DRAFT
Cultural Heritage Evaluation Report (CHER) and Heritage Impact Assessment (HIA)

for

Bridge 34/B-T9 (Bridge Street Bridge)
Township of Wilmot, Regional Municipality of Waterloo

prepared by

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October 20, 2020
revised June 28, 2021

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all photographs by Owen R. Scott of CHC Limited, September 14, 2020 unless otherwise noted.

EXECUTIVE SUMMARY

The Bridge Street Bridge is an eight-panel, riveted, single-span, 46 m long x 4.08 m wide, Parker (camelback) truss bridge, crossing the Nith River, a tributary of the Grand River, midway between Haysville and Plattsville. It was built by the Hamilton Bridge Company in 1913 and is part of a group of steel truss bridges in Wilmot Township. It is posted with a weight limit of 11 tonnes.

The bridge is not listed on the Township's Heritage Register of Non-Designated Properties, nor is it designated under the *Ontario Heritage Act*, and it is not listed on the *Ontario Bridge Inventory*. It is described and evaluated in *Arch, Truss & Beam: The Grand River Watershed Heritage Bridge Inventory* and featured in *Spanning the Generations: A Study of Old Bridges in Waterloo Region*.

The structure was evaluated using the criteria of *Ontario Heritage Act Regulation 9/06*. The Bridge Street Bridge meets at three of the criteria of *Regulation 9/06*, including 'design value or physical value' and 'contextual value' criteria, having artistic merit and being physically, functionally, visually and historically linked to its surroundings and a familiar structure in the context of the area. The view of bridge from the west is dramatic and is considered a landmark. It does not meet the 'historical value or associative value' criterion.

Major repairs to the bridge have been carried out over the years, with the most recent in 2011. A 2019 Municipal Structural Inspection found the bridge to be in generally in poor condition with a recommendation to replace it due to its deteriorated condition, its deficient loading capacity, and deficient width.

While the bridge is considered to be worthy of designation under the *Ontario Heritage Act*, it is in such poor condition that it and requires many replacement elements. If that were accomplished it would still not meet the performance requirements of a river crossing in this location. A replacement bridge is required. The preferred alternative is documenting the bridge and commemorating it with a plaque on the new structure, and should a need be found, salvaged elements/members of the bridge could be retained for future conservation work.

1.0 BACKGROUND - CULTURAL HERITAGE EVALUATION REPORT

This Cultural Heritage Evaluation Report (CHER) has been conducted following the *Municipal Heritage Bridges Cultural, Heritage and Archaeological Resources Assessment Checklist Revised April 11, 2014* (MEA) and the Ministry of Tourism, Culture & Sport's *Standards & Guidelines for Conservation of Provincial Heritage Properties, Heritage Identification & Evaluation Process, Sept. 1, 2014*.

CHC Limited was contracted by K. Smart Associates Limited, on behalf of the Township of Wilmot[1], to conduct this heritage assessment of the Bridge Street Bridge, Township of Wilmot, Regional Municipality of Waterloo, Ontario. The bridge crosses the Nith River, a tributary of the Grand River, a Canadian Heritage River, midway between Haysville and Plattsville. The Bridge Street Bridge, Bridge #34/BT-9, is described and evaluated in *Arch, Truss & Beam: The Grand River Watershed Heritage Bridge Inventory*.[2] It is also featured in *Spanning the Generations: A Study of Old Bridges in Waterloo Region*, two phases of which 1) inventories and ranks more than 100 bridges based on their heritage attributes; and 2) reports on the ten most historically significant bridges[3]. The third phase focuses on steel truss bridges, of which the Bridge Street Bridge is one. The bridge is slated for replacement.[4]

A CHER is required as the first phase of the work to identify the degree of heritage significance of a bridge as information for the Class Environmental Assessment (EA) process.

This report is presented as part of the planning and design process for municipal roads projects subject to a Schedule "B" Municipal Class Environmental Assessment. The Municipal Class EA provides a decision-making process to ensure that all relevant engineering and environmental features are considered in the planning and design of municipal infrastructure. The Bridge Street Bridge is posted with a weight limit of 11 tonnes. This Class EA study is intended to address its:

1. deficient loading capacity (Figure 2);
2. existing bridge conditions;
3. deficient width (one lane - Figure 1)
4. options of:
   - do nothing,
   - repair the structure,
   - replace the structure,
   - relocate the structure.

Figure 1

Figure 2

[1] K. Smart Associates Limited, File 20-145, July 27, 2020

[2] Lindsay Benjamin *et. al.*, *Arch, Truss & Beam: The Grand River Watershed Heritage Bridge Inventory*, Heritage Resources Centre, University of Waterloo, March 2013, pp. 138-139

[3] *Spanning the Generations, A Study of Old Bridges in Waterloo Region*, Region of Waterloo, October 2007, pp 1.13-1.14 (*Phase 1*), pp., 52-58 (*Phase 3*)

[4] $3.5M replacement on the way for bridge near New Hamburg, *NewHamburgIndependent.ca*, Namish Modi, July 8, 2020

The objectives of this report are to: provide an historical overview of the bridge within the broader context of Wilmot Township and the Region of Waterloo; describe existing conditions and heritage integrity; evaluate the bridge within Ontario's MEA and Ministry of Heritage, Sport, Tourism and Culture Industries guidelines (referencing *Ontario Regulation 9/06*) and draw conclusions about the heritage attributes of the structure; and ascertain sensitivity to change in the context of identified heritage attributes and present and evaluate alternatives. Appropriate mitigation measures are recommended where adverse effects are anticipated.

2.0 THE CULTURAL HERITAGE EVALUATION REPORT

2.1 Description of the Property

The bridge is located on Wilmot Township Road 9 (now Bridge Street), Lot 21, Concessions 3 & 4, Block A south of Haysville (Figure 3).

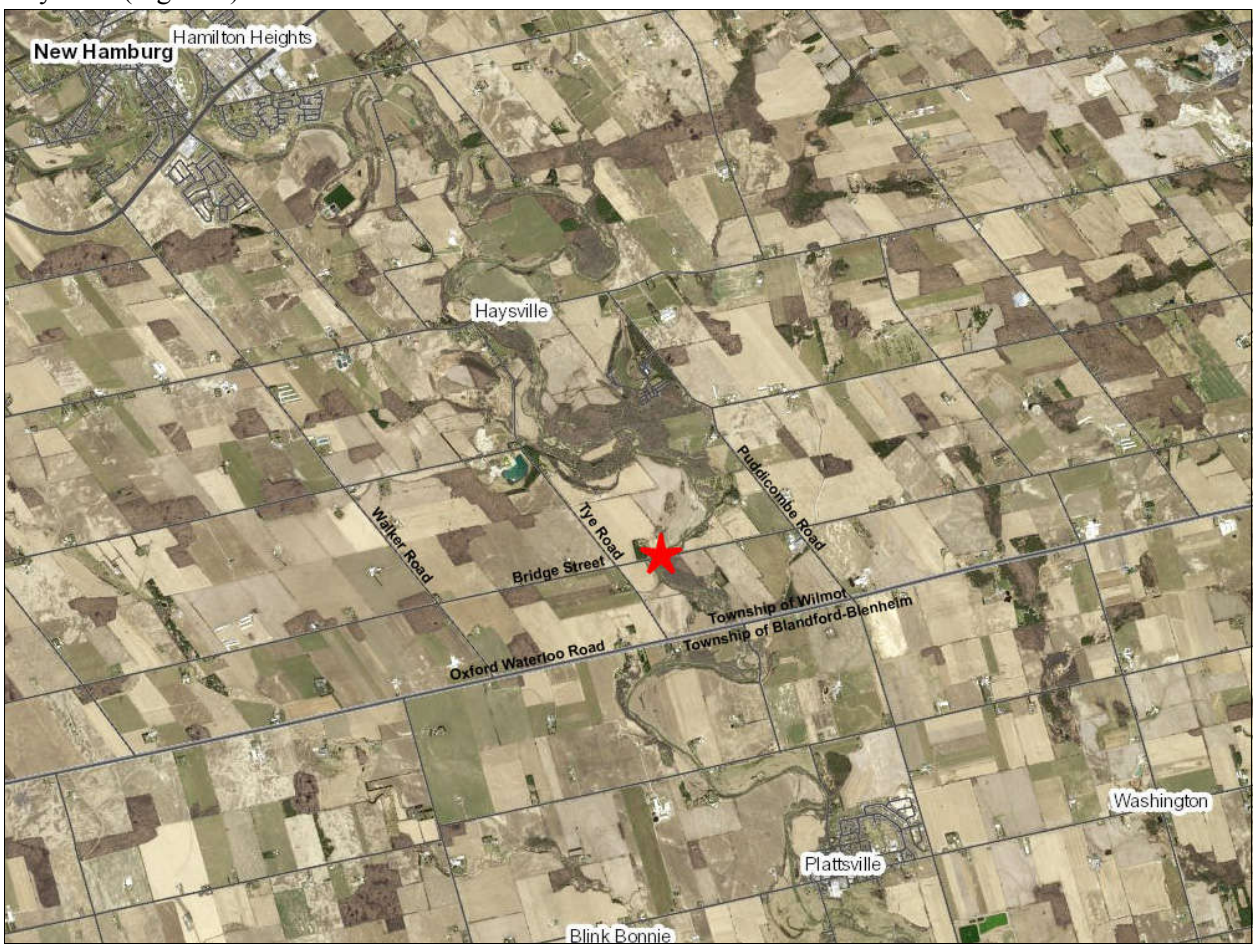

Figure 3 location of Bridge Street Bridge, Wilmot Township - *GRCA mapping*

The Bridge Street Bridge (Figure 4) is an eight-panel, riveted, single-span, 46 m long x 4.08 m wide, Parker (camelback) truss bridge with a clearance height of 3.8 metres. It was built by the Hamilton Bridge Company in 1913. The Bridge Street Bridge - 1913, is part of a group of steel truss bridges in Wilmot Township. The other bridges are Shade Street Bridge - 1953, Hartman Bridge - 1936 - (Part V designated *OHA*), Holland Mills Bridge -

c. 1910 (demolished)[5], Haysville Bridge - 1930 (demolished), and Oxford-Waterloo Bridge - 1912. This group of bridges is/was of an era and symbolized Wilmot's farming community.[6]

Figure 4 Bridge Street Bridge looking south - *K. Smart & Associates photo*

The bridge is not listed on the Township's Heritage Register as either a non-designated property of cultural heritage value or interest, or as a designated property under the *Ontario Heritage Act*. It is a single property within the a parcel of land that is in a Canadian Heritage River watershed, the Grand River watershed.

2.2 Research

In the conduct of this CHER, CHC Limited:

- researched archival and published sources relevant to the history and geographic context of the Bridge;
- conducted a site investigation to inventory and document the Bridge and its surrounding context; and
- evaluated the structure and its context using the criteria prescribed in *Regulation 9/06*.

Primary and secondary sources, including historic maps, aerial photographs, photographs, newspaper articles,

[5] *Cultural Heritage Evaluation Report (CHER) & Heritage Impact Assessment (HIA), Bridge No. 17/B-T13, 'Holland Mills Road Bridge', Township of Wilmot*, CHC Limited, November 28, 2016

[6] *Spanning the Generations, A Study of Old Bridges in Waterloo Region*, *Phase 2 Heritage Assessment*, Region of Waterloo, October 2007, p. 50 and *Phase 3 Heritage Assessment of Truss Bridges of Waterloo Region*, p. 32

online sources, local histories, and research publications, and volumes related to evaluating heritage value were reviewed (see References section).

A site investigation was conducted by Owen R. Scott, CAHP of CHC Limited on September 14, 2020 where numerous photographs were taken as well as notes on observations. Consultations were conducted on several occasions with Pedram Yazdan, E.I.T. and Allan Garnham, P.Eng. of K. Smart Associates Limited, the EA project lead consultant, regarding the structure, the Township's plans, archaeological investigations and the history of the bridge.

Wilmot Township is located on the traditional territory of the Neutral, Anishnaabeg, Haudenosaunee, and Mississauga peoples.

It was designated a Crown Reserve following the *Canada Act* of 1791 which created Upper and Lower Canada. Following a government survey in 1824, Mennonites from Waterloo Township and Amish from Europe claimed lots and began clearing roadways and farms.
The topographical features of Wilmot are of a generally regular and inviting order, the principal part of the township having just sufficient roll to facilitate drainage, though toward the south and south-east more pronounced undulations are observable ; but at no portion of its area is there any near approach to roughness. For the varied purposes of agriculture, Wilmot has no superior among the townships of Canada; its favorable climate, its fertile soil, its almost unexceptionable surface and numerous streams rendering it one of the most advantageous locations for the husbandman to be found on the continent. The founder of the first Wilmot community was Christian Naffziger, a Dutchman, who had come to America not later than 1820, in search of a location to plant a colony of Amish Mennonites.

The settlement of Wilmot lagged much behind that of not only Waterloo, but also Woolwich and Dumfries, and not until 1824 was there any considerable inroad upon the forests of this township effected by the axe of the sturdy pioneer.

The four most southerly concessions of Wilmot, (within which Bridge 34/BT-9 lies) *constituting Block A, were granted to the Canada Company as compensation for a considerable area of swampland which was included in their original grant. Between the first and second concessions the so-called Dundas Road was cut out by the Canada Company in 1828, as an avenue to their lands in the Huron Tract farther west ; and along this road, the first settlers began to locate in 1832, or the succeeding year.*[7]

The Canada Land Company opened the Huron Road through the southern part of Wilmot Township in 1828. Soon after, Roman Catholics and Lutherans from Alsace and Germany, Anglicans from the British Isles and others joined the initial settlers in clearing land and building roads, mills, shops, churches, schools and villages. Along the settlements three main roads were cleared for passage from one to the other. They named the roads Oberstrasse (Upper Street), Mittlestrasse (Middle Street) and Unterstrasse (Lower Street). These roads are now known as Erb's Road, Snyder's Road and Bleams Road.[8]

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[7] *Illustrated Historical Atlas of Waterloo & Wellington Counties Ontario*, H. Parsell & Co. 1881, p. 9

[8] History of Wilmot Township, https://www.wilmot.ca/en/living-here/History-of-Wilmot-Township.aspx

Likely to have been the first settler in what has been called Hamburgh or New Hamburg circa 1840, millwright Josiah Cushman arrived from Germany in the early 1830s. He dammed Smith's Creek and built a sawmill that helped attract others. William Scott, (Lord Campfield in Scotland), now considered to be the founder of New Hamburg, arrived in 1838, after Cushman's death. He renamed Smith's Creek the Nith River, built a new dam and constructed a new lumber sawmill. The mill continued to plane lumber until 1902 when it burned down.[9]

In 1840, Wilmot Township became part of the District of Wellington. On January 21, 1850, the first elected Council of the Township of Wilmot met in Wilmot Centre.[10]

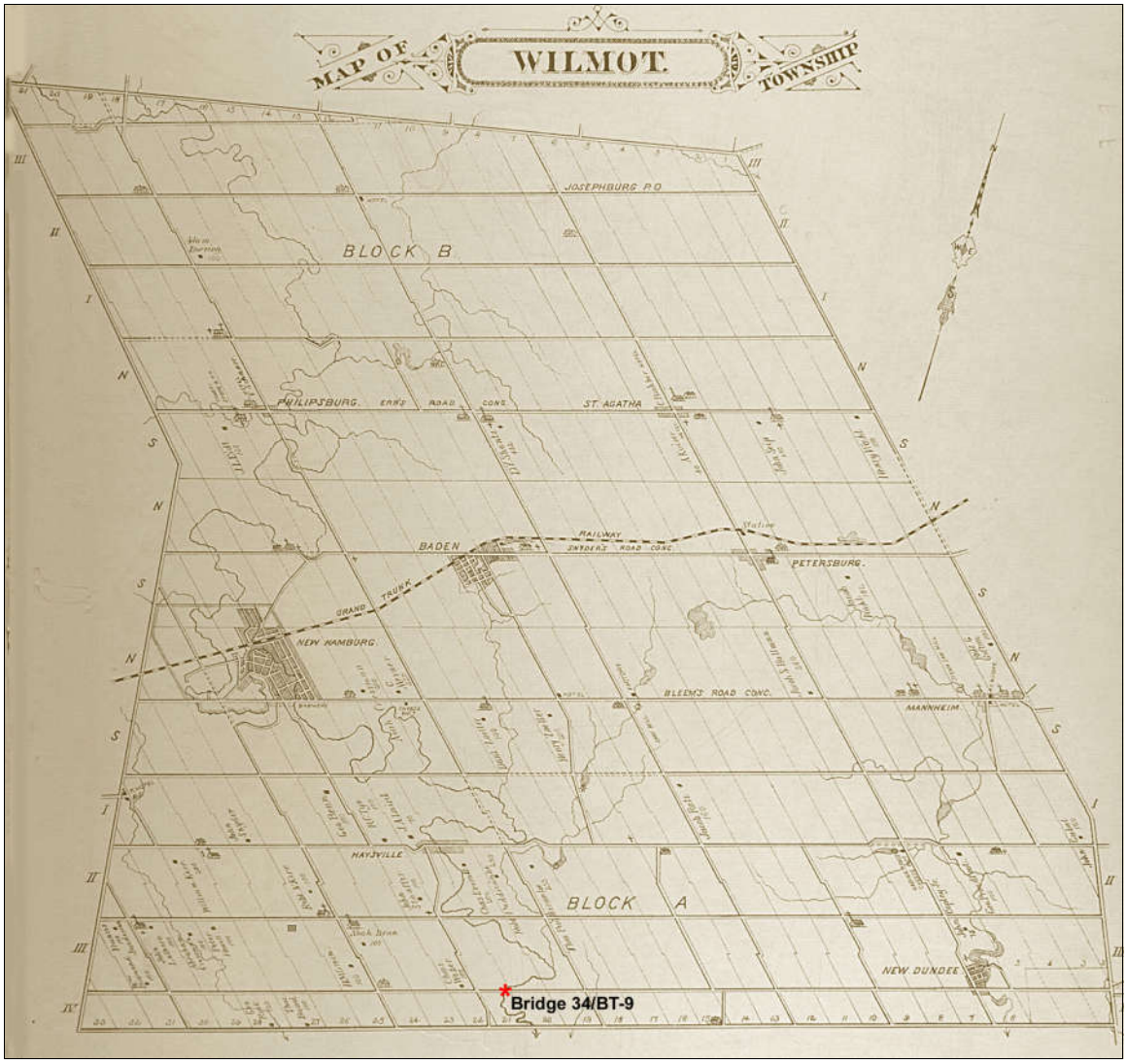

Figure 4Township of Wilmot 1881 - *Illustrated Historical Atlas of Waterloo & Wellington Counties Ontario*

