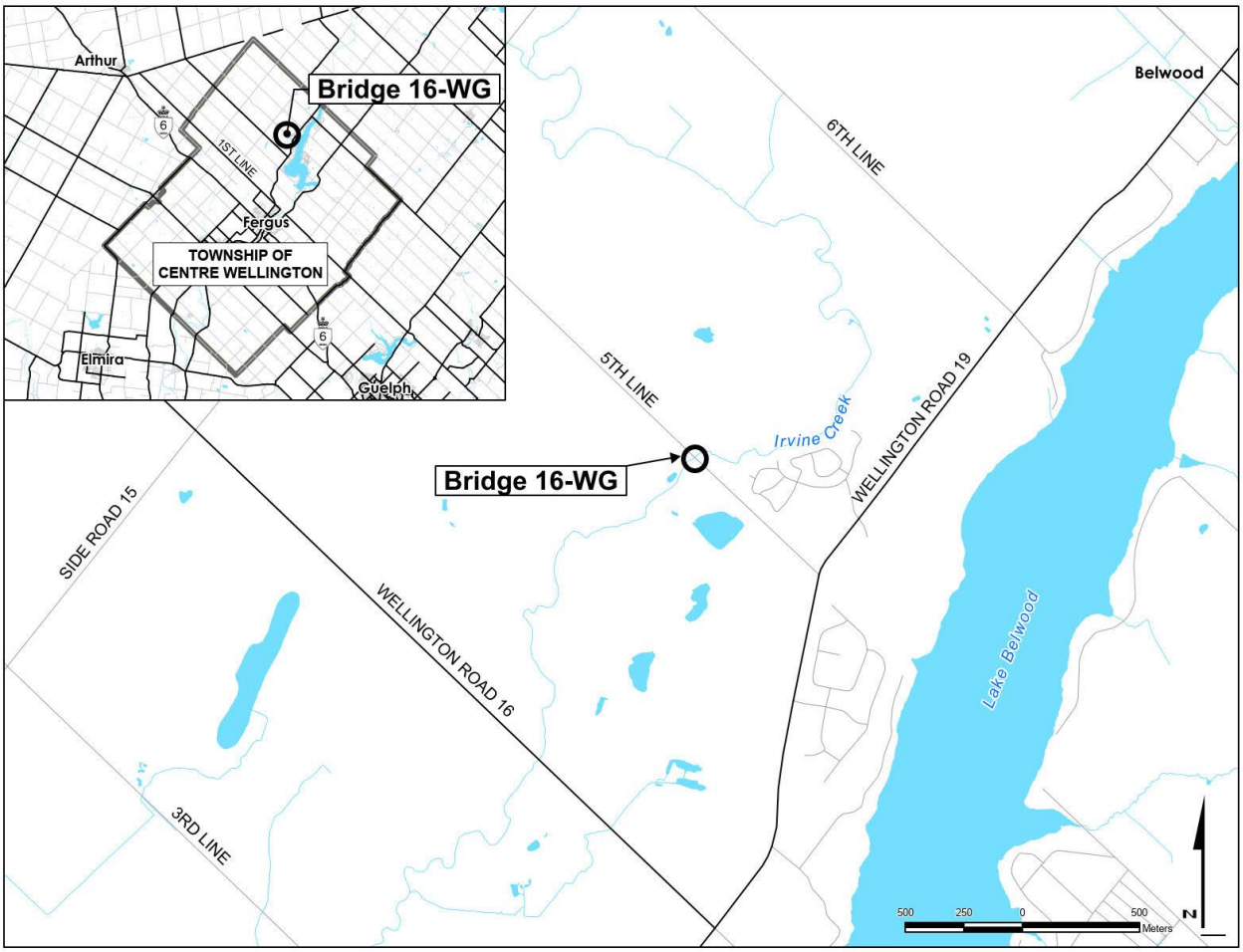


Figure 1: Bridge 16-WG Study Area Key Map

2.0 CLASS ENVIRONMENTAL ASSESSMENT PROCESS

2.1 Ontario's Environmental Assessment Act

Ontario's Environmental Assessment Act (EAA) was passed in 1975 and was proclaimed in 1976. The EAA requires proponents to examine and document the environmental effects that could result from major projects or activities and their alternatives. Municipal undertakings became subject to the EAA in 1981. The EAA's comprehensive definition of the environment is:

- Air, land or water;
- Plant and animal life, including human life;
- The social, economic and cultural conditions that influence the life of humans or community;
- Any building, structure, machine or other device or thing made by humans;
- Any solid, liquid, gas, odour, heat, sound, vibration, or radiation resulting directly or indirectly from human activities, and
- Any part of a combination of the foregoing and the interrelationships between any two or more of them, in or of Ontario.

The purpose of the EAA is the betterment of the people as a whole, or any part of Ontario by providing for the protection, conservation and wise management of the environment in Ontario (RSO 1990, c.18, s.2). It is the objective of the EAA proponents to ensure that decisions result from a rational, objective, transparent, replicable, and impartial planning process.

To meet the requirements of Ontario's EAA, class environmental assessments were approved by the Minister of the Environment in 1987 as a means of obtaining project-specific approval under the Ontario EAA. The Class EA approach streamlines the planning and approvals process for projects that are:

- Recurring;
- Similar in nature;
- Usually limited in scale;
- Predictable in the range of environmental impacts, and
- Responsive to mitigation.

2.2 Class Environmental Assessment Process

The MCEA, prepared by the Municipal Engineers Association (MEA) (October 2000, amended 2011, 2015 and 2017) outlines the procedures to be followed to satisfy Class EA requirements for water, wastewater, stormwater management and road projects. The MCEA process provides municipalities with a five-phase planning procedure approved under the EAA for proponents to follow to meet Ontario's EA requirements.

- **Phase 1:** Problem or Opportunity Statement
- **Phase 2:** Identification and Evaluation of Alternative Solutions
- **Phase 3:** Examination of Alternative Methods

- **Phase 4:** Documentation of the Class EA Process
- **Phase 5:** Implementation and Monitoring.

Projects subject to the Class EA process are classified into the following four "Schedules" based on the degree of the expected impacts.

- **Schedule "A":** Projects are limited in scale, have minimal adverse effects and include the majority of municipal maintenance and operational activities. These projects are approved and may proceed directly to Phase 5 for implementation without following the other phases.
- **Schedule "A+":** Projects are limited in scale and have minimal adverse effects. These projects are approved and may proceed directly to Phase 5 for implementation without following the other phases. However, the public is to be advised prior to project implementation, though there is no ability for the public to request a Part II Order.
- **Schedule "B":** Projects have the potential for some adverse environmental effects. The municipality is required to undertake a screening process (Phases 1 and 2) involving mandatory contact with directly affected public and relevant review agencies to ensure that they are aware of the project and that their concerns are being addressed. Schedule "B" project require that a Project File report be prepared and submitted for review by the public and review agencies. If there are no outstanding concerns, then the municipality may proceed to Phase 5 for implementation.
- **Schedule "C":** Projects have the potential for significant environmental effects and must proceed under the full planning and documentation procedures specified in the MCEA Document (Phases 1 to 4). Schedule "C" projects require that an Environmental Study Report be prepared and submitted for review by the public and review agencies. If there are no outstanding concerns, then the municipality may proceed to Phase 5 for implementation.

Figure 2 illustrates the MCEA planning and design process with the phases required for each schedule.

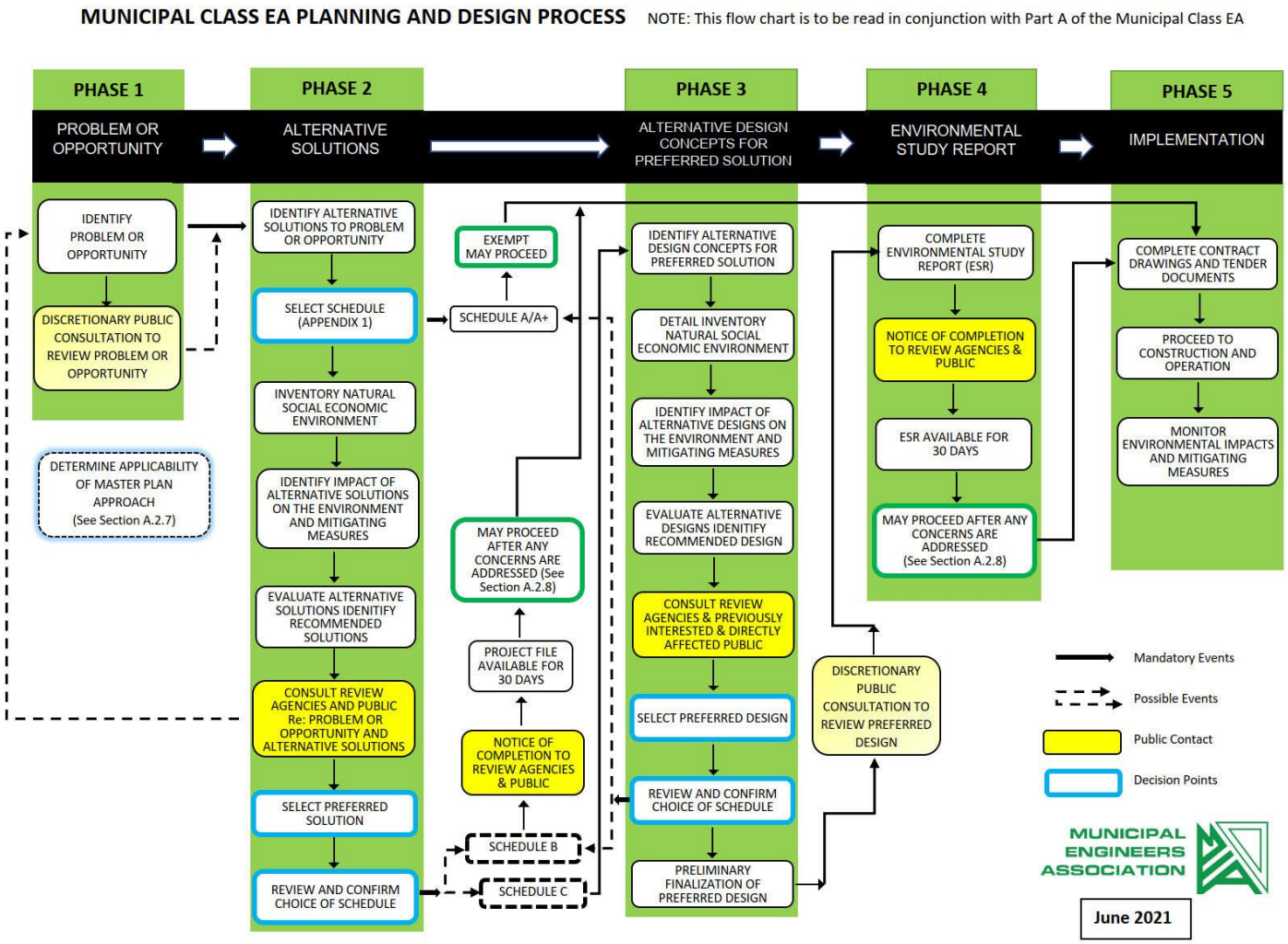


Figure 2: Municipal Class EA Planning and Design Process

2.2.1 Schedule B Classification

The Bridge 16-WG study is designated as a Schedule "B" undertaking according to the Municipal Class EA (October 2000, amended 2011, 2015 and 2017). A Schedule "B" undertaking must fulfill the first two phases of the MCEA process before moving on to the detail design and implementation. The MCEA planning phases undertaken for this study are listed below.

Phase 1: Identify the Problem / Opportunity
This phase involves not only identifying the problem/opportunity, but also describing it in sufficient detail to formulate a clear problem/opportunity statement. It is important that this statement is concise and considers the goals and objectives of the MCEA, as it is used to dictate the scope of the project.

Phase 2: Identify and Evaluate Alternative Solutions to the Problem/Opportunity
This phase involves undertaking the following six steps:

- Identify reasonable alternative solutions to the problem/opportunity;
- Prepare a general inventory of the existing natural, social and economic environments in which the project is to occur;
- Identify the net positive and negative effects of each alternative solution including mitigating measures, where possible;
- Evaluate the alternative solutions and identify a technically preferred solution;
- Consult with review agencies and the public to solicit comments and input; and
- Select/confirm the technically preferred solution.

2.2.1.1 Mandatory Principles

The planning process followed not only adheres to the guidelines outlined by the MCEA document, but reflects the following five mandatory principles of MCEA planning under the EAA:

- Consultation with affected parties early on and throughout the process, such that the planning process is a cooperative venture;
- Consideration of a reasonable range of alternatives, both functionally different alternative to the project (known as alternative solutions) and alternative methods of implementing the preferred solution;
- Identification and consideration of the effects of each alternative on all aspects of the environment;
- Systematic evaluation of alternatives in terms of their advantages and disadvantages, to determine their net environmental effects; and
- Provision of clear and complete documentation of the planning process followed to allow 'traceability' of decision-making with respect to the project.

Following these five principles ensures that the MCEA process is devoted to the prevention of problems and environmental damage through planning and decision-making, recognizing that research and evaluation of possible impacts have been considered prior to implementation of the project.

2.2.2 Impact Assessment Act

On August 28, 2019, the Impact Assessment Act (IAA) replaced the former *Canadian Environmental Assessment Act* (CEEA), 2012. The projects and activities that are subject to the IAA are very similar to those that were subject to an environmental assessment under the CEAA, 2012. However, some changes have been made to the "Project List", such as new thresholds or projects have been introduced or increased. Under the IAA, only those projects designated by the Physical Activities Regulations or designated by the Minister of Environment on a discretionary basis may be subject to federal environmental assessment.

It has been determined that this project does not include physical activities identified on the list and is therefore not subject to the IAA process.

3.0 STUDY OVERVIEW

Phase 1 of the MCEA study required a clear and concise Problem/Opportunity Statement, followed by Phase 2 Alternative Solutions considered to address the identified Problem/Opportunity. At this point in the study, the details of the Alternative Solutions are considered 'preliminary' until a Preferred Solution is adopted by the Township of Centre Wellington to carry forward into detail design.

3.1 Phase 1 – Problem/Opportunity Statement

Bridge 16-WG is in an advanced state of deterioration and has been closed for public use at this time. The existing bridge is also a single-lane with other functional and operational deficiencies. Therefore, the Township of Centre Wellington has the opportunity to identify and evaluate alternative solutions, and determine a preferred bridge solution in accordance with the Municipal Class Environmental Process.

3.2 Phase 2 – Alternative Solutions

To address the Problem/Opportunity Statement the following four (4) Alternative Solutions were developed:

- **Alternative 1:** Do nothing.
- **Alternative 2:** Remove the existing Bridge 16-WG and provide new turn around areas on either side of the existing bridge.
- **Alternative 3:** Remove the existing Bridge 16-WG and provide a new structure in its place.
- **Alternative 4:** Rehabilitate the existing Bridge 16-WG to meet engineering and public safety standards, and reinstate the existing crossing.

3.2.1 Alternative 1

Alternative 1 involves leaving the existing Bridge 16-WG in place, in its deteriorating condition and continuing to restrict public access. Continued inaction on the deteriorating conditions of Bridge 16-WG will amount to demolition by neglect which would pose as a health and safety concern. Therefore, Alternative 1 is not considered to be a viable option, however, this option has been carried forward for evaluation to use as a benchmark for the other Alternative Design Concepts.

3.2.2 Alternative 2

Alternative 2 involves the complete removal of the existing Bridge 16-WG and construction of new turnaround areas at the east and west sides of Irvine Creek for traffic on 5th Line. This option would not include reinstating the 5th Line watercourse crossing.

3.2.3 Alternative 3

Alternative 3 involves the complete removal and replacement of the existing Bridge 16-WG in the current location. The service life of the new bridge will be 75 years. As the intention is to provide a bridge that meets operational and safety standards, the new bridge would be constructed with a wider deck platform to allow

for two-lanes of traffic at the watercourse crossing. The scope of work for Alternative 3 could include, but not be limited to:

- Removal and disposal of the existing superstructure and substructure;
- Install dewatering system;
- Construct bridge foundations and abutments;
- Install bearings;
- Construct or install new superstructure that is compliant with current operational and safety standards, and
- Regrade around new bridge and tie into existing road allowance.

3.2.4 Alternative 4

Alternative 4 would attempt to extend the service life of the structure by through rehabilitation works. Based on the results of recent inspections, Bridge 16-WG is significantly deteriorated and exhibits excessive and progressive movement of the structural elements which has resulted in the determination to close the bridge. Accordingly, a bridge rehabilitation is not considered to be a viable option from a bridge engineering perspective as the condition of the structure has surpassed a repairable state.

4.0 INVENTORY OF EXISTING CONDITIONS

This section presents an overview of the background information (secondary source information) and the results of the field investigations undertaken specifically for this study. The following sections provide a summary of the existing natural, socio-economic, and cultural environments, as well as the existing structural conditions of Bridge 16-WG.

4.1 Natural Environmental Conditions

Determining the existing natural environmental conditions of the study area is required to assess the potential impacts of each alternative option considered as part of this MCEA study.

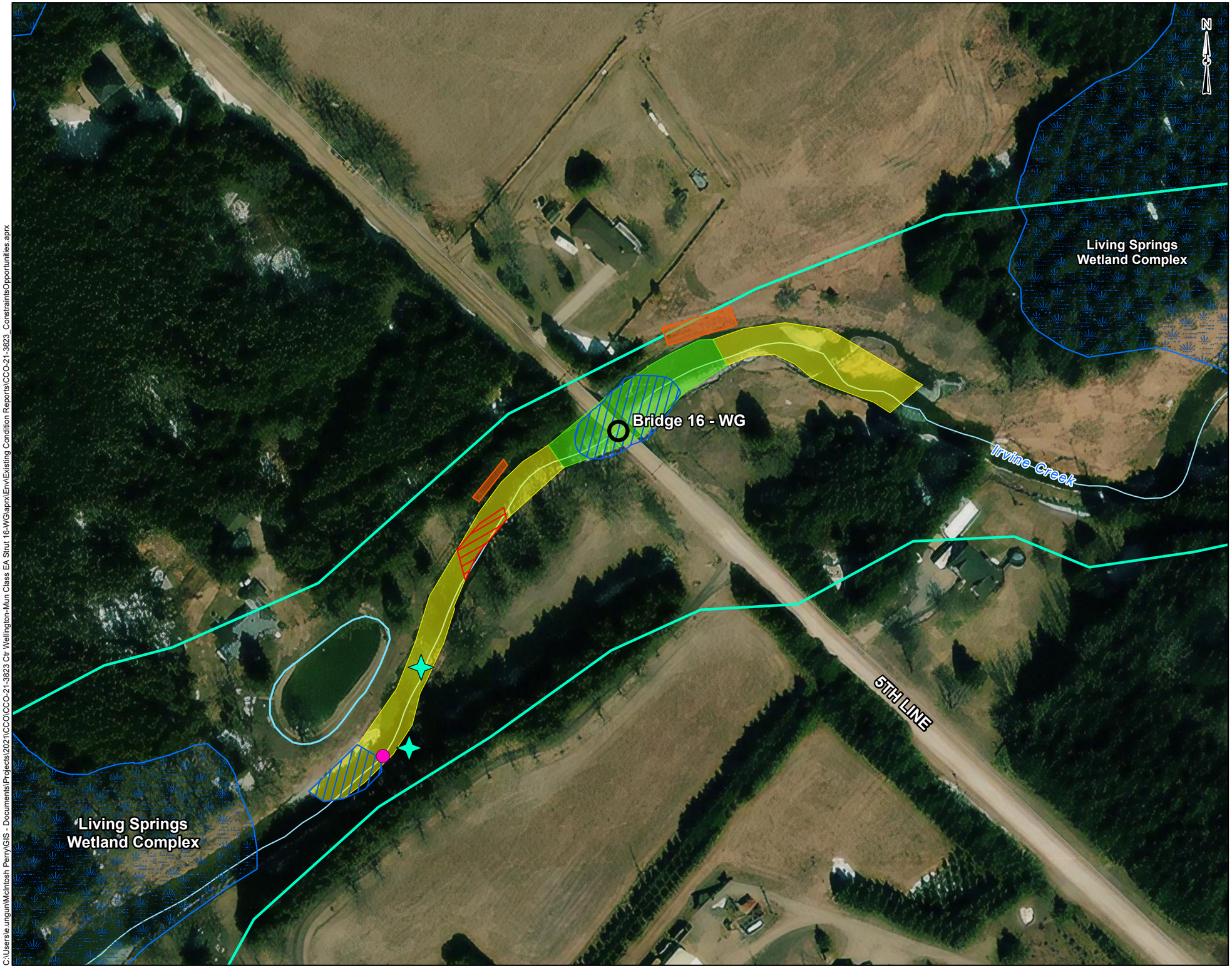
A desktop review was undertaken to collect background data and document all known natural features within the study area, prior to undertaking field investigations. Information was obtained from the following sources during the desktop review:

- Wildlife atlases for birds and herpetofauna, (Bird Studies Canada et al. 2006, Ontario Nature, 2019);
- Ministry of Natural Resources and Forestry (MNRF) Land Information Ontario (LIO) database;
- Ministry of Natural Resources and Forestry (MNRF) Make a Map: Natural Heritage Areas mapping application;
- Department of Fisheries and Oceans (DFO) Aquatic Species at Risk Mapping Tool;
- Grand River Conservation Authority;
- Grand River Source Protection Authority (GRCA), and
- Township of Centre Wellington Official Plan.

Field investigations were conducted on May 28, 2021 to collect current, and site-specific information related to terrestrial and aquatic ecosystems within the study area by McIntosh Perry. Field investigations included identification of the following where applicable:

- Existing vegetation communities;
- Existing fish and fish habitat;
- Species at Risk (SAR) and their habitat;
- Resident or migrant bird and wildlife species;
- Critical habitat areas, and
- Existing land uses surrounding the study area.

For detailed information obtained through McIntosh Perry's desktop review and field investigations at the Bridge 16-WG study area, please refer to the Summary of Existing Environmental Conditions Report (Appendix A). The following sections summarize the natural environmental conditions of the study area.



LEGEND

- Site Location
- Watercress
- Creek Chub Spawning
- Deep Pool
- Red-Side Dace Spawning
- Specialized Baitfish Spawning
- Unspecialized Spawning- Low Quality
- Potential Turtle Nesting
- Floodplain Boundary
- Watercourse
- Waterbody
- Provincially Significant Wetland

REFERENCE

GIS data provided by the Ontario Ministry of Natural Resources and Forestry, 2021.

40 20 0 40

Scale 1:1,250 Metres

CLIENT: TOWNSHIP OF CENTRE WELLINGTON

PROJECT: EXISTING ENVIRONMENTAL CONDITIONS REPORT

TITLE: CONSTRAINTS AND OPPORTUNITIES

McINTOSH PERRY
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www.mcintoshperry.com

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4.1.1 Vegetation

The study area is located within the Lake Simcoe-Rideau Ontario Ecoregion (Ecoregion 6E), of the Mixedwood Plains Ecozone within the Great Lakes-St. Lawrence Forest Region (Crins et al., 2009). The region is largely comprised of cropland (57%), pastures (44.4%), and abandoned fields (12.8%). Forested areas of the Lake Simcoe-Rideau Ecoregion are composed primarily of deciduous forest (16%) with some additional coniferous and mixed forests. Typical tree species include green ash (*Fraxinus pennsylvanica*), silver maple (*Acer saccharinum*), red maple (*Acer rubrum*), eastern white cedar (*Thuja occidentalis*), yellow birch (*Betula alleghaniensis*) balsam fir (*Abies balsamea*), black ash (Fraxinus nigra), black spruce (*Picea mariana*), tamarack (*Larix laricina*) and numerous other species (Crins et al., 2009).

The study area is dominated by forested area and residential properties with manicured lawns, old hedgerows and other planted trees. Vegetation communities bounding Irvine Creek are characterized as Dry White Cedar Mixed Forest ecosite, inclusive eastern white cedar, Manitoba maple (Acer negundo), and white willow (Salix alba) tree communities and Mixed Forb Mineral Meadow ecosite. No species at risk (SAR) or rare vegetation was identified during the field investigations.

4.1.2 Wetland Habitat

A Provincially Significant Wetland (PSW) is located within the study area, surrounding the existing Bridge 16-WG and to the east/west. The PSW is referred to as the Living Springs Wetland Complex and is evaluated as a provincially significant swamp. Natural Heritage Information Centre (NHIC) mapping shows the wetland is connected to Irvine Creek, upstream and downstream of the study area.

4.1.3 Wildlife

Characteristic wildlife of the area includes: white-tailed deer (Odocoileus virginianus), northern raccoon (*Procyon lotor*), striped skunk (*Mephitis mepthitis*), woodchuck (*Marmota monax*), Red-spotted Newt (*Notophthalmus viridescens*), Snapping Turtle (*Chelydra serpentina*), Eastern garter snake (*Thamnophis sirtalis sirtalis*) and common watersnake (*Nerodia sipedon*). Representative bird species include field sparrow (*Spizella pusilla*), Grasshopper Sparrow (*Ammodramus savnnarum*), and Eastern Meadowlark (*Sturnella magna*) (Crins et al., 2009). A Colonial Waterbird Nesting area designated as a wildlife concentration area is also identified within the vicinity of the study area. As well, a White-tailed Deer Wintering Area (Stratum 2) is located to the east and west of the Bridge 16-WG study area.

During the 2021 field investigation, the following wildlife species were observed: American crow (*Corvus brachurhynchos*), American goldfinch (*Spinus tristis*) American robin (*Turdus migratorius*), Baltimore oriole (*Icterus glabula*), Barn Swallow (*Hurundo rustica*), black capped chickadee (*Poecile atricapullus*), Canada goose (*Branta canadensis*), European Starling (*Sturnus vulgaris*), great blue heron (*Ardea herodias*), least flycatcher (*Empidonax minimus*), mallard (Anas platyrhynchos), red-winged blackbird (Agelaius phoeniceus), ring-billed gull (*Larus delawarensis*), rose-breasted grosebeak (*Pheucticus ludovicianus*), song sparrow (*Melospiza melodia*), turkey vulture (*Catharetes aura*), long-tailed weasel (*Mustela frenata*), white-tailed deer (*Odocoileus*

virginianus), freshwater mussel (*Uniondae* sp.), rusty crayfish (*Orconectes rusticus*), and virile crayfish (*Faxonius virilis*).

No migratory or SAR bird nests were observed on Bridge 16-WG during the natural science field investigations.

4.1.4 Fisheries and Aquatic Ecosystems

The watercourse associated with the Bridge 16-WG study area is Irvine Creek, which is a tributary of the Grand River. Land Information Ontario (LIO) and Aquatic Resource Area (ARA) mapping has defined Irvine Creek as a cold water watercourse known to contain a range of fish species and the potential to provide habitat for several other fish species that are known to inhabit the Grand River.

The field investigations were completed using detailed habitat assessment for approximately 50 m upstream and 200 m downstream of Bridge 16-WG, where conditions allowed. Water at Bridge 16-WG was too deep to safety conduct electrofishing surveys using conventional wading methods. As such watercourse habitat information was recorded only. Juvenile fish were observed within Irvine Creek at the time of the field investigations, but were unable to be identified.

Irvine Creek at the Bridge 16-WG study area consisted of 35% run, 35% pool, 25% riffle, and 5% flats, with a mean wetted depth of approximately 1-2 m, a mean wetted width of approximately 15 m, mean bankfull width of approximately 15 m and mean bankfull depth of 2.5 m. The substrate consisted of sands, silts, and much upstream and at the crossing, with cobbles, boulders, gravel and sand downstream of the crossing. The banks were slightly to moderately unstable in some areas and the percentage of the watercourse that was shaded was between 1-30%. In-stream cover consisted of 10% submergent, and 90% emergent vegetation. A section of reach provides adequate spawning grounds for specialized baitfish such as trout, sculpin and creek chub to name a few. It was noted that this reach could provide potentially suitable spawning grounds for Red-side Dace, in the riffle sections. Spawning evidence of creek chub was identified approximately 125 m downstream from the watercourse crossing in the form of gravel piles instream.

4.1.5 Species at Risk

Ontario wildlife atlases were reviewed for SARElement Occurrence (EO) records within 10 km of the study area. The Ontario Reptile and Amphibian Atlas (Ontario Nature, 2017) identified records of:

- Snapping Turtle *(Chelydra serpentina)*, and
- Western Chorus Frog (*Pseudacris triseriata*).

Adequate nesting habitat for Snapping Turtle was identified in numerous locations throughout the study area, characterized by soft sand or gravel banks.

The Ontario Breeding Bird Atlas (Bird Studies Canada et al., 2006) identified ten (10) SAR birds known to occur within 10 km of the study area:

- Bank Swallow (*Riparia riparia)*;

- Barn Swallow (*Hirundo rustica)*;
- Bobolink (*Dolichonyx oryzivorus*);
- Canada Warbler (*Cardellina canadensis*);
- Eastern Meadowlark (*Sturnella magna*);
- Eastern Wood-peewee (*Contopus virens*);
- Grasshopper Sparrow (*Ammodramus savannarum*);
- Northern Bobwhite (*Colinus virginianus*), and
- Wood Thrush (*Hylocichla mustelina)*.

Potential habitat was identified for Barn Swallow on the bridge, although no nests were identified. The open fields (grassed and agricultural) surrounding the study area may provide habitat for species such as Bobolink, Eastern Meadowlark and Grasshopper Sparrow. Additionally, the wooded areas surrounding the study area may provide suitable habitat for Wood Thrush.

MNRF Make a Map: Natural Heritage Areas (Natural Heritage Information Centre) mapping application identified the following SAR within 10 km of the study area:

- Bobolink, and
- Redside Dace (Clinostomus elongatus)

DFO Aquatic SAR mapping tool found no aquatic SAR records within the study area; however, within the Irvine Creek adjacent to the study area, the following species is listed:

- Redside Dace.

During the Township of Centre Wellington's replacement of the 20th Sideroad Bridge Structure 27-WG project located over Irvine Creek (approximately 9 km upstream of Bridge 16-WG), AECOM Canada Ltd. completed presence/absence surveys within Irvine Creek for Redside Dace through eDNA methods. The eDNA surveys identified Redside Dace DNA within Irvine Creek indicating that Redside Dace continue to occupy Irvine Creek and therefore may be present within the Bridge 16-WG study area.

During the field investigation completed by McIntosh Perry, one (1) Barn Swallow was observed foraging within the study area, but no nesting was identified. Barn Swallows are listed as a threatened species both provincially and federally and receive habitat protection under the *Endangered Species Act*. No other SAR were observed during the field investigation.

It should be noted that some snag trees were observed within the adjacent forested areas and the Living Springs Wetland Complex (Swamp) area surrounding the study area, that could be potentially used by SAR bats as maternity roosting trees. Furthermore, common milkweed was observed within the vicinity of Bridge 16-WG and therefore, it is possible that Monarch use this area for various life stages.

Please note that during Preliminary and Detail Design, if it is determined that the proposed activities cannot avoid impacts to protected SAR and their habitat, an application for authorization under the *Endangered*

Species Act (ESA) would be required. If impacts are determined, or impacts are unknown, SAROntario@ontario.ca should be contacted to undergo a formal review under the ESA.

4.1.6 Groundwater

A search of the publicly accessible MECP well records within 500 m of the study area identified seven (7) domestic wells, constructed between 1974 and 2014 to an average depth of 54.76 m below ground surface (MECP, 2021). The static water level on the well records range from 0.00 m to 20.4 m, with an average static level of 7.7 m. Evidence of groundwater seepage was present within the study area, indicated by the presence of watercress and iron staining within Irvine Creek.

4.1.7 Surface Water

Bridge 16-WG crosses Irvine Creek which is a tributary of the Grand River. Irvine Creek begins at the confluence of two (2) unnamed tributary systems in the geographic West Garafraxa Township and flows southeast towards Belwood Lake. Before reaching Belwood Lake it turns southwest and flows into the Grand River at the community of Elora. The Grand River drains into Lake Erie.

4.1.8 Grand River Source Protection Area

The study area is located within the Ground River Source Protection Area (GRSPA), which is subject to the Grand River Source Protection Plan (GRSPP, 2021). The Bridge 16-WG study area is located within an Intake Protection Zone 3 (IPZ), with a vulnerability score of 5, meaning the area is moderately sensitive. The study area is also located approximately 2 km north east from a Wellhead Protection Area (WHPA).

The Ministry of Environment, Conservation, and Parks (MECP) Source Protection Information Atlas indicates the Bridge 16-WG study area with the following:

- Wellhead Protection Area: No
- Wellhead Protection Area E (GUDI): No
- Intake Protection Zone: Zone 3, score of 5
- Issue Contributing Area: No
- Significant Groundwater Recharge Area: No
- Highly Vulnerable Aquifer: No
- Event-Based Area: No
- Wellhead Protection Area Q1: No
- Wellhead Protection Area Q2: No
- Intake Protection Zone Q: No

4.1.9 Physiography, Soils and Bedrock

The study area lies within in the Lake Simcoe-Rideau Ecoregion (Ecoregion 6E), of the Mixed Plains Ecozone within the Great Lakes-St. Lawrence Forest Region (Crins et al., 2009), and lies within the Guelph Drumlin Field, consisting of high-density drumlins, glacial spillway, and loam to fine sandy loam soils (GRCA, 2018). Bedrock

composition in the Bridge 16-WG study area consists of sandstone, shale, dolostone, siltstone and rock types, within the Guelph Formation (Ontario Geological Survey, 2011 & GRCA, 2018).

4.1.10 Designated Areas

The study area is in close proximity a Provincially Significant Wetland (PSW) identified as the Living Springs Wetland Complex (swamp), located approximately 120 m upstream and 170 m downstream from the Bridge 16-WG crossing.

An Area of Areas of Natural and Scientific Interest (ANSI) was noted adjacent to the study area as White-tailed Deer Wintering Area (Stratum 2) located to the east and west of the bridge crossing. Additionally, a Colonial Waterbird Nesting Area was also identified in proximity to the study area.

The study area is located within the Grand River Conservation Authority (GRCA) regulated area, which includes regulated floodplain and wetlands. Any development in the study area is subject to *Ontario Regulation 155/06, Development, Interference with Wetlands and Alterations to Shorelines and Watercourses*.

4.2 Existing Bridge Condition

The existing Bridge 16-WG is a single-span 34 m long concrete closed spandrel arch bridge. Bridge 16-WG spans over a section of Irvine Creek, with each abutment located approximately at the edge of the watercourse. The bridge provides a single-lane crossing while the approach roadway (5th Line) is two-lanes.

Bridge 16-WG was inspected in 1977 which noted that it was anticipated to have 10 years of service life remaining at that time. In 2012, an inspection report recommended that Bridge 16-WG be replaced. During previous inspections, the retaining walls were noted to be moving. The Township of Centre Wellington installed gauges to track the amount of movement. In an effort to prolong the service life of the structure, in fall 2017, the Township reduced the load posting at Bridge 16-WG from 10 Tonnes to 5 Tonnes. Furthermore, in January 2018, the Township installed overhead frames at the approaches in an effort to reduce the size of vehicles using the bridge

The Township has continued to monitor the condition of Bridge 16-WG and movement of the retaining walls. The Township retained K. Smart Associates Limited to complete a bridge inspection in accordance with the Ontario Structure Inspection Manual (OSIM) which noted that the movement of the northwest and northeast retaining walls was confirmed to be progressing. In the interest of public safety, K. Smart Associates Limited recommended a maximum movement of 50 mm from the baseline be set and once the total movement of 50 mm from the baseline of the structure is reached, the structure should be closed. In Spring 2021, the 50 mm maximum movement baseline was exceeded, and closure and replacement the structure was recommended by K. Smart Associates Limited. Bridge 16-WG has since been blocked off with chains and one large concrete jersey barrier at each approach.

The movement of retaining walls and lack of as-built information are particular points of concern from a bridge engineering perspective. The concrete exhibits significant deterioration including concrete spalls, delamination, exposed corroded reinforced steel as well as concrete erosion and disintegration along the

bottom of the concrete arch where the concrete arch is in contact with the watercourse flow. Particularly, the west face of the existing arch rub shows severe disintegration cracks and concrete spalls. The connection between the concrete retaining walls and arch rib is significantly compromised due to the spalls and concrete section losses. It could be assumed that the source of the retaining wall movement is from this section's losses and failure of the anchorage connection between the retaining wall and the concrete arch rib.

Based on the existing concrete arch rib condition and the continuous movement of the retaining walls and closed spandrel arch rib, a rehabilitation of the existing bridge is deemed not feasible by McIntosh Perry.

4.3 Existing Hydrology and Hydraulic Assessment

McIntosh Perry prepared a Drainage Memorandum for the Bridge 16-WG study area to document the capacity assessment for the existing bridge. Irvine Creek is within the jurisdictional watershed of the Grand River Conservation Authority (GRCA). The GRCA was contacted to obtain any relevant hydrologic or hydraulic information or models for Bridge 16-WG. The GRCA stated that they did not have any existing hydrologic nor hydraulic models for Irvine Creek or Bridge 16-WG.

Following the Ministry of Transportation (MTO) *Highway Drainage Design Standards*, a 25-year storm was used as the design return period for the analysis with the 100-year storm being the check flow. The VO6 model was used to calculate the return period and Regional storm flows. The HEC-RAS model was used to complete the hydraulic assessment and review.

The existing structure meets all the MTO design criteria, for a local road, except the vertical clearance criteria. Additionally, the Regional Storm (Hurricane Hazel) overtops the existing Bridge 16-WG by a maximum depth of approximately 0.9 m.

From a drainage perspective, it was recommended that a structure with a larger hydraulic opening is considered to meet all design criteria and minimize the overtopping of 5th Line during the Regional Storm. Please refer to Appendix E for more detailed information.

4.4 Archaeological Resources

A Stage 1 & 2 Archaeological Assessment was conducted by Golder Associates Ltd. in January 2014 for Bridge 16-WG prior to the commencement of this MCEA Study. The objective of the Stage 1 & 2 Archaeological Assessment was to compile available information known and potential cultural heritage resources within the study area and provide direction for the protection, management and/or recovery of these resources, consistent with the Ministry of Heritage, Sport, Tourism, and Culture Industries (MHSTCI) Guidelines.

The Stage 1 and 2 Archaeological Assessment resulted in the determination that the subject area has been greatly impacted and disturbed by the construction of Bridge 16-WG, approach embankments, 5th Line, affiliated ROW, and below and above ground utilities. No archaeological sites were identified during the Stage 2 assessment. The study area is considered to be sufficiently documented and no further archaeological assessment was recommended.

4.5 Cultural Heritage Value

Under the MCEA system, any bridge that is 40 years old and over are subject to a Cultural Heritage Evaluation Report (CHER). McIntosh Perry retained Archaeological Research Associates Ltd. (ARA) to carry out a scoped CHER for Bridge 16-WG, as it is known that the bridge was constructed in 1910 (111 years old). Much of the required information for this evaluation was previously completed and documented in the Heritage Impact Assessment (HIA) report entitled *Fifth Line Bridge, Structure 16-WG Spanning Irvine Creek, Township of Centre Wellington, Wellington County Ontario*, completed by Golder in 2013. The Township requested that a CHER be completed as part of this MCEA process to update and confirm the evaluation of cultural heritage value or interest contained in the 2013 HIA.

ARA's 2021 CHER provided additional analysis that confirms the evaluation of cultural heritage value or interest contained in the 2013 HIA, and found that the bridge meets one of the criteria for determining Cultural Heritage Value or Interest (CHVI) as outlined in *Ontario Regulation 9/06* made under the *Ontario Heritage Act* (OHA).

To be designated under *O. Reg. 9/06,* a property must meet one or more of the criteria grouped into the categories of design or physical value, historical or associative value, and contextual value. The subject property was found to meet one of the criteria for determining CHVI, as Bridge 16-WG is a rare example of a concrete closed spandrel arch bridge.

Please refer to the Cultural Heritage Evaluation Report prepared by ARA (Appendix C) for the following information:

- A general description of the history of the study area, as well as a detailed historical summary of the bridge's history including historical mapping and photographs;
- A description of the cultural heritage landscape;
- A description of the built heritage resource including representative photographs of the entire property including landscape features such as the rural road cross-section, views to and from the bridge, and elements of the bridge;
- Summary of consultation undertaken;
- Comparative analysis of the bridge type within Southern Ontario and locally, and
- A cultural heritage resource evaluation guided by the OHA criteria.

The Township agreed to the preparation of an updated HIA report as a requirement of the MCEA process and McIntosh Perry retained the services of ARA to complete this work. The HIA approach consisted of the following:

- Consultation with the Township of Centre Wellington and other Townships and Municipalities that were noted through the OHA to have similar bridge types;
- A description of the nature and condition of the cultural heritage resource;
- A summary of the cultural heritage value of the property;
- An evaluation of potential project impacts of the proposed alternatives for the bridge; and

- The provision of suggested strategies for the future conservation of the heritage attributes.

The four (4) alternatives outlined in Section 3.2 of this report, were carried forward for evaluation during the HIA. However, Alternative 1 (Do Nothing) was not considered viable as the continued inaction on the deteriorating conditions of the subject bridge was noted to amount in demolition by neglect which would result in a total loss of the cultural heritage resource and may pose a health and safety risk. Therefore, only the three (3) other options were considered. The following mitigation measures were suggested:

- From a heritage perspective, Alternative 4 – Rehabilitate the existing Bridge 16-WG to meet engineering and public safety standards, reinstate the existing watercourse crossing, is the best alternative. It should be noted that the selection of the preferred alternative will be based on a multi-criteria evaluation completed as part of the Municipal Class Environmental Assessment Study.
- If Alternative 2 is chosen and the bridge is removed and not replaced, a full recording of and documentation of the structure should be undertaken. The subject bridge should be photographed during demolition by a qualified heritage consultant to document the placement of fill within the structure and construction of the arch and deck. This information should then be incorporated into a CHRDR as final documentation of the current features and conditions of this structure.
- If the bridge is removed and replaced as outlined in Alternative 3, full recording and documentation of the structure should be perused as noted above. This alternative could present opportunity to honour the subject bridge through incorporating sympathetic design elements.
- If it is determined to be feasible to implement Alternative 4 to rehabilitate the existing structure, modifications should be sympathetic, and care should be taken to conserve the heritage attributes of the bridge. Specific considerations should include 1) that work should replicate, to the extent possible, the original design; for example, if the bridge should be widened the form board impressions could be replicated in the new concrete; 2) any concrete used for repairs should be appropriate colour, pattern and texture; and 3) a replacement railing should emulate the original balustrades and replicate the placement and design in accordance with current safety standards. It should be noted that from an engineering perspective, the bridge is well beyond its service life and the major structural elements (i.e., arch, abutments, retaining walls) are failing or have failed making this option to be considered not viable.

For information on the Alternative's assessment/evaluation process, and ARA's recommended mitigation measures for implementation, please refer to the Heritage Impact Assessment report prepared by ARA (Appendix D).

5.0 CONSULTATION PROGRAM

Consultation is a key component of the MCEA process for Schedule "B" projects. It is important for members of the community and stakeholders to provide balanced and objective information and consulting them to obtain feedback on the study process, alternatives, and preliminary technically preferred solution.

A consultation program was developed specific to this study under the following basis:

- Present clear and concise information at key stages of the study process;
- Solicit community, regulatory and municipal staff input;
- Identify concerns related to the undertaking;
- Consider stakeholder comments when developing the technically preferred solution; and
- Meet MCEA consultation requirements.

Consultation early and throughout the MCEA process attempts to meet the growing expectation on the part of the public that they will be consulted regarding decisions made by public decision-making bodies. The project Consultation Plan can be seen in Appendix F.

5.1 Project Contact List

A Project Contact List was developed at the initiation of this study and regularly updated throughout the course of the project to add, remove or revise information as necessary. The Project Contact list includes government ministries/agencies, municipal staff, emergency services, school boards, student transportation, businesses, potentially affected pubic, member of provincial parliament, Indigenous Communities and key interest groups. The Project Contact List can be found in Appendix F.

5.2 Study Commencement

Notice of Study Commencement letters were distributed by McIntosh Perry on May 20th, 2021, to the project Contact List. The Notice of Study Commencement was posted to the Township of Centre Wellington's website and was advertised in the Wellington Advisor newspaper. The Notice of Study Commencement can be found in Appendix F.

A summary of the comments received from the Notice of Study Commencement have been summarized in Table 1 below, with the exception of requests for inclusion in the Project Contact list. Responses received by various stakeholders as a result of the Notice of Study Commencement and consultation responses, including emails received and sent by the project team, can be found in Appendix F.

Table 1: Responses to Notice of Study Commencement		
Stakeholder/Agency	**Comments Received**	**How It Was Addressed / Response Sent**
Grand River Conservation Authority (GRCA)	The GRCA responded to the Notice of Study Commencement to advise that since the study contains Irvine Creek, as well as associated floodplain and valley slopes, the Class EA may propose measures that have the potential to impact these regulated features. The GRCA asked that the project team continues to involve them in the Class EA process moving forward.	The project team responded to thank the GRCA for their comments on the Notice of Study Commencement and advised that updates would be provided as the project progresses.
Ministry of Environment, Conservation and Parks (MECP)	The MECP responded to the Notice of Study Commencement and provided a letter of acknowledgement and the 'Client's Guide to Preliminary Screening for Species at Risk'. The letter of acknowledgement included information on the Crown's legal duty to consult with Aboriginal communities and provided a list of potentially affected communities to be included during the consultation process for this assignment.	The project team responded to thank the MECP for their comments and information. Consultation with the list of potentially affected Indigenous Communities was undertaken throughout the consultation process for this MCEA. Furthermore, the MECP's 'Client's Guide to Preliminary Screening for Species at Risk' was undertaken by the project team and a SAR Information Request was sent on April 29, 2021. For details on the information provided from the MECP for potential SAR within the study area, please see Appendix F.
Local Property Owner	This stakeholder responded to the Notice of Study Commencement to advise the project team that the are greatly affected by the closing down of Bridge 16-WG over Irvine Creek.	The project team responded to this stakeholder to thank them for their response to the Notice of Study Commencement and advise that they will receive notices and study updates and are welcome to visit the project webpage on the Township of Centre Wellington's website for more information as the project progresses.
Ministry of Natural Resources and Forestry (MNRF)	The MNRF responded to the Notice of Study Commencement to note the proponent's responsibilities to comply with all relevant federal or provincial legislation, municipal by-laws or other agency approvals. Their response provided information to guide the project team in identifying an assessing natural features and resources as required by applicable policies and legislation, and engaging with the MNRF for advice as needed.	The project team responded to the MNRF to thank them for their comments and information. The project team corresponded with the MNRF to request fisheries information for Irvine Creek on April 26, 2021. The MNRF provided the watercourse classification, habitat information, historical data on fish species, MNRF fisheries management objectives and the in-water work timing window for construction. Please see Appendix F for details on the correspondence.
Ministry of Heritage, Sport, Tourism, and Culture Industries (MHSTCI)	The MHSTCI responded to the Notice of Study Commencement and advised that the Stage 1 and 2 Archaeological Assessments completed for the study area were entered into the Ontario Public Register of Archaeological Reports. The MHSTCI requested that digital copies of the 2013 CHER and 2021 CHER and HIA be provided.	The project team responded to the MHSTCI provided the 2013 CHER and 2021 CHER and HIA, as requested on October 21, 2021. The MHSTCI provided comments and recommendations on the 2021 CHER and HIA on November 26, 2021. The project team will update the 2021 CHER and HIA reports accordingly. Comments and recommendations received are not anticipated to alter the conclusions made in these reports.
Mississaugas of the Credit First Nation (MNCFN)	The MNCFN called the project team in response to the Notice of Study Commencement to inquire about some details on the Bridge 16-WG MCEA study including: archaeological studies, in-water work requirements, and additional consultation opportunities.	The project team provided MNCFN with an overview of the Bridge 16-WG MCEA study to provide some background on the project and on-going studies taking place in 2021. The project team provided MNCFN with a copy of the Stage 1 & 2 Archaeological Assessments completed for the study area in 2013/2014. The project team noted that some in-water survey work had been completed, but that it was too early in the process to know what type of in-water work may be required as part of the construction phase of this project. The project team also advised that a Public Information Centre (PIC) was planned for late Summer 2021 and that information on the sub-studies, alternative solutions, and preliminary preferred solution would be presented at that time. The project team noted that they would provide MNCFN with the PIC slides and welcome a direct meeting with them if that is preferred. The MNCFN advised the project team that they had no concerns.

5.3 Indigenous Community Involvement

Engaging Indigenous Communities is an important way of acknowledging interest in the stewardship of their heritage. The project team reached out to the MECP for input and recommendations on the Indigenous Communities contacts who may have an interest in this project.

The MECP recommended that the following communities be engaged during the consultation process for this MCEA study: Mississaugas of the Credit First Nation, and Six Nations of the Grand River. MECP also noted that the Métis Nation of Ontario (MNO) could also be included on the project notification list.

The project team included all of the above mentioned Indigenous Communities on the distribution of all project notices. A summary of the consultation responses with Indigenous Communities has been included in Table 1 and documentation of conversations had and courier receipts from notices being sent to Indigenous Communities can be found in Appendix F.

Following the 45-day public review period of the Project File Report, the Project Manager for the Township of Centre Wellington followed up with the Mississaugas of the Credit First Nation, Six Nations of the Grand River and the Haudenosaunee Confederacy to ensure they received the MCEA documentation and that the Indigenous Communities have no further concerns pertaining to this assignment.

5.4 Township Council & Heritage Committee Meeting

The project team presented the Bridge 16-WG MCEA project to the Township's Heritage Committee on June 8th, 2021 and to Township Council on June 28th, 2021 at virtual meetings. The presentations provided an overview of the project study area, exiting structural conditions of Bridge 16-WG, the purpose of the study, the MCEA process, the Problem and Opportunity Statement/Alternative Solutions being considered, the project studies being conducted, the evaluation criteria for the assessment of Alternative Solutions and key project milestones.

A summary of the comments received during these meeting have been summarized in Table 2 below.

Furthermore, the project team met with the Township's Council and Heritage Committee on October 12th, 2021 to discuss the findings of the 2021 Cultural Heritage Evaluation Report (CHER) and Heritage Impact Assessment (HIA), and presented the evaluation of alternative design concepts and the recommended alternative. During this meeting, the Township's Council and Heritage Committee requested that during Detail Design they be involved in the design of the heritage mitigation strategies (i.e., preparation of a commemorative plaque). The Heritage Committee also noted that they did not object to the demolition of Bridge 16-WG through designation and be consulted in any sympathetic design and commemorative strategies.

Table 2: Comments Received During the Township Council & Heritage Committee Meeting		
Stakeholder/Agency	**Comments Received**	**How It Was Addressed / Response**
Heritage Committee Member	Heritage Committee Member inquired if the 2013/2021 HIA/CHER is available and can be circulated to the Heritage Committee.	The project team explained that the steps taken for heritage work in the past, noting that in 2013 the Township was planned to move forward with the replacement of Bridge 16-WG, which at the time was not following the Schedule B Municipal Class EA process. The project team advised that an HIA was undertaken at that time, however, the replacement works did not happen. With this new EA Study, the project team is undertaking a CHER and updating the HIA to reflect any new information. The CHER was circulated to the Committee in July, 2021, and the HIA was circulated on August 17, 2021.
Heritage Committee Member	The Heritage Committee requested that the project team meets with Heritage Committee prior to the next scheduled meeting in November to review the HIA recommendations.	The project team noted that they would look into the option of moving up the timing of the next meeting with Heritage Committee.
Heritage Committee Member	There are three (3) other solid spandrel concrete bridges that are located within the Township of Centre Wellington. The Heritage Committee inquired if there are rehabilitation/replacement requirements for these structures as well. They also noted that they would like to see the other three (3) bridge assessments (i.e., OSIMs) to determine which one is in the best shape for preservation.	The project team advised that Bridge 16-WG is the oldest but that the project team would look into what has been recommended for the other solid spandrel concrete bridges based on the routine OSIM inspections. The Township confirmed that one (1) of the other solid spandrel concrete bridges located in the Township of Centre Wellington (i.e., Salem Bridge 12-N) is closed to vehicle traffic but remains open for cyclist and pedestrian use and is planned for a rehabilitation, therefore, Bridge 12-N is currently planned to be preserved in the near term. Additionally, the Township PM attended a September 14th, 2021 Heritage Committee Meeting to provide an update on other spandrel arch bridges in the Township and answer questions related to the 2021 CHER and HIA.
Heritage Committee Member	During the background review conducted by ARA for the 2021 CHER, eleven (11) remaining solid spandrel concrete bridge structures were identified within Ontario. A Heritage Committee Member inquired if information on these other structures is available and if the project team is able to determine the scope of work completed at these other locations (i.e., replacement, removal, rehabilitation, etc..).	The project team advised that they would follow up with the Heritage Consultant (i.e., ARA) to determine if this information can be tracked down. ARA corresponded with the other Municipalities and Townships where the other eleven (11) solid spandrel concrete arch bridges are located and summarized their responses in the 2021 HIA.

5.5 Public Information Centre

In compliance with the MCEA process, the Township hosted an Online Public Information Centre (PIC) to elicit input on the study process and the design alternatives. Notice of Public Information Centre (PIC) letters were distributed by McIntosh Perry on September 2, 2021 to the project contact list and all properties in the vicinity of the study area (Appendix F). The Notice of PIC was posted on the Township of Centre Wellington's website on September 6, 2021. The Notice of PIC can be found in Appendix F.

Due to ongoing COVID 19-restrictions the PIC was held virtually to adhere to public health regulation. The Online PIC was available through the Township of Centre Wellington's website from September 6, 2021 to September 24, 2021. Options for voice narration and closed captions were provided to meet the requirements of the Accessibilities of Ontarians with Disabilities Act (AODA, 2005). Visitors were given the opportunity to submit comments and questions through the Township's website, and responses were provided as needed.

During the 30-day Online PIC, several responses to the PIC were directed to the project team, which have been summarized in Table 3. PIC materials including information slides, FAQ's and comments/responses received, can be found in Appendix F.

Table 3: Responses to Online Public Information Centre		
Stakeholder/Agency	**Comments Received**	**How It Was Addressed / Response**
Local Resident	The current temporary detour in response to the closure of Bridge 16-WG adds significant additional accumulated travel time for residents commuting to work and running errands. Many families are being inconvenienced from the closure of Bridge 16-WG and there are frustrations with the timeline of this project, particularly concerns as to why the structure replacement wasn't planned for/completed at the end of the bridge's service life almost 35 years ago. They encourage the Township for their dedicated process for this bridge's renewal and note that they are fully on-board with a replacement (Alternative 3) and believe it is the best option.	The project team thanked this stakeholder for their comments and clear direction for staff and noted that their feedback would be considered as part of the study.
Local Resident	The decline and subsequent closure of Bridge 16-WG has impacted local residents day-to-day activities, including travel times, access to community mailboxes, required notification to delivery/visitors/service personnel regarding the closure, wear and tear on vehicles due to longer detours on gravel roads, compromised emergency services. The character and cultural value provides significant value to the rural experience of the area, and slowing down to cross the single-lane bridge, looking over the railing to see the river meander with wildlife in view is all part of the experience as well. It is disconcerting that there were recommendations to deal with this bridge more than 30 years ago. Perhaps if plans had been advanced and proper repair was done the bridge would not be closured for this extended period of time and plans could have progressed while the bridge was still viable. Additionally, concerns that lack of action over the years has likely led to the ultimate decline of this significantly important piece of heritage. As local taxes have been steadily climbing over the years little remediation or additional services have been evident to coincide with the increases. In review of the options, it would seem that option 3 would be the sensible conclusion, but perhaps the design of the future bridge could include some of the aspects of the current bridge that make Bridge 16-WG special.	The project team thanked this stakeholder for their comments and clear direction for staff and noted that their feedback would be considered as part of the study.
Local Resident	The closure of Bridge 16-WG is an inconvenience to get around daily and for guests visiting. However, less vehicles speeding has been a positive outcome. It is extremely unsafe that vehicles travel 100 km/hr down the blind hill and there have been many large vehicles almost hit the barrier slamming on their brakes. If the bridge is opened or is replaced, something needs to be done to make vehicles slow down. Maybe speed bumps or a slower posted speed that can be enforced. With the bridge being closed residents feel safer talking the road without speeding vehicles.	The project team thanked this stakeholder for their comments and clear direction for staff and noted that their feedback would be considered as part of the study.
Local Resident	There has been a problem with people speeding across the bridge which is a danger to the people exiting their driveways on either side of the structure. Additionally, there are children playing in close proximity to the bridge and this speeding threatens their lives. Speeding also causes significantly more damage to the bridge than would slower traffic, which is only further exacerbated by heavier traffic. Speed bumps should be placed close to the bridge and at least one other set, possibly two further	The project team thanked this stakeholder for their comments and clear direction for staff and noted that their feedback would be considered as part of the study.

Stakeholder/Agency	Comments Received	How It Was Addressed / Response
	away (i.e., something like 200 – 300 feet). A reduced speed will allow for a less expensive bridge to be built and any bridge built would last longer.	

To summarize, based on the comments received during consultation of this project, it was determined that there were no significant concerns with the proposed recommended alternative (i.e., Replacement of Bridge 16-WG). The comments received generally expressed agreement with the recommended alternative (i.e., replacement of the bridge) and noted that the bridge being closed is an inconvenience to the local community. Additionally, comments received expressed an interest in the new bridge design to commemorate heritage aspects of the existing Bridge 16-WG and also noted that speeding at this bridge, and within the vicinity, are issues that should be considered during detail design.

5.6 Study Completion

A Notice of Study Completion was distributed by McIntosh Perry on December 2, 2021 to the project contact list (Appendix F). The Notice of Study Completion was posted on the Township of Centre Wellington's website and advertised in the Wellington Advisor newspaper. The Notice of Study Completion can be found in Appendix F.

The purpose of the Notice of Study Completion is to advise of the commencement of the 45-day public review period for the Project File Report prepared as part of this MCEA. The Notice of Study Completion advises that Interested persons may provide comment to the project team within 45 calendar days from the start of the public review period (i.e., December 2, 2021 to January 13, 2022). In addition, the letter advises that a request may be made to the Ministry of the Environment, Conservation and Parks for an order requiring a higher level of study (i.e., requiring an individual/comprehensive EA approval before being able to proceed), or that conditions be imposed (e.g., require further studies), only on the grounds that the request order may prevent, mitigate or remedy adverse impacts to constitutionally protected Aboriginal and treaty rights. Requests on other ground will not be considered.

During the 45-day public review period for the Project File Report, several responses were received by the project team, which have been summarized in Table 4. Comments/responses received, can be found in Appendix F.

Table 4: Responses to Notice of Study Completion – Project File 45-day Public Review Period		
Stakeholder/Agency	**Comments Received**	**How It Was Addressed / Response**
MECP	The MECP responded to the Notice of Study Completion and provided a letter for Project Review Unit Comments. Comments included minor general notes on formatting of project file, recommendations for managing impacts to air quality/odour, noise, and excess material management. Additionally, MECP provided recommendations to follow up with Indigenous Communities to ensure they received the MCEA documentation, as well as advised that if impacts to SAR are anticipated that a formal review under the ESA will be required.	The project team made minor revisions to the Project File Report to reflect comments on formatting received from MECP. The project team advised MECP that considerations for air quality/odour, noise, excess material management, and SAR will be given during Preliminary and Detail Design and appropriate mitigation will be incorporated into the design at that time. The project team included records of consultation with Indigenous Communities as well as followed up with Indigenous Communities after the Project File Report 45-day review period to ensure they had received all MCEA documentation and had no further comments or questions.
GRCA	The GRCA met with the project team via teleconference on January 5, 2022 to discuss the GRCA's requirements and provide additional information on this project, including a copy of the Technically Preferred Alternative Memo. The GRCA provided a letter in response to the Notice of Completion which noted that any future works at Bridge 16-WG will require a permit from the GRCA pursuant to the O.Reg 150/06. The advised that they have no objections to the preferred alternative if it can meet GRCA policies for watercourses, floodplains, erosion hazards and wetlands. The GRCA also provided their requirements/policies for each of the above mentioned to be considered during Preliminary and Detail Design. The GRCA also provided advisory comments regarding species at risk (i.e., aquatic and avian), and migratory birds that may be encountered in the area of Bridge 16-WG and advised the project team to ensure compliance with the *Endangered Species Act, Species at Risk Act,* and the *Migratory Birds Convention Act.*	The project team advised the GRCA that they would take all comments into consideration during the Detail Design phase of the project, which is scheduled to commence in 2022.
MHSTCI	The MHSTCI responded to the Notice of Completion with a letter advising the team that upon their review of the Project File Report, they found that due diligence has been undertaken through the preparation of a Stage 1 and 2 Archaeological Assessment, Cultural Heritage Evaluation Report and Heritage Impact Assessment. The MHSTCI requested that they continue to be consulted throughout the EA process.	The MHSTCI will be included on all future consultation undertaken during Preliminary and Detail Design for this EA study.

6.0 EVALUATION OF ALTERNATIVE SOLUTIONS

An evaluation of Alternative Solutions was undertaken to address the problem and opportunity statement identified for this project (Section 3.1), considering all aspects of the MCEA study. The overall assessment and evaluation process followed two basic concepts:

1. Assessment of Alternatives: the potential benefits of each alternative are assessed against a comprehensive set of criteria for Structural Integrity/Public Safety, Natural Environment, Socio-economic and Implementation factor groups.

2. Evaluation of Alternatives: A comparative evaluation of alternatives to identify a preliminary technically preferred design alternative.

An evaluation framework was developed by the Project Team, including technical considerations and environmental components that address the broad definition of the environment as described in the EAA and those based on comments received from relevant agencies. The evaluation of alternatives was carried out using the Reasoned Argument method of comparing differences in impacts and providing a clear rationale for the selection of the technically preferred alternative. Table 5 identifies the evaluation criteria and rationale, as well as the criteria measures and corresponding descriptions.

The evaluation of Alternative Solutions considers the positive and negative potential impacts associated with each of the design alternatives in consideration of the criteria listed in Table 5. This evaluation is a relative comparison to be used to determine which alternative is technically preferred.

As illustrated in **Figure 3**, each criterion was given a score on a scale from least preferred (empty circle) to most preferred (solid circle).

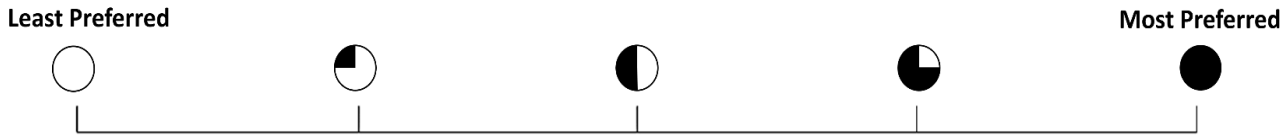

Figure 3: Evaluation of Alternative Solutions Scale of Preference

Table 5: Evaluation Criteria and Measures

Evaluation Criteria	Description of Criteria	Criteria Measures	Description of Criteria Measures	Alternative 1 (Do Nothing)	Alternative 2 (Remove Bridge and Construct New Turn Around Areas)	Alternative 3 (Remove and Replace the Bridge)	Alternative 4 (Rehabilitate the Existing Bridge)
Transportation / Operational	Criteria to evaluate whether the alternative Solution addresses the problem and opportunities identified at Bridge 16-WG; as well as, evaluate the operational suitability and engineering characteristics of the Solution.	Safety	Potential to address safety considerations related to traffic capacity (i.e., two lanes) in this area.	○	◔	●	◑
		Accessibility	Potential impacts on existing residential property driveways and access along the corridor	- Does not provide connectivity for traffic on 5th Line over Irvine Creek. - Does not address safety concerns with the existing Bridge 16-WG. - Does not provide safe turn around area for vehicles at Irvine Creek. - No impacts to residential property entrances.	- Does not provide connectivity for traffic on 5th Line over Irvine Creek. - Permanently addresses safety concerns with the existing Bridge 16-WG. - Provides turn around areas at Irvine Creek. - Temporary impacts to residential property entrances anticipated during construction.	- Provides safe connectivity for traffic on 5th Line over Irvine Creek. - Addresses safety concerns with existing Bridge 16-WG traffic capacity by providing two (2) lanes over Irvine Creek. - Potential impacts to residential property entrances may be required. - If hydraulic requirements determine that the soffit elevation needs to rise, 5th Line approaches will also require a grade raise.	- Reinstates connectivity for traffic on 5th Line over Irvine Creek - Does not address safety concerns related to traffic capacity on the structure (i.e., traffic down to one lane over Irvine Creek) - Condition of structure would need to be continuously monitored to ensure safe condition is maintained after the rehabilitation works. - Temporary impacts to residential property entrances anticipated during construction.
Technical / Structural	Criteria to evaluate the alternative Solutions to determine which will have the least risks and greatest extension of service life.	Extension of Service Life	The amount of time that is anticipated for the design alternative to provide safe service, before needing rehabilitation/replacement works.	○	◔	◔	○
		Durability	The ability to withstand wear, pressure or damage.	- This alternative does not provide safe service and does not address public safety concerns with the existing Bridge 16-WG. - This option does not extend the service life of Bridge 16-WG and poses significant risks from a	- This option does not provide 5th Line connectivity over Irvine Creek, however, the service life of the turn around areas are unrestricted.	- This option provides an anticipated 75 year extension to the service life of the bridge. - Durability is good with a new structure. - Structural Engineering risks are	- This option would provide up to 15 year extension of service life of the bridge. - Durability is considered poor since improvements are considered relatively superficial.

Evaluation Criteria	Description of Criteria	Criteria Measures	Description of Criteria Measures	**Alternative 1** (Do Nothing)	**Alternative 2** (Remove Bridge and Construct New Turn Around Areas)	**Alternative 3** (Remove and Replace the Bridge)	**Alternative 4** (Rehabilitate the Existing Bridge)
		Structural Engineering Risks	Based on the existing information know about the bridge, what level of structural engineering risk does each alternative consider.	structural engineering perspective.	- Durability is considered to be the best. - No structural engineering risks associated with this alternative.	considered low, as all components would be new.	- Structural Engineering risks are very high, which would make this alternative not feasible.
		Utilities	Potential impacts on existing utilities within study are and ability to accommodate future utility needs. Coordination with utilities is expected for all Alternatives considered.				
Natural Environment	Criteria to evaluate the alternative Solution's effects on the natural environment, habitats, and water quality.	Environmentally Sensitive Areas	Proximity, size, characteristics and sensitivity of significant natural areas and potential impacts on these natural systems	○	◔	◔	◑
		Wildlife Habitats (Terrestrial)	Presence of terrestrial wildlife habitat areas and potential impacts	- Continued deterioration of Bridge 16-WG may pose significant impacts to the natural environment with concrete debris falling into Irvine Creek and the potential for the structure to collapse into the watercourse. - No impacts to terrestrial wildlife habitat. - Continued deterioration of Bridge 16-WG may pose significant impacts to fisheries and aquatic ecosystems associated with Irvine Creek including impacts to SAR (Redside Dace). - No impacts to groundwater are anticipated, however, if the bridge collapses into the watercourse the concrete debris may cause flooding within the area.	- Moderate natural environment impacts associated with the removal of the existing structure. - Minor impacts terrestrial wildlife habitat may be requried through vegetation removal activity for the construction of new turn around areas. - No anticipated impacts to fisheries and aquatic ecosystems within the vicinity of Bridge 16-WG. - In-water works likely to be required for short duration. - Potential impacts to SAR can be mitigated.	- Moderate natural environment impacts associated with the replacement of the existing structure. - Minor impacts to terrestrial wildlife habitat may be required through vegetation removal activity for widened replacement of Bridge 16-WG. - No anticipated impacts to fisheries and aquatic ecosystems within the vicinity of Bridge 16-WG. - In-water works likely to be required for short duration. - The existing Bridge 16-WG abutments are within Irvine	- Moderate natural environment impacts associated with the rehabilitation of the existing structure. - Minor impacts to terrestrial wildlife habitat may be required through vegetation removal activity for the rehabilitation construction access areas. - No anticipated impacts to fisheries and aquatic ecosystems within the vicinity of Bridge 16-WG. - Duration of in-water works likely to be long. - The existing bridge 16-WG abutments
		Fisheries/Aquatic Impacts	Presence of fish communities and aquatic habitats; and potential impacts, including to water quality				
		Species at Risk	Presence of SAR and potential impacts/opportunities for mitigation				
		Ground and Surface Water Quality/Quantity	Potential impacts to surface water and ground water resources and quality				
		Climate Change	Expected production of greenhouse gas emissions and impacts on carbon sinks; and resilience or vulnerability to changing climatic conditions (climate change adaptation)				

Evaluation Criteria	Description of Criteria	Criteria Measures	Description of Criteria Measures	**Alternative 1** (Do Nothing)	**Alternative 2** (Remove Bridge and Construct New Turn Around Areas)	**Alternative 3** (Remove and Replace the Bridge)	**Alternative 4** (Rehabilitate the Existing Bridge)
				- No climate change impacts are anticipated.	- No impacts anticipated to groundwater or surface water. - Increased greenhouse emissions may be incured due to detours caused by removal of connectivity of 5th Line over Irvine Creek.	Creek, however, a new bridge would be constructed with a larger hydraulic opening to support a better conveyance capacity and minimise the overtopping of 5th Line during the Regional Storm. - Potential impacts to SAR can be mitigated. - No impacts anticipated to groundwater or surface water. - No climate change impacts are anticipated.	are within Irvine Creek. - Potential impacts to SAR can be mitigated. - No impacts anticipated to groundwater or surface water. - The existing Bridge-16-WG does not meet the MTO design criteria for vertical clearance and 5th Line would be overtopped by the Regional Storm by a maximum depth of approximately 0.9 m. - Increased greenhouse emissions may be incured due to detours caused by removal of connectivity of 5th Line over Irvine Creek.

Evaluation Criteria	Description of Criteria	Criteria Measures	Description of Criteria Measures	**Alternative 1** (Do Nothing)	**Alternative 2** (Remove Bridge and Construct New Turn Around Areas)	**Alternative 3** (Remove and Replace the Bridge)	**Alternative 4** (Rehabilitate the Existing Bridge)
Social and Cultural Environment	Criteria to evaluate the alternative Solution's effects on community and social features, businesses, properties, and, archaeological, built and cultural heritage features within the study area.	Land Use / Socio-Economic Conditions	Presence, number and characteristics of residences, community facilities, public parks, institutions, businesses, municipal services (i.e., garbage and snow removal) and emergency services within or adjacent to the study corridor.	 - With Bridge 16-WG remaining closed to the public, impacts to emergency service response times may be incurred for properties on the east side of the bridge. - Does not provide connectivity for public on 5th Line over Irvine Creek. - Continued deterioration of Bridge 16-WG may pose a health and safety concern.	 - With the removal of Bridge 16-WG, impacts to emergency service response times may be incurred for properties on the east side of the bridge. - Does not provide connectivity for public on 5th Line over Irvine Creek.	 - No long term impacts to emergency service response times. - New bridge would provide two-lanes of traffic over Irvine Creek which is preferred from a traffic safety perspective. - Municipal service vehicles such as	 - No long term impacts to emergency service response times. - Bridge would only provide a single-lane crossing while the 5th Line approaches are two-lanes. - Height and load postings may still be required after rehabilitation works
		Archaeological, Built Heritage and Cultural Heritage Features	Presence and characteristics of registered archaeological resources and designated built heritage resources under the Heritage Act; as well as, potential impacts on archaeological/built and cultural heritage resources within study area				

Evaluation Criteria	Description of Criteria	Criteria Measures	Description of Criteria Measures	**Alternative 1** (Do Nothing)	**Alternative 2** (Remove Bridge and Construct New Turn Around Areas)	**Alternative 3** (Remove and Replace the Bridge)	**Alternative 4** (Rehabilitate the Existing Bridge)
		Construction Impacts	Duration of construction, staging options and potential for construction-related impacts on traffic circulation, access, noise and dust.	- Lack of turnaround area will create operational issues for municipal service vehicles such as garbage and snow removal trucks. - Not considered feasible from a heritage perspective as continued inaction on the deteriorating conditions of Bridge 16-WG will amount to demolition by neglect which would result in a total loss of the cultural heritage resource. - No anticipated impacts to archaeological resources - No construction related impacts.	- Impacts to municipal service vehicles such as garbage and snow removal trucks not anticipated. - This option is feasible from a heritage perspective by incorporating mitigation to commemorate the bridge. - No anticipated impacts to archaeological resources. - Minor construction-related impacts.	garbage and snow removal trucks will be able to use the new bridge as there will be no restrictive height or load postings. - This option is feasible from a heritage perspective by incorporating mitigation to commemorate the bridge. - No anticipated impacts to archaeological resources. - Moderate construction related impacts, however, due the existing structure being a single lane structure that is currently closed, it is assumed that the closure will remain in place until structure is replaced.	which would restrict access to municipal service vehicles such as garbage and snow removal trucks. - Identified as the best alternative from a heritage perspective. - No anticipated impacts to archaeological resources. - Moderate construction related impacts.
Implementation	Criteria to evaluate the financial implications and implementation opportunities of the alternative Solution.	Capital Costs	Capital cost of proposed improvement	- No capital cost due to no construction required for this option. - Operational and Maintenance costs due to	- Costs associated with this option are the second lowest and service life is unrestricted.	- Highest capital costs, however, this alternative is the most economical solution based on	- Due to the poor condition of the structure, it is not feasible to

Evaluation Criteria	Description of Criteria	Criteria Measures	Description of Criteria Measures	Alternative 1 (Do Nothing)	Alternative 2 (Remove Bridge and Construct New Turn Around Areas)	Alternative 3 (Remove and Replace the Bridge)	Alternative 4 (Rehabilitate the Existing Bridge)
		Operational and Maintenance Costs	Operational and maintenance costs of proposed improvement over life-cycle	structural assessments and monitoring required, with no extension of service life are estimated to cost ~ $5,000 annually.	- Operational and Maintenance costs are significantly lower due to this option not requiring annual structural assessments. - Estimated capital cost for this option is ~$250,000. - Construction duration is anticipated to be approximately 12 weeks.	the anticipated extension of service life (75 years). - Operational and Maintenance costs are anticipated to be second highest. - Maintenance costs will be improved due to use of current technology and tools. - Estimated capital cost for this option is ~ $2,460,000. - Construction duration is anticipated to be approximately 20 weeks.	rehabilitate the structure. - Due to the structure's age exceeding its service life by 40+ years, this structure cannot be safely rehabilitated without significant engineering risks associated with the unknown condition of the existing concrete and reinforcing steel within the structure. Furthermore, the structure is already shown to be moving. - Capital costs associated with this option cannot be estimated due to the amount of uncertainty of the structure's condition. - Operational and Maintenance costs for maintaining the structure at this age would be highest.
		Estimated Construction Duration	Duration of construction anticipated for implementation of design alternative				

7.0 RECOMMENDED ALTERNATIVE SOLUTION

The alternatives were assessed against the evaluation criteria as appropriate. The overall comparative evaluation of alternatives was based on a qualitative methodology and did not include the assignment of factor significance weightings, however transportation/operational, technical/structural, and implementation considerations were considered to be the three most important criteria groupings.

The selection of the recommended alternative solution involved identifying and making trade-offs among the advantages and disadvantages of the alternatives. The alternative that had the most overall advantages was recommended as the technically preferred alternative.