The Nith river, named by Scott after the Nith River in Scotland, begins in a woodland northwest of Crosshill and west of Waterloo Regional Road 5 in the township of Wellesley. It heads north into Perth County, then turns sharply southwest and passes through the communities of Fernbank and Millbank in Perth East. It continues south,

[9] https://en.wikipedia.org/wiki/Wilmot,_Ontario

[10] History of Wilmot Township, https://www.wilmot.ca/en/living-here/History-of-Wilmot-Township.aspx

takes in the right tributary Smith Creek and arrives at the community of Nithburg. The river flows east back into Waterloo Region, takes in the right tributary Silver Creek, and then the left tributary Firella Creek south of the community of Wellesley in the township of Wellesley. The river turns south into the township of Wilmot, takes in the left tributary Bamberg Creek and passes through the communities of Phillipsburg and New Hamburg. The Nith continues south, takes in the left tributaries Baden Creek and Hunsburger Creek, enters into Blandford-Blenheim, Oxford County and reaches the community of Plattsville. The river turns east, takes in the right tributary Black Creek, and left tributaries Hiller Creek, Alder Creek and Eden Creek, passes back into Waterloo Region, and reaches the community of Ayr in the township of North Dumfries, where it takes in the left tributary Cedar Creek. It then turns sharply west, flows back into Oxford County, then turns southeast passing through the communities of Wolverton and Canning. The Nith then flows into Brant County, takes in the right tributary Mud Creek and left tributary Charlie Creek, passing Barker's Bush and reaching its mouth at the Grand River in Paris.[11]

Setting/Environs: A series of airphotos (Figure 5) show Bridge Street and the bridge from 1946 through 2015.

Figure 5 Bridge Street & Nith River crossing, 1946-1966 *University of Waterloo Geospatial Centre*, 2015, *GRCA mapping*

[11] https://en.wikipedia.org/wiki/Nith_River

In spite of a hurricane and devastating flood (Hazel 1954) and numerous storms and spring floods, the landscape environs of the bridge have remained markedly similar for nearly 75 years and perhaps longer.

Figure 6 meadow and crop land looking north from Bridge 34/BT-9

Figure 7 old field vegetation, typical of river valley south of Bridge 34/BT-9, southwest of bridge

Bridge Street is an asphalt surfaced road. Approaching the bridge from the east, it runs through a topographically flat valley landscape (Figure 8).

Figure 8 looking east from the bridge

The approach from the west, in contrast, is dramatic, with a steep hill from the tableland to the valley below (Figures 9 and 10).

Figure 9 looking west from the bridge

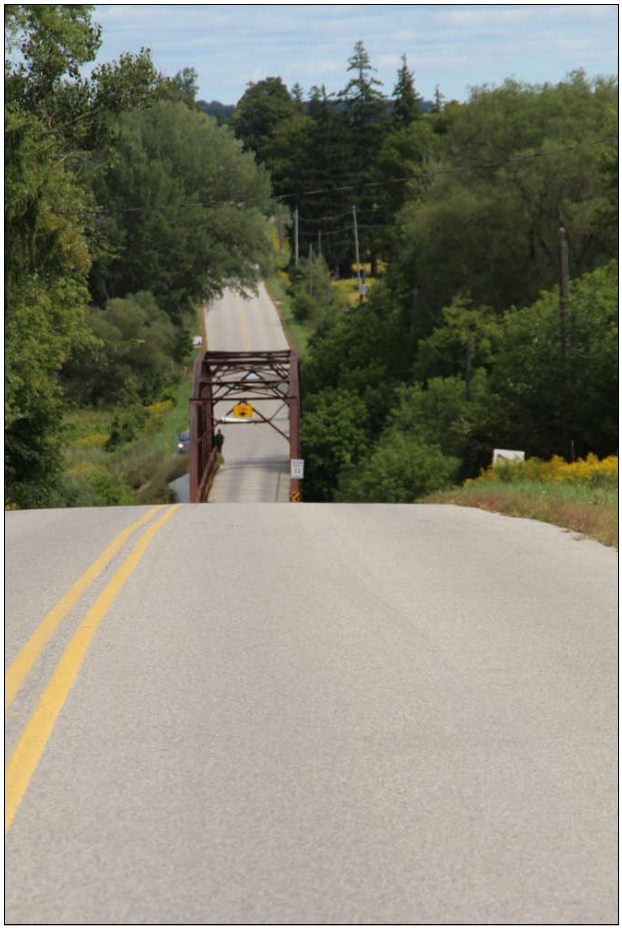

Figure 10 approach from the west

The Bridge:

On February 22, 1870, Charles H. Parker, a mechanical engineer with the National Bridge and Iron Works of Boston, Massachusetts, was awarded a patent (#100,185) for what was essentially, according to most bridge historians, a Pratt truss with a polygonal or inclined top chord. Parker, it is claimed, recognizing that the depth of truss required at the ends was less than that required at mid-span, simply inclined the top chord, thus also progressively shortening the vertical and diagonal members from the center to the ends of the truss. The Parker truss therefore uses less metal than a parallel chord Pratt truss of equal length, and the longer the span the greater the economy of materials. Unlike the parallel chord Pratt, however, the Parker required different length verticals and diagonals at each panel. This increased fabrication and erection costs. Because bridge prices were usually driven by the weight of the materials used to construct the superstructure, the lighter weight of the polygonal chord truss tended to offset the increased labor costs for spans over a certain length.

In the highly competitive bridge market, the economy of materials directly affected profit, and the Parker trusses superseded Pratt trusses for long span bridges after the turn of the century, as less materials were needed in their construction. The form was adopted by highway departments as standard designs for pony trusses (30 to 60 feet) and through trusses (100 to 300 feet). The camelback is a variation of the Parker truss. Most camelback trusses are essentially Parker trusses with exactly five slopes in the upper chord and end posts.[12]

[12] *A Context For Common Historic Bridge Types*, Chapter 3 - Historic Context for Common Historic Bridge Types, Parsons Brinckerhoff and Engineering and Industrial Heritage, October 2005, pp. 3-34 - 3-35

The Bridge Street Bridge is an eight-panel, riveted, single-span, 46 m long x 4.08 m wide, Parker (camelback) truss bridge with a clearance height of 3.8 metres. It was built by the Hamilton Bridge Company in 1913.

Figure 11 Bridge Street Bridge looking south - *K. Smart & Associates photo*

Figure 12 railings

Figure 13 concrete deck

The bridge retains its original railings, while its concrete deck is a 1982 replacement of the original and the concrete abutments were refaced in 2018 (Figures 12, 13 & 15).

Figure 14 Bridge Street Bridge looking north - *Nathan Holth 2006, HistoricBridges.org*

Figure 15 concrete abutment, west end

Over the years, the bridge has been damaged by flood and hurricane (Hazel 1954). In 2018 a tender was issued to effect extensive repairs to the bridge (Appendix 1). The concrete abutments were refaced (Figures 15 & 16); connection plates were replaced, floor beams and chords were reinforced (Figures 16 & 17).

Figure 16 refaced concrete abutment, diagonal chord reinforcement, east end

Figure 17 deteriorated beams, beam reinforcement

Figure 18 west portal - maximum height 3.8 metres

Figure 20 reinforced end post and original railing

Figure 19 west approach - *Nathan Holth 2006, HistoricBridges.org*

Figure 19 is a 2006 photograph that shows the weight limit at 15 tonnes versus today's 11 tonnes and also shows a gravel surfaced Bridge Street in 2006.

Figure 20 railing standoff

Figure 21 top chord connection

Figure 22 deteriorated end post to abutment connection

Figure 23 V-laced vertical member & damaged railing

After completion of the repairs, and in the next year, a Municipal Structural Inspection was carried out on the bridge by AEU Structural Inc., September 17, 2019. According to the Municipal Structure Inspection Form (Appendix 2), *Structural repairs to remaining ends of floor beams; exterior stringers and ends of bottom chords* were made in 2011, *Structural repairs to some ends of floor beams* were made in 2005, and *Deck replacement; rehabilitation of substructure* was performed in 1982 [13]. Specific observations/conclusions/recommendations from the report are:

- *Accessories (Attachments and Signs) - Abrasions and misalignment at hazard signs; Arrows for overhead clearance are damaged and wrapped over bridge bracing*
- *Approaches (Barrier) - A code compliant barrier is required on east approach; Substandard end treatments at northwest and southwest; substandard connection to barrier over structure; Light corrosion; abrasions; Impact damage; dents; Severe rot at base of some posts; some leaning and missing posts*
- *Approaches (Wearing Surface) - Light cracks at west; Medium transverse pattern cracks and at either end of approach slab at east; Settlement*
- *Joints (Armouring/ Retaining Devices) - Abrasions; Armouring at east joint is jammed*
- *Joints (Seals & Sealants) - Backer rod with sealant*

[13] *Municipal Structure Inspection Form 34/B-T9 - Bridge Street*, Tova Govia, P.Eng.; AUE Structural Inc. September 17, 2019

- *Barriers (Railing Systems) - Existing railing system is substandard and should be replaced with a code compliant railing system; Medium corrosion; Bent top and bottom rails; perforations at bottom rail; Missing rivets; Broken, bent and twisted lattice*
- *Barriers (Posts) - Existing railing system is substandard and should be replaced with a code compliant railing system; Posts are connected to truss; Loose; Twisted*
- *Trusses/Arches (Top Chords) - Light to severe corrosion; Perforations*
- *Trusses/Arches (Bottom Chords) - Medium to severe corrosion; Gravel accumulation; Repairs noted*
- *Trusses/Arches (Verticals/Diagonals) - Twisted and bent steel angles*
- *Trusses/Arches (Connections) - Medium to severe corrosion; Perforations at stiffener plates; Severe loss of rivet materials; Few missing bolts*
- *Bracing - Perforations at some of connections to bottom chords*
- *Decks (Drainage System) - Generally in good repair*
- *Decks (Deck Top/Thin Slab) - Narrow to medium transverse cracks; Localized delamination; Severe abrasions for a 1.00 m wide strip for entire length of deck; Steel channel at sides of deck is severely corroded, perforated and collapsed; Abrasions*
- *Decks (Soffit/Thin Slab) - Localized Wide Cracks; Delamination; Severe corrosion at ends of deck*
- *Beams/Main Longitudinal Elements (MLE's) (Floor Beams) - Medium to severe corrosion and section loss; Perforations at west floor beam; Floor beams ends have all been previously repaired, and some floor beams replaced*
- *Beams/Main Longitudinal Elements (MLE's) (Stringers) - Exterior stringers repaired with new stringers; Medium corrosion; Exterior stringers connected to channel on deck level which is loose and moving*
- *Bracing - Overhead portal frame severely twisted at both ends*
- *Abutments (Ballast Walls) - Wide crack at construction joint; Medium scaling at ends; Severe deterioration from abrasions at top of ballast walls; Severe spall and delamination at southeast; Severe spall at southwest*
- *Abutments (Bearings) - Covered with vegetation and debris; Severe corrosion; Seized bearings; Jammed joint*
- *Abutments (Abutment Walls) - Localized wide crack at bearing seat; Construction joint misaligned up to 20 mm at west abutment; Stains at bearing seat locations at west abutment*
- *Abutments (Wing Walls) - Full height wide crack; Undermining at northeast wingwall; Severe spall at southeast wingwall; Patched areas*
- *Foundations (Foundation Below Ground Level) - No visible evidence of foundation instability was noted during the inspection*
- *Embankments & Streams (Embankments) - Medium erosion was noted embankments*
- *Embankments & Streams (Slope Protection) - Generally in good condition*
- *Embankments & Streams (Streams & Waterway) - High volume and medium flow from south to north with no visible flow obstructions.*[14]

The report concludes that the: *Structure is generally in poor condition. Replacement of the structure is required in the next one (1) to five (5) years. Monitoring of the structure is recommended every three (3) months.*[15] The bridge is slated for replacement at an estimated cost of $3.5 million.

[14] *Ibid*

[15] *Ibid*

Figure 25 diagonal bracing

Figure 26 looking down river from the bridge

Figure 27 looking up river from the bridge

Although no builder's name or markings were found by the author; there is documentation that indicates the bridge was built by the Hamilton Bridge Company in 1913[16]. The steel is rusty, with a fair amount of perforation which has been reinforced with new steel. Bridge connections are mostly rivets; bolt and nut connections are used to fashion the recent steel reinforcing plates.

[16] *Spanning the Generations, A Study of Old Bridges in Waterloo Region*, *Phase 2 Heritage Assessment*, Region of Waterloo, October 2007, p. 50 and *Phase 3 Heritage Assessment of Truss Bridges of Waterloo Region*, p. 32 and Historic Bridges website *https://historicbridges.org/bridges/browser/?bridgebrowser=ontario/bridgest/*

Figure 28 underside of bridge showing extensive repairs - *K. Smart Associates photo*

An archaeological site investigation in 2020 did not result in finding anything of archaeological significance; the report to be issued will be a Stage 1 & Stage 2 Assessment.

2.3 Community Engagement

Consultation on cultural heritage resource considerations will be conducted through the Environmental Assessment Public Information Centre (PIC) and by requesting feedback from Indigenous communities, Heritage Wilmot Advisory Committee and The Township of Wilmot..

2.4 Evaluation

The structure was evaluated using the criteria of *Ontario Heritage Act Regulation 9/06*. The evaluation based on *Regulation 9/06* criteria is summarized below. To be considered significant and worthy of designation under Part IV of the *Ontario Heritage Act*, the bridge must meet one or more of the criteria grouped into the categories of Design/Physical Value, Historical/Associative Value and Contextual Value.

***Regulation 9/06* criteria**

A property may be designated under section 29 of the *Act* if it meets one or more of the following criteria for determining whether it is of cultural heritage value or interest. The criteria are listed with responses as to whether or not they are met.

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,

   The bridge is one of two rivet-jointed Parker Camelback through truss bridges in the Township, but not the earliest, and is not unique in the Township or Region - criterion not met.

   ii displays a high degree of craftsmanship or artistic merit, or

   The bridge is a combination of rivet- & bolt-connected steel with a concrete deck and concrete abutments. It does not exhibit a high degree of craftsmanship, although it does have artistic merit - criterion partially met..

   iii demonstrates a high degree of technical or scientific achievement,

   The bridge does not meet this criterion; however it is noted that the Parker truss was an improvement over the Pratt truss in terms of cost - criterion not met..

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,

   There is no known association with an historic theme, event, belief, person, activity, organization or institution - criterion not met..

   ii. yields, or has the potential to yield, information that contributes to an understanding of a community or culture, or

   The bridge does not yield or have the potential to yield information that would contribute to an understanding of the community or culture - criterion not met..

   iii. demonstrates or reflects the work or ideas of an architect, artist, builder, designer or theorist who is significant to a community.

   The bridge was built by a known, prolific Hamilton, Ontario builder of steel bridges in the late 19th to early 20th century. The builder is not significant to the community - criterion not met..

3. The property has **contextual value** because it,

   I. has direct associations with a theme, event, belief, person, activity, organization or institution that is significant to a community,

The bridge has no direct associations with a theme, event, belief, person, activity, organization or institution - criterion not met.

ii is physically, functionally, visually or historically linked to its surroundings, or

The bridge is physically, functionally, visually and historically linked to its surroundings - criterion is met.

iii. is a landmark.

The bridge is a familiar structure in the context of the area. The view of bridge from the west is dramatic, and is considered a landmark - criterion is met.