Based on the above evaluation, correspondence with governing agencies (i.e., GRCA, etc.) and Indigenous Communities, consultation with the Centre Wellington Heritage Committee, and public input, the Technically Preferred Alternative (TPA) is **Alternative 3: replace the existing bridge with a new structure within the current location.**

The recommended alternative Solution allows the Township of Center Wellington to provide safe and reliable connectivity on 5th Line over Irvine Creek. This option was determined to have the best balance of benefits for transportation/operational, technical/structural while having minimal impacts to the socio-economic and natural environment. This option does have the highest capital costs (i.e., ~$2,4600,000); however, this alternative is the more economical solution based on the anticipated extension of service life. Please refer to Appendix G for the construction cost estimate for Bridge 16-WG.

The service life of the new bridge will be 75 years. As the intention is to provide a bridge that meets operational and safety standards, the new bridge would be constructed with a wider deck platform to allow for two-lanes of traffic at the watercourse crossing. The scope of work for recommend alternative solution could include, but not be limited to:

- Removal and disposal of the existing superstructure and substructure;
- Install dewatering system;
- Construct bridge foundations and abutments;
- Install bearings;
- Construct or install new superstructure that is compliant with current operational and safety standards;
- Potential grade raise, and
- Regrade around new bridge and tie into existing road allowance.

The recommend alternative solution was presented to Township of Centre Wellington Mayor and Council during a Committee of Whole meeting and was endorsed on November 22, 2021. Following Council endorsement, the Technically Preferred Alternative is being carried forward and the Notice of Completion has been issued on December 2, 2021.

8.0 SUMMARY AND CONCLUSIONS

Based on the comprehensive review of four (4) different alternative solutions against a multiple bottom line evaluation process that takes into consideration environmental, social, constructability, financial, and operational factors, **Alternative Solution 3 - remove the existing Bridge 16-WG and provide a new structure in its place**, has been identified as the Technically Preferred Alternative as it addresses the problem statement for this study.

The Technically Preferred Alternative offers the best asset value to the Township of Centre Wellington from an operations, maintenance and lifecycle perspective, whilst having minimal overall impact to the natural environment.

8.1 Public Review Period

This Project File Report meets the requirements of a Schedule "B" Municipal Class EA study. The Project File Report has been filed for 45-days, from December 2, 2021 to January 13, 2021, for public reviewing and comment.

During the Public Review Period, a request may be made to the Ministry of Environment, Conservation and Parks for an order requiring a higher level of study, or that conditions may be imposed, only on the grounds that the requested order may prevent, mitigate or remedy adverse impacts on constitutionally protected Aboriginal and treaty rights. Request on other grounds will not be considered. Requests should include the requesters contact information and full name for the ministry.

Requests should specify what kind of order is being requested, how an order may prevent, mitigate or remedy those potential adverse impacts, and any information in support of the statements in the request. The request should be sent in writing or by email to the proponent and the following:

Minister of the Environment, Conservation and Parks
Ministry of Environment, Conservation and Parks
77 Bay Street, 5th Floor
Toronto, ON M7A 2J3
Minister.mecp@ontario.ca

Director, Environmental Assessment Branch
Ministry of Environment, Conservation and Parks
135 St. Clair Ave. W, 1st Floor
Toronto, ON M4V 1P5
EABDirector@ontario.ca

Provided no comments or Part II Orders are received during the 45-day review process, it is recommended that the Township of Centre Wellington proceed with detail design and implementation.

8.2 Permitting and Approvals

Following permitting and approvals will be required during the detail design stage:

Grand River Conservation Authority (GRCA) - Administers a regulation made under Section 28 of the Conservation Authorities Act known as Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation (O. Reg. 179/06). This regulation regulates areas that are subject to flooding and shoreline erosion contain wetlands, watercourses, slopes stable and unstable stream valleys, and applicable

setback areas. The straightening, changing, diverting, or interfering with the existing channel of a river, creek, stream, or watercourse; or changing or interfering with a wetland works requires permission in a regulated area. The property is regulated under Ontario Regulation 179/06 by the LSRCA and as such, requires a permit.

Department of Fisheries and Oceans (DFO) - The Fish and Fish Habitat Protection Program ensures compliance with relevant provisions under the *Fisheries Act* and the *Species at Risk Act.* The program reviews proposed works, undertakings and activities that may impact fish and fish habitat. If the scope of the project does not fall within the standards and codes of practice, a request for review should be submitted. The program will review the proposed project to identify the potential risks to the conservation and protection of fish and fish habitat. The Fish and Fish Habitat Protection Program will ensure that impacts are managed in the best way possible. During the review, DFO will determine if the project will need an authorization under the Fisheries Act. If it is determined that the project will cause the death of fish, and/or harmful alteration, disruption or destruction of fish habitat, an authorization is required. The authorization will include terms and conditions you must follow to avoid, mitigate, offset and monitor the impacts to fish and fish habitat resulting from the project.

Transport Canada (TC) – Under the Canadian Navigable Waters Act (CNWA), owners of works who propose to construct, place, alter, rebuild, remove, or decommission works that are in, on, over, under, through or across any navigable water, may be required to apply for an approval to Transport Canada, or seek authorization through the public resolution process. The Navigation Protection Program (NPP) is responsible for administering and processing applications for approval. The Minister of Transport has the authority to issues terms and conditions with an approval.

Ministry of Environment, Conservation and Parks (MECP) – A Permit to Take Water is required if you plan to take 50,000 + litres of water a day from the environment. Applying for the permit involves the submission of an application and appropriate scientific evaluation/studies. MECP will review the permit application, measuring it against a number of requirements. Designated PTTW applications will be posted on the Environmental Registry in accordance with the Environmental Bill of Rights and consider public comments in its decision. The permit authorizes you to withdraw water from a water source(s) according to the terms and conditions on the permit.

The ESAR regulation prescribes the takings of ground water and stormwater for the purpose of dewatering construction projects that require dewatering between 50,000 and 400,000 L/day. Activities required to be registered in the ESAR do not require a PTTW for the water taking. An environmental compliance approval (ECA) under section 53 of the OWRA is also not required for the discharge of stormwater.

8.3 Monitoring

Environmental monitoring is essential to characterize and monitor the quality of the surrounding environment, identify potential negative effects and refine mitigation measures, ensure compliance with environmental regulations, and prevent long-term adverse impacts on the environment.

A comprehensive monitoring program will be developed in the detailed design phase for the replacement of Bridge 16-WG. This program will be designed to monitor impacts to the environment during the various stages

of construction and following construction completion. This will allow for an inclusive assessment of cumulative impacts. The key elements of the comprehensive monitoring program will include, but are not limited to, the following, described below:

- Construction works monitoring; and
- Environmental compliance monitoring

8.3.1 Construction Works Monitoring

The objective of Constructed Works monitoring is to assess the structural integrity of the construction and their effectiveness with respect to controlling environmental impacts during construction (i.e., erosion and sediment control, etc.).

Construction-phase and post-construction monitoring may include recording of water levels, photographic record of the constructed works, and a review of constructed works by a qualified engineer. Construction-phase monitoring may also include ongoing monitoring of turbidity upstream and downstream of the construction. Post-construction monitoring may also be undertaken to monitor and maintain the proposed bridge replacement including site investigations to confirm no negative impacts are occurring upstream and downstream of the bridge.

8.3.2 Commitments During Detailed Design

During this study, the following items were identified for consideration during the Detail Design phase of this MCEA study:

- Heritage Considerations
    - The 2021 HIA recommended that if the bridge is replaced, full recording and documentation of the structure (i.e., Cultural Heritage Resource Documentation Report), as well as a commemorative display/plaque featuring photos and the history of the bridge, be installed at the former site of the heritage bridge should be considered as mitigation. The HIA also noted that elements of the bridge worthy of salvage could be removed prior to destruction and salvaged material could be incorporated into the new structure, however, this bridge does not lend itself well to any salvage. Furthermore, if considered feasible, this alternative may present the opportunity to honour the subject bridge through incorporating sympathetic design elements.
    - The Township's Heritage Committee advised the project team that they would like to be involved in the review and preparation of mitigation measures for heritage considerations (i.e., assisting with the content for the plaque, etc..) and Detail Design of the new structure.
    - Continue to include the Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI) in all future consultation undertaken for this MCEA.

- Grand River Conservation Authority (GRCA) Considerations
  - The GRCA advised during consultation that an Environmental Impact Study (EIS) is required during Detail Design in accordance with the GRCA policies 8.4.6 and 8.4.7 as the preferred alternative and its construction footprint will be within or immediately adjacent to wetlands.
  - The GRCA advised that as per GRCA policy 8.1.15, the preferred alternative must demonstrate adverse hydraulic or fluvial impacts are limited, any risk of flood damage upstream or downstream properties is not increased, and there is no loss of flood storage wherever possible.
  - The GRCA advised that since the north bank of Irvine Creek is an erosion hazard, work on that bank must be consistent with GRCA policy 8.2.21.
  - The GRCA advised that detailed construction, grading, dewatering/isolation works, and erosion sediment control plans will be required in support of a GRCA permit prior to construction.

- Ministry of Environment Conservation and Parks (MECP)
  - The MECP recommends the non-chloride dust suppressants be applied to control/suppress dust during construction.
  - The MECP advised that noise control measures should be addressed and included in the construction plans to ensure that nearby residents and sensitive land uses within the study area are not adversely affected during construction
  - The MECP advised that all waste generated during construction must be disposed of in accordance with ministry requirements and under the Environmental Protection Act, all excess materials must be managed in accordance with O. Reg 406/19.
  - The MECP advised that consultation continues with Indigenous Communities during Preliminary and Detail Design of this MCEA.
  - The MECP advised that if the proponent believes that the proposed activities will have an impact on SAR or are unsure of the impacts, they should contact SAROntario@ontario.ca to undergo a formal review under the ESA, and ensure that if the proposed activities cannot avoid impacts to species and/or their habitat, then authorization under the *Endangered Species Act* (ESA) is required.

- Public Safety Considerations
  - During the consultation process, several comments were received from local residents regarding their concerns with public safety in proximity to Bridge 16-WG as they noted issues with vehicle speeding along 5th Line which impose safety issues for residents exiting their driveways as well as pedestrians.

Governing agencies and public comments/responses received during the MCEA process can be found in Appendix F.

APPENDIX A – SUMMARY OF EXISTING ENVIRONMENTAL CONDITIONS

EXISTING ENVIRONMENTAL CONDITIONS REPORT

Schedule "B" Municipal Class Environmental Assessment Study, Bridge 16-WG on 5th Line Over Irvine Creek, Township of Centre Wellington, Ontario.

MP Project No.: CCO-21-3823

Prepared for:

Centre Wellington

Township of Centre Wellington
1 Macdonald Square,
Elora, Ontario, N0B 1S0

Prepared by:

McINTOSH PERRY

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2010 Winston Park Drive, Suite 400
Oakville, Ontario L6H 5R7

EXISTING ENVIRONMENTAL CONDITIONS REPORT
SCHEDULE "B" MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT STUDY, BRIDGE 16-WG ON 5TH LINE OVER IRVINE CREEK, TOWNSHIP OF CENTRE WELLINGTON, ONTARIO

Prepared for:

Centre Wellington

Township of Centre Wellington
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Elora, Ontario, N0B 1S0

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Environmental Technician
McIntosh Perry Consulting Engineers Ltd

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APPENDICES

1.0 INTRODUCTION

The Township of Centre Wellington has initiated a Municipal Class Environmental Assessment (Class EA) Study to assess a path forward with respect to improvements for the deteriorating Bridge 16-WG located over Irvine Creek in Centre Wellington (Figure 1). As of Spring 2021, the structure has been closed to the public due to poor structural conditions. As well, traffic capacity issues have been identified in associated with the narrow platform design of the bridge. Options to address the aging Bridge 16-WG will be assessed to determine the preferred alternative and the scope of work required. The Class EA Study is being carried out as a Schedule 'B' undertaking in accordance with the Municipal Class Environmental Assessment process (October 2000, amended 2007, 2011 and 2015), approved under the *Ontario Environmental Assessment Act.*

1.1 Purpose

This *Summary of Existing Environmental Conditions Report* has been prepared to provide a synopsis of the existing environmental conditions of the study area. Environmental information used in the production of this report has been assembled from existing background data for the general study area in addition to data generated from field surveys.

1.2 Study Area

The Bridge 16-WG study area is located in the former Township of West Garafraxa, now Township of Centre Wellington, Wellington County, Ontario. The Bridge 16-WG spans over Irvine Creek, located on 5th Line between Centre Wellington Road 19 and Sideroad 15 as seen in **Figure 1**.

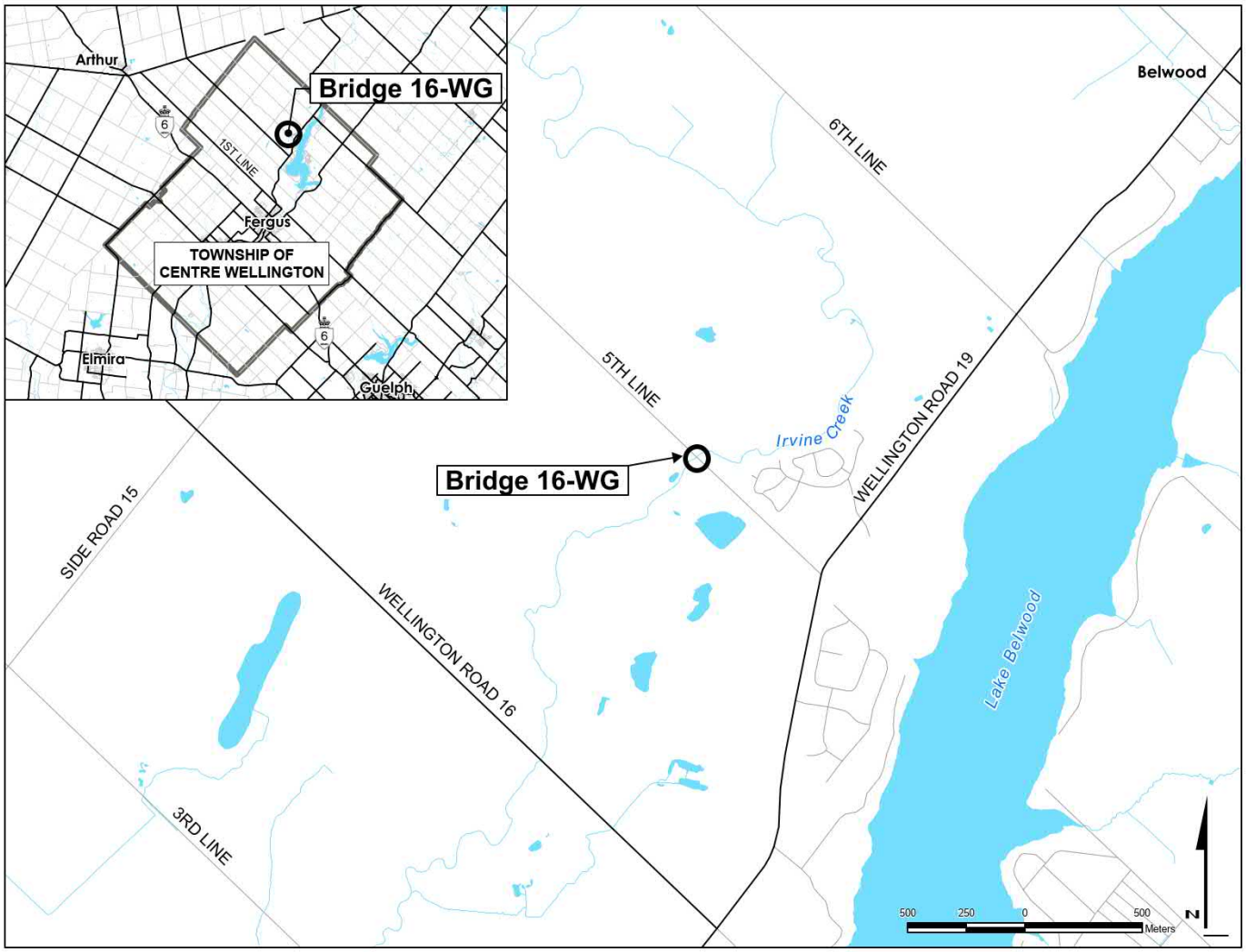


Figure 1: Bridge 16-WG Study Area Key Map

2.0 METHODOLOGY

2.1 Background Data Collection

A desktop review was undertaken to collect background data and document all environmental features within the study area prior to undertaking fieldwork. Information was obtained from the following sources:

- Wildlife atlases for birds and herpetofauna, (Bird Studies Canada et al. 2006, Ontario Nature, 2019);
- Ministry of Natural Resources and Forestry (MNRF) Land Information Ontario (LIO) database;
- The Ontario Reptile and Amphibian Atlas (ORAA) (Ontario Nature, 2020);
- The Ontario Geological Survey Earth (OGS Earth) geoscience database (MNDM, 2020);
- MNRF Make a Map: Natural Heritage Areas mapping application;
- DFO Aquatic Species at Risk Mapping Tool;
- Fish Online;
- Grand River Conservation Authority;
- MECP Source Protection Atlas, and
- Township of Centre Wellington Official Plan.

2.2 Field Investigations

A field investigation was conducted to collect current information related to terrestrial and aquatic ecosystems within the study area. J. Abernethy and S. Peters of McIntosh Perry visited the Bridge 16-WG study area on May 28, 2021, under the following conditions:

- Time of day: 08:00 h;
- Duration of visit: 4 hours;
- Overcast;
- Rain and Snow, and
- Air temperature: 1°C.

The field investigations included identification of the following, where applicable:

- Existing vegetation communities;
- Wetland areas;
- Existing fish habitat;
- Reptiles, amphibians and associated habitat;
- SAR and their habitat;
- Resident or migrant bird and wildlife species;
- Wildlife corridors and Concentration areas;
- Critical habitat areas, and
- Existing land uses surrounding the study area.

2.2.1 Vegetation Community Field Surveys

A site vegetation inventory was undertaken. Assessed vegetation communities were characterized and mapped using the MNRF guidelines for Ecological Land Classification for Southern Ontario (Lee, 2009). ELC polygons representative of distinct communities identified were then delineated on an aerial photograph of the study area. A botanical inventory of the site was also conducted, with field staff listing all observed terrestrial plant species.

2.2.2 Wildlife and Wildlife Habitat Field Survey Methods

Wildlife habitat assessments were conducted simultaneously with vegetation surveys, based on procedures provided in the *Significant Wildlife Habitat Technical Guide* (SWHTG, MNRF 2000), the *Ecoregion Criteria Schedules* (MNRF, 2015), and the *Natural Heritage Reference Manual* (NHRM, MNRF 2010).

Wildlife species (e.g. mammals, birds and nests on structures, and herpetofauna) noted during the investigations were identified by signs, visual observations, and vocalizations. The extent of the study area used for wildlife species observations was within the existing Township right-of-way (ROW) and adjacent lands for 120 m unless a sensitive receptor greater than 120 m was likely to be adversely affected. For the purpose of this assessment, any species observed within and adjacent to the study area were identified and considered to be residents of, or visitors to, the study area.

2.2.3 Aquatic Environment Field Survey Methods

Aquatic field investigations were conducted, to assess the aquatic habitat features and values present within the study area. Assessments were carried out consistent with accepted provincial protocols. Detailed habitat evaluations for approximately 50 m upstream and 150 m downstream of the structure, were carried out, where conditions allowed. The field investigations included the identification and mapping of the following features:

- Watercourse morphology;
- Habitat features (e.g. riffles, pools, woody debris, undercut banks, boulder clusters);
- Groundwater seepage areas, watercourse substrate, bank stability, riparian and aquatic vegetation;
- Critical habitat areas (spawning, nursery, rearing, migratory and food supply areas);
- Physical migration barriers; and
- Potential habitat compensation or enhancement opportunities.

Photographs were taken of the watercourse showing typical views, critical fish habitat, migration barriers and areas of potential enhancement (**Appendix A**).

Water at the 5th Line Bridge 16-WG was too deep to safely conduct electrofishing surveys using conventional wading methods. As such, watercourse habitat information was recorded only. All watercourse information was recorded on *Watercourse Field Record Form* field sheets as found in the Ministry of Transportation's (MTO) *Environmental Guide for Fish and Fish Habitat* (2009) (**Appendix C**). Since there is sufficient fisheries data available from background data sources, in-water fisheries surveys were not performed by McIntosh Perry field staff. Accordingly, ARA mapping and LIO data from Irvine Creek was sufficient to provide the required information for the purposes of this project.

3.0 EXISTING CONDITIONS

Determining the existing environmental conditions of the study area is required in order to assess potential impacts associated with alternative improvement options for Bridge 16-WG. The following sections summarize the existing physical and biological conditions within the study area and surrounding lands.

3.1 Ecoregion Soils and Physiography

The study area is located within the Lake Simcoe- Rideau Ontario Ecoregion (Ecoregion 6E), of the Mixedwood Plains Ecozone within the Great Lakes-St. Lawrence Forest Region (Crins et al., 2009), and lies within in the Guelph Drumlin Field, consisting of high-density drumlins, glacial spillway, and loam to fine sandy loam soils (GRCA, 2018). Bedrock composition in the study area consists of sandstone, shale, dolostone, siltstone and rock types, within the Guelph Formation (Ontario Geological Survey, 2011, GRCA, 2018).

3.2 Terrestrial Ecosystems

3.2.1 Ecoregion Vegetation

The Lake Simcoe-Rideau Ecoregion (6E) is dominated by croplands (57%), followed by pasture lands (44.4%), and abandoned fields (12.8%). Forested areas of the ecoregion are composed primarily of deciduous forest (16.0%) with some addition of coniferous and mixed forests. Forest stands within the ecoregion contain typically green ash (*Fraxinus pennsylvanica*), silver maple (Acer saccharinum), red maple (*Acer rubrum*), eastern white cedar (*Thuja occidentalis*), yellow birch (*Betula alleghaniensis*), balsam fir (*Abies balsamea*), black ash (*Fraxinus nigra*), black spruce (*Picea mariana*) and tamarack (*Larix laricina*) (Crins et al., 2009).

3.2.2 Vegetation Communities

The land surrounding Irvine Creek is dominated by forested areas and residential properties with manicured lawns, old hedgerows and other planted trees. Vegetation communities bounding Irvine Creek are characterized as Dry White Cedar Mixed Forest ecosite, inlcusive of eastern white cedar, Manitoba maple (*Acer negundo*), and white willow (*Salix alba*) tree communities and Mixed Forb Mineral Meadow ecosite. Results of ELC mapping are included in **Figure 2.0.**

Table 1 lists the vegetation species identified during the 2021 field investigation.

Table 1: Vegetation Identified within the Bridge 16-WG Study Area			
Tree Species			
Common Name	**Scientific Name**	**Common Name**	**Scientific Name**
common apple	*Malus sp.*	Manitoba maple	*Acer negundo*
hawthorn	*Crataegus sp.*	white willow	*Salix alba*
Eastern white cedar	*Thuja occidentalis*	white ash	*Fraxinus americana*
Shrub Species			
Common Name	**Scientific Name**	**Common Name**	**Scientific Name**
alternate leaved dogwood	*Cornus alternifolia*	riverbank grape	*Vitis riparia*
black willow	*Salix nigra*	round-leaved dogwood	*Cornus rugosa*
hawthorn	*Crataegus sp.*		
Herb Species			
Common Name	**Scientific Name**	**Common Name**	**Scientific Name**
asters	*Symphyotrichum sp.*	grasses	*Poaceae sp.*
bird vetch	*Vicia cracca*	marsh marigold	*Caltha palustris*
bracken fern	*Pteridium sp.*	narrow-leaf cattail	*Typha angustifolia*
broad beech fern	*Phegopteris hexagonoptera*	northern bedstraw	*Galium boreale*
greater burdock	*Arctium lappa*	pondweed	*Potamogeton sp.*
Canada anemone	*Anemonastrum canadense*	wild carrot	*Daucus carota*
common dandelion	*Taraxacum officinale*	reed canary grass	*Phalaris arundinacea*
common milkweed	*Asclepias syriaca*	sensitive fern	*Onoclea sensibilis*
common nettle	*Urticaceae sp.*	stinging nettle	*Urtica dioica*
common sow thistle	*Sonchus oleraceus*	tall buttercup	*Ranunculus acris*
common yarrow	*Achillea millefolium*	water horsetail	*Equisetum fluviatile*
early meadow rue	*Thalictrum dioicum*	watercress	*Nasturtium officinale*
field horsetail	*Equisetum arvense*	wormwood	*Artemisia absinthium*
garlic mustard	*Alliaria petiolata*	yellow rocketcress	*Barbarea vulgaris*
goldenrods	*Solidago sp.*		

3.2.3 Wetland Habitat

A Provincially Significant Wetland (PSW) is located both above and below, and to the east and west of the Bridge 16-WG crossing. The PSW is designated as the Living Springs Wetland Complex and is evaluated as a provincially significant swamp. Natural Heritage Information Centre mapping shows the wetland complex is connected to Irvine

Creek upstream and downstream, east and west of the study area (**Figure 3**). The PSW is described as primarily forested, with low-lying floodplains indicative of swamp and seasonal floodplain surrounding Irvine Creek. A comprehensive wetland evaluation inclusive of boundary delineation as per provincial protocols was not conducted as part of the study. Requests for additional information on the wetland area was submitted to MECP, and to the MNRF for fisheries data, including species presence data. No additional species were provided other than those highlighted in the initial information requests referenced in (**Appendix B**).

3.2.4 Wildlife

Characteristic wildlife of the area include: white-tailed deer (*Odocoileus virginianus*), northern raccoon (*Procyon lotor)*, striped skunk (*Mephitis mepthitis)*, woodchuck (*Marmota monax*), red-spotted newt (*Notophthalmus viridescens)*, Snapping Turtle (*Chelydra serpentina)*, Eastern Garter Snake (*Thamnophis sirtalis sirtalis)* and common watersnake (*Nerodia sipedon*). Representative bird species include field sparrow (*Spizella pusilla)*, Grasshopper Sparrow (*Ammodramus savnnarum)*, and Eastern Meadowlark (*Sturnella magna)* (Crins et al., 2009). A Colonial Waterbird Nesting area designated as a wildlife concentration area is also identified within the vicinity of the study site. As well, a White-tailed Deer Wintering Area (Stratum 2) located to the east and west of the bridge crossing **i**s identified **(Figure 2). Table 2** lists the wildlife species observed in the study area during the 2021 field investigation.

Table 2: Wildlife Observed at the Bridge 16-WG Study Area			
Birds			
Common Name	**Scientific Name**	**Common Name**	**Scientific Name**
American crow	*Corvus brachyrhynchos*	great blue heron	*Ardea herodias*
American gold finch	*Spinus tristis*	least flycatcher	*Empidonax minimus*
American robin	*Turdus migratorius*	mallard	*Anas platyrhynchos*
Baltimore oriole	*Icterus galbula*	red-winged blackbird	*Agelaius phoeniceus*
Barn Swallow	*Hirundo rustica*	ring billed gull	*Larus delawarensis*
black capped chickadee	*Poecile atricapillus*	rose breasted grossbeak	*Pheucticus ludovicianus*
Canada goose	*Branta canadensis*	song sparrow	*Melospiza melodia*
European starling	*Sturnus vulgaris*	turkey vulture	*Cathartes aura*
Mammals			
long- tailed weasel	*Mustela frenata*	white-tailed deer	*Odocoileus virginianus*
Aquatic Invertebrates			
freshwater muscle	*Unionidae sp.*	virile crayfish	*Faxonius virilis*
rusty crayfish	*Orconectes rusticus*		

3.3 Fisheries and Aquatic Ecosystems

The watercourse associated with the Bridge 16-WG study area is Irvine Creek, which is a tributary to the Grand River. Land Information Ontario (LIO) and Aquatic Resource Area (ARA) mapping has defined Irvine Creek as a cold water watercourse known to contain the fish species listed in **Table 4**, and the potential to provide habitat for other fish species known to inhabit the Grand River. Water at the Fifth Line 16-WG Bridge was too deep to safely conduct electrofishing surveys using conventional wading methods. As such, watercourse habitat information was recorded only. All watercourse information was recorded on *Watercourse Field Record Form* field sheets as found in the Ministry of Transportation's (MTO) *Environmental Guide for Fish and Fish Habitat*

(2009) (**Appendix C**). Juvenile fish were observed within Irvine Creek at the time of the field investigations but were unable to be identified. Through correspondence, MNRF has indicated a preferred in-water timing window of June 1st to September 30th (**Appendix B**).

Table 3: Existing Fish Community Summary Table			
Waterbody	**Fish Species Present**	**Species at Risk Present**	**In-water Work Timing Window**
Irvine Creek	Fish observed during field investigations: Minnows. ARA data: Rock Bass (*Ambloplites rupestris*), Smallmouth Bass (*Micropterus dolomieu*), and White Sucker (*Catostomus commersonii)*	Red-side Dace (*Clinostomus elongatus*)	In-water works permitted from June 1st to September 30th (**Appendix B**)
Grand River	Fish observed during field investigations: No fish species observed during field investigations. ARA data: Bullhead (*Ameiurus nebulosus*), Brown Trout (*Salmo trutta*), Common Carp (*Cyprinus carpio*), Northern Pike (*Esox lucius*), Smallmouth Bass, Walleye (*Sander vitreus*), Yellow Perch (*Perca flavescens).* LIO data: Black Crappie (*Pomoxis nigromaculatus*), Bluegill (*Lepomis macrochirus*), Bowfin (*Amia calva*), Brown Bullhead, Brown Trout, Channel Catfish (*Ictalurus punctatus*), Coho Salmon (*Oncorhynchus kisutch*), Common Carp, Freshwater Drum (*Aplodinotus grunniens),* Largemouth Bass (*Micropterus salmoides*), Mooneye (*Hiodon tergisus*), Muskellunge (*Esox masquinongy*), Northern Pike, Pumpkinseed (*Lepomis gibbosus),* Rainbow Trout (*Oncorhynchus mykiss*), Rock Bass, Smallmouth Bass, Walleye, White Crappie (*Pomoxis annularis*), White Sucker, Yellow Bullhead (*Ameiurus natalis*), Yellow Perch.	Red-side Dace	N/A-No in water work to be conducted in this waterbody

Irvine Creek at the Bridge 16-WG study area consisted of 35% run, 35% pool, 25% riffle, and 5% flats, with a mean wetted depth of approximately 1-2 m, a mean wetted width of approximately 15 m, mean bank full width of approximately 15 m and mean bank full depth of 2.5 m. The substrate consisted of sands, silts, and muck upstream and at the crossing, with cobbles, boulders, gravel and sand downstream of the crossing. The banks were slight to moderately unstable in some areas and the percent of the watercourse that was shaded was between 1-30%. In-stream cover consisted of 10% submergent, and 90% emergent vegetation (**Appendix C**). Riparian vegetation includes willow, dogwood, Eastern white cedar, and Manitoba maples overhanging the stream, with bank vegetation of mainly grasses. The section of reach provides adequate spawning grounds for specialized baitfish such as trout, sculpin and creek chub to name a few. It was noted that this reach could provide potentially suitable spawning grounds for Red-side Dace, in the riffle sections (**Figure 3**). Spawning evidence by creek chub was identified approximately 125 m downstream from the crossing in the form of gravel piles instream (**Figure 3, Appendix A**).

3.4 Species at Risk

Ontario wildlife atlases were reviewed for species at risk (SAR) Element Occurrence (EO) records within 10 km of the study area. The Ontario Reptile and Amphibian Atlas (Ontario Nature, 2017) identified records of:

- Snapping Turtle *(Chelydra serpentina)*, and
- Western Chorus Frog (*Pseudacris triseriata*).

Adequate nesting habit for Snapping Turtle was identified in numerous locations throughout the study area, characterised by soft sand or gravel banks (**Appendix A**).

The Ontario Breeding Bird Atlas (Bird Studies Canada et al., 2006) identified ten (10) SAR birds known to occur within 10 km of the study area:

- Bald Eagle (*Haliaeetus leucocephalus);*
- Bank Swallow (*Riparia riparia)*;
- Barn Swallow (*Hirundo rustica)*;
- Bobolink (*Dolichonyx oryzivorus*);
- Canada warbler (*Cardellina canadensis*);
- Eastern Meadowlark (*Sturnella magna*);
- Eastern Wood-peewee (*Contopus virens*);
- Grasshopper Sparrow (*Ammodramus savannarum*);
- Northern Bobwhite (*Colinus virginianus*), and
- Wood Thrush (*Hylocichla mustelina)*.

Potential habitat was identified for Barn Swallow on the bridge structure, although no nests were identified. The open fields (grassed and agricultural) surrounding the study area may provide potential habitat for species such as Bobolink, Eastern meadowlark, and Grasshopper Sparrow. As well the wooded areas surrounding the study area may provide suitable habitat for Wood Thrush.

MNRF Make a Map: Natural Heritage Areas (Natural Heritage Information Centre) mapping application identified the following SAR within 10 km of the study area:

- Bobolink, and
- Redside Dace.

DFO Aquatic SAR mapping tool found no aquatic SAR records within the study area; however, within Irvine Creek approximately 3.8 km upriver of the study area, the following species are listed:

- Redside Dace.

Potential spawning habitat for Red-side Dace exists within some riffle sections identified within Irvine creek, see **Figure 3**.

During the field investigations completed by McIntosh Perry, one (1) Barn Swallow was observed foraging within the study area, but no nesting was identified. Barn Swallows are a threatened species provincially, and federally, and receive habitat protection under the *Endangered Species Act*. No other SAR were observed during the field investigation.

Background research identified the potential for various SAR to be present within the study area. **Table 5** outlines potential SAR to exist within the study area based on habitat suitability and the possibility of using the study area as a migratory corridor.

Table 5: Potential SAR within the Vicinity of the 5th Line Bridge 16-WG Study Area					
Common Name	**Scientific Name**	**Provincial Status**	**Provincial Habitat Protection***	**Federal Status**	**Suitable Habitat Present within Study Area**
Birds					
Bank Swallow[1, 2, 5]	*Riparia riparia*	Threatened	Yes	Threatened	No
Barn Swallow[1, 2, 5]	*Hirundo rustica*	Threatened	Yes	Threatened	Yes. On the bridge structure, however no nests observed.
Bobolink[2, 5]	*Dolichonyx oryzivorus*	Threatened	Yes	Threatened	Potential in meadows/ agricultural fields adjacent to study area.
Canada Warbler [5]	*Cardellina canadensis*	Threatened	Yes	Threatened	No
Eastern Meadowlark [2, 5]	*Sturnella magna*	Threatened	Yes	Threatened	Potential in meadows/ agricultural fields adjacent to study area.
Eastern wood-peewee [1,2,6]	*Contopus virens*	Special Concern	No	Special Concern	No
Grasshopper sparrow [5]	*Ammodramus savannarum*	Special Concern	No	Special Concern	Potential in meadows/ agricultural fields adjacent to study area.
Northern Bobwhite [5]	*Colinus virginianus*	Endangered	Yes	Endangered	Potential in meadows/ agricultural fields adjacent to study area.
Wood Thrush [1, 2, 5]	*Hylocichla mustelina*	Special Concern	No	No Status	Potential in surrounding woodlots.
Insects					
Monarch [4, 5]	*Danaus plexippus*	Special Concern	No	Special Concern	Yes
Mammals					
Eastern Small-footed Myotis [5]	*Myotis leibii*	Endangered	Yes	Special Concern	Potential in adjacent forests

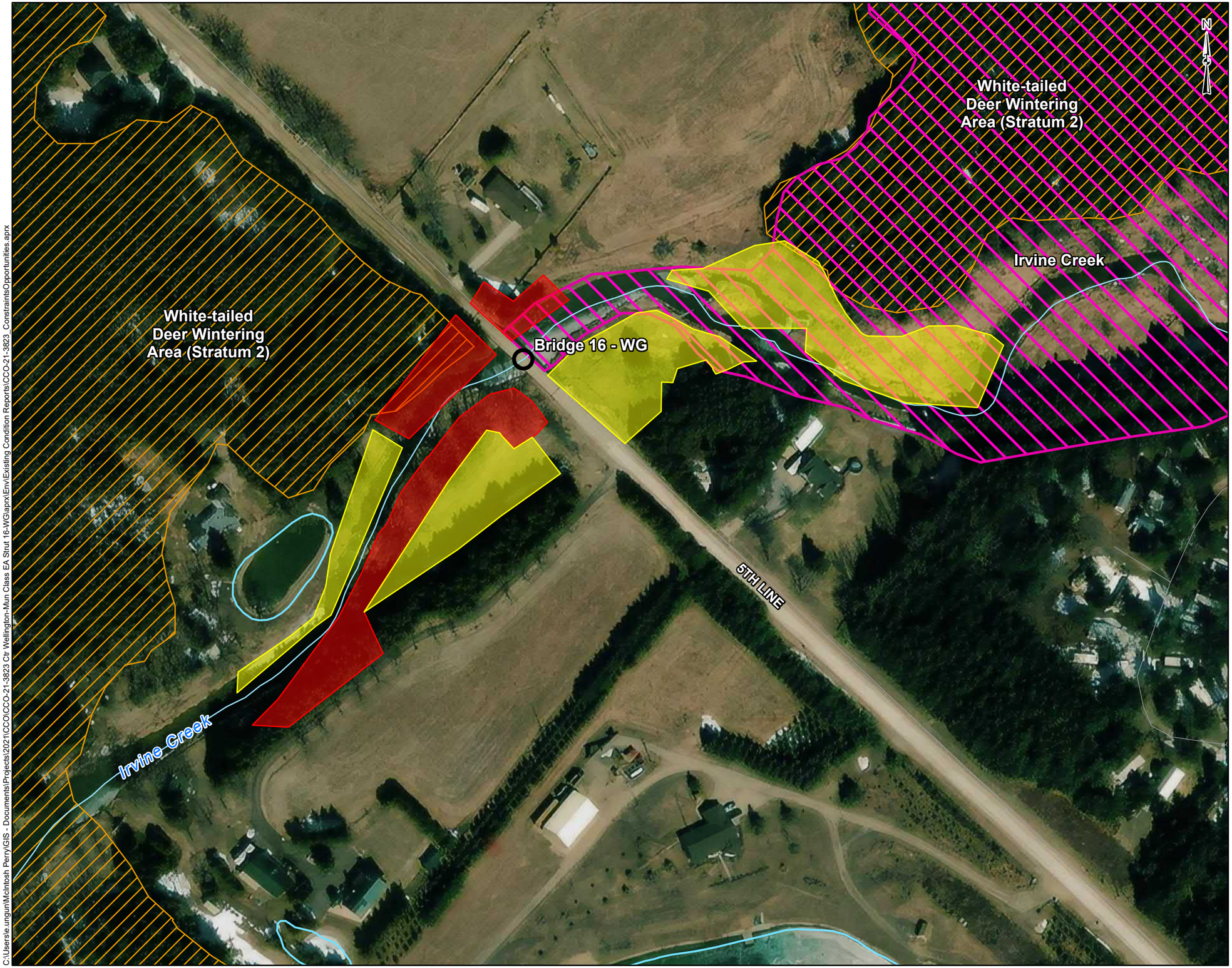
Table 5: Potential SAR within the Vicinity of the 5th Line Bridge 16-WG Study Area					
Common Name	**Scientific Name**	**Provincial Status**	**Provincial Habitat Protection***	**Federal Status**	**Suitable Habitat Present within Study Area**
Little Brown Myotis[5]	*Myotis lucifugus*	Endangered	Yes	Endangered	Potential in adjacent forests
Northern Myotis[5]	*Myotis septentrionalis*	Endangered	Yes	Endangered	Potential in adjacent forests
Tri-colored Bat[5]	*Perimyotis subflavus*	Endangered	Yes	Endangered	Potential in adjacent forests
Reptiles and Amphibians					
Snapping Turtle [1, 3, 5]	*Chelydra serpentina*	Special Concern	No	Special Concern	Yes, adequate gravels and sand bars for nesting.
Western Chorus Frog (Great Lakes / St. Lawrence–Canadian Shield population) [3]	*Pseudacris triseriata*	No Status	No	Threatened	No

This table was assembled from various sources of background information. The following information sources were consulted to compile background information.

1. Land Information Ontario - NHIC database (NHIC) (MNRF, 2020)
2. Ontario Breeding Bird Atlas (OBBA) (Bird Studies Canada, 2006)
3. Ontario Reptile and Amphibian Atlas (ORAA) (Ontario Nature, 2020)
4. Ontario Butterfly Atlas (OBA) (Toronto Entomologists' Association, 2020)
5. Within Species General Range (GR)

** Fish and Wildlife Conservation Act, 1997* (FWCA)

**Migratory Birds Convention Act, 1994* (MBCA)



LEGEND

- Site Location
- Waterbody
- Watercourse
- ANSI - Irvine Creek
- Wintering Area

ELC Communities

- Dry - Fresh White Cedar Mixed Forest Ecosite (FOMM4)
- Mixed Forb Mineral Meadow Marsh Type (MAMM2-4)

REFERENCE

GIS data provided by the Ontario Ministry of Natural Resources and Forestry, 2021.

50 25 0 50

Scale 1:1,500 Metres

CLIENT: TOWNSHIP OF CENTRE WELLINGTON

PROJECT: EXISTING ENVIRONMENTAL CONDITIONS REPORT

TITLE: ELC COMMUNITIES

McINTOSH PERRY
115 Walgreen Road, RR3, Carp, ON K0A1L0
Tel: 613-836-2184 Fax: 613-836-3742
www.mcintoshperry.com

PROJECT NO: CCO-21-3823		FIGURE:
Date	Jun., 10, 2021	2
GIS	EU	
Checked By	JA	

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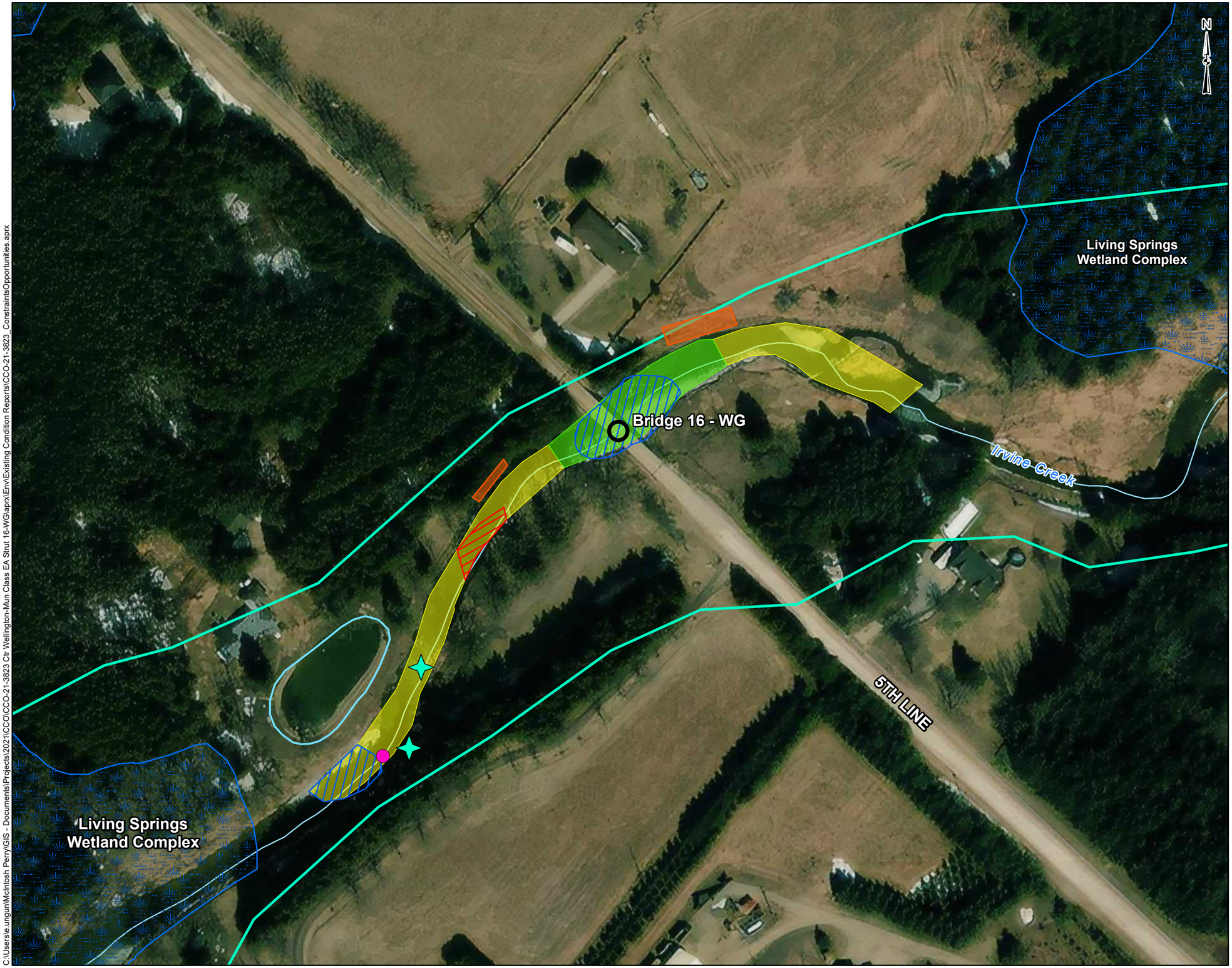

LEGEND

- Site Location
- Watercress
- Creek Chub Spawning
- Deep Pool
- Red-Side Dace Spawning
- Specialized Baitfish Spawning
- Unspecialized Spawning- Low Quality
- Potential Turtle Nesting
- Floodplain Boundary
- Watercourse
- Waterbody
- Provincially Significant Wetland

REFERENCE

GIS data provided by the Ontario Ministry of Natural Resources and Forestry, 2021.

40 20 0 40

Scale 1:1,250 Metres

CLIENT: TOWNSHIP OF CENTRE WELLINGTON

PROJECT: EXISTING ENVIRONMENTAL CONDITIONS REPORT

TITLE: CONSTRAINTS AND OPPORTUNITIES

McINTOSH PERRY
115 Walgreen Road, RR3, Carp, ON K0A1L0
Tel: 613-836-2184 Fax: 613-836-3742
www.mcintoshperry.com

PROJECT NO: CCO-21-3823		FIGURE:
Date	Jun., 10, 2021	3
GIS	EU	
Checked By	JA	

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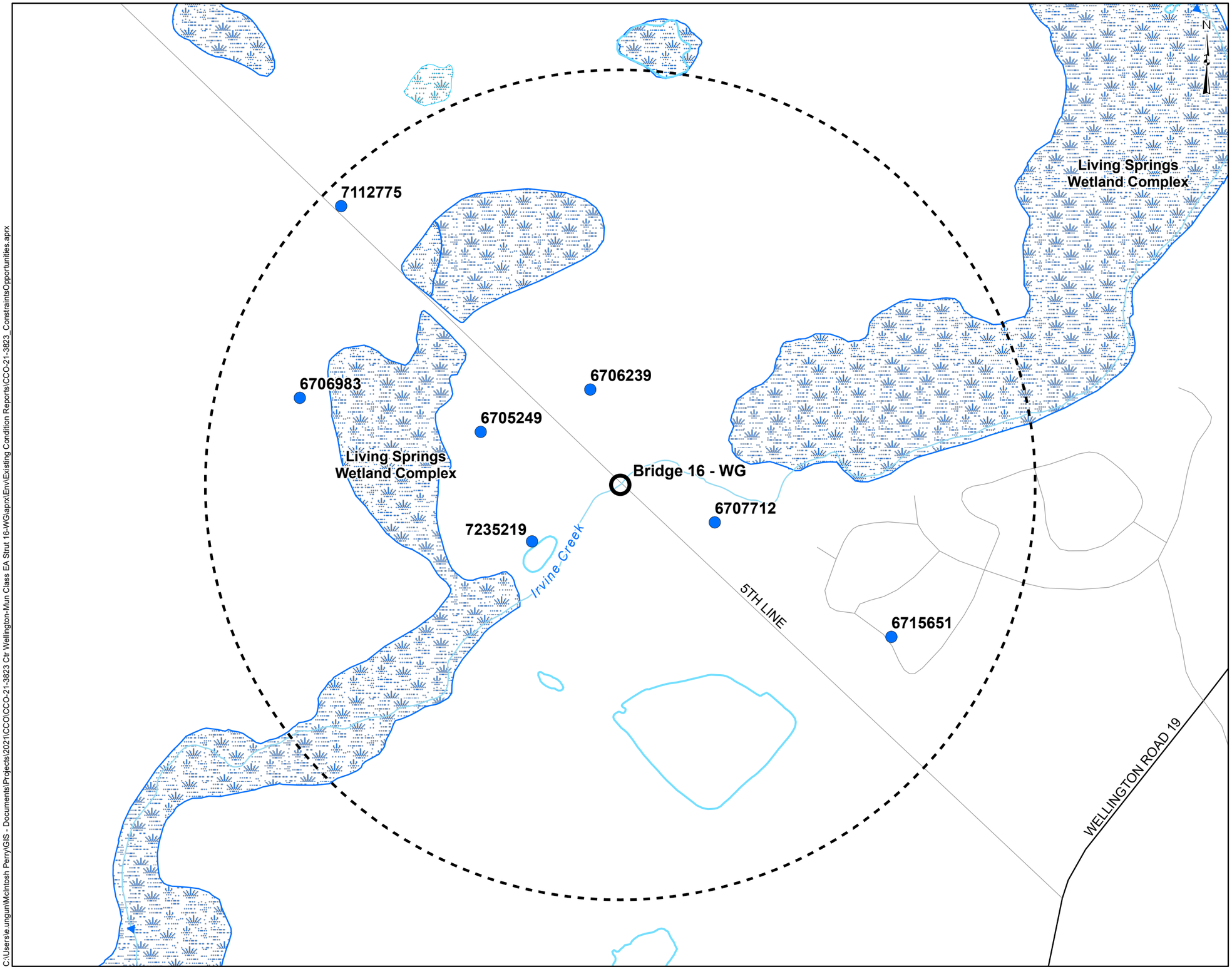
3.5 Groundwater

Seven (7) domestic wells, were identified within 500 m of the study area. The wells were constructed between 1974 and 2014 at an average depth of 54.76 m below the ground surface (MECP, 2019). The static water level ranges from 0.0 m to 20.4 m with an average static level of 7.7 m. Evidence of groundwater seepage was present in the study area, indicated by the presence of watercress and iron staining in Irvine Creek (**Figure 3**).



LEGEND

- Site Location
- MECP Well Location
- 500m Buffer
- Watercourse
- Waterbody
- Provincially Significant Wetland
- Unevaluated Wetland

REFERENCE

GIS data provided by the Ontario Ministry of Natural Resources and Forestry, 2021.

100 50 0 100

Scale 1:4,500 Metres

CLIENT: TOWNSHIP OF CENTRE WELLINGTON

PROJECT: EXISTING ENVIRONMENTAL CONDITIONS REPORT

TITLE: MECP WELL RECORDS

McINTOSH PERRY
115 Walgreen Road, RR3, Carp, ON K0A1L0
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www.mcintoshperry.com

PROJECT NO: CCO-21-3823		FIGURE:
Date	Jun., 10, 2021	4
GIS	EU	
Checked By	JA	

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3.6 Grand River Source Protection Area

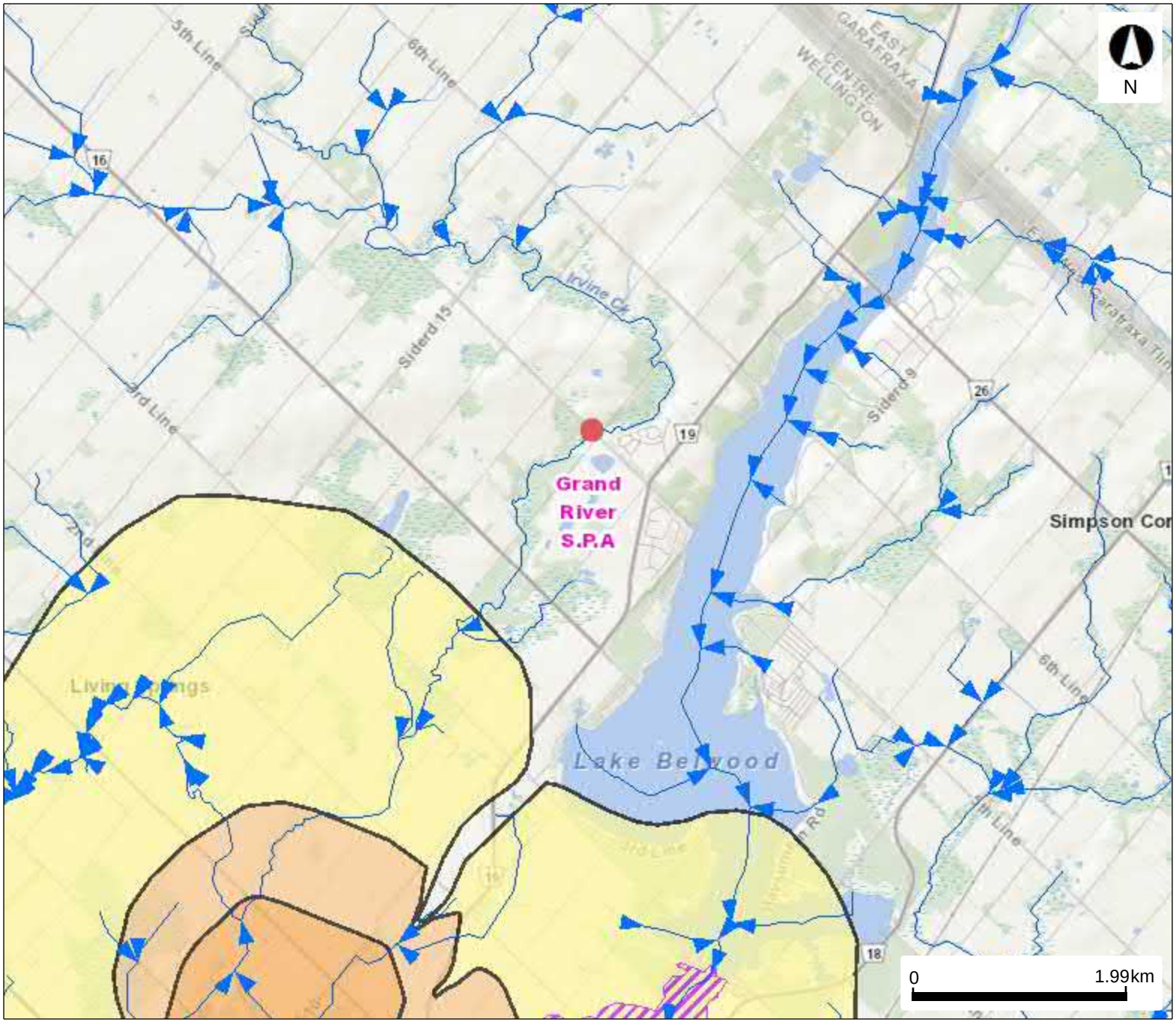
The study area is located within the Grand River Source Protection Area (SPA), and within a Intake Protection Zone 3 (IPZ), with a vulnerability score of 5 meaning the area is moderately sensitive. The study area is also located approximately 2 km north east from a Wellhead Protection Area (WHPA). (**Figure 5**).

The Ministry of Environment, Conservation, and Parks (MECP) Source Protection Information Atlas (2021) indicates the 5th Line Bridge 16-WG study area with the following designations, as seen in **Table 6** below.

Table 6: MECP Source Protection Information for Grand River Source Protection Area

MECP Source Protection Information	5th Line Bridge 16-WG over Irvine Creek
Source Protection Area	Grand River
Wellhead Protection Area	No
Intake Protection Zone	Zone 3, score is 5
Issue Contributing Areas	No
Significant Groundwater Recharge Area	No
Highly Vulnerable Aquifer	No
Event Based Area	No
Well Head Protection Area Q1	No
Well Head Protection Area Q2	No
Intake Protection Zone Q	No

Fifth Line 16-WG Bridge Structure Source Protection Map



Legend

- Source Protection Areas
- Watercourse Direction
- Intake Protection Zone Q
- Wellhead Protection Area Q1
- Wellhead Protection Area Q2
- Issue Contributing Areas
- WHPA Groundwater Under Direct Influence (WHPA-E)
- Wellhead Protection Area
  - A
  - B
  - C
  - C1
  - D
  - F
- Intake Protection Zone 1
- Event Based Areas
- Intake Protection Zone 2
- Study Area

This map should not be relied on as a precise indicator of routes or locations, nor as a guide to navigation. The Ontario Ministry of Environment, Conservation and Parks (MECP) shall not be liable in any way for the use or any information on this map. of, or reliance upon, this map.

Ontario

Map Created: 6/9/2021
Map Center: 43.7726 N, -80.35114 W

3.7 Designated Areas

The study area is in close proximity to the Provincially Significant Wetland (PSW) identified as Living Springs Wetland Complex (Swamp), located approximately 120 meters upstream and 170 meters downstream from the crossing (**Figure 3**).

An Area of Natural and Scientific Interest (ANSI) was noted adjacent to the study area as White-tailed Deer Wintering Area (Stratum 2) located to the east and west of the bridge crossing. A Colonial Waterbird Nesting Area was also identified in proximity to the study area (**Figure 2**).

The study area is located within the Grand River Conservation Authority regulated area, which includes regulated floodplains and wetlands. In this area there is both the designated PSW of Living Springs Wetland Complex (swamp), as well as a Regulatory Floodplain for Irvine Creek. Any development in the study area is subject to *Ontario Regulation 155/06, Development, Interference with Wetlands and Alterations to Shorelines and Watercourses.*

4.0 REFERENCES

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Appendix A – Study Area Photographs

Photo 1: View of Bridge crossing 16-WG and Irvine creek, facing downstream (south). May 28, 2021.

Photo 2: View of Irvine Creek from Bridge 16-WG, facing upstream (north). May 28, 2021.

Photo 3: View of Irvine Creek from Bridge 16-WG, facing downstream (south). May 28, 2021.

Photo 4: View of Irvine Creek from the Bridge 16-WG, facing upstream at right bank. May 28, 2021.

Photo 5: View of Irvine Creek from Bridge 16-WG, facing upstream at left bank. May 28, 2021.

Photo 6: View of Irvine Creek from Bridge 16-WG, facing downstream at left bank. May 28, 2021.

Photo 7: View of Irvine Creek from Bridge 16-WG, facing downstream at right bank. May 28, 2021.

Photo 8: Representative photo of Irvine Creek downstream from the crossing. May 28, 2021.

Photo 9: Representative photo of Irvine Creek downstream from the crossing. May 28, 2021.

Photo 10: Representative photo of Irvine Creek upstream from the crossing. May 28, 2021.

Photo 11: Representative photo of Irvine Creek upstream from the crossing. May 28, 2021.

Photo 12: Representative photo of Irvine Creek downstream riparian vegetation. May 28, 2021.

Photo 13: Representative photo of Irvine Creek upstream riparian vegetation. May 28, 2021.

Photo 14: Watercress identified within Irvine Creek. May 28, 2021.

Photo 15: Bank erosion identified within Irvine Creek, downstream of the crossing. May 28, 2021.

Photo 16: Bank erosion identified within Irvine Creek, upstream of the crossing. May 28, 2021.

Photo 17: Representative substrate identified within Irvine Creek, downstream of the crossing. May 28, 2021.

Photo 18: Minnows identified within Irvine Creek. May 28, 2021.

Photo 19: Creek Chub gravel pile spawning evidence. May 28, 2021.

Photo 20: Riffle potentially suitable for Red-side Dace Spawning. May 28, 2021.

Photo 21: Freshwater mussels found within Irvine Creek. May 28, 2021

Photo 22: Crayfish observed within Irvine Creek. May 28, 2021

Photo 23: Crayfish dens observed within Irvine Creek banks. May 28, 2021.

Photo 24: Potential turtle nesting area along the downstream banks of Irvine Creek. May 28, 2021.

Photo 25: Potential turtle nesting area along the upstream banks of Irvine Creek. May 28, 2021.

Appendix B – Agency Correspondence

Jessica Abernethy

From: Ungar, Darren (MNRF) <Darren.Ungar@ontario.ca>
Sent: April 29, 2021 2:49 PM
To: Erik Pohanka
Subject: RE: LCFSP Application Fifth Line Bridge Township of Centre Wellington

Good afternoon Eric,

Please see the attached table for your review. Your Licence to Collect fish will follow shortly.

Hope you are keeping well.

Darren Ungar
Management Biologist
Ministry of Natural Resources & Forestry
Guelph District
226-962-6870

Table 2: Township of Centre Wellington Assignment 21-21 Fifth Line Bridge Fish Information					
Waterbody Name and location (GPS coordinates & Google Earth map)	**Watercourse classification (i.e. warm water, cold-water)**	**Habitat information/ locations (fish passage barriers, known spawning habitats, groundwater upwellings, migratory corridors etc.)**	**Historical data on fish species present, including whether the subject waterbody(s) [SPECIFY LOCATION] are considered to support any vulnerable, threatened or endangered aquatic species**	**MNR fisheries management objectives, if applicable**	**In-water timing windows for construction**
Irvine Creek at Fifth Line Bridge (16-WD) in the Township of Centre Wellington	Cold water		Species at Risk are known from this area. Please contact MECP for additional information.	Grand River Fisheries Management	June 1st to Sept 30th

			Other significant species: Brook Trout	Plan – Pg. 15 (Middle Grand River Reach)	

From: Erik Pohanka <e.pohanka@mcintoshperry.com>
Sent: Monday, April 26, 2021 12:48 PM
To: Scientific Collection Permits Guelph (MNRF) <scp.guelph@ontario.ca>
Cc: Sarah Peters <s.peters@mcintoshperry.com>; Jennifer Cavanagh <j.cavanagh@mcintoshperry.com>
Subject: LCFSP Application Fifth Line Bridge Township of Centre Wellington

CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.

To whom it may concern;

Please see the attached Application for a License to Collect Fish for Scientific Purposes (LCFSP) and Fish Information Request regarding the bridge design on Fifth Line in the Township of Centre Wellington. I have also attached a kmz file of the study area location.

Thank you,

Erik Pohanka, B.Sc.
Junior Biologist
115 Walgreen Road, R.R. 3, Carp, ON, K0A 1L0
T. 613.903.6137 | **C.** 613.203.5470
e.pohanka@mcintoshperry.com | www.mcintoshperry.com
McINTOSH PERRY

Jessica Abernethy

From: Sarah Peters
Sent: May 20, 2021 11:21 AM
To: lisa.mcshane@ontario.ca
Subject: RE: SAR Information Request - Municipal Class EA for 16-WG Structure, Township of Centre Wellington

Hi Lisa,

Thank you very much for this information.

Best regards,
Sarah

From: Species at Risk (MECP) <SAROntario@ontario.ca>
Sent: May 20, 2021 11:14 AM
To: Sarah Peters <s.peters@mcintoshperry.com>
Subject: RE: SAR Information Request - Municipal Class EA for 16-WG Structure, Township of Centre Wellington

Hi Sarah,
The list you have submitted has all the species that I have, however I would note that there is an observation of Redside Dace mapped within 500m of this crossing location.

It is important to note that a lack of information for a site does not mean that other species at risk or their habitat are not present. On-site assessments can better verify site conditions, identify and confirm presence of species at risk and/or their habitats. It is the responsibility of the proponent to ensure that species at risk are not killed, harmed, or harassed, and that their habitat is not damaged or destroyed through the activities carried out on the site.

The Ministry of Environment, Conservation and Parks is only responsible for species at risk and the Endangered Species Act. If you would like confirmation of fisheries or other natural heritage features outside of species at risk please contact the Ministry of Natural Resources and Forestry office.

Please note it remains the clients responsibility to:

- Carry out preliminary screening for their project,
- Obtain the best available information for all applicable information sources,
- Conduct necessary field studies or inventories to identify and confirm the presence of absence of species at risk or their habitat,
- Consider any potential impacts to species at risk that a proposed activity might cause, and

- Comply with the Endangered Species Act (ESA).

Lisa

Lisa McShane
Management Biologist | Permissions and Compliance Section, Species at Risk Branch|Land and Water Division | Ministry of the Environment, Conservation and Parks | lisa.mcshane@ontario.ca | (226) 668-0527

From: Sarah Peters <s.peters@mcintoshperry.com>
Sent: Thursday, April 29, 2021 11:37 AM
To: Species at Risk (MECP) <SAROntario@ontario.ca>
Cc: Jennifer Cavanagh <j.cavanagh@mcintoshperry.com>
Subject: SAR Information Request - Municipal Class EA for 16-WG Structure, Township of Centre Wellington

To whom it may concern,

Please see the attached Information Request Letter regarding the Schedule 'B' Municipal Class Environmental Assessment study currently being undertaken by the Township of Centre Wellington for the 16-WG structure located over Irvine Creek on the Fifth Line between Wellington Road 19 and Side Road 15 in the Township of Centre Wellington, County of Wellington, Ontario. A Key Map showing the study area location, and findings from a preliminary background review of online resources for SAR has been included in the attached letter.

Please feel free to contact me if you have any questions.

Thank you,
Sarah

Sarah Peters
Environmental Technician
400-2010 Winston Park Drive, Oakville, ON L6H 5R7
T. 289.243.0246 | **C.** 905-802-4372
s.peters@mcintoshperry.com | www.mcintoshperry.com

McINTOSH PERRY

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Appendix C – Watercourse Field Record Form

WATERCOURSE FIELD COLLECTION FORM

GENERAL INFORMATION		
Project # Centre Wellington	Project Description: MCEA Schedule B	Date: May 28, 2021
Is Stream Realignment required for this section: O Yes X No O Unknown		
Collectors: J. Abernethy & S. Peters	Time Started: 10:15	Time Finished: 11:00
Weather Conditions: Sleet / Rain / wind		
Air Temp (°C): 2°C	Water Temp (°C):	Conductivity (µS/cm):	Velocity (m/s):
Photos Numbers And Descriptions:		

LOCATION			
Name of Waterbody: Irvine Creek	Drainage System:	Crossing #: 16-WG	Station #:
Location Of Crossing: Fifth Line between Centre Wellington 19 and Sideroad 15			
GPS Coordinates:		MTO Chainage:	
Township: Centre Wellington		MNRF District:	

LAND USE AND POLLUTION	
Surrounding Land Use: Rural Residential + Green land	Sources of Pollution: Road Run off / Agricultural

EXISTING STRUCTURE TYPE				
Bridge ☒	Box Culvert ○	Open Foot Culvert ○	CSP ○	N/A ○

Other ○ (Describe)	Size: (w x h) m^2

SECTION TYPE AND MORPHOLOGY	
Section (Reach) Identifier: Upstream	Section Location: (Include On Habitat Map)
Associated Wetland	

Stream / River	Channelized	Permanent	Intermittent	Ephemeral
☒	☒	☒	○	○

Total Section (Reach) Length (m):

Sub-Sections:	Run ☒	Pool ☒	Riffle ☒	Flats ☒	Culvert ○	Other ○
Percentage of Area:	30	60		10		
Mean wetted depth (m)	1m	2		1m		
Mean wetted width (m)	15	20		15		
Mean bankfull depth (m)	2.5	2.3		1.5		
Mean bankfull width (m)	16	21		16		
Substrate (type & %)	BoCoGrSa	GrSaSiMu		BoCoGrSa		

Bedrock (Br)	Boulder (Bo)	Cobble (Co)	Gravel (Gr)	Sand (Sa)	Silt (Si)	Clay (Cl)	Muck (Mu)	Detritus (D)

BANK STABILITY				
	Stable	Slightly Unstable	Moderately Unstable	Unstable
Left Bank	O	X	X	O
Right Bank	O	X	O	O
	Deposition Zone	Protected Bank	Vulnerable Bank	Eroding Bank
Left Bank	X minor	O	X minor	X minor
Right Bank	O	X minor	O	O

HABITAT

In-Stream Cover (% surface area):

Undercut banks:	Boulders:	Cobbles:	Organic Debris:	None
5	40	15	40	O

Vascular Macrophytes:

Instream: grasses, Pondweeds

Overhanging: grasses / forbs

Woody Debris:

Instream: LWD Branches

Overhanging: Riparian trees

Shore Cover (% stream shaded):

100-90%	89-60%	59-30%	29-1%	None
O	O	O	X grasses	O

Vegetation Type:

Vegetation Type (%)	Submergent: 10	Floating:	Emergent: 90	None O
Predominant Species:	Pondweed		grasses Horsetail	

MIGRATORY OBSTRUCTIONS		
Permanent	Seasonal	None None Observed
POTENTIAL CRITICAL HABITAT		
Spawning Not likely in 50m US Potential upstream past 50m	Groundwater NO	Other
POTENTIAL ENHANCEMENT OPPORTUNITIES		
ADDITIONAL COMMENTS		
• Generally slow moving pooled water. • Substrate soft (clay, silt, muck) Surrounding crossing – LWD & branches • RB highly sloped to residential/agricultural fields – some turtle spawning habitat • LB relatively flat – floodzone – some undercut/unstable banks. Densly vegetated • Further up from crossing = more representative/similar to DS.		
Additional Notes Appended? O No ☒ Yes	Number of Pages 1 (drawing)	

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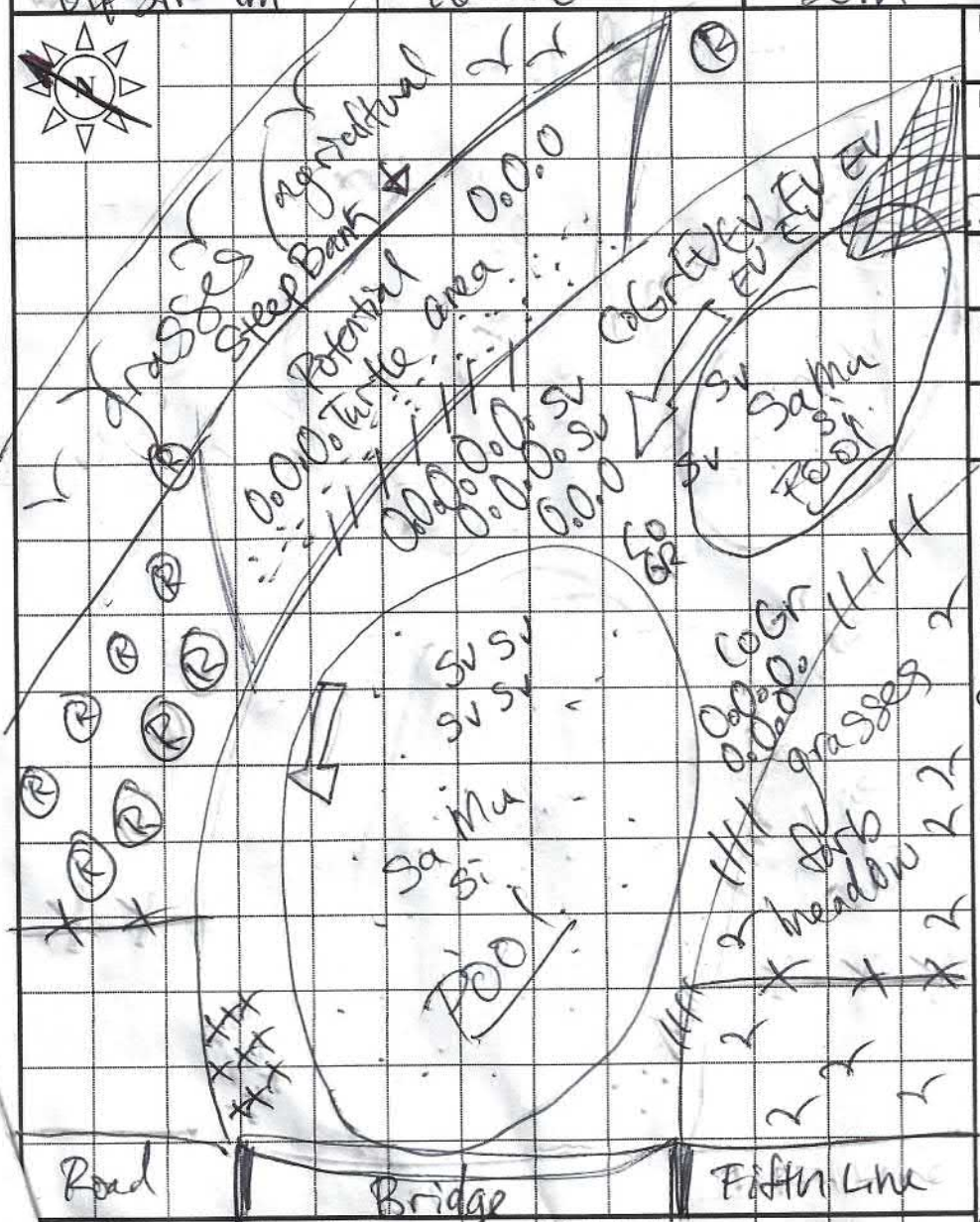
Ontario

SECTION IDENTIFIER:	SECTION LOCATION:	SECTION LENGTH (m):	SCALE (cm / m):
Upstream	L6-WG	50m	



PROFILE: Horz. Scale Vert. Scale

PROJECT #: CCO-21-3823

MAPPER: S. Peters

NAME OF WATERBODY: Irvine Creek

CROSSING #: L6-WG

STATION #:

DATE: YY-MMM-DD 21/05/28

LEGEND

10d depth (cm)
6w width

➡ Riffle
⇨ Run/Glide
Pool
Island/Bar
Fine Substrate
Gravel Substrate
oOooO Cobble /Boulder
* * * Debris

CT Cattail
SV/FV Submergent/Float Veg
EV Emergent Vegetation
W Watercress
Fe Iron Staining
/////// Eroded Bank
xxx Riprap/Other Stabilization
Instream Log/Tree
^^^ Dam/Weir/Obstruction
® Riparian Tree

Seep/Spring
-------- Undercut Bank
— Barrier to Fish Movement
-S- Seasonal Barrier
-x--x- Fence line
Culvert

WATERCOURSE FIELD COLLECTION FORM

GENERAL INFORMATION		
Project # Centre Wellington 16-WG	Project Description: MCEA Sched. B	Date: May 28, 2021
Is Stream Realignment required for this section: O Yes ~~O~~ No O Unknown		
Collectors: S. Peters J. Abernethy	Time Started: 8:45	Time Finished: 9:50
Weather Conditions: Sleet/Rain/Snow - windy		
Air Temp (°C): 2°C	Water Temp (°C):	Conductivity (µS/cm):	Velocity (m/s):
Photos Numbers And Descriptions:		

LOCATION			
Name of Waterbody: Irvine Creek	Drainage System:	Crossing #: 16-WG	Station #:
Location Of Crossing: Fifth line Centre Wellington			
GPS Coordinates:		MTO Chainage:	
Township: Centre Wellington		MNRF District:	

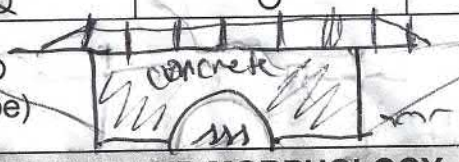
LAND USE AND POLLUTION

Surrounding Land Use:	Sources of Pollution:
Rural Residential Greenlands	Agricultural Run off

EXISTING STRUCTURE TYPE

Bridge	Box Culvert	Open Foot Culvert	CSP	N/A
X	O	O	O	O

Other O (Describe)



Size: (w x h) m^2

SECTION TYPE AND MORPHOLOGY

Section (Reach) Identifier: Downstream

Section Location: (Include On Habitat Map)

Associated Wetland

Stream / River	Channelized	Permanent	Intermittent	Ephemeral
X	X	X	O	O

Total Section (Reach) Length (m): 150 m

Sub-Sections:	Run	Pool	Riffle	Flats	Culvert	Other
	X	X	X	O	O	O
Percentage of Area:	45	10	45			
Mean wetted depth (m)	.2	2	.2			
Mean wetted width (m)	5	10	5			
Mean bankfull depth (m)	.5-1m	3.5				
Mean bankfull width (m)	7	1.2				
Substrate (type & %)	BoCoGrSA	BoSiMu	BoCoGrSA			

Bedrock (Br)	Boulder (Bo)	Cobble (Co)	Gravel (Gr)	Sand (Sa)	Silt (Si)	Clay (Cl)	Muck (Mu)	Detritus (D)

BANK STABILITY				
	Stable	Slightly Unstable	Moderately Unstable	Unstable
Left Bank	O	X	X	O
Right Bank	O	X	X	O
	Deposition Zone	Protected Bank	Vulnerable Bank	Eroding Bank
Left Bank	X equally	O NA	O	X
Right Bank	X	O	X more	X more RB

HABITAT				
In-Stream Cover (% surface area):				
Undercut banks: 5	Boulders: 30	Cobbles: 50	Organic Debris: 15	None O

Vascular Macrophytes:	Woody Debris:
Instream: Watercress algae (Rocks)	Instream: SWD (Branches)
Overhanging: grasses	Overhanging: LWD logs/branches willow, dogwoods.