2.5 Conclusion

The Bridge Street Bridge (Bridge No. 34/B-T9) meets three of the criteria of *Regulation 9/06*, namely it has artistic merit; it is physically, functionally, visually and historically linked to its surroundings; and it is a landmark. It is considered significant and worthy of designation under the *Ontario Heritage Act*.

2.6 Draft Statement of Cultural Heritage Value

Description of Property - Bridge No. 34/B-T9 is set in a picturesque, rural, agricultural landscape. It is located midway between Haysville and Plattsville just east of Tye Road on Bridge Street where it crosses the Nith River. It is a 46 m long x 4.08 m wide, with a clearance height of 3.8 metres, concrete-decked, 8 panel, rivet-connected, Parker (camelback) through truss bridge. It was built in 1913 by the Hamilton Bridge & Tool Company of Hamilton, Ontario. There is no visible identification of the builder on the bridge. The bridge has been modified over time with reinforced steel plates, rivet replacement, *etc.*

Cultural Heritage Value or Interest - The bridge is not listed on the Township's Heritage Register of Non-Designated Properties, nor is it designated under the *Ontario Heritage Act*, and it is not listed on the *Ontario Bridge Inventory.* It is part of a group of steel truss bridges in Wilmot Township which include Shade Street Bridge, Hartman Bridge, and Oxford-Waterloo Bridge . Two other steel truss bridges, Holland Mills Bridge and Haysville Bridge have been demolished in recent years. The nearby Oxford-Waterloo Road Bridge is its twin. There are approximately 15 through truss bridges in the Grand River watershed of which 11 are in the Region of Waterloo.[17 & 18] Three similar steel through truss bridges were located in the neighbouring municipality of Blandford-Blenheim Bridges #20, #24 & #25. Bridge #20 was recently replaced, Bridge #24 is slated for replacement, and Bridge #25 was permanently closed to traffic.

The Bridge Street Bridge (Bridge No. 34/B-T9) meets three of the criteria of *Regulation 9/06*, namely it has artistic merit; it is physically, functionally, visually and historically linked to its surroundings; and it is a landmark.

Description of Heritage Attributes - Consideration can be given to the bridge's:

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[17] *Grand Old Bridges: The Grand River Watershed Bridge Inventory*, April 6, 2004, pp. 21-22

[18] *Spanning the Generations, A Study of Old Bridges in Waterloo Region*, *Phase 3 Heritage Assessment of Truss Bridges of Waterloo Region*, Region of Waterloo, October 2007, p. 2

- retention of its original railings;
- popular fishing location adding to the ambience of a fishing experience;
- proportions with a general massing that is appropriate to the landscape in which it is situated;
- dramatic view from the westerly approach making it a landmark in the community.

Key heritage attributes that embody the contextual heritage value of the bridge include:
- its contribution to the character of the Nith River valley part of the Canadian Heritage Grand River.

3.0 HERITAGE IMPACT ASSESSMENT

3.1 Description of the Proposed Undertaking

This heritage impact assessment is part of the planning and design process for a municipal roads project subject to a Class Environmental Assessment. Due to the existing bridge conditions, loading, width and height deficiency issues the Township of Wilmot is looking at improvements to the crossing. The existing steel truss bridge of 1913 is not listed on the Township's Heritage Register of Non-Designated Properties, nor is it designated under the *Ontario Heritage Act*. Neither is it on Ontario's Heritage Bridge List. The bridge replacement cost is estimated at $3.5 million.[19] The options are:
- do nothing,
- repair the bridge,
- replace the bridge superstructure,
- replace the bridge in current location,
- replace the bridge in new location.

3.2 Impact Assessment

The proposal is to replace the existing Bridge Street Bridge because it is in very poor and unsafe condition and would require extensive repair work to make it safe for vehicular travel. However, width, height and load issues would remain.

Replacing the structure in the current location will have a negative impact on the heritage resource as it has been determined to be a significant cultural heritage resource under *Regulation 9/06*. The demolition and removal of the bridge will result in the complete loss of all physical elements that reflected the cultural heritage value or interest of the property.

3.3 Considered Alternatives and Mitigating Measures

Doing nothing is not an option as the condition of the bridge is deficient and will continue to deteriorate.

Repairing the bridge will not overcome the load, width and height deficiencies. Repairs would also be extensive, requiring much of the original structure to be replaced.

Replacing the bridge superstructure would remove the integrity of the original bridge.

Replacing it in a new location and re-purposing the bridge for pedestrian use by repairing it, would have a minor

[19] $3.5M replacement on the way for bridge near New Hamburg, *NewHamburgIndependent.ca*, Namish Modi, July 8, 2020

negative impact on the resource, should that option be viable.

The Bridge Street Bridge is in very poor and unsafe condition and would require extensive repair work to make it safe for vehicular travel. However, width, height and load issues would remain. When retention of a span *in situ* is practically untenable from transportation, engineering or safety perspectives this is an appropriate conservation alternative that can satisfy the intent of retaining the span. Adoption of such an option is feasible if:

- the condition of the bridge is sufficiently good or can be made good at reasonable cost to warrant relocation;
- a site can be found where the bridge could be placed as a useful structure, or as a replacement for a bridge in poor condition; and
- this can be accomplished at a reasonable cost.

Should a replacement in a new location be feasible, and if a repaired Bridge Street Bridge could serve a useful purpose as a pedestrian crossing in its current location, the heritage impact would be minimal. If retaining the bridge *in situ* is not practical, relocating the steel truss span of the structure would have a lesser negative impact on the heritage resource than demolition or scrap salvage. A relocation to a use that requires a weight limit that does not exceed the repaired bridge's capacity and would not require a wider roadbed would be required. A farm lane creek crossing, or a pedestrian park bridge, for example, might be ideal uses, should something be found within a reasonable proximity. Relocating the bridge to another place is only feasible, if the bridge condition is such that it can be dismantled, repaired, and re-decked. A site where the bridge could be placed as a useful structure with new abutments would also be required. All of this would need to be accomplished at a reasonable cost.

The preferred alternative at this juncture would appear to be replacement of the bridge in the current location. The impact on the heritage resource will depend on the potential for relocating the existing structure.

With respect to the environs, the CHER identifies the cultural heritage resources associated with the project. None needs to be impacted by the replacement of the bridge if the design of the replacement and especially its relationship to the immediate Nith River landscape is sensitive to the character of the adjacent landscape, the historic crossing, and the current recreational use of the immediate environs (fishing).

In the opinion of this author, the Bridge Street Bridge meets the criteria of *Regulation 9/06* for designation under the *Ontario Heritage Act*. Therefore, alternatives / mitigation options need to be considered. The following options in rank order of preference, based on the Ontario Heritage Bridge Guidelines (MTO, 2008) - Section 4.3 are provided for context.

1. *retention of existing bridge with no major modifications undertaken;*
   not a reasonable alternative as the bridge is structurally unsound and deficient in capacity, width and height.

2. *restoration of missing or deteriorated elements where physical or documentary evidence (e.g. photographs or drawings) exists for their design;*
   feasible, but requires extensive replacement of original fabric without resolving load, width and height issues.

3. *retention of existing bridge with sympathetic modification;*
   feasible, but requires extensive replacement of original fabric without resolving load, width and height issues.

4. *retention of existing bridge with sympathetically designed new structure in proximity;*
   considering the course of the Nith River, the associated extensive floodplain, and the steep approach from the west at this location (Figure 29), this may not be feasible.


Figure 29 westerly approach

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.;*
   Where retention of a span for vehicular use is practically untenable from engineering or safety perspectives this is an appropriate conservation alternative that would satisfy the intent of retaining the span. This option is not feasible considering the need for a vehicular crossing at this location.

6. *retention of bridge as heritage monument for viewing purposes only;*
   not feasible (see notes 4 & 5).

7. *relocation of smaller, lighter single span bridges to an appropriate new site for continued use or adaptive re-use;*
   Where retention of a span *in situ* is practically untenable from transportation, engineering or safety perspectives this is an appropriate conservation alternative that would satisfy the intent of retaining the span. Adoption of such an option is feasible if:
   - the condition of the bridge is sufficiently good or can be made good at reasonable cost to warrant relocation;
   - a site can be found where the bridge could be placed as a useful structure, or as a replacement for a bridge in poor condition; and
   - this can be accomplished at a reasonable cost.

   It is unknown if there is an appropriate site and the bridge would still require extensive replacement of the original fabric to be sound. This option does not appear to be feasible.

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; and*
   b. *undertake full recording and documentation of existing structure.*[20]

   Replacement is planned by the Township. However, should a need be found, salvaged elements/members of the bridge could be retained for future conservation work and a recording and documentation of the existing structure undertaken. Photographs and descriptions gathered during the course of this CHER/HIA and previous documentation by the Region of Waterloo and *historicbridges.org* could be utilized for that purpose. As well, the existing structure could be commemorated with a plaque mounted on the replacement bridge.

[20] *Ontario Heritage Bridge Guidelines (Interim) – Jan 11, 2008,* Ontario Ministry of Transportation

4.0 RECOMMENDATION

Further to input from the Public Information Centres (community consultation), the foregoing mitigating measures should be taken into consideration during the selection of the preferred alternative in the EA process. Because the bridge is in such poor condition and requires many replacement elements, the preferred alternative is documenting the bridge and commemorating it with a plaque on the new structure, and should a need be found, salvaged elements/members of the bridge could be retained for future conservation work.

This is considered the minimal acceptable level of mitigation.

This revised draft CHER and HIA is respectfully submitted

CHC Limited

per: Owen R. Scott, CAHP

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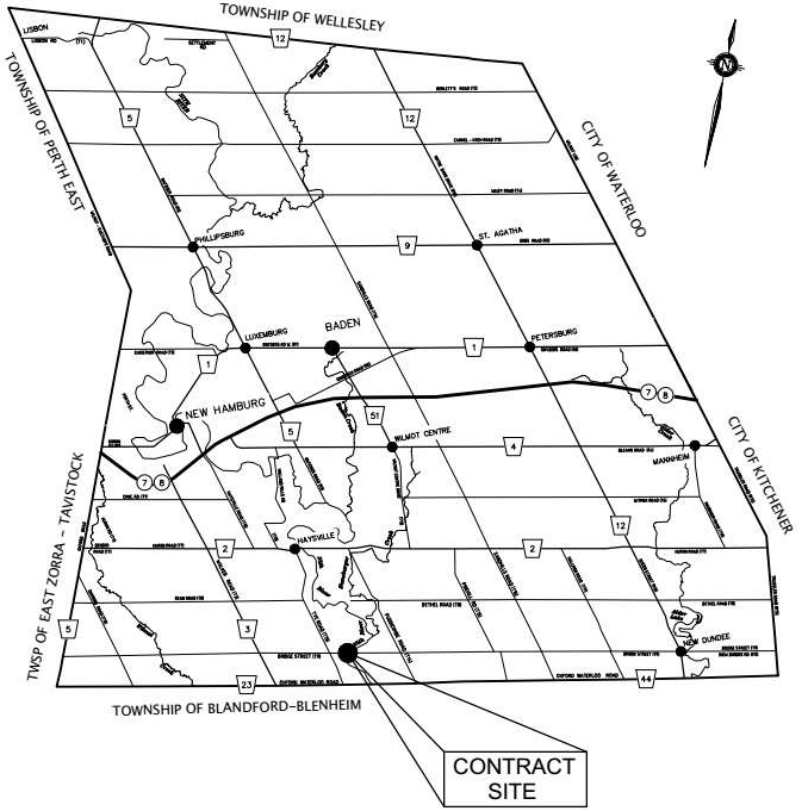
https://en.wikipedia.org/wiki/Nith_River

Wikipedia website, Wilmot Township
https://en.wikipedia.org/wiki/Wilmot,_Ontario

STRUCTURE 34/B-T9 REPAIRS

(BRIDGE STREET BRIDGE)

TOWNSHIP OF WILMOT
REGION OF WATERLOO



KEY PLAN
N.T.S.

BUILDING A SURE FOUNDATION

LIST OF DRAWINGS

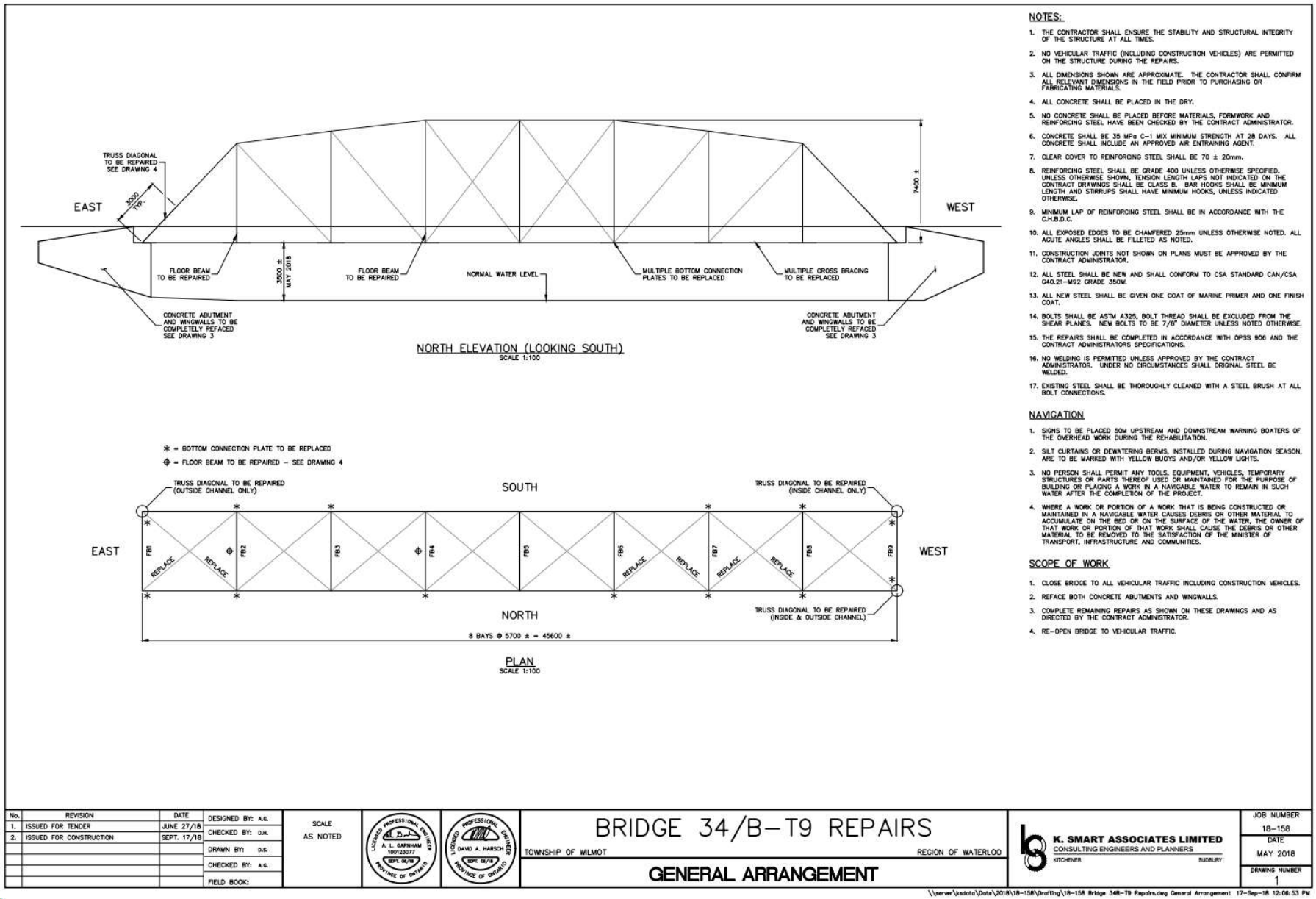
1. GENERAL ARRANGEMENT
2. EROSION & SEDIMENT CONTROL
3. DETAILS 1
4. DETAILS 2

CONTRACT DRAWINGS

TENDER No. 2018-23

APPROVED FOR CONSTRUCTION SEPT. 17, 2018

K. SMART ASSOCIATES LIMITED
CONSULTING ENGINEERS AND PLANNERS
KITCHENER SUDBURY



NOTES:

1. THE CONTRACTOR SHALL ENSURE THE STABILITY AND STRUCTURAL INTEGRITY OF THE STRUCTURE AT ALL TIMES.
2. NO VEHICULAR TRAFFIC (INCLUDING CONSTRUCTION VEHICLES) ARE PERMITTED ON THE STRUCTURE DURING THE REPAIRS.
3. ALL DIMENSIONS SHOWN ARE APPROXIMATE. THE CONTRACTOR SHALL CONFIRM ALL RELEVANT DIMENSIONS IN THE FIELD PRIOR TO PURCHASING OR FABRICATING MATERIALS.
4. ALL CONCRETE SHALL BE PLACED IN THE DRY.
5. NO CONCRETE SHALL BE PLACED BEFORE MATERIALS, FORMWORK AND REINFORCING STEEL HAVE BEEN CHECKED BY THE CONTRACT ADMINISTRATOR.
6. CONCRETE SHALL BE 35 MPa C-1 MIX MINIMUM STRENGTH AT 28 DAYS. ALL CONCRETE SHALL INCLUDE AN APPROVED AIR ENTRAINING AGENT.
7. CLEAR COVER TO REINFORCING STEEL SHALL BE 70 ± 20mm.
8. REINFORCING STEEL SHALL BE GRADE 400 UNLESS OTHERWISE SPECIFIED. UNLESS OTHERWISE SHOWN, TENSION LENGTH LAPS NOT INDICATED ON THE CONTRACT DRAWINGS SHALL BE CLASS B. BAR HOOKS SHALL BE MINIMUM LENGTH AND STIRRUPS SHALL HAVE MINIMUM HOOKS, UNLESS INDICATED OTHERWISE.
9. MINIMUM LAP OF REINFORCING STEEL SHALL BE IN ACCORDANCE WITH THE C.H.B.D.C.
10. ALL EXPOSED EDGES TO BE CHAMFERED 25mm UNLESS OTHERWISE NOTED. ALL ACUTE ANGLES SHALL BE FILLETED AS NOTED.
11. CONSTRUCTION JOINTS NOT SHOWN ON PLANS MUST BE APPROVED BY THE CONTRACT ADMINISTRATOR.
12. ALL STEEL SHALL BE NEW AND SHALL CONFORM TO CSA STANDARD CAN/CSA G40.21–M92 GRADE 350W.
13. ALL NEW STEEL SHALL BE GIVEN ONE COAT OF MARINE PRIMER AND ONE FINISH COAT.
14. BOLTS SHALL BE ASTM A325, BOLT THREAD SHALL BE EXCLUDED FROM THE SHEAR PLANES. NEW BOLTS TO BE 7/8" DIAMETER UNLESS NOTED OTHERWISE.
15. THE REPAIRS SHALL BE COMPLETED IN ACCORDANCE WITH OPSS 906 AND THE CONTRACT ADMINISTRATORS SPECIFICATIONS.
16. NO WELDING IS PERMITTED UNLESS APPROVED BY THE CONTRACT ADMINISTRATOR. UNDER NO CIRCUMSTANCES SHALL ORIGINAL STEEL BE WELDED.
17. EXISTING STEEL SHALL BE THOROUGHLY CLEANED WITH A STEEL BRUSH AT ALL BOLT CONNECTIONS.

NAVIGATION

1. SIGNS TO BE PLACED 50M UPSTREAM AND DOWNSTREAM WARNING BOATERS OF THE OVERHEAD WORK DURING THE REHABILITATION.
2. SILT CURTAINS OR DEWATERING BERMS, INSTALLED DURING NAVIGATION SEASON, ARE TO BE MARKED WITH YELLOW BUOYS AND/OR YELLOW LIGHTS.
3. NO PERSON SHALL PERMIT ANY TOOLS, EQUIPMENT, VEHICLES, TEMPORARY STRUCTURES OR PARTS THEREOF USED OR MAINTAINED FOR THE PURPOSE OF BUILDING OR PLACING A WORK IN A NAVIGABLE WATER TO REMAIN IN SUCH WATER AFTER THE COMPLETION OF THE PROJECT.
4. WHERE A WORK OR PORTION OF A WORK THAT IS BEING CONSTRUCTED OR MAINTAINED IN A NAVIGABLE WATER CAUSES DEBRIS OR OTHER MATERIAL TO ACCUMULATE ON THE BED OR ON THE SURFACE OF THE WATER, THE OWNER OF THAT WORK OR PORTION OF THAT WORK SHALL CAUSE THE DEBRIS OR OTHER MATERIAL TO BE REMOVED TO THE SATISFACTION OF THE MINISTER OF TRANSPORT, INFRASTRUCTURE AND COMMUNITIES.

SCOPE OF WORK

1. CLOSE BRIDGE TO ALL VEHICULAR TRAFFIC INCLUDING CONSTRUCTION VEHICLES.
2. REFACE BOTH CONCRETE ABUTMENTS AND WINGWALLS.
3. COMPLETE REMAINING REPAIRS AS SHOWN ON THESE DRAWINGS AND AS DIRECTED BY THE CONTRACT ADMINISTRATOR.
4. RE-OPEN BRIDGE TO VEHICULAR TRAFFIC.

No.	REVISION	DATE
1.	ISSUED FOR TENDER	JUNE 27/18
2.	ISSUED FOR CONSTRUCTION	SEPT. 17/18

DESIGNED BY: A.G.
CHECKED BY: D.H.
DRAWN BY: D.S.
CHECKED BY: A.G.
FIELD BOOK:

SCALE AS NOTED

A. L. GARNHAM 100123077 SEPT. 06/18 PROVINCE OF ONTARIO

DAVID A. HARSCH SEPT. 06/18 PROVINCE OF ONTARIO

BRIDGE 34/B–T9 REPAIRS

TOWNSHIP OF WILMOT — REGION OF WATERLOO

GENERAL ARRANGEMENT

K. SMART ASSOCIATES LIMITED
CONSULTING ENGINEERS AND PLANNERS
KITCHENER — SUDBURY

JOB NUMBER 18–158
DATE MAY 2018
DRAWING NUMBER 1

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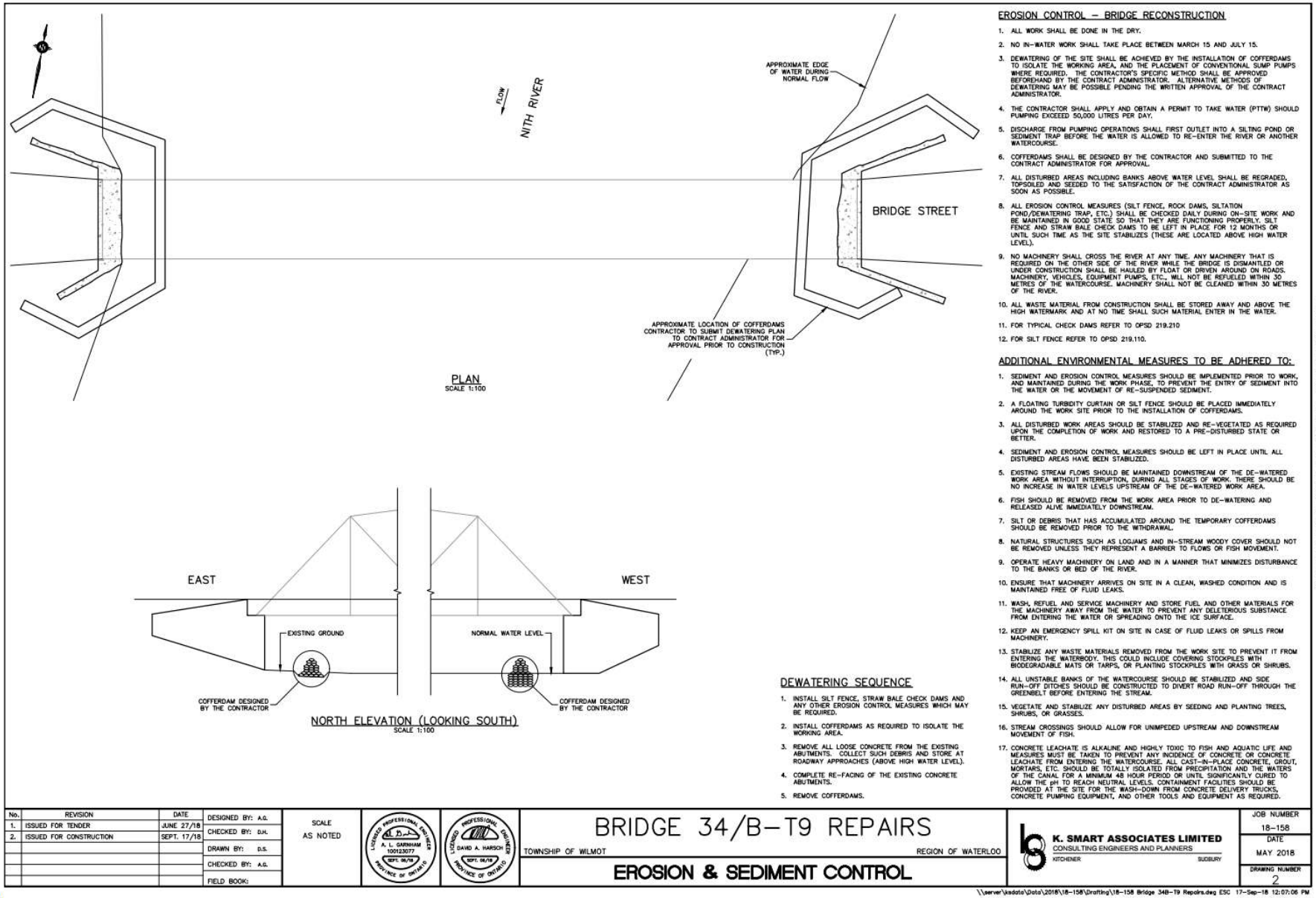

EROSION CONTROL – BRIDGE RECONSTRUCTION

1. ALL WORK SHALL BE DONE IN THE DRY.
2. NO IN-WATER WORK SHALL TAKE PLACE BETWEEN MARCH 15 AND JULY 15.
3. DEWATERING OF THE SITE SHALL BE ACHIEVED BY THE INSTALLATION OF COFFERDAMS TO ISOLATE THE WORKING AREA, AND THE PLACEMENT OF CONVENTIONAL SUMP PUMPS WHERE REQUIRED. THE CONTRACTOR'S SPECIFIC METHOD SHALL BE APPROVED BEFOREHAND BY THE CONTRACT ADMINISTRATOR. ALTERNATIVE METHODS OF DEWATERING MAY BE POSSIBLE PENDING THE WRITTEN APPROVAL OF THE CONTRACT ADMINISTRATOR.
4. THE CONTRACTOR SHALL APPLY AND OBTAIN A PERMIT TO TAKE WATER (PTTW) SHOULD PUMPING EXCEED 50,000 LITRES PER DAY.
5. DISCHARGE FROM PUMPING OPERATIONS SHALL FIRST OUTLET INTO A SILTING POND OR SEDIMENT TRAP BEFORE THE WATER IS ALLOWED TO RE-ENTER THE RIVER OR ANOTHER WATERCOURSE.
6. COFFERDAMS SHALL BE DESIGNED BY THE CONTRACTOR AND SUBMITTED TO THE CONTRACT ADMINISTRATOR FOR APPROVAL.
7. ALL DISTURBED AREAS INCLUDING BANKS ABOVE WATER LEVEL SHALL BE REGRADED, TOPSOILED AND SEEDED TO THE SATISFACTION OF THE CONTRACT ADMINISTRATOR AS SOON AS POSSIBLE.
8. ALL EROSION CONTROL MEASURES (SILT FENCE, ROCK DAMS, SILTATION POND/DEWATERING TRAP, ETC.) SHALL BE CHECKED DAILY DURING ON-SITE WORK AND BE MAINTAINED IN GOOD STATE SO THAT THEY ARE FUNCTIONING PROPERLY. SILT FENCE AND STRAW BALE CHECK DAMS TO BE LEFT IN PLACE FOR 12 MONTHS OR UNTIL SUCH TIME AS THE SITE STABILIZES (THESE ARE LOCATED ABOVE HIGH WATER LEVEL).
9. NO MACHINERY SHALL CROSS THE RIVER AT ANY TIME. ANY MACHINERY THAT IS REQUIRED ON THE OTHER SIDE OF THE RIVER WHILE THE BRIDGE IS DISMANTLED OR UNDER CONSTRUCTION SHALL BE HAULED BY FLOAT OR DRIVEN AROUND ON ROADS. MACHINERY, VEHICLES, EQUIPMENT PUMPS, ETC., WILL NOT BE REFUELED WITHIN 30 METRES OF THE WATERCOURSE. MACHINERY SHALL NOT BE CLEANED WITHIN 30 METRES OF THE RIVER.
10. ALL WASTE MATERIAL FROM CONSTRUCTION SHALL BE STORED AWAY AND ABOVE THE HIGH WATERMARK AND AT NO TIME SHALL SUCH MATERIAL ENTER IN THE WATER.
11. FOR TYPICAL CHECK DAMS REFER TO OPSD 219.210
12. FOR SILT FENCE REFER TO OPSD 219.110.

ADDITIONAL ENVIRONMENTAL MEASURES TO BE ADHERED TO:

1. SEDIMENT AND EROSION CONTROL MEASURES SHOULD BE IMPLEMENTED PRIOR TO WORK, AND MAINTAINED DURING THE WORK PHASE, TO PREVENT THE ENTRY OF SEDIMENT INTO THE WATER OR THE MOVEMENT OF RE-SUSPENDED SEDIMENT.
2. A FLOATING TURBIDITY CURTAIN OR SILT FENCE SHOULD BE PLACED IMMEDIATELY AROUND THE WORK SITE PRIOR TO THE INSTALLATION OF COFFERDAMS.
3. ALL DISTURBED WORK AREAS SHOULD BE STABILIZED AND RE-VEGETATED AS REQUIRED UPON THE COMPLETION OF WORK AND RESTORED TO A PRE-DISTURBED STATE OR BETTER.
4. SEDIMENT AND EROSION CONTROL MEASURES SHOULD BE LEFT IN PLACE UNTIL ALL DISTURBED AREAS HAVE BEEN STABILIZED.
5. EXISTING STREAM FLOWS SHOULD BE MAINTAINED DOWNSTREAM OF THE DE-WATERED WORK AREA WITHOUT INTERRUPTION, DURING ALL STAGES OF WORK. THERE SHOULD BE NO INCREASE IN WATER LEVELS UPSTREAM OF THE DE-WATERED WORK AREA.
6. FISH SHOULD BE REMOVED FROM THE WORK AREA PRIOR TO DE-WATERING AND RELEASED ALIVE IMMEDIATELY DOWNSTREAM.
7. SILT OR DEBRIS THAT HAS ACCUMULATED AROUND THE TEMPORARY COFFERDAMS SHOULD BE REMOVED PRIOR TO THE WITHDRAWAL.
8. NATURAL STRUCTURES SUCH AS LOGJAMS AND IN-STREAM WOODY COVER SHOULD NOT BE REMOVED UNLESS THEY REPRESENT A BARRIER TO FLOWS OR FISH MOVEMENT.
9. OPERATE HEAVY MACHINERY ON LAND AND IN A MANNER THAT MINIMIZES DISTURBANCE TO THE BANKS OR BED OF THE RIVER.
10. ENSURE THAT MACHINERY ARRIVES ON SITE IN A CLEAN, WASHED CONDITION AND IS MAINTAINED FREE OF FLUID LEAKS.
11. WASH, REFUEL AND SERVICE MACHINERY AND STORE FUEL AND OTHER MATERIALS FOR THE MACHINERY AWAY FROM THE WATER TO PREVENT ANY DELETERIOUS SUBSTANCE FROM ENTERING THE WATER OR SPREADING ONTO THE ICE SURFACE.
12. KEEP AN EMERGENCY SPILL KIT ON SITE IN CASE OF FLUID LEAKS OR SPILLS FROM MACHINERY.
13. STABILIZE ANY WASTE MATERIALS REMOVED FROM THE WORK SITE TO PREVENT IT FROM ENTERING THE WATERBODY. THIS COULD INCLUDE COVERING STOCKPILES WITH BIODEGRADABLE MATS OR TARPS, OR PLANTING STOCKPILES WITH GRASS OR SHRUBS.
14. ALL UNSTABLE BANKS OF THE WATERCOURSE SHOULD BE STABILIZED AND SIDE RUN-OFF DITCHES SHOULD BE CONSTRUCTED TO DIVERT ROAD RUN-OFF THROUGH THE GREENBELT BEFORE ENTERING THE STREAM.
15. VEGETATE AND STABILIZE ANY DISTURBED AREAS BY SEEDING AND PLANTING TREES, SHRUBS, OR GRASSES.
16. STREAM CROSSINGS SHOULD ALLOW FOR UNIMPEDED UPSTREAM AND DOWNSTREAM MOVEMENT OF FISH.
17. CONCRETE LEACHATE IS ALKALINE AND HIGHLY TOXIC TO FISH AND AQUATIC LIFE AND MEASURES MUST BE TAKEN TO PREVENT ANY INCIDENCE OF CONCRETE OR CONCRETE LEACHATE FROM ENTERING THE WATERCOURSE. ALL CAST-IN-PLACE CONCRETE, GROUT, MORTARS, ETC. SHOULD BE TOTALLY ISOLATED FROM PRECIPITATION AND THE WATERS OF THE CANAL FOR A MINIMUM 48 HOUR PERIOD OR UNTIL SIGNIFICANTLY CURED TO ALLOW THE pH TO REACH NEUTRAL LEVELS. CONTAINMENT FACILITIES SHOULD BE PROVIDED AT THE SITE FOR THE WASH-DOWN FROM CONCRETE DELIVERY TRUCKS, CONCRETE PUMPING EQUIPMENT, AND OTHER TOOLS AND EQUIPMENT AS REQUIRED.