Shore Cover (% stream shaded):				
100-90% O	89-60% O	59-30% O	29-1% X grasses Overhang trees	None O

Vegetation Type:				
Vegetation Type (%)	Submergent:	Floating:	Emergent:	None O
Predominant Species:	Rock algae Pondweed		Watercress grasses Horsetails.	

MIGRATORY OBSTRUCTIONS		
Permanent	Seasonal	None None observed
POTENTIAL CRITICAL HABITAT		
Spawning Brook Trout.	Groundwater Watercress Iron Staining	Other
POTENTIAL ENHANCEMENT OPPORTUNITIES		
ADDITIONAL COMMENTS		
• Many Crayfish & Fish Observed within Channel. Freshwater Clams • Characterised by a slow moving - with some speed around flats and riffles, many boulders and shelter areas for passage • Adequate spawning gravels throughout 100s of crossing. • Access Restricted to Channel due to private prop.		
Additional Notes Appended? ○ No ☒ Yes	Number of Pages 5 total (drawings attac	

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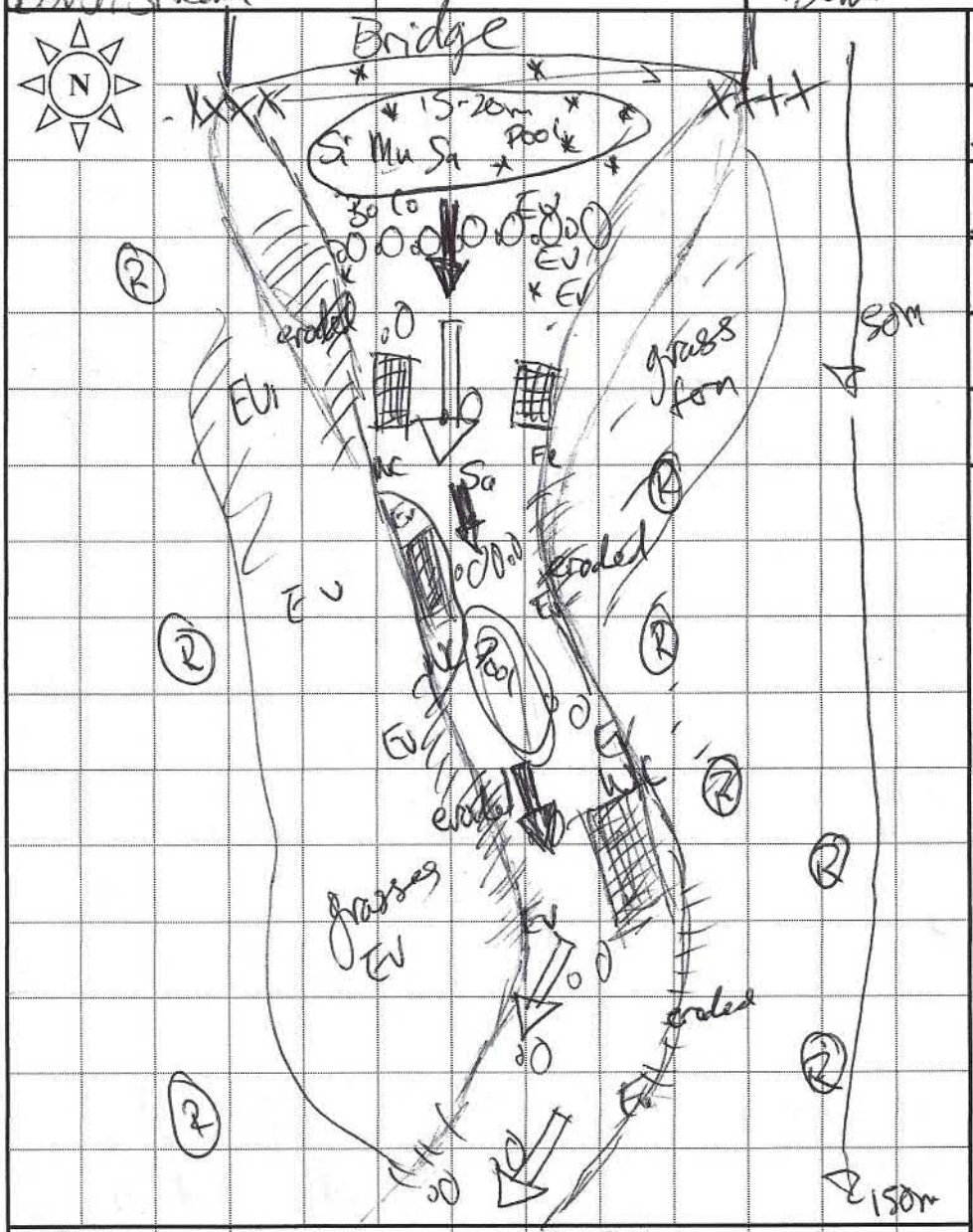
SECTION IDENTIFIER:	SECTION LOCATION:	SECTION LENGTH (m):	SCALE (cm / m):
Downstream		150m	Meter



PROFILE:	Horz. Scale	Vert. Scale

PROJECT #:

MAPPER: J. Abernethy

NAME OF WATERBODY: Irvine Creek

CROSSING #: W616

STATION #:

DATE: YY-MMM-DD 21/05/28

LEGEND

10d depth (cm)
6w width

➡ Riffle
⇨ Run/Glide
⬭ Pool
▩ Island/Bar
▒ Fine Substrate
Gravel Substrate
oOooO Cobble /Boulder
* * * Debris

CT Cattail
SV/FV Submergent/Float Veg
EV Emergent Vegetation
W Watercress
Fe Iron Staining
/////// Eroded Bank
xxx Riprap/Other Stabilization
Instream Log/Tree
^^^ Dam/Weir/Obstruction
® Riparian Tree

|► Seep/Spring
-------- Undercut Bank
— Barrier to Fish Movement
-S- Seasonal Barrier
-x--x- Fence line
└┘ Culvert

APPENDIX B: TREE INVENTORY

TREE INVENTORY

Schedule "B" Municipal Class Environmental Assessment Study, Bridge 16-WG on 5th Line Over Irvine Creek, in the Township of Centre Wellington, Ontario.

MP Project No.: CCO-21-3823

Prepared for:

Centre Wellington

City of Toronto
18th Floor, West Tower, City Hall
100 Queen Street West
Toronto, ON M5H 2N2

Prepared by:

McINTOSH PERRY

McIntosh Perry Consulting Engineers Ltd.
2010 Winston Park Drive, Suite 400
Oakville, Ontario L6H 5R7

TREE INVENTORY

Schedule "B" Municipal Class Environmental Assessment Study, Bridge 16-WG on 5th Line Over Irvine Creek, in the Township of Centre Wellington, Ontario.

Prepared for:

Centre Wellington

City of Toronto
18th Floor, West Tower, City Hall
100 Queen Street West
Toronto, ON M5H 2N2

Prepared by:

McINTOSH PERRY

McIntosh Perry Consulting Engineers Ltd.
2010 Winston Park Drive, Suite 400
Oakville, Ontario L6H 5R7

June 29, 2021

Prepared by:

Jessica Abernethy

_____
Jessica Abernethy
Junior Biologist
McIntosh Perry Consulting Engineers Ltd.

Reviewed by:

_____
Kenneth Jobity
Manager of Natural SciencesMcIntosh Perry Consulting Engineers Ltd.

Reviewed by:

_____
Sarah Peters
Environmental Technician
McIntosh Perry Consulting Engineers Ltd.

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Figures

Tables

Appendices

1.0 INTRODUCTION

The Township of Centre Wellington has initiated a Municipal Class Environmental Assessment (Class EA) Study to assess a path forward with respect to improvements for the deteriorating Bridge 16-WG located over Irvine Creek in Centre Wellington (Figure 1). As of the Spring 2021, use of the bridge has been closed to the public due to poor structural conditions. As well, traffic flow restriction issues associated with the narrow platform design of the bridge have been identified. Options to address the aging Bridge 16-WG will be assessed to determine the preferred alternative and the scope of work required. The Class EA Study is being carried out as a Schedule 'B' undertaking in accordance with the Municipal Class Environmental Assessment process (October 2000, amended 2007, 2011 and 2015), approved under the *Ontario Environmental Assessment Act.*

Options to address the aging Bridge 16-WG will be assessed to determine the Technically Preferred Alternative (TPA) and the scope of work required for the structure. The alternative design concepts being considered as part of this Class EA are:

- Do nothing;
- Remove the existing Bridge 16-WG and provide turn around aras at the watercourse crossing;
- Remove the existing Bridge 16-WG and provide a new bridge in its place, and
- Rehabilate the existing Bridge 16-WG to meet engineering and public safety standards, reinstate the existing watercourse crossing.

This *Tree Inventory* will document all existing trees within the Bridge 16-WG study area, within the 5th Line right-of-way (ROW). Impacts to trees located within the Bridge 16-WG will be assessed for each of the alternative design solutions being considered as part of the Class EA study. If the TPA requires tree removals for construction works, compensation and restoration of these areas will need to be considered during the detail design process to restore these areas to existing or improved condition, where possible.Environmental information used in the production of this report has been assembled from field data specifically collected for this project.

1.1 Study Area

The Bridge 16-WG study area is located in the former Township of West Ganafraxa, now Township of Centre Wellington, Wellington County, Ontario. The Bridge 16-WG spans over Irvine Creek, located on 5th Line between Centre Wellington Road 19 and Sideroad 15, as seen in **Figure 1**.

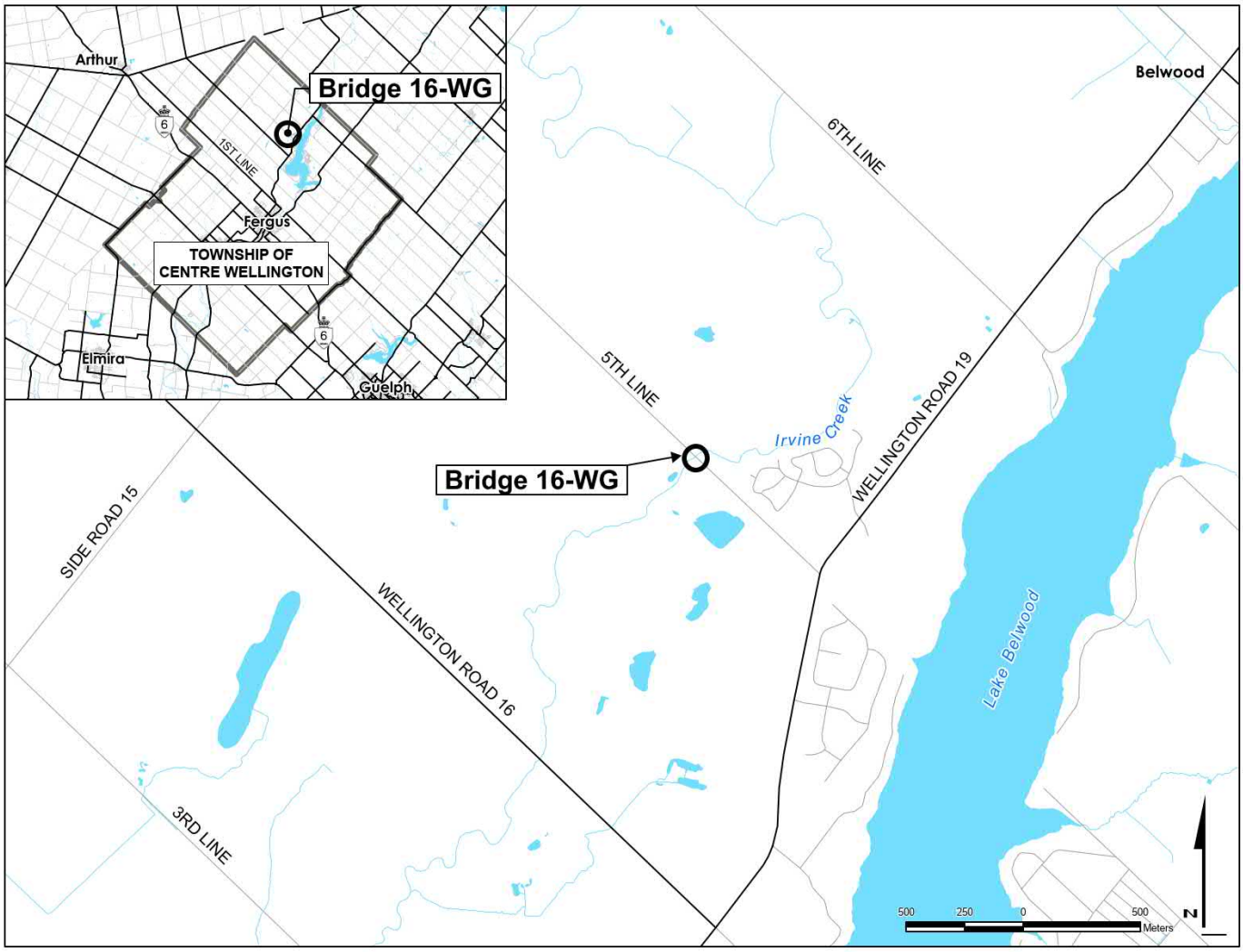

Figure 1: Bridge 16-WG Study Area Key Map

2.0 METHODOLOGY

A tree inventory and assessment was conducted by McIntosh Perry Staff, S. Peters and J. Abernethy on May 28th, 2021. The tree inventory and assessment included all trees located within the Bridge 16-WG study area boundaries (within the 5th Line ROW) that have potential to be impacted by the project design. Photos of the tree investigation areas can be found within **Appendix A**. The comprehensive results of the tree inventory can be found in **Appendix B**.

The inventory data included tree species identification, general health condition assessment and diameter at breast heigh (DBH) measurement. All specimens with a DBH of 10 cm or greater were included in the Inventory. DBH measurements were taken at approximately 1.4 m above ground surface at the base of each tree.

Tree health assessment was graded on a scale ranging from Dead, Poor, Fair and Good based on characteristics such as trunk integrity, canopy structure and canopy vigour. Outlined below are the detailed guidelines utilized for the classification of condition rating:

Good: (Healthy)
No major branch mortality: crown is reasonably normal with less than 25% branch or twig mortality; little to no evidence of decay

Fair: (Light – Moderate Decline)
Branch mortality, twig dieback in 26-50% of the crown: broken branches or crown missing based on presence of old snags is 50% or less; decay evident.

Poor: (Severe Decline)
Branch mortality, 50% or more of the crown dead: broken branches or crown area missing based on presence of old snags in more tha 50%; decay resulting in potential hazard.

Dead:
Tree is dead, standing and is considered a potential hazard to public health and safety.

3.0 TREE RESOURCE DESCRIPTION

A total of 31 trees were documented within the proposed laydown areas (tree investigation areas) of the Bridge 16-WG study area (**Figure 2**). The site contained a mix of native and non-native tree species that were mature and were mostly in good condition, with two in poor condition. Overall, the tree inventory consisted of the following species:

Table 1: Tree Resource Composition		
Tree Species Common Name (*Scientific Name)*	**Status**	**Number Specimens Found**
Sugar maple (*Acer saccharum*)	Native	1
Manitoba Maple (*Acer negundo*)	Non-native	3
White Willow (*Salix alba)*	Native	1
Hawthorn	Native	2
Eastern White Cedar	Native	24

The health status of the trees varied, with 29 healthy specimens found and 2 specimens found to be in a state of stress/ decline (<95% live canopy). The specimens that were found to be in poor condition were non-native Manitoba Maples (*Acer negundo*). No dead trees were observed within the proposed laydown areas during the assessment.

The areas surrounding the tree investigation areas are made up of sparsley to dencely treed areas, hedgerow, and residential properties. All trees outside of the Bridge 16-WG study area (i.e., 5th Line ROW) were not inventoried as impacts to areas outside of the ROW are not anticipated at this point in time based on the alternative design concepts currently being considered.

LEGEND

- Tree Inventory Area
- Eastern White Cedar Stand

Tree Inventory

- Eastern White Cedar
- Hawthorn
- Manitoba Maple
- Sugar Maple
- Willow
- Watercourse

REFERENCE

GIS data provided by the Ontario Ministry of Natural Resources and Forestry, 2021.

10 5 0 10

Scale 1:500 Metres

CLIENT:
TOWNSHIP OF CENTRE WELLINGTON

PROJECT:
TREE INVENTORY

TITLE:
TREE INVENTORY

McINTOSH PERRY
115 Walgreen Road, RR3, Carp, ON K0A1L0
Tel: 613-836-2184 Fax: 613-836-3742
www.mcintoshperry.com

PROJECT NO: CCO-21-3823		FIGURE:
Date	Jun., 09, 2021	2
GIS	EU	
Checked By	JA	

C:\Users\e.ungun\McIntosh Perry\GIS - Documents\Projects\2021\CCO\CCO-21-3823 Ctr Wellington-Mun Class EA Strut 16-WG\aprx\Env\Tree Inventory\CCO-21-3823_TreeInventory.aprx

4.0 RARE AND ENDANGERED SPECIES REVIEW

There were no SAR or regionally rare species within the potentially impacted area of Bridge 16-WG and impacts to these species are not anticipated as part of the project works.

5.0 TREE REMOVAL AND PRESERVATION RECOMMENDATIONS

As stated in Section 3.0, a total of 31 trees (29 healthy, 2 declining) were found within the limits of the proposed bridge replacment. The 2 trees found to be of declining health/ dead should be considered hazard trees, which are specimens showing signs of poor health and are prone to failure, causing a risk to public safety/property. These trees should be removed prior to any on-site construction.

It is recommended that all healthy trees that will not be impacted by the selected TPA be retained and vegetation removals are minimized where operationally feasible during construction.

6.0 TREE COMPENSATION RECOMMENDATIONS

If the selected TPA requires the removal of or is anticipated to have adverse impacts to trees located within the Bridge 16-WG study area, it is recommended that a tree compensation and preservation plan be designed during the detail design process of this Class EA study.

McIntosh Perry generally reccomments a tree compensation ratio of 2:1 (i.e., two (2) compensation trees for every one (1) healthy tree removed). The compensation trees can be planted in the most suitable portions of the study area based on conditions such as tree species, sunlight availability and soil moisture.

7.0 LIMITING TERMS AND CONDITIONS

The assessment of the trees presented within this report have been made using a visual examination of the above-ground parts of each tree for structural defects, external indications of decay, evidence of insect presence, and discoloured foliage. None of the trees examined were dissected, cored, probed, or climbed, and detailed root crown examinations involving excavation were not undertaken.

Notwithstanding the recommendations and conclustions made in this report, it must be realized that trees are living organisms and their health and vigour is constantly changing. They are not immune to changes in site conditions or seasonal variations in the weather.

While reasonable efforts have been made to ensure the trees recommended for retention are healthy, no guarantees are offered or implied, that these trees or any part of them will remain standing. It is both professionally and practically impossible to predict with absolute certainty the behaviours of single tree or group of trees in all circumstances. Every effort has been made to ensure that this assessment is reasonably accurate, however trees should be re-assessed periodically.

Appendix A – Photo Log

Photo 1: Tree #1 Sugar maple in good condition. May 28, 2021.

Photo 2: Tree #2 Manitoba maple in good condition. May 28, 2021.

Photo 3: Tree #3 Manitoba maple in poor condition. May 28, 2021.

Photo 4: Tree #4 Manitoba maple in poor condition. May 28, 2021.

Photo 5: Tree #5 Hawthorn in good condition. May 28, 2021.

Photo 6: Tree #6 Willow in good condition (trunks are attached at base). May 28, 2021.

Photo 7: Tree #7 Eastern White Cedar clump in good condition. May 28, 2021.

Photo 8: Tree #8 Hawthorn in good condition. May 28, 2021.

Photo 9: Eastern White Cedar stand, trees #9 to #29 in good condition. May 28, 2021.

Photo 10: Eastern White Cedar stand, trees #9 to #29 in good condition. May 28, 2021.

Photo 11: Tree #30 Eastern White Cedar in good condition. May 28, 2021.

Photo 12: Tree #31 Eastern White Cedar in good condition. May 28, 2021.

Photo 12: Eastern White Cedars within the tree inventory area, but located on Private Property. May 28, 2021

Appendix B – Tree Inventory

#	Species	DBH	Condition	Notes	Quadrant
1	Sugar Maple	26.75	good	Located on manicured lawn (Residential property)	South
2	Manitoba Maple	30.25	good	Located on manicured lawn (Residential property)	
3	Manitoba Maple	25.16	poor	Only a few branches remain alive. Located on manicured lawn (Residential property)	
4	Manitoba Maple	25.80	poor	Only a few branches remain alive. Located on manicured lawn (Residential property)	
5	Hawthorn	12.74	good	Located on manicured lawn (Residential property)	
6	Willow	35.03	good	Located on manicured lawn (Residential property)	
7	Eeastern White Cedar	14.33	good	Clump of trees, on fenceline	North East
8	Hawthorn	13.69	good	Clump of trees, on fenceline	
9	Eastern White Cedar	21.02	good	Large stand of 21 Cedar trees (hedgerow), maximum size 31.21 DBH, minimum 9.5 DBH. Average 21 DBH	North
10	Eastern White Cedar		good		
11	Eastern White Cedar		good		
12	Eastern White Cedar		good		
13	Eastern White Cedar		good		
14	Eastern White Cedar		good		
15	Eastern White Cedar		good		
16	Eastern White Cedar		good		
17	Eastern White Cedar		good		
18	Eastern White Cedar		good		
19	Eastern White Cedar		good		
20	Eastern White Cedar		good		
21	Eastern White Cedar		good		
22	Eastern White Cedar		good		
23	Eastern White Cedar		good		
24	Eastern White Cedar		good		
25	Eastern White Cedar		good		
26	Eastern White Cedar		good		
27	Eastern White Cedar		good		
28	Eastern White Cedar		good		
29	Eastern White Cedar		good		
30	Eastern White Cedar	15.29	good	Along fenceline, pruning evidence	North West
31	Eastern White Cedar	29.30	good	Along fenceline, pruning evidence	

APPENDIX C – CULTURAL HERITAGE EVALUATION REPORT & ADDENDUM

ARCHAEOLOGY | HERITAGE | OUTREACH | EDUCATION

Scoped Cultural Heritage Evaluation Report
Structure 16-WG

Municipal Class Environmental Assessment for
Structure 16-WG
Township of Centre Wellington
Road Allowance between Lot 13, Concession 5 and Lot 13, Concession 6
Geographic Township of Garafraxa
Wellington County, Ontario

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HR-337-2021
ARA File #2021-0118

REVISED - FINAL
20/12/2021

EXECUTIVE SUMMARY

Under a contract awarded in May 2021 by McIntosh Perry, Archaeological Research Associates Ltd. carried out a scoped Cultural Heritage Evaluation Report for the *Municipal Class Environmental Assessment for Structure 16-WG* in the Township of Centre Wellington. The study area comprises about 15 m on both approaches of Structure 16-WG, an area approximately 0.25 ha (0.63 ac) in size. Specifically, the study area is located in the Township of Centre Wellington in the road allowance between Lot 13, Concession 5 and Lot 13, Concession 6 in the Geographic Township of Garafraxa, Wellington County.

Much of the required information for this evaluation was already completed and documented in the Heritage Impact Assessment report entitled *Fifth Line Bridge, Structure 16-WG Spanning Irvine Creek, Township of Centre Wellington, Wellington County, Ontario* completed by Golder in 2013. *Addendum #1, Request for Proposal #21-21, MCEA – Structure 16WG* specifically notes "the evaluation under O Reg 9/06 from the Golder 2013 Heritage Impact Assessment report does not need to be repeated" and *Addendum #2, Request for Proposal #21-21, MCEA – Structure 16WG* notes that a Cultural Heritage Evaluation Report is still required. This Cultural Heritage Evaluation Report builds on the 2013 Heritage Impact Assessment completed by Golder and contributes further historic mapping, current photographs, updated current conditions, and serves to supplement the information in the 2013 report to meet current standards.

This 2021 report provides additional analyses that confirms the evaluation of cultural heritage value or interest contained in the 2013 Cultural Heritage Evaluation Report for the Structure 16-WG. The bridge was found to meet one of the criteria for determining Cultural Heritage Value or Interest as outlined in O. Reg. 9/06. Structure 16-WG is a rare example of a concrete closed spandrel arch bridge. A Statement of Cultural Heritage Value or Interest was prepared, including the heritage attributes and is contained in Section 6.0.

Since it was concluded in 2013 and confirmed in 2021 that Structure 16-WG meets one or more criteria under O. Reg. 9/06 of the Ontario Heritage Act, it is recommended the Township of Centre Wellington undertake a Heritage Impact Assessment report for Structure 16-WG as recommended in the 2013 Golder Report as a requirement of the Municipal Class Environmental Assessment process. An updated Heritage Impact Assessment will examine the potential impacts of the project and provide mitigation measures.

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GLOSSARY OF ABBREVIATIONS

ARA – Archaeological Research Associates Ltd.
EA – Environmental Assessment
CHVI – Cultural Heritage Value or Interest
CHL – Cultural Heritage Landscape
HRC – Heritage Resource Centre
MCEA – Municipal Class Environmental Assessment
MHSTCI – Ministry of Heritage, Sport, Tourism and Culture Industries
MTO – Ministry of Transportation
OHA – Ontario Heritage Act
O. Reg. – Ontario Regulation
OSIM – Ontario Structure Inspection Manual
TRCA – Toronto and Region Conservation Authority

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Two-page Curriculum Vitae (CV) for key team members that demonstrate the qualifications and expertise necessary to preform cultural heritage work in Ontario are provided in Appendix B.

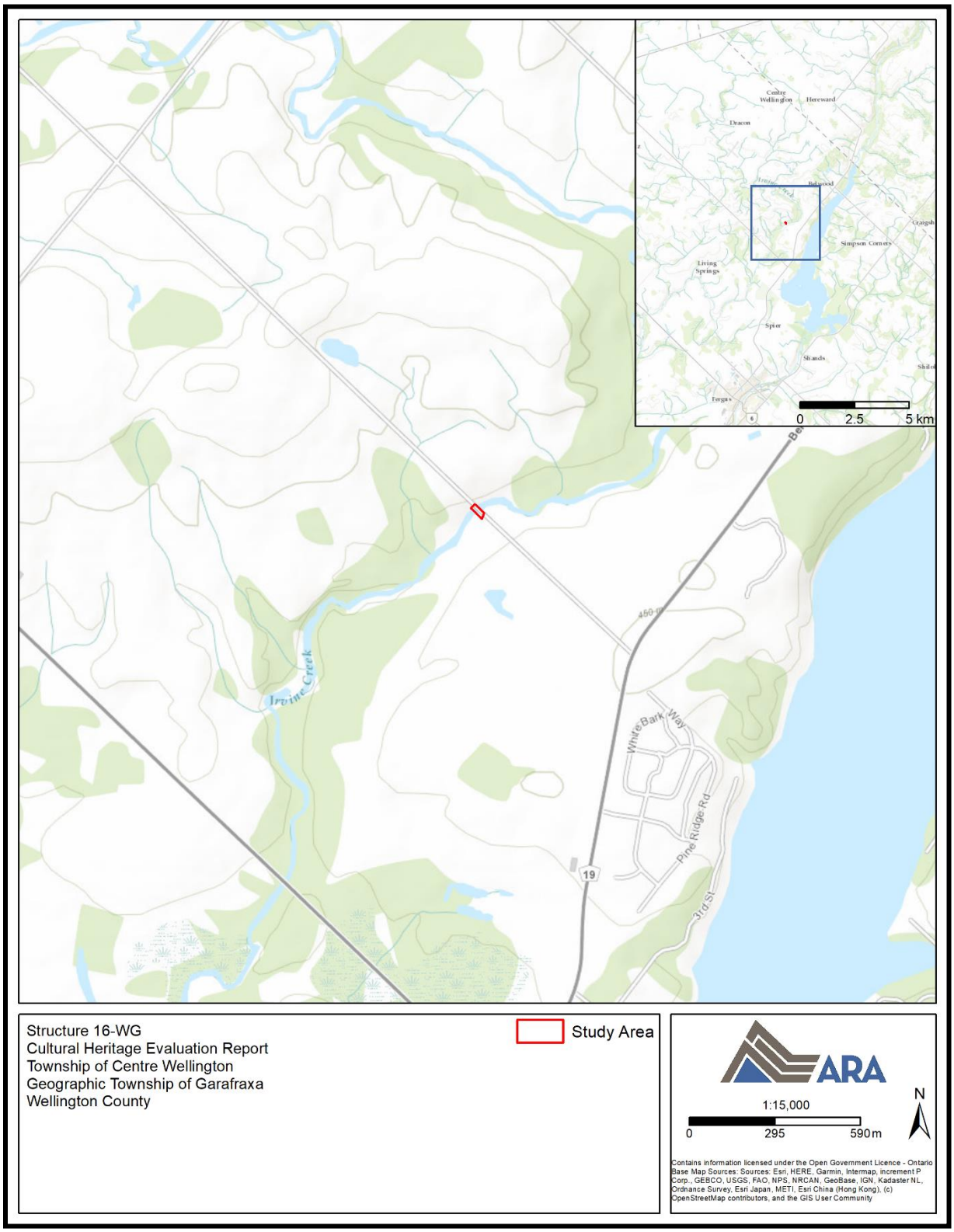
1.0 INTRODUCTION

Under a contract awarded in May 2021 by McIntosh Perry, Archaeological Research Associates Ltd. (ARA) carried out a scoped Cultural Heritage Evaluation Report (CHER) for the *Municipal Class Environmental Assessment for Structure 16-WG* in the Township of Centre Wellington. The study area comprises about 15 m on both approaches of Structure 16-WG, an area approximately 0.25 ha (0.63 ac) in size (Map 1). Specifically, the study area is located in the Township of Centre Wellington in the road allowance between Lot 13, Concession 5 and Lot 13, Concession 6 in the Geographic Township of Garafraxa, Wellington County.

Much of the required information for this evaluation was already completed and documented in the Heritage Impact Assessment (HIA) report entitled *Fifth Line Bridge, Structure 16-WG Spanning Irvine Creek, Township of Centre Wellington, Wellington County, Ontario* completed by Golder in 2013 (included in Appendix C). *Addendum #1, Request for Proposal #21-21, MCEA – Structure 16WG* (Centre Wellington 2021a) specifically notes "the evaluation under O Reg 9/06 from the Golder 2013 Heritage Impact Assessment Report does not need to be repeated" and *Addendum #2, Request for Proposal #21-21, MCEA – Structure 16WG* (Centre Wellington 2021b) notes that a CHER is still required. This report builds on the 2013 HIA completed by Golder and contributes further historic mapping, current photographs, updated current conditions, and also serves to supplement the information in the 2013 report to meet current standards.

On June 8, 2021, the 2021 ARA CHER was shared with the Township Council and Municipal Heritage Committee. No requests were made for modifications to the Statement of CHVI or the heritage attributes. On November 26, 2021, comments were received from the Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI), specifically that the CHER should examine the 2013 Golder Statement and examine it through an Ontario Regulation 9/06 evaluation. This revised report includes an Ontario Regulation 9/06 evaluation.
The bridge is located on Fifth Line over Irvine Creek and is currently owned by the Township of Centre Wellington. It was closed to traffic in March 2021 as was recommended in the most recent Bridge Inspection from February 2021 (K. Smart 2021). This report indicated previous work done to alleviate load on the bridge including overhead clearance frames and reduction from 10 to 2 tonne load limits posted (as was recommended in previous inspections). From January 15, 2014 regular measurements of guide rail posts were initiated to document movement of the retaining walls; since then, 15 rounds of measurements have been taken (K. Smart 2021). Recommendations included immediate closure of the bridge. Since May of 2021 the bridge has been blocked off with chains and one large concrete jersey barrier at each approach. The Municipal Class Environmental Assessment (MCEA) is being undertaken to address the deterioration of the bridge and determine the preferred alternative and concept design for the recommended solution.

This CHER was conducted in accordance with the aims of the *Provincial Policy Statement* (2020), *Ontario Heritage Act*, R.S.O. 1990, *Environmental Assessment Act*, R.S.O. 1990, *Guideline for Preparing the Cultural Heritage Resource Component of Environmental Assessments* (MHSTCI 1992) and the *Ontario Heritage Tool Kit* series (MHSTCI 2006).



Map 1: Study Area in the Township of Centre Wellington
(Produced by ARA under licence using ArcGIS® software by Esri, © Esri)

2.0 HISTORIC CONTEXT

A summary of the bridge's historical context can be found in Section 2.2 on page 8 of the original 2013 document (see Appendix C). However, as no historic mapping is provided, this section fills that gap by examining three historic maps and one historic aerial image.

As discussed in Section 1.0, the study area is located within the road allowance between Lot 13, Concession 5 and Lot 13, Concession 6 in the Geographic Township of Garafraxa, Wellington County.

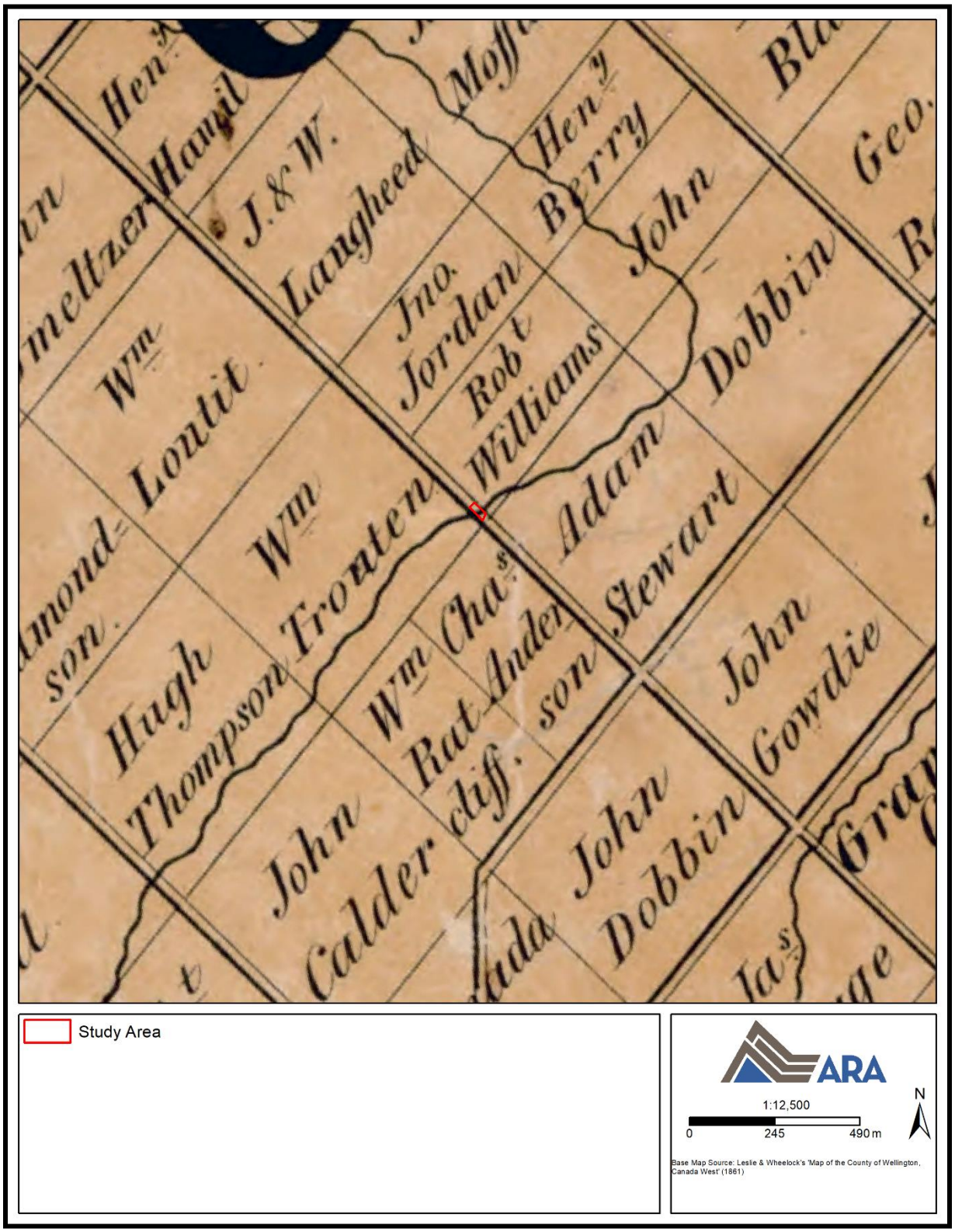
Specifically, the following resources were consulted:

- Leslie and Wheelock's *Map of the County of Wellington, Canada West* (1861) (OHCMP 2021);
- *West Garafraxa* from Walker and Miles' *Topographical and Historical Atlas of the County of Wellington, Ontario* (1877) (McGill University 2001);
- A topographic map from 1937 (OCUL 2018); and
- An aerial image from 1954 (University of Toronto 2021).

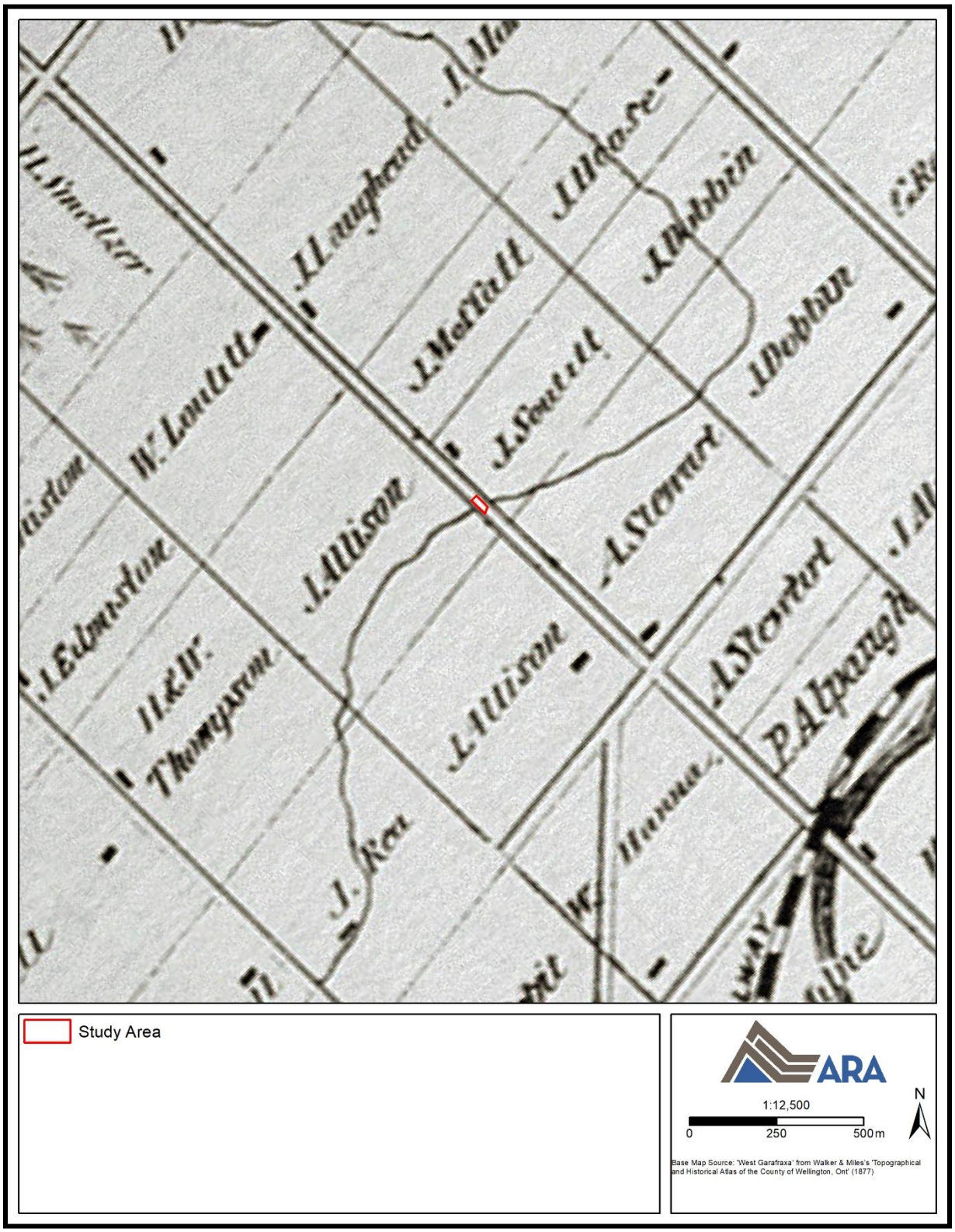
Leslie and Wheelock's *Map of the County of Wellington, Canada West* (1861) situates the study area within the historic landscape. The study area is located within the concession road allowance between Lot 13, Concessions 5 and 6 where Irvine Creek crosses (see Map 2). It is unclear if there was a bridge at the crossing of Irvine Creek within the study area at the time. The vicinity of the study area appears to have been well-settled by 1861, although buildings are not indicated on the map.

By 1877, it is possible that a bridge had been constructed within the study area to cross Irvine Creek. While not explicitly indicated, the concession road traversing the study area crosses the creek and obscures/covers the view of the creek below, possibly denoting the location of a bridge (see Map 3). Development near the study area continued at this time, with buildings/structures depicted on surrounding farm properties. By this time, the Credit Valley Railway traversed the township to the southeast of the study area.

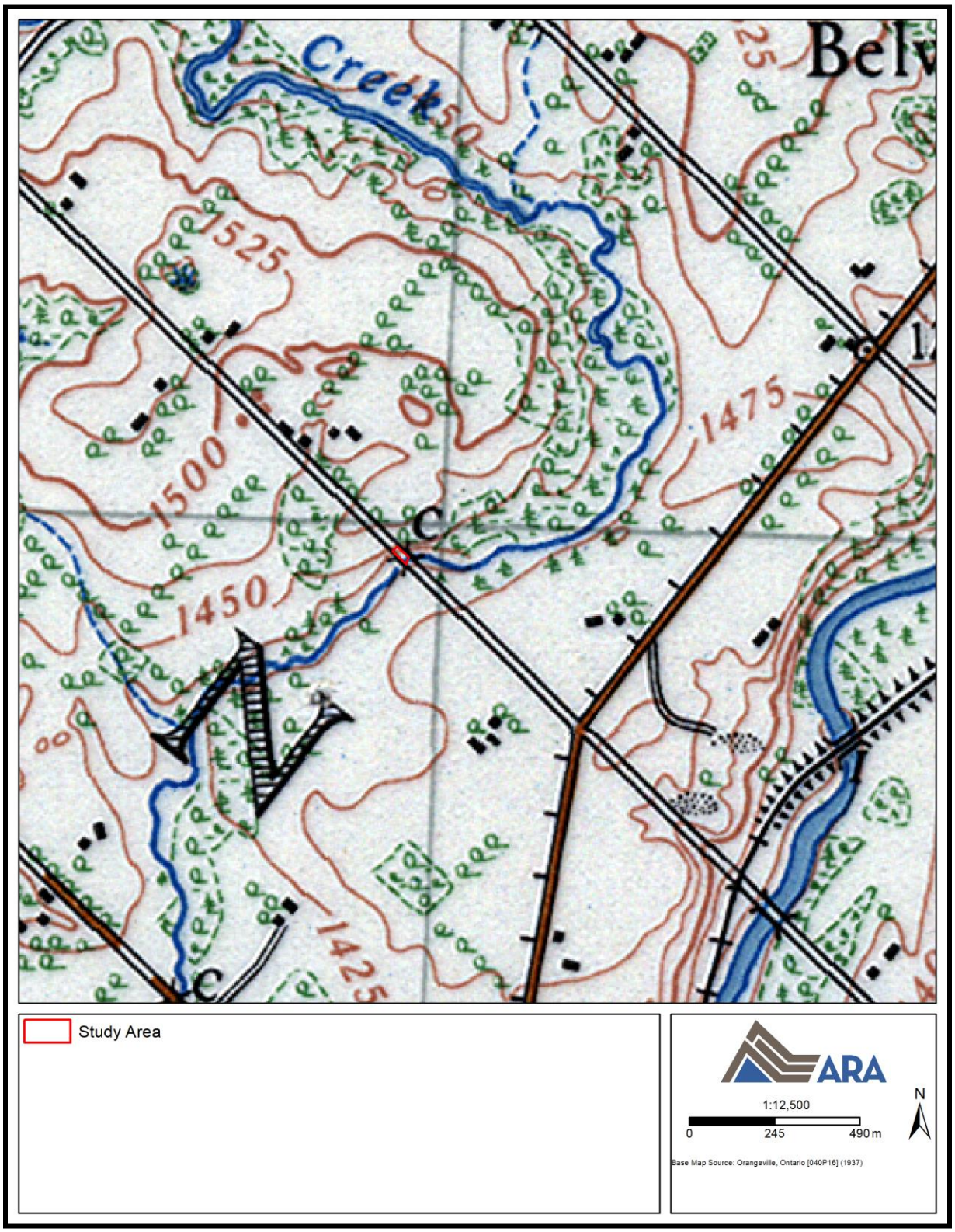
A topographic map from 1937 indicates the location of a "cement" bridge (the subject bridge) in the study area at the Irvine Creek crossing (see Map 4). The surrounding area remained largely agricultural at the time, with farmhouses and barns depicted in the vicinity. To the southeast, the Credit Valley Railway is shown crossing the Grand River prior to the construction of the Shand Dam and creation of Belwood Lake. An aerial image from 1954 shows little in terms of development in the vicinity of the study area with the exception of the recently created Belwood Lake to the southeast (see Map 5).



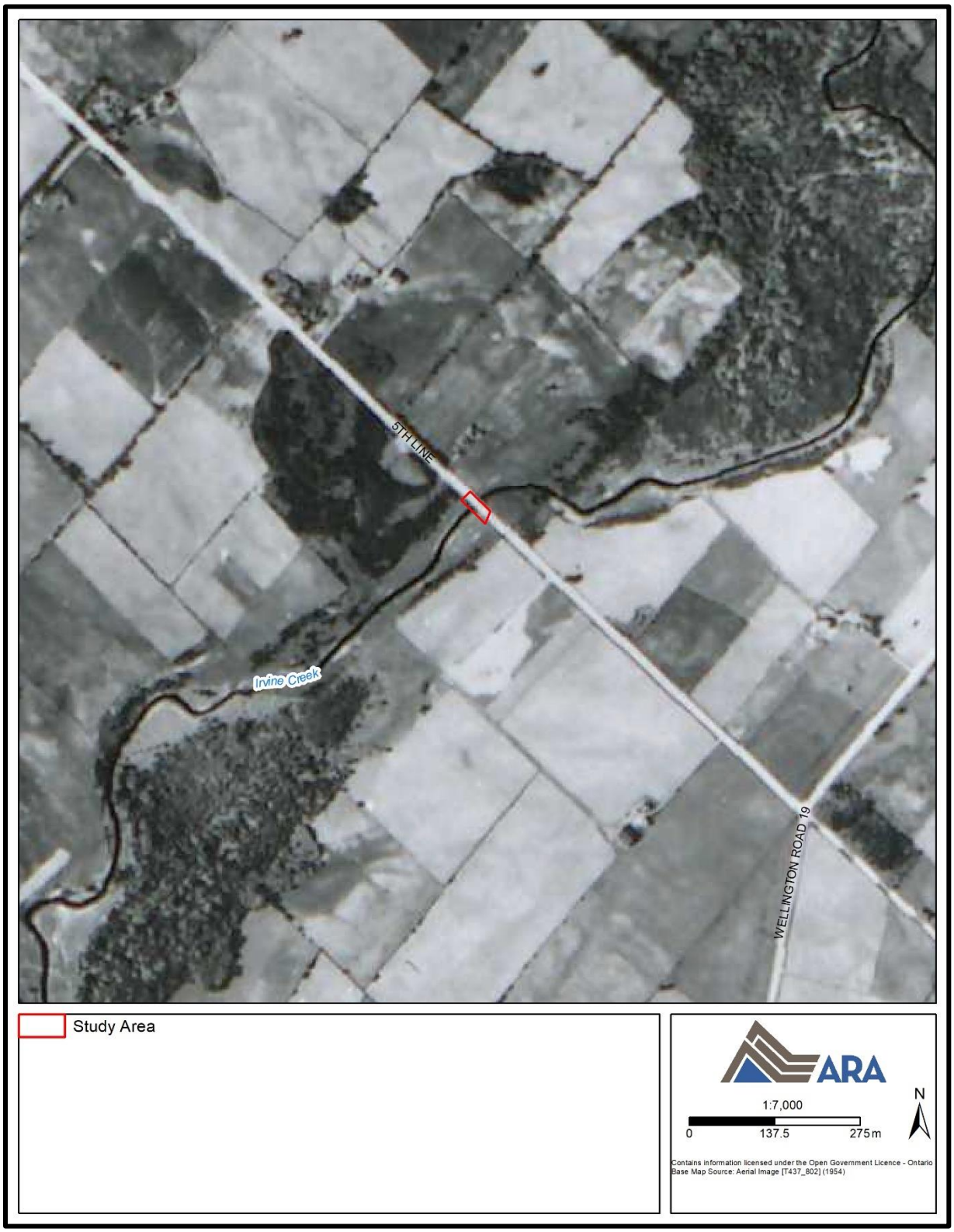
Map 2: Study Area on Leslie and Wheelock's *Map of the County of Wellington, Canada West, 1861*
(Produced by ARA under licence using ArcGIS® software by Esri, © Esri; OHCMP 2021)



Map 3: Study Area on an 1877 Map of Garafraxa Township
(Produced by ARA under licence using ArcGIS® software by Esri, © Esri; McGill University 2001)



Map 4: Study Area on a 1937 Topographic Map
(Produced by ARA under licence using ArcGIS® software by Esri, © Esri; OCUL 2021)



Map 5: Study Area on a 1954 Aerial Photograph
(Produced by ARA under licence using ArcGIS® software by Esri, © Esri; U of T 2021)

3.0 EXISTING CONDITIONS

The 2013 report provides a description of the bridge (see Appendix C Section 3.0:11-14). Specifically, the section noted that:

- abutments are constructed of cast-in-place concrete;
    - wooden plank frameworks for concrete still visible on concrete face;
    - exposed abutment footings due to erosion;
- built into steep earth embankments;
- arch had a span of 47 feet and a depth of 10 feet
- deck is feet 104 feet long and 17 feet wide
    - originally had concrete rail system that allowed for only 14 feet of available road surface
- In 1958, concrete railings were removed and replaced with the present steel barrier rail system
    - bolted straight into the concrete bridge elevations
    - cut out sections of the top lip of the spandrel walls to inset the steel bars of the rail system;
- Erosion of the concrete soffit (underside of arch) has revealed the reinforcing rods, or rebar, that was used to form the concrete arch

Updated existing conditions of the subject property are described below using data and photographs gathered during a site visit, as well as findings from the latest inspection report (K Smart 2021).

3.1 Inspection Form (February 2021)

The Inspection Form identifies the subject bridge as a single span concrete spandrel arch bridge. General comments on the structure are as follows:

> *As stated in our previous reports for this structure: <In the interest of public safety, we recommend that a maximum movement of 50mm from the baseline be set. Once the total movement of 50mm from the baseline has been reached, this structure should be closed>.*
>
> - *The measured observations have surpassed the 50mm threshold at two of the three locations.*
> - *It is possible/probable that this movement is due to frost action.*
> - *It is unknown if this deformation will be permanent or if some relief will come in warmer weather.*
>
> *Even if this displacement is due to frost action, these components are neither designed for movement, nor have sufficient remaining integrity to enable movement without damage. Given that the baseline maximum has now been exceeded, we recommend closure of this structure based on this alone. If the Township wishes keep the structure open at their own discretion we would at a minimum recommend to enhance monitoring and inspections until spring to monitor for further wall displacement* (K. Smart 2021:2).

The bridge was promptly closed to traffic following this February 2021 report and remains closed as of the field survey conducted in May 2021.

3.2 ARA Field Survey

A field survey was conducted on May 25, 2021, to photograph and document the subject bridge, and to record any features that could enhance ARA's understanding of the setting in the landscape and contribute to the cultural heritage evaluation process. The field survey was conducted on the entire property including landscape features such as the rural road cross-section, views to and from the bridge and elements of the bridge (see Image 1–Image 23).

4.0 COMPARATIVE ANALYSIS

An examination of the history of concrete arch bridges, examples from southern Ontario and local examples informs a comparative analysis of the subject bridge.

4.1 Concrete Closed Spandrel Arch Bridges History and Construction in Ontario

Concrete, as a medium for bridge building was improved over the first four decades of the 20th century. Steel truss bridges were being designed and patented across the province and were being used in industrial towns like Brantford and Paris with wrought iron starting around 1850. Timber bridges continued to be popular until 1890 when steel was more affordable.

Even with steel being more affordable, some municipalities still needed a less expensive option; the concrete arch. The Heritage Resource Centre (HRC) states in *Grand River Heritage Bridge Inventory Arch Truss & Beam*, "In 1899, A.W. Campbell, a government instructor in road building, encouraged the use of concrete to provide an inexpensive, long-lasting bridge material. Concrete became a dominant material for bridge building in southern Ontario from this time on, as local aggregates were easily accessible for local contractors" (HRC 2013: 7). This bridge type is a simple design, easily designed and constructed by local people with local material. Small spans of this type were typically filled with earth rocks and other fill, using the closed spandrel walls as retaining walls. This bridge type is capable and efficient at supporting heavy loads over long periods of time. The first reinforced arch bridge in Ontario was built in 1906, just two years before the older extant concrete arch bridge- the Fourth Line Bridge in the Township of Centre Wellington (HRC 2013: 6-8, 161, 184; see Table 1).

The 2013 report noted that the bridge is one of four bridges in Centre Wellington of the same design. However, additional studies of bridges in Ontario were not examined to determine the rarity of this bridge type in Ontario, nor was analysis of this bridge type in Centre Wellington undertaken. This section aims to fill those gaps to provide clarity regarding the design/physical value of the bridge.

This bridge type saw a construction decline around 1919 but continued to be built into the 1930s on rare occasion (HRC 2013:161). This bridge type saw a relatively short period of popularity between 1905 and 1919.

The Ontario Heritage Bridge List was consulted. The list records evaluations of provincially owned bridges across the province. It should be noted, this is a list of bridges that have had heritage evaluations and not an exhaustive inventory. There are currently five earth-filled closed concrete arch bridges listed. These bridges date from 1910 to 1941. This low number of the concrete structure-type shows the rarity of this type of bridge in Ontario. Only two of the five bridges listed were found to be locally significant, the remainder were found not to have value.

More relevant, are bridges found in southern Ontario on municipal roads. Therefore, local heritage bridge inventories were consulted. *Crossing the Humber: The Humber River Heritage Bridge Inventory* lists 33 heritage bridges and associated vestiges within the Humber River Watershed. One reinforced concrete arch is listed in the City of Vaughan (TRCA 2011:56).

The HRC Study, *Arch Truss and Beam, The Grand River Watershed Heritage Bridge Inventory* (HRC 2013) has a much wider scope than the Humber River Heritage Bridge Inventory. It inventoried 678 bridges within the Grand River Watershed of which 167 were found to have heritage value. It is noted in *Arch Truss & Beam*, that these earth-filled concrete bridges from the early 20th century are being removed from Ontario roads since they had been built narrower than the current road needs. As a result, closed concrete spandrel arch bridges are rare. The rarity of this bridge type is clear, there are only 11 closed spandrel arch bridges in the inventory. Two such bridges are located in Brant County, the Township of Wellesley retains only one extant bridge of this type, there are two remaining in the City of Kitchener, one in Woolwich, one in the Township of Guelph-Eramosa and four in Centre Wellington.

The four bridges within the Township of Centre Wellington are detailed in Table 1. Further, the Township of Centre Wellington has an inventory of bridges within their boundaries and these four bridges are indicated on Figure 1.

Table 1: Concrete Arch Bridges within Township of Centre Wellington

Bridge	Photographs (HRC 2013)	Owner/location	Date	Spans	Length (m)	Material	Current Status
Centre Wellington Bridge 16-WG		**Township of Centre Wellington**	**c.1910**	**1**	**16.1**	Poured in Place Reinforced Concrete	**Closed to Traffic in March 2021**
Centre Wellington Bridge 9-WG		Township of Centre Wellington	1925	1	11.9	Poured in Place Reinforced Concrete	Open (Purple Circle on Figure 1)

Bridge	Photographs (HRC 2013)	Owner/location	Date	Spans	Length (m)	Material	Current Status
Washington Street Bridge Centre Wellington Bridge 12-N over Irvine Creek		Township of Centre Wellington	1925	1	10.3	Poured in Place Reinforced Concrete	Closed (Purple Circle on Figure 1)
Old Fourth Line Bridge over Eramosa River		Owner: Private (Abandoned alignment) Location: Township of Centre Wellington	1908	1	Unknown	Poured in Place Reinforced Concrete	Abandoned alignment (Purple Circle on Figure 1)

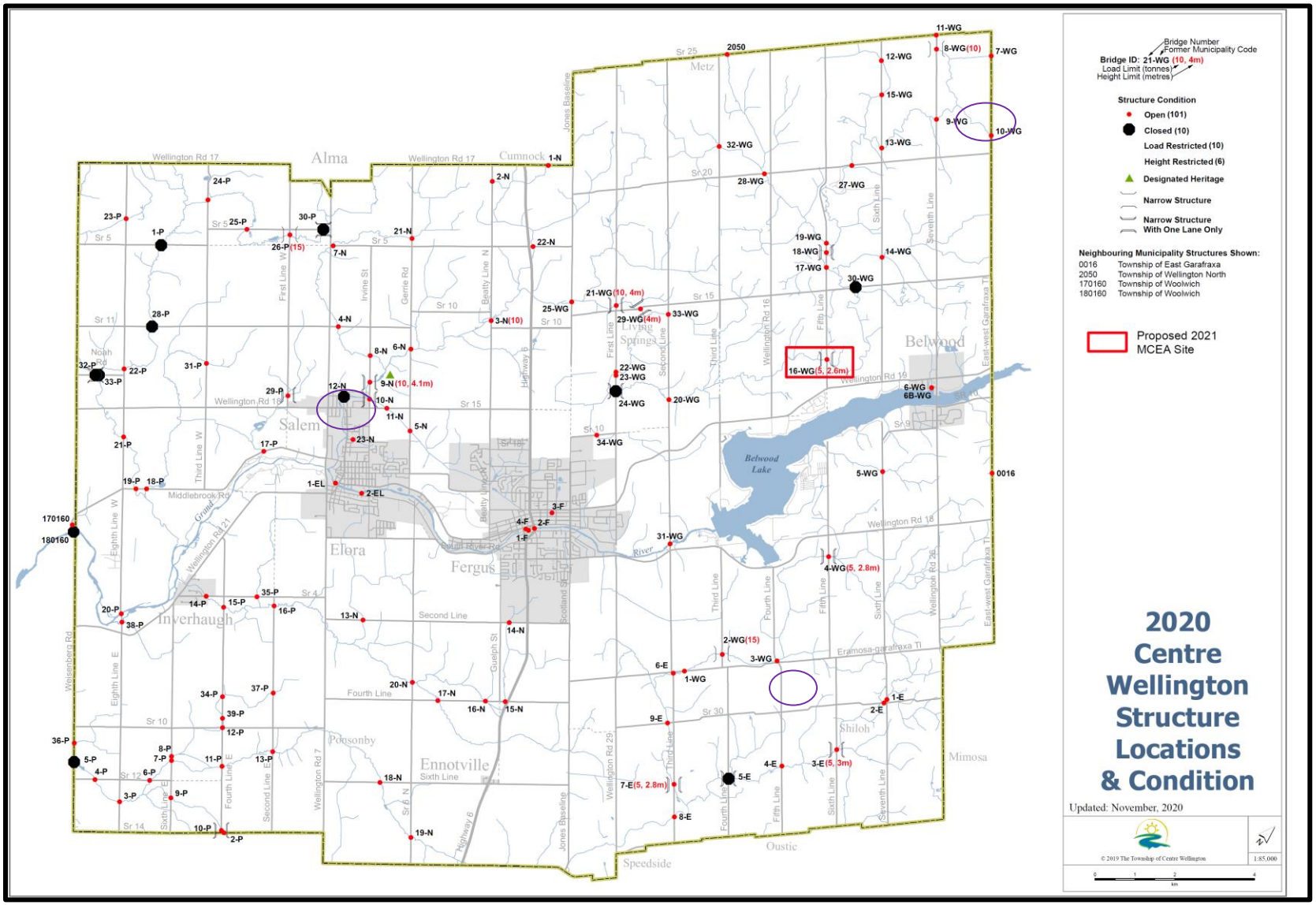


Figure 1: 2020 Centre Wellington Structure Locations and Condition
(Township of Centre Wellington 2020)

Of the inventoried bridges in Table 1, the construction dates range from 1908 to 1931. At least 4 of 5 inventoried bridges were noted to have/had concrete posts with handrails. All of the bridges are made of reinforced concrete that was poured in place. All bridges were single span, (i.e., over a short 10-16m crossing). Two of the inventoried bridges have unknown lengths. Based on the available lengths, the subject bridge is the longest known single concrete arch span in the Township.

4.2 Comparative Conclusions

As a result of the further analysis in this report, the rarity of this bridge-type in the province is clear. The subject bridge is also one of the oldest of its type having been built around 1910. While rare and early, this bridge represents one of a group of four bridges in one municipality, this in itself is a unique occurrence in Ontario, bolstering the subject bridge's design or physical value.

5.0 EVALUATION

The bridge was evaluated in 2013 and was found to have CHVI. Specifically, the report notes in Section 4.4.2 "The solid-spandrel, concrete-arch Fifth Line Bridge is representative of a common bridge type built in Ontario in the early 20th century. Many of these early bridges have been replaced due to structural deterioration and to meet modern traffic needs. Four of these designs still exist in Centre Wellington" (Golder 2013:16).

ARA is in agreement with the previous evaluation of the bridge, it does in fact have physical value. The rarity of this bridge-type in the province is clear after analyzing numerous bridge inventories (see Section 4.0). The circa 1910 subject bridge is one of the oldest of its type. An evaluation of WG-16 according to O. Reg. 9/06 for determining CHVI is found in **Table 2**.

Table 2: Evaluation of WG-15 Structure Using O. Reg. 9/06

Criteria	Description	Meets Criteria (Y/N)	Rationale
A. Design or Physical Value	1. Is a rare, unique, representative or early example of a style, type, expression, material or construction method.	Y	Structure 16-WG is a representative early example of a solid-spandrel concrete arch bridge. This bridge type is now rare in Ontario.
	2. Displays a high degree of craftsmanship or artistic value.	N	The solid-spandrel, concrete-arch bridge is common bridge type built in Ontario in the early 20th century.
	3. Displays a high degree of technical or scientific achievement.	N	This bridge type is representative example of its type but is not noteworthy from a technical or scientific point of view.
B. Historical or Associative Value	1. Has direct associations with a theme, event, belief, person, activity, organization or institution that is significant to a community.	N	The research conducted in Golder 2013 CHER did not reveal any direct associations with a theme, event, belief, person, activity, organization or institution that is significant to a community.
	2. Yields or has the potential to yield information that contributes to the	N	There are four of this bridge type remaining in Township of Centre-Wellington, and when constructed Structure 16-WG was one of many of this bridge type throughout southern Ontario. It does

Criteria	Description	Meets Criteria (Y/N)	Rationale
	understanding of a community or culture.		not yield information that contributes to the understanding of a community or culture.
	3. Demonstrates or reflects the work or ideas of an architect, builder, artist, designer or theorist who is significant to a community.	N	While there are references to John and Alex Louttit who were involved in the repair of the earlier, likely timber bridge, there are no references to an architect or builder or designer for the bridge (Golder 2013:9).
C. Contextual Value	1. Is important in defining, maintaining or supporting the character of an area.	N	As noted in Golder 2013, as settlement increased over the decades after the establishment of Garafraxa Township "roads were improved and gradually bridges were constructed over creeks and river" (Golder 2013:8). As such, Structure 16-WG is not important in defining, maintaining or supporting the character of the area.
	2. Is physically, functionally, visually or historically linked to its surroundings.	N	Structure 16-WG is one of many bridges that are located along creeks and rivers throughout Centre Wellington (seeFigure 1). It is located on Fifth Line where it crosses the Irvine Creek – a functional location common to all smaller bridges on regional and county roads. As such, the context of Structure 16-WG is not important in terms of its physical, functional, visual or historical surroundings as its location and function are similar to all smaller bridges throughout southern Ontario.
	3. Is a landmark.	N	Golder 2013 notes that Structure 16-WG is located where the Irvine Creek flows through a shallow valley and as such is not a landmark and does not stand out in its setting.

6.0 DETERMINATION OF THE STATEMENT OF CULTURAL HERITAGE VALUE OR INTEREST

The 2013 Golder report provided a Statement of CHVI and list of Heritage Attributes. As a result of this study, the Statement of CHVI now includes the property description and as such, ARA's work builds on and elaborates on Golder's earlier evaluation and Statement, while aiming to avoid redundancy. The 2013 Golder report and its Statement of CHVI for Structure 16-WG was provided by the Township as part of the *Request for Proposal #21-21, Municipal Class Environmental Assessment for Structure 16-WG* (Township of Centre Wellington 2021) and as detailed in *Addendum #1, Request for Proposal #21-21, MCEA – Structure 16WG* (Centre Wellington 2021a), the evaluation was not repeated. On June 8, 2021, the 2021 ARA CHER was shared with the Township Council and Municipal Heritage Committee. No requests were made for modifications to the Statement of CHVI or the heritage attributes.

7.0 STATEMENT OF CULTURAL HERITAGE VALUE OR INTEREST

7.1 Description of Property

Structure 16-WG is located in the Township of Centre Wellington in the road allowance between Lot 13, Concession 5 and Lot 13, Concession 6 in the Geographic Township of Garafraxa, Wellington County. Structure 16-WG is a concrete bridge, spanning Irvine Creek, is on Fifth Line, was designed in the solid spandrel concrete arch design.This bridge was built in 1910 The structure has a northwest-southeast orientation and is a single lane that carries predominantly vehicular traffic across Irvine Creek.

7.2 Cultural Heritage Value

"The solid-spandrel, concrete-arch Fifth Line Bridge [Structure 16-WG] is representative of a common bridge type built in Ontario in the early 20th century. Many of these early bridges have been replaced due to narrow lane width, structural deterioration and to meet modern traffic needs and the Fifth Line Bridge is a rare survivor of early-20th century concrete bridges in Ontario. Despite its provincial rarity, it is one of four similar structures still standing in the Township of Centre Wellington" (Golder 2013: 17).

7.3 Heritage Attributes

- Concrete spandrel walls
- Flat arch (Golder 2013:17).

8.0 CONCLUSIONS

This 2021 report provides additional analyses that confirms the evaluation of CHVI contained in the 2013 HIA for Structure 16-WG. The bridge was found to meet one of the criteria for determining CHVI as outlined in O. Reg. 9/06. Structure 16-WG is a rare early example of a concrete closed spandrel arch bridge. A Statement of CHVI was prepared, including heritage attributes in the *2013 Golder Report.* As a result of this study, the Statement of CHVI now includes the property description. The Statement is included in Section 6.0.

Since it was concluded in 2013 and confirmed in 2021 that the Structure 16-WG meets one or more criteria under O. Reg. 9.06 of the OHA, it is recommended that the Township of Centre Wellington undertake a Heritage Impact Assessment (HIA) report for Structure 16-WG as recommended in the 2013 Golder Report as a requirement of the MCEA process. An HIA will examine the potential impacts of the project and provide mitigation measures.

9.0 BIBLIOGRAPHY AND SOURCES

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APPENDIX A: SUBJECT PROPERTY IMAGES

Map 6: Photo Location Map of Study Area
(Produced by ARA under licence using ArcGIS® software by Esri, © Esri)

Image 1: Structure 16-WG Approach Along Fifth Line from South Side
(May 25, 2021; View looking Northwest)

Image 2: Structure 16-WG Approach from South Side
(May 25, 2021; View looking Northwest)

Image 3: Structure 16-WG Context looking toward 6671 Fifth Line
(May 25, 2021; View looking Northwest)

Image 4: Context looking South along Fifth Line Away from Structure 16-WG
(May 25, 2021; View looking Southeast)

Image 5: Structure 16-WG approach along Fifth Line from North Side
(May 25, 2021; View looking Southeast)

Image 6: Structure 16-WG approach from North Side
(May 25, 2021; View looking Southeast)

Image 7: Context looking at 6671 Fifth Line Split Rail Fencing
(May 25, 2021; View looking Southeast)

Image 8: Context looking North along Fifth Line Away from Structure 16-WG
(May 25, 2021; View looking Northwest)

Image 9: View from Structure 16-WG Deck looking Northeast at Irvine Creek
(May 25, 2021; View looking Northeast)

Image 10: View from Structure 16-WG deck looking Southwest at Irvine Creek
(May 25, 2021; View looking Southwest)

Image 11: West Elevation
(May 25, 2021; View looking Northeast)

Image 12: West Elevation - Southwest Abutment Detail
(May 25, 2021; View looking East)

Image 13: West Elevation - Northwest Abutment Detail
(May 25, 2021; View looking North)

Image 14: West Elevation - Deterioration Detail Northwest Quadrant
(May 25, 2021; View looking North)

Image 15: West Elevation and underside of arch from Southwest Embankment
(May 25, 2021; View looking North)

Image 16: West Elevation – Southwest Abutment Detail
(May 25, 2021; View looking East)

Image 17: West Elevation – Railing System Detail
(May 25, 2021; View looking Northwest)

Image 18: East Elevation
(May 25, 2021; View looking Northwest)

Image 19: East Elevation – Southeast Abutment Underside of Arch
(May 25, 2021; View looking South)

Image 20: East Elevation – Southeast Abutment
(May 25, 2021; View looking West)

Image 21: East Elevation – Southeast Abutment Detail
(May 25, 2021; View looking West)

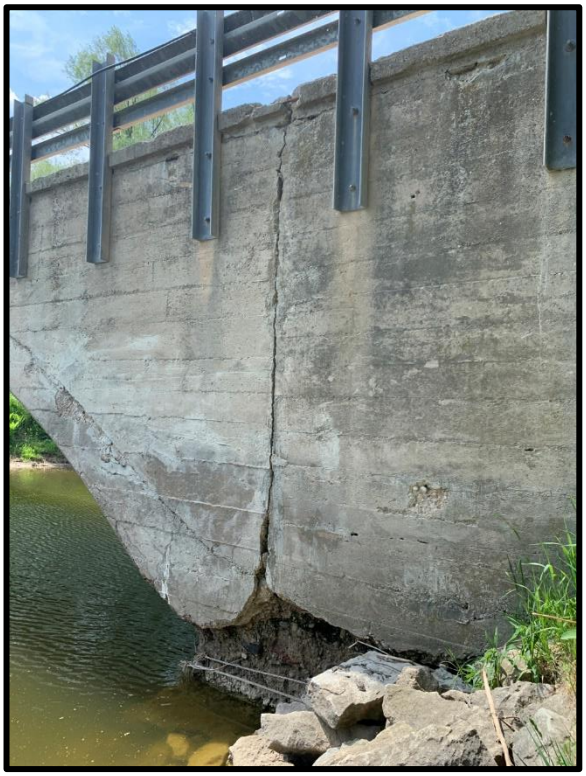

Image 22: East Elevation – Northeast Abutment Detail
(May 25, 2021; View looking South)

Image 23: East Elevation – Railing System Detail
(May 25, 2021; View looking Northwest)

APPENDIX B: KEY TEAM MEMBER TWO-PAGE CURRICULUM VITAE

Kayla Jonas Galvin, MA, MCIP, RPP, CAHP
Heritage Operations Manager
ARCHAEOLOGICAL RESEARCH ASSOCIATES LTD.
1 King Street West, Stoney Creek, ON L8G 1G7
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Biography

Kayla Jonas Galvin, Archaeological Research Associates Ltd.'s Heritage Operations Manager, has extensive experience evaluating cultural heritage resources and landscapes for private and public-sector clients to fulfil the requirements of provincial and municipal legislation such as the *Environmental Assessment Act*, the *Standards & Guidelines for the Conservation of Provincial Heritage Properties* and municipal Official Plans. She served as Team Lead on the Ministry of Tourism, Culture and Sport Historic Places Initiative, which drafted over 850 Statements of Significance and for *Heritage Districts Work!*, a study of 64 heritage conservation districts in Ontario. Kayla was an editor *of Arch, Truss and Beam: The Grand River Watershed Heritage Bridge Inventory* and has worked on Municipal Heritage Registers in several municipalities. Kayla has drafted over 150 designation reports and by-laws for the City of Kingston, the City of Burlington, the Town of Newmarket, Municipality of Chatham-Kent, City of Brampton and the Township of Whitchurch-Stouffville. Kayla is the Heritage Team Lead for ARA's roster assignments for Infrastructure Ontario and oversees evaluation of properties according to *Standards & Guidelines for the Conservation of Provincial Heritage Properties*. Kayla is a Registered Professional Planner (RPP), Member of the Canadian Institute of Planners (MCIP), a Professional Member of the Canadian Association of Heritage Professionals (CAHP) and sits on the board of the Ontario Association of Heritage Professionals.

Education

2016	MA in Planning, University of Waterloo. Thesis Topic: *Goderich – A Case Study of Conserving Cultural Heritage Resources in a Disaster*
2003-2008	Honours BES University of Waterloo, Waterloo, Ontario Joint Major: Environment and Resource Studies and Anthropology

Professional Memberships and Accreditations

Current	Registered Professional Planner (RPP) Member of the Canadian Institute of Planners (MCIP) Professional Member, Canadian Association of Heritage Professionals (CAHP) Board Member, Ontario Association of Heritage Professionals.

Work Experience

Current	**Heritage Operations Manager, Archaeological Research Associates Ltd.** Oversees business development for the Heritage Department, coordinates completion of designation by-laws, Heritage Impact Assessments, Built Heritage

and Cultural Heritage Landscape Assessments, and Cultural Heritage Resource Evaluations.

2009-2013 **Heritage Planner, Heritage Resources Centre, University of Waterloo**
Coordinated the completion of various contracts associated with built heritage including responding to grants, RFPs and initiating service proposals.

2008-2009, 2012 **Project Coordinator–Heritage Conservation District Study, ACO**
Coordinated the field research and authored reports for the study of 32 Heritage Conservation Districts in Ontario. Managed the efforts of over 84 volunteers, four staff and municipal planners from 23 communities.

2007-2008 **Team Lead, Historic Place Initiative, Ministry of Culture**
Liaised with Ministry of Culture Staff, Centre's Director and municipal heritage staff to draft over 850 Statements of Significance for properties to be nominated to the Canadian Register of Historic Places. Managed a team of four people.

Selected Professional Development

2019 OPPI and WeirFoulds Client Seminar: Bill 108 – More Homes, More Choice, 2019
2019 Annual attendance at Ontario Heritage Conference, Goderich, ON (Two-days)
2019 Information Session: Proposed Amendments to the OHA, by Ministry of Tourism, Culture and Sport
2018 Indigenous Canada Course, University of Alberta
2018 Volunteer Dig, Mohawk Institute
2018 Indigenizing Planning, three webinar series, Canadian Institute of Planners
2018 Cultural Heritage, Archaeology and Planning Symposium
2018 Transforming Public Apathy to Revitalize Engagement, Webinar, MetorQuest
2018 How to Plan for Communities: Listen to the Them, Webinar, Canadian Institute of Planners
2017 Empowering Indigenous Voices in Impact Assessments, Webinar, International Association for Impact Assessments
2017 Capitalizing on Heritage, National Trust Conference, Ottawa, ON.
2016 Heritage Rising, National Trust Conference, Hamilton
2016 Ontario Heritage Conference St. Marys and Stratford, ON.
2016 Heritage Inventories Workshop, City of Hamilton & ERA Architects
2015 City of Hamilton: Review of Existing Heritage Permits and Heritage Designation Process Workshop.
2015 Leadership Training for Managers Course, Dale Carnegie Training

Selected Publications

2018 "Conserving Cultural Heritage Landscapes in Waterloo: An Innovative Approach." *Ontario Association of Heritage Professionals Newsletter*, Winter 2018.
2018 "Restoring Pioneer Cemeteries" *Ontario Association of Heritage Professionals Newsletter.* Spring 2018. *In print.*
2015 "Written in Stone: Cemeteries as Heritage Resources." *Municipal World,* Sept. 2015.
2015 "Bringing History to Life." *Municipal World,* February 2015, pages 11-12.
2014 "Inventorying our History." *Ontario Planning Journal,* January/February 2015.
2014 "Mad about Modernism." *Municipal World,* September 2014.

Jacqueline McDermid, BA, CAHP
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Biography

Jacqueline McDermid has ten years of technical writing and management experience; Seven years direct heritage experience. She has gained seven years of experience conducting primary and secondary research for archaeological and heritage assessments and drafting reports and evaluating property according to Ontario Regulation 9/06 and 10/06 as part of Municipal Heritage Registers. Jacqueline is expert at copy editing heritage reports including checking grammar, consistency and fact checking, to ensure a high-quality product is delivered to clients. She has experience assisting with the drafting of Heritage Conservation District Studies through the drafting of reports for potential Heritage Conservation Districts in the City of Toronto (Weston HCD) and Township of Bradford West Gwillimbury (Bond Head HCD). Jacqueline has proven project management experience gained by completing projects on time and on budget as well as formal Project Management training. In 2018, under a six-month contract as the Heritage Planner at the Ministry of Transportation, acquired considerable experience conducting technical reviews of consultant heritage reports for Ministry compliance including Cultural Heritage Evaluation Reports, Heritage Impact Assessment, Strategic Conservation Plans, and Cultural Heritage Resource Assessments as well as gained valuable insight on provincial heritage legislation (*Ontario Heritage Bridge Guidelines*, *Ontario MTO Environmental Standards and Practices for Cultural Heritage, MTO Environmental Reference for Highway Design – Heritage*, MTCS' *Heritage Identification & Evaluation Process* as well as the new *MHTCI Information Bulletins on Heritage Impact Assessments* and *Strategic Conservation Plans*, and inter-governmental processes. She has extensive Knowledge of heritage and environmental policies including the *Planning Act*, *Provincial Policy Statement*, the *Ontario Heritage Act*, Official Plans, *Environmental Assessment Act* and *Green Energy Act*. Working knowledge of the *Standards and Guidelines for Consultant Archaeologists* (2011), Ministry of Tourism, Culture and Sport.

Education

2000-2007 Honours B.A., Wilfrid Laurier University, Waterloo, Ontario
Major: Near Eastern Archaeology

Work Experience

2020-present **Heritage Project Manager**

2015-2020 **Technical Writer and Researcher – Heritage, Archaeological Research Associates Ltd., Kitchener, ON**
Research and draft designation by-laws, heritage inventories, Heritage Impact Assessments, Built Heritage and Cultural Heritage Landscape Assessments, and Cultural Heritage Resource Evaluations using Ontario Regulation 9/06, 10/06 and the Ontario Heritage Bridge Guidelines.

2018 **Environmental Planner – Heritage Ministry of Transportation, Central Region** – Six-month contract.
Responsibilities included: project management and coordination of MTO heritage program, managed multiple consultants, conducted and coordinated field assessments and surveys, estimated budgets including $750,000 retainer contracts. Provided advice on heritage-related MTO policy to Environmental Policy Office (EPO) and the bridge office.

2017-2018 **Acting Heritage Team Lead – Heritage Archaeological Research Associates Ltd., Kitchener, ON**
Managed a team of Heritage Specialists, oversaw the procurement of projects, retainers; managed all Heritage projects, ensured quality of all outgoing products.

2014-2015 **Technical Writer – Archaeology, Archaeological Research Associates Ltd., Kitchener, ON**
Report preparation; correspondence with the Ministry of Tourism, Culture, and Sport; report submission to the Ministry and clients; and administrative duties (PIF and Borden form completion).

2012-2013 **Lab Assistant, Archaeological Research Associates Ltd., Kitchener, ON**
Receive, process and register artifacts.

2011-2012 **Field Technician, Archaeological Research Associates Ltd., Kitchener, ON**
Participated in field excavation and artifact processing.

2005-2009 **Teaching Assistant, Wilfrid Laurier University, Waterloo, ON**
Responsible for teaching and evaluating first, second, third- and fourth-year student lab work, papers and exams.

2005-2007 **Lab Assistant, Wilfrid Laurier University – Near Eastern Lab, Waterloo, ON**
Clean, Process, Draw and Research artifacts from various sites in Jordan.

Selected Professional Development

2019 OPPI and WeirFoulds Client Seminar: Bill 108 – More Homes, More Choice
2019 Annual attendance at Ontario Heritage Conference, Goderich, ON (Two-days)
2019 Information Session: Proposed Amendments to the OHA, MTCS
2018 Indigenizing Planning, three webinar series, Canadian Institute of Planners
2018 Cultural Heritage, Archaeology and Planning Symposium
2018 Transforming Public Apathy to Revitalize Engagement, Webinar, MetorQuest
2018 How to Plan for Communities: Listen to the Them, Webinar, CIP
2017 Empowering Indigenous Voices in Impact Assessments, Webinar, International Association for Impact Assessments
2015 Introduction to Blacksmithing (One day)
2015 Leadership Training for Managers Course, Dale Carnegie Training

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Biography

Sarah Clarke is Archaeological Research Associates Ltd.'s Heritage Research Manager. Sarah has over 12 years of experience in Ontario archaeology and 10 years of experience with background research. Her experience includes conducting archival research (both local and remote), artifact cataloguing and processing, and fieldwork at various stages in both the consulting and research-based realms. As Team Lead of Research, Sarah is responsible for conducting archival research in advance of ARA's archaeological and heritage assessments. In this capacity, she performs Stage 1 archaeological assessment site visits, conducts preliminary built heritage and cultural heritage landscape investigations and liaises with heritage resource offices and local community resources in order to obtain and process data. Sarah has in-depth experience in conducting historic research following the *Ontario Heritage Toolkit* series, and the *Standards and Guidelines for Provincial Heritage Properties*. Sarah holds an Honours B.A. in North American Archaeology, with a Historical/Industrial Option from Wilfrid Laurier University and is currently enrolled in Western University's Intensive Applied Archaeology MA program. She is a member of the Ontario Archaeological Society (OAS), the Society for Industrial Archaeology, the Ontario Genealogical Society (OGS), the Canadian Archaeological Association, and is a Council-appointed citizen volunteer on the Brantford Municipal Heritage Committee. Sarah holds an R-level archaeological license with the MTCS (#R446).

Education

Current	MA Intensive Applied Archaeology, Western University, London, ON. Proposed thesis topic: Archaeological Management at the Mohawk Village.
1999–2010	Honours BA, Wilfrid Laurier University, Waterloo, Ontario Major: North American Archaeology, Historical/Industrial Option

Professional Memberships and Accreditations

Current	Member of the Ontario Archaeological Society
Current	Member of the Society for Industrial Archaeology
Current	Member of the Brant Historical Society
Current	Member of the Ontario Genealogical Society
Current	Member of the Canadian Archaeological Association
Current	Member of the Archives Association of Ontario

Work Experience

Current	**Team Lead – Research; Team Lead – Archaeology, Archaeological Research Associates Ltd.** Manage and plan the research needs for archaeological and heritage projects. Research at offsite locations including land registry offices, local libraries and local

and provincial archives. Historic analysis for archaeological and heritage projects. Field Director conducting Stage 1 assessments.

2013-2015 **Heritage Research Manager; Archaeological Monitoring Coordinator, Archaeological Research Associates Ltd.**
Stage 1 archaeological field assessments, research at local and distant archives at both the municipal and provincial levels, coordination of construction monitors for archaeological project locations.

2010-2013 **Historic Researcher, Timmins Martelle Heritage Consultants Inc.**
Report preparation, local and offsite research (libraries, archives); correspondence with the Ministry of Tourism, Culture, and Sport; report submission to the MTCS and clients; and administrative duties (PIF and Borden form completion and submission, data requests).

2008-2009 **Field Technician, Archaeological Assessments Ltd.**
Participated in field excavation and artifact processing.

2008-2009 **Teaching Assistant, Wilfrid Laurier University.**
Responsible for teaching and evaluating first year student lab work.

2007-2008 **Field and Lab Technician, Historic Horizons.**
Participated in excavations at Dundurn Castle and Auchmar in Hamilton, Ontario. Catalogued artifacts from excavations at Auchmar.

2006-2010 **Archaeological Field Technician/Supervisor, Wilfrid Laurier University.**
Field school student in 2006, returned as a field school teaching assistant in 2008 and 2010.

Professional Development

2019 Annual attendance at Ontario Heritage Conference, Goderich, ON
2018 Cultural Heritage, Archaeology and Planning Symposium
2018 Grand River Watershed 21st Annual Heritage Day Workshop & Celebration
2018 Mississaugas of the New Credit First Nation Historical Gathering and Conference
2017 Ontario Genealogical Society Conference
2016 Ontario Archaeological Society Symposium
2015 Introduction to Blacksmithing Workshop, Milton Historical Society
2015 Applied Research License Workshop, MTCS
2014 Applied Research License Workshop, MTCS
2014 Heritage Preservation and Structural Recording in Historical and Industrial Archaeology. Four-month course taken at Wilfrid Laurier University, Waterloo, ON. Professor: Meagan Brooks.

Presentations

2018 *The Early Black History of Brantford.* Brant Historical Society, City of Brantford.
2017 *Mush Hole Archaeology.* Ontario Archaeological Society Symposium, Brantford.
2017 *Urban Historical Archaeology: Exploring the Black Community in St. Catharines, Ontario.* Canadian Archaeological Association Conference, Gatineau, QC.

APPENDIX C: 2013 HERITAGE IMPACT ASSESSMENT(GOLDER)

10 December 2013

HERITAGE IMPACT ASSESSMENT

Fifth Line Bridge, Structure 16-WG
Spanning Irvine Creek
Township of Centre Wellington
Wellington County, Ontario

Submitted to:
Mr. David G. Donaldson, P.Eng.
Triton Engineering Services Ltd.
105 Queen Street West, Unit 14
Fergus, Ontario N1M 1S6

REPORT

Report Number: 13-1136-0039-1500-R01

Distribution:

1 Copy - Triton Engineering Services Ltd.
1 Copy - Ministry of Tourism, Culture and Sport
2 Copies - Golder Associates Ltd.

Golder Associates

Personnel

Project Director	Christopher Andreae, Ph.D., Associate, Senior Built Heritage Specialist
Project Manager	Christopher Andreae, Ph.D., Associate, Senior Built Heritage Specialist
Historical Research	Michael Greguol, M.A., Junior Cultural Heritage Specialist
Report Production	Michael Greguol, M.A., Junior Cultural Heritage Specialist Stacey Carson, Cultural Sciences Group Administrator
Senior Review	Christopher Andreae, Ph.D., Senior Built Heritage Specialist

Acknowledgments

Proponent Contact	David G. Donaldson, P. Eng., Triton Engineering Services Ltd.
Wellington County Museum and Archives	Karen Wagner, B.A., M.L.S., Archivist

Executive Summary

The Township of Centre Wellington in Wellington County is proposing to replace Structure WG-16 (Fifth Line Bridge) located over the Irvine Creek on the Fifth Line. Golder Associates Ltd. (Golder) was retained by Triton Engineering Services Limited (Triton) to undertake a Heritage Impact Assessment (HIA) of the Fifth Line Bridge as part of the proposed replacement plan. In addition, Triton requested that the Ministry of Tourism Culture and Sport (MTCS) *Municipal Heritage Bridges Cultural Heritage and Archaeological Resources Assessment Checklist* be completed after preparing the HIA.

An overview history of the structure was prepared to identify the cultural significance of the bridge. A field assessment was undertaken in September 2013 to identify and photograph potential heritage features of the property. The historical significance of the bridge was evaluated according to the *Ontario Heritage Act O. R. 9/06*. Triton provided information regarding the current condition of the bridge. Mitigation options and recommendations were prepared based on the historical significance of the bridge and its current condition.

The Fifth Line Bridge was completed in 1910 as a single span, solid-spandrel concrete arch bridge. The design is representative of a common bridge type built in Ontario in the early 20th century. Many of these early bridges have been replaced due to structural deterioration and to meet modern traffic needs.

The Township of Centre Wellington is proposing to replace the Fifth Line Bridge with a new structure. The 1958, 1977 and 2012 “Municipal Structure Inspection Sheets” examined in this study have traced a general deterioration in the bridge structure over the last 50 years. The 1977 “Inspection Sheet” estimated that the bridge had a remaining ten year life span. The 2012 “Inspection Sheet” indicated that much of the concrete was in poor condition. The report indicated that the Township should consider the replacement of the bridge as an alternative to rehabilitation.

The proposed replacement of the bridge will result in the loss of a rare survivor of an early concrete arch bridge in Ontario. Due to the current condition of the Fifth Line Bridge retaining the structure *in situ* is not a feasible mitigation option. Relocation of the bridge is not feasible due to its design as solid spandrel arch and its condition.

This HIA recommends that Bridge 16-WG should be photographed during demolition by a qualified photographer to document the placement of fill within the structure and construction of the arch and deck. This information should be incorporated into this HIA report as final documentation of the current features and conditions of the structure.

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PLATES

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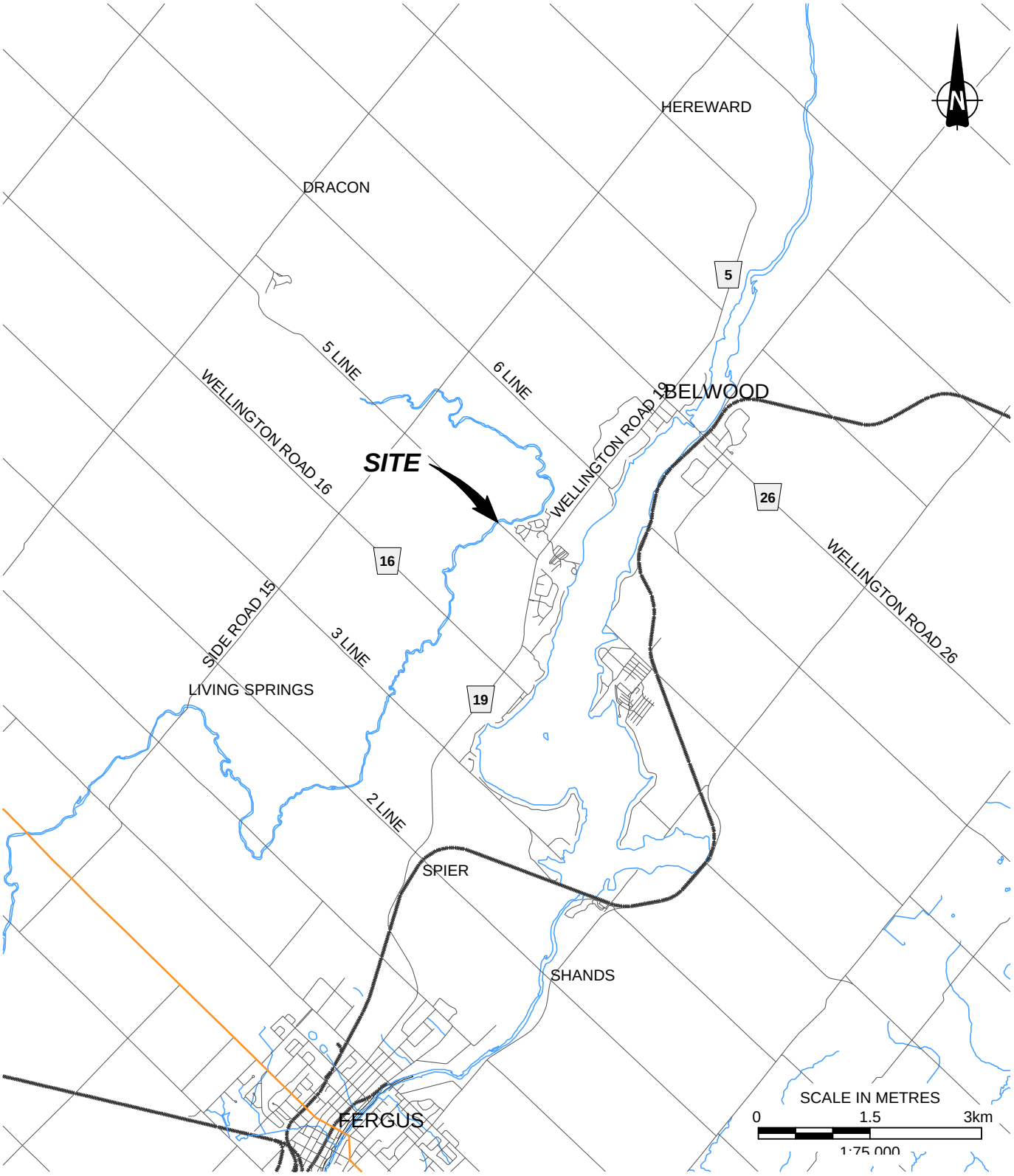
APPENDIX A

Plan and Profile of Fifth Line Bridge Site Plan, September 2013



REFERENCE

PLAN BASED ON CANMAP STREETFILES V.2008.4.

NOTES

THIS DRAWING IS SCHEMATIC ONLY AND IS TO BE READ IN CONJUNCTION WITH ACCOMPANYING TEXT.

ALL LOCATIONS ARE APPROXIMATE ONLY.

PROJECT

FIFTH LINE BRIDGE STRUCTURE WG-16
TOWNSHIP OF CENTRE WELLINGTON, ONTARIO

TITLE

KEY PLAN

Golder Associates
LONDON, ONTARIO

PROJECT No.	13-1136-0039		FILE No.	1311360039-R02001
			SCALE AS SHOWN	REV. 0
CADD	LMK	Oct. 15/13		
CHECK				

FIGURE 1

Drawing file: 1311360039-R02001.dwg Oct 25, 2013 - 9:09am

REFERENCE

2006 ORTHOGRAPHIC PHOTOGRAPH PROVIDED BY GRAND RIVER CONSERVATION AUTHORITY.

NOTES

THIS DRAWING IS SCHEMATIC ONLY AND IS TO BE READ IN CONJUNCTION WITH ACCOMPANYING TEXT.

ALL LOCATIONS ARE APPROXIMATE ONLY.

PROJECT

FIFTH LINE BRIDGE STRUCTURE WG-16
TOWNSHIP OF CENTRE WELLINGTON, ONTARIO

TITLE

SITE PLAN

Golder Associates
LONDON, ONTARIO

PROJECT No.	13-1136-0039		FILE No.	1311360039-R02002
			SCALE AS SHOWN	REV. 0
CADD	LMK	Oct. 16/13		
CHECK				

FIGURE 2

Drawing file: 1311360039-R02002.dwg Oct 25, 2013 - 9:10am

REFERENCE

ILLUSTRATED ATLAS OF THE COUNTY OF WELLINGTON, WALKER AND MILES, TORONTO, 1877.

NOTES

THIS DRAWING IS SCHEMATIC ONLY AND IS TO BE READ IN CONJUNCTION WITH ACCOMPANYING TEXT.

ALL LOCATIONS ARE APPROXIMATE ONLY.

ROAD AND FEATURE NAMES REFLECT THOSE USED AT THE TIME.

PROJECT

FIFTH LINE BRIDGE STRUCTURE WG-16
TOWNSHIP OF CENTRE WELLINGTON, ONTARIO

TITLE

STUDY AREA, 1877

Golder Associates
LONDON, ONTARIO

PROJECT No.	13-1136-0039		FILE No.	1311360039-R02003
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CADD	LMK	Oct. 15/13		
CHECK				

FIGURE 3

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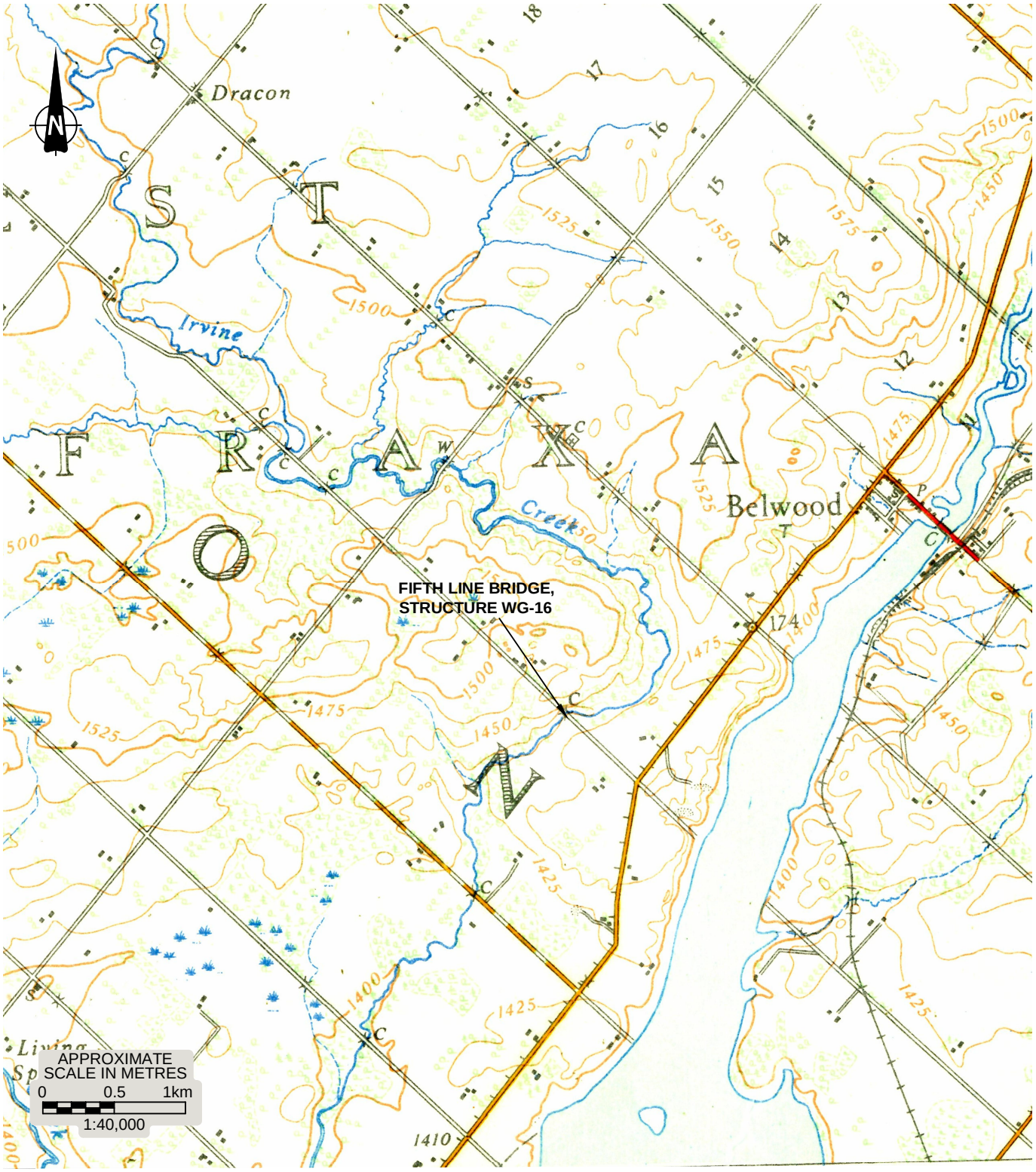

REFERENCE

DEPARTMENT OF NATIONAL DEFENCE, GENERAL STAFF, ORANGEVILLE, ONTARIO; 1:63,360,1937.

NOTES

THIS DRAWING IS SCHEMATIC ONLY AND IS TO BE READ IN CONJUNCTION WITH ACCOMPANYING TEXT.

ALL LOCATIONS ARE APPROXIMATE ONLY.

ROAD AND FEATURE NAMES REFLECT THOSE USED AT THE TIME.

PROJECT

FIFTH LINE BRIDGE STRUCTURE WG-16
TOWNSHIP OF CENTRE WELLINGTON, ONTARIO

TITLE

TOPOGRAPHIC SERIES

Golder Associates
LONDON, ONTARIO

PROJECT No.	13-1136-0039		FILE No.	1311360039-R02004
			SCALE AS SHOWN	REV. 0
CADD	LMK	Oct. 15/13		
CHECK				

FIGURE 4

Drawing file: 1311360039-R02004.dwg Oct 25, 2013 - 9:11am

1.0 STUDY PURPOSE AND METHOD

1.1 Study Purpose

The Township of Centre Wellington in Wellington County is proposing to replace Structure WG-16 (Fifth Line Bridge) located over the Irvine Creek on the Fifth Line. Golder Associates Ltd. (Golder) was retained by Triton Engineering Services Limited (Triton) to undertake a Heritage Impact Assessment (HIA) the Fifth Line Bridge as part of the proposed replacement plan. In addition, Triton requested that the Ministry of Tourism Culture and Sport (MTCS) *Municipal Heritage Bridges Cultural Heritage and Archaeological Resources Assessment Checklist* be completed after undertaking the HIA.

1.2 Study Method

This HIA was prepared according to the guidelines set out in the MTCS Ontario Heritage Toolkit.

An overview history of the structure was prepared to identify the cultural significance of the bridge. A field assessment was undertaken in September 2013 to identify and photograph potential heritage features of the property. The historical significance of the bridge was evaluated according to the *Ontario Heritage Act O.Reg. 9/06*. Triton provided documentation regarding the current condition of the bridge. Mitigation options and recommendations were prepared based on the historical significance of the bridge and its current condition.

1.3 Metric Measurements

Between 1971 and 1984 Canada adopted the metric system. All structural dimensions in the text are given in Imperial units. In general, the use of Imperial rather than metric is preferred for describing historic structures. Engineered structures were built to standard Imperial dimensions and distinctive patterns within such structures can be obscured by converting the original Imperial into metric units. Unless there are historical issues (i.e. contract specifications), all distances and other common measurements are given in metric units.

2.0 BACKGROUND HISTORY

2.1 Natural Environment

The Fifth Line Bridge crosses the Irvine Creek approximately eight kilometres northeast of the Town of Fergus in the Township of Centre Wellington, Ontario.

The Irvine Creek is a tributary of the Grand River. It joins the Grand River at Elora and empties into Lake Erie at Dunnville. At the location of the Fifth Line Bridge Irvine Creek flows in a well-defined channel through a shallow valley. At Elora the junction of the Grand River and Irvine Creek are located within a deep gorge cut into the dolostone bedrock.[1] Where Fifth Line crosses Irving Creek, the watercourse has cut into the north valley wall.

Plate 1: Irvine Creek, looking upstream (east) from bridge showing valley wall on left and flood plain on right

[1] Lyman J. Chapman and Donald F. Putnam, *The Physiography of Southern Ontario*, 95-98, 137, 140.

Plate 2: Irvine Creek, looking downstream (west) from bridge.

Plate 3: Looking north along the Fifth Line over the bridge. Irving Creek flows from right to left (east to west).

2.2 Historical Context

The Fifth Line Bridge is located on the Fifth Line road allowance of Lot 13 between Concessions 5 and 6 in the Township of Centre Wellington, (former West Garafraxa). The Crown survey of Garafraxa Township was completed in 1821 using the Double Front survey system, commonly used between 1818 and 1829 (Plate 4).[2] Settlement of the township began by 1826. Over the following decades roads were improved and gradually bridges were constructed over creeks and rivers.

In 1869 Garafraxa was divided into two separate townships of East and West Garafraxa. A year later, the townships were entirely settled. In 1871 the population of West Garafraxa was 3,128. In 1999 Wellington County was reorganized into seven municipalities. The new Township of Centre Wellington included the former towns of Elora and Fergus and the former Townships of Nichol, Pilkington, and West Garafraxa. In 2011, Centre Wellington had a population of 26,693. [3]

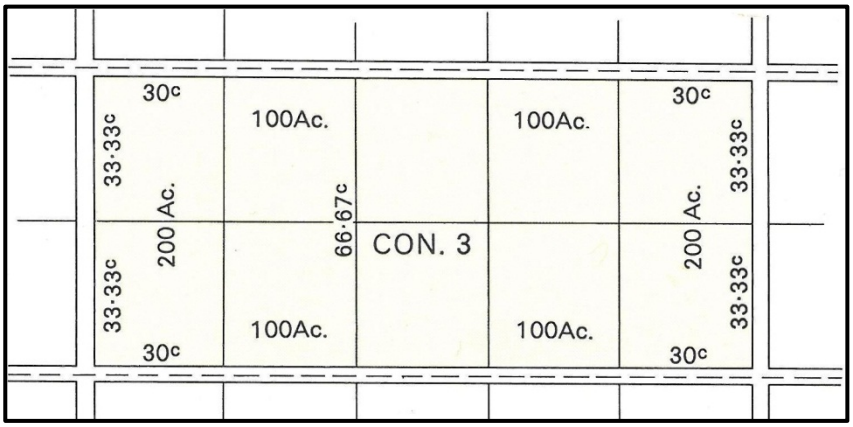

Plate 4: Double Front survey system, 1818-1829

2.3 Bridge Design

Most public highway bridges were built and owned by a municipality such as a county or a township. Much more rarely, they were owned by the province. Matters pertaining to bridge ownership have been dictated by the *Ontario Municipal Act* since 1867. The construction and operation of bridges over water courses that formed boundaries between townships were always assumed by the County. The Fifth Line Bridge over the Irvine Creek is located on a concession road within the Township and Centre Wellington (former West Garafraxa Township) and thus has always been owned by the township.

[2] W.G. Dean and G. J. Matthews, *Economic Atlas of Ontario*.

[3] ,Historic Atlas, 8; OAC Report, 617-623; Place Names, 1295-96.

No information was found regarding earlier bridges at this location. However based on typical settlement of southwestern Ontario, it is assumed that a timber bridge was built over the creek by the 1840s or 1850s. Timber bridges typically had a life to about 15 years and it is possible that the crossing was replaced three or four times before the existing concrete bridge was completed. Although iron truss bridges were available in the 1870s-1880s, they were generally too costly to be widely used.

By 1900 the economic value to rural communities of good roads, and by extensions good bridges, was becoming evident. Timber bridges could not carry the weight of heavier wagon and farm equipment coming into use. By the First World War, motor vehicles were becoming increasingly common and the provincial government began to provide grant programs and technical advice on bridge building. At the same time, counties began to create county-wide road networks by assuming the ownerships of key townships roads and bridges. Inexpensive steel bridges became available in the 1890s and the designs were commonly used into the 1930s. Between 1900-1910 concrete became an alternative to steel construction for short span bridges. One of the earliest forms of concrete bridges in Ontario was the solid spandrel concrete arch design as used in the Fifth Line Bridge. This design was inexpensive to build. The spandrel walls of a solid spandrel structure hold back the stone rubble and earth fill on the interior of the concrete arch. The concrete arches were formed with reinforcing rods and cast in place.[4]

At the beginning of the 20th century the existing, presumably timber bridge was in poor condition. In August 1908, John Louttit, the owner of Lot 13, Concession 5 adjacent to the Fifth Line Bridge suggested repairs to the existing bridge's stringers. In November 1910 his son Alex Louttit was paid to repair planks on the bridge.[5]

The present Fifth Line Bridge was completed in 1910. It had an overall deck length of 104 feet. The arch had a span of 47 feet and a depth of 10 feet. The springing line of the arch was approximately two feet above the water level. The deck had an overall width of 17 feet and 14 feet between railings (Plate 5).[6]

According to the inventory in the publication *Arch, Truss & Beam* two other bridges of similar design still survive in the Township of Centre Wellington. The two 1925 bridges, Bridge 9-WG (11.9m span) on Seventh Line and the 1925 Bridge 12-N (10.3m span) on Washington Street, also spans Irvine Creek. Both are shorter than Bridge 16-WG The 1908 *Old Fourth Line Bridge* on the Fourth Line has been abandoned in place on an unnamed tributary of the Eramosa River north of the Eramosa-West Garafraxa Townline.[7]

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[4] Lichtenstein Consulting Engineers, "Bridge Basics: A Guide to Common Bridge Types," 15; Historica Research Limited, "Concrete Arch: Solid Spandrel,'; Heritage Resource Centre, *Arch, Truss, and Beam: The Grand River Watershed Heritage Bridge Inventory*, 256-257.

[5] Township of West Garafraxa, Minutes of Council, 1908; Township of West Garafraxa, Minutes of Council, 1910. "Fifth Line Bridge" Municipal Structure Inspection Sheet, 1958/1977.

[6] "Fifth Line Bridge" Municipal Structure Inspection Sheet, 1958/1977 copy supplied by Triton Engineering;

[7] Heritage Resources Centre, University of Waterloo. *Arch, Truss & Beam* . Waterloo, Ont. 2013, p. 254-5, 256-7, 282-3.

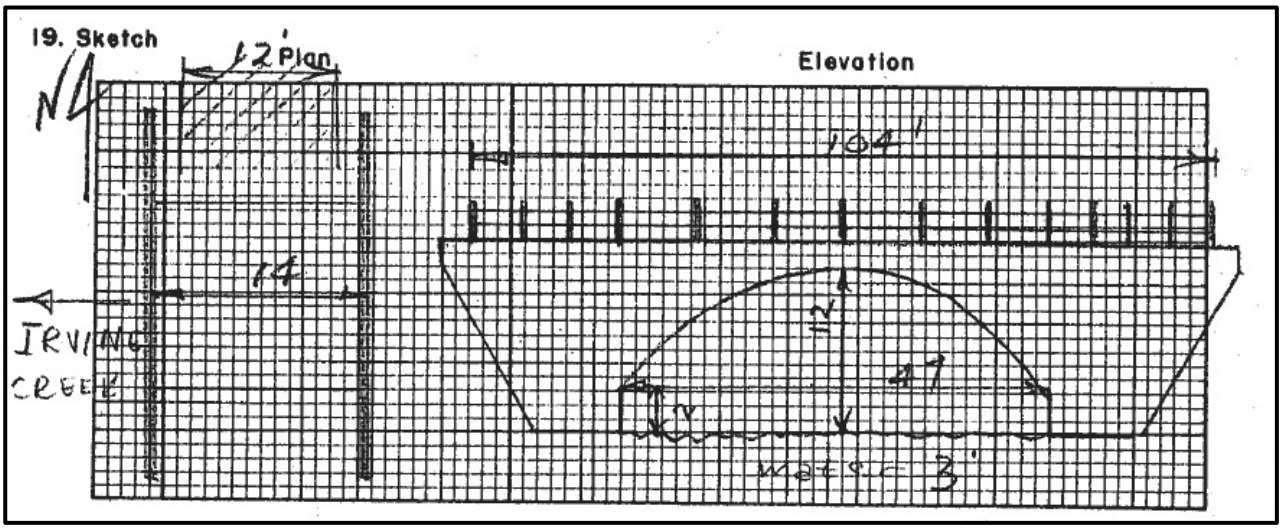

Plate 5: Sketch of bridge 1958 (Source: Municipal Structure Inspection Sheet, 1958/1977)

3.0 BRIDGE DESCRIPTION

3.1 Approaches

The north abutment meets the valley wall and the road rises on a shallow grade. The south abutment is raised above the flood plain and an earth embankment carries Fifth Line above the creek channel to join the flood plain (See Appendix A).

Plate 6: Looking north along the Fifth Line approach earthworks leading to the bridge. Irving Creek flows from right to left (east to west). House in background is close to the top of the valley wall.

3.2 Abutments/Spandrel Walls

The abutments are constructed of cast-in-place concrete and are built into the steep earth embankments. The footings of the abutments are exposed due to erosion below the spring line.

The board lines of the planks used for the shoring, or wooden framework built to cast the concrete in place is still visible on the face of the concrete.

The arch had a span of 47 feet and a depth of 10 feet. The spring line of the arch was approximately two feet above the water level. At the time of the assessment the spring line at the footings of the abutment was visible due to shallow water levels. (Plates 7-8).

Plate 7: Upstream (east) side of the Fifth Line Bridge, showing abutments and spandrel concrete arch. The springing line of the arch is visible just about the water level on the left (south) abutment

Plate 8: East side of the north abutment showing evidence of exposed re-bar in the arch soffit and stone rip-rap protection of the abutments

3.3 Deck

The concrete deck has an overall length of 104 feet overall width of 17 feet. Originally the deck was protected with concrete railings that allowed for a 14 feet roadway between the railings (Plate 9). By 1958 the railways were already in a deteriorated condition and they were subsequently completely removed and replaced with the present steel barrier railing. These railings consist of two parallel guard rails bolted to vertical steel channels bolted to the concrete of the spandrel walls. Sections of concrete at the top of the spandrel walls have been cut out to house the posts. The deck surface is covered in gravel that piles higher than the spandrel walls at the edges of the bridge.

Board lines from the cast-in-place concrete are visible on the soffit of the bridge. Erosion of the concrete has revealed the reinforcing rods, or rebar, that was used to form the concrete arch.

Plate 9: Bridge deck showing gravel on deck surface, and barrier railing structures

Plate 10: Post detail showing cut into spandrel wall to house post and bolt system to anchor post to structure, and deck gravel piled higher than spandrel walls.

3.4 Cultural Landscape

Fifth Line is a two-lane paved road that is part of the grid pattern that was set out with the Double Front survey system used for the Crown survey in 1821 (Figure 4). A modern house is situated on a hill above Irvine Creek, immediately north of the bridge. About 250 metres east of the bridge is Highland Pines campground, a recreational camp site.

Irvine Creek runs in a well-defined channel in a moderately steep valley. The northwest embankment of the creek is steep, and the banks are lined with rubble stone at the foot of the bridge. The southeast banks of the creek are small and bordered by flood plain and vegetation.

4.0 EVALUATION

4.1 Method of Evaluation

There are two different criteria for evaluating the cultural value of historic bridges.

The Ministry of Tourism, Culture, and Sport uses *Ontario Regulation 9/06* to evaluate the cultural significance, or value, of historic resources, structures, and landscapes. The Ministry of Transportation's *Ontario Heritage Bridge Guidelines* provides criteria based on *Ontario Regulation 9/06* to grade a potential heritage bridge. A bridge with a score of 60 or greater is considered provincially significant.

4.2 Ontario Regulation 9/06

4.2.1 Description of Criteria

1) The property has ***design value or physical value*** because it:

- Is a rare, unique, representative or early example of a style, type, expression, material or construction method;
- Displays a high degree of craftsmanship or artistic merit; or
- Demonstrates a high degree of technical or scientific achievement.

2) The property has ***historic value or associative value*** because it:

- Has direct associations with a theme, event, belief, person, activity, organization, or institution that is significant to a community;
- Yields, or has the potential to yield information that contributes to an understanding of a community or culture; or
- Demonstrates or reflects the work or ideas of an architect, artist, builder, designer, or theorist who is significant to a community.

3) The property has ***contextual value*** because it:

- Is important in defining, maintaining or supporting the character of an area;
- Is physically, functionally, visually or historically linked to its surroundings; or is a landmark.

4.2.2 Cultural Heritage Value

Design/Physical Value according to O.Reg 9/06

The solid-spandrel, concrete-arch Fifth Line Bridge is representative of a common bridge type built in Ontario in the early 20th century. Many of these early bridges have been replaced due to structural deterioration and to meet modern traffic needs. Four of these designs still exist in Centre Wellington.

Historic/Associative Value to O.Reg 9/06

None identified

Contextual Value to O.Reg 9/06

None identified

4.3 Ontario Heritage Bridge Evaluation

Table 1: Ontario Heritage Bridge Guidelines Table Evaluation Criteria

	Possible Score	**Assigned Score**
A. Design/Physical Value		
Functional Design	20	12
Visual Appeal	20	4
Materials	10	0
B. Historic/Associative Value		
Designer/Construction Firm	15	0
Association with a historic theme, person, event	10	0
C. Contextual		
Landmark	15	0
Character Contribution	10	0
Totals	**100**	**16**

To be considered eligible for the Ontario Heritage Bridge List, a bridge must score 60 or higher. The Fifth Line Bridge (16-WG) scored 16 points.

4.4 Statement of Cultural Heritage Value and Attributes

4.4.1 Statement of Cultural Heritage Value

The solid-spandrel, concrete-arch Fifth Line Bridge is representative of a common bridge type built in Ontario in the early 20th century. Many of these early bridges have been replaced due to narrow lane width, structural deterioration and to meet modern traffic needs and the Fifth Line Bridge is a rare survivor of early-20th century concrete bridges in Ontario. Despite its provincial rarity, it is one of four similar structures still standing in the Township of Centre Wellington.

4.4.2 Heritage Attributes

The concrete spandrel walls and flat arch are characteristic of solid spandrel concrete arch bridges.

5.0 ASSESSMENT

5.1 Proposed Undertaking

The Township of Centre Wellington is proposing to replace the Fifth Line Bridge with a new structure. The 1958, 1977 and 2012 "Municipal Structure Inspection Reports" examined in this study have traced a general deterioration in the bridge structure over the last 50 years. The 1977 "Inspection Report" estimated that the bridge had a remaining ten year life span. The 2012 "Biennial Bridge Inspection Report" indicated that much of the concrete was in poor condition. The report indicated that the Township should consider the replacement of the bridge as an alternative to rehabilitation.

5.2 Potential Impacts

The proposed replacement of the bridge will result in the loss of a rare survivor of an early concrete arch bridge in Ontario. This will leave three similar, solid-spandrel bridges within Centre Wellington.

The bridge is neither designated nor listed by the Township of Centre Wellington.

5.3 Potential Mitigation

The *Ontario Heritage Bridge Guidelines (Interim) 2008* identifies eight potential conservation options for bridge rehabilitation or repair. Their applicability to the Fifth Line Bridge are analyzed below:

5.3.1 Group 1: Retain Bridge

1) Retention of existing bridge with no major modifications undertaken
2) Restoration of missing or deteriorated elements where physical or documentary evidence (e.g. photographs or drawings) exists for their design;
3) Retention of existing bridge with sympathetic modification;
4) Retention of existing bridge with sympathetically designed new structure in proximity;
5) Retention of existing bridge no longer in use for vehicular purposes but adapted for a new use. For example, prohibiting vehicle or restricting truck traffic or adapting for pedestrian walkways, cycle paths, scenic viewing, etc;

6) Retention of bridge as a heritage monument for viewing purposes only;

The existing Fifth Line Bridge cannot be retained *in situ* because a replacement bridge must be constructed within the existing road allowance. The 2012 Biennial Bridge Inspection Report compiled by McCormick Rankin identified the existing bridge as being in poor condition and should be considered for closing. The report noted that the structure is deficient in width. Excess fill on the structure and the poor condition of the spandrels presented a serious threat to roadside safety and the possibility of sudden collapse without warning. The severe creek scouring on the north and south abutments indicated the structure is undersized for the hydraulic characteristics of the stream.

Building a new bridge adjacent to the existing bridge would require the purchase of new land for the new structure and for the realigned approach roads. Considerable new earthwork approaches would need to be constructed.

5.3.2 Group 2: Relocate Bridge

7) Relocation of smaller, lighter single span bridges to an appropriate new site for continued use or adaptive re use;

The structural design and weight of a deteriorated, earth-filled concrete arch bridge would prohibit moving the bridge to a new location.

5.3.3 Group 3: Replace Bridge

8) Bridge removal and replacement with a sympathetically designed structure:

   i) Where possible, salvage elements/members of bridge for incorporation into new structure or for future conservation work or displays;

   ii) Undertake full recording and documentation of existing structure.

a) Bridge 16-WG does not contain any historic structural or decorative elements that could be salvaged.

b) Since no description could be found regarding the placement of fill within the structure, the 16-WG Bridge should be photographed during demolition. This information should be incorporated into this HIA report as final documentation of the current features and conditions of the structure.

6.0 RECOMMENDATIONS

6.1 Documentation

Bridge 16-WG Bridge should be photographed during demolition by a qualified photographer to document the placement of fill within the structure and construction of the arch and deck. This information should be incorporated into this HIA report as final documentation of the current features and conditions of the structure.

6.2 Deposit Copies

Copies of this HIA and additional recommended documentation should be deposited with:

Wellington County Museum and Archives
0536 Wellington Road 18
Fergus, Ontario
N1M 2W3

Wellington County Public Library – Fergus Branch
181 St. Andrew Street East
Fergus, Ontario
N1M 1P9

7.0 SOURCES

7.1 Published Sources

Carter, Floreen Ellen. *Place Names of Ontario*. Volume One. London, Ont: Phelps Publishing Company, 1984.

Chapman, John Lyman and Donald F. Putnam. *The Physiography of Southern Ontario.* 3rd ed. Ontario Geological Survey Special Volume 2. Toronto: Ontario Ministry of Natural Resources, 1984.

Comp, T. Allan and Donald Jackson. "Bridge Truss Types: A Guide to Dating and Identifying," in *American Association for State and Local History*. 1977.

Dean, W.G. and G.J. Matthews. *Economic Atlas of Ontario*. Toronto: University of Toronto Press, 1969.

Heritage Resources Centre. *Arch, Truss, and Beam: The Grand River Watershed Heritage Bridge Inventory.* 2013.

Historica Research Limited. "Concrete Arch: Solid Spandrel." 1984.

Hutchinson, Jean F. *The History of West Garafraxa Township.* Grand Valley, Ontario: Landsborough Printing Limited, 1990.

Hutchinson, Jean F. *The History of Wellington County*. Grand Valley, Ontario: Landsborough Printing Limited, 1998.

Illustrated Atlas of the County of Wellington. Toronto: Walker and Miles, 1877,

Ontario Agricultural Commission. *Report of the Commissioners: Appendix B*. Toronto: Blackett Robinson, 1881.

United States. National Park Service. "Trusses: A Study by the Historic American Engineering Record." 1976.

7.2 Unpublished Sources

Township of West Garafraxa. Minutes of Council, 1908., 1910

Triton Engineering (copies supplied by) "Fifth Line Bridge" Municipal Structure Inspection Sheet, 1958/1977, 2012

7.3 Online Sources

Statistics Canada. "Census Profile, Township of Centre Wellington." www.statscan.gc.ca (accessed October 2013).

8.0 IMPORTANT INFORMATION AND LIMITATION OF THIS REPORT

Golder Associates Ltd. has prepared this report in a manner consistent with the standards and guidelines developed by the Ontario Ministry of Transportation, the Ontario Heritage Bridge Guidelines and the Ontario Ministry of Tourism, Culture, and Sport, Programs and Services Branch, Cultural Division, subject to the time limits and physical constraints applicable to this report. No other warranty, expressed or implied is made.

This report has been prepared for the specific site, design objective, developments and purpose described to Golder Associates Ltd., by Triton Engineering Service Limited (the Client). The factual data, interpretations and recommendations pertain to a specific project as described in this report and are not applicable to any other project or site location.

The information, recommendations and opinions expressed in this report are for the sole benefit of the Client. No other party may use or rely on this report or any portion thereof without Golder Associates Ltd.'s express written consent. If the report was prepared to be included for a specific permit application process, then upon the reasonable request of the Client, Golder Associates Ltd. may authorize in writing the use of this report by the regulatory agency as an Approved User for the specific and identified purpose of the applicable permit review process. Any other use of this report by others is prohibited and is without responsibility to Golder Associates Ltd. The report, all plans, data, drawings and other documents as well as electronic media prepared by Golder Associates Ltd. are considered its professional work product and shall remain the copyright property of Golder Associates Ltd., who authorizes only the Client and Approved Users to make copies of the report, but only in such quantities as are reasonably necessary for the use of the report by those parties. The Client and Approved Users may not give, lend, sell, or otherwise make available the report or any portion thereof to any other party without the express written permission of Golder Associates Ltd. The Client acknowledges the electronic media is susceptible to unauthorized modification, deterioration and incompatibility and therefore the Client cannot rely upon the electronic media versions of Golder Associates Ltd.'s report or other work products.

Unless otherwise stated, the suggestions, recommendations and opinions given in this report are intended only for the guidance of the Client in the design of the specific project.

9.0 CLOSURE

We trust that this report meets you current needs. If you have any questions, or if we may be of further assistance, please contact the undersigned.

GOLDER ASSOCIATES LTD.

ORIGINAL SIGNED

Michael Greguol, M.A.
Junior Cultural Heritage Specialist

ORIGINAL SIGNED

Christopher Andreae, Ph.D.
Associate, Senior Built Heritage Specialist

MG/CAA/slc

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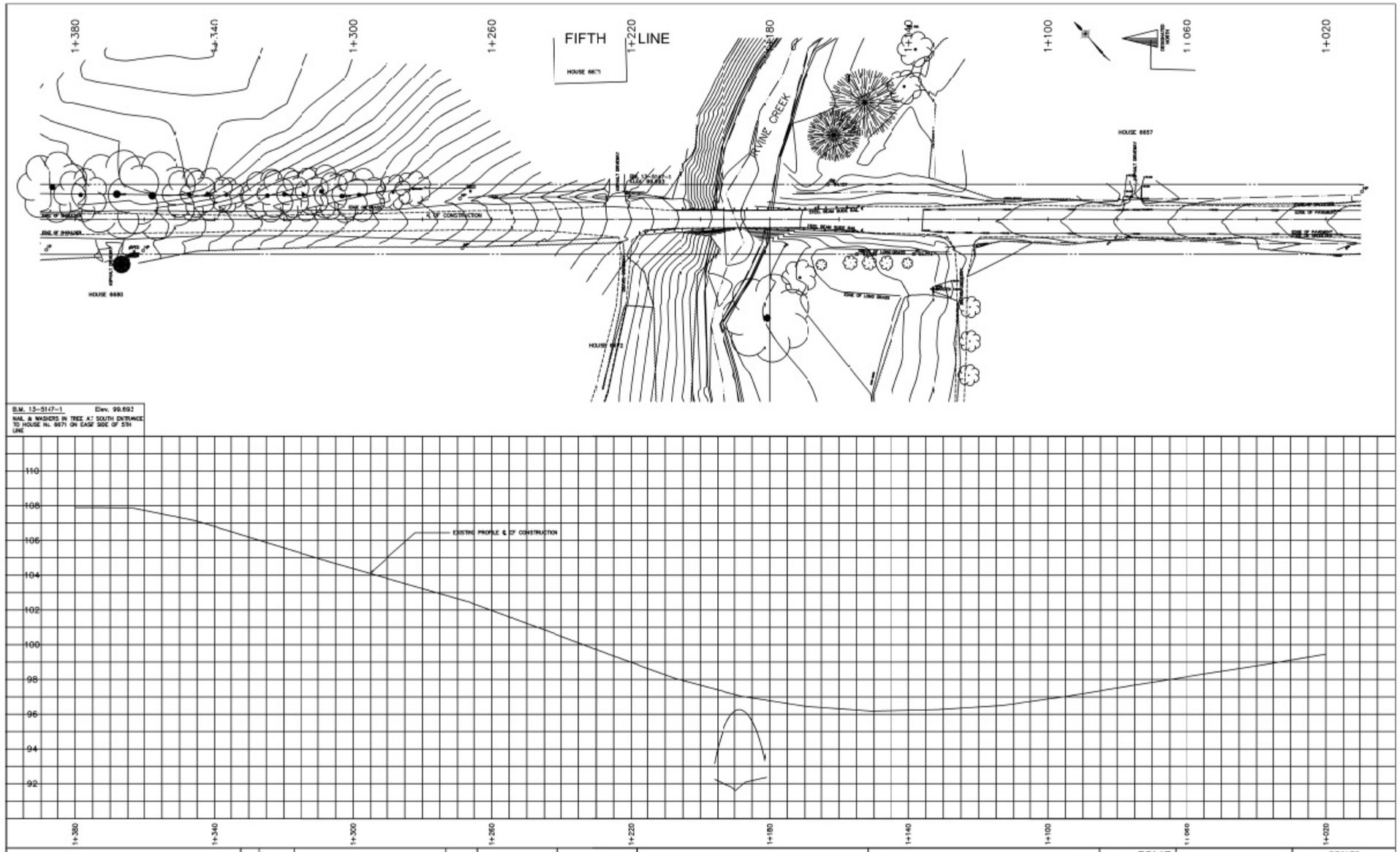
APPENDIX A

Plan and Profile of Fifth Line Bridge Site Plan, September 2013



B.M. 13-5147-1 Elev. 99.692
NAIL & WASHERS IN TREE AT SOUTH ENTRANCE TO HOUSE No. 6671 ON EASE SIDE OF 5TH LINE

NOTES

THE LOCATION OF UTILITIES IS APPROXIMATE ONLY AND SHOULD BE DETERMINED BY CONSULTING THE MUNICIPAL AUTHORITIES AND UTILITY COMPANIES CONCERNED. THE CONTRACTOR SHALL PROVE THE LOCATION OF UTILITIES AND SHALL BE RESPONSIBLE FOR ADEQUATE PROTECTION AGAINST DAMAGE.

No	DATE	REVISION	INITIAL

FIFTH LINE BRIDGE
AT IRVINE CREEK
(FORMER TWSP. OF WEST GARAFRAXA)
STRUCTURE No. 16-WG, MTO SITE No. 35-217

TOWNSHIP OF CENTRE WELLINGTON
1 MacDONALD SQUARE
ELORA, ONTARIO N0B 1S0

PLAN AND PROFILE
FIFTH LINE STA. 1+020 TO 1+380

PROJECT No: B5147
CONTRACT No: T-XX-XX
DRAWN BY: W.G.J.H.
CHECKED BY: D.G.D.
APPROVED BY: R.D.K.
DATE: SEPTEMBER, 2013

TRITON ENGINEERING SERVICES LIMITED
Consulting Engineers

SCALES
1:500 HORIZONTAL
1:100 VERTICAL

DRAWING NUMBER 01

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Golder Associates

APPENDIX D – HERITAGE IMPACT ASSESSMENT REPORT

ARCHAEOLOGY | HERITAGE | OUTREACH | EDUCATION

Heritage Impact Assessment
Structure 16-WG

Municipal Class Environmental Assessment for
Structure 16-WG
Township of Centre Wellington
Road Allowance between Lot 13, Concession 5 and Lot 13, Concession 6
Geographic Township of Garafraxa
Wellington County, Ontario

Prepared for
McIntosh Perry
400-2010 Winston Park Drive
Oakville, ON L6H 5R7
Tel: (289) 351-1206

By
Archaeological Research Associates Ltd.
219-900 Guelph Street
Kitchener, ON N2H 5Z6
Tel: (519) 804-2291

HR-337-2021
Project# 2021-0118

REVISED - FINAL
20/12/2021

EXECUTIVE SUMMARY

Under a contract awarded in May 2021 by McIntosh Perry, Archaeological Research Associates Ltd. was retained to complete a Heritage Impact Assessment for the bridge, Structure 16-WG, over Irvine Creek in the Township of Centre-Wellington, Ontario. More specifically, the bridge is located on Fifth Line over Irvine Creek in the road allowance between Lot 13, Concession 5 and Lot 13, Concession 6 and is currently owned by the Township of Centre Wellington. The structure is oriented on a northwest-southeast axis and provides vehicular and pedestrian access across Irvine Creek. It is located north of Belwood Lake which is a dammed lake along the Grand River. The property contains the bridge, part of Irvine Creek, Fifth Line and the embankments.

In May 2021, a scoped Cultural Heritage Evaluation Report was completed by ARA for the *Municipal Class Environmental Assessment for Structure 16-WG.* Building on a Heritage Impact Assessment completed in 2013 by Golder entitled *Fifth Line Bridge, Structure 16-WG Spanning Irvine Creek, Township of Centre Wellington, Wellington County, Ontario,* ARA's 2021 report provided additional analyses that confirms the evaluation of cultural heritage value or interest contained in the 2013 Golder report. Both reports concluded that Structure 16-WG meets one or more criteria for determining Cultural Heritage Value or Interest under Ontario Regulation 9/06 of the Ontario Heritage Act.

As recommended in both the 2013 Golder report and 2021 Archaeological Research Associates Ltd. report, a Heritage Impact Assessment is necessary for this bridge as it has been evaluated to possess cultural heritage value or interest. This report evaluates the potential impacts of the project and provides mitigation measures for Structure 16-WG.

The Heritage Impact Assessment approach consisted of the following:

- Consultation with the Township of Centre Wellington's Planner;
- Consultation with other municipalities to inquire about their concrete closed spandrel arch bridges;
- A description of the nature and condition of the cultural heritage resource;
- A summary of the cultural heritage value or interest of the property;
- An evaluation of potential project impacts of the proposed development based on the eight conservation options for the bridge; and
- The provision of suggested strategies for the future conservation of the heritage attributes.

McIntosh Perry has developed four options that address the problem opportunity statement outlined in the Municipal Class Environmental Assessment and which are being carried forward. These options are:

- Alternative 1 – Do nothing (Bridge Conservation Option 2),
- Alternative 2 – Remove the existing Bridge 16-WG and provide new turn around areas at the watercourse crossing (Bridge Conservation Option 8b)
- Alternative 3 – Remove the existing Bridge 16-WG and provide a new bridge in its place (Bridge Conservation Option 8a and b), and

- Alternative 4 – Rehabilitate the existing Bridge 16-WG to meet engineering and public safety standards, reinstate the existing watercourse crossing (Bridge Conservation Option 3)

From a conservation as well as an engineering perspective, Archaeological Research Associates Ltd. has concluded that Alternative 1 – Do Nothing, is not considered viable.

For the three remaining alternatives that have been considered, the following mitigation measures are suggested:

- That from a heritage perspective, Alternative 4 – Rehabilitate the existing Bridge 16-WG to meet engineering and public safety standards, reinstate the existing watercourse crossing, which relates to relates to Bridge Conservation Option 3, is the best alternative. It should be noted that the selection of a preferred alternative will be based on a multi-criteria evaluation completed as part of the Municipal Class Environmental Assessment Study.
- That if Alternative 2 is chosen and the bridge is removed and not replaced, Bridge Conservation Option 8b (full recording and documentation of the structure) should be undertaken. The subject bridge should be photographed during demolition by a qualified heritage consultant to document the placement of fill within the structure and construction of the arch and deck. This information should be incorporated into a Cultural Heritage Resource Documentation Report as final documentation of the current features and conditions of the structure.
- If the bridge is removed and replaced as outlined in Alternative 3, Bridge Conservation Option 8b (full recording and documentation of the structure) should be pursued as noted above. This alternative could present the opportunity to honour the subject bridge through incorporating sympathetic design elements.
- If it is determined to be feasible to implement Alternative 4 to rehabilitate the existing structure, modifications should be sympathetic, and care should be taken to conserve the heritage attributes of the bridge. Specific considerations should include: 1) that work should replicate, to the extent possible, the original design; for example, if the bridge should be widened the form board impressions could be replicated in the new concrete; 2) any concrete used for repairs should be appropriate in colour, pattern and texture; and 3) a replacement railing should emulate the original balustrades and replicate the placement and design in accordance with current safety standards.

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PERSONNEL

Principal: P.J. Racher, MA, CAHP
Heritage Operations Manager: K. Jonas Galvin, MA, RPP, MCIP, CAHP
Project Manager: J. McDermid, BA, CAHP
Field Survey: J. McDermid
Historical Research: S. Clarke, BA, CAHP
Photography: J. McDermid
Cartographer: Katie Brightwell (GIS)
Technical Writers: A. Bousfield-Bastedo, BA, Dip. Heritage Conservation, J. McDermid, P. Young, MA. CAHP
Editor: V. Cafik, BA, CAHP

Two-page curriculum vitae for key team members that demonstrate qualifications and expertise to perform cultural heritage work in Ontario are provided in Appendix B.

GLOSSARY OF ABBREVIATIONS

ARA – Archaeological Research Associates Ltd.
BHR – Built Heritage Resource
CHRDR – Cultural Heritage Resource Documentation Report
CHL – Cultural Heritage Landscape
CHVI – Cultural Heritage Value or Interest
HCD – Heritage Conservation District
HIA – Heritage Impact Assessment
MCEA – Municipal Class Environmental Assessment
MHSTCI – Ministry of Heritage, Sport, Tourism and Culture Industries
MTO – Ministry of Transportation
OHA – Ontario Heritage Act
O. Reg. – Ontario Regulation
PPS – Provincial Policy Statement

1.0 PROJECT CONTEXT

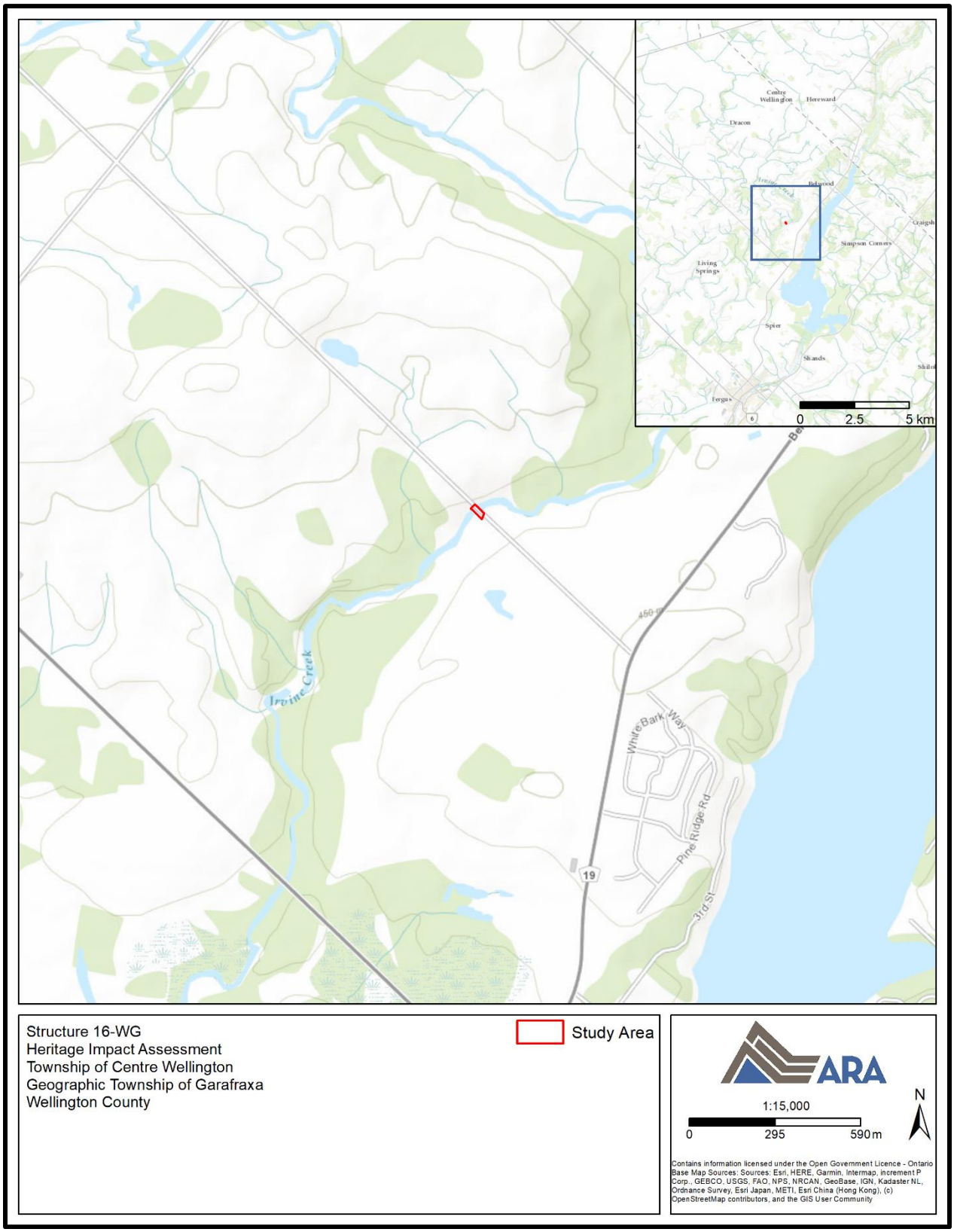
Under a contract awarded in May 2021 by McIntosh Perry, Archaeological Research Associates Ltd. (ARA) was retained to complete a Heritage Impact Assessment (HIA) for the bridge, Structure 16-WG, over Irvine Creek in the Township of Centre Wellington, Ontario. More specifically, the bridge is located on Fifth Line over Irvine Creek in the road allowance between Lot 13, Concession 5 and Lot 13, Concession 6 and is currently owned by the Township of Centre Wellington. The structure is oriented on a northwest-southeast axis and provides vehicular and pedestrian access across Irvine Creek. It is located north of Belwood Lake which is a dammed lake along the Grand River (see Map 1). The property contains the bridge, part of Irvine Creek, Fifth Line and the embankments.

In March 2021, Structure 16-WG was closed, as was recommended in the most recent Bridge Inspection from February 2021 (K. Smart 2021). This report indicated that safety recommendations to alleviate load on the bridge including overhead clearance frames and reduction from 10 to 2 tonne load limits posted, were carried out (as was recommended in previous inspections). Beginning January 15, 2014, regular measurements of guide rail posts were initiated to document movement of the retaining walls; since then, 15 rounds of measurements have been taken (K. Smart 2021). Recommendations included immediate closure of the bridge. Since May of 2021, the bridge has been blocked off with chains and one large concrete jersey barrier at each approach. The Municipal Class Environmental Assessment (MCEA) is being undertaken to address the deterioration of the bridge and determine the preferred alternative and concept design for the recommended solution.

The purpose of this assessment is to evaluate potential conservation options and suggest mitigation measures for the bridge and its identified heritage attributes as part of the MCEA.

On November 26, 2021, comments were received from the Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI). This revised report addressed those comments.

This HIA was conducted in accordance with the aims of the *Planning Act* R.S.O. 1990, c. P.13, *Environmental Assessment Act*, 1990, R.S.O. c. E18, *Provincial Policy Statement* (2020), *Ontario Heritage Act*, R.S.O. 1990, c. O.18, *Ontario Heritage Tool Kit* series (MHSTCI 2006a).



Map 1: Study Area in the Township of Centre Wellington
(Produced by ARA under licence using ArcGIS® software by Esri, © Esri)

2.0 POLICY AND APPROACH

The framework for this assessment report is provided by provincial environmental and planning legislation and policies as well as municipal Official Plans and guidelines. Within the *Environmental Assessment Act,* the environment includes "any building, structure, machine or other device or thing made by humans." An Environmental Assessment (EA) is a study that evaluates both the potential positive and/or negative effects of a project on the environment. This study is conducted as part of a streamlined EA process known as a Municipal Class EA (MCEA), which applies to routine projects grouped into classes that range from A (minor undertakings) to C (new construction of large facilities). The MCEA applies to municipal infrastructure undertakings including roads, water, and wastewater projects.

The *Guideline for Preparing the Cultural Heritage Resource Component of Environmental Assessments* indicates a need to describe the "affected environment" that is "a spatially defined area within which land will be altered as a result of the proponent's development" (MHSTCI 1992:3).

Section 2 of the Ontario *Planning Act* indicates that a council of a Municipality have regard for matters of provincial interest such as:"(d) the conservation of features of significant architectural, cultural, historical, archaeological or scientific interest" (Government of Ontario 1990). Section 3 of the *Planning Act* directs a municipal Council's decisions to be consistent with the *Provincial Policy Statement* (PPS 2020). Policy 2.6.1 of the PPS states: *"*Significant built heritage resources and significant cultural heritage landscapes shall be conserved" (PPS 2020:31).

The *Ontario Heritage Act* (*OHA*), R.S.O. 1990, c.018 is the guiding piece of provincial legislation for the conservation of significant cultural heritage resources in Ontario. The *OHA* gives provincial and municipalities governments the authority and power to conserve Ontario's heritage. The *OHA* has policies which address individual properties (Part IV), heritage districts (Part IV), and allows municipalities to create a register of non-designated properties which may have cultural heritage value or interest (Section 27).

In order to objectively identify cultural heritage resources, O. Reg. 9/06 made under the *OHA* sets out three principal criteria with nine sub-criteria for determining cultural heritage value or interest (CHVI) (MHSTCI 2006b:20–27). The criteria set out in the regulation were developed to identify and evaluate properties for designation under the *OHA*. Best practices in evaluating properties that are not yet protected employ O. Reg. 9/06 to determine if they have CHVI. In the absence of specific CHL evaluation criteria, potential CHLs O. Reg 9/06 is also applied to consider the built and natural features and the property as a whole. The O. Reg. 9/06 criteria include: design or physical value, historical or associative value and contextual value.

> *1. The property has design value or physical value because it,*
> *i. is a rare, unique, representative or early example of a style, type, expression, material or construction method,*
> *ii. displays a high degree of craftsmanship or artistic merit, or*
> *iii. demonstrates a high degree of technical or scientific achievement.*

> *2. The property has historical value or associative value because it,*
> *i. has direct associations with a theme, event, belief, person, activity, organization or institution that is significant to a community,*
> *ii. yields, or has the potential to yield, information that contributes to an understanding of a community or culture, or*
> *iii. demonstrates or reflects the work or ideas of an architect, artist, builder, designer or theorist who is significant to a community.*
>
> *3. The property has contextual value because it,*
> *i. is important in defining, maintaining or supporting the character of an area,*
> *ii. is physically, functionally, visually or historically linked to its surroundings, or*
> *iii. is a landmark.* O. Reg. 9/06, s. 1 (2).

The *County of Wellington Official Plan* (2021) purpose states that: "Wellington County Council commits itself to ensuring that existing and future residents have access to an adequate supply and variety of: …cultural facilities and that the people of the County…enjoy cultural heritage…" (2021:1). One component of the Wellington County's Planning Visions, under Policy 2.1.5 Decision Making, states: "Wellington County will promote land use decisions which provide an economically strong, healthy and socially responsible community and which protect our natural and cultural heritage for this and future generations" (2021:3). Section 4.1 of the *Official Plan* contains policies that address cultural heritage resources. Policies address the conservation of built heritage, cultural heritage landscapes and archaeological resources drawing upon the *Ontario Heritage Act* for their conservation. Policy 4.1.5 provides the policy direction for cultural heritage resources stating:

> *a) significant built heritage resources and significant cultural heritage landscapes shall be conserved. Conserved means the identification, protection, use and/or management of cultural heritage and archeological resources in such a way that their heritage values, attributes and integrity are retained. This may be addressed through a conservation plan or heritage impact assessment in accordance with Section 4.6.7* (The Corporation of the County of Wellington 2021:20).

Section C.2 of *Municipal Official Plan Township of Centre-Wellington* Policy presents the Township's policies on cultural heritage resources. Policy C.2.1.1 outlines one of the Township's goals and objectives is: "to protect the Township's heritage resources from neglect, deterioration, demolition, alteration, redevelopment or changes in use which threaten their existence or integrity" (2013:5).

Policy C.2.2 of OP lays out criteria for cultural heritage resources to meet in order to designate them pursuant to the *Ontario Heritage Act*, these are:

> 1. *Represents a unique or rare example, or the only (or one of the few) remaining examples of its architectural style or period;*

2. *Constitutes a work of outstanding quality as a result of its plan, proportions, design, construction, materials or details;*
3. *Represents an early or otherwise noteworthy example of the work of a renowned architect, designer or builder;*
4. *Is representative of the early history of the development of the Township;*
5. *Is associated with some historically significant aspect or event in the history of development of the Township, the province or the county;*
6. *Is associated with a person or group of persons who achieved local, provincial or international prominence* (Township of Centre Wellington 2013:6):

Policy C.2.14 which addresses Municipally Owned Heritage Buildings and Structures states that "The Township should, where practical, restore and maintain municipally owned heritage buildings and structures to a high standard to physically express its commitment to the protection of heritage resources in the municipality and to provide a vivid example of the benefits of quality restoration and maintenance" (2013:8).

Through the conducting of this Heritage Impact Assessment for the Structure 16-WG, the aims of provincial legislation and guidelines, and the policies of the *Wellington County Official Plan* and the *Township of Centre Wellington Official Plan* can be met.

2.1 Key Concepts

The following concepts require clear definition in advance of the methodological overview; proper understanding is fundamental for any discussion pertaining to cultural heritage resources:

- **Cultural Heritage Value or Interest** (CHVI), also referred to as Heritage Value, is identified if a property meets one of the criteria outlined in O. Reg. 9/06 namely historic or associate value, design or physical value and/or contextual value. Provincial significance is defined under *Ontario Heritage Act* (OHA) *O. Reg*. 10/06.
- **Built Heritage Resource** (BHR) is defined in the PPS as: "a building, structure, monument, installation or any manufactured or constructed part or 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 *Ontario Heritage Act*, or that may be included on local, provincial, federal and/or international registers" (2020:41).
- **Cultural Heritage Landscape** (CHL) is defined in the *PPS* as: "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 *Ontario Heritage Act*, 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" (2020:42).

It is recognized that the heritage value of a CHL is often derived from its association with historical themes that characterize the development of human settlement in an area (Scheinman 2006). In Ontario, typical themes which may carry heritage value within a community include, but are not limited to: 1) Pre-Contact habitation, 2) early European exploration, 3) early European and First Nations contacts, 4) pioneer settlement, 5) the development of transportation networks, agriculture and rural life, 6) early industry and commerce, and/or 7) urban development. Individuals CHLs may be related to a number of these themes simultaneously.

The *Operational Guidelines for the Implementation of the World Heritage Convention* defines several types of CHLs: 1) designed and created intentionally by man, 2) organically evolved landscapes which fall into two-subcategories (relic/fossil or continuing), and 3) associative cultural landscapes (UNESCO 2008:86). MCL (at the time) *Information Sheet #2 Cultural Heritage Landscapes* (MCL 2006c) repeats these definitions to describe landscapes in Ontario.