DEWATERING SEQUENCE

1. INSTALL SILT FENCE, STRAW BALE CHECK DAMS AND ANY OTHER EROSION CONTROL MEASURES WHICH MAY BE REQUIRED.
2. INSTALL COFFERDAMS AS REQUIRED TO ISOLATE THE WORKING AREA.
3. REMOVE ALL LOOSE CONCRETE FROM THE EXISTING ABUTMENTS. COLLECT SUCH DEBRIS AND STORE AT ROADWAY APPROACHES (ABOVE HIGH WATER LEVEL).
4. COMPLETE RE-FACING OF THE EXISTING CONCRETE ABUTMENTS.
5. REMOVE COFFERDAMS.

ISSUED FOR CONSTRUCTION DRAWING SET

No.	REVISION	DATE
1.	ISSUED FOR TENDER	JUNE 27/18
2.	ISSUED FOR CONSTRUCTION	SEPT. 17/18

DESIGNED BY: A.G.
CHECKED BY: D.H.
DRAWN BY: D.S.
CHECKED BY: A.G.
FIELD BOOK:

SCALE AS NOTED

A. L. GARNHAM 100123077 SEPT. 06/18 PROVINCE OF ONTARIO

DAVID A. HARSCH SEPT. 06/18 PROVINCE OF ONTARIO

BRIDGE 34/B-T9 REPAIRS

TOWNSHIP OF WILMOT — REGION OF WATERLOO

EROSION & SEDIMENT CONTROL

K. SMART ASSOCIATES LIMITED
CONSULTING ENGINEERS AND PLANNERS
KITCHENER SUDBURY

JOB NUMBER 18-158
DATE MAY 2018
DRAWING NUMBER 2

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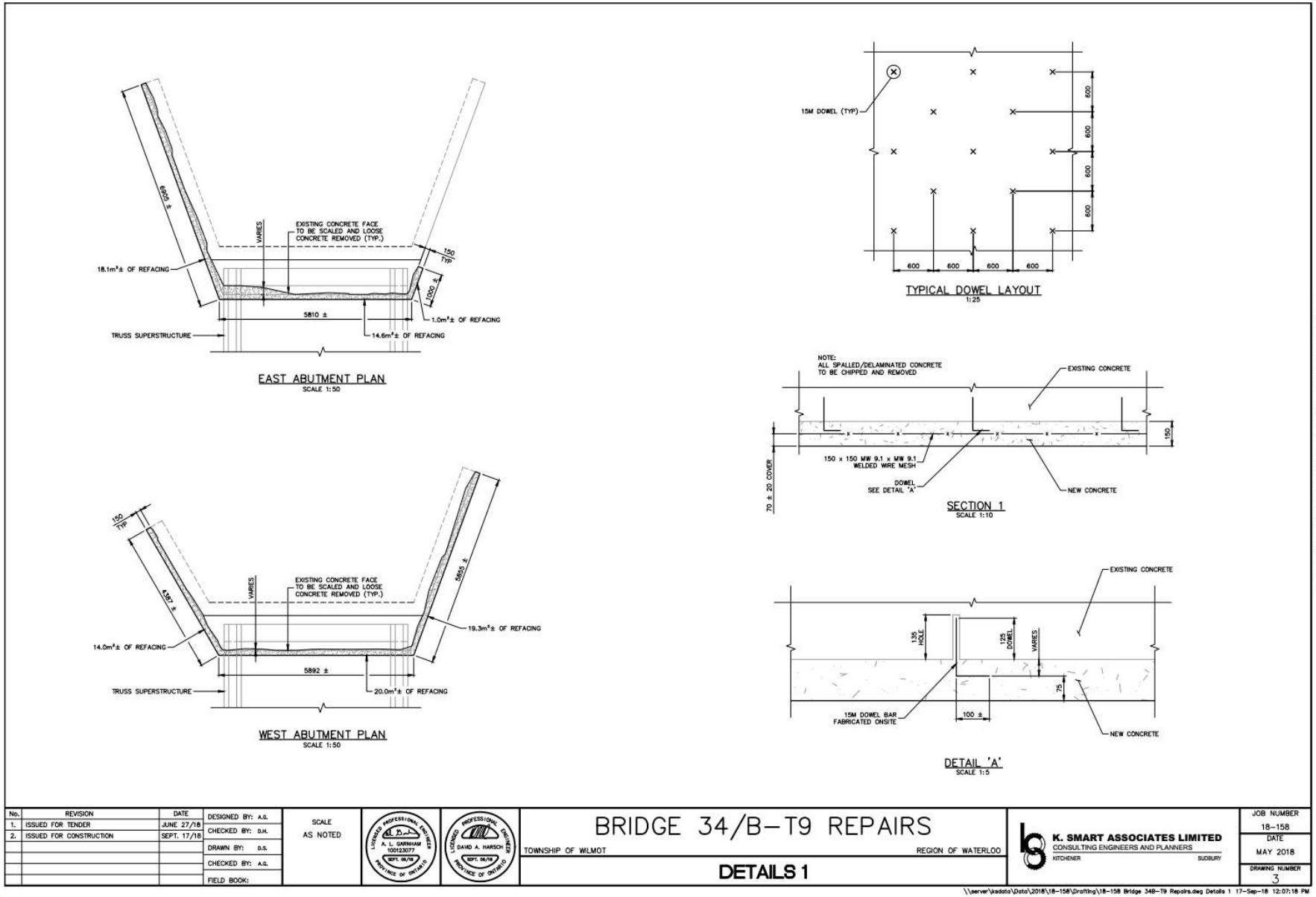
6905 ±
VARIES
EXISTING CONCRETE FACE TO BE SCALED AND LOOSE CONCRETE REMOVED (TYP.)
150 TYP
18.1m²± OF REFACING
1000 ±
5810 ±
1.0m²± OF REFACING
TRUSS SUPERSTRUCTURE
14.6m²± OF REFACING
EAST ABUTMENT PLAN
SCALE 1:50
150 TYP
4387 ±
VARIES
EXISTING CONCRETE FACE TO BE SCALED AND LOOSE CONCRETE REMOVED (TYP.)
5855 ±
14.0m²± OF REFACING
19.3m²± OF REFACING
5892 ±
TRUSS SUPERSTRUCTURE
20.0m²± OF REFACING
WEST ABUTMENT PLAN
SCALE 1:50
15M DOWEL (TYP)
600
600
600
600
600
600
600
TYPICAL DOWEL LAYOUT
1:25
NOTE:
ALL SPALLED/DELAMINATED CONCRETE TO BE CHIPPED AND REMOVED
EXISTING CONCRETE
150
150 x 150 MW 9.1 x MW 9.1 WELDED WIRE MESH
70 ± 20 COVER
DOWEL SEE DETAIL 'A'
NEW CONCRETE
SECTION 1
SCALE 1:10
EXISTING CONCRETE
135 HOLE
125 DOWEL
VARIES
75
15M DOWEL BAR FABRICATED ONSITE
100 ±
NEW CONCRETE
DETAIL 'A'
SCALE 1:5
No. REVISION DATE
1. ISSUED FOR TENDER JUNE 27/18
2. ISSUED FOR CONSTRUCTION SEPT. 17/18
DESIGNED BY: A.G.
CHECKED BY: D.H.
DRAWN BY: D.S.
CHECKED BY: A.G.
FIELD BOOK:
SCALE AS NOTED
A. L. GARNHAM 100123077 SEPT. 06/18 PROVINCE OF ONTARIO
DAVID A. HARSCH SEPT. 06/18 PROVINCE OF ONTARIO
BRIDGE 34/B-T9 REPAIRS
TOWNSHIP OF WILMOT
REGION OF WATERLOO
DETAILS 1
K. SMART ASSOCIATES LIMITED
CONSULTING ENGINEERS AND PLANNERS
KITCHENER SUDBURY
JOB NUMBER 18-158
DATE MAY 2018
DRAWING NUMBER 3
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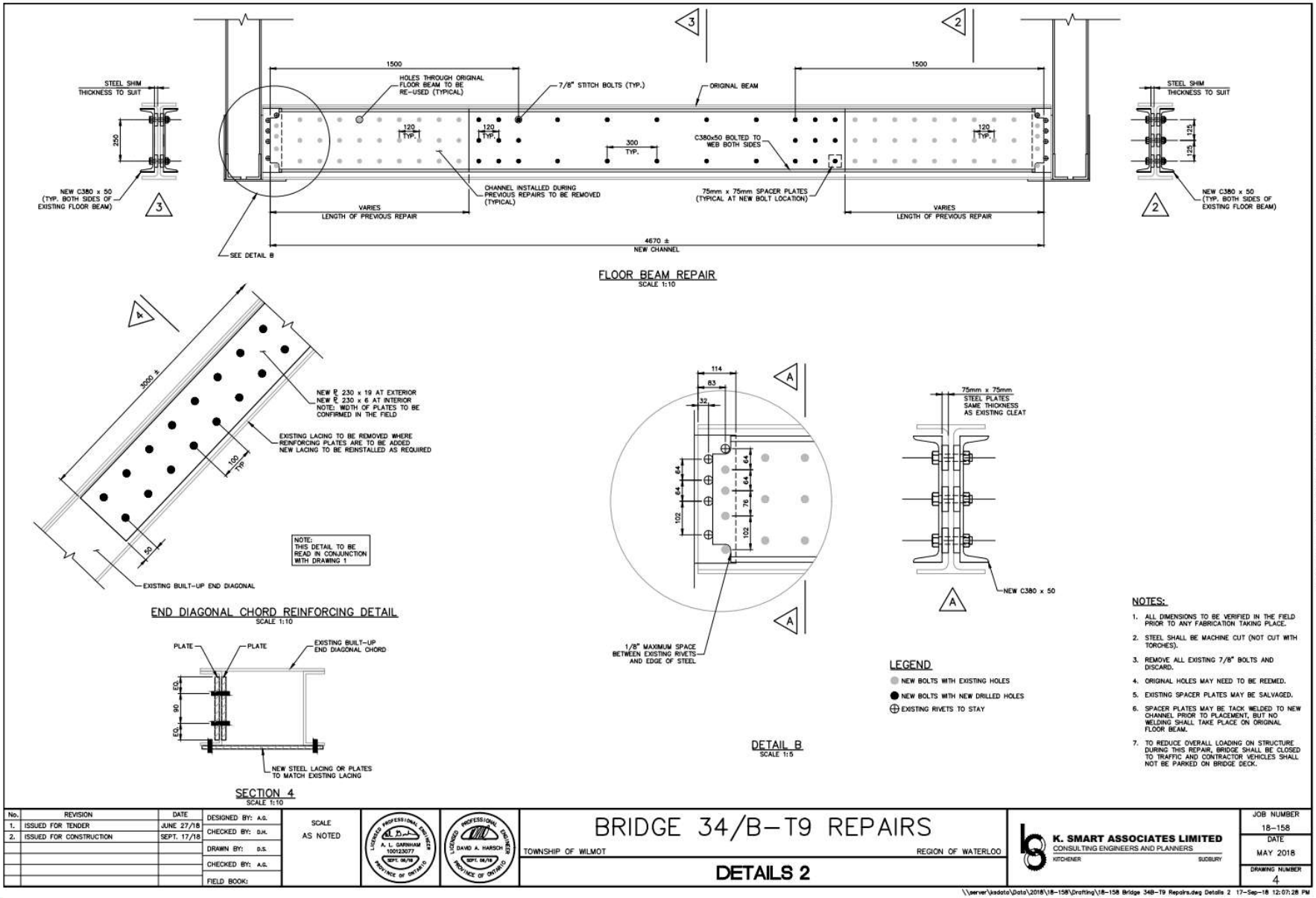
ISSUED FOR CONSTRUCTION DRAWING SET


STEEL SHIM THICKNESS TO SUIT
NEW C380 x 50 (TYP. BOTH SIDES OF EXISTING FLOOR BEAM)
HOLES THROUGH ORIGINAL FLOOR BEAM TO BE RE-USED (TYPICAL)
7/8" STITCH BOLTS (TYP.)
ORIGINAL BEAM
C380x50 BOLTED TO WEB BOTH SIDES
CHANNEL INSTALLED DURING PREVIOUS REPAIRS TO BE REMOVED (TYPICAL)
75mm x 75mm SPACER PLATES (TYPICAL AT NEW BOLT LOCATION)
VARIES LENGTH OF PREVIOUS REPAIR
4670 ± NEW CHANNEL
SEE DETAIL B
FLOOR BEAM REPAIR
SCALE 1:10
NEW PL 230 x 19 AT EXTERIOR
NEW PL 230 x 6 AT INTERIOR
NOTE: WIDTH OF PLATES TO BE CONFIRMED IN THE FIELD
EXISTING LACING TO BE REMOVED WHERE REINFORCING PLATES ARE TO BE ADDED
NEW LACING TO BE REINSTALLED AS REQUIRED
NOTE: THIS DETAIL TO BE READ IN CONJUNCTION WITH DRAWING 1
EXISTING BUILT-UP END DIAGONAL
END DIAGONAL CHORD REINFORCING DETAIL
SCALE 1:10
PLATE
EXISTING BUILT-UP END DIAGONAL CHORD
NEW STEEL LACING OR PLATES TO MATCH EXISTING LACING
SECTION 4
SCALE 1:10
1/8" MAXIMUM SPACE BETWEEN EXISTING RIVETS AND EDGE OF STEEL
DETAIL B
SCALE 1:5
75mm x 75mm STEEL PLATES, SAME THICKNESS AS EXISTING CLEAT
NEW C380 x 50
LEGEND
NEW BOLTS WITH EXISTING HOLES
NEW BOLTS WITH NEW DRILLED HOLES
EXISTING RIVETS TO STAY
NOTES:
1. ALL DIMENSIONS TO BE VERIFIED IN THE FIELD PRIOR TO ANY FABRICATION TAKING PLACE.
2. STEEL SHALL BE MACHINE CUT (NOT CUT WITH TORCHES).
3. REMOVE ALL EXISTING 7/8" BOLTS AND DISCARD.
4. ORIGINAL HOLES MAY NEED TO BE REEMED.
5. EXISTING SPACER PLATES MAY BE SALVAGED.
6. SPACER PLATES MAY BE TACK WELDED TO NEW CHANNEL PRIOR TO PLACEMENT, BUT NO WELDING SHALL TAKE PLACE ON ORIGINAL FLOOR BEAM.
7. TO REDUCE OVERALL LOADING ON STRUCTURE DURING THIS REPAIR, BRIDGE SHALL BE CLOSED TO TRAFFIC AND CONTRACTOR VEHICLES SHALL NOT BE PARKED ON BRIDGE DECK.
ISSUED FOR CONSTRUCTION DRAWING SET
No. REVISION DATE
1. ISSUED FOR TENDER JUNE 27/18
2. ISSUED FOR CONSTRUCTION SEPT. 17/18
DESIGNED BY: A.G.
CHECKED BY: D.H.
DRAWN BY: D.S.
CHECKED BY: A.G.
FIELD BOOK:
SCALE AS NOTED
A. L. GARNHAM 100123077 SEPT. 06/18 PROVINCE OF ONTARIO
DAVID A. HARSCH SEPT. 06/18 PROVINCE OF ONTARIO
BRIDGE 34/B-T9 REPAIRS
TOWNSHIP OF WILMOT
REGION OF WATERLOO
DETAILS 2
K. SMART ASSOCIATES LIMITED
CONSULTING ENGINEERS AND PLANNERS
KITCHENER SUDBURY
JOB NUMBER 18-158
DATE MAY 2018
DRAWING NUMBER 4
\\server\xsdata\Data\2018\18-158\Drafting\18-158 Bridge 34B-T9 Repairs.dwg Details 2 17-Sep-18 12:07:28 PM

MUNICIPAL STRUCTURE INSPECTION FORM

Structure ID: 34

INVENTORY DATA:

Structure Name	34/B-T9 - Bridge Street				
Main Highway #	-	On ☒ or Under ☐ Structure	Service on Structure:	Navigable Water ☐ Rail ☐ Road ☒	Non- Navigable Water ☐ Pedestrian ☐ Other ☐
			Service Under	Navigable Water ☒ Rail ☐ Road ☐	Non- Navigable Water ☐ Pedestrian ☐ Other ☐
Location Description	0.45 km East of Tye Road				
Owner / Custodian	Township of Wilmot		LHRS:	-	LHRS Offset: -
MTO Region	Southwestern		Latitude	43.33292	Longitude -80.64342
Regional Engineer	-		Heritage Designation	Not Cons. ☒ Cons./Not App. ☐ List/Not Desig. ☐	
				Desig. ☐ Desig./not List ☐ Desig. & List ☐	
MTO Area	London / Stratford		Hwy Class:	Freeway ☐ Arterial ☐ Collector ☐ Local ☐	
Old County	Waterloo		Posted Speed	-	No. of Lanes 1
Township	Wilmot		AADT	-	% Trucks -
Structure Type 1	Through Truss		Travel Stream	-	
Structure Material 1	Steel		Traffic Directional Bound	East / West	
Structure Type 2	-		Inspection Route Sequence	-	
Structure Material 2	-		Inspection Frequency	2	(years)
Total Deck Length	45.70	(m)	Inspection Year	2019	
Overall Str. Width	4.80	(m)	Inspection Duration	2.50	(hrs)
Culvert Length	-	(m)	Interchange Number	-	
Total Deck Area	219.36	(sq. m)	Interchange Structure Number	-	
Roadway Width	4.00	(m)	Min. Vertical Clearance	-	(m)
Skew Angle	0	(Degree)	Detour Distance	-	(km)
No. of Spans	1		Fill on Structure	-	(m)
Span Lengths	45.10				(m)