- **Conserved** means "the identification, protection, management and use of built heritage resources, cultural heritage landscapes and archaeological resources in a manner that ensures their cultural heritage value or interest is retained. This may be achieved by the implementation of recommendations set out in a conservation plan, archaeological assessment, and/or heritage impact assessment that has been approved, accepted or adopted by the relevant planning authority and/or decision-maker. Mitigative measures and/or alternative development approaches can be included in these plans and assessments" (2020:41-42).
- **Heritage Attributes**, as defined in the OHA, means, in relation to real property, and to the buildings and structures on the real property, the attributes of the property, buildings and structures that contribute to their cultural heritage value or interest" (Government of Ontario 2019).
- **Protected Heritage Property** "means property designated under Parts IV, V or VI of the *Ontario Heritage Act*; property subject to a heritage conservation easement under Parts II or IV of the *Ontario Heritage Act*; property identified by the Province and prescribed public bodies as provincial heritage property under the *Standards and Guidelines for Conservation of Provincial Heritage Properties*; property protected under federal legislation, and UNESCO World Heritage Sites" (PPS 2020:49).
- **Significant** "in regard to cultural heritage and archaeology, 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 *Ontario Heritage Act*" (PPS 2020:51).

2.2 Evaluation of Impacts

Any potential project impacts on identified BHRs or CHLs must be evaluated, including positive and negative indirect impacts. *InfoSheet #5: Heritage Impact Assessments and Conservation Plans* (MHSTCI 2006c:3) provides an overview of several major types of negative impacts, including but not limited to:

- Destruction of any, or part of any, significant heritage attributes;
- Alteration that is not sympathetic, or is incompatible, with the historic fabric and appearance;
- 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 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.

2.3 Conservation and Mitigation Strategies

If potential impacts to identified heritage bridges are determined, proposed conservation or mitigative/avoidance measures must be recommended. The MTO 2008 *Ontario Heritage Bridge Guidelines* provide conservation options that are appropriate for heritage bridges, whether they be municipally or provincially owned. There are eight conservation options for managing interventions on heritage bridges and are arranged according to level or degree of intervention from minimum to maximum (see list below). These conservation options are to be considered in "rank order such that Option 1 must be shown to be non-viable, before Option 2 can be considered and so on. Rehabilitation is preferable to replacement" and sympathetic design should be applied in all cases i.e. rehabilitation or replacement (MTO 2008:19). The eight conservation options are as follows:

1. Retention of existing bridge with no major modifications undertaken;
2. Restoration of missing or deteriorated elements where physical or documentary evidence (i.e. photographs or drawings) can be used for their design;
3. Retention of existing bridge with sympathetic modification;
4. Retention of existing bridge with sympathetically designed new structure in proximity;
5. Retention of existing bridge no longer in use for vehicular purposes but adapted for a new use. For example, prohibiting vehicle or restricting truck traffic or adapting for pedestrian walkways, cycle paths, scenic viewing, etc.;
6. Retention of bridge as a heritage monument for viewing purposes only;
7. Relocation of smaller, lighter single span bridges to an appropriate new site for continued use (see option 4) or adaptive re-use (see option 5);
8. Bridge removal and replacement with a sympathetically designed structure:
    a. Where possible, salvage elements/members of bridge for incorporation into new structure or for future conservation work or displays;
    b. Undertake full recording and documentation of existing structure (MTO 2008:19-20):

2.4 Summary of Approach

Structure 16-WG was evaluated against the Ontario Heritage Act, O. Reg. 9/06 criteria. Conservations options considered in this HIA draw upon Section 4.3 of the MTO 2008 *Ontario Heritage Bridge Guidelines* (OHBG). As Structure 16-WG is a municipal bridge the remainder of the OHBG is inapplicable. The approach outlined herein is supported by the best practices, guidelines and policies of the following:

- *Environmental Assessment Act* (R.S.O.1990)
- *Planning Act* (R.S.O. 1990);
- *Provincial Policy Statement* (2020);
- *Ontario Heritage Act* (R.S.O. 1990);
- *Ontario Heritage Tool Kit* series (MHSTCI 2006a);
- *Ontario Heritage Bridge Guidelines* (MTO 2008);
- *County of Wellington Official Plan* (2021);
- *Municipal Official Plan Township of Centre-Wellington Official Plan* (2013).

3.0 CULTURAL HERITAGE VALUE OR INTEREST

The 2013 Golder report provided a Statement of CHVI and list of heritage attributes. As a result of this study, the Statement of CHVI now includes the property description and as such, ARA's work builds on and elaborates on Golder's earlier evaluation and Statement. The following Statement of CHVI and heritage attributes for Structure 16-WG is copied from ARA's 2021 CHER.

3.1 Statement of Cultural Heritage Value or Interest

3.1.1 Description of Property

Structure 16-WG is located in the Township of Centre Wellington in the road allowance between Lot 13, Concession 5 and Lot 13, Concession 6 in the Geographic Township of Garafraxa, Wellington County. Structure 16-WG is a concrete bridge, spanning Irvine Creek, is on Fifth Line, was designed in the solid spandrel concrete arch design. This bridge was built in 1910 The structure has a northwest-southeast orientation and is a single lane that carries predominantly vehicular traffic across Irvine Creek.

3.1.2 Statement of Cultural Heritage Value

"The solid-spandrel, concrete-arch Fifth Line Bridge [Structure 16-WG] is representative of a common bridge type built in Ontario in the early 20th century. Many of these early bridges have been replaced due to narrow lane width, structural deterioration and to meet modern traffic needs and the Fifth Line Bridge is a rare survivor of early-20th century concrete bridges in Ontario. Despite its provincial rarity, it is one of four similar structures still standing in the Township of Centre Wellington" (Golder 2013: 17).

3.1.3 Heritage Attributes

- "Concrete spandrel walls
- Flat arch" (Golder 2013:17)

4.0 EXISTING CONDITIONS

The 2013 report provides a description of the bridge. Specifically, the section noted that:

- abutments are constructed of cast-in-place concrete;
    - wooden plank frameworks for concrete still visible on concrete face;
    - exposed abutment footings due to erosion;
- built into steep earth embankments;
- arch had a span of 47 feet and a depth of 10 feet
- deck is feet 104 feet long and 17 feet wide
    - originally had concrete rail system that allowed for only 14 feet of available road surface
- In 1958, concrete railings were removed and replaced with the present steel barrier rail system
    - bolted straight into the concrete bridge elevations
    - cut out sections of the top lip of the spandrel walls to inset the steel bars of the rail system;
- Erosion of the concrete soffit (underside of arch) has revealed the reinforcing rods, or rebar, that was used to form the concrete arch

Updated existing conditions of the subject property are described below using data and photographs gathered during ARA's May 25, 2021, field survey, as well as findings from the latest inspection report (K Smart 2021).

4.1 Description

Built in 1910, Structure 16-WG is a solid spandrel concrete arch bridge (see Image 4, Image 14). The structure has a northwest-southeast orientation and is located on Fifth Line between Wellington Road 19 to the northwest and Side Road 15 in the southeast. The bridge is located north of Belwood Lake, a dammed lake on the Grand River (see Image 13). This bridge is a single lane that carries predominantly vehicular traffic across Irvine Creek in one continuous span with an overall deck length of 104 feet. The arch has a span of 47 feet and a depth of 10 feet (Golder 2013:9). It was closed to traffic in March 2021, as was recommended in the most recent Bridge Inspection from February 2021 (K. Smart 2021). This report indicated previous work done to alleviate load on the bridge including overhead clearance frames and reduction from 10 to 2 tonne load limits posted (as was recommended in previous inspections). Beginning January 15, 2014, regular measurements of guide rail posts were initiated to document movement of the retaining walls; since then, 15 rounds of measurements have been taken (K. Smart 2021). Recommendations included immediate closure of the bridge. Since May of 2021, the bridge has been blocked off with chains and one large concrete jersey barrier at each approach.

The bridge was initially designed and built with concrete railings, however by 1958 the railings were removed and replaced with the present two steel barrier railings which run horizontally. These railings connect to vertical steel channels bolted to the concrete of the spandrel walls. The deck surface is covered in gravel. Board lines from the cast-in-place concrete are visible on the soffit of

the bridge. Erosion of the concrete has revealed the reinforcing rods, or rebar, that was used to form the concrete arch (Golder 2013:13).

The abutments are constructed of cast-in-place concrete and are built into the steep earth embankments. The footings of the abutments are exposed due to erosion below the spring line. The board lines of the planks used for the shoring, or wooden framework built to cast the concrete in place is still visible on the face of the concrete (Golder 2013:13).

4.2 Physical Condition

The Inspection Form identifies the subject bridge as a single span concrete spandrel arch bridge. General comments on the structure are as follows:

> *As stated in our previous reports for this structure: <In the interest of public safety, we recommend that a maximum movement of 50mm from the baseline be set. Once the total movement of 50mm from the baseline has been reached, this structure should be closed>*
>
> - *The measured observations have surpassed the 50mm threshold at two of the three locations.*
> - *It is possible/probable that this movement is due to frost action.*
> - *It is unknown if this deformation will be permanent or if some relief will come in warmer weather.*
>
> *Even if this displacement is due to frost action, these components are neither designed for movement, nor have sufficient remaining integrity to enable movement without damage. Given that the baseline maximum has now been exceeded, we recommend closure of this structure based on this alone. If the Township wishes to keep the structure open at their own discretion, we would, at a minimum recommend enhancing monitoring and inspections until spring to monitor for further wall displacement* (K. Smart 2021:2).

The bridge was promptly closed to traffic following this February 2021 report and remains closed as of the field survey conducted in May 2021.

4.3 ARA Field Survey

A field survey was conducted on May 25, 2021, to photograph and document the subject bridge for the CHER. The field survey was conducted on the entire property including landscape features such as the rural road cross-section, views to and from the bridge and elements of the bridge (see Image 1–Image 23).

5.0 CONSULTATION

As part of the CHER, ARA identified a total of 11 concrete closed spandrel arch bridges in the vicinity of the subject bridge using the HRC Study, *Arch Truss and Beam, The Grand River Watershed Heritage Bridge Inventory* (2013). As part of the MCEA process, McIntosh Perry presented the findings of the CHER to the Township Council and Municipal Heritage Committee

on June 8, 2021. During the meeting, a committee member asked for further information on the status of the 11 bridges.

The similar bridges and locations are noted in Table 1. With the permission of the Township, ARA contacted the counties and municipalities in which the bridges are located in order to inquire about what plans, if any, there are for the conservation of the bridge(s). This further most up-to-date information on these bridges is found in the corresponding subsections below.

Table 1: Local Concrete Closed Spandrel Arch Bridges Condition

Bridge	Water course	Location, Owner	Construction Date	Current	Section
Bridge 16-WG	**Irvine Creek**	**Centre Wellington, Fourth Line**	**1910**	**tbd**	**5.1**
Bridge 9-WG	Irvine Creek	Centre Wellington, Seventh Line	1925	Replaced in 2018	5.1
Washington Street Bridge (12-N)		Centre Wellington	1925	In use as pedestrian/cycling bridge	5.1
Old Fourth Line		Centre Wellington, private owner	1908	unknown	5.1
Mill Street Bridge	Whiteman Creek	Brant County	1922	unknown	5.2
Cleaver Road Bridge	Whiteman Creek	Brant County	1922	unknown	5.2
Wellesley Bridge No.17	Nith River	Twp. Of Wellesley	1946	In use, in good repair	5.3
Schneider Creek Bridge 1	Schneider Creek	City of Kitchener	1929	To be rehabilitated	5.4
Schneider Creek Bridge 2	Schneider Creek	City of Kitchener	1929	To be rehabilitated	5.4
Floradale Bridge	Unknown	Twp. Of Woolwich	1913	Replaced in 2015	5.5
Benham Bridge	Eramosa River	Twp. of Guelph/Eramosa, owner: County of Wellington	1910	Replaced in 2013	5.6

5.1 Centre Wellington - Three Bridges

The Manager of Engineering provided some updates regarding the two Township-owned bridges. The Old Fourth Line Bridge is now privately owned. The future of the subject bridge, WG-16, is to be determined.

A 2012 OSIM report recommended closure of the Washington Street Bridge (12-N), which was closed to vehicular traffic on January 11, 2013. The bridge has since been inspected every six months as it remains in use by pedestrians and cyclists. It is planned for rehabilitation.

The 9-WG Bridge was at an advanced state of deterioration and was subject to a three-month inspection interval from 2013-2014. The barrier wall movement was of primary concern. The Bridge was closed July 7, 2014. A Schedule A+ MCEA was initiated in 2017 requiring a CHER. The 2017 *Cultural Heritage Evaluation Report* by CHC Ltd. Found that the bridge did "*not meet the criteria of Regulation Ontario Heritage Act Regulation 9/06",* concluding that "*While the project involves a bridge constructed before 1956, and a bridge type not exempted by the MEA checklist, it does not involve a bridge that is listed on the municipal Heritage Register, that is designated under Part IV or Part V of the Ontario Heritage Act, or one meeting the criteria of Regulation 9/06; therefore, there is no impact on a significant heritage resource."* A HIA was not required. The bridge was replaced by May 25, 2018.

5.2 Brant County - Two Bridges

The County of Brant Heritage Planner was emailed on June 17, 2021, to ask for information related to the two known concrete closed spandrel arch bridges, the Mill Street Bridge and Cleaver Road Bridge, both built in 1922 and spanning Whiteman Creek. At the time of writing this report, no reply was received.

5.3 Township of Wellesley - One Bridge

The Director of Planning at the Township replied to ARA's request for information on June 18, 2021, stating that they "*discussed this with our public works department, and there has been no significant work to change or improve this bridge. The bridge is still in good shape and through a normal maintenance schedule we are not anticipating any significant work on this bridge in the next decade. We are not aware of any other similar structures in the local area*."

5.4 City of Kitchener - Two Bridges

The Heritage Planner at the City of Kitchener responded to ARA's request for information on June 22, 2021. The City's Engineering division has a current project to repair/upgrade both Schneider Creek bridges. The bridges were rehabilitated once in the 1980s and will be again in the near future. Specifically, the consultant for the project provided the following information:

> *My understanding is that the two Doon Village bridges over Schneider Creek underwent rehabilitation in 1985. The work included:*

- *Replacement of deteriorated portions of the concrete retaining walls that retain the earth above the arch*
- *Installation of a concrete tie-beam between the concrete retaining walls*
- *Replacement of the concrete parapet walls on either side of the roadway*
- *Widening of bridge to include a sidewalk and a parapet wall on the outside of the sidewalk*
- *General patch repairs to deck, soffit and retaining walls*

The City has the rehabilitation drawings if they are of use.

The proposed work for the current rehab being designed by Wood, and still to be submitted for approval by City, involves:

- *Installation of overlay with galvanic anodes on central portion of deck*
- *Installation of concrete beam strip at base of parapet walls to strengthen their connection to bridge*
- *Application of migratory corrosion inhibitor and pigmented sealer to existing parapet walls*
- *General patch repairs to parapet walls, retaining walls and deck soffit".*

5.5 Township of Woolwich - One Bridge

The Engineering Technologist with the Township of Woolwich returned ARA's request for information. The bridge is referred to as Structure 050106 and is located on Floradale Road about 550 m north of Florapine Road. The concrete closed spandrel arch bridge was replaced in 2015 with a three-sided precast concrete structure.

5.6 County of Wellington - One Bridge

The last known remaining concrete closed spandrel arch bridge in the County of Wellington was in the Township of Guelph/Eramosa. ARA contacted both the Township and the County to solicit information. Since the County owned the Benham Bridge, the Technical Services Supervisor replied to ARA's request for information on June 18, 2021. The Benham Bridge was replaced in 2013 with a precast concrete arch type structure. Design drawings of the replacement bridge as well as the CHER completed on the bridge.

As part of the County's 2007 bridge appraisal study, the Benham Bridge was found to be in very poor condition. A *Schedule B MCEA Study* was conducted to address the existing structural deficiencies. In 2010, Unterman McPhail drafted the CHER and concluded that it scored a 63/100 possible points: "*The Benham Bridge has been evaluated under the criteria of the Ontario Heritage Bridge Program (1983, rev. 1991). According to the OHBP, if a bridge scores a minimum of 60 points, it is considered to have cultural heritage value or interest*." (Unterman McPhail 2010:21).

5.7 Summary

Aside from the subject bridge, there are 10 other known concrete closed spandrel arch bridges in the area. Of these, one is still in use and in good repair as a vehicular bridge (Wellesley Bridge No. 17), one remains in use as a pedestrian bridge (Washington Street Bridge 12-N), three have been replaced (Floradale Bridge, Benham Bridge and Bridge 9-WG), two are to be rehabilitated (both Schneiders Creek Bridges) and the current status of three are unknown.

6.0 PROPOSED DEVELOPMENT

The bridge is currently owned by the Township of Centre Wellington. It was decommissioned to vehicular traffic in March 2021. McIntosh Perry provided their Problem and Opportunity Statement (POS):

> *Bridge 16-WG is in an advanced state of deterioration and has been closed for public use at this time. The existing bridge is also a single-lane with other functional and operational deficiencies. Therefore, the Township of Centre Wellington has the opportunity to identify and evaluate alternative solutions and determine a preferred bridge solution in accordance with the MCEA Process.* (McIntosh Perry 2021).

To address the POS, McIntosh Perry provided the following alternatives that are being considered/evaluated as part of the MCEA:

- Alternative 1 – Do nothing.
- Alternative 2 – Remove the existing Bridge 16-WG and provide new turn around areas at the watercourse crossing
- Alternative 3 – Remove the existing Bridge 16-WG and provide a new bridge in its place
- Alternative 4 – Rehabilitate the existing Bridge 16-WG to meet engineering and public safety standards, reinstate the existing watercourse crossing.

7.0 ANALYSIS OF POTENTIAL IMPACTS

The alternatives provided in Section 6.0 above were evaluated in terms of their impact on the identified heritage attributes of the Structure 16-WG bridge.
From a heritage perspective, Alternatives 1 and 4 that retain the physical solid spandrel structure in its current location are the most desirable. If the bridge is to be retained or reused, the heritage attributes should be conserved. If the bridge can be moved, the heritage attributes related to the bridge's historic fabric should be reinstated in the new location. The Alternatives that remove the current bridge completely, Alternatives 2 and 3, and replace it with a new bridge, could maintain several of the bridge's design and contextual attributes through the application of mitigation measures.

If the bridge is retained in situ as in Alternative 4 and rehabilitated, that is a positive impact. Also, as part of this Alternative is the potential positive impact of installing a better guardrail. Currently, there is a modern guardrail that was added to the bridge. It is currently affixed to the bridge. In

addition to not meeting safety standards, the guardrail poses a risk to the bridge itself since it is directly affixed to the outside face of the concrete arch. A positive impact will be the removal of this guardrail and replacement with a guardrail that will protect from vehicular impact damage. It will also provide the opportunity to design a guiderail similar to the one removed.

8.0 ALTERNATIVES CONSIDERED AND MITIGATION MEASURES

8.1 Alternatives Considered

A number of options have been considered to aid in the evaluation of the bridge's future, including both removal and renewal alternatives.

Due to the functional role that bridges play in transportation networks, there are often competing interests. McIntosh Perry has developed four renewal alternatives for the bridge that are being considered as part of the MCEA:

- Alternative 1 – Do nothing
- Alternative 2 – Remove the existing Bridge 16-WG and provide new turn around areas at the watercourse crossing,
- Alternative 3 – Remove the existing Bridge 16-WG and provide a new bridge in its place, and;
- Alternative 4 – Rehabilitate the existing Bridge 16-WG to meet engineering and public safety standards, reinstate the existing watercourse crossing.

The feasibility of these alternatives and their relationship to the eight bridge conservation options have been summarized in Table 2.

Table 2: Viability of Conservation/Mitigation Options

Rank Order	Conservation/Mitigation Alternatives	Viable? (Y/N)	Project-Specific Considerations
1	Retention of existing bridge with no major modifications undertaken	N	Do nothing (Alternative 1) was considered. The road has now been closed to vehicular traffic based on recommendations in the most recent Bridge Inspection from February 2021 (K. Smart 2021:2). As such, this is not a viable option due to concerns over the condition of the structure.
2	Restoration of missing or deteriorated elements where physical or documentary evidence (e.g., photographs or drawings) can be used for their design	N	Not viable due to concerns based on the information and recommendations in the most recent Bridge Inspection from February 2021 (K. Smart 2021:2). The elements of the bridge are in a state of deterioration that would require considerable expense to repair/restore them to meet current safety requirements.

Rank Order	Conservation/Mitigation Alternatives	Viable? (Y/N)	Project-Specific Considerations
3	Retention of existing bridge with sympathetic modification	Unknown*	The viability of the rehabilitation to extend the service life of the bridge and to meet engineering and public safety standards (Alternative 4) is unknown*. From an engineering perspective, the major structural elements (arch, abutments, retaining walls) are failing or have failed.
4	Retention of existing bridge with sympathetically designed new structure in proximity	N	This option would require considerable expense to address safety concerns of Structure 16-WG and to acquire new lands outside of the Right-of-Way to construct a new bridge and for the realigned approach roads. This option is not viable.
5	Retention of existing bridge no longer in use for vehicular purposes but adapted for pedestrian walkways, cycle paths, scenic viewing, etc.	N	Retention of the bridge and adapting it for pedestrian walkways, cycle paths would require considerable expense as renewal work is required to address structural and safety concerns even as a pedestrian bridge. If renewal/rehabilitation work was to occur, Alternative 4 would be the appropriate option which would then allow the bridge to be reinstated as a watercourse crossing.
6	Retention of bridge as a heritage monument for viewing purposes only	N	Retention of the bridge for a heritage monument would require considerable expense to rehabilitate it to meet safety requirements. If rehabilitation was to occur, Alternative 4 would be the appropriate option which would then allow the bridge to be reinstated as a watercourse crossing.
7	Relocation of a smaller lighter bridges to an appropriate new site for continued use (see 4) or adaptive re-use (see 5)	N	The structural design and weight of the earth-filled concrete bridge would prohibit the relocation of the bridge (Golder 2013:19). As such, this is not viable as the bridge is not a light structure.
8a	Salvage of elements/members of bridge for incorporation into new structure or for future conservation work or displays; and	Y	As part of Alternative 3: Remove the existing Bridge 16-WG and provide a new bridge in its place, investigation into the salvage of elements/members of the bridge would be feasible.
8b	Full recording and documentation of the structure if it is to be demolished	Y	As part of Alternative 2: Remove the existing Bridge 16-WG and provide new turn around areas at the watercourse crossing and Alternative 3: Remove the existing Bridge 16-WG and provide a new bridge in its place, investigation into the full recording and documentation of the bridge would be feasible.

* viability of Conservation Option 3 (Alternative 4) is not known, and would be subject to an engineering evaluation which is outside the scope of this HIA.

As summarized in Table 2, the four options that address the problem opportunity statement outlined in the MCEA and which are being carried forward are:

- Alternative 1 – Do nothing (Bridge Conservation Option 2),
- Alternative 2 – Remove the existing Bridge 16-WG and provide new turn around areas at the watercourse crossing (Bridge Conservation Option 8b)
- Alternative 3 – Remove the existing Bridge 16-WG and provide a new bridge in its place (Bridge Conservation Option 8a and b), and
- Alternative 4 – Rehabilitate the existing Bridge 16-WG to meet engineering and public safety standards, reinstate the existing watercourse crossing (Bridge Conservation Option 3)

The technical preferred alternative has yet to be determined (McIntosh Perry 2021).

8.2 Mitigation Measures

From a heritage perspective, Alternative 4 – Rehabilitate the existing Bridge 16-WG to meet engineering and public safety standards, reinstate the existing watercourse crossing is preferred. This option relates to Bridge Conservation Option 3 and is the heritage recommended alternative. It should be noted that the selection of an overall preferred alternative will be based on a multi-criteria evaluation completed as part of the MCEA. The following sections discuss the mitigation measures suggested for the four alternatives being considered.

8.2.1 Alternative 1 – Bridge Conservation Option 1

Do Nothing

From a conservation as well as an engineering perspective, the Do Nothing Alternative is not viable. This bridge has been recommended for rehabilitation for decades (K Smart 2021). Continued inaction on the deteriorating conditions of the subject bridge will amount to demolition by neglect which would result in a total loss of the cultural heritage resource and may pose a health and safety concern.

8.2.2 Alternative 2 – Bridge Conservation Option 8b

Remove the Existing Bridge 16-WG and Provide New Turn Around Areas at the Watercourse Crossing

If the bridge is removed and not replaced, Bridge Conservation Option 8b (full recording and documentation of the structure) should be undertaken. Typically, the recording is documented in a Cultural Heritage Resource Documentation Report (CHRDR) completed by a qualified heritage consultant and includes: updated photo documentation of the structure from all angles as well as detailed photographs of all elements; photographs of the landscape surrounding the resource; a photo map; a physical description of the resource; detailed description of the landscape and context; as well as any as-built drawings and heritage photographs. The ARA CHER and Golder 2013 HIA represents sufficient documentation of the bridge's history and the former includes

current photographs, however as-built drawings are recommended. In addition, as is recommended in the 2013 HIA, the subject bridge should be photographed during demolition by a qualified heritage consultant to document the placement of fill within the structure and construction of the arch and deck. This information should be incorporated into a CHRDR as final documentation of the current features and conditions of the structure (Golder 2013:ii). These items should be combined in a single document and distributed to the Township of Centre Wellington and its Municipal Heritage Committee as well as local libraries.

8.2.3 Alternative 3 – Bridge Conservation Option 8a and b

Remove the Existing Bridge 16-WG and Provide a New Bridge in its Place

If the bridge is removed and replaced, Bridge Conservation Option 8b (full recording and documentation of the structure) should be pursued as is outlined in Section 8.2.2. Normally for this, Bridge Conservation Option 8a (Salvage of elements/members of bridge for incorporation into new structure or for future conservation work or displays), elements of the bridge worthy of salvage would be removed prior to destruction and salvaged material could be incorporated into a new bridge or form the basis for a commemorative display (i.e., an interpretive board) at the former site of the bridge. The design of this bridge does not lend itself well to any salvage; there are no elements that can be removed or salvaged since the original balusters have been removed. A plaque could be erected at the site, and the content could include the history of the bridge, photographs and how the landscape has evolved over time.

This alternative could present the opportunity to honour the subject bridge This alternative could present the opportunity to honour the subject bridge through incorporating sympathetic design elements.

8.2.4 Alternative 4 – Bridge Conservation Option 3

Rehabilitate the Existing Bridge 16-WG to Meet Engineering and Public Safety Standards, Reinstate the Existing Watercourse Crossing

This alternative would attempt to extend the service life of the structure by thorough rehabilitation works which could be done with sympathetic modification, Bridge Conservation Option 3. Based on the results of recent inspections, Bridge 16-WG is significantly deteriorated and exhibits excessive and progressive movement of the structural elements which has resulted in the recommendation to close the bridge (K. Smart 2021). The viability of a bridge rehabilitation is not known at this time, and would be subject to an engineering evaluation which is outside the scope of this HIA

If it is determined to be feasible to rehabilitate the existing structure, modifications should be sympathetic, and care should be taken to conserve the heritage attributes of the bridge. Specific considerations should include: 1) that work should replicate, to the extent possible, the original design; for example, if the bridge should be widened the form board impressions could be replicated in the new concrete; 2) any concrete used for repairs should be appropriate in colour,

pattern and texture; and 3) a replacement railing should emulate the original balustrades and replicate the placement and design in accordance with current safety standards.

An example of such a sympathetic rehabilitation work on the Schneider Creek Bridges is currently ongoing in the City of Kitchener. Both Schneider Creek Bridges are the same bridge type as the subject bridge and are being rehabilitated. The work to be done was summarized in Section 5.4. This work includes:

- Installation of overlay with galvanic anodes on central portion of deck
- Installation of concrete beam strip at base of parapet walls to strengthen their connection to bridge (in the case of the subject bride, the parapet walls or guard rails would need to be sympathetically designed and installed)
- Application of migratory corrosion inhibitor and pigmented sealer to existing parapet walls
- General patch repairs to parapet walls, retaining walls and deck soffit.

9.0 SUMMARY STATEMENT AND CONSERVATION RECOMMENDATIONS

The four options that address the problem opportunity statement outlined in the MCEA and which are being carried forward are:

- Alternative 1 – Do nothing (Bridge Conservation Option 2),
- Alternative 2 – Remove the existing Bridge 16-WG and provide new turn around areas at the watercourse crossing (Bridge Conservation Option 8b)
- Alternative 3 – Remove the existing Bridge 16-WG and provide a new bridge in its place (Bridge Conservation Option 8a and b), and
- Alternative 4 – Rehabilitate the existing Bridge 16-WG to meet engineering and public safety standards, reinstate the existing watercourse crossing (Bridge Conservation Option 3)

From a conservation as well as an engineering perspective, ARA has concluded that Alternative 1 – Do Nothing, is not considered viable.

For the three remaining alternatives that have been considered, the following mitigation measures are suggested:

- That from a heritage perspective, Alternative 4 – Rehabilitate the existing Bridge 16-WG to meet engineering and public safety standards, reinstate the existing watercourse crossing, which relates to relates to Bridge Conservation Option 3, is the best alternative. It should be noted that the selection of a preferred alternative will be based on a multi-criteria evaluation completed as part of the Municipal Class Environmental Assessment Study.
- That if Alternative 2 is chosen and the bridge is removed and not replaced, Bridge Conservation Option 8b (full recording and documentation of the structure) should be undertaken. The subject bridge should be photographed during demolition by a qualified heritage consultant to document the placement of fill within the structure and construction of the arch and deck. This information should be incorporated into a Cultural Heritage

Resource Documentation Report as final documentation of the current features and conditions of the structure.

- If the bridge is removed and replaced as outlined in Alternative 3, Bridge Conservation Option 8b (full recording and documentation of the structure) should be pursued as noted above. This alternative could present the opportunity to honour the subject bridge through incorporating sympathetic design elements.
- If it is determined to be feasible to implement Alternative 4 to rehabilitate the existing structure, modifications should be sympathetic, and care should be taken to conserve the heritage attributes of the bridge. Specific considerations should include: 1) that work should replicate, to the extent possible, the original design; for example, if the bridge should be widened the form board impressions could be replicated in the new concrete; 2) any concrete used for repairs should be appropriate in colour, pattern and texture; and 3) a replacement railing should emulate the original balustrades and replicate the placement and design in accordance with current safety standards.

10.0 BIBLIOGRAPHY AND SOURCES

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1990a *Environmental Assessment Act R.S.O. 1990, c .E.18* Accessed online at: https://www.ontario.ca/laws/statute/90e18
1990b *Planning Act R.S.O. 1990, c. P.13*. Accessed online at: www.ontario.ca/laws/ statute/90p13.
1990c *Ontario Heritage Act, R.S.O. 1990, c. O.18.* Accessed online at: www.ontario.ca/laws/statute/90o18#top.

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2021 *Personal Communication via Email*, Sarah Peters, Environmental Technician, June 2, 2021

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2006c *InfoSheet #5: Heritage Impact Assessments and Conservation Plans.* Ontario Heritage Tool Kit Series. Toronto: Ministry of Culture.
1992 *Guideline for Preparing the Cultural Heritage Resource Component of Environmental Assessments.* Toronto: Ministry of Culture and Communications.

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2013 *Municipal Official Plan Township of Centre-Wellington,* Consolidated January 2013.. Accessed online at: https://www.centrewellington.ca/en/doing-business/resources/Documents/Planning/Official-Plan-Consolidated-January-2013.pdf

Appendix A: Study Area Images

Map 2: Photo Location Map of the Study Area
(Produced by ARA under licence using ArcGIS® software by Esri, © Esri)

Image 1: Structure 16-WG Approach Along Fifth Line from South Side
(May 25, 2021; View looking Northwest)

Image 2: Structure 16-WG Approach from South Side
(May 25, 2021; View looking Northwest)

Image 3: Structure 16-WG Context looking toward 6671 Fifth Line
(May 25, 2021; View looking Northwest)

Image 4: : Context looking South along Fifth Line Away from Structure 16-WG
(May 25, 2021; View looking Southeast)

Image 5: Structure 16-WG approach along Fifth Line from North Side
(May 25, 2021; View looking Southeast)

Image 6: Structure 16-WG approach from North Side
(May 25, 2021; View looking Southeast)

Image 7: Context looking at 6671 Fifth Line Split Rail Fencing
(May 25, 2021; View looking Southeast)

Image 8: Context looking North along Fifth Line Away from Structure 16-WG
(May 25, 2021; View looking Northwest)

Image 9: View from Structure 16-WG Deck looking Northeast at Irvine Creek
(May 25, 2021; View looking Northeast)

Image 10: View from Structure 16-WG deck looking Southwest at Irvine Creek
(May 25, 2021; View looking Southwest)

Image 11: West Elevation
(May 25, 2021; View looking Northeast)

Image 12: West Elevation - Southwest Abutment Detail
(May 25, 2021; View looking East)

Image 13: West Elevation - Northwest Abutment Detail
(May 25, 2021; View looking North

Image 14: : West Elevation - Deterioration Detail Northwest Quadrant
(May 25, 2021; View looking North)

Image 15: West Elevation and underside of arch from Southwest Embankment
(May 25, 2021; View looking North)

Image 16: West Elevation – Southwest Abutment Detail
(May 25, 2021; View looking East)

Image 17: West Elevation – Railing System Detail
(May 25, 2021; View looking Northwest)

Image 18: East Elevation
(May 25, 2021; View looking Northwest)

Image 19: East Elevation – Southeast Abutment Underside of Arch
(May 25, 2021; View looking South)

Image 20: East Elevation – Southeast Abutment
(May 25, 2021; View looking West)

Image 21: East Elevation – Southeast Abutment Detail
(May 25, 2021; View looking West)

Image 22 East Elevation – Northeast Abutment Detail
(May 25, 2021; View looking South)

Image 23: East Elevation – Railing System Detail
(May 25, 2021; View looking Northwest)

Appendix B: Key Team Member Two-Page Curriculum Vitae

Kayla Jonas Galvin, MA, MCIP, RPP, CAHP
Heritage Operations Manager
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Biography

Kayla Jonas Galvin, Archaeological Research Associates Ltd.'s Heritage Operations Manager, has extensive experience evaluating cultural heritage resources and landscapes for private and public-sector clients to fulfil the requirements of provincial and municipal legislation such as the *Environmental Assessment Act*, the *Standards & Guidelines for the Conservation of Provincial Heritage Properties* and municipal Official Plans. She served as Team Lead on the Ministry of Tourism, Culture and Sport Historic Places Initiative, which drafted over 850 Statements of Significance and for *Heritage Districts Work!*, a study of 64 heritage conservation districts in Ontario. Kayla was an editor *of Arch, Truss and Beam: The Grand River Watershed Heritage Bridge Inventory* and has worked on Municipal Heritage Registers in several municipalities. Kayla has drafted over 150 designation reports and by-laws for the City of Kingston, the City of Burlington, the Town of Newmarket, Municipality of Chatham-Kent, City of Brampton and the Township of Whitchurch-Stouffville. Kayla is the Heritage Team Lead for ARA's roster assignments for Infrastructure Ontario and oversees evaluation of properties according to *Standards & Guidelines for the Conservation of Provincial Heritage Properties*. Kayla is a Registered Professional Planner (RPP), Member of the Canadian Institute of Planners (MCIP), a Professional Member of the Canadian Association of Heritage Professionals (CAHP) and is President of the Ontario Association of Heritage Professionals.

Education

2016	MA in Planning, University of Waterloo. Thesis Topic: *Goderich – A Case Study of Conserving Cultural Heritage Resources in a Disaster*
2003-2008	Honours BES University of Waterloo, Waterloo, Ontario Joint Major: Environment and Resource Studies and Anthropology

Professional Memberships and Accreditations

Current	Registered Professional Planner (RPP) Member of the Canadian Institute of Planners (MCIP) Professional Member, Canadian Association of Heritage Professionals (CAHP) President, Ontario Association of Heritage Professionals.

Work Experience

Current	**Heritage Operations Manager, Archaeological Research Associates Ltd.** Oversees business development for the Heritage Department, coordinates completion of designation by-laws, Heritage Impact Assessments, Built Heritage and Cultural Heritage Landscape Assessments, and Cultural Heritage Resource Evaluations.

2009-2013 **Heritage Planner, Heritage Resources Centre, University of Waterloo**
Coordinated the completion of various contracts associated with built heritage including responding to grants, RFPs and initiating service proposals.

2008-2009, 2012 **Project Coordinator–Heritage Conservation District Study, ACO**
Coordinated the field research and authored reports for the study of 32 Heritage Conservation Districts in Ontario. Managed the efforts of over 84 volunteers, four staff and municipal planners from 23 communities.

2007-2008 **Team Lead, Historic Place Initiative, Ministry of Culture**
Liaised with Ministry of Culture Staff, Centre's Director and municipal heritage staff to draft over 850 Statements of Significance for properties to be nominated to the Canadian Register of Historic Places. Managed a team of four people.

Selected Professional Development

2019 OPPI and WeirFoulds Client Seminar: Bill 108 – More Homes, More Choice, 2019
2019 Annual attendance at Ontario Heritage Conference, Goderich, ON (Two-days)
2019 Information Session: Proposed Amendments to the OHA, by Ministry of Tourism, Culture and Sport
2018 Indigenous Canada Course, University of Alberta
2018 Volunteer Dig, Mohawk Institute
2018 Indigenizing Planning, three webinar series, Canadian Institute of Planners
2018 Cultural Heritage, Archaeology and Planning Symposium
2018 Transforming Public Apathy to Revitalize Engagement, Webinar, MetorQuest
2018 How to Plan for Communities: Listen to the Them, Webinar, Canadian Institute of Planners
2017 Empowering Indigenous Voices in Impact Assessments, Webinar, International Association for Impact Assessments
2017 Capitalizing on Heritage, National Trust Conference, Ottawa, ON.
2016 Heritage Rising, National Trust Conference, Hamilton
2016 Ontario Heritage Conference St. Marys and Stratford, ON.
2016 Heritage Inventories Workshop, City of Hamilton & ERA Architects
2015 City of Hamilton: Review of Existing Heritage Permits and Heritage Designation Process Workshop.
2015 Leadership Training for Managers Course, Dale Carnegie Training

Selected Publications

2018 "Conserving Cultural Heritage Landscapes in Waterloo: An Innovative Approach." *Ontario Association of Heritage Professionals Newsletter*, Winter 2018.
2018 "Restoring Pioneer Cemeteries" *Ontario Association of Heritage Professionals Newsletter.* Spring 2018. *In print.*
2015 "Written in Stone: Cemeteries as Heritage Resources." *Municipal World,* Sept. 2015.
2015 "Bringing History to Life." *Municipal World,* February 2015, pages 11-12.
2014 "Inventorying our History." *Ontario Planning Journal,* January/February 2015.
2014 "Mad about Modernism." *Municipal World,* September 2014.

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Biography

Jacqueline McDermid has ten years of technical writing and management experience; Seven years direct heritage experience. She has gained seven years of experience conducting primary and secondary research for archaeological and heritage assessments and drafting reports and evaluating property according to Ontario Regulation 9/06 and 10/06 as part of Municipal Heritage Registers. Jacqueline is expert at copy editing heritage reports including checking grammar, consistency and fact checking, to ensure a high-quality product is delivered to clients. She has experience assisting with the drafting of Heritage Conservation District Studies through the drafting of reports for potential Heritage Conservation Districts in the City of Toronto (Weston HCD) and Township of Bradford West Gwillimbury (Bond Head HCD). Jacqueline has proven project management experience gained by completing projects on time and on budget as well as formal Project Management training. In 2018, under a six-month contract as the Heritage Planner at the Ministry of Transportation, acquired considerable experience conducting technical reviews of consultant heritage reports for Ministry compliance including Cultural Heritage Evaluation Reports, Heritage Impact Assessment, Strategic Conservation Plans, and Cultural Heritage Resource Assessments as well as gained valuable insight on provincial heritage legislation (*Ontario Heritage Bridge Guidelines*, *Ontario MTO Environmental Standards and Practices for Cultural Heritage, MTO Environmental Reference for Highway Design – Heritage*, MTCS' *Heritage Identification & Evaluation Process* as well as the new *MHTCI Information Bulletins on Heritage Impact Assessments* and *Strategic Conservation Plans*, and inter-governmental processes. She has extensive Knowledge of heritage and environmental policies including the *Planning Act*, *Provincial Policy Statement*, the *Ontario Heritage Act*, Official Plans, *Environmental Assessment Act* and *Green Energy Act*. Working knowledge of the *Standards and Guidelines for Consultant Archaeologists* (2011), Ministry of Tourism, Culture and Sport.

Education

2000-2007 Honours B.A., Wilfrid Laurier University, Waterloo, Ontario
Major: Near Eastern Archaeology

Work Experience

2020-present **Heritage Project Manager**

2015-2020 **Technical Writer and Researcher – Heritage, Archaeological Research Associates Ltd., Kitchener, ON**
Research and draft designation by-laws, heritage inventories, Heritage Impact Assessments, Built Heritage and Cultural Heritage Landscape Assessments, and Cultural Heritage Resource Evaluations using Ontario Regulation 9/06, 10/06 and the Ontario Heritage Bridge Guidelines.

2018 **Environmental Planner – Heritage Ministry of Transportation, Central Region** – Six-month contract.
Responsibilities included: project management and coordination of MTO heritage program, managed multiple consultants, conducted and coordinated field assessments and surveys, estimated budgets including $750,000 retainer contracts. Provided advice on heritage-related MTO policy to Environmental Policy Office (EPO) and the bridge office.

2017-2018 **Acting Heritage Team Lead – Heritage Archaeological Research Associates Ltd., Kitchener, ON**
Managed a team of Heritage Specialists, oversaw the procurement of projects, retainers; managed all Heritage projects, ensured quality of all outgoing products.

2014-2015 **Technical Writer – Archaeology, Archaeological Research Associates Ltd., Kitchener, ON**
Report preparation; correspondence with the Ministry of Tourism, Culture, and Sport; report submission to the Ministry and clients; and administrative duties (PIF and Borden form completion).

2012-2013 **Lab Assistant, Archaeological Research Associates Ltd., Kitchener, ON**
Receive, process and register artifacts.

2011-2012 **Field Technician, Archaeological Research Associates Ltd., Kitchener, ON**
Participated in field excavation and artifact processing.

2005-2009 **Teaching Assistant, Wilfrid Laurier University, Waterloo, ON**
Responsible for teaching and evaluating first, second, third- and fourth-year student lab work, papers and exams.

2005-2007 **Lab Assistant, Wilfrid Laurier University – Near Eastern Lab, Waterloo, ON**
Clean, Process, Draw and Research artifacts from various sites in Jordan.

Selected Professional Development

2019 OPPI and WeirFoulds Client Seminar: Bill 108 – More Homes, More Choice
2019 Annual attendance at Ontario Heritage Conference, Goderich, ON (Two-days)
2019 Information Session: Proposed Amendments to the OHA, MTCS
2018 Indigenizing Planning, three webinar series, Canadian Institute of Planners
2018 Cultural Heritage, Archaeology and Planning Symposium
2018 Transforming Public Apathy to Revitalize Engagement, Webinar, MetorQuest
2018 How to Plan for Communities: Listen to the Them, Webinar, CIP
2017 Empowering Indigenous Voices in Impact Assessments, Webinar, International Association for Impact Assessments
2015 Introduction to Blacksmithing (One day)
2015 Leadership Training for Managers Course, Dale Carnegie Training

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Aly Bousfield-Bastedo produces deliverables for ARA's heritage team, in addition to historic research, heritage assessment and evaluation, and technical support. Prior to joining ARA, Aly earned a diploma of heritage conservation from the Willowbank School of Restoration Arts, building upon a bachelor degree in humanities from the University of Guelph and a post-graduate certificate in Urban Design from Simon Fraser University. Her portfolio of work includes condition assessments, cultural heritage landscape studies, conservation studies and heritage interpretation for projects that vary in size and scale. Aly has experience working with provincial and municipal legislation and guidelines, including the Ontario Heritage Act, Official Plans, the Standards and Guidelines for the Conservation of Historic Places, and the Ontario Heritage Toolkit. Aly had gained considerable experience in researching and presenting historical information to a variety of audiences including both professionals and engaged citizens.

Education

2017-2020 Post-Graduate Diploma in Heritage Conservation, Willowbank School of Restoration Arts. Queenston, ON

2016-2017 Post-Graduate Certificate in Urban Design, Simon Fraser University, Vancouver, BC

2009-2013 Honours BA, University of Guelph, Guelph, ON
Sociology

Work Experience

Current **Technical Writer and Researcher, Archaeological Research Associates Ltd.**
Produce deliverables for ARA's heritage team, including historic research, heritage assessment and evaluation for designation by-laws, Heritage Impact Assessments, Built Heritage and Cultural Heritage Landscape Assessments, and Cultural Heritage Resource Evaluations.

2021 **Cultural Consultant, Ministry of Heritage, Sport, Tourism and Culture Industries**
Provided liaison and advisory services to municipalities and stakeholders in the heritage sector on cultural heritage legislation in Ontario.

2020 **Heritage Planning Consultant, Megan Hobson & Associates**
Provided heritage consulting services, including site investigation and documentation. Provided cultural heritage value assessment and evaluations.

2019-20 **Cultural Heritage Planning Intern, ERA Architects**
Coordinated and authored various heritage related contracts. Duties included historic research, heritage impact assessments, cultural heritage assessments and evaluations.

2016-17 **Heritage Vancouver, Programs and Communications**
Conducted research and analysis of heritage properties and neighbourhoods in Vancouver. Assisted in the creation of a cultural heritage landscape assessment of Vancouver's Chinatown neighbourhood through historical research and community engagement.

Select Projects

Cultural Heritage Landscape Inventories and Implementation

2019 **Randwood Estate Cultural Heritage Landscape Evaluation**, Niagara-on-the-Lake. Client: Confidential
2018 **Chedoke Estate Cultural Heritage Landscape Analysis**, City of Hamilton. Client: City of Hamilton

Peer Reviews

2019 **Peer Review of King Spadina Heritage Conservation District.** Client: Confidential.
2019 **Peer Review of St. Lawrence Heritage Conservation District**, City of Toronto. Client: Confidential.

Interpretive Projects

2019 **Scotiabank Area (Canada Post Delivery Building) Interpretation Report.** Client: Private owner

Cultural Heritage Evaluations

2019 **4304-4306 Line 10 (Earl Rowe House)**, Bradford West Gwillimbury. Client: Private Owner
2019 **1347 Lakeshore Road East,** City of Mississauga Client: Private Owner
2019 **Rutherford Library**, Edmonton, Alberta. Client: University of Alberta Libraries

Documentation Reports

2020 **Documentation Report: 79 Yates Street**, City of St. Catharines. Client: Private Owner
2020 **Documentation Report: 6507 Jane Street,** City of Burlington, Client: Private Owner
2020 **Documentation Report: 6507 Jane Street,** City of Burlington, Client: Private Owner
2020 **Documentation Report: 1460 Cataract Rd,** Town of Caledon Client: Private Owner
2020 **Documentation Report: 1110 Lakeshore Road West,** City of Oakville Client: Private Owner

Professional Development

2019 University of Toronto, Mark Laird "Selected topics on Landscape Architecture", Course audit
"Planning for Golf's Decline", INTBAU speaker series.
Messors, "Fornello Sustainable Preservation Workshop", Cultural Landscape Field School

Presentations

2018 Essential issues or themes for education in heritage conservation: Montreal Roundtable on Heritage (Canada Research Chair on Built Heritage)

APPENDIX E – DRAINAGE MEMORANDUM

McINTOSH PERRY

DRAFT DRAINAGE MEMORANDUM

To:	Lisa Marshall, P.Eng., Manager, Environment Engineering
From:	Jane Ciszewski, LEL, Senior Design Lead, Water Resources
Cc:	Jason Sharp, P. Eng. Water Resource Engineer
Date:	November 30, 2021
Re:	Central Wellington – 5th Line Bridge Existing Bridge Analysis

INTRODUCTION

McIntosh Perry Consulting Engineering Limited (McIntosh Perry) has been retained by the Township of Central Wellington to complete a Municipal Environmental Assessment (MCEA) for the 5th Line bridge over the Irvine Creek which is located between Wellington Road 19 and Side Road 15. The bridge is a single lane structure consisting of a single span concrete arch over the Irvine Creek.

The Irvine Creek is within the jurisdictional watershed of the Grand River Conservation Authority (GRCA) and they were contacted to obtain any hydrologic or hydraulic information or models for the bridge. The GRCA stated that they did not have any existing hydrologic nor hydraulic models for Irvine Creek or the bridge. This memorandum documents the flow and water level calculations for the existing bridge.

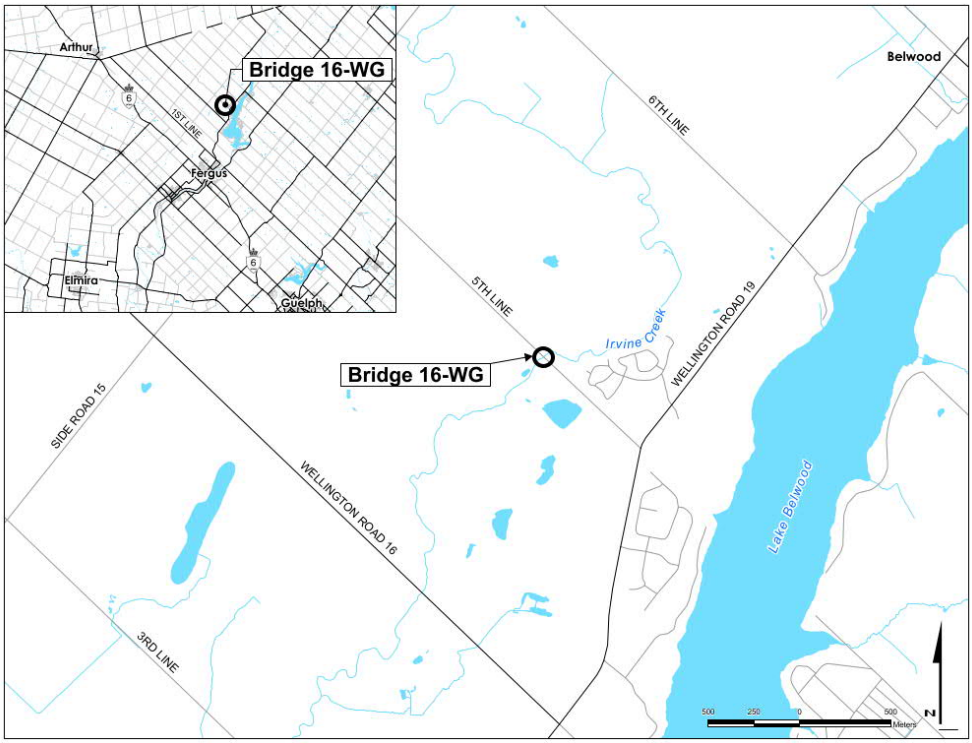


Figure 1 – Location Plan

HYDROLOGY

The hydrologic assessment was completed using the Visual OTTHYMO program (VO6). A single catchment was employed with a weighted CN value, based on hydrologic soil type and land use in the catchment. The Time of Concentration (Tc) was calculated using the Airport Formula (C < 0.4). The Time to Peak (Tp) used as input to the VO6 model was calculated using the relationship Tp = 0.67Tc. The total imperviousness for the catchment was less than 3%, therefore the NASHYD routine was used to calculate the peak flows. Figure 2 shows the drainage area and Table 1 shows the input parameters.

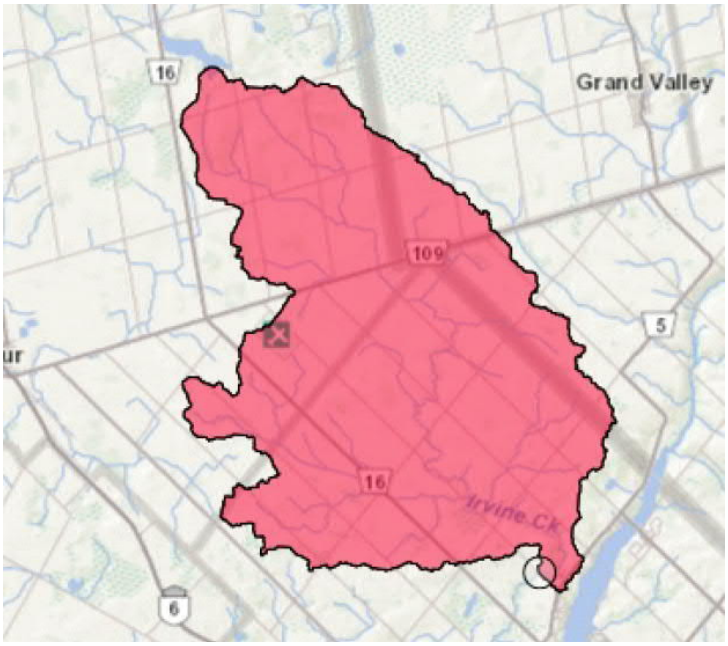


Figure 2 – Drainage Area

Table 1: VO6 Input Parameters

Parameter	Input Value	
Area	106	km^2
CN (AMCII)	77.2	
CN (AMC III)	89.0	
Initial Abstraction	8.0	mm
Time to Peak	7.98	hr

To calculate the rainfall hyetograph for input to the VO6 model, the MTO Intensity Duration Frequency (IDF) Lookup Tool (43.779291, -80.350679) was used, and the IDF parameters for 2021 were employed. For the Hurricane Hazel simulation, based on the size of the catchment, a reduction factor of 96.3% was used for the rainfall hyetograph, and the AMCIII CN values were inserted. Also, based on the size of the catchment, a 24-hour SCS was used in the simulation of the return period storm events and all the simulations were run using a 5-minute time step. Table 2 show the calculated flows.

Table 2: Calculated Flow Values

Return Period (yr)	Flow in (m^3/s)
2	38.2
5	61.3
10	76.9
25	100.0
50	117.1
100	134.6
Hazel	315.0

There is a Water Survey of Canada flow gauge on the Irvine Creek downstream of the 5th Line bridge (02GA005). This flow gauge operated from 1914 – 1916 and then from 2006 to present. Upon review of the data, it was found that there were only 15 years of recorded maximum daily flow values in the period of record, which is insufficient to complete a frequency analysis. However, within the 15-year period of record, there were three values greater than 100 m^3/s (103, 110 and 117) and two values close to 100 m^3/s (97.1 and 88.5). Using input parameters noted above (CN, Tp, time step), the resulting flow for the design storm (25-year) is reasonable and furthermore, the noted three events are in range of 100 m^3/s during the 15-year period which roughly equates to "Q20" or the 25-year storm.

HYDRAULICS

For the hydraulic analysis a HEC-RAS model was assembled representing the existing bridge and the upstream and downstream channel reach. The model was assembled using the GeoHECRAS program. The primary model input parameters include the existing topography upstream and downstream of the crossing inserted as cross-sections, energy loss coefficients related to surface cover and changes in cross-section shape, the size of the bridge opening, and the design flow. The model uses the steady-state scenario and normal depth was used as the downstream boundary condition.

The flow of Irvine Creek is conveyed through a 15 m wide by 4 m high (measured from the invert of the river) open foot concrete arch structure. The bridge was modelled as a culvert in the HEC-RAS program since the conveyance component is best represented as a culvert. The surface roughness coefficients or Manning's 'n' value used for the channel was 0.032. For the overbank areas the Manning's n values for most of the cross-section was 0.15 to represent the forested land use. For more open flood plain areas (grass) a Manning's n values of 0.03 was used and if there was a combination of grass and forest cover a Manning's values of 0.1 was used. The coefficients were obtained from Design Chart 2.01 of the MTO Drainage Management Manual (DMM), and Open Channel Hydraulics (V. T. Chow) was also consulted. The contraction and expansion coefficients were 0.3 and 0.5, respectively, at the crossing and 0.1 and 0.3, respectively, at the remaining cross-sections.

Table 3 shows the HEC-RAS River Stations (RS) upstream and downstream of the bridge and the corresponding calculated water surface elevations and energy grade line elevations for the various storms.

Table 3: Calculated Water Surface Elevations

Return Period	Design Flows	Upstream Water Surface Elevation	Downstream Water Surface Elevation	Upstream Energy Grade Line Elevation	Downstream Energy Grade Line Elevation
		RS 1008	RS 1007	RS 1008	RS 1007
(yr)	(m^3/s)	m	m	m	m
2-year	38.2	433.87	433.85	433.92	433.88
5-year	61.3	434.19	434.15	434.29	434.21
10-year	76.9	434.41	434.34	434.55	434.43
25-year	100.0	434.72	434.58	434.92	434.72
50-year	117.1	434.96	434.74	435.20	434.91
100-year	134.6	435.20	434.88	435.49	435.09
Hazel	315.0	436.24	436.15	436.80	436.25

Using the Ministry of Transportation (MTO) Highway Drainage Design Standards, the design return period flow (considering 5th Line a Local Road) is the 25-year storm and the check flow for scour is the 100-year storm. Table 4 illustrates the criteria considered in the analysis. It should be noted that the Effective Rise of the culvert was used as per HDDS WC-7 section 3.4.2. The Effective Rise was calculated to be 2.77 m.

Table 4: Hydraulic Performance

Hydraulic Design Parameter	Analysis	Design Criteria	Meets Criteria (Y/N)
Lowest elevation of Road (m)	435.38		
Obvert of Culvert (m)	435.40		
Effective Rise (m)	434.36		
Desirable Freeboard, measured vertically from Energy Grade Line Elevation for the Design Storm (25-year) to the Lowest Road Elevation (m)	0.47	> 0.3 m	Y
Minimum Freeboard, measured vertically from Energy Grade Line Elevation for the Design Storm (25-year) to the Lowest Road Elevation (m)	0.67	> 0.3 m	Y
Vertical Clearance, measured vertically from the Design High-Water Level for the Design Flow (25-year) to the Effective Rise (m)	-0.36	> 0.3 m	N
Flood Depth, expressed as a ratio of the Design Storm (25-year) Elevation to the rise of the culvert (HW/D)	0.98	<= 4.5	Y
Freeboard, measured vertically from the Design High-Water Level for the Check Flow (100-year) to the Edge of the Road (m)	0.19	>Zero	Y

The hydraulic analysis illustrates that the existing bridge/culvert meets all the current MTO hydraulic design standards for a local road except for the vertical clearance requirements. It should also be noted that estimated Regional Storm (Hurricane Hazel) overtops the 5th Line by a maximum depth of approximately 0.9 m.

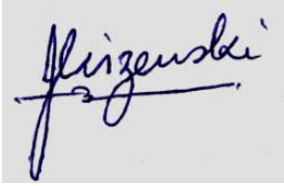
CONCLUSIONS AND RECOMMENDATIONS

This memorandum provides the capacity assessment of the existing 5th Line bridge structure. Following MTO standards for a local roadway classification, the 25-year storm is the design return period for the analysis with the 100-year storm being the check flow. The VO6 model was used to calculate the return period and Regional storm flows. The HEC-RAS model was used to complete the hydraulic assessment and review.

The existing structure meets all the MTO design criteria, for a local road, except for the vertical clearance criterion. Also, it is anticipated that during the Regional Storm (Hurricane Hazel), the 5th Line could overtop by a maximum depth of approximately 0.9 m.

It is recommended that the same flows and hydraulic procedures be used to complete the assessment of options for a new structure over Irvine Creek. It is also recommended that a structure with a larger hydraulic opening is considered to meet all design criteria and minimize the overtopping of 5th Line during the Regional Storm.

This memorandum is respectfully submitted by,
McIntosh Perry Consulting Engineers Ltd.

Prepared By:	Reviewed by:
	
Jane Ciszewski, LEL Senior Design Lead, Water Resources PH No. 343 344 2649 Email. J.Cizsewski@McIntoshPerry.com	Jason Sharp, P. Eng. Manager, Water Resources PH No. 343 344 2668 Email. J.Sharp@McIntoshPerry.com

APPENDIX F – CONSULTATION MATERIALS

Consultation Plan

MUNICIPAL CLASS SCHEDULE "B" ENVIRONMENTAL ASSESSMENT

ASSESSMENT FOR BRIDGE 16-WG

RFP # 21-21

CONSULTATION PLAN

Prepared for:

Centre Wellington

Corporation of the Township of Centre Wellington
1 MacDonald Square
Elora, ON N0B 1S0

Prepared By:

McINTOSH PERRY

McIntosh Perry Consulting Engineers Ltd.
400-2010 Winston Park Drive
Oakville, ON L6H 5R7

May 19, 2021

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APPENDCIES

1.0 INTRODUCTION

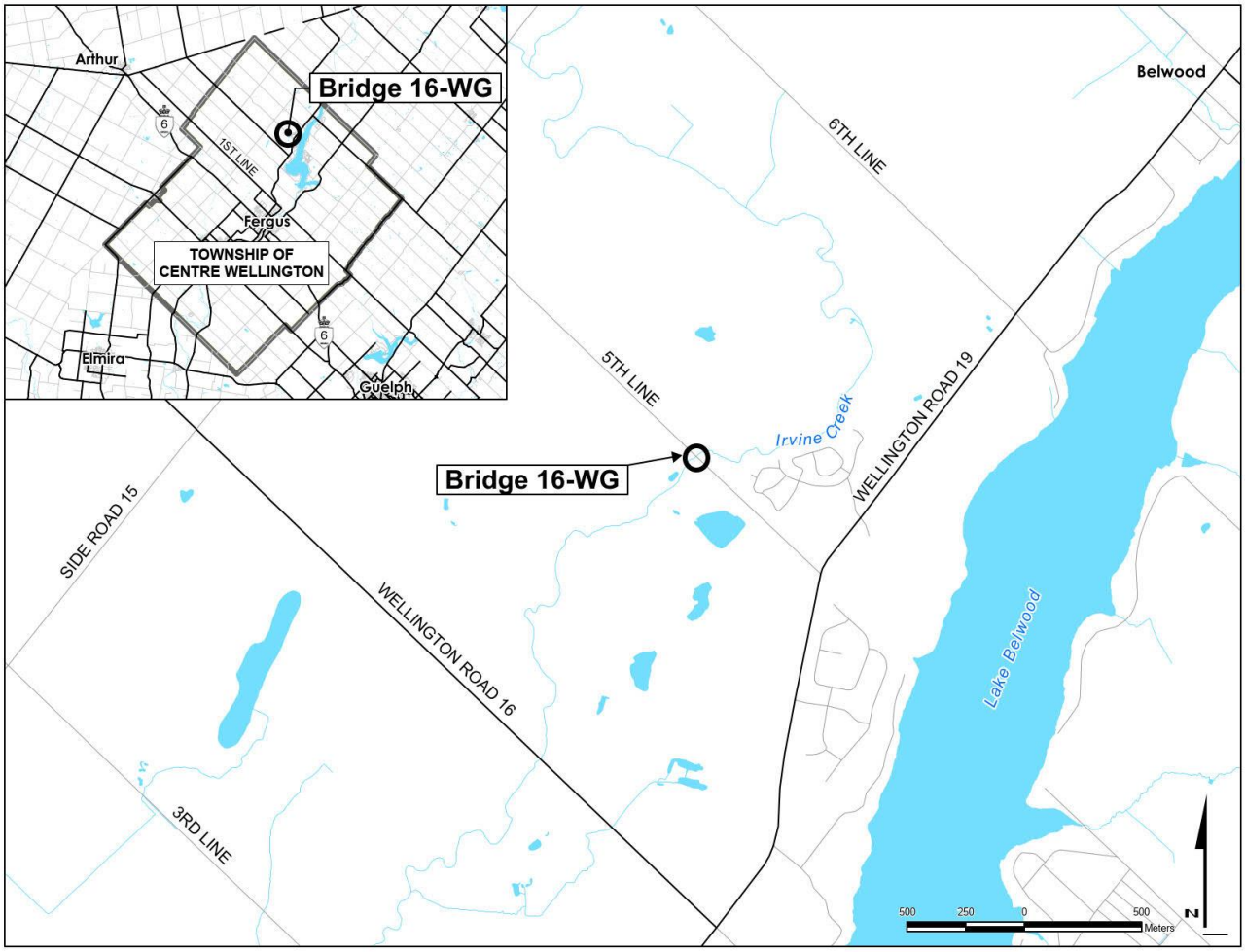
McIntosh Perry Consulting Engineers Ltd. (McIntosh Perry) has been retained by the Township of Centre Wellington to provide engineering and consulting services for the completion of a Schedule 'B' Municipal Class Environmental Assessment (Class EA) for Bridge 16-WG located on the Fifth Line between Wellington Road 19 and Side Road 15.

McIntosh Perry has prepared this Consultation Plan for implementation throughout the Municipal Class EA process. Consultation early and throughout the process is a key feature of the process. The purpose of the Consultation Plan is to describe the timing and means of communicating with the public, governing agencies, and other stakeholders throughout the Municipal Class EA process.

Consultation will occur throughout the planning of the project and will be carried out in accordance with engineering and environmental protection principles.

2.0 PROJECT OVERVIEW

The 16-WG Bridge Structure (bridge) is located in the former Township of West Garafraxa, now Township of Centre Wellington, Wellington County, Ontario. Bridge 16-WG is located over Irvine Creek on Fifth Line between Wellington Road 19 and Side Road 15. Bridge 16-WG is located in a rural residential and agricultural area of Belwood. See **Figure 1** for the project study area.



The existing Bridge 16-WG was built in 1910, following outdated bridge design standards, older materials, and older construction methods. Fifth Line Road is a two-lane roadway, however the narrow platform width over the bridge is only suitable for a single lane of traffic to pass at a time. This current configuration presents operational and safety concerns. Over the past 100+ years, the bridge has continued to deteriorate due to exposure to the elements and loading, and was closed for public use by the Township of Centre Wellington for in Spring of 2021 due to the poor conditions.

This Schedule 'B' Municipal Class Environmental Study is being initiated to recommend and evaluate alternatives solutions and design concepts to address the aging infrastructure. A Technically Preferred Solution (TPS) will be selected during this process; however, detail design and construction of the proposed work has not been planned until 2022 and 2023, respectively.

3.0 PROJECT ELEMENTS

This project will follow the planning process for a Schedule 'B' Class EA as defined in the Municipal Engineers Association 'Municipal Class Environmental Assessment' document (2007 and 2011, as amended). McIntosh Perry will guide the Township of Centre Wellington though Phase 1-2 of the Municipal Class EA process leading the Township to select a technically preferred alternative solution and conceptual design, to address the aging infrastructure.

In general terms, the proposed work includes the following objectives as part of the undertaking:

1) Identify the problem (deficiency) or opportunity;
2) Identify alternative solutions to address the problem or opportunity by taking into consideration the existing environment, and establishing the preferred solution taking into account public and review agency input (i.e., outcome from consultation process);
3) Confirm Schedule for the undertaking and document the process in a Project File/Study Report.

The above elements will be part of the consultation process involving external agencies (provincial, federal, municipal) and the public as an essential component of this Class EA process.

4.0 PROJECT TEAM

The project will be carried out by McIntosh Perry in close consultation with the Township of Centre Wellington. Following is a list of Project Team members that will have direct involvement during the consultation process:

The Township of Centre Wellington

- Adam Gilmore, Manager of Engineering - Project Manager (Primary Contact)
- Colin Baker, Managing Director of Infrastructure Services

McIntosh Perry Consulting Engineers Ltd.

- Lisa Marshall, Project Manager/Engineer (Primary Contact)
- Jennifer Cavanagh, Environmental Planner/QC Support
- Sarah Peters, Environmental Technician
- Kayla Jonas Galvin, Archeological Research Associates Ltd

5.0 CONSULTATION PLAN

MCEA Schedule 'B' projects require a minimum of two (2) mandatory points of contacts with the public. McIntosh Perry will ensure the Township of Centre Wellington conducts the appropriate level of consultation to satisfy the MCEA Schedule 'B' Class EA public consultation requirements. Consultation efforts will include, at a minimum:

- Notice of Study Commencement

- Notice of Online Open House;
- Online Open House and Questionnaire; and
- Notice of Study Completion.

In addition, this Consultation Plan will include the following key elements:

- External Agency/Public contact list and letters;
- Communication Log;
- External negotiations, and consultations;
- Meeting with Governing Agencies (i.e., Township Heritage Committee, Council, MECP, MNRF, and Grand River Conservation Authority);
- Indigenous Communities Consultation; and
- Public notices posted online, in local newspapers and distributed to residents and businesses in proximity to the study area and along the proposed detour route (if required);

McIntosh Perry has prepared this Consultation Plan to ensure that a thorough coordinated and transparent consultation process is in place and properly documented for the duration of this project. The Consultation Plan meets the requirements for Schedule 'B' projects under the Class EA.

5.1 External Agency and Public Contact List

McIntosh Perry has compiled a Contact List of interested parties and stakeholders. The draft Contact List includes government ministries/agencies, municipal staff, emergency services, school boards, student transportation, businesses, affected public, member of provincial parliament, Indigenous Communities and interest groups. The Contact List will be used as a mailing list for project notices. Contact with stakeholders will be via regular mail or email and documented in the MCEA Study Report.

The Contact List is a work-in-progress and will be regularly updated throughout the course of the project to add, remove or revise information as necessary.

The Contact List is subject to review and approval by the Township of Centre Wellington and can be found in **Appendix A.**

5.2 External Agency and Public Notices

Public Notices will be prepared by McIntosh Perry as part of the Consultation Plan and forwarded in draft format to the Township of Centre Wellington for their approval. The notices will appear in the following local newspapers:

1) The Township of Centre Wellington website (www.centrewellington.ca); and
2) The Wellington Advisor.

All notices will be provided to the Township of Centre Wellington by McIntosh Perry for review and acceptance a minimum of seven (7) working days prior to release. McIntosh Perry will be responsible for distributing and publishing all project notices; however, the Township of Centre Wellington will pay for all associated advertisement fees (i.e., newspapers, distribution costs etc..).

5.2.1 *Notice of Study Commencement*

McIntosh Perry will distribute a Notice of Study Commencement letter to the Contact List as the first form of contact with stakeholders. McIntosh Perry will submit a Class EA Notification Form to the Ministry of Conservation, Environment and Parks (MECP) at the same time the Notice of Study Commencement letters are being distributed to the Contact List. McIntosh Perry will mail/email all letters to the contact list. The Notice of Study Commencement letter outlines the purpose of the notice, the project study area, a description of the MCEA and requirements for a Schedule 'B' project and whom to contact with questions or comments.

5.2.2 *Notice of Online Open House*

An Online Open House will be held to disseminate information related to the project. A Notice of Online Open House will be distributed to inform stakeholders that the Class EA is being undertaken and to provide details regarding the Online Open House. The Notice of Online Open House will be distributed to all contacts on the Contact List. The Notice will also be published on the Township of Centre Wellington's website and in The Wellington Advisor. The Notice will provide a description of the project background, the EA process that will be followed, the purpose of the Online Open House being conducted and key detail such as the date, time and where to access the Online Open House. The notice will be prepared by McIntosh Perry as part of this Consultation Plan and forwarded in draft format to the Township of Centre Wellington for their review and approval. Once finalized, McIntosh Perry will provide the Notice to the Township in a format suitable to arrange for publication.

A draft of the Notice of Online Open House letter is provided in **Appendix B.**

5.2.3 *Notice of Study Completion*

Once the Technically Preferred Solution (TPS) has been selected and refined, a Notice of Study Completion will be prepared by McIntosh Perry and forwarded in draft format to the Township of Centre Wellington for their review and approval. Once finalized, McIntosh Perry will provide the Notice to the Township in a format suitable to arrange for publication. McIntosh Perry will be responsible for distributing and publishing the Notice.

The purpose of the Notice will be to inform interested stakeholders that an updated MCEA Study Report has been prepared and is available for a 30-day public review period. The Notice will direct interested stakeholders to the Township of Centre Wellington website and municipal office, where copies of the project file will be made available. The Notice will be distributed to the contacts on the Contact List as well as nearby residents, property owners and businesses. It will also be published on the Township of Centre Wellington website and in the Wellington Advisor.

If no concerns are raised by the conclusion of the 30 day review period, a letter will be prepared and submitted to the Township indicating the successful completion of the Class EA and identifying that this project is eligible to proceed to implementation.

A draft of the Notice of Study Completion is provided in **Appendix B.**

5.3 Key Consultation Elements

5.3.1 *Communication Log*

McIntosh Perry will maintain a Communication Log for this project. The record will document the individual contacted, date and time of the contact, topic of discussion and commitments made. The record will be maintained throughout the duration of the study and will provide a chronological history of the environmental studies and associated activities.

The Communication Log is a work-in-progress and will be regularly updated throughout the course of the project to add, remove or revise information as necessary.

5.3.2 *External Negotiations and Consultation*

In addition to the Notice Letters, there will be the need for external negotiations and consultation with stakeholders to address, discuss and resolve various issues.

Any discussions held with external government ministries and agencies, interest groups or local landowners/residents regarding the study will be documented in a letter to the responsible individual(s) or agency. This record will ensure commitments and agreements are fully documented.

The Township of Centre Wellington's Project Manager will be copied on all external correspondence and subsequent responses related to environmental requirements. Discussions held with external contacts will be documented and forwarded to the Township of Centre Wellington's Project Manager.

Responses to all letters, comments, and inquiries of an environmental nature received from the public, ministries and agencies, and local government will be prepared by McIntosh Perry staff and reviewed by the Township of Centre Wellington's Project Manager prior to being sent. All formal written responses received from the aforementioned will be copied to the Township of Centre Wellington's Project Manager. This transfer of information will be facilitated by email to expedite the review process.

5.3.3 *Township Heritage Committee Meeting*

McIntosh Perry and ARA will present the findings of the Cultural Heritage Evaluation Report (CHER) and Heritage Impact Assessment (HIA) to the Township's Heritage Committee at two (2) meetings, as required. During these meetings, McIntosh Perry and ARA will discuss with the Committee preliminary mitigation measures for the TPS to provide an opportunity to integrate heritage values (if required) into the preferred concept and for rationale to be provided by the client regarding feasibility of the mitigation measures. The HIA

will outline suggested mitigation measures discussed at these meetings as well as any considerations for detailed design and/or construction activities to ensure the identified heritage attributes are conserved.

5.3.4 *Committee of the Whole and Township Council Meeting*

McIntosh Perry will prepare two (2) presentations (PowerPoint), as needed, and an executive summary report summarizing the findings of the MCEA Study, evaluation of options considered, preferred design alternative, concept design and cost estimate for Committee and Council prior to filing the report and publication of the Notice of Study Completion.

5.3.5 *Indigenous Consultation*

Indigenous communities are an important stakeholder group for municipal consultation. McIntosh Perry will acquire the contact information from the MECP database.

Indigenous communities will be included on the Project Contact List, along with the Métis Nation of Ontario. It is understood that follow-up may be required, subsequent to the project mailings. The follow-up will be primarily in the form of phone calls to determine whether any Indigenous communities have an interest in the project and whether they would like to meet with Township of Centre Wellington and consultant representatives.

All written correspondence with Indigenous groups will be directly through the Township of Centre Wellington; however, McIntosh Perry will be responsible for preparing the letters and background information, unless otherwise directed.

5.3.6 *Website Postings*

McIntosh Perry will work with the Township of Centre Wellington staff to facilitate the posting of project information on the Township's website, including project notices and Online Open House materials. Any other relevant information, as identified through the course of the study, will also be posted so that interested members of the public have access to this information.

5.3.7 *Online Open House*

An Online Open House will be held throughout the course of the project to disseminate key project information and provide an opportunity for the public and stakeholders to participate in the project's planning process. An Online public meeting will allow the project team to collect input on the existing conditions, needs and issues within the study area. The Online Open House will provide an opportunity for interested parties to review findings of investigations, proposed alternative solutions, evaluation criteria, and preliminary preferred alternative solution and design concept.

McIntosh Perry will be responsible for preparing all display materials including plans, presentation materials, questionnaires, sign-in sheets, etc. in draft format for Township's review prior to finalizing. McIntosh Perry will

work with the Township of Centre Wellington to support in uploading all Open House materials to the Township of Centre Wellington's website.

Due to the current Covid-19 pandemic and public safety restrictions, there will be no in-person meetings at this time. McIntosh Perry will work with the Township to apply various strategies to increase participation during the Online Open House such as, interactive online questionnaire, power point presentations with voice narration, etc.

6.0 PROCUREMENT OF FORMAL ENVIRONMENTAL APPROVALS

Once the potential impacts, project alternatives and environmental considerations have been identified McIntosh Perry will ensure the acquisition of important future external agency environmental exemptions, clearances and / or approvals are approved "in principle" for environmental clearance to proceed to detail design and construction.

7.0 MCEA STUDY REPORT

Formal planning of a Schedule 'B' project ends at the conclusion of Phase 2. At this point, documentation of the planning process followed through Phases 1 and 2 shall be finalized and a Notice of Completion shall be issued, allowing the public at least a 30 calendar day period during which documentation may be reviewed and comment and input received. Documentation of the planning process shall be prepared and maintained in such a way that it is suitable for easy review by the public at any time.

McIntosh Perry will prepare a Study Report and organized chronologically in such a way as to clearly demonstrate that the appropriate steps in Phases 1 and 2 have been followed. The Study Report will include the following:

- Background to the project.
- The nature and extent of the problem or opportunity, to explain the source of the concern or issue and the need for a solution.
- Description/inventory of the environment.
- The alternative solutions considered, and the evaluation process followed to select the technically preferred solution.
- Follow-up commitments, including any monitoring necessary.
- The public consultation program employed and how concerns raised have been addressed.

The Study Report shall contain a complete record of all activities associated with the planning of the project and shall include:

- Correspondence
- Copies of notices, letters, bulletins relating to the public consultation
- Memoranda to file explaining the proponent's rationale in developing stages of the project.

- Copies of reports prepared by consultants and others.

8.0 QUALITY CONTROL

All correspondence, notices, plans, reports and documentation will be checked for quality, accurateness, conformity with the guidelines and applicability by the McIntosh Perry team before forwarding to the Township for review and approval.

9.0 SCHEDULING

A Consultation Schedule has been prepared for this assignment **(Appendix C).** This schedule is subject to change only through consultation with the Township of Centre Wellington's Project Manager.

10.0 SUMMARY

Consultation early and throughout the process is a key feature of environmental assessment planning. McIntosh Perry has prepared this Consultation Plan for implementation throughout the process. The purpose of this Consultation Plan is to describe the timing and means of communicating with the public, agencies and other stakeholders satisfying the requirements of the Schedule 'B' Class EA planning process.

McIntosh Perry Consulting Engineers Ltd.,

Yours truly,

Jennifer Cavanagh, P.Eng.
Environmental Planner
j.cavanagh@mcintoshperry.com

Sarah Peters
Environmental Technician
s.peters@mcintoshperry.com

APPENDIX A

EXTERNAL AGENCY AND PUBIC CONTACT LIST

Township of Centre Wellington - Bridge 16-WG MCEA
Consultation Contact List

Title	First Name	Last Name	Position	Organization	Address	City	Prov	Postal Code	Telephone	Email
Provincial & Federal Agency										
Sir/Madam			Class EA Form	Ministry of Environment, Conservation and Parks						eanotification.wcregion@ontario.ca
Ms.	Tammy	Verhaeghe	District Planner, Guelph District	Ministry of Natural Resources and Forestry	1 Stone Road West	Guelph	ON	N1G 4Y2	519-826-4931	tammy.verhaeghe@ontario.ca
Mr.	Dan	Minkin	Heritage Planner, Heritage Planning Unit	Minstry of Heritage, Sport, Tourism and Culture Industries	401 Bay Street	Toronto	ON	M7A 0A7	416-786-7553	dan.minkin@ontario.ca
Ms.	Jessica	Hill	Senior Advisor - Indigenous Relations Unit	Ministry of Indigenous Affairs	160 Bloor Street, Suite 400	Toronto	ON	M7A 2E6	416-326-4744	jessica.hill2@ontario.ca
Sir/Madam				Fisheries and Oceans Canada Centre for Inland Waters	867 Lakeshore Road	Burlington	ON	L7S 1A1	905-336-4999	info@dfo-mpo.gc.ca
Municipal Agency										
Mr.	Kelly	Linton	Mayor	Township of Centre Wellington	1 MacDonald Square	Elora	ON	N0B 1S0	519-846-9691 x294	mayor@centrewellington.ca
Ms.	Kerri	O'Kane	Manager of Legislative Services & Municipal Clerk	Township of Centre Wellington	1 MacDonald Square	Elora	ON	N0B 1S0	519-846-9691 x243	kokane@centrewellington.ca
Mr.	Andy	Goldie	Chief Administrative Officer	Township of Centre Wellington	1 MacDonald Square	Elora	ON	N0B 1S0	519-846-9691 x234	agoldie@centrewellington.ca
Ms.	Kendra	Martin	Communications Officer	Township of Centre Wellington	1 MacDonald Square	Elora	ON	N0B 1S0	519-846-9691 x220	kmartin@centrewellington.ca
Mr.	Rob	Rosso	Superintendent of Public Works	Township of Centre Wellington	7444 Wellington Road 21	Elora	ON	N0B 1S0	519-846-9691 x363	rrosso@centrewellington.ca
Ms.	Mariana	Iglesias	Senior Planner	Township of Centre Wellington	1 MacDonald Square	Elora	ON	N0B 1S0	519-846-9691 x289	miglesias@centrewellington.ca
Mr.	Brett	Salmon	Managing Director of Planning & Development	Township of Centre Wellington	1 MacDonald Square	Elora	ON	N0B 1S0	519-846-9691 x297	bsalmon@centrewellington.ca
Mr.	Dan	Wilson	Managing Director of Coporate Services & Treasurer	Township of Centre Wellington	1 MacDonald Square	Elora	ON	N0B 1S0	519-846-9691 x224	DWilson@centrewellington.ca
Ms.	Pat	Newson	Managing Director of Community Services	Township of Centre Wellington	1 MacDonald Square	Elora	ON	N0B 1S0	519-846-9691 x319	pnewson@centrewellington.ca
Mr.	Stephen	Kitras	Township Councillor - Ward 5	Township of Centre Wellington	6367 Weisenberg Road	West Montrose	ON	N0B 2V0	519-846-1420	skitras@kitras.com
Mr.	Steve	O'Neill	County Councillor - Ward 4	Wellington County	74 Woolwich Street	Guelph	ON	N1H 3T9	519-400-3571	steveo@wellington.ca
Mr.	Don	Kudo	County Engineer	Wellington County	74 Woolwich Street	Guelph	ON	N1H 3T9	519-837-2600 x2280	donk@wellington.ca
Mr.	Joe	de Koning	County Engineer	Wellington County	74 Woolwich Street	Guelph	ON	N1H 3T9	519-837-2600 x2270	joedk@wellington.ca
Mr.	Devlin	Schellenberger	Clerk, Centre Wellington Heritage Committee	Township of Centre Wellington	1 MacDonald Square	Elora	ON	N0B 1S0	51-846-9691	Dschellenberger@centrewellington.ca
Emergency Services										
Mr.	Tom	Mulvey	Deputy Fire Chief	Township of Centre Wellington	250 Queen Street W	Fergus	ON	N1N 1S8	519-846-9691 x389	tmulvey@centrewellington.ca
Mr.	Jonathan	Karn	Deputy Fire Chief	Township of Centre Wellington	250 Queen Street W	Fergus	ON	N1N 1S8	519-846-9691 x387	jkarn@centrewellington.ca
Ms.	Chantalle	Pellizzari	Community Emergency Management Coordinator	Township of Centre Wellington	1 MacDonald Square	Elora	ON	N0B 1S0	519-846-9691 x241	cpellizzari@centrewellington.ca
Ms.	Shannon	Koestner	Community Emergency Management Coordinator	Township of Centre Wellington	1 MacDonald Square	Elora	ON	N0B 1S0	519-846-9691 x249	skoestner@centrewellington.ca
	Hurania	Melgar	Emergency Manager/CEMC	County of Wellington	536 Wellington Road 18 RR1	Fergus	ON	N1M 2W3	519-837-2600 x3322	huraniam@wellington.ca
Ms.	Marylin	Koch	Centre Wellington Operations Centre (Fergus) Detachment - Admin Assistant	Ontario Provincial Police	371 Charles Allan Way	Fergus	ON	N1M 2W3	519-846-5930	marilynkoch@opp.ca
Ms.	Sherry	Hoysa	Administrative Assistant	Guelph Wellington Paramedic Services	160 Clair Road West	Guelph	ON	N1L 1G1	519-822-1260 x2891	sherry.hoysa@guelph.ca
Indigenous Communities										
Chief	Mark B.	Hill	Chief	Six Nations of the Grand River	1695 Chiefswood Rd., PO Box 5000	Ohsweken	ON	N0A 1M0	519-445-2201	markhill@sixnation.ca
Mr.	Robbin	Vanstone	Consultation Supervisor	Six Nations of the Grand River	1695 Chiefswood Rd., PO Box 5000	Ohsweken	ON	N0A 1M0	519-753-0655	rlinn@sixnations.ca
Mr.	Lonny	Bomberry	Lands and Resources Director	Six Nations of the Grand River	1695 Chiefswood Rd., PO Box 5000	Ohsweken	ON	N0A 1M0	519-753-0065	lonnybomberry@sixnations.ca
Chief	R. Stacey	Laforme	Chief	Mississaugas of the Credit First Nation	2789 Mississauga Road., RR.6	Hagersville	ON	N0A 1H0	905-768-1133	Stacey.Laforme@mncfn.ca
Mr.	Mark	Laforme	Director of Consultation	Mississaugas of the Credit First Nation	2789 Mississauga Road., RR.6	Hagersville	ON	N0A 1H0	905-768-4260	Mark.Laforme@mncfn.ca
Ms.	Fawn	Sault	Consultation Manager	Mississaugas of the Credit First Nation	2789 Mississauga Road., RR.6	Hagersville	ON	N0A 1H0	905-768-4260	Fawn.Sault@mncfn.ca
Ms.	Megan	DeVries	Archaeological Coordinator	Mississaugas of the Credit First Nation	2789 Mississauga Road., RR.6	Hagersville	ON	N0A 1H0	905-768-4260	Megan.DeVries@mncfn
Sir/Madam				Haudenosaunee Confederacy	P.O. Box 714	Oshweken	ON	N0A 1M0	519-445-4222	
Sir/Madam			Consultation Unit	Métis Nation of Ontario	Suite 1100 - 66 Slater Street	Ottawa	ON	K1P 5H1		consultations@metisnation.org
Conservation Authority										
Ms.	Laura	Warner	Resource Planner	Grand River Conservation Authority	400 Clyde Road, PO Box 729	Cambridge	ON	N1R 5W6	519-621-2763 x2231	lwarner@grandriver.ca
Mr.	Gus	Rungis	Water Control Infrastructure Senior Engineer	Grand River Conservation Authority	400 Clyde Road, PO Box 729	Cambridge	ON	N1R 5W6	519-621-2763	grungis@grandriver.ca
Mr.	Dwight	Boyd	Director of Engineering	Grand River Conservation Authority	400 Clyde Road, PO Box 729	Cambridge	ON	N1R 5W6	519-621-2763 x2225	dboyd@grandriver.ca
School Boards & Student Transportation										
Ms.	Martha C.	Rogers	Director of Education	Upper Grand District School Board	500 Victoria Road North	Guelph	ON	N1E 6K2	519-822-4420 x721	amy.villeneuve@ugdsb.on.ca
Mr.	Michael	Glazier	Director of Education	Wellington Catholic District School Board	75 Woolwich Street	Guelph	ON	N1H 6H6	519-821-4640 x214	michael.glazier@wellingtoncdsb.ca
Sir/Madam				Wellington-Dufferin Student Transportation Services	66 Arrow Road	Guelph	ON	N1K 1T4	519-842-4119	
Businesses										
Mr.	[redacted]		President	Highland Pines Campground	8523 Wellington Rd. 19	Belwood	ON	N0B 1J0	[redacted]	
Mr.				Pine Meadows Retirement Community	8473 Wellington Rd. 19	Belwood	ON	N0B 1J0		
Sir/Madam				Belwood Transfer Station	8585 Wellington Rd. 19	Belwood	ON	N0B 1J0		
Ms.			Camp Director	Belwood Lodge & Camp	3rd Street Pvt.	Belwood	ON	N0B 1J0		
Sir/Madam				KRD Machine & Tool	6759 Wellington Rd. 16	Belwood	ON	N0B 1J0		
Sir Madam				Cumnock Acres Inc.	7845 Sideroad 5	Fergus	ON	N1M 2W3		
Sir/Madam				Kerry's Place Autism Services	34 Berczy Street	Aurora	ON	L4G 1W9		
Ms.				German-Canadian Cultural Association Harmonie	125 Cambridge Crescent	Richmond Hill	ON	L4C 6E9		
Ms.			President	Wellington Federation of Agriculture	R.R.#1 7764 Nichol Sideroad 5	Fergus	ON	N1M 2W3		
Public/Residents										
Mr.	[redacted]				7553 Eighth Line Nichol	Guelph	ON	N1H 6J2		
Mr.					8471 Sideroad 15	Belwood	ON	N0B 1J0		
Mr. & Mrs.					11154 Winston Churchill Boulevard	Georgetown	ON	L7G 4S7		
Mr.					8777 Sideroad 20	Belwood	ON	N0B 1J0		
Mr. & Mrs.					6783 Wellington Rd. 16	Belwood	ON	N0B 1J0		
Mr. & Mrs.					8410 Sideroad 15	Belwood	ON	N0B 1J0		
Mr. & Mrs.					6936 Fifth Line	Belwood	ON	N0B 1J0		
Mr. & Mrs.					6921 Third Line	Fergus	ON	N1M 2W3		
Mr. & Mrs.					6876 Fifth Line	Belwood	ON	N0B 1J0		
Mr.					6862 Fifth Line	Belwood	ON	N0B 1J0		
Mr. & Mrs.					6846 Fifth Line	Belwood	ON	N0B 1J0		
Mr.					7553 Eighth Line	Guelph	ON	N1H6J2		
Mr. & Mrs.					6722 Fifth Line	Belwood	ON	N0B 1J0		
Mr. & Mrs.					6698 Fifth Line	Belwood	ON	N0B 1J0		
Mr. & Mrs.					6680 Fifth Line	Belwood	ON	N0B 1J0		
Ms.					6672 Fifth Line	Belwood	ON	N0B 1J0		
Mr. & Mrs.					6658 Fifth Line	Belwood	ON	N0B 1J0		
Mr. & Mrs.					6652 Fifth Line	Belwood	ON	N0B 1J0		
Mr. & Mrs.					6657 Fifth Line	Belwood	ON	N0B 1J0		
Mr. & Mrs.					6689 Fifth Line	Belwood	ON	N0B 1J0		
Mr.					6671 Fifth Line	Belwood	ON	N0B 1J0		
Ms.					6697 Fifth Line	Belwood	ON	N0B 1J0		
Mr.					6723 Fifth Line	Belwood	ON	N0B 1J0		
Mr. & Mrs.					6737 Fifth Line	Belwood	ON	N0B 1J0		
Mr. & Mrs.					6747 Fifth Line	Belwood	ON	N0B 1J0		
Mr. & Mrs.					6761 Fifth Line	Belwood	ON	N0B 1J0		
Mr. & Mrs.					6775 Fifth Line	Belwood	ON	N0B 1J0		
Mr. & Mrs.					8541 Sideroad 15	Belwood	ON	N0B 1J0		
Mr. & Mrs.					8532 Sideroad 15	Belwood	ON	N0B 1J0		
Mr. & Mrs.					8518 Sideroad 15	Belwood	ON	N0B 1J0		
Mr.					6789 Fifth Line	Belwood	ON	N0B 1J0		
Mr. & Mrs.					6809 Fifth Line	Belwood	ON	N0B 1J0		
Mr. & Mrs.					6829 FIFTH LINE	Belwood	ON	N0B 1J0		
Mr. & Mrs.					6855 Fifth Line	Belwood	ON	N0B 1J0		
Mr. & Mrs.					6885 Fifth Line	Belwood	ON	N0B 1J0		
Mr.					6895 Fifth Line	Belwood	ON	N0B 1J0		
Mr. & Mrs.					6921 Fifth Line	Belwood	ON	N0B 1J0		
Mr. & Mrs.					6949 Fifth Line	Belwood	ON	N0B 1J0		
Mr. & Mrs.					6955 Fifth Line	Belwood	ON	N0B 1J0		
Utilities										
Mr.	[redacted]		Supervising Distribution Tech.	Hydro One -Guelph					519-535-7361	ahmad.nouman@hydroone.com
Mr.			Bell Implementation Manager	Bell Canada	21 First Avenue	Orangeville	ON	L9W 1H7	519-939-1011	franklin.brown@bell.ca

APPENDIX C

CONSULTATION SCHEDULE

Consultation Schedule

Milestone	Deadline
Approval of Consultation Plan by the Township	May 14, 2021
Notice of Study Commencement Distribution	May 20, 2021
Newspaper Advertisement of Notice of Study Commencement	May 20, 2021
Township Heritage Committee Meeting #1	June 8, 2021
Township of Centre Wellington Mayor & Council in Committee of Whole Meeting #1	June 21, 2021
Indigenous Communities Meeting #1 (if required)	week of June 25, 2021
Indigenous Communities Meeting #2 (if required)	week of August 19, 2021
Agency Consultation and Stakeholders (if required)	week of August 19, 2021
Notice of Online Open House	week of August 23, 2021
Newspaper Advertisement of Notice of Online Open House	week of August 23, 2021
Online Open House	August 23, 2021 – September 17, 2021
Responding to Open House Comments	August 23, 2021 - September 17, 2021
Meet with Project Team to Review Comments	October 18, 2021
Township Heritage Committee Meeting #2	November 9, 2021
Township of Centre Wellington Mayor & Council in Committee of Whole Meeting #2	November 22, 2021
Notice of Study Completion	November 15, 2021 - December 17, 2021
Newspaper Advertisement of Notice of Study Completion	week of November 15, 2021
Deadline for Comments and Part II Orders	December 17, 2021
Letter to Township Indicating Project Eligibility to Proceed	January 14, 2022

At this time, these dates are tentative and are subject to change. Consultation material (contact list, notices, letters, etc.) will be provided by McIntosh Perry to the Township for review and acceptance a minimum of seven (7) working days prior to release.

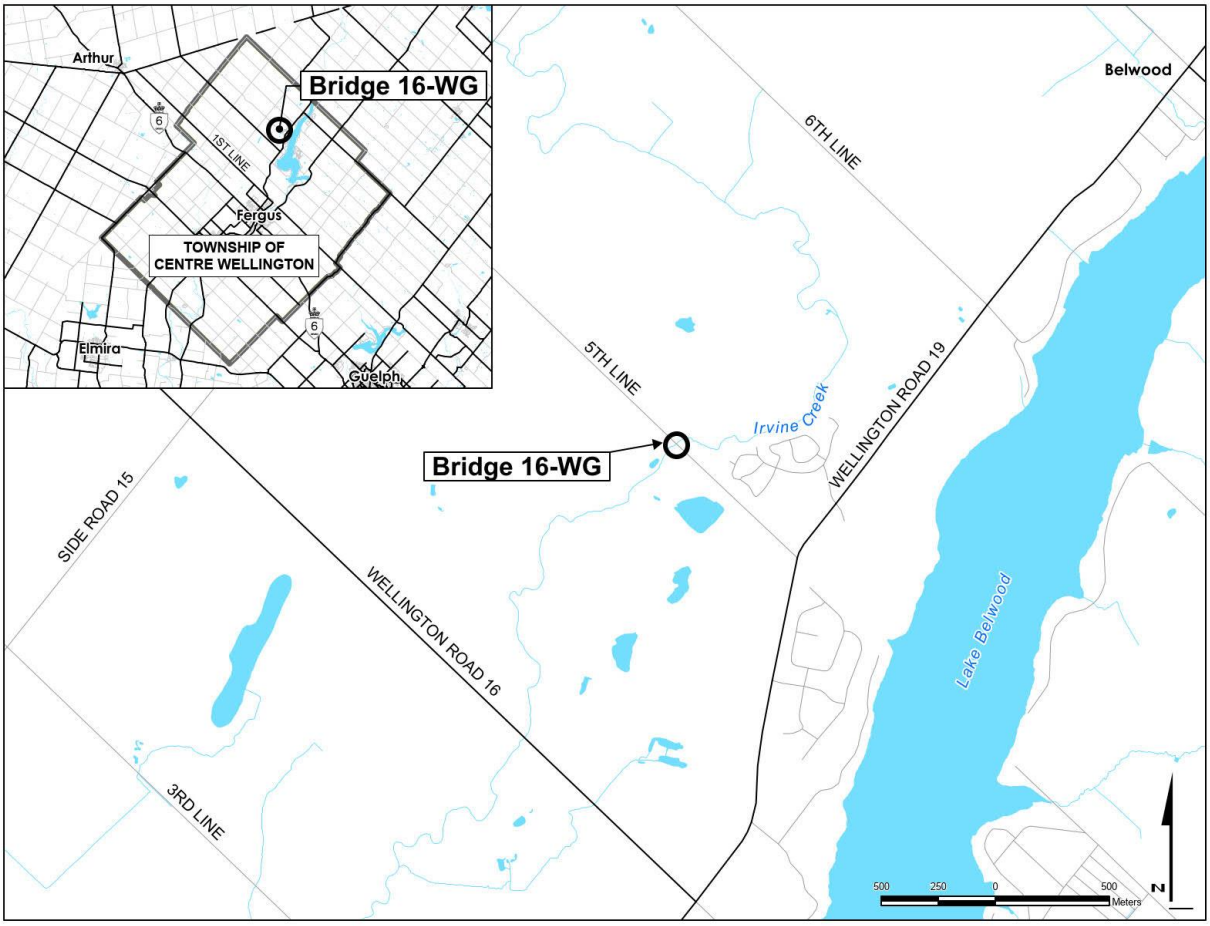
Notice of Study Commencement Example

Notice of Study Commencement

Municipal Class Environmental Assessment Study for Bridge 16-WG

The Project

The Township of Centre Wellington is conducting a review of a bridge to address its advanced state of deterioration. The bridge (16-WG) is located within the former Township of West Garafraxa, and is illustrated on the key plan below. Bridge 16-WG is located on 5th Line between Wellington Road 19 and Sideroad 15 in the rural area to the north of Fergus.



Key Plan

Bridge 16-WG is a single lane, single span concrete spandrel arch over Irvine Creek that was constructed circa 1910. At this time, due to poor condition, Bridge 16-WG is closed for public use.

The Study Process

The study is being conducted in accordance with Schedule B of the Municipal Class Environmental Assessment (EA) (October 2000, as amended) process. This notice signals the commencement of the Class EA. The study will confirm and document the existing structural deficiencies and identify alternative solutions, including rehabilitation or replacement of the structure. The environmental impacts of each alternative will be evaluated and in consultation with the public and external agencies, a technically preferred alternative will be selected.

How to Participate

A key component of this study is public and agency consultation. An Online Public Open House is planned for late summer of 2021 and will be held to present the study findings and obtain public input. Details of the Online Open House will be advertised in the Wellington Advertiser and on **centrewellington.ca** closer to the date under a separate notice.

We Want to Hear from You!

Public input and comments will be considered in developing the preferred design alternative. If you have any questions or comments regarding the study, or would like to be included on the mailing list to receive future notices and study updates, please contact one of the Project Team members below:

Adam Gilmore, M.A.Sc., P.Eng.
Manager of Engineering
Township of Centre Wellington
1 MacDonald Square, Elora, ON N0B 1S0
519-846-9691 x 301
agilmore@centrewellington.ca

Lisa Marshall, P. Eng.
Consultant Project Manager
McIntosh Perry Consulting Engineers Ltd.
115 Walgreen Road, R.R. 3, Carp, ON K0A 1L0
1-613-852-1148
l.marshall@mcintoshperry.com

Information will be collected in accordance with the *Municipal Freedom of Information and Protection of Privacy Act*. With the exception of personal information, all comments will become part of the public record. If you have accessibility requirements in order to participate in this project, please contact one of the project team members listed above.

This notice was first issued on May 20, 2021

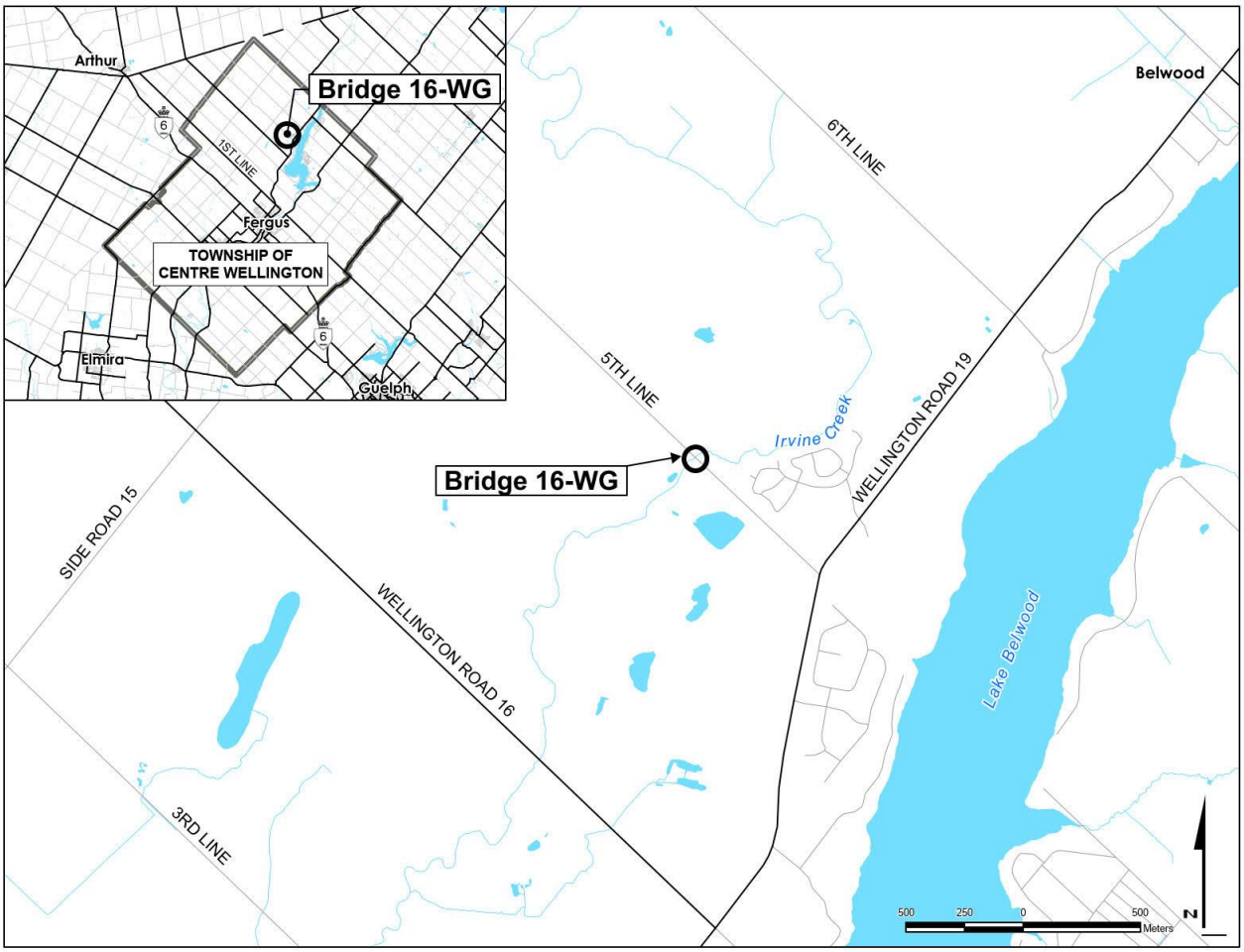
Notice of Online Public Information Center Example

Notice of Online Public Open House

Municipal Class Environmental Assessment Study for Bridge 16-WG

The Project

The Township of Centre Wellington is conducting a review of a bridge to address its advanced state of deterioration. The bridge (16-WG) is located within the former Township of West Garafraxa and is illustrated on the key plan below. Bridge 16-WG is located on 5th Line between Wellington Road 19 and Sideroad 15 in the rural area to the north of Fergus.



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The Study Process

The study is being conducted in accordance with Schedule B of the Municipal Class Environmental Assessment (EA) (October 2000, as amended) process. The study will confirm and document the existing structural deficiencies and identify alternative solutions, including rehabilitation or replacement of the structure. The environmental impacts of each alternative will be evaluated and in consultation with the public and external agencies, a technically preferred alternative will be selected.

Online Public Open House

The purpose of this notice is to invite you to participate in the Online Public Open House for this project. The Online Public Open House will present the study process, existing conditions, alternative solutions and provide opportunity for public input and comments. The Online Public Open House can be accessed though the Township of Centre Wellington's website at: **https://www.connectcw.ca/municipal-class-environmental-assessment-study-for-bridge-16-wg**

Public input and comments will be considered in developing the preferred alternative solution. If you have any questions, comments, require addition information or wish to be added to the project contact list for future updates on the study, please contact one of the following Project Team members below:

Adam Gilmore, M.A.Sc., P.Eng.
Manager of Engineering
Township of Centre Wellington
1 MacDonald Square, Elora, ON N0B 1S0
519-846-9691 x 301
agilmore@centrewellington.ca

Lisa Marshall, P. Eng.
Consultant Project Manager
McIntosh Perry Consulting Engineers Ltd.
115 Walgreen Road, R.R. 3, Carp, ON K0A 1L0
1-613-852-1148
l.marshall@mcintoshperry.com

The Online Open House presentation will be available from **September 6, 2021 to September 24, 2021.** Questions or Comments will be received until September 24, 2021 and can be provided directly online, via email or by phone. If you are unable to access the Online Open House presentation, please contact one above the above Project Team members and a pdf version will be forwarded to your attention.

As per the requirements of the Schedule B MCEA, a Project File Report is being maintained throughout the Class EA Study. The Project File Report will be made available for a 30-day public review period at the conclusion of the study. An advertisement will be published at that time in the Wellington Advisor and at www.centrewellington.ca to indicate where the Study Report can be viewed.

Information will be collected in accordance with the *Municipal Freedom of Information and Protection of Privacy Act*. With the exception of personal information, all comments will become part of the public record. If you have accessibility requirements in order to participate in this project, please contact one of the project team members listed above.

This notice was first issued on September 2, 2021

Online Public Information Center Presentation Boards

ONLINE PUBLIC OPEN HOUSE

SCHEDULE "B" MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT BRIDGE 16-WG

September 6, 2021 to September 24, 2021

McINTOSH PERRY

Centre Wellington

ONLINE PUBLIC OPEN HOUSE OBJECTIVES

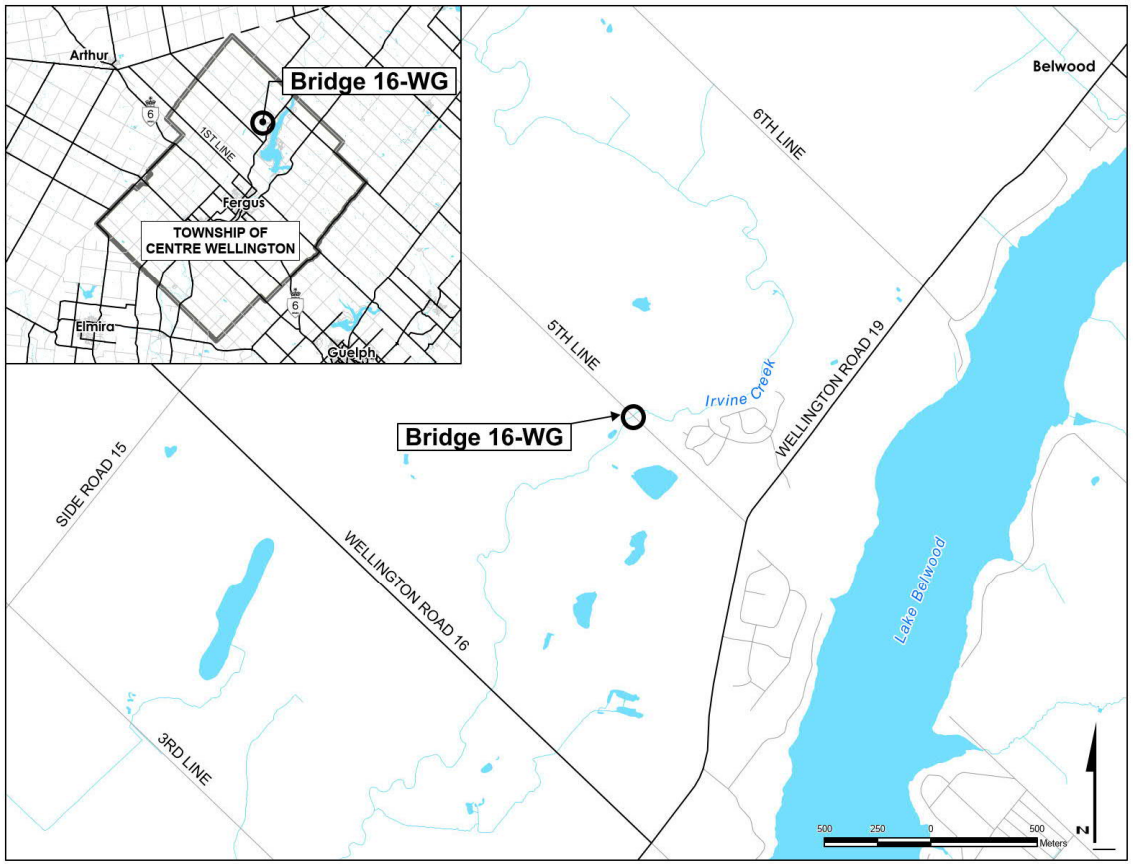
Thank you for your interest in the project. The purpose of this Online Public Open House is to provide the public and stakeholders with an introduction to the study process, existing conditions, alternative solutions and provide opportunity for input and comments.

Once you have reviewed the materials, please submit any comments or questions directly online, via email or by phone to one of the contacts listed at the end of the presentation by September 24, 2021. A member of the project team will respond to you directly.

1. Project Location and Description
2. Purpose of the Study
3. Municipal Class Environmental Assessment Process
4. Problem and Opportunity Statement
5. Alternative Solutions
6. Project Studies
7. Existing Conditions
8. Evaluation and Recommended Alternative Solution
9. Upcoming Consultation Opportunities

PROJECT STUDY AREA

The Bridge 16-WG is located in the former Township of West Garafraxa, now Township of Centre Wellington, Wellington County, Ontario. The Bridge 16-WG spans over Irvine Creek, located on 5th Line between Centre Wellington Road 19 and Side Road 15.



STUDY PURPOSE

As per the Ontario Structural Inspection Manual (OSIM) biennial inspection in 2020, it was determined that overall, the bridge is in poor condition with advanced deterioration.

The existing Bridge 16-WG is currently closed for public use due to public safety concerns. The bridge serves as an important connection for traffic on 5th Line over Irvine Creek between Wellington Road 19 and Side Road 15

The Township of Centre Wellington is undertaking this Schedule “B” Municipal Class Environmental Assessment Study to identify and evaluate alternative solutions to address the aging infrastructure.

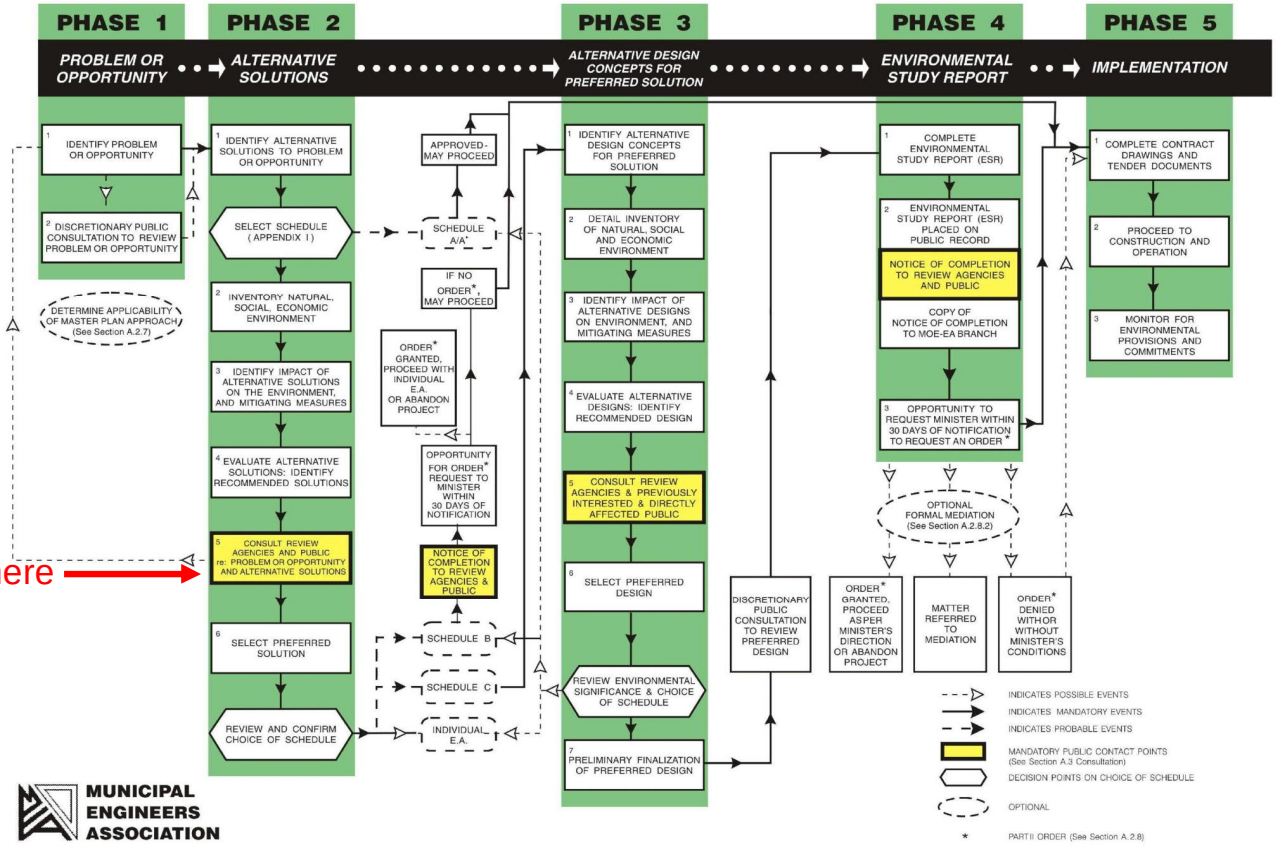
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT PROCESS

The Municipal Class Environmental Assessment Process (MCEA) is a process by which municipal infrastructure projects are planned in accordance with the *Environmental Assessment Act*. The MCEA gives due regard to protect the environment, impacts, and includes the involvement of affected stakeholders in the decision-making process.

Please visit:

https://municipalclassea.ca for more information on the MCEA Process.

We are here



Source: The process flow chart was adapted from the Municipal Class Environment Assessment documentation at www.municipalclassea.ca.

Note: The current step of the Class EA process is highlighted in red.

PHASE 1 – PROBLEM/OPPORTUNITY STATEMENT

Bridge 16-WG is in an advanced state of deterioration and has been closed for public use at this time. The existing bridge is also a single-lane with other functional and operational deficiencies. Therefore, the Township of Centre Wellington has the opportunity to identify and evaluate alternative solutions and determine a preferred bridge solution in accordance with the MCEA Process.

PHASE 2 – ALTERNATIVE SOLUTIONS TO THE PROBLEM/OPPORTUNITY STATEMENT

To address the Problem/Opportunity Statement, the following preliminary Alternative Solutions have been developed, which will be evaluated after appropriate studies and consultation have been completed:

Alternative 1: - Do Nothing

Involves leaving the existing bridge in place, in its deteriorating condition and continuing to restrict public access. Through the MCEA process this alternative acts as a benchmark for the other Alternative Solutions.

Alternative 2: Removal the Existing Bridge

Removal of the existing bridge and construction of new turnaround areas at the east and west sides of Irvine Creek for traffic on 5th Line. This alternative would consist of not reinstating the 5th Line watercourse crossing.

Alternative 3: Replace Existing Bridge with New Structure

Full removal and replacement of the existing bridge within the current location. As the intention is to provide a bridge that meets operational and safety standards.

Alternative 4: Rehabilitate the Existing Bridge

Rehabilitate the existing Bridge 16-WG to meet engineering and public safety standards, reinstate the existing watercourse crossing.

PROJECT STUDIES

The following studies were completed previously by the Township:

Archaeological Assessment
- Stage 1 & 2 Archaeological Assessment (January 2014)

Geotechnical Investigations
- Geotechnical Investigations for soils information (October 2013)

Cultural Heritage Landscapes & Built Heritage Resources
- Cultural Heritage Impact Assessment (December 2013)

The following project studies have been undertaken within the Bridge 16-WG study area as part of this MCEA Study:

Natural Environment
- Terrestrial Ecosystem Review
- Aquatic Ecosystem Review

Cultural Heritage Landscapes and Built Heritage Resources
- Cultural Heritage Resource Evaluation
- Cultural Heritage Impact Assessment

Socio Economic Environment
- Public Consultation
- Land Use Review

Structural Assessment
- Review of Suitable Structural Alternatives

Drainage Investigations
- Hydraulic Analysis

EXISTING STRUCTURAL CONDITION

Structural Condition

- The bridge was built in 1910 (111 years old) and is beyond the end of its service life.
- In a 1977 inspection report, it was noted to have 10 years of remaining life.
- In a 2012 inspection report, it was recommended for replacement.
- During previous inspections, the retaining walls were shown to be displaced indicating that parts of the bridge were moving. Gauges were installed to track the amount of movement.
- In Spring 2021, the bridge was closed to traffic and the public due to safety concerns.

CULTURAL HERITAGE RESOURCES

Cultural Heritage

- A Cultural Heritage Impact Assessment (HIA) was completed for the study area in 2013 which found the bridge to meet one of the criteria for determining Cultural Heritage Value or Interest (CHIV) (under O.Reg. 9/06).
- A Cultural Heritage Evaluation Report (CHER) was completed for the study area in May 2021 to provide additional analysis and confirmed the evaluation of CHVI contained in the 2013 HIA.
- The HIA and CHER determined that Bridge 16-WG is a rare example of a solid spandrel, concrete-arch bridge from the early-20th century (c.1910).
- There are only 11 bridges of this type left in Ontario according to the Ontario Heritage Bridge List; 4 of which are located in the Township of Centre Wellington.
- The Bridge 16-WG is one of the oldest of its type and is a rare survivor as many of these early bridges have been replaced due to narrow lane width, structural deterioration and to meet modern traffic needs.
- Due to these findings, a Cultural Heritage Impact Assessment (HIA) was completed to examine the potential impacts associated with each Alternative Solution and make mitigation recommendations.
- The HIA noted that Alternative 1: Do Nothing, is not feasible from a heritage perspective, and Alternative 4: Rehabilitation, is not feasible from a structural engineering perspective, however the other alternatives under consideration could be feasible through mitigation to commemorate the existing Bridge 16-WG.

NATURAL ENVIRONMENT EXISTING CONDITIONS

Vegetation

- The study area is dominated by vegetation common to the Lake Simcoe-Rideau Ecoregion (Ecoregion 6E) of the Mixedwood Plains Ecozone.
- Forested area consists mainly of Eastern White Cedar, White Willow, Red Maple, and Manitoba Maple.
- No rare species or vegetation communities were found.

Wildlife and Species at Risk

- The study area contains habitat that supports a variety of wildlife species characteristic of the Lake Simcoe-Rideau Ecoregion (Ecoregion 6E)
- No nests were observed on Bridge 16-WG; however, the general study area provides habitat for several species of migratory birds, wildlife and potentially Species at Risk (SAR).
- SAR that are known to be present within and adjacent to the Bridge 16-WG study area include Barn Swallow, and Redside Dace which have been observed and mapped within 500 m of this crossing location.

Fish and Fish Habitat

- The watercourse associated with Bridge 16-WG is Irvine Creek, which the Ministry of Natural Resources and Forestry (MNRF) confirmed is a coldwater tributary of the Grand River.
- Irvine Creek is known to contain a variety of fish species including Brook Trout, and aquatic SAR (i.e., Redside Dace).

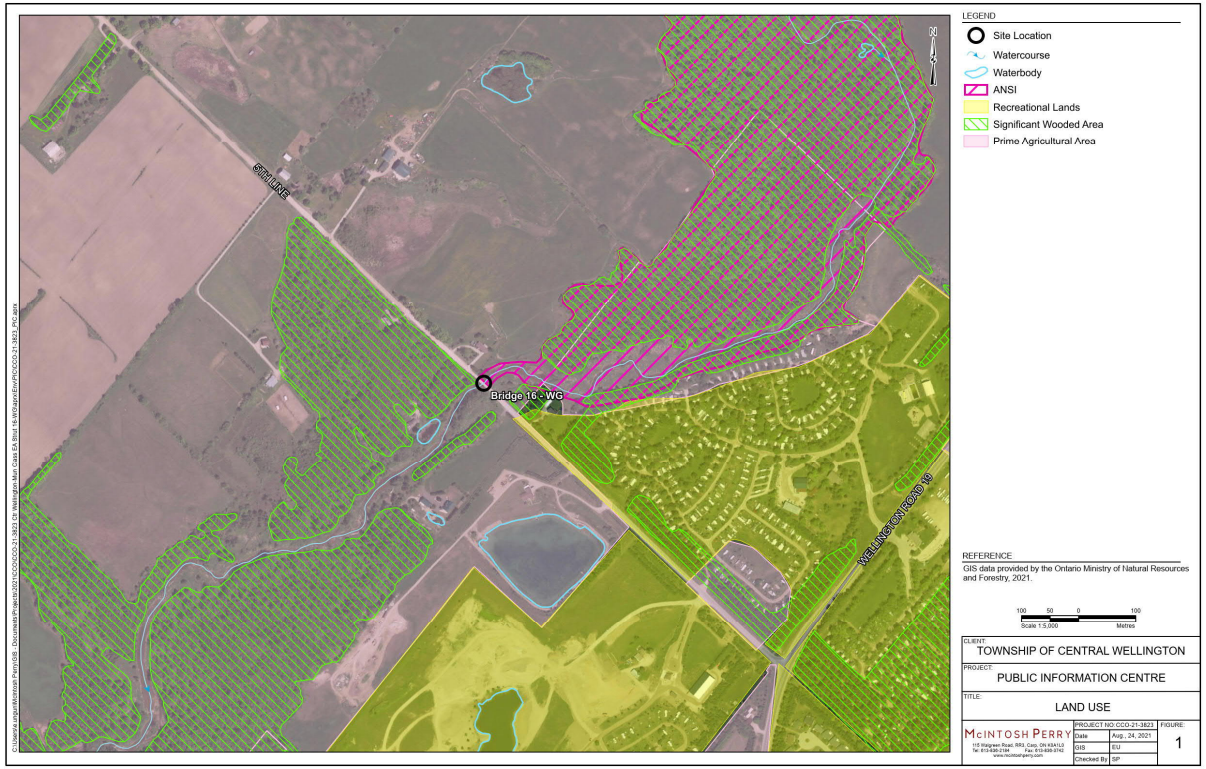
SOCIAL/CULTURAL ENVIRONMENT EXISTING CONDITIONS

Archaeology

- A Stage 1 & 2 Archaeological Assessment identified no archaeological sites and concluded the study area does not warrant further archaeological assessment.

Land Use

- The study area is located within the Grand River Conservation Authority regulated area.
- The Bridge 16-WG study area and directly adjacent lands are identified on the County of Wellington's Official Plan as Core Greenlands and Greenlands, with some recreational area to the east (i.e., Highland Pines Campground).



EVALUATION CRITERIA

Transportation

- Traffic Operations
- Conflicts with Private Property Entrances
- Safety Considerations

Structural

- Safety Considerations
- Extension of Service Life
- Durability

Natural Environment

- Environmentally Sensitive Areas
- Wildlife Habitats
- Fisheries / Aquatic Habitat
- Species at Risk (SAR)

Socio-Economic

- Land Use Impacts
- Archaeological, Built Heritage & Cultural Heritage Features

Construction

- Construction Duration
- Impacts of Construction

Cost

- Capital Costs
- Operational and Maintenance Costs

EVALUATION OF ALTERNATIVES

Criteria	Alternative 1: Do Nothing	Alternative 2: Remove Bridge & Construct Turn Arounds	Alternative 3: Replace Bridge	Alternative 4: Rehabilitate Bridge
Transportation	• Does not provide connectivity for traffic on 5th Line over Irvine Creek. • Does not address safety concerns. • Does not provide safe turn around areas for vehicles at Irvine Creek. • Limits access to residential property entrances.	• Does not provide connectivity for traffic on 5th Line over Irvine Creek. • Permanently addresses safety concerns with Bridge 16-WG; • Provides safe turn around areas at Irvine Creek. • Temporary impacts to residential property entrances anticipated during construction.	• Provides safe connectivity for traffic on 5th Line over Irvine Creek. • Addresses safety concern with existing Bridge 16-WG traffic by providing two (2) lanes over Irvine Creek. • Potential impacts to residential property entrances may be required. • Potential requirement for 5th Line grade raise at bridge approaches.	• Reinstates connectivity for traffic on 5th Line over Irvine Creek. • Does not address safety concerns related to traffic capacity on the structure (i.e., down to one lane over Irvine Creek). • Condition of structure would need to be continuously monitored to ensure safe condition is maintained after the rehabilitation works. • Temporary impacts to residential property entrances anticipated during construction.
Structural	• Does not provide safe service or address public safety concerns with existing Bridge 16-WG. • Does not extend the service life of Bridge 16-WG and poses significant risks from a structural engineering perspective.	• Does not provide 5th Line connectivity over Irvine Creek, however, the service life of the turn around areas are unrestricted. • Durability is considered to be the best. • No structural engineering risks.	• Provides an anticipated 75 year extension of service life. • Durability is good with a new structure. • Engineering risks are considered low, as all components would be new.	• If feasible, a rehabilitation would provide up to only 15-year extension of service life. • Rehabilitation is not considered to be a viable al from a bridge engineering perspective as the condition of the structure has surpassed a repairable state. • Structural engineering risks are very high, which would make this alternative not feasible.

EVALUATION OF ALTERNATIVES

Criteria	Alternative 1: Do Nothing	Alternative 2: Remove Bridge & Construct Turn Arounds	Alternative 3: Replace Bridge	Alternative 4: Rehabilitate Bridge
Natural Environment	• Continued deterioration of Bridge 16-WG may pose significant impacts to the natural environment with concrete debris falling into Irvine Creek and potential for the structure to collapse into the watercourse. • No impacts to terrestrial wildlife habitat. • Continued deterioration may pose significant impacts to fisheries and aquatic ecosystems including impacts to SAR (Redside Dace). • No impacts to groundwater are anticipated, however if the bridge collapses into the watercourse the concrete debris may cause flooding in the area; • No anticipated climate change impacts.	• Moderate natural environment impacts. • Minor impacts to terrestrial wildlife may be required through vegetation removal activities for construction. • No anticipated impacts to fisheries or aquatic ecosystems; • In-water works likely to be required for short duration. • Potential impacts to SAR can be mitigated. • No impacts anticipated to groundwater or surface water. • Increased greenhouse emissions may be incurred due to detours caused by removal of connectivity on 5th Line.	• Moderate natural environment impacts. • Minor impacts to terrestrial wildlife may be required through vegetation removal activities for construction. • No anticipated impacts to fisheries or aquatic ecosystems; • In-water works likely to be required for short duration. • The existing Bridge 16-WG abutments are within Irvine Creek, however, a new bridge may be constructed with a larger hydraulic opening to support better conveyance capacity and minimize the overtopping of 5th Line during the Regional Storm. • Potential Impacts to SAR can be mitigated. • No anticipated impacts to groundwater or surface water. • No anticipated climate change impacts.	• Moderate natural environment impacts. • Minor impacts to terrestrial wildlife may be required through vegetation removal activities for construction. • No anticipated impacts to fisheries or aquatic ecosystems; • Duration of in-water works likely to be long. • Existing Bridge 16-WG abutments are in Irvine Creek. • Potential impacts to SAR can be mitigated. • No anticipated impacts to groundwater or surface water. • The existing Bridge 16-WG does not meet MTO design criteria for vertical clearance and 5th Line would be overtopped by the Regional Storm by approximately 0.9 m. • Increased greenhouse gas emissions may be incurred due to detours caused by removal of connectivity of 5th Line for large vehicles.

EVALUATION OF ALTERNATIVES

Criteria	Alternative 1: Do Nothing	Alternative 2: Remove Bridge & Construct Turn Arounds	Alternative 3: Replace Bridge	Alternative 4: Rehabilitate Bridge
Socio-Economic	• Bridge 16-WG would remain closed to the public, which may impact emergency service response times. • No connectivity for public on 5th Line over Irvine Creek. • Continued deterioration of Bridge 16-WG may pose a health and safety concern. • Operational issues for municipal service vehicles (i.e. garbage, snow removal). • Not considered feasible from a heritage perspective (continued deterioration will result in total loss of cultural heritage resource). • No anticipated impacts to archaeological resources. • No construction related impacts.	• Removal of Bridge 16-WG may impact emergency service response times. • No connectivity for public on 5th Line over Irvine Creek. • Potential for longer route times for municipal service vehicles (i.e., garbage, snow removal). • Feasible from a heritage perspective by incorporating mitigation to commemorate Bridge 16-WG. • No anticipated impacts to archaeological resources. • Minor construction related impacts.	• No long term impacts to emergency service response times. • New bridge would provide two-lanes of 5th Line traffic over Irvine Creek which is preferred from a traffic safety perspective. • Best option for municipal service vehicles (i.e., garbage, snow removal) as new bridge will not require height or load postings. • Feasible from a heritage perspective by incorporating mitigation to commemorate the bridge. • No anticipated impacts to archaeological resources. • Moderate construction related impacts, however, since the bridge is currently closed, it is assumed the closure will remain in place until the structure is replaced.	• No long term impacts to emergency service response times. • Only single-lane of 5th Line traffic over Irvine Creek while 5th Line approached are two-lanes. • Height and load posting may still be required after rehabilitation works which would restrict municipal service vehicles (i.e., garbage, snow removal). • Best alternative from a heritage perspective. • No anticipated impacts to archaeological resources. • Moderate construction related impacts anticipated.

EVALUATION OF ALTERNATIVES

Criteria	Alternative 1: Do Nothing	Alternative 2: Remove Bridge & Construct Turn Arounds	Alternative 3: Replace Bridge	Alternative 4: Rehabilitate Bridge
Construction	• No construction is required.	• Construction duration is anticipated to be approximately 1 month.	• Construction duration is anticipated to be approximately 3-6 months, depending on the type of structure.	• Construction duration is unknown due to the scope of work required for this option being unknown since it is considered not feasible.
Cost	• Lowest capital costs due to minimal project scope. • Maintenance costs are significantly higher with no extension of service life due to this option requiring annual structural assessments.	• Costs associated with this alternative are second lowest and service life is unrestricted. • Operational and maintenance costs are significantly lower due to this alternative not requiring annual structural assessments.	• Highest capital costs, however, this alternative is the more economical solution based on the anticipated extension of service life (i.e. 75 years). • Operational and maintenance costs are anticipated to be second highest.	• Costs associated with this alternative are the second highest, however, this is considered to be the least economical alternative based on the extension of service life (i.e. 15 years) and it should also be noted that the cost estimated may be significantly variable based on the conditions revealed during rehabilitation efforts. • Operational and maintenance costs are anticipated to be the highest.

RECOMMENDED ALTERNATIVE

The Recommended Alternative Solution is Alternative 3 - Removal and replacement of the existing Bridge 16-WG in the current location.

The key benefits of the Recommended Alternative are:

- Low engineering risks as all bridge components would be new, and the anticipated extension of service life is approximately 75 years.
- The new bridge would be constructed with a wider deck platform to allow for two-lanes of traffic at the watercourse crossing which would meet operational and safety standards.
- Lowest impact to public and traffic on 5th Line and municipal service vehicles, as the crossing would reinstate connectivity over Irvine Creek with no height or weight postings.
- New bridge would be constructed with a larger hydraulic opening to support better conveyance capacity and minimize the overtopping of 5th Line during the Regional Storm.

Anticipated impacts and mitigation of the Recommended Alternative are:

- During construction, local traffic detours would remain in place until work is complete.
- Any wildlife and vegetation, including SAR that may be disturbed during construction will be considered and mitigation for in-water timing windows, migratory bird timing window restrictions, reestablishment of vegetation removal areas, etc. will be included in the Contract Documents and adhered to by the Contractor.
- Impacts to Cultural Heritage Value would be avoided through incorporation of mitigation strategies to commemorate the existing Bridge 16-WG.

UPCOMING CONSULTATION OPPORTUNITIES

The following consultation is being conducted as part of this MCEA Study:

Consultation	Timeline
Notice of Online Public Open House mailout and advertisement on the Township of Centre Wellington's website.	September 2, 2021
Online Public Open House	September 6, 2021 to September 24, 2021
Presentation of Preferred Alternative to Township Heritage Committee and Council	Fall 2021
Advertise Project File Report for a 30-day public review and comment period	Fall 2021
Project Completion	Winter 2022

Following the Project File Report 30-day public review and comment period, if there are no outstanding comments that need to be addressed, the project will proceed to Detail Design and Construction. Timing is to be determined pending funding and approvals.

IF YOU WOULD LIKE MORE INFORMATION, PLEASE CONTACT:

Ms. Lisa Marshall, P.Eng.
Consultant Project Manager
McIntosh Perry Consulting Engineers
Tel: 1-613-852-1148
Email: l.marshall@mcintoshperry.com

Mr. Adam Gilmore, P.Eng.
Township Project Manager
Township of Centre Wellington
Tel: 519-846-9691 x 301
Email: agilmore@centrewellington.ca

Please submit any questions or comments directly online, email or by phone to the contacts listed above by September 24, 2021.

Thank you for participating in the Online Public Open House. Information is being collected in accordance with the *Municipal Freedom of Information and Protection of Privacy Act*. With the exception of personal information, all comments will become part of the public record. If you have accessibility requirements in order to participate in this project, please contact one of the project team members listed above.

Notice of Study Completion & 45-day Public Review Period

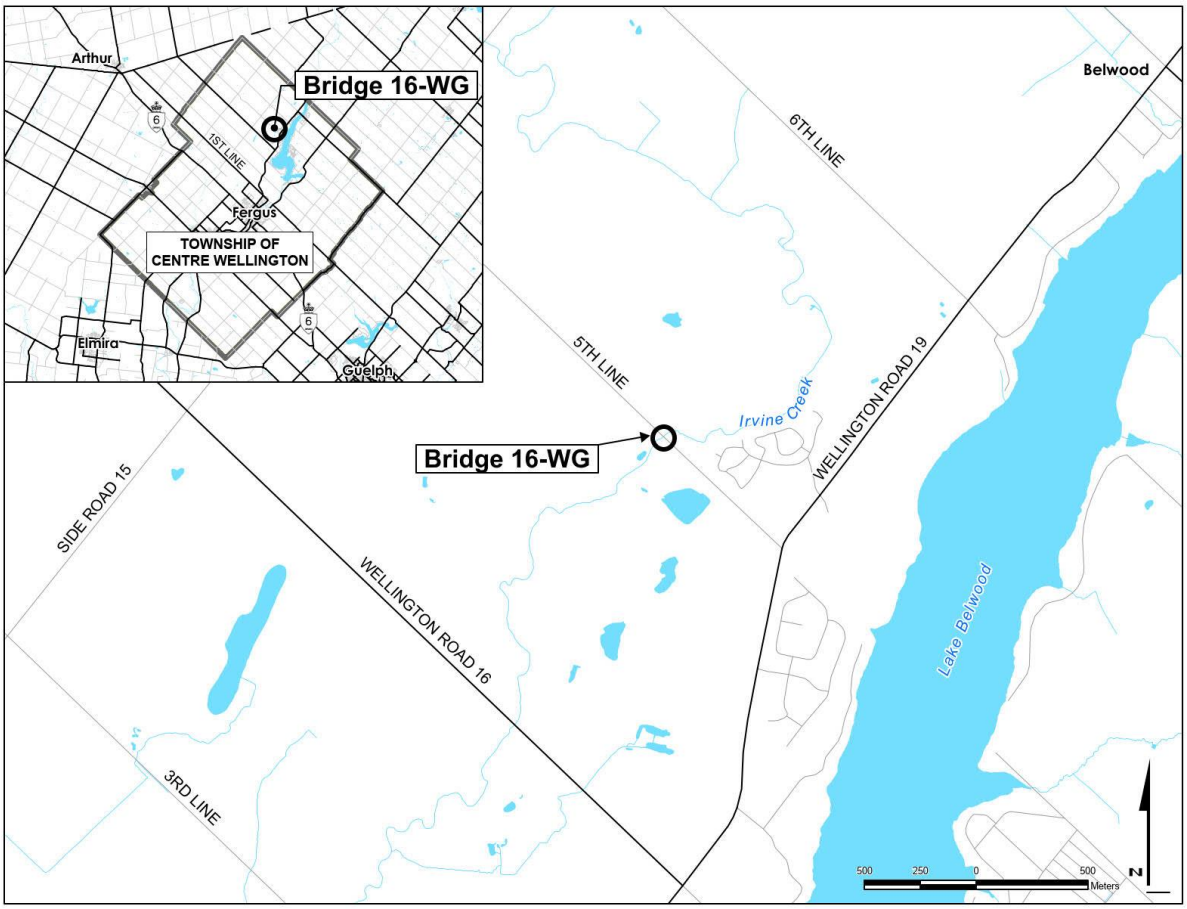
Notice of Study Completion

Municipal Class Environmental Assessment Study for Bridge 16-WG

The Project

The Township of Centre Wellington conducted a review of a bridge to address its advanced state of deterioration. The bridge (16-WG) is located within the former Township of West Garafraxa, and is illustrated on the key plan below. Bridge 16-WG is located on 5th Line between Wellington Road 19 and Sideroad 15 in the rural area to the north of Fergus. The study was conducted in accordance with Schedule B of the Municipal Class Environmental Assessment (MCEA) process (October 2000, as amended).

Through consultation with Agencies, Members of the Public, and Indigenous Communities, the preferred solution for Bridge 16-WG is replacement of the existing bridge with a new bridge.



Key Plan

Project File Report

A Project File Report (PFR) has been prepared to document the planning and decision-making process for this study. By this Notice, the PFR is being placed on the public record for a 45-day review period from December 2, 2021 to January 13, 2022. The PFR is available for review on the Township's website at https://www.connectcw.ca/municipal-class-environmental-assessment-study-for-bridge-16-wg.

If you have any questions, comments or concerns regarding this study, please contact one of the Project Team members below by January 13, 2022:

Adam Gilmore, M.A.Sc., P.Eng.
Manager of Engineering
Township of Centre Wellington
1 MacDonald Square, Elora, ON N0B 1S0
519-846-9691 x 301
agilmore@centrewellington.ca

Lisa Marshall, P. Eng.
Consultant Project Manager
McIntosh Perry Consulting Engineers Ltd.
115 Walgreen Road, R.R. 3, Carp, ON K0A 1L0
1-613-714-0815
l.marshall@mcintoshperry.com

In addition, a request may be made to the Ministry of Environment, Conservation and Parks for an order requiring a higher level of study, or that conditions may be imposed, only on the grounds that the requested order may prevent, mitigate or remedy adverse impacts on constitutionally protected Aboriginal and treaty rights. Request on other grounds will not be considered. Requests should include the requesters contact information and full name for the ministry.

Requests should specify what kind of order is being requested, how an order may prevent, mitigate or remedy those potential adverse impacts, and any information in support of the statements in the request. The request should be sent in writing or by email to the project contacts noted above and the following:

Minister of the Environment, Conservation and Parks
Ministry of Environment, Conservation and Parks
77 Bay Street, 5th Floor
Toronto, ON M7A 2J3
Minister.mecp@ontario.ca

Director, Environmental Assessment Branch
Ministry of Environment, Conservation and Parks
135 St. Clair Ave. W, 1st Floor
Toronto, ON M4V 1P5
EABDirector@ontario.ca

Comments submitted to the Township of Centre Wellington for the purpose of providing feedback regarding this Municipal Class Environmental Assessment are collected under the authority of the *Environmental Assessment Act*. Information will be collected in accordance with the Freedom of Information and Protection of Privacy Act. With the exception of personal information, all comments will become part of the public record. Questions relating to the collection, use and disclosure of this information may be addressed to Adam Gilmore, Manager of Engineering at 519-846-9691 x301 or agilmore@centrewellington.ca

This notice was first issued on December 2, 2021

Courrier Receipts for Notices Sent to Indigenous Communities

From: NotificationService@purolator.com <NotificationService@purolator.com>
Sent: May 28, 2021 1:23 PM
To: Olivia Beirnes <OBeirnes@centrewellington.ca>
Subject: Purolator - Your shipment is delivered / Votre envoi a été livré - PIN/NIC:332945324181

Veuillez faire défiler l'écran vers le bas pour afficher la version française.

Your shipment is delivered!

Hi Olivia Beirnes,

As requested by Olivia Beirnes , obeirnes@centrewellington.ca, this message confirms that the shipment(s) have been successfully delivered. We look forward to delivering for you again in the near future!

PIN: 332945324181
Status: Delivered to METIS FIRST NATION OF ONTARIO OTTAWA, Ontario
Delivery Date/Time: May 28, 2021 at 10:55
To: METIS FIRST NATION OF ONTARIO
City: OTTAWA
Province: Ontario
Tracking Details: https://www.purolator.com/en/ship-track/tracking-details.page?pin=332945324181

This email was sent from our automated inbox. Please do not reply.

From: NotificationService@purolator.com <NotificationService@purolator.com>
Sent: May 28, 2021 3:14 PM
To: Olivia Beirnes <OBeirnes@centrewellington.ca>
Subject: Purolator - Your shipment is delivered / Votre envoi a été livré - PIN/NIC:332945301916

Veuillez faire défiler l'écran vers le bas pour afficher la version française.

Your shipment is delivered!

Hi Olivia Beirnes,

As requested by Olivia Beirnes , obeirnes@centrewellington.ca, this message confirms that the shipment(s) have been successfully delivered. We look forward to delivering for you again in the near future!

PIN: 332945301916
Status: Delivered to MISSISSAUGAS OF THE CREDIT,FIR HAGERSVILLE, Ontario
Delivery Date/Time: May 28, 2021 at 13:02
To: MISSISSAUGAS OF THE CREDIT,FIR
City: HAGERSVILLE
Province: Ontario
Tracking Details: https://www.purolator.com/en/ship-track/tracking-details.page?pin=332945301916

This email was sent from our automated inbox. Please do not reply.

From: NotificationService@purolator.com <NotificationService@purolator.com>
Sent: June 1, 2021 3:46 PM
To: Olivia Beirnes <OBeirnes@centrewellington.ca>
Subject: Purolator - Your shipment is delivered / Votre envoi a été livré - PIN/NIC:332945314380

Veuillez faire défiler l'écran vers le bas pour afficher la version française.

Your shipment is delivered!

Hi Olivia Beirnes,

As requested by Olivia Beirnes , obeirnes@centrewellington.ca, this message confirms that the shipment(s) have been successfully delivered. We look forward to delivering for you again in the near future!

PIN: 332945314380
Status: Delivered to HAUDENOSAUNEE CONFEDERACY OHSWEKEN, Ontario
Delivery Date/Time: June 1, 2021 at 12:46
To: HAUDENOSAUNEE CONFEDERACY
City: OHSWEKEN
Province: Ontario
Tracking Details: https://www.purolator.com/en/ship-track/tracking-details.page?pin=332945314380

This email was sent from our automated inbox. Please do not reply.

From: NotificationService@purolator.com <NotificationService@purolator.com>
Sent: May 31, 2021 4:29 PM
To: Olivia Beirnes <OBeirnes@centrewellington.ca>
Subject: Purolator - Your shipment is delivered / Votre envoi a été livré - PIN/NIC:332945283437

Veuillez faire défiler l'écran vers le bas pour afficher la version française.

Your shipment is delivered!

Hi Olivia Beirnes,

As requested by Olivia Beirnes , obeirnes@centrewellington.ca, this message confirms that the shipment(s) have been successfully delivered. We look forward to delivering for you again in the near future!

PIN: 332945283437
Status: Delivered to SIX NATIONS OF THE GRAND RIVER OHSWEKEN, Ontario
Delivery Date/Time: May 31, 2021 at 13:48
To: SIX NATIONS OF THE GRAND RIVER
City: OHSWEKEN
Province: Ontario
Tracking Details: https://www.purolator.com/en/ship-track/tracking-details.page?pin=332945283437

This email was sent from our automated inbox. Please do not reply.

From: NotificationService@purolator.com <NotificationService@purolator.com>
Sent: September 2, 2021 3:06 PM
To: Olivia Beirnes <OBeirnes@centrewellington.ca>
Subject: Purolator - Your shipment is delivered / Votre envoi a été livré - PIN/NIC:333110113805

Veuillez faire défiler l'écran vers le bas pour afficher la version française.

Your shipment is delivered!

Hi Olivia Beirnes,

As requested by Olivia Beirnes , obeirnes@centrewellington.ca, this message confirms that the shipment(s) have been successfully delivered. We look forward to delivering for you again in the near future!

PIN: 333110113805
Status: Delivered to MISSISSAUGAS OF THE CREDIT,FIR HAGERSVILLE, Ontario
Delivery Date/Time: September 2, 2021 at 12:58
To: MISSISSAUGAS OF THE CREDIT,FIR
City: HAGERSVILLE
Province: Ontario
Tracking Details: https://www.purolator.com/en/ship-track/tracking-details.page?pin=333110113805

This email was sent from our automated inbox. Please do not reply.

From: NotificationService@purolator.com <NotificationService@purolator.com>
Sent: September 2, 2021 1:54 PM
To: Olivia Beirnes <OBeirnes@centrewellington.ca>
Subject: Purolator - Your shipment is delivered / Votre envoi a été livré - PIN/NIC:333110105462

Veuillez faire défiler l'écran vers le bas pour afficher la version française.

Your shipment is delivered!

Hi Olivia Beirnes,

As requested by Olivia Beirnes , obeirnes@centrewellington.ca, this message confirms that the shipment(s) have been successfully delivered. We look forward to delivering for you again in the near future!

PIN: 333110105462
Status: Delivered to METIS FIRST NATION OF ONTARIO, OTTAWA, Ontario
Delivery Date/Time: September 2, 2021 at 11:39
To: METIS FIRST NATION OF ONTARIO,
City: OTTAWA
Province: Ontario
Tracking Details: https://www.purolator.com/en/ship-track/tracking-details.page?pin=333110105462

This email was sent from our automated inbox. Please do not reply.

From: NotificationService@purolator.com <NotificationService@purolator.com>
Sent: September 2, 2021 3:31 PM
To: Olivia Beirnes <OBeirnes@centrewellington.ca>
Subject: Purolator - Your shipment is delivered / Votre envoi a été livré - PIN/NIC:333110132441

Veuillez faire défiler l'écran vers le bas pour afficher la version française.

Your shipment is delivered!

Hi Olivia Beirnes,

As requested by Olivia Beirnes , obeirnes@centrewellington.ca, this message confirms that the shipment(s) have been successfully delivered. We look forward to delivering for you again in the near future!

PIN: 333110132441
Status: Delivered to SIX NATIONS OF THE GRAND RIVER OHSWEKEN, Ontario
Delivery Date/Time: September 2, 2021 at 13:36
To: SIX NATIONS OF THE GRAND RIVER
City: OHSWEKEN
Province: Ontario
Tracking Details: https://www.purolator.com/en/ship-track/tracking-details.page?pin=333110132441

This email was sent from our automated inbox. Please do not reply.

From: NotificationService@purolator.com <NotificationService@purolator.com>
Sent: September 2, 2021 3:37 PM
To: Olivia Beirnes <OBeirnes@centrewellington.ca>
Subject: Purolator - Your shipment is delivered / Votre envoi a été livré - PIN/NIC:333110139248

Veuillez faire défiler l'écran vers le bas pour afficher la version française.

Your shipment is delivered!

Hi Olivia Beirnes,

As requested by Olivia Beirnes , obeirnes@centrewellington.ca, this message confirms that the shipment(s) have been successfully delivered. We look forward to delivering for you again in the near future!

PIN: 333110139248
Status: Delivered to HAUDENOSAUNEE CONFEDERACY OHSWEKEN, Ontario
Delivery Date/Time: September 2, 2021 at 13:49
To: HAUDENOSAUNEE CONFEDERACY
City: OHSWEKEN
Province: Ontario
Tracking Details: https://www.purolator.com/en/ship-track/tracking-details.page?pin=333110139248

This email was sent from our automated inbox. Please do not reply.

Purolator — **Purolator Express Pack**

FROM / DE
McIntosh Perry Consulting Eng.
115 WALGREEN RD
CARP, ON
K0A 1L0
613-836-2184 x 2210

REF: CCO-21-3823

TO / A
Ms. Megan DeVries
Mississaugas of the Credit
First Nation
2789 MISSISSAUGA RD
HAGERSVILLE, ON
N0A 1H0

DATE:
01 DEC 2021
PIECES:
1 of/de 1

WEIGHT/POIDS
3 LB

61

EXP

PUROLATOR PIN: 333265185970
ESO - PDF

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Les Modalités et conditions de service publiées de Purolator s'appliquent - voir www.purolator.com.

Fold the Bill of Lading on the dotted line and insert into the adhesive pouch. Attach a Bill of Lading to each package.
Veuillez plier ce connaissement sur la ligne pointillée et l'insérer dans la pochette adhésive. Veuillez joindre un connaissement à chaque colis.

Description: Documents
Declared Value Entered By Sender / Valeur déclarée entrée par l'expéditeur

CONDITIONS OF CARRIAGE

IMPORTANT - PLEASE READ: The consignor agrees that the act of tendering the shipment to the carrier for transportation shall be sufficient to constitute signature of this bill of lading by the consignor and shall bind the consignor to the conditions of carriage stated below.

RECEIPT Carrier acknowledges receiving from the shipper, at the point of origin and on the date specified, the shipment described in this bill of lading in apparent good order, except as noted (contents and conditions of contents of shipment unknown), and agrees to carry and deliver the shipment to the receiver at the destination set out in this bill of lading, subject to payment of all lawful charges. "Carrier" refers to Purolator Inc. and any connecting and/or successive carriers involved in the transportation of the shipment herein described, including any of their respective subsidiaries, controlled entities, and their respective employees, agents and independent contractors.