For Retaining Walls:

Total Wall Length	-	(m)	Max. Wall Height	-	(m)
Total Wall Area	-	(sq. m)	Ave. Wall Height	-	(m)
			Angle of Backfill	-	(Degree)

MUNICIPAL STRUCTURE INSPECTION FORM

Structure ID: 34

HISTORICAL DATA			
Year Built	1913	Year of Superstructure Constructed	-
Last Reg. OSIM Inspection	October 3, 2017	Year of Last Minor Rehab.	-
Last Enh. OSIM Inspection	-	Year of Last Major Rehab.	2010
		Current Load Limit	11 tonnes

Work History: (Date / Description)

2011: Structural repairs to remaining ends of floor beams; exterior stringers and ends of bottom chords
2005: Structural repairs to some ends of floor beams
1982: Deck replacement; rehabilitation of substructure

Investigation History: (Date / Description)

SCHEDULED IMPROVEMENTS			
Regional Priority Number		Programmed Work Year	

Nature of Program Work

APPRAISAL INDICES		Comments
Fatigue		
Seismic		
Scour		
Floor		
Barrier		
Curb		
Load Capacity		

MUNICIPAL STRUCTURE INSPECTION FORM

Structure ID: 34

FIELD INSPECTION INFORMATION			
Date of Inspection:	September 17, 2019	Type of Inspection: ☒ OSIM ☐ Enhanced OSIM	
Inspector:	Tova Govia, P.Eng.; AUE Structural Inc.		
Others in Party:	Mohamed El-Sarji, P.Eng.; AUE Structural Inc.		
Enh. Access Equipment:	None		
Special Access Equipment:	None		
Weather:	Sunny	Temperature:	8 °C

ADDITIONAL INVESTIGATION REQUIRED	Priority			Estimated Cost
	None	Normal	Urgent	
Rehabilitation / Replacement Study:		X		$ 20,000.00
Material Condition Survey				
Detailed Deck Condition Survey:	X			$ -
Non-destructive Delamination Survey of Asphalt-Covered Deck:	X			$ -
Concrete Substructure Condition Survey:	X			$ -
Detailed Coating Condition Survey:	X			$ -
Detailed Timber Investigation:	X			$ -
Post-Tensioned Strand Investigation:	X			$ -
Underwater Investigation:	X			$ -
Fatigue Investigation:	X			$ -
Seismic Investigation:	X			$ -
Structure Evaluation:	X			$ -
Monitoring				
Deformations, Settlement and Movements:		X		$ 10,000.00
Crack Widths:	X			$ -
			Total Cost	**$ 30,000.00**

Investigation Notes:

OVERALL STRUCTURAL NOTES:	
Recommended Work on Structure:	☐ None ☐ Minor Rehab. ☐ Major Rehab. ☒ Replace
Timing of Recommended Work:	☐ < 1 year ☒ 1 to 5 years ☐ 6 to 10 years

Overall Comments:

Structure is generally in poor condition. Replacement of the structure is required in the next one (1) to five (5) years. Monitoring of the structure is recommended every three (3) months.

Condition Index: 27

Date of Next Inspection:	By December 2021

Suspected Performance Deficiencies

00	None	06	Bearing not Uniformly Loaded / Unstable	12	Slippery Surfaces
01	Load Carrying Capacity	07	Jammed Expansion Joint	13	Flooding / Channel Blockage
02	Excessive Deformations (Deflections & Rotation)	08	Pedestrian / Vehicular Hazard	14	Undermining of Foundation
03	Continuing Settlement	09	Rough Riding Surface	15	Unstable Embankments
04	Continuing Movements	10	Surface Ponding	16	Other Performance Deficiencies
05	Seized Bearings	11	Deck / Wall Drainage		

Maintenance Needs

00	None	07	Structural Steel Repair	14	Concrete Sealing
01	N/A	08	Concrete Repair	15	N/A
02	Bridge Cleaning	09	Timber Repair	16	Works for Drainage System
03	Railing System Repair	10	Works for Modular Bridges	17	Scaling (Loose Concrete or ACR Steel)
04	N/A	11	Animal / Pest Control	18	Other Maintenance
05	Bridge Deck Joint Repair	12	Bridge Surface Repair		
06	N/A	13	Erosion Control at Bridges		

MUNICIPAL STRUCTURE INSPECTION FORM

Structure ID: 34

ELEMENT DATA					
Element Group:	Accessories (Attachments and Signs)			**Length:**	-
Element Name:	Signs			**Width:**	-
Location:	NE, NW, SE & SW of Structure			**Height:**	-
Material:	Steel			**Count:**	7 (Hazard), 2 (Load), 2 (Clearance)
Element Type:	Hazard Sign, Load Posting, Overhead Clearance			**Total Quantity:**	11
Environment:	Severe			**Inspected:**	Yes ☒ No ☐ Limited ☐
Protection System:	None				
Condition Data:	**Units**	**Excellent**	**Good**	**Fair**	**Poor**
	Each	0	2	7	2
Comments: - Abrasions and misalignment at hazard signs - Arrows for overhead clearance are damaged and wrapped over bridge bracing					
Performance Deficiencies: 00 – None				**Maintenance Needs:** 00 – None	
Recommended Work: ☐ Rehab. ☒ Replace ☒ 1 – 5 Years ☐ 6 – 10 Years				**Maintenance Needs:** ☐ Urgent ☐ 1 Year ☐ 2 Years	

Element Group:	Approaches			**Length:**	23.00 m (NW), 72.00 m (SW)
Element Name:	Barrier			**Width:**	-
Location:	NW & SW of Structure			**Height:**	-
Material:	Steel			**Count:**	2
Element Type:	Steel Flex Beam on Wood Posts			**Total Quantity:**	95.00 m
Environment:	Severe			**Inspected:**	Yes ☒ No ☐ Limited ☐
Protection System:	Hot Dip Galvanizing				
Condition Data:	**Units**	**Excellent**	**Good**	**Fair**	**Poor**
	m	0.00	0.00	50.00	45.00
Comments: - A code compliant barrier is required on east approach - Substandard end treatments at northwest and southwest; substandard connection to barrier over structure - Light corrosion; abrasions - Impact damage; dents - Severe rot at base of some posts; some leaning and missing posts					
Performance Deficiencies: 08 – Pedestrian / Vehicular Hazard				**Maintenance Needs:** 00 – None	
Recommended Work: ☐ Rehab. ☒ Replace ☒ 1 – 5 Years ☐ 6 – 10 Years				**Maintenance Needs:** ☐ Urgent ☐ 1 Year ☐ 2 Years	

MUNICIPAL STRUCTURE INSPECTION FORM

Structure ID: 34

ELEMENT DATA					
Element Group:	Approaches		**Length:**	6.00 m	
Element Name:	Wearing Surface		**Width:**	4.00 m	
Location:	East & West of Structure		**Height:**	-	
Material:	Asphalt		**Count:**	2	
Element Type:	Asphalt Wearing Surface		**Total Quantity:**	48.00 m^2	
Environment:	Severe		**Inspected:**	Yes ☒ No ☐ Limited ☐	
Protection System:	None				
Condition Data:	**Units**	**Excellent**	**Good**	**Fair**	**Poor**
	m^2	0.00	40.00	8.00	0.00

Comments:
- Light cracks at west
- Medium transverse pattern cracks and at either end of approach slab at east
- Settlement

Performance Deficiencies: 00 – None	**Maintenance Needs:** 00 – None
Recommended Work: ☐ Rehab. ☒ Replace ☒ 1 – 5 Years ☐ 6 – 10 Years	**Maintenance Needs:** ☐ Urgent ☐ 1 Year ☐ 2 Years

Element Group:	Joints		**Length:**	4.80 m	
Element Name:	Armouring / Retaining Devices		**Width:**	-	
Location:	East & West Ends of Structure		**Height:**	-	
Material:	Steel		**Count:**	4	
Element Type:	Steel Armouring		**Total Quantity:**	19.20 m	
Environment:	Severe		**Inspected:**	Yes ☒ No ☐ Limited ☐	
Protection System:	None				
Condition Data:	**Units**	**Excellent**	**Good**	**Fair**	**Poor**
	m	0.00	19.20	0.00	0.00

Comments:
- Abrasions
- Armouring at east joint is jammed

Performance Deficiencies: 07 – Jammed Expansion Joint	**Maintenance Needs:** 00 – None
Recommended Work: ☐ Rehab. ☒ Replace ☒ 1 – 5 Years ☐ 6 – 10 Years	**Maintenance Needs:** ☐ Urgent ☐ 1 Year ☐ 2 Years

MUNICIPAL STRUCTURE INSPECTION FORM

Structure ID: 34

ELEMENT DATA					
Element Group:	Joints		**Length:**	4.80 m	
Element Name:	Seals / Sealants		**Width:**	-	
Location:	East & West Ends of Structure		**Height:**	-	
Material:	Neoprene		**Count:**	2	
Element Type:	Other		**Total Quantity:**	2	
Environment:	Severe		**Inspected:**	Yes ☒ No ☐ Limited ☐	
Protection System:	None				
Condition Data:	**Units**	**Excellent**	**Good**	**Fair**	**Poor**
	Each	0	1	1	0

Comments:
Backer rod with sealant.

Performance Deficiencies: 07 – Jammed Expansion Joint	**Maintenance Needs:** 00 – None
Recommended Work: ☐ Rehab. ☒ Replace ☒ 1 – 5 Years ☐ 6 – 10 Years	**Maintenance Needs:** ☐ Urgent ☐ 1 Year ☐ 2 Years

Element Group:	Barriers		**Length:**	45.00 m	
Element Name:	Railing Systems		**Width:**	-	
Location:	North & South of Structure		**Height:**	0.90 m	
Material:	Steel		**Count:**	2	
Element Type:	Steel Post and Lattice		**Total Quantity:**	90.00 m	
Environment:	Severe		**Inspected:**	Yes ☒ No ☐ Limited ☐	
Protection System:	None				
Condition Data:	**Units**	**Excellent**	**Good**	**Fair**	**Poor**
	m	0.00	0.00	0.00	90.00

Comments:
- Existing railing system is substandard and should be replaced with a code compliant railing system
- Medium corrosion
- Bent top and bottom rails; perforations at bottom rail
- Missing rivets
- Broken, bent and twisted lattice

Performance Deficiencies: 08 – Pedestrian / Vehicular Hazard	**Maintenance Needs:** 00 – None
Recommended Work: ☐ Rehab. ☒ Replace ☒ 1 – 5 Years ☐ 6 – 10 Years	**Maintenance Needs:** ☐ Urgent ☐ 1 Year ☐ 2 Years

MUNICIPAL STRUCTURE INSPECTION FORM

Structure ID: 34

ELEMENT DATA					
Element Group:	Barriers		**Length:**	-	
Element Name:	Posts		**Width:**	-	
Location:	North & South of Structure		**Height:**	-	
Material:	Steel		**Count:**	4	
Element Type:	Steel Post		**Total Quantity:**	4	
Environment:	Severe		**Inspected:**	Yes ☒ No ☐ Limited ☐	
Protection System:	None				
Condition Data:	**Units**	**Excellent**	**Good**	**Fair**	**Poor**
	Each	0	0	0	4

Comments:
- Existing railing system is substandard and should be replaced with a code compliant railing system
- Posts are connected to truss
- Loose
- Twisted

Performance Deficiencies: 08 – Pedestrian / Vehicular Hazard	**Maintenance Needs:** 00 – None
Recommended Work: ☐ Rehab. ☒ Replace ☒ 1 – 5 Years ☐ 6 – 10 Years	**Maintenance Needs:** ☐ Urgent ☐ 1 Year ☐ 2 Years

Element Group:	Trusses/Arches		**Length:**	45.70 m	
Element Name:	Top Chords		**Width:**	0.30 m	
Location:	North & South of Structure		**Height:**	0.30 m	
Material:	Steel		**Count:**	2	
Element Type:	Steel Top Chord		**Total Quantity:**	109.68 m^2	
Environment:	Severe		**Inspected:**	Yes ☒ No ☐ Limited ☐	
Protection System:	None				
Condition Data:	**Units**	**Excellent**	**Good**	**Fair**	**Poor**
	m^2	0.00	0.00	0.00	109.68

Comments:
- Light to severe corrosion
- Perforations

Performance Deficiencies: 00 – None	**Maintenance Needs:** 00 – None
Recommended Work: ☐ Rehab. ☒ Replace ☒ 1 – 5 Years ☐ 6 – 10 Years	**Maintenance Needs:** ☐ Urgent ☐ 1 Year ☐ 2 Years

MUNICIPAL STRUCTURE INSPECTION FORM

Structure ID: 34

ELEMENT DATA					
Element Group:	Trusses/Arches			**Length:**	45.70 m
Element Name:	Bottom Chords			**Width:**	0.30 m
Location:	North & South of Structure			**Height:**	0.18 m
Material:	Steel			**Count:**	2
Element Type:	Steel Bottom Chord			**Total Quantity:**	120.65 m^2
Environment:	Severe			**Inspected:**	Yes ☒ No ☐ Limited ☐
Protection System:	None				
Condition Data:	**Units**	**Excellent**	**Good**	**Fair**	**Poor**
	m^2	0.00	0.00	0.00	120.65

Comments:
- Medium to severe corrosion
- Debris / gravel accumulation
- Repairs noted

Performance Deficiencies: 00 – None	**Maintenance Needs:** 00 – None
Recommended Work: ☐ Rehab. ☒ Replace ☒ 1 – 5 Years ☐ 6 – 10 Years	**Maintenance Needs:** ☐ Urgent ☐ 1 Year ☐ 2 Years

Element Group:	Trusses/Arches			**Length:**	-
Element Name:	Verticals / Diagonals			**Width:**	-
Location:	North & South of Structure			**Height:**	-
Material:	Steel			**Count:**	14 (Verticals), 16 (Diagonals)
Element Type:	Steel Verticals / Diagonals			**Total Quantity:**	40
Environment:	Severe			**Inspected:**	Yes ☒ No ☐ Limited ☐
Protection System:	None				
Condition Data:	**Units**	**Excellent**	**Good**	**Fair**	**Poor**
	Each	0	0	0	40

Comments:
Twisted and bent steel angles.

Performance Deficiencies: 00 – None	**Maintenance Needs:** 00 – None
Recommended Work: ☐ Rehab. ☒ Replace ☒ 1 – 5 Years ☐ 6 – 10 Years	**Maintenance Needs:** ☐ Urgent ☐ 1 Year ☐ 2 Years

MUNICIPAL STRUCTURE INSPECTION FORM

Structure ID: 34

ELEMENT DATA					
Element Group:	Trusses/Arches			**Length:**	-
Element Name:	Connections			**Width:**	-
Location:	North & South of Structure			**Height:**	-
Material:	Steel			**Count:**	44
Element Type:	Steel Connection			**Total Quantity:**	44
Environment:	Severe			**Inspected:**	Yes ☒ No ☐ Limited ☐
Protection System:	None				
Condition Data:	**Units**	**Excellent**	**Good**	**Fair**	**Poor**
	Each	0	0	0	44

Comments:
- Medium to severe corrosion
- Perforations at stiffener plates
- Severe loss of rivet material
- Few missing bolts

Performance Deficiencies: 00 – None	**Maintenance Needs:** 00 – None
Recommended Work: ☐ Rehab. ☒ Replace ☒ 1 – 5 Years ☐ 6 – 10 Years	**Maintenance Needs:** ☐ Urgent ☐ 1 Year ☐ 2 Years

Element Group:	Bracing			**Length:**	-
Element Name:	Bracing			**Width:**	-
Location:	North & South of Structure			**Height:**	-
Material:	Steel			**Count:**	7
Element Type:	Sway Bracing			**Total Quantity:**	7
Environment:	Severe			**Inspected:**	Yes ☒ No ☐ Limited ☐
Protection System:	None				
Condition Data:	**Units**	**Excellent**	**Good**	**Fair**	**Poor**
	Each	0	0	7	0

Comments:
Perforations at some of connections to bottom chords.

Performance Deficiencies: 00 – None	**Maintenance Needs:** 00 – None
Recommended Work: ☐ Rehab. ☒ Replace ☒ 1 – 5 Years ☐ 6 – 10 Years	**Maintenance Needs:** ☐ Urgent ☐ 1 Year ☐ 2 Years

MUNICIPAL STRUCTURE INSPECTION FORM

Structure ID: 34

ELEMENT DATA					
Element Group:	Decks		**Length:**	-	
Element Name:	Drainage System		**Width:**	-	
Location:	North & South of Structure		**Height:**	-	
Material:	Steel		**Count:**	6	
Element Type:	Metal Drain Pipes		**Total Quantity:**	6	
Environment:	Severe		**Inspected:**	Yes ☒ No ☐ Limited ☐	
Protection System:	None				
Condition Data:	**Units**	**Excellent**	**Good**	**Fair**	**Poor**
	Each	0	6	0	0

Comments:
Generally in good condition.