LIMITATION ON LIABILITY Carrier's liability in respect of the shipment described in this bill of lading (including for any loss, damage, delay, misdelivery, non-delivery or failure to deliver) is limited to $2.00 per pound ($4.41 per kilogram) computed on the total weight of the shipment, unless a higher value is declared in the specially marked Purolator Online Shipping user entry field, "Declared Value for Insurance ($)". Notwithstanding any disclosure of the nature or value of the goods carried or any special agreement to the contrary, carrier is not liable under any circumstances for the consequences of delay, or for any indirect or consequential damages (including lost profits) howsoever caused.

NOTICE OF CLAIM Carrier is not liable for any loss, damage or delay to any goods carried under this bill of lading unless notice of the claim setting out particulars of the origin, destination and date of shipment of the goods and the estimated amount claimed in respect of such loss, damage or delay is given in writing to the carrier within sixty (60) days after the delivery of the goods, or, in the case of failure to make delivery, within nine (9) months from the date of shipment. Subject to any overriding statutory provisions, the final statement of the claim must be filed within nine (9) months from the date of shipment, together with a copy of the paid freight bill. If the Convention applies, other notice periods may govern. No claim will be entertained until all transportation charges due in connection with this bill of lading have been paid in full. All claims are subject to proof of amount of loss.

TERMS INCORPORATED BY REFERENCE Every service to be performed under this bill of lading is subject to the conditions of carriage contained in this bill of lading, including the terms and conditions contained in Purolator Inc.'s published terms and conditions of carriage and the terms and conditions prescribed by the law of the jurisdiction where the goods originate (including the uniform conditions of carriage thereunder, if any). If the carriage involves an ultimate destination or a stop in a country other than the country of departure, the Convention (as defined below) may apply and limit the liability of the carrier in respect of loss of, damage to or delay of cargo. "Convention" means the Convention for the Unification of Certain Rules relating to International Carriage by Air, signed at Warsaw, Poland, 12 October, 1929, or the Convention for the Unification of Certain Rules for International Carriage by Air, signed at Montreal, Canada, 28 May, 1999, or those Conventions as amended or supplemented as may be applicable to the carriage hereunder.

MISCELLANEOUS Unless otherwise indicated, the consignor's name and address is the sender's name and address indicated on this bill of lading, and the latter is the place of execution and the place of departure; the consignee's name and address is the receiver's name and address indicated on this bill of lading, and the latter is the place of destination; and the date indicated on this bill of lading is the date of execution. There are no specific stopping places which are agreed to, and the carrier reserves the right to select the route and the mode of transportation that the carrier deems appropriate. The consignor warrants that the shipment is properly described on this bill of lading and on any accompanying documentation, and that the shipment is properly marked, addressed and packed to ensure safe transportation in accordance with the carrier's ordinary care in handling. Unless otherwise indicated on this bill of lading, the consignor waives its right to determine the volume or dimensions of the shipment, and to indicate same on this bill of lading. The consignor appoints the carrier as its agent for the performance of customs clearance and selecting a customs broker.

ENTIRE AGREEMENT The terms and conditions contained in this bill of lading, including those incorporated herein by reference, constitute the entire agreement relating to the carriage of the shipment described in this bill of lading, and no agent, servant or representative of the carrier or consignor has the authority to alter, waive or otherwise modify any provision of this agreement. In tendering the shipment described herein for carriage, the consignor agrees to these terms and conditions on his own behalf and on behalf of the consignee and any other party claiming an interest in this shipment.

Purolator — **Purolator Express Pack**

FROM / DE
McIntosh Perry Consulting Eng.
115 WALGREEN RD
CARP, ON
K0A 1L0
613-836-2184 x 2210

REF: PCO-21-3893

TO / A
Ms. Fawn Sault
Mississaugas of the Credit
First Nation
2789 MISSISSAUGA RD
HAGERSVILLE, ON
N0A 1H0

DATE:
01 DEC 2021
PIECES:
1 of/de 1

WEIGHT/POIDS
3 LB

61

EXP

PUROLATOR PIN: 333265174008
ESO - PDF

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Les Modalités et conditions de service publiées de Purolator s'appliquent - voir www.purolator.com.

Fold the Bill of Lading on the dotted line and insert into the adhesive pouch. Attach a Bill of Lading to each package.
Veuillez plier ce connaissement sur la ligne pointillée et l'insérer dans la pochette adhésive. Veuillez joindre un connaissement à chaque colis.

Description: Documents
Declared Value Entered By Sender / Valeur déclarée entrée par l'expéditeur

CONDITIONS OF CARRIAGE

IMPORTANT - PLEASE READ: The consignor agrees that the act of tendering the shipment to the carrier for transportation shall be sufficient to constitute signature of this bill of lading by the consignor and shall bind the consignor to the conditions of carriage stated below.

RECEIPT Carrier acknowledges receiving from the shipper, at the point of origin and on the date specified, the shipment described in this bill of lading in apparent good order, except as noted (contents and conditions of contents of shipment unknown), and agrees to carry and deliver the shipment to the receiver at the destination set out in this bill of lading, subject to payment of all lawful charges. "Carrier" refers to Purolator Inc. and any connecting and/or successive carriers involved in the transportation of the shipment herein described, including any of their respective subsidiaries, controlled entities, and their respective employees, agents and independent contractors.

LIMITATION ON LIABILITY Carrier's liability in respect of the shipment described in this bill of lading (including for any loss, damage, delay, misdelivery, non-delivery or failure to deliver) is limited to $2.00 per pound ($4.41 per kilogram) computed on the total weight of the shipment, unless a higher value is declared in the specially marked Purolator Online Shipping user entry field, "Declared Value for Insurance ($)". Notwithstanding any disclosure of the nature or value of the goods carried or any special agreement to the contrary, carrier is not liable under any circumstances for the consequences of delay, or for any indirect or consequential damages (including lost profits) howsoever caused.

NOTICE OF CLAIM Carrier is not liable for any loss, damage or delay to any goods carried under this bill of lading unless notice of the claim setting out particulars of the origin, destination and date of shipment of the goods and the estimated amount claimed in respect of such loss, damage or delay is given in writing to the carrier within sixty (60) days after the delivery of the goods, or, in the case of failure to make delivery, within nine (9) months from the date of shipment. Subject to any overriding statutory provisions, the final statement of the claim must be filed within nine (9) months from the date of shipment, together with a copy of the paid freight bill. If the Convention applies, other notice periods may govern. No claim will be entertained until all transportation charges due in connection with this bill of lading have been paid in full. All claims are subject to proof of amount of loss.

TERMS INCORPORATED BY REFERENCE Every service to be performed under this bill of lading is subject to the conditions of carriage contained in this bill of lading, including the terms and conditions contained in Purolator Inc.'s published terms and conditions of carriage and the terms and conditions prescribed by the law of the jurisdiction where the goods originate (including the uniform conditions of carriage thereunder, if any). If the carriage involves an ultimate destination or a stop in a country other than the country of departure, the Convention (as defined below) may apply and limit the liability of the carrier in respect of loss of, damage to or delay of cargo. "Convention" means the Convention for the Unification of Certain Rules relating to International Carriage by Air, signed at Warsaw, Poland, 12 October, 1929, or the Convention for the Unification of Certain Rules for International Carriage by Air, signed at Montreal, Canada, 28 May, 1999, or those Conventions as amended or supplemented as may be applicable to the carriage hereunder.

MISCELLANEOUS Unless otherwise indicated, the consignor's name and address is the sender's name and address indicated on this bill of lading, and the latter is the place of execution and the place of departure; the consignee's name and address is the receiver's name and address indicated on this bill of lading, and the latter is the place of destination; and the date indicated on this bill of lading is the date of execution. There are no specific stopping places which are agreed to, and the carrier reserves the right to select the route and the mode of transportation that the carrier deems appropriate. The consignor warrants that the shipment is properly described on this bill of lading and on any accompanying documentation, and that the shipment is properly marked, addressed and packed to ensure safe transportation in accordance with the carrier's ordinary care in handling. Unless otherwise indicated on this bill of lading, the consignor waives its right to determine the volume or dimensions of the shipment, and to indicate same on this bill of lading. The consignor appoints the carrier as its agent for the performance of customs clearance and selecting a customs broker.

ENTIRE AGREEMENT The terms and conditions contained in this bill of lading, including those incorporated herein by reference, constitute the entire agreement relating to the carriage of the shipment described in this bill of lading, and no agent, servant or representative of the carrier or consignor has the authority to alter, waive or otherwise modify any provision of this agreement. In tendering the shipment described herein for carriage, the consignor agrees to these terms and conditions on his own behalf and on behalf of the consignee and any other party claiming an interest in this shipment.

Purolator — **Purolator Express Pack**

FROM / DE
McIntosh Perry Consulting Eng.
115 WALGREEN RD
CARP, ON
K0A 1L0
613-836-2184 x 2210

REF: CCO-21-3823

TO / A
Mr. Lonny Bomberry
Six Nations of the Grand River
1695 CHIEFSWOOD RD
OHSWEKEN, ON
N0A 1M0

DATE: 01 DEC 2021
PIECES: 1 of/de 1
WEIGHT/POIDS: **3 LB**

64

EXP

PUROLATOR PIN: 333265195813

ESO - PDF

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Les Modalités et conditions de service publiées de Purolator s'appliquent - voir www.purolator.com.

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Veuillez plier ce connaissement sur la ligne pointillée et insérer dans la pochette adhésive. Veuillez joindre un connaissement à chaque colis.

Description: Documents
Declared Value Entered By Sender / Valeur déclarée entrée par l'expéditeur

CONDITIONS OF CARRIAGE

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LIMITATION ON LIABILITY Carrier's liability in respect of the shipment described in this bill of lading (including for any loss, damage, delay, misdelivery, non-delivery or failure to deliver) is limited to $2.00 per pound ($4.41 per kilogram) computed on the total weight of the shipment, unless a higher value is declared in the specially marked Purolator Online Shipping user entry field, "Declared Value for Insurance ($)". Notwithstanding any disclosure of the nature or value of the goods carried or any special agreement to the contrary, carrier is not liable under any circumstances for the consequences of delay, or for any indirect or consequential damages (including lost profits) howsoever caused.

NOTICE OF CLAIM Carrier is not liable for any loss, damage or delay to any goods carried under this bill of lading unless notice of the claim setting out particulars of the origin, destination and date of shipment of the goods and the estimated amount claimed in respect of such loss, damage or delay is given in writing to the carrier within sixty (60) days after the delivery of the goods, or, in the case of failure to make delivery, within nine (9) months from the date of shipment. Subject to any overriding statutory provisions, the final statement of the claim must be filed within nine (9) months from the date of shipment, together with a copy of the paid freight bill. If the Convention applies, other notice periods may govern. No claim will be entertained until all transportation charges due in connection with this bill of lading have been paid in full. All claims are subject to proof of amount of loss.

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Purolator — **Purolator Express Pack**

FROM / DE
McIntosh Perry Consulting Eng.
115 WALGREEN RD
CARP, ON
K0A 1L0
613-836-2184 x 2210

REF: CCO-21-3823

TO / A
Haudenosaunee Confederacy
16 SUNRISE CRT
SUITE 600
OHSWEKEN, ON
N0A 1M0

519-445-4222

DATE: 01 DEC 2021
PIECES: 1 of/de 1
WEIGHT/POIDS: **3 LB**

64

EXP

PUROLATOR PIN: 333265318134

ESO - PDF

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Veuillez plier ce connaissement sur la ligne pointillée et insérer dans la pochette adhésive. Veuillez joindre un connaissement à chaque colis.

Description: Documents
Declared Value Entered By Sender / Valeur déclarée entrée par l'expéditeur

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FROM / DE
McIntosh Perry Consulting Eng.
115 WALGREEN RD
CARP, ON
K0A 1L0
613-836-2184 x 2210

REF: CCO-21-3823

TO / A
Mr. Mark Laforme
Mississaugas of the Credit
First Nation
2789 Mississauga RD
HAGERSVILLE, ON
N0A 1H0

DATE: 01 DEC 2021
PIECES: 1 of/de 1
WEIGHT/POIDS: **3 LB**

61

EXP

PUROLATOR PIN: 333265036843

ESO - PDF

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Description: Documents
Declared Value Entered By Sender / Valeur déclarée entrée par l'expéditeur

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Purolator — **Purolator Express Pack**

FROM / DE
McIntosh Perry Consulting Eng.
115 WALGREEN RD
CARP, ON
K0A 1L0
613-836-2184 x 2210

REF: CCO-21-3823

TO / A
Chief R. Stacey LaForme
Mississaugas of the Credit
First Nation
2789 MISSISSAUGA RD
HAGERSVILLE, ON
N0A 1H0

DATE: 01 DEC 2021
PIECES: 1 of/de 1
WEIGHT/POIDS: **3 LB**

61

EXP

PUROLATOR PIN: 333265249826

ESO - PDF

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Description: Documents
Declared Value Entered By Sender / Valeur déclarée entrée par l'expéditeur

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Purolator — **Purolator Express Pack**

FROM / DE
McIntosh Perry Consulting Eng.
115 WALGREEN RD
CARP, ON
K0A 1L0
613-836-2184 x 2210

REF: CCO-21-3823

TO / A
Chief Mark B. Hill
Six Nations of the Grand River
1695 CHIEFSWOOD RD
OHSWEKEN, ON
N0A 1M0

DATE: 01 DEC 2021
PIECES: 1 of/de 1
WEIGHT/POIDS: **3 LB**

64

EXP

PUROLATOR PIN: 333265237532

ESO - PDF

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Description: Documents
Declared Value Entered By Sender / Valeur déclarée entrée par l'expéditeur

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FROM / DE
McIntosh Perry Consulting Eng.
115 WALGREEN RD
CARP, ON
K0A 1L0
613-836-2184 x 2210

REF: PCO-21-3893

TO / A
Mr. Robbin Vanstone
Six Nations of the Grand River
1695 CHIEFSWOOD RD
OHSWEKEN, ON
N0A 1M0

DATE: 01 DEC 2021
PIECES: 1 of/de 1
WEIGHT/POIDS: **3 LB**

64

EXP

PUROLATOR PIN: 333265081179

ESO - PDF

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Consultation Comments/Responses

Consultation Comments/Responses

From: Adam Gilmore <AGilmore@centrewellington.ca>
Sent: May 25, 2021 12:58 PM
To: Trevor Heywood <theywood@grandriver.ca>
Cc: Lisa Marshall <l.marshall@mcintoshperry.com>
Subject: RE: 5th Line Bridge Class EA

Hi Trevor,

Thanks for the response, and we can appreciate the GRCA's interest in this study. We will certainly keep you updated as the project progresses.

Best regards,
Adam

Adam Gilmore, M.A.Sc., P.Eng. | Manager of Engineering

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0
519.846.9691 x301 centrewellington.ca

Office located at: 7444 Wellington Road 21, Elora, ON N0B 1S0

From: Trevor Heywood <theywood@grandriver.ca>
Sent: May 21, 2021 12:00 PM
To: Adam Gilmore <AGilmore@centrewellington.ca>
Cc: Lisa Marshall <l.marshall@mcintoshperry.com>
Subject: 5th Line Bridge Class EA

Hi Adam,

Please see the attached letter regarding the Bridge 16-WG Class Environmental Assessment.

Regards,

Trevor Heywood
Resource Planner
Grand River Conservation Authority
519-621-2763 x2292 | theywood@grandriver.ca

Administration Centre: 400 Clyde Road, P.O. Box 729 Cambridge, ON N1R 5W6
Phone: 519-621-2761 Toll free: 1-866-900-4722 Fax: 519-621-4844 www.grandriver.ca

May 21, 2021

Adam Gilmore
Manager of Engineering
Township of Centre Wellington
1 MacDonald Square
Elora ON N0B 1S0
agilmore@centrewellington.ca

Re: Notice of Study Commencement
Bridge 16-WG Class Environmental Assessment
Township of Centre Wellington

Dear Mr. Gilmore,

The Grand River Conservation Authority (GRCA) has received the Notice of Commencement for the above-noted Class Environmental Assessment (Class EA).

The study area contains Irvine Creek, as well as associated its floodplain and valley slopes. As the Class EA may propose measures that have the potential to impact these regulated features, the GRCA wishes to stay involved as the Class EA process moves forward.

As such, the GRCA wishes to stay involved as the Class EA process moves forward. Please include the GRCA on the Project mailing list. If you have any questions or require additional information, please contact me at 519-621-2763 ext. 2292 or theywood@grandriver.ca.

Sincerely,

Trevor Heywood
Resource Planner
Grand River Conservation Authority

Attachment

c.c. Lisa Marshall, McIntosh Perry

Map Centre (UTM NAD83 z17): 552,257.26 4,847,553.22

This map is not to be used for navigation | 2015 Ortho (ON)

Grand River Conservation Authority

Date: May 21, 2021
Author: TH

5th Line Bridge, Centre Wellington

Legend

- Regulation Limit (GRCA)
- Regulated Watercourse (GRCA)
- Regulated Waterbody (GRCA)
- Wetland (GRCA)
- Floodplain (GRCA)
  - Engineered
  - Estimated
  - Approximate
  - Special Policy Area
- Slope Valley (GRCA)
  - Steep
  - Oversteep
  - Steep
- Slope Erosion (GRCA)
  - Oversteep
  - Toe
- Lake Erie Flood (GRCA)
- Lake Erie Shoreline Reach (GRCA)
- Lake Erie Dynamic Beach (GRCA)
- Lake Erie Erosion (GRCA)
- Parcel - Assessment (MPAC/MNRF)

This legend is static and may not fully reflect the layers shown on the map. The text of Ontario Regulation 150/06 supercedes the mapping as represented by these layers.

The source for each data layer is shown in parentheses in the map legend. For a complete listing of sources and citations go to: https://maps.grandriver.ca/Sources-and-Citations.pdf

0 12.5 25 50 75 Metres

N

NAD 1983 UTM Zone 17N

Scale: 2,071

From: Del Villar Cuicas, Joan (MECP) <Joan.DelVillarCuicas@ontario.ca>
Sent: May 25, 2021 12:42 PM
To: Adam Gilmore <AGilmore@centrewellington.ca>
Cc: Lisa Marshall <l.marshall@mcintoshperry.com>; Potter, Katy (MECP) <Katy.Potter@ontario.ca>
Subject: RE: Centre Wellington, Township of - MEA Class EA, Study for Bridge 16-WG

Good afternoon Adam,

Please see attached Acknowledgement letter and attachments.

Thanks,

Joan

Joan Del Villar Cuicas
Environmental Resource Planner & Environmental Assessment Coordinator
Project Review Unit | Environmental Assessment Branch
Ontario Ministry of the Environment, Conservation and Parks
Joan.delvillarcuicas@ontario.ca | Phone: 365-889-1180

From: Lisa Marshall <l.marshall@mcintoshperry.com>
Sent: May 20, 2021 9:08 AM
To: EA Notices to WCRegion (MECP) <eanotification.wcregion@ontario.ca>
Cc: Adam Gilmore <AGilmore@centrewellington.ca>; Lisa Marshall <l.marshall@mcintoshperry.com>; Jennifer Cavanagh <j.cavanagh@mcintoshperry.com>; Sarah Peters <s.peters@mcintoshperry.com>
Subject: Centre Wellington, Township of - MEA Class EA, Study for Bridge 16-WG

CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.

Hello,

Please find the attached Notice of Study Commencement Letter for the Municipal Class Environmental Assessment Study currently being undertaken by the Township of Centre Wellington for Bridge 16-WG and EA Project Information Form.

Thank you,

Lisa Marshall, P.Eng.
Manager, Environmental Engineering
115 Walgreen Road, R.R. 3, Carp, ON K0A 1L0
T. 613.714.0815 | **F.** 613.836.3742 | **C.** 613.852.1148
l.marshall@mcintoshperry.com | www.mcintoshperry.com
McINTOSH PERRY

Ministry of the Environment, Conservation and Parks

Environmental Assessment Branch

1st Floor
135 St. Clair Avenue W
Toronto ON M4V 1P5
Tel.: 416 314-8001
Fax.: 416 314-8452

Ministère de l'Environnement, de la Protection de la nature et des Parcs

Direction des évaluations environnementales

Rez-de-chaussée
135, avenue St. Clair Ouest
Toronto ON M4V 1P5
Tél. : 416 314-8001
Téléc. : 416 314-8452

Ontario

May 25, 2021

Adam Gilmore
Manager of Engineering
Township of Centre Wellington

Re: **Municipal Class Environmental Assessment Study for Bridge 16-WG**
Township of West Garafraxa, Centre Wellington
Municipal Class EA
Response to Notice of Commencement

Dear Adam Gilmore,

This letter is in response to the Notice of Commencement for the above noted project. The Ministry of the Environment, Conservation and Parks (MECP) acknowledges that the Township of Centre of Wellington has indicated that the study is following the approved environmental planning process for a Schedule B project under the Municipal Class Environmental Assessment (Class EA).

The **updated (February 2021)** attached "Areas of Interest" document provides guidance regarding the ministry's interests with respect to the Class EA process. Please address all areas of interest in the EA documentation at an appropriate level for the EA study. Proponents who address all the applicable areas of interest can minimize potential delays to the project schedule. **Further information is provided at the end of the Areas of Interest document relating to recent changes to the Environmental Assessment Act through Bill 197, Covid-19 Economic Recovery Act 2020.**

The Crown has a legal duty to consult Aboriginal communities when it has knowledge, real or constructive, of the existence or potential existence of an Aboriginal or treaty right and contemplates conduct that may adversely impact that right. Before authorizing this project, the Crown must ensure that its duty to consult has been fulfilled, where such a duty is triggered. Although the duty to consult with Aboriginal peoples is a duty of the Crown, the Crown may delegate procedural aspects of this duty to project proponents while retaining oversight of the consultation process.

The proposed project may have the potential to affect Aboriginal or treaty rights protected under Section 35 of Canada's *Constitution Act* 1982. Where the Crown's duty to consult is triggered in relation to the proposed project**, the MECP is delegating the procedural aspects of rights-based consultation to the proponent through this letter.** The Crown intends to rely on the delegated consultation process in discharging its duty to consult and maintains the right to participate in the consultation process as it sees fit.

Based on information provided to date and the Crown`s preliminary assessment the proponent is required to consult with the following communities who have been identified as potentially affected by the proposed project:

- Mississaugas of the Credit First Nation
- Six Nations of the Grand River (both Elected Council and Haudenosaunee Confederacy Chiefs Council)

Steps that the proponent may need to take in relation to Aboriginal consultation for the proposed project are outlined in the "Code of Practice for Consultation in Ontario's Environmental Assessment Process". Additional information related to Ontario's Environmental Assessment Act is available online at: www.ontario.ca/environmentalassessments.

Please also refer to the attached document "A Proponent's Introduction to the Delegation of Procedural Aspects of consultation with Aboriginal Communities" for further information, including the MECP's expectations for EA report documentation related to consultation with communities.

The proponent must contact the Director of Environmental Assessment Branch (EABDirector@ontario.ca) under the following circumstances subsequent to initial discussions with the communities identified by MECP:

- Aboriginal or treaty rights impacts are identified to you by the communities
- You have reason to believe that your proposed project may adversely affect an Aboriginal or treaty right
- Consultation with Indigenous communities or other stakeholders has reached an impasse
- A Part II Order request is expected on the basis of impacts to Aboriginal or treaty rights

The MECP will then assess the extent of any Crown duty to consult for the circumstances and will consider whether additional steps should be taken, including what role you will be asked to play should additional steps and activities be required.

A draft copy of the report should be sent directly to me prior to the filing of the final report, allowing a minimum of 30 days for the ministry's technical reviewers to provide comments.

Please also ensure a copy of the final notice is sent to the ministry's West Central Region EA notification email account (eanotification.wcregion@ontario.ca) after the draft report is reviewed and finalized.

Should you or any members of your project team have any questions regarding the material above, please contact me at joan.delvillarcuicas@ontario.ca or at 365-889-1180.

Yours truly,

Joan Del Villar C
Regional Environmental Assessment Coordinator – West Central Region

cc Katy Potter, Supervisor, Environmental Assessment Services, MECP
Lisa Marshall, Consultant Project Manager, McIntosh Perry Consulting Engineers Ltd.

Attach: Areas of Interest
A Proponent's Introduction to the Delegation of Procedural Aspects of Consultation with Aboriginal Communities

AREAS OF INTEREST (v. February 2021)

It is suggested that you check off each section after you have considered / addressed it.

☐ **Planning and Policy**

- Projects located in MECP Central Region are subject to **A Place to Grow: Growth Plan for the Greater Golden Horseshoe (2020).** Parts of the study area may also be subject to the Oak Ridges Moraine Conservation Plan (2017), Niagara Escarpment Plan (2017), Greenbelt Plan (2017) or Lake Simcoe Protection Plan (2014). Applicable plans and the applicable policies should be identified in the report, and the proponent should describe how the proposed project adheres to the relevant policies in these plans.

- The **Provincial Policy Statement (2020)** contains policies that protect Ontario's natural heritage and water resources. Applicable policies should be referenced in the report, and the proponent should describe how the proposed project is consistent with these policies.

- In addition to the provincial planning and policy level, the report should also discuss the planning context at the municipal and federal levels, as appropriate.

☐ **Source Water Protection**

The *Clean Water Act*, 2006 (CWA) aims to protect existing and future sources of drinking water. To achieve this, several types of vulnerable areas have been delineated around surface water intakes and wellheads for every municipal residential drinking water system that is located in a source protection area. These vulnerable areas are known as a Wellhead Protection Areas (WHPAs) and surface water Intake Protection Zones (IPZs). Other vulnerable areas that have been delineated under the CWA include Highly Vulnerable Aquifers (HVAs), Significant Groundwater Recharge Areas (SGRAs), Event-based modelling areas (EBAs), and Issues Contributing Areas (ICAs). Source protection plans have been developed that include policies to address existing and future risks to sources of municipal drinking water within these vulnerable areas.

Projects that are subject to the Environmental Assessment Act that fall under a Class EA, or one of the Regulations, have the potential to impact sources of drinking water if they occur in designated vulnerable areas or in the vicinity of other at-risk drinking water systems (i.e. systems that are not municipal residential systems). MEA Class EA projects may include activities that, if located in a vulnerable area, could be a threat to sources of drinking water (i.e. have the potential to adversely affect the quality or quantity of drinking water sources) and the activity could therefore be subject to policies in a source protection plan. Where an activity poses a risk to drinking water, policies in the local source protection plan may impact how or where that activity is undertaken. Policies may prohibit certain activities, or they may require risk management measures for these activities. Municipal Official Plans, planning decisions, Class EA projects (where the project includes an activity that is a threat to drinking water) and prescribed instruments must conform with policies that address significant risks to drinking water and must have regard for policies that address moderate or low risks.

- In October 2015, the MEA Parent Class EA document was amended to include reference to the Clean Water Act (Section A.2.10.6) and indicates that proponents undertaking a Municipal Class EA project must identify early in their process whether a project is or could potentially be occurring with a vulnerable area. **Given this requirement, please include a section in the report on source water protection.**

    - The proponent should identify the source protection area and should clearly document how the proximity of the project to sources of drinking water (municipal or other) and any delineated vulnerable areas was considered and assessed. Specifically, the report should discuss whether or not the project is located in a vulnerable area and provide applicable details about the area.

- If located in a vulnerable area, proponents should document whether any project activities are prescribed drinking water threats and thus pose a risk to drinking water (this should be consulted on with the appropriate Source Protection Authority). Where an activity poses a risk to drinking water, the proponent must document and discuss in the report how the project adheres to or has regard to applicable policies in the local source protection plan. This section should then be used to inform and be reflected in other sections of the report, such as the identification of net positive/negative effects of alternatives, mitigation measures, evaluation of alternatives etc.

- While most source protection plans focused on including policies for significant drinking water threats in the WHPAs and IPZs it should be noted that even though source protection plan policies may not apply in HVAs, these are areas where aquifers are sensitive and at risk to impacts and within these areas, activities may impact the quality of sources of drinking water for systems other than municipal residential systems.

- In order to determine if this project is occurring within a vulnerable area, proponents can use this mapping tool: http://www.applications.ene.gov.on.ca/swp/en/index.php. Note that various layers (including WHPAs, WHPA-Q1 and WHPA-Q2, IPZs, HVAs, SGRAs, EBAs, ICAs) can be turned on through the "Map Legend" bar on the left. The mapping tool will also provide a link to the appropriate source protection plan in order to identify what policies may be applicable in the vulnerable area.

- For further information on the maps or source protection plan policies which may relate to their project, proponents must contact the appropriate source protection authority. **Please consult with the local source protection authority to discuss potential impacts on drinking water. Please document the results of that consultation within the report and include all communication documents/correspondence.**

More Information
For more information on the *Clean Water Act*, source protection areas and plans, including specific information on the vulnerable areas and drinking water threats, please refer to Conservation Ontario's website where you will also find links to the local source protection plan/assessment report.

A list of the prescribed drinking water threats can be found in section 1.1 of Ontario Regulation 287/07 made under the *Clean Water Act*. In addition to prescribed drinking water threats, some source protection plans may include policies to address additional "local" threat activities, as approved by the MECP.

☐ **Climate Change**

The document "Considering Climate Change in the Environmental Assessment Process" (Guide) is now a part of the Environmental Assessment program's Guides and Codes of Practice. The Guide sets out the MECP's expectation for considering climate change in the preparation, execution and documentation of environmental assessment studies and processes. The guide provides examples, approaches, resources, and references to assist proponents with consideration of climate change in EA. Proponents should review this Guide in detail.

- **The MECP expects proponents of Class EA projects to:**

  1. Consider during the assessment of alternative solutions and alternative designs, the following:
     a. the project's expected production of greenhouse gas emissions and impacts on carbon sinks (climate change mitigation); and
     b. resilience or vulnerability of the undertaking to changing climatic conditions (climate change adaptation).
  2. Include a discrete section in the report detailing how climate change was considered in the EA.

How climate change is considered can be qualitative or quantitative in nature and should be scaled to the project's level of environmental effect. In all instances, both a project's impacts on climate change (mitigation) and impacts of climate change on a project (adaptation) should be considered.

- The MECP has also prepared another guide to support provincial land use planning direction related to the completion of energy and emission plans. The "Community Emissions Reduction Planning: A Guide for Municipalities" document is designed to educate stakeholders on the municipal opportunities to reduce energy and greenhouse gas emissions, and to provide guidance on methods and techniques to incorporate consideration of energy and greenhouse gas emissions into municipal activities of all types. We encourage you to review the Guide for information.

Air Quality, Dust and Noise

- If there are sensitive receptors in the surrounding area of this project, a quantitative air quality/odour impact assessment will be useful to evaluate alternatives, determine impacts and identify appropriate mitigation measures. The scope of the assessment can be determined based on the potential effects of the proposed alternatives, and typically includes source and receptor characterization and a quantification of local air quality impacts on the sensitive receptors and the environment in the study area. The assessment will compare to all applicable standards or guidelines for all contaminants of concern. **Please contact this office for further consultation on the level of Air Quality Impact Assessment required for this project if not already advised.**

- If a quantitative Air Quality Impact Assessment is not required for the project, the MECP expects that the report contain a qualitative assessment which includes:

    - A discussion of local air quality including existing activities/sources that significantly impact local air quality and how the project may impact existing conditions;
    - A discussion of the nearby sensitive receptors and the project's potential air quality impacts on present and future sensitive receptors;
    - A discussion of local air quality impacts that could arise from this project during both construction and operation; and
    - A discussion of potential mitigation measures.

- As a common practice, "air quality" should be used an evaluation criterion for all road projects.

- Dust and noise control measures should be addressed and included in the construction plans to ensure that nearby residential and other sensitive land uses within the study area are not adversely affected during construction activities.

- The MECP recommends that non-chloride dust-suppressants be applied. For a comprehensive list of fugitive dust prevention and control measures that could be applied, refer to *Cheminfo Services Inc. Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities* report prepared for Environment Canada. March 2005.

- The report should consider the potential impacts of increased noise levels during the operation of the completed project. The proponent should explore all potential measures to mitigate significant noise impacts during the assessment of alternatives.

Ecosystem Protection and Restoration

- Any impacts to ecosystem form and function must be avoided where possible. The report should describe any proposed mitigation measures and how project planning will protect and enhance the local ecosystem.

- Natural heritage and hydrologic features should be identified and described in detail to assess potential impacts and to develop appropriate mitigation measures. The following sensitive environmental features may be located within or adjacent to the study area:
    - Key Natural Heritage Features: Habitat of endangered species and threatened species, fish habitat, wetlands, areas of natural and scientific interest (ANSIs), significant valleylands,

significant woodlands; significant wildlife habitat (including habitat of special concern species); sand barrens, savannahs, and tallgrass prairies; and alvars.
  - Key Hydrologic Features: Permanent streams, intermittent streams, inland lakes and their littoral zones, seepage areas and springs, and wetlands.
  - Other natural heritage features and areas such as: vegetation communities, rare species of flora or fauna, Environmentally Sensitive Areas, Environmentally Sensitive Policy Areas, federal and provincial parks and conservation reserves, Greenland systems etc.

We recommend consulting with the Ministry of Natural Resources and Forestry (MNRF), Fisheries and Oceans Canada (DFO) and your local conservation authority to determine if special measures or additional studies will be necessary to preserve and protect these sensitive features. In addition, you may consider the provisions of the Rouge Park Management Plan if applicable.

- **Species at Risk**

- The Ministry of the Environment, Conservation and Parks has now assumed responsibility of Ontario's Species at Risk program. Information, standards, guidelines, reference materials and technical resources to assist you are found at https://www.ontario.ca/page/species-risk.

- The Client's Guide to Preliminary Screening for Species at Risk (Draft May 2019) has been attached to the covering email for your reference and use. Please review this document for next steps.

- For any questions related to subsequent permit requirements, please contact SAROntario@ontario.ca.

- **Surface Water**

- The report must include enough information to demonstrate that there will be no negative impacts on the natural features or ecological functions of any watercourses within the study area. Measures should be included in the planning and design process to ensure that any impacts to watercourses from construction or operational activities (e.g. spills, erosion, pollution) are mitigated as part of the proposed undertaking.

- Additional stormwater runoff from new pavement can impact receiving watercourses and flood conditions. Quality and quantity control measures to treat stormwater runoff should be considered for all new impervious areas and, where possible, existing surfaces. The ministry's Stormwater Management Planning and Design Manual (2003) should be referenced in the report and utilized when designing stormwater control methods. **A Stormwater Management Plan should be prepared as part of the Class EA process** that includes:

  - Strategies to address potential water quantity and erosion impacts related to stormwater draining into streams or other sensitive environmental features, and to ensure that adequate (enhanced) water quality is maintained
  - Watershed information, drainage conditions, and other relevant background information
  - Future drainage conditions, stormwater management options, information on erosion and sediment control during construction, and other details of the proposed works
  - Information on maintenance and monitoring commitments.

- Ontario Regulation 60/08 under the *Ontario Water Resources Act* (OWRA) applies to the Lake Simcoe Basin, which encompasses Lake Simcoe and the lands from which surface water drains into Lake Simcoe. If the proposed sewage treatment plant is listed in Table 1 of the regulation, the report should describe how the proposed project and its mitigation measures are consistent with the requirements of this regulation and the OWRA.

- Any potential approval requirements for surface water taking or discharge should be identified in the report. A Permit to Take Water (PTTW) under the OWRA will be required for any water takings that exceed 50,000 L/day, except for certain water taking activities that have been prescribed by the Water Taking EASR Regulation – *O. Reg. 63/16*. These prescribed water-taking activities require registration in the EASR instead of a PTTW. Please review the Water Taking User Guide for EASR for more information. Additionally, an Environmental Compliance Approval under the OWRA is required for municipal stormwater management works.

Groundwater

- The status of, and potential impacts to any well water supplies should be addressed. If the project involves groundwater takings or changes to drainage patterns, the quantity and quality of groundwater may be affected due to drawdown effects or the redirection of existing contamination flows. In addition, project activities may infringe on existing wells such that they must be reconstructed or sealed and abandoned. Appropriate information to define existing groundwater conditions should be included in the report.

- If the potential construction or decommissioning of water wells is identified as an issue, the report should refer to Ontario Regulation 903, Wells, under the OWRA.

- Potential impacts to groundwater-dependent natural features should be addressed. Any changes to groundwater flow or quality from groundwater taking may interfere with the ecological processes of streams, wetlands or other surficial features. In addition, discharging contaminated or high volumes of groundwater to these features may have direct impacts on their function. Any potential effects should be identified, and appropriate mitigation measures should be recommended. The level of detail required will be dependent on the significance of the potential impacts.

- Any potential approval requirements for groundwater taking or discharge should be identified in the report. A Permit to Take Water (PTTW) under the OWRA will be required for any water takings that exceed 50,000 L/day, with the exception of certain water taking activities that have been prescribed by the Water Taking EASR Regulation – *O. Reg. 63/16*. These prescribed water-taking activities require registration in the EASR instead of a PTTW. Please review the Water Taking User Guide for EASR for more information.

- Consultation with the railroad authorities is necessary wherever there is a plan to use construction dewatering in the vicinity of railroad lines or where the zone of influence of the construction dewatering potentially intercepts railroad lines.

Excess Materials Management

- In December 2019, MECP released a new regulation under the Environmental Protection Act, titled "On-Site and Excess Soil Management" (O. Reg. 406/19) to support improved management of excess construction soil. This regulation is a key step to support proper management of excess soils, ensuring valuable resources don't go to waste and to provide clear rules on managing and reusing excess soil. New risk-based standards referenced by this regulation help to facilitate local beneficial reuse which in turn will reduce greenhouse gas emissions from soil transportation, while ensuring strong protection of human health and the environment. The new regulation is being phased in over time, with the first phase in effect on January 1, 2021. For more information, please visit https://www.ontario.ca/page/handling-excess-soil.

- The report should reference that activities involving the management of excess soil should be completed in accordance with O. Reg. 406/19 and the MECP's current guidance document titled "Management of Excess Soil – A Guide for Best Management Practices" (2014).

- All waste generated during construction must be disposed of in accordance with ministry requirements

Contaminated Sites

- Any current or historical waste disposal sites should be identified in the report. The status of these sites should be determined to confirm whether approval pursuant to Section 46 of the EPA may be required for land uses on former disposal sites. We recommend referring to the MECP's D-4 guideline for land use considerations near landfills and dumps.
    - Resources available may include regional/local municipal official plans and data; provincial data on large landfill sites and small landfill sites; Environmental Compliance Approval information for waste disposal sites on Access Environment.

- Other known contaminated sites (local, provincial, federal) in the study area should also be identified in the report (Note – information on federal contaminated sites is found on the Government of Canada's website).

- The location of any underground storage tanks should be investigated in the report. Measures should be identified to ensure the integrity of these tanks and to ensure an appropriate response in the event of a spill. The ministry's Spills Action Centre must be contacted in such an event.

- Since the removal or movement of soils may be required, appropriate tests to determine contaminant levels from previous land uses or dumping should be undertaken. If the soils are contaminated, you must determine how and where they are to be disposed of, consistent with *Part XV.1 of the Environmental Protection Act* (EPA) and Ontario Regulation 153/04, Records of Site Condition, which details the new requirements related to site assessment and clean up. Please contact the appropriate MECP District Office for further consultation if contaminated sites are present.

Servicing, Utilities and Facilities

- The report should identify any above or underground utilities in the study area such as transmission lines, telephone/internet, oil/gas etc. The owners should be consulted to discuss impacts to this infrastructure, including potential spills.

- The report should identify any servicing infrastructure in the study area such as wastewater, water, stormwater that may potentially be impacted by the project.

- Any facility that releases emissions to the atmosphere, discharges contaminants to ground or surface water, provides potable water supplies, or stores, transports or disposes of waste must have an Environmental Compliance Approval (ECA) before it can operate lawfully. Please consult with MECP's Environmental Permissions Branch to determine whether a new or amended ECA will be required for any proposed infrastructure.

- We recommend referring to the ministry's environmental land use planning guides to ensure that any potential land use conflicts are considered when planning for any infrastructure or facilities related to wastewater, pipelines, landfills or industrial uses.

Mitigation and Monitoring

- Contractors must be made aware of all environmental considerations so that all environmental standards and commitments for both construction and operation are met. Mitigation measures should be clearly referenced in the report and regularly monitored during the construction stage of the

project. In addition, we encourage proponents to conduct post-construction monitoring to ensure all mitigation measures have been effective and are functioning properly.

- Design and construction reports and plans should be based on a best management approach that centres on the prevention of impacts, protection of the existing environment, and opportunities for rehabilitation and enhancement of any impacted areas.

- The proponent's construction and post-construction monitoring plans must be documented in the report, as outlined in Section A.2.5 and A.4.1 of the MEA Class EA parent document.

Consultation

- The report must demonstrate how the consultation provisions of the Class EA have been fulfilled, including documentation of all stakeholder consultation efforts undertaken during the planning process. This includes a discussion in the report that identifies concerns that were raised and **describes how they have been addressed by the proponent** throughout the planning process. The report should also include copies of comments submitted on the project by interested stakeholders, and the proponent's responses to these comments (as directed by the Class EA to include full documentation).

- Please include the full stakeholder distribution/consultation list in the documentation.

Class EA Process

- If this project is a Master Plan: there are several different approaches that can be used to conduct a Master Plan, examples of which are outlined in Appendix 4 of the Class EA. **The Master Plan should clearly indicate the selected approach for conducting the plan**, by identifying whether the levels of assessment, consultation and documentation are sufficient to fulfill the requirements for Schedule B or C projects. Please note that any Schedule B or C projects identified in the plan would be subject to Part II Order Requests under the Environmental Assessment Act, although the plan itself would not be. **Please include a description of the approach being undertaken (use Appendix 4 as a reference).**

- If this project is a Master Plan: Any identified projects should also include information on the MCEA schedule associated with the project.

- The report should provide clear and complete documentation of the planning process in order to allow for transparency in decision-making.

- The Class EA requires the consideration of the effects of each alternative on all aspects of the environment (including planning, natural, social, cultural, economic, technical). The report should include a level of detail (e.g. hydrogeological investigations, terrestrial and aquatic assessments, cultural heritage assessments) such that all potential impacts can be identified, and appropriate mitigation measures can be developed. Any supporting studies conducted during the Class EA process should be referenced and included as part of the report.

- Please include in the report a list of all subsequent permits or approvals that may be required for the implementation of the preferred alternative, including but not limited to, MECP's PTTW, EASR Registrations and ECAs, conservation authority permits, species at risk permits, MTO permits and approvals under the *Impact Assessment Act*, 2019.

- Ministry guidelines and other information related to the issues above are available at http://www.ontario.ca/environment-and-energy/environment-and-energy. We encourage you to review all the available guides and to reference any relevant information in the report.

Amendments to the EAA through the Covid-19 Economic Recovery Act, 2020

Once the EA Report is finalized, the proponent must issue a Notice of Completion providing a minimum 30-day period during which documentation may be reviewed and comment and input can be submitted to the proponent. The Notice of Completion must be sent to the appropriate MECP Regional Office email address (for projects in MECP Southwest Region, the email is eanotification.swregion@ontario.ca).

The public has the ability to request a higher level of assessment on a project if they are concerned about potential adverse impacts to constitutionally protected Aboriginal and treaty rights. In addition, the Minister may issue an order on his or her own initiative within a specified time period. The Director (of the Environmental Assessment Branch) will issue a Notice of Proposed Order to the proponent if the Minister is considering an order for the project within 30 days after the conclusion of the comment period on the Notice of Completion. At this time, the Director may request additional information from the proponent. Once the requested information has been received, the Minister will have 30 days within which to make a decision or impose conditions on your project.

Therefore, the proponent cannot proceed with the project until at least 30 days after the end of the comment period provided for in the Notice of Completion. Further, the proponent may not proceed after this time if:

- a Part II Order request has been submitted to the ministry regarding potential adverse impacts to constitutionally protected Aboriginal and treaty rights, or
- the Director has issued a Notice of Proposed order regarding the project.

Please ensure that the Notice of Completion advises that outstanding concerns are to be directed to the proponent for a response, and that in the event there are outstanding concerns regarding potential adverse impacts to constitutionally protected Aboriginal and treaty rights, Part II Order requests on those matters should be addressed in writing to:

Minister Jeff Yurek
Ministry of Environment, Conservation and Parks
777 Bay Street, 5th Floor
Toronto ON M7A 2J3
minister.mecp@ontario.ca

and

Director, Environmental Assessment Branch
Ministry of Environment, Conservation and Parks
135 St. Clair Ave. W, 1st Floor
Toronto ON, M4V 1P5
EABDirector@ontario.ca

DEFINITIONS

The following definitions are specific to this document and may not apply in other contexts:

Aboriginal communities – the First Nation or Métis communities identified by the Crown for the purpose of consultation.

Consultation – the Crown's legal obligation to consult when the Crown has knowledge of an established or asserted Aboriginal or treaty right and contemplates conduct that might adversely impact that right. This is the type of consultation required pursuant to s. 35 of the *Constitution Act, 1982*. Note that this definition does not include consultation with Aboriginal communities for other reasons, such as regulatory requirements.

Crown – the Ontario Crown, acting through a particular ministry or ministries.

Procedural aspects of consultation – those portions of consultation related to the process of consultation, such as notifying an Aboriginal community about a project, providing information about the potential impacts of a project, responding to concerns raised by an Aboriginal community and proposing changes to the project to avoid negative impacts.

Proponent – the person or entity that wants to undertake a project and requires an Ontario Crown decision or approval for the project.

I. PURPOSE

The Crown has a legal duty to consult Aboriginal communities when it has knowledge of an existing or asserted Aboriginal or treaty right and contemplates conduct that may adversely impact that right. In outlining a framework for the duty to consult, the Supreme Court of Canada has stated that the Crown may delegate procedural aspects of consultation to third parties. This document provides general information about the Ontario Crown's approach to delegation of the procedural aspects of consultation to proponents.

This document is not intended to instruct a proponent about an individual project, and it does not constitute legal advice.

II. WHY IS IT NECESSARY TO CONSULT WITH ABORIGINAL COMMUNITIES?

The objective of the modern law of Aboriginal and treaty rights is the *reconciliation* of Aboriginal peoples and non-Aboriginal peoples and their respective rights, claims and interests. Consultation is an important component of the reconciliation process.

The Crown has a legal duty to consult Aboriginal communities when it has knowledge of an existing or asserted Aboriginal or treaty right and contemplates conduct that might adversely impact that right. For example, the Crown's duty to consult is triggered when it considers issuing a permit, authorization or approval for a project which has the potential to adversely impact an Aboriginal right, such as the right to hunt, fish, or trap in a particular area.

The scope of consultation required in particular circumstances ranges across a spectrum depending on both the nature of the asserted or established right and the seriousness of the potential adverse impacts on that right.

Depending on the particular circumstances, the Crown may also need to take steps to accommodate the potentially impacted Aboriginal or treaty right. For example, the Crown may be required to avoid or minimize the potential adverse impacts of the project.

III. THE CROWN'S ROLE AND RESPONSIBILITIES IN THE DELEGATED CONSULTATION PROCESS

The Crown has the responsibility for ensuring that the duty to consult, and accommodate where appropriate, is met. However, the Crown may delegate the procedural aspects of consultation to a proponent.

There are different ways in which the Crown may delegate the procedural aspects of consultation to a proponent, including through a letter, a memorandum of understanding, legislation, regulation, policy and codes of practice.

If the Crown decides to delegate procedural aspects of consultation, the Crown will generally:

- Ensure that the delegation of procedural aspects of consultation and the responsibilities of the proponent are clearly communicated to the proponent;
- Identify which Aboriginal communities must be consulted;
- Provide contact information for the Aboriginal communities;
- Revise, as necessary, the list of Aboriginal communities to be consulted as new information becomes available and is assessed by the Crown;
- Assess the scope of consultation owed to the Aboriginal communities;
- Maintain appropriate oversight of the actions taken by the proponent in fulfilling the procedural aspects of consultation;
- Assess the adequacy of consultation that is undertaken and any accommodation that may be required;
- Provide a contact within any responsible ministry in case issues arise that require direction from the Crown; and
- Participate in the consultation process as necessary and as determined by the Crown.

IV. THE PROPONENT'S ROLE AND RESPONSIBILITIES IN THE DELEGATED CONSULTATION PROCESS

Where aspects of the consultation process have been delegated to a proponent, the Crown, in meeting its duty to consult, will rely on the proponent's consultation activities and documentation of those activities. The consultation process informs the Crown's decision of whether or not to approve a proposed project or activity.

A proponent's role and responsibilities will vary depending on a variety of factors including the extent of consultation required in the circumstance and the procedural aspects of consultation the Crown has delegated to it. Proponents are often in a better position than the Crown to discuss a project and its potential impacts with Aboriginal communities and to determine ways to avoid or minimize the adverse impacts of a project.

A proponent can raise issues or questions with the Crown at any time during the consultation process. If issues or concerns arise during the consultation that cannot be addressed by the proponent, the proponent should contact the Crown.

a) What might a proponent be required to do in carrying out the procedural aspects of consultation?

Where the Crown delegates procedural aspects of consultation, it is often the proponent's responsibility to provide notice of the proposed project to the identified Aboriginal communities. The notice should indicate that the Crown has delegated the procedural aspects of consultation to the proponent and should include the following information:

- a description of the proposed project or activity;
- mapping;
- proposed timelines;
- details regarding anticipated environmental and other impacts;
- details regarding opportunities to comment; and
- any changes to the proposed project that have been made for seasonal conditions or other factors, where relevant.

Proponents should provide enough information and time to allow Aboriginal communities to provide meaningful feedback regarding the potential impacts of the project. Depending on the nature of consultation required for a project, a proponent also may be required to:

- provide the Crown with copies of any consultation plans prepared and an opportunity to review and comment;
- ensure that any necessary follow-up discussions with Aboriginal communities take place in a timely manner, including to confirm receipt of information, share and update information and to address questions or concerns that may arise;
- as appropriate, discuss with Aboriginal communities potential mitigation measures and/or changes to the project in response to concerns raised by Aboriginal communities;
- use language that is accessible and not overly technical, and translate material into Aboriginal languages where requested or appropriate;
- bear the reasonable costs associated with the consultation process such as, but not limited to, meeting hall rental, meal costs, document translation(s), or to address technical & capacity issues;
- provide the Crown with all the details about potential impacts on established or asserted Aboriginal or treaty rights, how these concerns have been considered and addressed by the proponent and the Aboriginal communities and any steps taken to mitigate the potential impacts;
- provide the Crown with complete and accurate documentation from these meetings and communications; and
- notify the Crown immediately if an Aboriginal community not identified by the Crown approaches the proponent seeking consultation opportunities.

b) What documentation and reporting does the Crown need from the proponent?

Proponents should keep records of all communications with the Aboriginal communities involved in the consultation process and any information provided to these Aboriginal communities.

As the Crown is required to assess the adequacy of consultation, it needs documentation to satisfy itself that the proponent has fulfilled the procedural aspects of consultation delegated to it. The documentation required would typically include:

- the date of meetings, the agendas, any materials distributed, those in attendance and copies of any minutes prepared;

- the description of the proposed project that was shared at the meeting;
- any and all concerns or other feedback provided by the communities;
- any information that was shared by a community in relation to its asserted or established Aboriginal or treaty rights and any potential adverse impacts of the proposed activity, approval or disposition on such rights;
- any proposed project changes or mitigation measures that were discussed, and feedback from Aboriginal communities about the proposed changes and measures;
- any commitments made by the proponent in response to any concerns raised, and feedback from Aboriginal communities on those commitments;
- copies of correspondence to or from Aboriginal communities, and any materials distributed electronically or by mail;
- information regarding any financial assistance provided by the proponent to enable participation by Aboriginal communities in the consultation;
- periodic consultation progress reports or copies of meeting notes if requested by the Crown;
- a summary of how the delegated aspects of consultation were carried out and the results; and
- a summary of issues raised by the Aboriginal communities, how the issues were addressed and any outstanding issues.

In certain circumstances, the Crown may share and discuss the proponent's consultation record with an Aboriginal community to ensure that it is an accurate reflection of the consultation process.

c) Will the Crown require a proponent to provide information about its commercial arrangements with Aboriginal communities?

The Crown may require a proponent to share information about aspects of commercial arrangements between the proponent and Aboriginal communities where the arrangements:

- include elements that are directed at mitigating or otherwise addressing impacts of the project;
- include securing an Aboriginal community's support for the project; or
- may potentially affect the obligations of the Crown to the Aboriginal communities.

The proponent should make every reasonable effort to exempt the Crown from confidentiality provisions in commercial arrangements with Aboriginal communities to the extent necessary to allow this information to be shared with the Crown.

The Crown cannot guarantee that information shared with the Crown will remain confidential. Confidential commercial information should not be provided to the Crown as part of the consultation record if it is not relevant to the duty to consult or otherwise required to be submitted to the Crown as part of the regulatory process.

V. WHAT ARE THE ROLES AND RESPONSIBILITIES OF ABORIGINAL COMMUNITIES' IN THE CONSULTATION PROCESS?

Like the Crown, Aboriginal communities are expected to engage in consultation in good faith. This includes:

- responding to the consultation notice;

- engaging in the proposed consultation process;
- providing relevant documentation;
- clearly articulating the potential impacts of the proposed project on Aboriginal or treaty rights; and
- discussing ways to mitigates any adverse impacts.

Some Aboriginal communities have developed tools, such as consultation protocols, policies or processes that provide guidance on how they would prefer to be consulted. Although not legally binding, proponents are encouraged to respect these community processes where it is reasonable to do so. Please note that there is no obligation for a proponent to pay a fee to an Aboriginal community in order to enter into a consultation process.

To ensure that the Crown is aware of existing community consultation protocols, proponents should contact the relevant Crown ministry when presented with a consultation protocol by an Aboriginal community or anyone purporting to be a representative of an Aboriginal community.

VI. WHAT IF MORE THAN ONE PROVINCIAL CROWN MINISTRY IS INVOLVED IN APPROVING A PROPONENT'S PROJECT?

Depending on the project and the required permits or approvals, one or more ministries may delegate procedural aspects of the Crown's duty to consult to the proponent. The proponent may contact individual ministries for guidance related to the delegation of procedural aspects of consultation for ministry-specific permits/approvals required for the project in question. Proponents are encouraged to seek input from all involved Crown ministries sooner rather than later.

Client's Guide to Preliminary Screening for Species at Risk

Ministry of the Environment, Conservation and Parks

Species at Risk Branch, Permissions and Compliance

DRAFT - May 2019

Table of Contents

1.0 Purpose, Scope, Background and Context

1.1 Purpose of this Guide

This guide has been created to:

- help clients better understand their obligation to gather information and complete a preliminary screening for species at risk before contacting the ministry,
- outline guidance and advice clients can expect to receive from the ministry at the preliminary screening stage,
- help clients understand how they can gather information about species at risk by accessing publicly available information housed by the Government of Ontario, and
- provide a list of other potential sources of species at risk information that exist outside the Government of Ontario.

It remains the client's responsibility to:

- carry out a preliminary screening for their projects,
- obtain best available information from all applicable information sources,
- conduct any necessary field studies or inventories to identify and confirm the presence or absence of species at risk or their habitat,
- consider any potential impacts to species at risk that a proposed activity might cause, and
- comply with the *Endangered Species Act* (ESA).

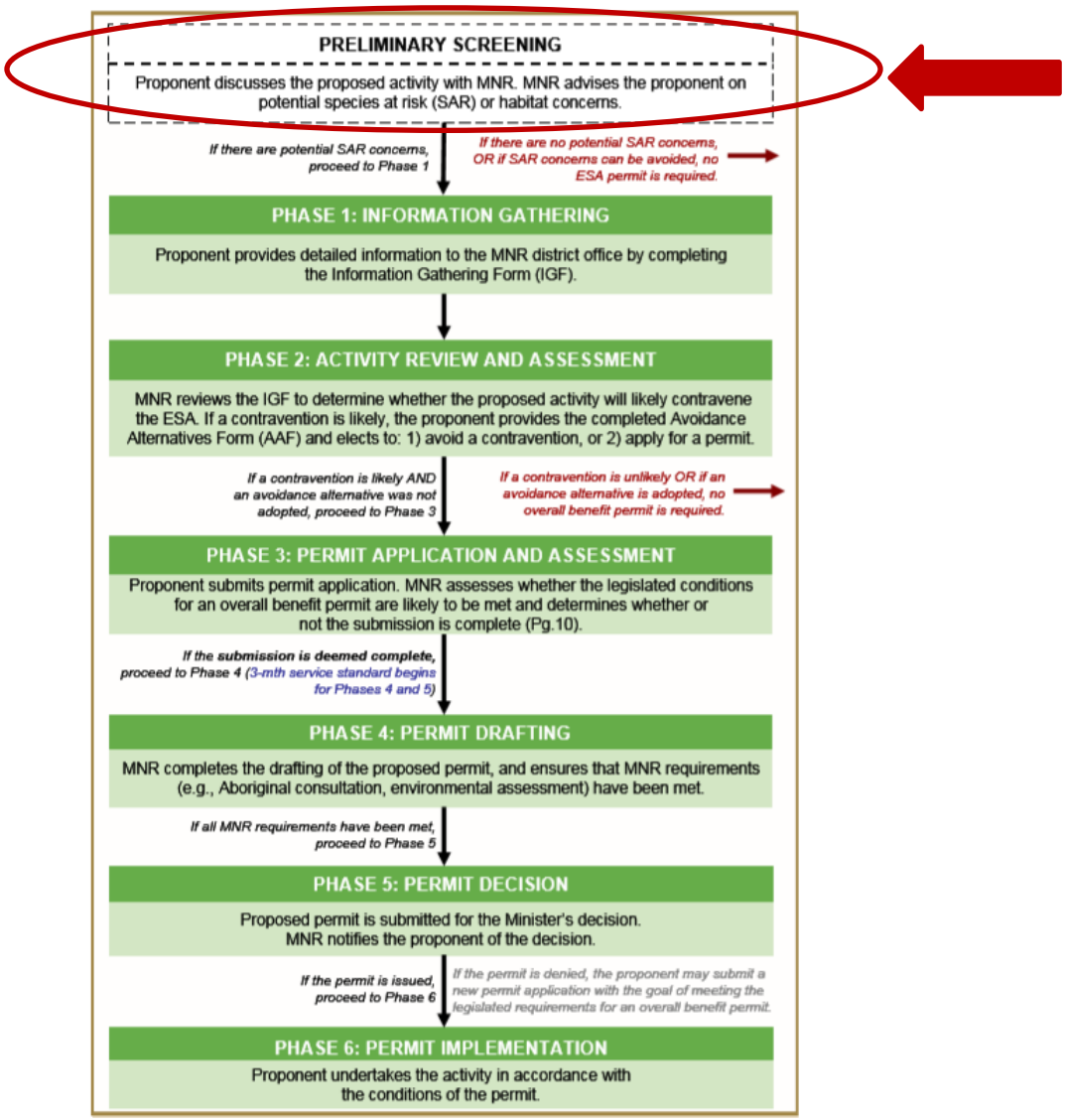
To provide the most efficient service, clients should initiate species at risk screenings and seek information from all applicable information sources identified in this guide, at a minimum, <u>prior to</u> contacting Government of Ontario ministry offices for further information or advice.

1.2 Scope

This guide is a resource for clients seeking to understand if their activity is likely to impact species at risk or if they are likely to trigger the need for an authorization under the ESA. It is not intended to circumvent any detailed site surveys that may be necessary to document species at risk or their habitat nor to circumvent the need to assess the impacts of a proposed activity on species at risk or their habitat. This guide is not an exhaustive list of available information sources for any given area as the availability of information on species at risk and their habitat varies across the province. This guide is intended to support projects and activities carried out on Crown and private land, by private landowners, businesses, other provincial ministries and agencies, or municipal government.

1.3 Background and Context

To receive advice on their proposed activity, clients must first determine whether any species at risk or their habitat exist or are likely to exist at or near their proposed activity, and whether their proposed activity is likely to contravene the ESA. Once this step is complete, clients may contact the ministry at SAROntario@ontario.ca to discuss the main purpose, general methods, timing and location of their proposed activity as well as information obtained about species at risk and their habitat at, or near, the site. At this stage, the ministry can provide advice and guidance to the client about potential species at risk or habitat concerns, measures that the client is considering to avoid adverse effects on species at risk or their habitat and whether additional field surveys are advisable. This is referred to as the "Preliminary Screening" stage. For more information on additional phases in the diagram below, please refer to the *Endangered Species Act Submission Standards for Activity Review and 17(2)(c) Overall Benefit Permits* policy available online at https://www.ontario.ca/page/species-risk-overall-benefit-permits. Please note: any reference to MNR in the diagram is replaced by MECP.



2.0 Roles and Responsibilities

To provide the most efficient service, clients should initiate species at risk screenings and seek information from all applicable information sources identified in this guide prior to contacting Government of Ontario ministry offices for further information or advice.

Step 1: Client seeks information regarding species at risk or their habitat that exist, or are likely to exist, at or near their proposed activity by referring to all applicable information sources identified in this guide.

Step 2: Client reviews and consider guidance on whether their proposed activity is likely to contravene the ESA (see section 3.4 of this guide for guidance on what to consider).

Step 3: Client gathers information identified in the checklist in section 4 of this guide.

Step 4: Client contacts the ministry at SAROntario@ontario.ca to discuss their preliminary screening. Ministry staff will ask the client questions about the main purpose, general methods, timing and location of their proposed activity as well as information obtained about species at risk and their habitat at, or near, the site. Ministry staff will also ask the client for their interpretation of the impacts of their activity on species at risk or their habitat as well as measures the client has considered to avoid any adverse impacts.

Step 5: Ministry staff will provide advice on next steps.

Option A: Ministry staff may advise the client they can proceed with their activity without an authorization under the ESA where the ministry is confident that:

- no protected species at risk or habitats are likely to be present at or near the proposed location of the activity; or
- protected species at risk or habitats are known to be present but the activity is not likely to contravene the ESA; or
- through the adoption of avoidance measures, the modified activity is not likely to contravene the ESA.

Option B: Ministry staff may advise the client to proceed to Phase 1 of the overall benefit permitting process (i.e. Information Gathering in the previous diagram), where:

- there is uncertainty as to whether any protected species at risk or habitats are present at or near the proposed location of the activity; or
- the potential impacts of the proposed activity are uncertain; or
- ministry staff anticipate the proposed activity is likely to contravene the ESA.

3.0 Information Sources

Land Information Ontario (LIO) and the Natural Heritage Information Centre (NHIC) maintain and provide information about species at risk, as well as related information about fisheries, wildlife, crown lands, protected lands and more. This information is made available to organizations, private individuals, consultants, and developers through online sources and is often considered under various pieces of legislation or as part of regulatory approvals and planning processes.

The information available from LIO or NHIC and the sources listed in this guide should not be considered as a substitute for site visits and appropriate field surveys. Generally, this information can be regarded as a starting point from which to conduct further field surveys, if needed. While this data represents best available current information, it is important to note that a lack of information for a site does not mean that species at risk or their habitat are not present. There are many areas where the Government of Ontario does not currently have information, especially in more remote parts of the province. The absence of species at risk location data at or near your site does not necessarily mean no species at risk are present at that location. On-site assessments can better verify site conditions, identify and confirm presence of species at risk and/or their habitats.

Information on the location (i.e. observations and occurrences) of species at risk is considered sensitive and therefore publicly available only on a 1km square grid as opposed to as a detailed point on a map. This generalized information can help you understand which species at risk are in the general vicinity of your proposed activity and can help inform field level studies you may want to undertake to confirm the presence, or absence of species at risk at or near your site.

Should you require specific and detailed information pertaining to species at risk observations and occurrences at or near your site on a finer geographic scale; you will be required to demonstrate your need to access this information, to complete data sensitivity training and to obtain a Sensitive Data Use License from the NHIC. Information on how to obtain a license can be found online at https://www.ontario.ca/page/get-natural-heritage-information.

Many organizations (e.g. other Ontario ministries, municipalities, conservation authorities) have ongoing licensing to access this data so be sure to check if your organization has this access and consult this data as part of your preliminary screening if your organization already has a license.

3.1 Make a Map: Natural Heritage Areas

The Make a Natural Heritage Area Map (available online at https://www.ontario.ca/page/make-natural-heritage-area-map provides public access to natural heritage information, including species at risk, without the user needing to have Geographic Information System (GIS) capability. It allows users to view and identify generalized species at risk information, mark areas of interest, and create and print a custom map directly from the web application. The tool also shows topographic information such as roads, rivers, contours and municipal boundaries.

Users are advised that sensitive information has been removed from the natural areas dataset and the occurrences of species at risk has been generalized to a 1-kilometre grid to mitigate the risks to the species (e.g. illegal harvest, habitat disturbance, poaching).

The web-based mapping tool displays natural heritage data, including:

- Generalized Species at risk occurrence data (based on a 1-km square grid),
- Natural Heritage Information Centre data.

Data cannot be downloaded directly from this web map; however, information included in this application is available digitally through Land Information Ontario (LIO) at https://www.ontario.ca/page/land-information-ontario.

3.2 Land Information Ontario (LIO)

Most natural heritage data is publicly available. This data is managed in a large provincial corporate database called the LIO Warehouse and can be accessed online through the LIO Metadata Management Tool at https://www.javacoeapp.lrc.gov.on.ca/geonetwork/srv/en/main.home. This tool provides descriptive information about the characteristics, quality and context of the data. Publicly available geospatial data can be downloaded directly from this site.

While most data are publicly available, some data may be considered highly sensitive (i.e. nursery areas for fish, species at risk observations) and as such, access to some data maybe restricted.

3.3 Additional Species at Risk Information Sources

- The Breeding Bird Atlas can be accessed online at http://www.birdsontario.org/atlas/index.jsp?lang=en
- eBird can be accessed online at https://ebird.org/home
- iNaturalist can be accessed online at https://www.inaturalist.org/
- The Ontario Reptile and Amphibian Atlas can be accessed online at https://ontarionature.org/programs/citizen-science/reptile-amphibian-atlas
- Your local Conservation Authority. Information to help you find your local Conservation Authority can be accessed online at https://conservationontario.ca/conservation-authorities/find-a-conservation-authority/

  Local naturalist groups or other similar community-based organizations
- Local Indigenous communities
- Local land trusts or other similar Environmental Non-Government Organizations
- Field level studies to identify if species at risk, or their habitat, are likely present or absent at or near the site.
- When an activity is proposed within one of the continuous caribou ranges, please be sure to consider the caribou Range Management Policy. This policy includes figures and maps of the continuous caribou range, can be found online at https://www.ontario.ca/page/range-management-policy-support-woodland-caribou-conservation-and-recovery

3.4 Information Sources to Support Impact Assessments

- Guidance to help you understand if your activity is likely to adversely impact species at risk or their habitat can be found online at https://www.ontario.ca/page/policy-guidance-harm-and-harass-under-endangered-species-act and https://www.ontario.ca/page/categorizing-and-protecting-habitat-under-endangered-species-act
- A list of species at risk in Ontario is available online at https://www.ontario.ca/page/species-risk-ontario. On this webpage, you can find out more about each species, including where is lives, what threatens it and any specific habitat protections that apply to it by clicking on the photo of the species.

4.0 Check-List

Please feel free to use the check list below to help you confirm you have explored all applicable information sources and to support your discussion with Ministry staff at the preliminary screening stage.

- ✓ Land Information Ontario (LIO)
- ✓ Natural Heritage Information Centre (NHIC)
- ✓ The Breeding Bird Atlas
- ✓ eBird
- ✓ iNaturalist
- ✓ Ontario Reptile and Amphibian Atlas
- ✓ List Conservation Authorities you contacted:_____

  _____
- ✓ List local naturalist groups you contacted:_____

  _____
- ✓ List local Indigenous communities you contacted:_____

  _____
- ✓ List any other local land trusts or Environmental Non-Government Organizations you contacted:_____

  _____
- ✓ List and field studies that were conducted to identify species at risk, or their habitat, likely to be present or absent at or near the site: _____

  _____
- ✓ List what you think the likely impacts of your activity are on species at risk and their habitat (e.g. damage or destruction of habitat, killing, harming or harassing species at risk):_____

  _____

From: Adam Gilmore <AGilmore@centrewellington.ca>
Sent: May 27, 2021 2:42 PM
To:
Cc: Lisa Marshall <l.marshall@mcintoshperry.com>
Subject: RE: Bridge 16-WG

Hi , ,

Thank you for the email, and I'm glad to hear that you received the letter. We have you on our contact list for the project and you will certainly receive notices and study updates.

We've also setup a webpage for the project which will be updated with information as things progress, you might find this helpful:

https://www.connectcw.ca/municipal-class-environmental-assessment-study-for-bridge-16-wg

Please feel free to contact me anytime if you have any questions about the project.

Take care,
Adam

Adam Gilmore, M.A.Sc., P.Eng. | Manager of Engineering

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0
519.846.9691 x301 centrewellington.ca

Office located at: 7444 Wellington Road 21, Elora, ON N0B 1S0

From:
Sent: May 27, 2021 1:48 PM
To: Adam Gilmore <AGilmore@centrewellington.ca>
Cc:
Subject: Bridge 16-WG

We received you letter from McIntosh Perry Consulting Engineers Ltd. today.

We are one of the home owners on 5th Line who are greatly affected by the closing down of Bridge 16-WG.

Please include us in the “notices and study updates” regarding this Bridge 16-WG.

Thank you

From: MNRF Ayl Planners (MNRF) <MNRF.Ayl.Planners@ontario.ca>
Sent: June 4, 2021 11:09 AM
To: agilmore@centrewellington.ca; Lisa Marshall <l.marshall@mcintoshperry.com>
Subject: RE: Notice of Study Commencement - Township of Centre Wellington Municipal Class Environmental Assessment Study for Bridge 16-WG

Ministry of Natural Resources and Forestry | **Ministère des Richesses naturelles et des Forêts**

June 6, 2021

Adam Gilmore, M.A.Sc., P.Eng.
Manager of Engineering
Township of Centre Wellington
1 MacDonald Square, Elora, ON N0B 1S0
519-846-9691 x 301
agilmore@centrewellington.ca

Lisa Marshall, P. Eng.
Consultant Project Manager
McIntosh Perry Consulting Engineers Ltd.
115 Walgreen Road, R.R. 3, Carp, ON K0A 1L0
1-613-852-1148
l.marshall@mcintoshperry.com

Subject: Notice of Study Commencement - Township of Centre Wellington Municipal Class Environmental Assessment Study for Bridge 16-WG

The Ministry of Natural Resources and Forestry (MNRF) received the notice for the Bridge 16-WG project. Thank you for circulating this information to our office, however, please note that we have not completed a screening of natural heritage or other resource values for the project at this time. Please also note that it is your responsibility to be aware of and comply with all relevant federal or provincial legislation, municipal by-laws or other agency approvals.

This response provides information to guide you in identifying and assessing natural features and resources as required by applicable policies and legislation, and engaging with the MNRF for advice as needed.

Natural Heritage & Endangered Species Act

In order to provide the most efficient service possible, the attached Natural Heritage Information Request Guide has been developed to assist you with accessing natural heritage data and values from convenient online sources.

It remains the proponent's responsibility to complete a preliminary screening for each project, to obtain available information from multiple sources, to conduct any necessary field studies, and to consider any potential environmental impacts that may result from an activity. We wish to emphasize the need for the proponents of development activities to complete screenings prior to contacting the Ministry or other agencies for more detailed technical information and advice.

The Ministry continues to work on updating data housed by Land Information Ontario and the Natural Heritage Information Centre, and ensuring this information is accessible through online resources. Species at risk data is regularly being updated. To ensure access to reliable and up to date information, please contact the Ministry of the Environment, Conservation and Parks at SAROntario@ontario.ca.

Petroleum Wells & Oil, Gas and Salt Resource Act

There may be petroleum wells within the proposed project area. Please consult the Ontario Oil, Gas and Salt Resources Library website (www.ogsrlibrary.com) for the best known data on any wells recorded by MNRF. Please reference the 'Definitions and Terminology Guide' listed in the publications on the Library website in order to better understand the well information available. Any oil and gas wells in your project area are regulated by the *Oil, Gas and Salt Resource Act*, and the supporting regulations and operating standards. If any unanticipated wells are encountered during development of the project, or if the proponent has questions regarding petroleum operations, the proponent should contact the Petroleum Operations Section at POSRecords@ontario.ca or 519-873-4634.

Public Lands Act & Lakes and Rivers Improvement Act

Some projects may be subject to the provisions of the *Public Lands Act* or the *Lakes and Rivers Improvement Act*. Please review the information on MNRF's web pages provided below regarding when an approval is required or not. Please note that many of the authorizations issued under the *Lakes and Rivers Improvement Act* are administered by the local Conservation Authority.

- For more information about the *Public Lands Act*: https://www.ontario.ca/page/crown-land-work-permits
- For more information about the *Lakes and Rivers Improvement Act*: https://www.ontario.ca/document/lakes-and-rivers-improvement-act-administrative-guide

After reviewing the information provided, if you have not identified any of MNRF's interests stated above, there is no need to circulate any subsequent notices to our office.

If you have any questions or concerns, please feel free to contact me.

Sincerely,
Karina

Karina Černiavskaja, District Planner
Ministry of Natural Resources and Forestry
Email: MNRF.Ayl.Planners@ontario.ca

Ontario

As part of providing accessible customer service, please let me know if you have any accommodation needs or require communication supports or alternate formats.

From: Lisa Marshall <l.marshall@mcintoshperry.com>
Sent: May 20, 2021 9:14 AM
To: Adam Gilmore <AGilmore@centrewellington.ca>; Lisa Marshall <l.marshall@mcintoshperry.com>
Cc: Jennifer Cavanagh <j.cavanagh@mcintoshperry.com>; Sarah Peters <s.peters@mcintoshperry.com>
Subject: Notice of Study Commencement - Township of Centre Wellington Municipal Class Environmental Assessment Study for Bridge 16-WG

CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.

Hello,

Please find the attached Notice of Study Commencement Letter for the Municipal Class Environmental Assessment Study currently being undertaken by the Township of Centre Wellington for Bridge 16-WG.

If you have any questions or comments, please contact one of the Project Team members noted in the enclosed letter.