Performance Deficiencies: 00 – None	**Maintenance Needs:** 00 – None
Recommended Work: ☐ Rehab. ☐ Replace ☐ 1 – 5 Years ☐ 6 – 10 Years	**Maintenance Needs:** ☐ Urgent ☐ 1 Year ☐ 2 Years

Element Group:	Decks	**Length:**	45.70 m	
Element Name:	Deck Top - Thin Slab	**Width:**	4.80 m	
Location:	Top of Deck	**Height:**	-	
Material:	Cast-in-Place Concrete	**Count:**	-	
Element Type:	Cast-in-Place Concrete on Supports	**Total Quantity:**	219.36 m^2	
Environment:	Severe	**Inspected:**	Yes ☒ No ☐ Limited ☐	
Protection System:	None			

Condition Data:	**Units**	**Excellent**	**Good**	**Fair**	**Poor**
	m^2	0.00	173.26	0.10	46.00

Comments:
- Narrow to medium transverse cracks
- Localized delamination
- Severe abrasions for a 1.00 m wide strip for entire length of deck
- Steel channel at sides of deck is severely corroded, perforated and collapsed
- Abrasions

Performance Deficiencies: 00 – None	**Maintenance Needs:** 00 – None
Recommended Work: ☐ Rehab. ☒ Replace ☒ 1 – 5 Years ☐ 6 – 10 Years	**Maintenance Needs:** ☐ Urgent ☐ 1 Year ☐ 2 Years

MUNICIPAL STRUCTURE INSPECTION FORM

Structure ID: 34

ELEMENT DATA					
Element Group:	Decks		**Length:**	45.70 m	
Element Name:	Soffit - Thin Slab		**Width:**	4.80 m	
Location:	Underside of Structure		**Height:**	-	
Material:	Cast-in-Place Concrete		**Count:**	-	
Element Type:	Soffit Interior		**Total Quantity:**	219.36 m^2	
Environment:	Benign		**Inspected:**	Yes ☐ No ☐ Limited ☒	
Protection System:	None				
Condition Data:	**Units**	**Excellent**	**Good**	**Fair**	**Poor**
	m^2	0.00	0.00	208.36	11.00

Comments:
- Localized wide cracks
- Delamination
- Severe corrosion at ends of deck

Performance Deficiencies: 00 – None	**Maintenance Needs:** 00 – None
Recommended Work: ☐ Rehab. ☒ Replace ☒ 1 – 5 Years ☐ 6 – 10 Years	**Maintenance Needs:** ☐ Urgent ☐ 1 Year ☐ 2 Years

Element Group:	Beams / Main Longitudinal Elements (MLE's)		**Length:**	4.80 m	
Element Name:	Floor Beams		**Width:**	0.15 m	
Location:	Underside of Structure		**Height:**	0.46 m	
Material:	Steel		**Count:**	9	
Element Type:	I-Type		**Total Quantity:**	59.18 m^2	
Environment:	Moderate		**Inspected:**	Yes ☐ No ☐ Limited ☒	
Protection System:	None				
Condition Data:	**Units**	**Excellent**	**Good**	**Fair**	**Poor**
	m^2	0.00	0.00	0.00	59.18

Comments:
- Medium to severe corrosion and section loss
- Perforations at west floor beam
- Floor beams ends have all been previously repaired, and some floor beams replaced

Performance Deficiencies: 00 – None	**Maintenance Needs:** 00 – None
Recommended Work: ☐ Rehab. ☒ Replace ☒ 1 – 5 Years ☐ 6 – 10 Years	**Maintenance Needs:** ☐ Urgent ☐ 1 Year ☐ 2 Years

MUNICIPAL STRUCTURE INSPECTION FORM

Structure ID: 34

ELEMENT DATA					
Element Group:	Beams / Main Longitudinal Elements (MLE's)			**Length:**	5.70 m
Element Name:	Stringers			**Width:**	0.10 m
Location:	Underside of Structure			**Height:**	0.30 m
Material:	Steel			**Count:**	48
Element Type:	I-Type			**Total Quantity:**	48
Environment:	Moderate			**Inspected:**	Yes ☐ No ☐ Limited ☒
Protection System:	None				
Condition Data:	**Units**	**Excellent**	**Good**	**Fair**	**Poor**
	Each	0	0	48	0

Comments:
- Exterior stringers repaired with new stringers
- Medium corrosion
- Exterior stringers connected to channel on deck level which is loose and moving

Performance Deficiencies: 00 – None	**Maintenance Needs:** 00 – None
Recommended Work: ☐ Rehab. ☒ Replace ☒ 1 – 5 Years ☐ 6 – 10 Years	**Maintenance Needs:** ☐ Urgent ☐ 1 Year ☐ 2 Years

Element Group:	Bracing			**Length:**	-
Element Name:	Bracing			**Width:**	-
Location:	Top of Truss			**Height:**	-
Material:	Steel			**Count:**	6
Element Type:	Cross Bracing			**Total Quantity:**	6
Environment:	Severe			**Inspected:**	Yes ☒ No ☐ Limited ☐
Protection System:	None				
Condition Data:	**Units**	**Excellent**	**Good**	**Fair**	**Poor**
	Each	0	0	6	0

Comments:
Overhead portal frame severely twisted at both ends.

Performance Deficiencies: 00 – None	**Maintenance Needs:** 00 – None
Recommended Work: ☐ Rehab. ☒ Replace ☒ 1 – 5 Years ☐ 6 – 10 Years	**Maintenance Needs:** ☐ Urgent ☐ 1 Year ☐ 2 Years

MUNICIPAL STRUCTURE INSPECTION FORM

Structure ID: 34

ELEMENT DATA					
Element Group:	Abutments			**Length:**	-
Element Name:	Ballast Walls			**Width:**	4.25 m
Location:	East & West Underside of Structure			**Height:**	0.50 m
Material:	Cast-in-Place Concrete			**Count:**	2
Element Type:	Conventional Closed			**Total Quantity:**	4.25 m^2
Environment:	Benign			**Inspected:**	Yes ☐ No ☐ Limited ☒
Protection System:	None				
Condition Data:	**Units**	**Excellent**	**Good**	**Fair**	**Poor**
	m^2	0.00	0.00	2.25	2.00

Comments:
- Wide crack at construction joint
- Medium scaling at ends
- Severe deterioration from abrasions at top of ballast walls
- Severe spall and delamination at southeast
- Severe spall at southwest

Performance Deficiencies: 00 – None	**Maintenance Needs:** 00 – None
Recommended Work: ☐ Rehab. ☒ Replace ☒ 1 – 5 Years ☐ 6 – 10 Years	**Maintenance Needs:** ☐ Urgent ☐ 1 Year ☐ 2 Years

Element Group:	Abutments			**Length:**	-
Element Name:	Bearings			**Width:**	-
Location:	East & West Underside of Structure			**Height:**	-
Material:	Steel			**Count:**	4
Element Type:	Plate / Roller			**Total Quantity:**	4
Environment:	Benign			**Inspected:**	Yes ☐ No ☐ Limited ☒
Protection System:	None				
Condition Data:	**Units**	**Excellent**	**Good**	**Fair**	**Poor**
	Each	0	0	0	4

Comments:
- Covered with vegetation and debris
- Severe corrosion
- Seized bearings
- Jammed joint

Performance Deficiencies: 05 – Seized Bearings	**Maintenance Needs:** 00 – None
Recommended Work: ☐ Rehab. ☒ Replace ☒ 1 – 5 Years ☐ 6 – 10 Years	**Maintenance Needs:** ☐ Urgent ☐ 1 Year ☐ 2 Years

MUNICIPAL STRUCTURE INSPECTION FORM

Structure ID: 34

ELEMENT DATA					
Element Group:	Abutments		**Length:**	-	
Element Name:	Abutment Walls		**Width:**	5.60 m	
Location:	East & West Underside of Structure		**Height:**	3.10 m	
Material:	Cast-in-Place Concrete		**Count:**	2	
Element Type:	Conventional Closed		**Total Quantity:**	34.72 m^2	
Environment:	Benign		**Inspected:**	Yes ☒ No ☐ Limited ☐	
Protection System:	None				
Condition Data:	**Units**	**Excellent**	**Good**	**Fair**	**Poor**
	m^2	0.00	31.72	2.00	1.00

Comments:
- Localized wide crack at bearing seat
- Construction joint misaligned up to 20 mm at west abutment
- Stains at bearing seat locations at west abutment

Performance Deficiencies: 00 – None	**Maintenance Needs:** 00 – None
Recommended Work: ☐ Rehab. ☒ Replace ☒ 1 – 5 Years ☐ 6 – 10 Years	**Maintenance Needs:** ☐ Urgent ☐ 1 Year ☐ 2 Years

Element Group:	Abutments		**Length:**	5.40 m	
Element Name:	Wingwalls		**Width:**	-	
Location:	NE, NW, SE & SW of Structure		**Height:**	3.00 m	
Material:	Cast-in-Place Concrete		**Count:**	4	
Element Type:	Reinforced Concrete		**Total Quantity:**	64.80 m^2	
Environment:	Moderate		**Inspected:**	Yes ☒ No ☐ Limited ☐	
Protection System:	None				
Condition Data:	**Units**	**Excellent**	**Good**	**Fair**	**Poor**
	m^2	0.00	57.55	3.25	4.00

Comments:
- Full height wide crack
- Undermining at northeast wingwall
- Severe spall at southeast wingwall
- Patched areas

Performance Deficiencies: 00 – None	**Maintenance Needs:** 00 – None
Recommended Work: ☐ Rehab. ☒ Replace ☒ 1 – 5 Years ☐ 6 – 10 Years	**Maintenance Needs:** ☐ Urgent ☐ 1 Year ☐ 2 Years

MUNICIPAL STRUCTURE INSPECTION FORM

Structure ID: 34

ELEMENT DATA					
Element Group:	Foundations			**Length:**	-
Element Name:	Foundation (Below Ground Level)			**Width:**	-
Location:	Below Abutment Walls and Wingwalls			**Height:**	-
Material:	Unknown			**Count:**	-
Element Type:	Unknown			**Total Quantity:**	-
Environment:	Benign			**Inspected:**	Yes ☐ No ☒ Limited ☐
Protection System:	Unknown				
Condition Data:	**Units**	**Excellent**	**Good**	**Fair**	**Poor**
	N/A	-	-	-	-

Comments:
No visible evidence of foundation instability was noted during the inspection.

Performance Deficiencies: 00 – None	**Maintenance Needs:** 00 – None
Recommended Work: ☐ Rehab. ☐ Replace ☐ 1 – 5 Years ☐ 6 – 10 Years	**Maintenance Needs:** ☐ Urgent ☐ 1 Year ☐ 2 Years

Element Group:	Embankments & Streams			**Length:**	-
Element Name:	Embankments			**Width:**	-
Location:	NE, NW, SE & SW of Structure			**Height:**	-
Material:	Native Soil			**Count:**	-
Element Type:	Embankment			**Total Quantity:**	4
Environment:	Moderate			**Inspected:**	Yes ☒ No ☐ Limited ☐
Protection System:	Vegetation				
Condition Data:	**Units**	**Excellent**	**Good**	**Fair**	**Poor**
	Each	0	0	4	0

Comments:
Medium erosion was noted embankments.

Performance Deficiencies: 00 – None	**Maintenance Needs:** 13 – Erosion Control at Bridges
Recommended Work: ☐ Rehab. ☐ Replace ☐ 1 – 5 Years ☐ 6 – 10 Years	**Maintenance Needs:** ☐ Urgent ☒ 1 Year ☐ 2 Years

MUNICIPAL STRUCTURE INSPECTION FORM

Structure ID: 34

ELEMENT DATA					
Element Group:	Embankments & Streams		Length:	-	
Element Name:	Slope Protection		Width:	-	
Location:	NE, NW, SE & SW of Structure		Height:	-	
Material:	Vegetation		Count:	-	
Element Type:	Slope Protection		Total Quantity:	4	
Environment:	Moderate		Inspected:	Yes ☒ No ☐ Limited ☐	
Protection System:	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	Each	0	4	0	0

Comments:
Generally in good condition.

Performance Deficiencies: 00 – None	Maintenance Needs: 00 – None
Recommended Work: ☐ Rehab. ☐ Replace ☐ 1 – 5 Years ☐ 6 – 10 Years	Maintenance Needs: ☐ Urgent ☐ 1 Year ☐ 2 Years

Element Group:	Embankments & Streams		Length:	-	
Element Name:	Streams and Waterway		Width:	-	
Location:	Under Structure		Height:	-	
Material:	Native		Count:	-	
Element Type:	Stream		Total Quantity:	All	
Environment:	Benign		Inspected:	Yes ☒ No ☐ Limited ☐	
Protection System:	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	All	0	All	0	0

Comments:
High volume and medium flow from south to north with no visible flow obstructions.

Performance Deficiencies: 00 – None	Maintenance Needs: 00 – None
Recommended Work: ☐ Rehab. ☐ Replace ☐ 1 – 5 Years ☐ 6 – 10 Years	Maintenance Needs: ☐ Urgent ☐ 1 Year ☐ 2 Years

MUNICIPAL STRUCTURE INSPECTION FORM

Structure ID: 34

REPAIR AND REHABILITATION REQUIRED			Priority			Estimated Cost
Element Group	Element Name	Type of Work	6 - 10 Years	1 - 5 Years	< 1 Year	
		Replace Structure		X		$ 2,448,000.00
						$ -
						$ -
						$ -
						$ -
						$ -
						$ -
						$ -
						$ -
					Total Cost	$ 2,448,000.00

ASSOCIATED WORK	Comments	Estimated Cost
Approaches		$ -
Detours		$ 50,000.00
Traffic Control		$ 30,000.00
Utilities		$ -
Right of Way		$ -
Environmental Study		$ 7,000.00
Engineering Design		$ 170,000.00
Other		$ 125,000.00
Contingencies		$ -
	Total Cost	$ 382,000.00

JUSTIFICATION

MUNICIPAL STRUCTURE INSPECTION FORM

Structure ID: 34

Photo 1: Structure from east approach

Photo 2: Structure from west approach

MUNICIPAL STRUCTURE INSPECTION FORM

Structure ID: 34

Photo 3: East approach from structure

Photo 4: West approach from structure

MUNICIPAL STRUCTURE INSPECTION FORM

Structure ID: 34

Photo 5: North elevation

Photo 6: Substandard railing system over structure

Photo 7: Repairs at bottom chord

Photo 8: Underside of structure

Photo 9: Severe delamination at soffit interior

Photo 10: Repairs at floor beam

Photo 11: Perforations at stringer

Photo 12: Abutment wall

Discussion:

On February 20 and 21, 2018, the Grand River watershed was hit by severe flooding. According the GRCA, water levels in the New Hamburg portion of the Nith River peaked at 2 a.m. on February 21, at a rate of 400 cubic meters per second.

Given the extent of flooding, a number of infrastructure assets, owned by the municipality, sustained significant damage, which required immediate repairs and/or temporary closures. Over the past few months, repairs have occurred at Norm Hill Park and Scott Park, along various ditches adjacent to Township roads, and at a municipally owned pumping station. These repairs incurred cost just under $50,000.

In addition, two (2) structures were closed, pending engineering review and recommendations. The temporary closures included Oxford-Waterloo Road Bridge #37B-OXF and Bridge Street Bridge #34B-T9 shown in Appendix A. Over the spring of 2018, engineering inspections and reports were completed by K. Smart and Associates, with projected incremental costs to the Township of $26,000 and $130,000 respectively.

The Township also will be undertaking further emergency repairs to the Pedestrian Bridge across the Nith River, projected at $8,000, and various work in community parks, including ball diamond fencing and lighting along the Nith River for approximately $41,500.

Funding Eligibility

As per program guidelines, a municipality is only eligible if flood related, incremental costs meet or exceed 3.0% of their municipal levy. Funding is distributed based on 25% of actual costs incurred, up to the 3.0% threshold and 95% for any costs over the threshold.

Based on the Township's 2018 levy of $7,709,930, the eligibility threshold would require costs to be equal to or greater than $231,300.

Given the costs incurred to date, and the projected additional flood related costs, staff anticipate total flood related damages to exceed the target by approximately $20,000.

Application Requirements

According to program guidelines, a resolution of Council, initial claim and required supporting documentation must be submitted within 120 calendar days from the date of the onset of the disaster. This would translate to a cut-off date of June 21, 2018.

Strategic Plan Conformity:

This report is aligned with the Strategic Plan goal of ensuring a prosperous economy through maintaining our infrastructure, and providing quality of life through ensuring people's safety.

from: Township of Wilmot Report FIN 2018-23 Municipal Disaster Recovery Assistance Program, June 4, 2018

Bridge Street Bridge

Location Wilmot Township Road 9, Lot 21, Concessions 3 & 4 Block A (now Bridge Street), south of Haysville, Township of Wilmot.