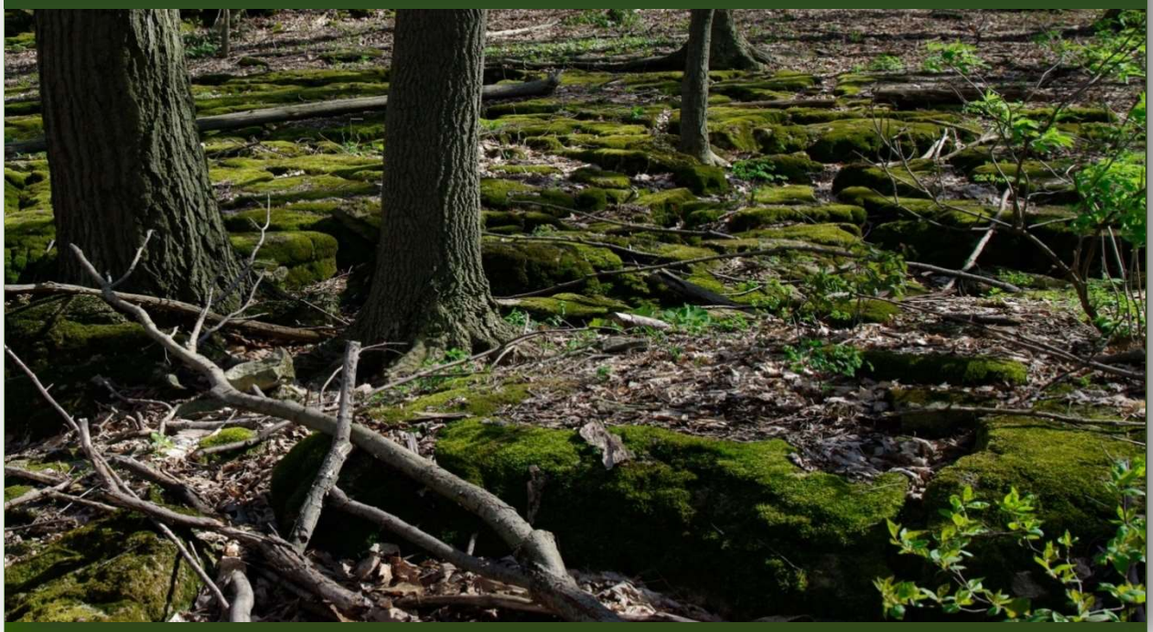
Thank you,

Lisa Marshall, P.Eng.
Manager, Environmental Engineering
115 Walgreen Road, R.R. 3, Carp, ON K0A 1L0
T. 613.714.0815 | **F.** 613.836.3742 | **C.** 613.852.1148
l.marshall@mcintoshperry.com | www.mcintoshperry.com

McINTOSH PERRY

Ministry of Natural Resources and Forestry

Ontario



Natural Heritage Information Request Guide

Regional Operations Division, Ministry of Natural Resources & Forestry

Update – April 1, 2019

Table of Contents

1.0 Background, Purpose and Scope

1.1 Background

The Ministry of Natural Resources and Forestry (MNRF) maintains a substantial amount of natural heritage information. The Government of Ontario is committed to transparency, customer service, and making information more publicly accessible. Access to natural heritage information is critical to informing municipal planning processes, development activities, and other initiatives such as science and research. To make natural heritage information more accessible and better understood, this document consolidates available MNRF natural heritage information and outlines how this information can be accessed.

1.2 Purpose of this Guide

The purpose of this guide is three-fold:

1. To provide a directory of natural heritage information sources available from the MNRF;
2. To reduce wait times for users to access the data, especially considering that much of the information is open and accessible; and
3. To help users efficiently access available data.

It remains the proponent's responsibility to:

- Complete a preliminary screening for their projects,
- Obtain available information from multiple sources,
- Conduct any necessary field studies, and
- Consider any potential environmental impacts that may result from a proposed activity.

To provide the most efficient service possible, proponents should complete natural heritage screenings **prior** to contacting Government of Ontario Ministry offices or other agencies for more detailed technical information and advice. This guide provides detailed information on where and how to access information to screen a study area in advance of consulting with Ministries.

1.3 Scope

MNRF maintains and provides information related to its resource management and land use planning mandate, including natural heritage, fisheries, wildlife, mineral aggregate resources, crown lands, protected lands and more. This information is made available to organizations, private individuals, consultants, and developers through online sources and is often considered under various pieces of legislation or as part of regulatory

approvals and planning processes. This guide has been created to help users navigate the available natural heritage information to support various activities. This guide additionally provides a list of other sources of information beyond MNRF, although it is not intended to be an exhaustive list of available sources.

This guide does not replace the Natural Heritage Reference Manual but is intended to support it. This guide is not intended to circumvent any field studies that may be necessary to document features and assess impacts.

This guide is a resource for proponents during project planning. Reviewing the layers listed in the appendices will enable proponents to prepare for both proponent and government led Environmental Assessments. For projects proposed on crown land, MNRF is the permitting agency and there may be additional initial screening requirements. Further studies may be required depending on the nature and location of the project.

1.4 Audience

The intent of this public guide is to make it easier for the proponents and consultants to access relevant information. This guide will also help internal Ministry staff who are responding to information requests or site screenings.

1.5 Disclaimer

The information available from MNRF and the sources listed below in the appendices should **not be considered as a substitute for site visits and appropriate field surveys.** Generally, information available from MNRF can be regarded as a starting point from which to conduct further field studies, if needed. While this data represents MNRF's best available current information, it is important to note that a lack of information for a site does not mean that additional features and values are not present. There are many areas where MNRF does not currently have information. On-site assessments can better verify site conditions, identify natural features and values and confirm presence of species at risk and/or their habitats.

This guide will be updated from time to time. For a current version of this guide, please contact your local or regional Government of Ontario Ministry office. Up-to-date contact information for Ministry offices can be obtained through the Government of Ontario Employee and Organization Directory, Info-GO, available at http://www.infogo.gov.on.ca/infogo/home.html.

2.0 Data Resources

2.1 Make a Map: Natural Heritage Areas

The MNRF maintains the Make a Natural Heritage Area Map: http://www.gisapplication.lrc.gov.on.ca/mamnh/Index.html?site=MNR_NHLUPS_NaturalHeritage&viewer=NaturalHeritage&locale=en-US which provides public access to natural heritage information without the user needing to have Geographic Information System (GIS) capability. It allows users to view and identify natural heritage features, mark areas of interest, and create and print a custom map directly from the web application. The tool also shows topographic information such as roads, rivers, contours and municipal boundaries.

Make a Natural Heritage Area Map should be consulted as a first step in screening for natural heritage features. This tool does not provide access to all of the MNRF's natural heritage information and some layers may be incomplete.

Users are advised that sensitive information has been removed from the natural areas dataset and the occurrences of species at risk, rare plant communities and wildlife concentration areas has been generalized to a 1-kilometre grid.

The web-based mapping tool displays natural heritage data, including:

- Generalized Species at risk occurrence data (based on a 1-km square grid),
- provincial parks and conservation reserves,
- Areas of Natural and Scientific Interest,
- Wetlands,
- Woodlands, and
- Natural Heritage Information Centre data.

Data cannot be downloaded directly from this web map, however, information included in this application is available digitally through Land Information Ontario: https://www.ontario.ca/page/land-information-ontario (LIO).

2.2 Land Information Ontario (LIO)

Most natural heritage data is publicly available. This data is managed in a large corporate database called the LIO Warehouse and can be discovered through the LIO Metadata Management Tool: https://www.javacoeapp.lrc.gov.on.ca/geonetwork/srv/en/main.home. This tool provides descriptive information about the characteristics, quality and context of the data. Publicly available geospatial data can be downloaded directly from this site.

The LIO Metadata Management Tool helps users to find, assess and access GIS data and houses up to 350 data and information products. Geospatial data are available through this tool, including (but not limited to):

- **Aquatic Resource Area (ARA) data classes:** general fisheries spatial data including water body type, thermal regime and fish species
- **Spawning Area (fish)**
- **Nursery Area (fish)**
- **Nesting Site (birds)**
- **Areas of Natural and Scientific Interest (ANSIs)**
- **Wetlands**
- **Wintering Area (deer, moose, etc.)**
- **Fire (Potential Hazardous Forest Types for Wildland Fire**

Appendix A links MNRF's authoritative, relevant data sets to the location in the LIO Database where the data can be downloaded.

Note that while most data is publicly available, some data may be considered highly sensitive (i.e., Nursery Areas for fish, species at risk observations), and as such, restrictions are in place limiting access to this information.

2.3 Species at Risk

For detailed information on species at risk, please visit Make a Natural Heritage Areas Map or contact the Ministry of Environment, Conservation and Parks at SAROntario@ontario.ca.

2.4 Public Agencies

Ministries, Municipalities and Conservation Authorities may have proposed infrastructure work that requires screening. In these instances, these broader public sector organizations should contact the appropriate Ministry Office to explore more efficient ways to access information and make decisions. This could include entering into data sharing agreements. Please note that many public agencies already have ongoing data sharing agreements in place with LIO and the Natural Heritage Information Centre (NHIC).

2.5 For Additional Information

For information pertaining to corporate data, contact LIO for support by email at lio@ontario.ca or by telephone at 705-755-1878.

For further information pertaining to the NHIC, including data sharing agreements, please email NHICrequests@ontario.ca or call 705-755-2159.

There may be circumstances where a local Government of Ontario office should be consulted for additional information and/or technical advice. For instance, projects proposed on Crown Land should be discussed early in the project planning process with local MNRF District staff.

A listing of District offices can be found on this web page https://www.ontario.ca/page/ministry-natural-resources-and-forestry-regional-and-district-offices

Appendix A: Natural Heritage Mapping Resources

The table below provides users links to maps and GIS data depicting natural heritage. This list is intended to help guide a natural heritage screening exercise. Click in the *Information Source* column for hyperlinks.

Information Source	Theme	Instructions for using this information
Wetland	Significant Wetlands	Use field" WETLAND_SIGNIFICANCE = Evaluated-Provincial" for provincially significant wetlands.
	Coastal Weltands	Use field"COASTAL_IND=Yes" for Coastal Wetlands
	Fish & Wildlife, Wetlands	Support evaluation and identification of habitat and wetlands. Please consult user guide for details. Consult the User Guide for more information.
Make a Natural Heritage Areas Map	Endangered and Threatened Species	Turn on the NHIC 1 km Grid square and use the Find… tool to query for species intersecting the grid. Consult the User guide for more information.
	Fish & Wildlife Habitat	Turn on the NHIC 1 km Grid square and use the Find… tool to query for species intersecting the grid. Consult the User guide for more information.
Provincially Tracked Species 1KM Grid	Endangered and Threatened Species	Use field "SARO_STAUS= 'Endangered' or SARO_STATUS='Threatened'" for Endangered and Threatened species.
Wintering Area	Wildlife Habitat	Supports evaluation and identification of wildlife habitat.
Aquatic Feeding Area	Wildlife Habitat	Supports evaluation and identification of wildlife habitat.
Breeding Area	Wildlife Habitat	Supports evaluation and identification of wildlife habitat.
Calving Fawning Site	Wildlife Habitat	Supports evaluation and identification of wildlife habitat.

Information Source	Theme	Instructions for using this information
Den Site	Wildlife Habitat	Supports evaluation and identification of wildlife habitat.
Feeding Area, Wildlife	Wildlife Habitat	Supports evaluation and identification of wildlife habitat.
Habitat Planning Range	Wildlife Habitat	Supports evaluation and identification of wildlife habitat.
Mineral Lick	Wildlife Habitat	Supports evaluation and identification of wildlife habitat.
Nesting Site	Wildlife Habitat	Supports evaluation and identification of wildlife habitat.
Nursery Area, Wildlife	Wildlife Habitat	Supports evaluation and identification of wildlife habitat.
Resting Area	Wildlife Habitat	Supports evaluation and identification of wildlife habitat.
Staging Area, Wildlife	Wildlife Habitat	Supports evaluation and identification of wildlife habitat.
Travel Corridor, Wildlife	Wildlife Habitat	Supports evaluation and identification of wildlife habitat.
ANSI	Significant Areas of Natural and Scientific Interest	Use the field "ANSI_SIGNIFICANCE = Provincial" if you need to view only Provincially Significant ANSI. Consult the User Guide for more information.
Wooded Area	Woodlands	Supports evaluation and identification of significant woodlands and wildlife habitat
ARA Line Segment	Fish Species and Habitat	Supports evaluation and identification of fish habitat by indicating fish species present in the water feature. Consult the User Guide for more information.

Information Source	Theme	Instructions for using this information
ARA Polygon Segment	Fish Species and Habitat	Supports evaluation and identification of fish habitat by indicating fish species present in the water feature. Consult the User Guide for more information.
	At Capacity Lake Trout Lakes	Use field" AT_DEVELOPMENT_CAPACITY_IND = Yes" for designated at capacity lakes
Aquatic Resource Area (ARA) Survey Point	Fish Species	Supports evaluation and identification of fish habitat by indicating fish species present at that location. Consult the User Guide for more information.
Spawning Area	Fish Habitat	Supports evaluation and identification of fish habitat
Nursery Area, Fish	Fish Habitat	Supports evaluation and identification of fish habitat
Staging Area, Fish	Fish Habitat	Supports evaluation and identification of fish habitat
Feeding Area, Fish	Fish Habitat	Supports evaluation and identification of fish habitat
Travel Corridor Fish	Fish Habitat	Supports evaluation and identification of fish habitat
Ecoregion	Ecoregions	Used to determine what ecoregion covers your area
Natural heritage System Area	Natural Heritage System	Identifies Natural Heritage System Areas within the Greenbelt Plan, the Oak Ridges Moraine Conservation Plan, the Niagara Escarpment Plan and the Growth Plan for the Greater Golden Horseshoe. Consult this guide for more information.
Breeding Bird Atlas	Wildlife Habitat	Provides additional information on the location of Breeding Birds
eBird	Wildlife Habitat	Provides additional information on bird sightings

Information Source	Theme	Instructions for using this information
Ontario Reptile and Amphibian Atlas	Wildlife Habitat	Provides additional information on Reptile and Amphibian sightings
iNaturalist	Fish & Wildlife Habitat	Provides additional information on fish & wildlife sightings

Appendix B: Natural Heritage Information Resources

The table below provides users links to Natural Heritage policies and documentation that should be referenced when conducting a natural heritage screening exercise. Click in the *Information Source* column for hyperlinks

Information Source	Theme	Description
https://www.ontario.ca/document/water-work-timing-window-guidelines	Water Work Timing windows	An information source that can be used to determine in-water work timing windows
Inland Lakes designated for Lake Trout management	Fish Habitat	A list of lakes in Ontario that are managed as Lake Trout lakes
Significant wildlife habitat guide	Wildlife Habitat	Provides detailed information on the identification, description and prioritization of significant wildlife habitat.
Significant wildlife habitat ecoregional criteria schedules: Ecoregion 6E	Wildlife Habitat	Provides detailed information on the description, criteria, information sources and assessment methods for significant wildlife habitat in Ecoregion 6E
Significant wildlife habitat ecoregional criteria schedules: Ecoregion 7E	Wildlife Habitat	Provides detailed information on the description, criteria, information sources and assessment methods for significant wildlife habitat in Ecoregion 7E
Significant wildlife habitat ecoregional criteria schedules: Ecoregion 5E	Wildlife Habitat	Provides detailed information on the description, criteria, information sources and assessment methods for significant wildlife habitat in Ecoregion 5E
Significant wildlife habitat ecoregional criteria schedules: Ecoregion 3E	Wildlife Habitat	Provides detailed information on the description, criteria, information sources and assessment methods for significant wildlife habitat in Ecoregion 3E
Significant wildlife habitat ecoregional criteria schedules: Ecoregion 3W	Wildlife Habitat	Provides detailed information on the description, criteria, information sources and assessment methods for significant wildlife habitat in Ecoregion 3E
Significant wildlife habitat ecoregional criteria schedules: Ecoregion 4E	Wildlife Habitat	Provides detailed information on the description, criteria, information sources and assessment methods for significant wildlife habitat in Ecoregion 3E
Significant wildlife habitat mitigation support tool	Wildlife Habitat	Provides advice and recommendations on how to mitigate wildlife habitat during a development process
Natural heritage reference manual	Natural Heritage	Provides guidance for implementing the natural heritage policies of the Provincial policy Statement

Appendix C: Other information Sources

The table below provides users links to other data and resources that could be relevant when screening for development. Click in the *Information Source* column for hyperlinks

Information Source	Theme
Crown Land Use Policy Atlas	Crown Land
Make a Topographic Map	Base Data Mapping
Pits and Quarries	Aggregates
Aggregate resources policies and procedures	Aggregates
Aggregate resources study	Aggregates
Exploring for and extracting oil, natural gas and salt resources	Oil, Gas and Salt Resources
Petroleum wells	Oil, Gas and Salt Resources
Great Lakes – St. Lawrence River System and Large inland lakes: Technical Guides for flooding, erosion and dynamic beaches in support of natural hazards policies 3.1 of the provincial policy statement	Hazards
Adaptive Management of Stream Corridors in Ontario including Natural Hazards Technical Guides	Hazards
The Wildland Fire Risk Assessment and Mitigation Reference Manual	Hazards

Information Source	Theme
Public Lands Act	Crown Land
Crown land work permits	Crown Land
Aggregate resources	Aggregates
Lakes and Rivers Improvement Act	Crown Land
Licence to collect fish for scientific or education purposes	Fish
https://www.ontario.ca/search/data-catalogue	Base Data mapping
Fire - Potential Hazardous Forest Types for Wildland Fire	Hazards
MNR Region	Base Data mapping
MNR District	Base Data mapping
GeoBase	Base Data mapping
Mining Lands Administration System (MLAS) – Map Viewer	Mines
Geoconnections	Base Data mapping

Information Source	Theme
Ministry of Northern Development and Mines Mapping and link to Geology Ontario databases	Mines
Ministry of Environment, Conservation and Parks Data	Environment
National Air Photo Library	Aerial photos
Archives Ontario Aerial Photography	Aerial photos
GEOGratis	Base Data mapping
County Soils Maps	Base Data mapping
Forest Fire Info Map	Hazards
Agricultural Information Atlas	Agriculture
Crown Land Automated Internet Mapping System	Mines
COSINE	Base Data mapping
GEONAME	Base Data mapping
Government-wide data inventory	Base Data mapping

Ministry of Heritage, Sport, Tourism and Culture Industries

Programs and Services Branch
400 University Ave, 5th Flr
Toronto, ON M7A 2R9
Tel: 416.660-1027

Ministère des Industries du Patrimoine, du Sport, du Tourisme et de la Culture

Direction des programmes et des services
400, av. University, 5e étage
Toronto, ON M7A 2R9
Tél: 416.660-1027

November 26, 2021 EMAIL ONLY

Lisa Marshall
Consultant Project Manager
McIntosh Perry Consulting Engineers Ltd.
115 Walgreen Road, R.R.3
Carp, ON K0A 1L0
l.marshall@mcintoshperry.com

MHSTCI File	**:**	**0000533**
Proponent	**:**	**Township of Centre Wellington**
Subject	**:**	**Notice of Study Commencement, Cultural Heritage Evaluation Report and Heritage Impact Assessment**
Project	**:**	**Bridge 16-WG**
Location	**:**	**Township of Centre Wellington**

Dear Ms. Lisa Marshall:

Thank you for providing the Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI) with the Notice of Commencement for the above-referenced project and email of October 21st providing the MHSTCI with the Cultural Heritage Evaluation Report (CHER) and Heritage Impact Assessment (HIA) for review and comment. MHSTCI's interest in this environmental assessment (EA) project relates to its mandate of conserving Ontario's cultural heritage, which includes:

- archaeological resources (including land and marine)
- built heritage resources (including bridges and monuments)
- cultural heritage landscapes

Project Summary
The Township of Centre Wellington is conducting a review of a bridge to address its advanced state of deterioration. The bridge (16-WG) is located within the former Township of West Garafraxa, Bridge 16-WG is located on 5th Line between Wellington Road 19 and Sideroad 15 in the rural area to the north of Fergus. The CHER and HIA were completed to support this undertaking and inform the decision-making process.

Comments
We have reviewed the CHER and HIA (all prepared by Archaeological Research Associates Ltd. and dated June 30, 2021 and July 27, 2021) and find that the CHER and HIA are consistent with the requirements, guidance and standards of the Municipal Class EA and with best practice guidance prepared by MHSTCI. However, we have attached a table with some detailed comments and recommendations for your consideration.

Environmental Assessment Reporting
All technical cultural heritage studies and their recommendations are to be addressed and incorporated into EA projects.

Given that the bridge was found to be of cultural heritage value or interest, MHSTCI recommends that the reports be publicly disclosed for any interested groups and persons for review and comment as part of the EA process.

Thank you for the opportunity to review the CHER and HIA. Please continue to send any notices or information related to this project to me and Karla Barboza (karla.barboza@ontario.ca). If you have any questions or require clarification, please do not hesitate to contact me.
Sincerely,

Laura Romeo
Heritage Planner (A)
Heritage Planning Unit
Laura.Romeo@ontario.ca

Copied to: Adam Gilmore, Manager of Engineering, Township of Centre Wellington
Karla Barboza, Team Lead (A), Heritage Planning Unit, MHSTCI

Item	Document	Section	Given Text	MHSTCI Comments
1.	CHER	5.0 Evaluation	The bridge was evaluated against O. Reg. 9/06 for determining CHVI in 2013 and was found to have design/physical value. Specifically, the report notes in Section 4.4.2 "The solid-spandrel, concrete-arch Fifth Line Bridge is representative of a common bridge type built in Ontario in the early 20th century. Many of these early bridges have been replaced due to structural deterioration and to meet modern traffic needs. Four of these designs still exist in Centre Wellington" (Golder 2013:16).	This section should describe how the criteria, O. Reg. 9/06 (*Ontario Heritage Act*), was applied to determine the property's cultural heritage value or interest and level of significance, if any. It will present a rationale supporting why each criterion was met or not met, and list the attributes that support or contribute to the property's cultural heritage value or interest, if any. MHSTCI recommends that this section be revised to discuss the rationale and present the findings of the evaluation.
2.	CHER	6.1 Statement of Cultural Heritage Value or Interest	"The solid-spandrel, concrete-arch Fifth Line Bridge [Structure 16-WG] is representative of a common bridge type built in Ontario in the early 20th century. Many of these early bridges have been replaced due to narrow lane width, structural deterioration and to meet modern traffic needs and the Fifth Line Bridge is a rare survivor of early-20th century concrete bridges in Ontario. Despite its provincial rarity, it is one of four similar structures still standing in the Township of Centre Wellington" (Golder 2013: 17).	The Statement of Cultural Heritage Value included in section 6.1 (of the CHER) and 3.1.2 (of the HIA) should be aligned. This Statement of Cultural Heritage Value should also be drafted in consultation with the municipal heritage committee, Heritage Centre Wellington and the municipal heritage planning staff. Please refer to the Ontario Heritage Tool Kit: Designating Heritage Properties Guide for guidance on how to draft Statements of Cultural Heritage Value. Statements should be organized and include the following information: - Description of Property - briefly describes the property location so that the property can be readily ascertained.CHVI – describes why the property is of CHVI

Item	Document	Section	Given Text	MHSTCI Comments
				- Desciption of heritage attributes - a list of the key attributes or elements that must be retained to conserve the CHVI
3.	HIA	3.1 Statement of Cultural Heritage Value 3.1.3 Heritage Attributes	"The concrete spandrel walls and flat arch are characteristic of solid spandrel concrete arch bridges" (Golder 2013:17).	MHSTCI recommends revising the Statement of Cultural Heritage Value to include the following: ○ Description of Heritage Attributes- a list of key attributes or elements that must be retained to conserve the cultural heritage value or interest. Please refer to the Ontario Heritage Tool Kit: Designating Heritage Properties Guide for guidance on how to draft Statements of Cultural Heritage Value.

Item	Document	Section	Given Text	MHSTCI Comments
4.	HIA	Table 2: Evaluation of Potential Impacts of Bridge Improvement Options on Heritage Attributes	Refer to Table 2: Evaluation of Potential Impacts of Bridge Improvement Options on Heritage Attributes	Please find attached for your reference, two examples of how the assessment of impacts to preferred alternatives should be discussed/documented. These examples reflect the eight conservation options provided in Section 4.3 of the Ontario Heritage Bridge Guidelines (OHBG) - alternatives from a minimum to a maximum intervention – from most to least preferred. The options are to be applied in rank order such that Option 1 must be shown to be non-viable, before Option 2 can be considered and so on. The demolition or removal of a bridge should be considered a last resort after all other alternatives have been considered. Application of the OHBG should be limited to the HIA's consideration of conservation options. For municipal bridges, Ontario Regulation 9/06 should be applied when evaluating for cultural heritage value or interest. It should also be clearly stated in the document.

Sarah Peters

From: Romeo, Laura (MHSTCI) <Laura.Romeo@ontario.ca>
Sent: November 26, 2021 9:59 AM
To: Lisa Marshall
Cc: Jennifer Cavanagh; Adam Gilmore; Sarah Peters; Barboza, Karla (MHSTCI)
Subject: RE: Notice of Study Commencement - Township of Centre Wellington Municipal Class Environmental Assessment Study for Bridge 16-WG [MHSTCI File 0000533
Attachments: 2021-11-26_Township of Centre Wellington MCEA for Bridge 16-Notice of Commencement-CHER-HIA-MHSTCI-Ltr.pdf

Good morning Lisa,

Please find attached the MHSTCI's comments on the CHER and HIA for the above referenced project. Please do not hesitate to contact me should you have any questions or concerns.

Kind regards,
Laura

Laura Romeo | Heritage Planner (A)
Heritage, Tourism and Culture Division | Programs and Services Branch | Heritage Planning Unit
Ministry of Heritage, Sport, Tourism and Culture Industries
Laura.Romeo@ontario.ca

From: Barboza, Karla (MHSTCI) <Karla.Barboza@ontario.ca>
Sent: October 21, 2021 11:54 AM
To: Lisa Marshall <l.marshall@mcintoshperry.com>
Cc: Romeo, Laura (MHSTCI) <Laura.Romeo@ontario.ca>; Jennifer Cavanagh <j.cavanagh@mcintoshperry.com>; Adam Gilmore <AGilmore@centrewellington.ca>; Sarah Peters <s.peters@mcintoshperry.com>
Subject: RE: Notice of Study Commencement - Township of Centre Wellington Municipal Class Environmental Assessment Study for Bridge 16-WG [MHSTCI File 0000533

Thanks Lisa! Much appreciated.
Karla

From: Lisa Marshall <l.marshall@mcintoshperry.com>
Sent: October-21-21 10:42 AM
To: Barboza, Karla (MHSTCI) <Karla.Barboza@ontario.ca>
Cc: Romeo, Laura (MHSTCI) <Laura.Romeo@ontario.ca>; Jennifer Cavanagh <j.cavanagh@mcintoshperry.com>; Adam Gilmore <AGilmore@centrewellington.ca>; Sarah Peters <s.peters@mcintoshperry.com>
Subject: RE: Notice of Study Commencement - Township of Centre Wellington Municipal Class Environmental Assessment Study for Bridge 16-WG [MHSTCI File 0000533

Hi Karla,

Please find attached 2013 HIA.

Thank you

Lisa Marshall, P.Eng.
Manager, Environmental Engineering
115 Walgreen Road, R.R. 3, Carp, ON K0A 1L0
T. 613.714.0815 | **F.** 613.836.3742 | **C.** 613.852.1148
l.marshall@mcintoshperry.com | www.mcintoshperry.com
McINTOSH PERRY

From: Barboza, Karla (MHSTCI) <Karla.Barboza@ontario.ca>
Sent: October 21, 2021 8:39 AM
To: Lisa Marshall <l.marshall@mcintoshperry.com>
Cc: Romeo, Laura (MHSTCI) <Laura.Romeo@ontario.ca>; Jennifer Cavanagh <j.cavanagh@mcintoshperry.com>; Adam Gilmore <AGilmore@centrewellington.ca>; Sarah Peters <s.peters@mcintoshperry.com>
Subject: RE: Notice of Study Commencement - Township of Centre Wellington Municipal Class Environmental Assessment Study for Bridge 16-WG [MHSTCI File 0000533

Good morning Lisa,

Thanks for sending the 2021 CHER and HIA. We will review and send comments, as appropriate, by late November. Could you also please send a digital copy of the 2013 CHER?

Thanks again,
Karla

From: Lisa Marshall <l.marshall@mcintoshperry.com>
Sent: October-21-21 8:04 AM
To: Barboza, Karla (MHSTCI) <Karla.Barboza@ontario.ca>
Cc: Minkin, Dan (MHSTCI) <Dan.Minkin@ontario.ca>; Romeo, Laura (MHSTCI) <Laura.Romeo@ontario.ca>; Jennifer Cavanagh <j.cavanagh@mcintoshperry.com>; Adam Gilmore <AGilmore@centrewellington.ca>; Sarah Peters <s.peters@mcintoshperry.com>
Subject: RE: Notice of Study Commencement - Township of Centre Wellington Municipal Class Environmental Assessment Study for Bridge 16-WG [MHSTCI File 0000533

Hello Karla,

Thank you for the below updates. We will be sure to update our contact list accordingly.

As per your request, please find attached a copy of the CHER and HIA completed for Bridge 16-WG.

Thank you,

Lisa Marshall, P.Eng.
Manager, Environmental Engineering
115 Walgreen Road, R.R. 3, Carp, ON K0A 1L0
T. 613.714.0815 | **F.** 613.836.3742 | **C.** 613.852.1148
l.marshall@mcintoshperry.com | www.mcintoshperry.com

McINTOSH PERRY

From: Barboza, Karla (MHSTCI) <Karla.Barboza@ontario.ca>
Sent: October 15, 2021 11:24 AM
To: Lisa Marshall <l.marshall@mcintoshperry.com>
Cc: Minkin, Dan (MHSTCI) <Dan.Minkin@ontario.ca>; Romeo, Laura (MHSTCI) <Laura.Romeo@ontario.ca>; Jennifer Cavanagh <j.cavanagh@mcintoshperry.com>; Adam Gilmore <AGilmore@centrewellington.ca>; Sarah Peters <s.peters@mcintoshperry.com>
Subject: FW: Notice of Study Commencement - Township of Centre Wellington Municipal Class Environmental Assessment Study for Bridge 16-WG [MHSTCI File 0000533

Hi Lisa (et al.),

Hope this email finds you well.

Thanks for sending the notices for Bridge 16-WG to the Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI).

Please note that there has been some changes in our office (see full MHSTCI contact below). For this project (MHSTCI File number 0000533), could you please update your contact list as follows?
Include:

- Karla Barboza, Team Lead - Heritage (Acting) | Heritage Planning Unit (Heritage, Sport, Tourism and Culture Industries) | 416-660-1027 | karla.barboza@ontario.ca
- Laura Romeo, Heritage Planner | Heritage Planning Unit (Heritage, Sport, Tourism and Culture Industries) | Laura.Romeo@ontario.ca

You can remove Dan Minkin from this project's contact list.

For future projects, please send the initial notice to me. You may also want to contact the Ministry of the Environment, Conservation and Parks for an updated Government Review Team List at 416-314-8001 or 1-800-461-6290.

I can confirm that a Stage 1 and 2 archaeological assessments (under Project Information Form numbers P346-0020-2013 and P346-0021-2013) have been entered into the Ontario Public Register of Archaeological Reports.

I also understand that a Heritage Impact Assessment was completed in 2013 and a Cultural Heritage Evaluation Report was completed in May 2021. It is not clear whether another Heritage Impact Assessment was completed in 2021. Could you please send a digital copy of the CHER and HIA(s) to our attention?

Thanks in advance,
Karla

Karla Barboza MCIP, RPP, CAHP | (A) Team Lead, Heritage
Ministry of Heritage, Sport, Tourism and Culture Industries
Heritage, Tourism and Culture Division | Programs and Services Branch | Heritage Planning Unit
T. 416. 660.1027 | Email: karla.barboza@ontario.ca

Ministry of Heritage, Sport, Tourism and Culture Industries			
Heritage, Tourism and Culture Division			
Name, Position, Agency and Address	**Document Form**	**Phone, Fax and Email**	**Types of EA Projects to be Circulated**
Karla Barboza, Team Lead(A), Heritage Heritage Planning Unit Programs and Services Branch Ministry of Heritage, Sport, Tourism and Culture Industries 400 University Ave, 5th Floor Toronto ON M7A 2R9	1 electronic/ email copy each (preferred)	T: 416-660-1027 karla.barboza@ontario.ca	Receives the initial circulations for all individual and site-specific Class EAs for all regions of the province. The Team Lead will assign to a Heritage Planner for review. EA matters of province-wide significance (including Parent Class EAs and Environmental Assessment policies and guidelines).
Heritage Planners: Site-specific individual and Class EA projects – Heritage Planners review site-specific EAs impacts on cultural heritage resources.			
Joseph Harvey, Heritage Planner(A) Heritage Program Unit Programs and Services Branch Ministry of Heritage, Sport, Tourism and Culture Industries 400 University Ave, 5th Floor Toronto ON M7A 2R9	1 electronic/ email copy each (preferred)	T. 613-242-3743 joseph.harvey@ontario.ca	Contact Karla Barboza as initial step prior to circulating documents. All individual and site-specific Class EAs for: • Southwestern Ontario which covers upper- and single-tier municipalities from Brant, Bruce, Chatham-Kent, Elgin, Essex, Grey, Haldimand, Huron, Middlesex, London, Lambton, Norfolk, Oxford, Perth, Pelee Island, , Waterloo and Wellington • Northwestern Ontario which covers upper- and single-tier municipalities from Kenora, Rainy River, Nipissing, Parry Sound,Thunder Bay District.
Laura Hatcher, Heritage Planner Heritage Planning Unit Programs and Services Branch Ministry of Heritage, Sport, Tourism and Culture Industries 400 University Ave, 5th Floor Toronto ON M7A 2R9	1 electronic/ email copy each (preferred)	T: 437-239-3404 laura.e.hatcher@ontario.ca	Contact Karla Barboza as initial step prior to circulating documents. All individual and site-specific Class EAs for: • Central region, which covers upper- and single-tier municipalities from Hamilton, Halton, Niagara, Peel, Dufferin; Durham, York, Toronto, Simcoe, Muskoka, Kawartha Lakes, Haliburton, Peterborough and Northumberland.

Jack Mallon, Heritage Planner(A) Heritage Planning Unit Programs and Services Branch Ministry of Heritage, Sport, Tourism and Culture Industries 400 University Ave, 5th Floor Toronto ON M7A 2R9	1 electronic/ email copy each (preferred)	T. jack.mallon@ontario.ca	Contact Karla Barboza as initial step prior to circulating documents. All individual and site-specific Class EAs for: • Eastern region which covers upper- and single-tier municipalities from Hastings, Prince Edward, Renfrew, Lennox & Addington, Frontenac Kingston, Ottawa, Lanark, Leeds & Grenville, Stormont Dundas & Glengarry, Prescott & Russell, and • Northeastern region which covers upper- and single-tier municipalities from Cochrane, Sudbury, Sault Ste. Marie and Algoma, Manitoulin, Timiskaming, Timmins.
Dan Minkin, Heritage Planner Heritage Planning Unit Programs and Services Branch Ministry of Heritage, Sport, Tourism and Culture Industries 400 University Ave, 5th Floor Toronto ON M7A 2R9	1 electronic/ email copy each (preferred)	T: 416-786-7553 dan.minkin@ontario.ca	Contact Karla Barboza as initial step prior to circulating documents. All individual and site-specific Class EAs for: • Central region, which covers upper- and single-tier municipalities from Hamilton, Halton, Niagara, Peel, Dufferin; Durham, York, Toronto, Simcoe, Muskoka, Kawartha Lakes, Haliburton, Peterborough and Northumberland.
Laura Romeo, Heritage Planner(A) Heritage Planning Unit Programs and Services Branch Ministry of Heritage, Sport, Tourism and Culture Industries 400 University Ave, 5th Floor Toronto ON M7A 2R9	1 electronic/ email copy each (preferred)	T. laura.romeo@ontario.ca	All individual and site-specific Class EAs for: • Southwestern region which covers upper- and single-tier municipalities from Brant, Bruce, Chatham-Kent, Elgin, Essex, Grey, Haldimand, Huron, Middlesex, London, Lambton, Norfolk, Oxford, Perth, Pelee Island, , Waterloo and Wellington • Northwestern region which covers upper- and single-tier municipalities from Kenora, Rainy River, Nipissing, Parry Sound, Thunder Bay District.

From: Lisa Marshall <l.marshall@mcintoshperry.com>
Sent: May 20, 2021 9:14 AM
To: Adam Gilmore <AGilmore@centrewellington.ca>; Lisa Marshall <l.marshall@mcintoshperry.com>
Cc: Jennifer Cavanagh <j.cavanagh@mcintoshperry.com>; Sarah Peters <s.peters@mcintoshperry.com>
Subject: Notice of Study Commencement - Township of Centre Wellington Municipal Class Environmental Assessment Study for Bridge 16-WG

CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.

Hello,

Please find the attached Notice of Study Commencement Letter for the Municipal Class Environmental Assessment Study currently being undertaken by the Township of Centre Wellington for Bridge 16-WG.

If you have any questions or comments, please contact one of the Project Team members noted in the enclosed letter.

Thank you,

Lisa Marshall, P.Eng.
Manager, Environmental Engineering
115 Walgreen Road, R.R. 3, Carp, ON K0A 1L0
T. 613.714.0815 | **F.** 613.836.3742 | **C.** 613.852.1148
l.marshall@mcintoshperry.com | www.mcintoshperry.com
McINTOSH PERRY

From: Adam Gilmore <AGilmore@centrewellington.ca>
Sent: June 29, 2021 3:37 PM
To: Lisa Marshall <l.marshall@mcintoshperry.com>
Subject: FW: Centre Wellington - Bridge 16-WG Class EA Study - Stage 1 & 2 Archeological Assessment Report

Hi Lisa,

Some additional information about the call I had yesterday with Fawn Sault from the Mississaugas of the Credit First Nation that can be included in the project file:

- Ms. Fawn Sault, Consultation Manager for the Mississaugas of the Credit First Nation called Adam Gilmore at approximately 4pm on Monday June 28, 2021 to inquire about the Bridge 16-WG Municipal Class Environmental Assessment (MCEA) Study
- Ms. Sault asked about the sub-studies that are being done as part of the MCEA Study
- Adam Gilmore provided an overview of the sub-studies being completed as part of the MCEA Study, and indicated that some studies, such as the Stage 1 & 2 Archeological Assessment, had been completed in the 2013/2014 timeframe, whereas some studies such as the Existing Conditions Study were completed in 2021
- Ms. Sault asked if there would be in-water work completed as part of this project
- Adam Gilmore responded that some in-water survey work had already been completed, and that it is too early in the process to know what type of in-water work (if any) may be required as part of the construction phase of the project. This information would not be known until after the MCEA Study has been completed (i.e., during the detailed design stage of the project)
- Ms. Sault requested a copy of the 2014 Stage 1 & 2 Archeological Assessment report, and Adam Gilmore sent this on June 29, 2021

- Adam Gilmore indicated that a virtual public open house for the project is planned for late summer 2021, and that information on the sub-studies, alternative solutions, and preliminary preferred solution would be presented at that time
- Ms. Sault requested that the virtual public open house information be sent when it is known
- Adam Gilmore indicated that the project team would also be interested in holding a direct meeting with the Mississauga of the Credit First Nation if this is preferred, and Ms. Sault suggested that this decision could be made later when the public open house information is sent

Adam

Adam Gilmore, M.A.Sc., P.Eng. | Manager of Engineering

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0
519.846.9691 x301 centrewellington.ca

Office located at: 7444 Wellington Road 21, Elora, ON N0B 1S0

From: Adam Gilmore
Sent: June 29, 2021 3:24 PM
To: 'Fawn.Sault@mncfn.ca' <Fawn.Sault@mncfn.ca>
Cc: 'Lisa Marshall' <l.marshall@mcintoshperry.com>
Subject: Centre Wellington - Bridge 16-WG Class EA Study - Stage 1 & 2 Archeological Assessment Report

Hello Fawn,

Thank you for the call yesterday, it was good to speak with you.

As discussed, please find attached a Stage 1 & 2 Archeological Assessment report that was completed for Bridge 16-WG in 2014.

I mentioned that we will be holding a virtual open house for the Municipal Class Environmental Assessment (MCEA) Study we are currently undertaking for Bridge 16-WG later this summer. I will contact you in a month or so with additional details about the virtual open house.

Please let me know if you have any questions about the attached report, or about the MCEA Study in general.

Kind regards,
Adam

Adam Gilmore, M.A.Sc., P.Eng. | Manager of Engineering

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0
519.846.9691 x301 centrewellington.ca

Office located at: 7444 Wellington Road 21, Elora, ON N0B 1S0

From: Fawn Sault <Fawn.Sault@mncfn.ca>
Sent: June 30, 2021 3:05 PM
To: Adam Gilmore <AGilmore@centrewellington.ca>
Cc: Lisa Marshall <l.marshall@mcintoshperry.com>
Subject: RE: Centre Wellington - Bridge 16-WG Class EA Study - Stage 1 & 2 Archeological Assessment Report

Good Afternoon Adam,

At this time we have no conerns.

Thank you again.

Fawn Sault
Consultation Coordinator
Mississaugas of the Credit First Nation
4065 Hwy. 6, Hagersville, N0A 1H0
Website: http://mncfn.ca/
Ph: 905-768-4260
Cell:289-527-6580

From: Adam Gilmore <AGilmore@centrewellington.ca>
Sent: Tuesday, June 29, 2021 3:24 PM
To: Fawn Sault <Fawn.Sault@mncfn.ca>
Cc: Lisa Marshall <l.marshall@mcintoshperry.com>
Subject: Centre Wellington - Bridge 16-WG Class EA Study - Stage 1 & 2 Archeological Assessment Report

Hello Fawn,

Thank you for the call yesterday, it was good to speak with you.

As discussed, please find attached a Stage 1 & 2 Archeological Assessment report that was completed for Bridge 16-WG in 2014.

I mentioned that we will be holding a virtual open house for the Municipal Class Environmental Assessment (MCEA) Study we are currently undertaking for Bridge 16-WG later this summer. I will contact you in a month or so with additional details about the virtual open house.

Please let me know if you have any questions about the attached report, or about the MCEA Study in general.

Kind regards,
Adam

Adam Gilmore, M.A.Sc., P.Eng. | Manager of Engineering

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0
519.846.9691 x301 centrewellington.ca

Office located at: 7444 Wellington Road 21, Elora, ON N0B 1S0

Sarah Peters

From: Lisa Marshall
Sent: January 13, 2022 8:24 AM
To: Del Villar Cuicas, Joan (MECP)
Cc: Adam Gilmore; Sarah Peters
Subject: RE: Centre Wellington, Township of, Municipal Class Environmental Assessment Study for Bridge 16-WG, Notice of Completion

Thanks very much for MECP comments.

Lisa Marshall, P.Eng.
Manager, Environmental Engineering
T. 613.714.0815 | **F.** 613.836.3742 | **C.** 613.852.1148
McINTOSH PERRY
Turning Possibilities Into Reality

From: Del Villar Cuicas, Joan (MECP) <Joan.DelVillarCuicas@ontario.ca>
Sent: January 13, 2022 8:11 AM
To: Lisa Marshall <l.marshall@mcintoshperry.com>
Cc: Adam Gilmore <AGilmore@centrewellington.ca>; Sarah Peters <s.peters@mcintoshperry.com>
Subject: RE: Centre Wellington, Township of, Municipal Class Environmental Assessment Study for Bridge 16-WG, Notice of Completion

Good morning Lisa,

Thank you for addressing our comments. We do not have further questions or comments at this time.

Regards,

Joan Del Villar Cuicas (she/her)
Regional Environmental Planner
Project Review Unit | Environmental Assessment Branch
Ontario Ministry of the Environment, Conservation and Parks
Joan.delvillarcuicas@ontario.ca | Phone: 365-889-1180

From: Lisa Marshall <l.marshall@mcintoshperry.com>
Sent: January 11, 2022 8:43 AM
To: Del Villar Cuicas, Joan (MECP) <Joan.DelVillarCuicas@ontario.ca>
Cc: Potter, Katy (MECP) <Katy.Potter@ontario.ca>; Adam Gilmore <AGilmore@centrewellington.ca>; Sarah Peters <s.peters@mcintoshperry.com>
Subject: Centre Wellington, Township of, Municipal Class Environmental Assessment Study for Bridge 16-WG, Notice of Completion

Hello Joan,

Thank you for your respond to the Notice of Study Completion for Bridge 16-WG and corresponding Project File Report. Please find attached our responses letter to MECP comments.

Thank you,

Lisa Marshall, P.Eng.
Manager, Environmental Engineering
T. 613.714.0815 | **F.** 613.836.3742 | **C.** 613.852.1148
l.marshall@mcintoshperry.com | www.mcintoshperry.com

McINTOSH PERRY

Turning Possibilities Into Reality

From: Del Villar Cuicas, Joan (MECP) <Joan.DelVillarCuicas@ontario.ca>
Sent: January 5, 2022 3:04 PM
To: Adam Gilmore <AGilmore@centrewellington.ca>; Lisa Marshall <l.marshall@mcintoshperry.com>
Cc: Potter, Katy (MECP) <Katy.Potter@ontario.ca>
Subject: RE: Centre Wellington, Township of, Municipal Class Environmental Assessment Study for Bridge 16-WG, Notice of Completion

Good afternoon,

Thank you for circulating the Notice of Completion and the Project File Report for Bridge 16-WG Municipal Class EA. MECP Project Review Unit provides the attached comments for your consideration.

Should you or any members of your project team have any questions regarding the comments, please contact me.

Regards,

Joan Del Villar Cuicas (she/her)
Regional Environmental Planner
Project Review Unit | Environmental Assessment Branch
Ontario Ministry of the Environment, Conservation and Parks
Joan.delvillarcuicas@ontario.ca | Phone: 365-889-1180

From: Sarah Peters <s.peters@mcintoshperry.com>
Sent: December 2, 2021 11:34 AM
To: EA Notices to WCRegion (MECP) <eanotification.wcregion@ontario.ca>
Cc: Adam Gilmore <AGilmore@centrewellington.ca>; Lisa Marshall <l.marshall@mcintoshperry.com>; Jennifer Cavanagh <j.cavanagh@mcintoshperry.com>; Sarah Peters <s.peters@mcintoshperry.com>
Subject: Centre Wellington, Township of, Municipal Class Environmental Assessment Study for Bridge 16-WG, Notice of Completion

Hello,

Please find the attached Notice of Study Completion letter for the Municipal Class Environmental Assessment Study undertaken by the Township of Centre Wellington for Bridge 16-WG.

The purpose of this notice is to notify you that the Project File Report (PFR) has been prepared to document the planning and decision-making process for this study. By this Notice, the PFR is being placed on the public record for a 45-day review period from **December 2, 2021, to January 13, 2022**. The PFR is available for review on the Township's website at https://www.connectcw.ca/municipal-class-environmental-assessment-study-for-bridge-16-wg, or via the following link: https://mcintoshperry365-my.sharepoint.com/:f:/g/personal/s_peters_mcintoshperry_com/En31esw8E-xLrGsToXFr7L0BHzKZpYbFcIiNfaA1jBlt3Q?e=PcP7Lz

If you have any questions or comments, please contact one of the Project Team members noted in the enclosed letter.

Thank you,

Sarah Peters
Environmental Planner
400-2010 Winston Park Drive, Oakville, ON L6H 5R7
T. 289.243.0246 | **C.** 905-802-4372
s.peters@mcintoshperry.com | www.mcintoshperry.com

McINTOSH PERRY

Ministry of the Environment, Conservation and Parks

Environmental Assessment Branch

1st Floor
135 St. Clair Avenue W
Toronto ON M4V 1P5
Tel.: 416 314-8001
Fax.: 416 314-8452

Ministère de l'Environnement, de la Protection de la nature et des Parcs

Direction des évaluations environnementales

Rez-de-chaussée
135, avenue St. Clair Ouest
Toronto ON M4V 1P5
Tél. : 416 314-8001
Téléc. : 416 314-8452

January 5, 2022

Adam Gilmore
Township of Centre Wellington

Lisa Marshall
McIntosh Perry Consulting Engineers Ltd.

Re: Municipal Class Environmental Assessment Study for Bridge 16-WG
Municipal Class Environmental Assessment – Schedule B
Project File Report
Project Review Unit Comments

Dear Adam Gilmore and Lisa Marshall,

This letter is in response to the Notice of Study Completion provided for the above noted Project File Report (Report). Our understanding is that in order to address the deficiencies associated with Bridge 16-WG, including its deteriorated condition and its substandard width and alignment, the Township of Centre Wellington (the proponent) has determined that the preferred solution (Alternative 3) is to replace the existing structure with a two-lane bridge.
The Ministry of the Environment, Conservation and Parks (ministry) provides the following comments for your consideration.

General:

1) All sections that refer to Appendices should be reviewed and revised appropriately. Please see below some discrepancies noted:
   - Pages 5-6 of the Report, indicates that the Notice of Public Online Center and Notice of completion can be found in Appendix B. This should be corrected to Appendix C.

- Pages 20-21 indicates that the Heritage Impact Assessment report prepared by ARA is in Appendix E-F. This should be corrected to Appendix D.
- Page 22 indicates that the Notice of Study Commencement and consultation responses can be found in Appendix E. This should be corrected to Appendix C.
- Page 23 Table 1: Reponses to the Notice of Commencement includes references to appendix E to view MECP and MNRF correspondences. This should be corrected to Appendix C.
- Page 24 indicates that Indigenous consultation correspondence can be found in Appendix E. This should be corrected to appendix C.

Air Quality and Odour

2) MECP recommends that non-chloride dust-suppressants be applied. For a comprehensive list of fugitive dust prevention and control measures, refer to *Cheminfo Services Inc. Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities* report prepared for Environment Canada. March 2005.

Noise

3) Noise control measures should be addressed and included in the construction plans to ensure that nearby residential and other sensitive land uses within the study area are not adversely affected during construction activities.

Excess Materials Management

4) All waste generated during construction must be disposed of in accordance with ministry requirements.
5) In December 2019, the ministry released a new regulation under the Environmental Protection Act, titled *On-Site and Excess Soil Management* (O. Reg. 406/19) to support improved management of excess construction soil. The regulation is being phased in over time, with the first phase in effect on January 1, 2021. For more information, please visit www.ontario.ca/page/handling-excess-soil. The Report should reference that activities involving the management of excess soil should be completed in accordance with O. Reg. 406/19 and the ministry's current guidance document titled "Management of Excess Soil – A Guide for Best Management Practices" (2014).

Indigenous Consultation

6) It appears that the Township of Centre Wellington (proponent) provided notices to an appropriate list of communities. Of the 4 communities identified only one, Mississauga of the Credit First Nation (MCFN), responded to the stakeholder notification, stating that they had no concerns with the project.
   Indigenous communities frequently receive a high volume of project notices and require time to review project proposals. For this reason, it is important that a proponent utilize different methods of reaching out to communities and reach out to the communities at different points in the process. Documentation of these efforts should be contained in the

consultation record, including courier receipts, read receipts for emails and telephone logs recording calls and messages. Any efforts to follow-up by the proponent should be documented in the record of consultation that accompanies the Class EA documentation.

7) It seems that notices were sent via regular mail to Haudenosaunee Confederacy Chiefs Council. As a result of COVID-19, some communities have limited access to the office. Consequently, MECP recommends that any notifications sent via mail be provided via email as well, or the proponent should follow up with the communities via email or telephone to confirm the Notice was received.

8) Please continue to reach out to communities if there any substantial changes to the project or if you are applying for subsequent permits from the MECP that may be of interest/concern to communities. We recommend that the proponent include the record of consultation with any subsequent applications to the MECP to help in our review of those applications.

Species at Risk

9) Further to Section 3.4 *Species at Risk* of the Report, please note that it is the responsibility of the proponent to ensure that Species at Risk (SAR) are not killed, harmed, or harassed, and that their habitat is not damaged or destroyed through the proposed activities to be carried out on the site. If the proposed activities cannot avoid impacting protected species and their habitats, then the proponent will need to apply for an authorization under the Endangered Species Act (ESA). As noted in the report, If the proponent believes that their proposed activities are going to have an impact or are uncertain about the impacts, they should contact SAROntario@ontario.ca to undergo a formal review under the ESA.

Thank you for circulating this Report for the ministry's consideration. We look forward to receiving a written response from the Township of Centre Wellington to address our comments provided above.
Should you or any members of your project team have any questions regarding the material above, please contact me at joan.delvillarcuicas@ontario.ca.

Sincerely,

Joan Del Villar Cuicas
Regional Environmental Planner
Project Review Unit, Environmental Assessment Branch
Ontario Ministry of the Environment, Conservation and Parks

Cc Katy Potter, Supervisor, Environmental Assessment Services, MECP

McINTOSH PERRY

January 10, 2022

Mrs. Joan Del Villar Cuicas
Regional Environmental Planner
Project Review Unit, Environmental Assessment Branch
Ontario Ministry of Environment, Conservation and Parks

Re: Municipal Class Environmental Assessment Study for Bridge 16-WG
Municipal Class Environmental Assessment – Schedule B
Project File Report
Response to Project Review Unit Comments

Dear Joan Del Villar Cuicas,

Thank you for taking the time to respond to the Notice of Study Completion for Bridge 16-WG and your review of the Project File Report. We have reviewed comments provided in your letter and have the following response to each item below:

1) We have revised all references to Appendices within the Project File Report accordingly.
2) During Preliminary & Detail Design, construction mitigation measures will be considered to avoid impacts to air quality and incorporated into the Contract Documents. This may include controlling dust caused from construction by the application of non-chloride dust suppressants (i.e., water), and minimizing odour and fumes by ensuring all equipment is properly maintained and that all pollution control devices on the equipment are operational and properly maintained.
3) During Preliminary & Detail Design, construction mitigation will be considered to reduce construction related noise and incorporated into the Contract Documents. This may include mitigation to reduce noise (i.e., restrictions for idling of equipment and maintaining equipment), and following the spirit of the Municipal noise by-law.

4/5) The Township is aware of their responsibility to dispose of all waste generated during construction in accordance with the ministry requirements / O.Reg 406/19. If during Preliminary and/or Detail Design it is determined that excess soils generated during construction cannot be reused on site, all requirements of O.Reg 406/19 will be followed including the completion of an assessment of past uses and drilling program.

6) Courier receipts for notices sent to Indigenous Communities during this study have been added to the Appendices of the Project File Report.
7) The Township will follow up with Indigenous Communities via email/telephone to confirm IC received the Notice of Completion and MCEA Report, as well as inquire if they have any questions or comments. Documentation of efforts of following up will be included in Appendix C of the Project File Report.
8) If there are any substantial changes to the project or if the project team determines a need to apply for permits from the MECP that may be of interest/concern to communities, additional consultation with Indigenous Communities will be undertaken and recorded.
9) Section 3.4 Species at Risk has been updated to note that if during detail design the proposed activities are going to have an impact, or if the project team is uncertain about the impacts to SAR and/or their habitat, the project team shall contact SAROntario@ontario.ca to undergo a formal review

under the Endangered Species Act (ESA). We have also noted that if impacts cannot be avoided to protected SAR and their habitat, then the project team must apply for an authorization under the ESA.

Please advise if this response addresses your comments or if you require us to send the revised Project File Report. Additionally, please do not hesitate to let us know if you have any further questions or comments regarding this MCEA Study.

Sincerely,
McIntosh Perry Consulting Engineers Ltd.

Lisa Marshall, P.Eng.
Project Manager

Encl. Study Area Key Map

cc. Katy Potter, Supervisor, Environmental Assessment Services, MECP
Adam Gilmore, Project Manager, Township of Centre Wellington

Sarah Peters

From: Adam Gilmore <AGilmore@centrewellington.ca>
Sent: January 11, 2022 4:10 PM
To: Trevor Heywood; Lisa Marshall
Cc: Sarah Peters
Subject: RE: Bridge 16-WG MCEA - Draft TPA Memo and Conceptual Design Plan

Thanks very much for your comments Trevor. We will certainly take them into consideration during the detailed design phase of the project, which is scheduled to begin this year.

Adam

Adam Gilmore, M.A.Sc., P.Eng. | Manager of Engineering

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0
519.846.9691 x301 centrewellington.ca

Office located at: 7444 Wellington Road 21, Elora, ON N0B 1S0

From: Trevor Heywood <theywood@grandriver.ca>
Sent: January 11, 2022 4:03 PM
To: Lisa Marshall <l.marshall@mcintoshperry.com>; Adam Gilmore <AGilmore@centrewellington.ca>
Cc: Sarah Peters <s.peters@mcintoshperry.com>
Subject: RE: Bridge 16-WG MCEA - Draft TPA Memo and Conceptual Design Plan

Hi Lisa, Adam,

Thank you for having a discussion with me and providing this additional info. Please see the GRCA's comments in response to the Notice of Completion attached.

Please let me know if you have any additional questions. Regards,

Trevor Heywood
Resource Planner
Grand River Conservation Authority

theywood@grandriver.ca
www.grandriver.ca | Connect with us on social media

From: Lisa Marshall <l.marshall@mcintoshperry.com>
Sent: Monday, January 10, 2022 4:01 PM
To: Trevor Heywood <theywood@grandriver.ca>
Cc: Sarah Peters <s.peters@mcintoshperry.com>; Adam Gilmore <AGilmore@centrewellington.ca>
Subject: Bridge 16-WG MCEA - Draft TPA Memo and Conceptual Design Plan

Hi Trevor,

As per our teleconference meeting on January 4, 2020, please find attached a copy of the Technically Preferred Alternative Memo for Bridge 16-WG Replacement on 5th Line Over Irvine Creek, Township of Centre Wellington.

Based on our discission, it is the Township and McIntosh Perry's understanding that GRCA have the following comments/concerns:

1. GRCA requires a drawing of proposed replacement to assess potential impacts and provide recommendations. – At this time, a Conceptual Design Plan (i.e. General Arrangement Drawing) has been prepared as part the Municipal Class EA process and is enclosed in Appendix A of the attached TPA Memo.

2. Provide further hydraulic analysis to support replacement of the bridge and ensure no negative impacts upstream and downstream of the bridge. – MP has undertaken an hydraulic analysis of the existing bridge and proposed conceptual design. The attached memo summarizes the hydraulic performances of the existing culvert and the proposed bridge configurations. The criteria are based on the MTO HDDS WC2 for bridges and WC7 for culverts. In addition to the proposed conceptual option, an open channel was also modeled to simulate natural channel conditions with no bridge or roadway obstruction. The upstream and downstream water levels of the existing conditions, the proposed option, and the open channel were compared to illustrate the impact on water elevations at this site, as well as upstream and downstream. In Section 4.3, additional recommendations where made for further hydraulic considered during Preliminary and Detailed Design which include:
    - The replacement bridge will need to ensure that the hydraulic opening shall have minimal impact to the upstream and downstream watercourse/floodplain.
    - A detailed hydraulic analyses is to be completed (by others) for the preliminary detailed design (PDD) for the final bridge configuration.

3. Provide construction footprint area to confirm impacts to adjacent environment/wetlands. – Please find attached updated Constraints and Opportunities Mapping which now includes the conceptual construction footprint area. At this time, the new bridge will carry two lanes of traffic and will remain on the same alignment. The new bridge is not anticipated to impact wetlands as no wetland areas were identified directly adjacent to the bridge and not within the conceptual construction footprint area. Please note that this construction footprint area is conceptual and will be updated during the preliminary and detailed design stage. During the PDD, an Environmental Impact Assessment will be completed as required to identify potential impacts to the environment and ensure that appropriate mitigate measures are incorporated into the design and contract package.

Following your review, please let us know if you have any addition requests for clarification.

Thank you,

Lisa Marshall, P.Eng.

Manager, Environmental Engineering
T. 613.714.0815 | **F.** 613.836.3742 | **C.** 613.852.1148
l.marshall@mcintoshperry.com | www.mcintoshperry.com

McINTOSH PERRY

Turning Possibilities Into Reality

Administration Centre: 400 Clyde Road, P.O. Box 729 Cambridge, ON N1R 5W6
Phone: 519-621-2761 Toll free: 1-866-900-4722 Fax: 519-621-4844 www.grandriver.ca

January 11, 2022

Adam Gilmore
Manager of Engineering
Township of Centre Wellington
1 MacDonald Square
Elora ON N0B 1S0
agilmore@centrewellington.ca

Lisa Marshall
Manager of Environmental Engineering
McIntosh Perry
115 Walgreen Road, RR 3
Carp ON K0A 1L0
l.marshall@mcintoshperry.com

Re: Notice of Study Completion
5th Line Bridge (16-WG) Class Environmental Assessment
Township of Centre Wellington

Dear Mr. Gilmore and Ms. Marshall,

The Grand River Conservation Authority (GRCA) has received the Notice of Completion for the above-noted Class Environmental Assessment (Class EA).

Information currently available at our office indicates that the study area contains Irvine Creek, as well as associated its floodplain and valley slopes. The Project File Report also indicates that wetlands are present in the immediate vicinity of the bridge. Due to the presence of these resource features, the GRCA regulates the project area under Ontario Regulation 150/06 (Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation). Any future bridge works will require a permit from the GRCA pursuant to Ontario Regulation 150/06.

We had limited contact with the project team through emails received on May 26 and July 20, 2021 regarding potential hydraulic analysis requirements and advisory comments on fish. The GRCA does not have record of receiving the September 2, 2021 public information centre. As such, we have not had an opportunity to provide comprehensive input on the Class EA until this point.

In that context, we have reviewed the Project File Report for the Class EA, as well as a memo regarding the Technically Preferred Alternative (McIntosh Perry, January 7, 2022) and wish to offer the following comments:

1. We generally understand the rationale for selecting the preferred alternative based on all of the evaluation criteria. We have no objections to the preferred alternative if it can meet GRCA policies for watercourses, floodplains, erosion hazards and wetlands.

2. The bridge is within an estimated floodplain for Irving Creek. As per GRCA policy 8.1.15, the preferred alternative must demonstrate adverse hydraulic or fluvial impacts are limited, any risk of flood damage to upstream or downstream properties is not increased, and there is no loss of flood storage wherever possible.

   After reviewing Appendix E (drainage memorandum), we believe these policy requirements can be addressed during detailed design. We request that a qualified professional engineer is retained to do a hydraulic analysis during detailed design, and that the GRCA is consulted prior to completing the analysis.
   a. The preferred alternative memo states that floodplain elevations up to the 100-year storm are significantly reduced upstream, while the Regional storm flood elevation (RFE) may increase upstream. Any RFE increases must be no more than 10 centimetres above existing conditions.
   b. With an estimated time to peak of 7.98 hours, we recommend running 6 and 12 hour SCS distribution design storms through the hydrologic model in addition to the 24 hour SCS distribution. Note that the flows from the 02GA005 gauge are the maximum annual daily flows, not maximum instantaneous flows. The maximum instantaneous flows are considerably higher for the same events.
   c. Please provide the digital HEC-RAS models during future submissions.

3. The Existing Environmental Conditions Report (McIntosh Perry, 2021) is acceptable in so far as it provides a good characterization of natural heritage features and functions within the study area. It also confirmed the presence of wetlands (mixed forb mineral meadow marsh type; MAMM2-4) in the immediate vicinity of the bridge. As such, the preferred alternative and its construction footprint will be within or immediately adjacent to wetlands. An environmental impact study (EIS) is required during detailed design in accordance with GRCA policies 8.4.6 and 8.4.7.
   a. The EIS must demonstrate that the detailed design of the bridge:

- Minimizes wetland loss or interference to the greatest extent possible; and,
- Where unavoidable, intrusions on significant natural features or hydrologic / ecological functions are minimized, restored and enhanced.

b. The EIS must be consistent with the GRCA's EIS Guidelines and Submission Standards, and done by an ecologist trained in the Ontario Wetland Evaluation System. Please circulate the GRCA on an EIS terms of reference to confirm the scope of work.
c. As per the GRCA's EIS Guidelines and Submission Standards, it is requested that vegetation species and soil conditions be summarized for each ELC vegetation type.
d. We'd request the opportunity to verify the wetland boundaries in the field during the 2022 growing season (May – October).
e. These identified wetland units are likely to be considered part of the Provincially Significant Living Springs Wetland Complex.

4. The north bank of Irvine Creek is an erosion hazard. Work on that bank must be consistent with GRCA policy 8.2.21. Given the nature of the slope and the project, a memo by a professional engineer should be suitable to outline how the design will interact with / modify the slope, and confirm:
    - There are no impacts on existing and future slope stability,
    - The risk of creating new or aggravating existing erosion hazards is minimized;
    - Natural watercourse movement is accomodated, wherever possible; and,
    - The potential for surficial erosion is addressed by a drainage plan.

5. The preferred alternative must meet GRCA policy 9.1.2 (watercourse crossings). In addition to the policy requirements outlined above, we recommend that the EIS speaks to how the preferred alternative:
    - Will take advantage of existing impacted or open areas on the channel bank or valley slope, wherever possible;
    - There is no inhibition of fish passage;
    - Physical realignments or alterations to Irving Creek are avoided or are in accordance with the GRCA policy 9.1.16; and
    - Maintenance requirements are minimized.

6. Detailed construction, grading, dewatering / isolation works, and erosion / sediment control plans will be required in support of a GRCA permit prior to construction.

Advisory Comments

A. Provincial records indicate that redside dace, a provincially- and federally-listed species at risk, occurs in this section of Irvine Creek. According to the Existing Environmental Conditions Report, the riffles located downstream of the bridge may provide suitable spawning grounds for redside dace. We recommend further consultation with the Ministry of the Environment, Conservation and Parks and Fisheries and Oceans Canada (DFO) to ensure compliance with provincial Endangered Species Act and the federal Species At Risk Act, respectively.

B. In regards to avian species at risk, the nearby woodlands likely provide suitable breeding habitat for eastern wood pewee, and potentially Canada warbler.

C. Given the potential for some bird species (e.g. swallows, eastern phoebe) to build nests on or under the existing bridge, appropriate measures should be implemented prior to construction to ensure compliance with the Migratory Birds Convention Act.

We trust this information is of assistance. If you have any questions or require additional information, please contact me at 519-621-2763 ext. 2292 or theywood@grandriver.ca.

Sincerely,

Trevor Heywood
Resource Planner
Grand River Conservation Authority

Sarah Peters

From: Romeo, Laura (MHSTCI) <Laura.Romeo@ontario.ca>
Sent: January 13, 2022 7:43 AM
To: Lisa Marshall
Cc: Barboza, Karla (MHSTCI); Del Villar Cuicas, Joan (MECP); Sarah Peters; Adam Gilmore
Subject: RE: Notice of Study Completion - Township of Centre Wellington Municipal Class Environmental Study for Bridge 16-WG
Attachments: 2022-01-13_Township of Centre Wellington MCEA Bridge 16 - Notice of Completion - MHSTCI Ltr.pdf

Good morning Lisa,

Please find attached MHSTCI comments on the above referenced Notice of Completion. Please do not hesitate to contact me should you have any questions or concerns.

Kind regards,
Laura

Laura Romeo | Heritage Planner (A)
Heritage, Tourism and Culture Division | Programs and Services Branch | Heritage Planning Unit
Ministry of Heritage, Sport, Tourism and Culture Industries
Laura.Romeo@ontario.ca

From: Sarah Peters <s.peters@mcintoshperry.com>
Sent: December 2, 2021 11:34 AM
To: Adam Gilmore <AGilmore@centrewellington.ca>; Lisa Marshall <l.marshall@mcintoshperry.com>
Cc: Jennifer Cavanagh <j.cavanagh@mcintoshperry.com>; Sarah Peters <s.peters@mcintoshperry.com>
Subject: Notice of Study Completion - Township of Centre Wellington Municipal Class Environmental Study for Bridge 16-WG

Hello,

Please find the attached Notice of Study Completion letter for the Municipal Class Environmental Assessment Study undertaken by the Township of Centre Wellington for Bridge 16-WG.

The purpose of this notice is to notify you that the Project File Report (PFR) has been prepared to document the planning and decision-making process for this study. By this Notice, the PFR is being placed on the public record for a 45-day review period from **December 2, 2021, to January 13, 2022**. The PFR is available for review on the Township's website at https://www.connectcw.ca/municipal-class-environmental-assessment-study-for-bridge-16-wg.

If you have any questions or comments, please contact one of the Project Team members noted in the enclosed letter.

Thank you,

Sarah Peters
Environmental Planner

400-2010 Winston Park Drive, Oakville, ON L6H 5R7
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McINTOSH PERRY

CANADA BEST MANAGED COMPANIES | Platinum member

Ministry of Heritage, Sport, Tourism and Culture Industries

Programs and Services Branch
400 University Ave, 5th Flr
Toronto, ON M7A 2R9
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Ministère des Industries du Patrimoine, du Sport, du Tourisme et de la Culture

Direction des programmes et des services
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Ontario

January 13, 2022 EMAIL ONLY

Lisa Marshall
Consultant Project Manager
McIntosh Perry Consulting Engineers Ltd.
115 Walgreen Road, R.R.3
Carp, ON K0A 1L0
l.marshall@mcintoshperry.com

MHSTCI File	**:**	**0000533**
Proponent	**:**	**Township of Centre Wellington**
Subject	**:**	**Notice of Completion – Municipal Class EA – Schedule B**
Project	**:**	**MCEA for Bridge 16-WG**
Location	**:**	**Township of Centre Wellington,**

Dear Ms. Marshall:

Thank you for providing the Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI) with the Notice of Completion for the Environmental Assessment (EA) for the above-referenced project. MHSTCI's interest in this EA project relates to its mandate of conserving Ontario's cultural heritage, which includes:

- Archaeological resources, including land and marine;
- Built heritage resources, including bridges and monuments; and,
- Cultural heritage landscapes.

Under the EA process, the proponent is required to determine a project's potential impact on cultural heritage resources.

Project Summary
The Township of Centre Wellington is conducting a review of a bridge to address its advanced state of deterioration. The bridge (16-WG) is located within the former Township of West Garafraxa, Bridge 16-WG is located on 5th Line between Wellington Road 19 and Sideroad 15 in the rural area to the north of Fergus. The CHER and HIA were completed to support this undertaking and inform the decision-making process.

Comments
MHSTCI has reviewed the Project File Report dated December 2, 2021 prepared by McIntosh Perry Consulting Engineers and finds that due diligence has been undertaken by::

- Undertaking a Stage 1 and 2 Archaeological Assessments (Project Information Form numbers P346-0020-2013 and P346-0021-2013, respectively), which were found to be compliant and have been entered into the Ontario Public Register of Archaeological Reports.
- Undertaking a Cultural Heritage Evaluation Report (CHER) and Heritage Impact Assessment (HIA), which MHSTCI found them to be consistent with the requirements, guidance and standards of the Municipal Class EA and with best practice guidance prepared by MHSTCI. MHSTCI sent additional comments for the proponent's consideration on November 26, 2021

Thank you for consulting MHSTCI on this project and please continue to do so throughout the EA process. If you have any questions or require clarification, please do not hesitate to contact me.

Sincerely,

Laura Romeo
Heritage Planner (A)
Heritage Planning Unit
Laura.Romeo@ontario.ca

Copied: Adam Gilmore, Manager of Engineering, Township of Centre Wellington
Joan Del Villar Cuicas, Environmental Resource Planner & EA Coordinator (A), MECP
Karla Barboza, Team Lead (A), Heritage Planning Unit, MHSTCI

Please notify MHSTCI if archaeological resources are impacted by EA project work. All activities impacting archaeological resources must cease immediately, and a licensed archaeologist is required to carry out an archaeological assessment in accordance with the *Ontario Heritage Act* and the *Standards and Guidelines for Consultant Archaeologists*.

If human remains are encountered, all activities must cease immediately and the local police as well as the Registrar, Burials of the Ministry of Government and Consumer Services (416-326-8800) must be contacted. In situations where human remains are associated with archaeological resources, MHSTCI should also be notified to ensure that the site is not subject to unlicensed alterations which would be a contravention of the *Ontario Heritage Act*.

APPENDIX G: BRIDGE 16-WG CONSTRUCTION COST ESTIMATE

McINTOSH PERRY

MEMORANDUM

To:	Lisa Marshall, P.Eng. – Manager, Environmental Engineering
From:	Curtis Stewart, P.Eng. – Manager, Transportation Structures
Date:	July 15, 2021
Re:	Bridge 16-WG Construction Cost Estimate

1.0 INTRODUCTION

McIntosh Perry was asked by the Township of Centre-Wellington to provide a cost estimate for the construction of Bridge 16-WG. The following provides high level cost estimates for a span length based on a discussion with the Township, reasonable assumptions and the existing site conditions including the edge of water and the existence of Redside Dace within 500 m of the bridge.

2.0 ASSUMPTIONS

The construction cost estimate will be estimated based on the MTO Parametric Estimating Guide (PEG), 2016. The PEG allows work to be estimated on the basis of $/m2 based on some simple criteria such as structure type and deck area (m2).

In the calculation of the cost estimate from the PEG, the following assumptions have been made.

Scope of Work

Based on the structure's age and its advanced deterioration which had led to its closure, it is assumed that the scope of work for the structure will be complete structure replacement.

For the purposes of this estimate, it is assumed that there will not be any significant grade raise of the structure or approach roadway required due to hydraulic capacity of the new structure, but rather that the new roadway and structure will be at the same profile/elevation as the existing. Should a grade raise be required in order to meet hydraulic requirements, a profile/grade raise will be required with a possible longer span and the cost estimate should be revised accordingly.

Structure Width

The existing structure provides a single-lane crossing while the approach roadway is two-lanes. At a previous meeting, the Township PM expressed desire of constructing a two-lane structure if replacement is required. For the purposes of the calculation, the cross-section of the replacement bridge shall include:

- 2 lanes x 3.5 m
- 2 shoulders x 1.0 m

- 2 barriers x 0.30 m

This gives a total structure width of 9.6 m.

Structure Length

The existing structure length is approximately 34 m, with each abutment located approximately at the edge of the watercourse. Based on past experience, conservation authorities have been known to require a 30 m buffer to be established from the water's edge to the new abutments. This is especially true in cases where species-at-risk are known to be present, as is the case with this site and the known presence of Redside Dace within 500 m of the site. However, an email correspondence dated June 7th , 2021 from Grand River Conservation Authority(GRCA) noted "Like-for-like replacement of the existing bridge, including the bridge's obstruction profile, road approach profile and conveyance capacity underneath. If this can be sufficiently demonstrated, no further study is required". Based on the comments from GRCA and a discussion with the Township, it is assumed that the new abutments will be constructed approximately 3 m behind the existing abutments. This would result in a total bridge length of 40 m (34 + 3 + 3 = 40 m).

Structure Type

Based on the span arrangement and the surrounding of the site, it is anticipated that potential structure types would be concrete NU girders or steel I-girders based on the facts that are most commonly used, easy to construct and economical.

3.0 COST ESTIMATE

Deck Length = 40 m

Deck Width = 9.6 m

Total Deck Area = 384 m

Based on the MTO PEG, the unit costs ($/m2) for each structure type is as follows:

	Avg Cost/m2 (Low)	Avg Cost/m2 (High)	Avg Cost/m2
Prestressed Concrete Girder	1,700	4,100	2,900
Steel I-Girder	2,300	5,500	3,900

Based on the total deck area, the estimates are below, rounded to the nearest $1,000.

	Estimate (Low)	Estimate (High)	Estimate (Avg)
Prestressed Concrete Girder	653,000	1,575,000	1,114,000
Steel I-Girder	884,000	2,112,000	1,498,000

Due to some of the uncertainty related to the foundation type such as possible needs for a deep foundation, McIntosh has taken a conservative approach and recommends the average of the higher cost estimates of both structural types. The average of these costs is $1,843,500.

Based on the MTO PEG, the structural costs for a project like this can makeup between 41% to 82% of the entirety of the construction budget. Since this project will largely consist of structural work, it is assumed that the structural costs will account for 75% of the overall costs.

Therefore, the calculation of the total project costs is estimated as follows:

$1,843,500 / 75% = $2,458,000

It should be noted that the estimate is for the Township's capital budget estimate purposes and should be updated when a hydraulic analysis complete and a preferred structural type and span length are determined in consultation with Township.

Prepared by:

Jazmine Henry, EIT
Transportation Structure EIT

Reviewed by:

Curtis Stewart, P.Eng.
Manager, Transportation Structures

Reviewed by:

Augustin Yun, M.A.Sc., P.Eng.
Senior Technical Lead