General Information

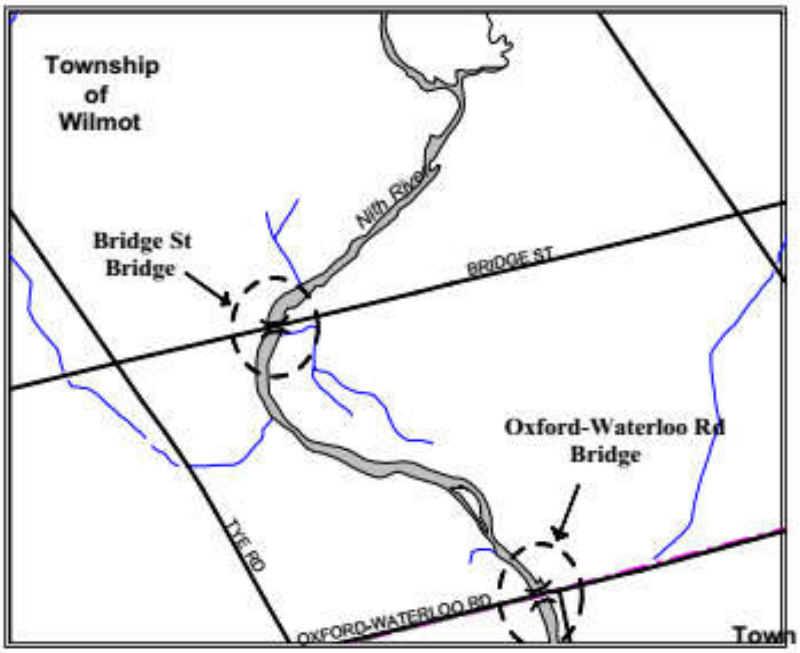
Bridge No.	28
Jurisdiction	Township of Wilmot
Year built	1913
Drawings	Not available

Physical Components

Type	through Truss
Spans	1
Dimensions	Length 45.7 m Width 4.1 m
Load Limit	11 tonnes

Descriptive details

This bridge is identical in design to the Oxford-Waterloo Bridge, except that it has a higher load limit.



Spanning The Generations: Phase 1 Inventory Revised 2004
1.13

from: *Spanning the Generations, A Study of Old Bridges in Waterloo Region,: Phase 1 Inventory*, October 2007

Bridge Street Bridge

South East View

East View

Spanning the Generations: Phase 1 Inventory Revised 2004

1.14

from: *Spanning the Generations, A Study of Old Bridges in Waterloo Region,: Phase 1 Inventory*, October 2007

Appendix 4 - MEA Checklist

Revised April 11, 2014, *This checklist was prepared in March 2013 by the Municipal Engineers Association to assist with determining the requirements to comply with the Municipal Class Environmental Assessment. View all 4 parts of the module on Structures Over 40 Years at www.municipalclassea.ca to assist with completing the checklist.*

NOTE: Complete all sections of Checklist. Both Cultural Heritage and Archaeological Sections must be satisfied before proceeding.[21]

Part A - Municipal Class EA Activity Selection

Description	Yes	No
Will the proposed project involve or result in construction of new water crossings? This includes ferry docks.	Schedule B or C	Next
Will the proposed project involve or result in construction of new grade separation?	Schedule B or C	Next
Will the proposed project involve or result in construction of new underpasses or overpasses for pedestrian recreational or agricultural use?	Schedule B or C	Next
Will the proposed project involve or result in construction of new interchanges between any two roadways, including a grade separation and ramps to connect the two roadways?	Schedule B or C	Next
Will the proposed project involve or result in reconstruction of a water crossing where the structure is less than 40 years old and the reconstructed facility will be for the same purpose, use, capacity and at the same location? (Capacity refers to either hydraulic or road capacity.) This includes ferry docks.	Schedule A+	Next
Will the proposed project involve or result in reconstruction of a water crossing, where the reconstructed facility will not be for the same purpose, use, capacity or at the same location? (Capacity refers to either hydraulic or road capacity). This includes ferry docks.	Schedule B or C	Next

[21] *Municipal Heritage Bridges Cultural, Heritage and Archaeological Resources Assessment Checklist* Revised April 11, 2014, Municipal Engineers Association

Description	Yes	No
Will the proposed project involve or result in reconstruction or alteration of a structure or the grading adjacent to it when the structure is over 40 years old where the proposed work will alter the basic structural system, overall configuration or appearance of the structure?	Next	Assess Archaeological Resources
Will the proposed project involve or result in reconstruction of a water crossing where the structure is less than 40 years old and the reconstructed facility will be for the same purpose, use, capacity and at the same location? (Capacity refers to either hydraulic or road capacity.) This include ferry docks.	Schedule A+	Next
Will the proposed project involve or result in reconstruction of a water crossing, where the reconstructed facility will not be for the same purpose, use, capacity or at the same location? (Capacity refers to either hydraulic or road capacity). This includes ferry docks.	Schedule B or C	Next
Will the proposed project involve or result in reconstruction or alteration of a structure or the grading adjacent to it when the structure is over 40 years old where the proposed work will alter the basic structural system, overall configuration or appearance of the structure?	Schedule B or C	Assess Archaeological Resources

Part B - Cultural Heritage Assessment

Description	Yes	No
Does the proposed project involve a bridge constructed in or after 1956?	Next	Prepare CHER Undertake HIA
Does the project involve one of these four bridge types?	Rigid frame Next Precast with Concrete Deck Next Culvert or Simple Span Next Steel Beam/ Concrete Deck Next	Prepare CHER Undertake HIA

Description	Yes	No
Does the bridge or study area contain a parcel of land that is subject of a covenant or agreement between the owner of the property and a conservation body or level of government?	Prepare CHER Undertake HIA	Next
Does the bridge or study area contain a parcel of land that is listed on a register or inventory of heritage properties maintained by the municipality?	Prepare CHER Undertake HIA	Next
Does the bridge or study area contain a parcel of land that is designated under Part IV of the *Ontario Heritage Act*?	Prepare CHER Undertake HIA	Next
Does the bridge or study area contain a parcel of land that is subject to a notice of intention to designate issued by a municipality?	Prepare CHER Undertake HIA	Next
Does the bridge or study area contain a parcel of land that is located within a designated Heritage Conservation District?	Prepare CHER Undertake HIA	Next
Does the bridge or study area contain a parcel of land that is subject to a Heritage Conservation District study area by-law?	Prepare CHER Undertake HIA	Next
Does the bridge or study area contain a parcel of land that is included in the Ministry of Tourism, Culture and Sport's list of provincial heritage properties?	Prepare CHER Undertake HIA	Next
Does the bridge or study area contain a parcel of land that is part of a National Historic Site?	Prepare CHER Undertake HIA	Next
Does the bridge or study area contain a parcel of land that is part of a United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Site?	Prepare CHER Undertake HIA	Next
Does the bridge or study area contain a parcel of land that is designated under the Heritage Railway Station Protection Act?	Prepare CHER Undertake HIA	Next
Does the bridge or study area contain a parcel of land that is identified as a Federal Heritage Building by the Federal Heritage Building Review Office (FHBRO)	Prepare CHER Undertake HIA	Next

Description	Yes	No
Does the bridge or study area contain a parcel of land that is the subject of a municipal, provincial or federal commemorative or interpretive plaque that speaks to the Historical significance of the bridge?	Prepare CHER Undertake HIA	Next
Does the bridge or study area contain a parcel of land that is in a Canadian Heritage River watershed?	Prepare CHER Undertake HIA	Next
Will the project impact any structures or sites (not bridges) that are over forty years old, or are important to defining the character of the area or that are considered a landmark in the local community?	Prepare CHER Undertake HIA	Next
Is the bridge or study area adjacent to a known burial site and/or cemetery?	Prepare CHER Undertake HIA	Next
Is the bridge considered a landmark or have a special association with a community, person or historical event in the local community?	Prepare CHER Undertake HIA	Next
Does the bridge or study area contain or is it part of a cultural heritage landscape?	Prepare Cher Undertake HIA	Assess Archaeological Resources

Part C - Heritage Assessment

Description	Yes	No
Does the Cultural Heritage Evaluation Report identify any Heritage Features on the project?	Undertake HIA	Part D - Archaeological Resources
Does the Heritage Impact Assessment determine that the proposed project will impact any of the Heritage Features that have been identified?	Schedule B or C	Part D - Archaeological Resources

Part D - Archaeological Resources Assessment

Description	Yes	No
Will any activity, related to the project, result in land impacts/significant ground disturbance?	Next	Schedule A - proceed

Description	Yes	No
Have all areas, to be impacted by ground disturbing activities, been subjected to recent extensive and intensive disturbances and to depths greater than the depths of the proposed activities?	Schedule A - proceed	Next
Has an archaeological assessment previously been carried out that includes all of the areas to be impacted by this project?	Next	Archaeological Assessment*
Does the report on that previous archaeological assessment recommend that no further archaeological assessment is required within the limits of the project for which that assessment was undertaken, and has a letter been issued by the Ministry of Tourism, Culture and Sport stating that the report has been entered into the Ontario Public Register of Archaeological Reports?	Schedule A - proceed	Obtain satisfaction letter - proceed

* Consultants were engaged in 2020 to conduct a Stage 1 and Stage 2 Archaeological Assessment and found nothing of significance.

Conclusion

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 a municipal Heritage Register, or is designated under Part IV or Part V of the *Ontario Heritage Act.* It does involve one meeting the criteria of *Regulation 9/06*; therefore, there is a potential impact on a significant heritage resource. A Heritage Impact Assessment is required.

OWEN R. SCOTT, *OALA, FCSLA, CAHP*

Education:
Master of Landscape Architecture (MLA) University of Michigan, 1967
Bachelor of Science in Agriculture (Landscape Horticulture), (BSA) University of Guelph, 1965

Professional Experience:

1965 - present	President, CHC Limited, Guelph, ON
1977 - 2018	President, The Landplan Collaborative Ltd., Guelph, ON
1977 - 1985	Director, The Pacific Landplan Collaborative Ltd., Vancouver and Nanaimo, BC
1975 - 1981	Editor and Publisher, *Landscape Architecture Canada*, Ariss, ON
1969 - 1981	Associate Professor, School of Landscape Architecture, University of Guelph
1975 - 1979	Director and Founding Principal, Ecological Services for Planning Limited, Guelph, ON
1964 - 1969	Landscape Architect, Project Planning Associates Limited, Toronto, ON

Historical Research, Heritage Planning and Conservation Experience and Expertise

Current Professional and Professional Heritage Associations Affiliations:
Member: Alliance for Historic Landscape Preservation (AHLP) - 1978 -
Member: Canadian Association of Heritage Professionals (CAHP) - 1987 -
Member: Ontario Association of Landscape Architects (OALA) - 1968 - (Emeritus 2016)
Member: Canadian Society of Landscape Architects (FCSLA) - 1969 - (Fellow 1977, Life Member 2016)

Community and Professional Society Service (Heritage):
Director: Canadian Association of Heritage Professionals (CAHP), 2002 - 2003
Member: Advisory Board, Architectural Conservancy of Ontario, 1980 - 2002
Member: City of Guelph Local Architectural Conservation Advisory Committee (LACAC), 1987 - 2000 (Chair 1988 - 1990)
Member: Advisory Council, Centre for Canadian Historical Horticultural Studies, 1985 - 1988

Professional Honours and Awards (Heritage):

Merit Award	2016	Canadian Association of Heritage Professionals Awards, City of Kitchener Cultural Heritage Landscapes
National Award	2016	Canadian Society of Landscape Architects (CSLA), City of Kitchener Cultural Heritage Landscapes
Mike Wagner Award	2013	Heritage Award - Breithaupt Block, Kitchener, ON
People's Choice Award	2012	Brampton Urban Design Awards, Peel Art Gallery, Museum and Archives, Brampton, ON
Award of Excellence	2012	Brampton Urban Design Awards, Peel Art Gallery, Museum and Archives, Brampton, ON
National Award	2009	Heritage Canada Foundation National Achievement, Alton Mill, Alton, ON
Award of Merit	2009	Canadian Association of Heritage Professionals Awards, Alton Mill, Alton, ON
Award	2007	Excellence in Urban Design Awards, Heritage, Old Quebec Street, City of Guelph, ON
Award	2001	Ontario Heritage Foundation Certificate of Achievement
Award	1998	Province of Ontario, Volunteer Award (10 year award)
Award	1994	Province of Ontario, Volunteer Award (5 year award)
Regional Merit	1990	CSLA Awards, Britannia School Farm Master Plan
National Honour	1990	CSLA Awards, Confederation Boulevard, Ottawa
Citation	1989	City of Mississauga Urban Design Awards, Britannia School Farm Master Plan
Honour Award	1987	*Canadian Architect*, Langdon Hall Landscape Restoration, Cambridge, ON
Citation	1986	*Progressive Architecture*, The Ceremonial Routes (Confederation Boulevard), Ottawa,
National Citation	1985	CSLA Awards, Tipperary Creek Heritage Conservation Area Master Plan, Saskatoon, SK

National Merit	1984	CSLA Awards, St. James Park Victorian Garden, Toronto, ON
Award	1982	Ontario Ministry of Municipal Affairs Ontario Renews Awards, Millside, Guelph, ON

Selected Heritage Publications:

Scott, Owen R., The Southern Ontario "Grid", *ACORN* Vol XXVI-3, Summer 2001. *The Journal of the Architectural Conservancy of Ontario*.

Scott, Owen R. *19th Century Gardens for the 20th and 21st Centuries*. Proceedings of "Conserving Ontario's Landscapes" conference of the ACO, (April 1997). Architectural Conservancy of Ontario Inc., Toronto, 1998.

Scott, Owen R. *Landscapes of Memories, A Guide for Conserving Historic Cemeteries*. (19 of 30 chapters) compiled and edited by Tamara Anson-Cartright, Ontario Ministry of Citizenship, Culture and Recreation, 1997.

Scott, Owen R. Cemeteries: A Historical Perspective, *Newsletter, The Memorial Society of Guelph*, September 1993.

Scott, Owen R. The Sound of the Double-bladed Axe, *Guelph and its Spring Festival*. edited by Gloria Dent and Leonard Conolly, The Edward Johnson Music Foundation, Guelph, 1992. 2 pp.

Scott, Owen R. Woolwich Street Corridor, Guelph, *ACORN* Vol XVI-2, Fall 1991. Newsletter of the Architectural Conservancy of Ontario Inc. (ACO)

Scott, Owen R. guest editor, *ACORN*, Vol. XIV-2, Summer 1989. Cultural Landscape Issue, Newsletter of the ACO.

Scott, Owen R. Heritage Conservation Education, Heritage Landscape Conservation, *Momentum 1989*, Icomos Canada, Ottawa, p.31.

Scott, Owen R. Cultivars, pavers and the historic landscape, *Historic Sites Supplies Handbook*. Ontario Museum Association, Toronto, 1989. 9 pp.

Scott, Owen R. Landscape preservation - What is it? *Newsletter,* American Society of Landscape Architects - Ontario Chapter, vol. 4 no.3, 1987.

Scott, Owen R. Tipperary Creek Conservation Area, Wanuskewin Heritage Park. *Landscape Architectural Review*, May 1986. pp. 5-9.

Scott, Owen R. Victorian Landscape Gardening. Ontario Bicentennial History Conference, McMaster University, 1984.

Scott, Owen R. Canada West Landscapes. *Fifth Annual Proceedings Niagara Peninsula History Conference (1983)*. 1983. 22 pp.

Scott, Owen R. Utilizing History to Establish Cultural and Physical Identity in the Rural Landscape. *Landscape Planning*, Elsevier Scientific Press, Amsterdam, 1979. Vol. 6, No. 2, pp. 179-203.

Scott, Owen R. Changing Rural Landscape in Southern Ontario. *Third Annual Proceedings Agricultural History of Ontario Seminar (1978)*. June 1979. 20 pp.

Scott, Owen R., P. Grimwood, M. Watson. George Laing - Landscape Gardener, Hamilton, Canada West 1808-187l. *Bulletin, The Association for Preservation Technology*, Vol. IX, No. 3, 1977, 13 pp. (also published in *Landscape Architecture Canada*, Vol. 4, No. 1, 1978).

Scott, Owen R. The Evaluation of the Upper Canadian Landscape. Department of Landscape Architecture, University of Manitoba. 1978. (Colour videotape).

Following is a **representative listing of some of the heritage consultations undertaken by Owen R. Scott** in his capacity as a principal of The Landplan Collaborative Ltd., and principal of CHC Limited.

<u>Cultural Heritage Evaluation Reports (CHER) and Heritage Impact Assessments - Bridges</u>

- Adams Bridge (Structure S20) CHER & HIA, Southgate Township, ON
- Belanger Bridge Cultural Heritage Evaluation Report, Casey Township, ON
- Bridge #9-WG Cultural Heritage Evaluation Report, Township of Centre Wellington, ON
- Bridge #20 CHER & HIA, Blandford-Blenheim Township, ON
- Bridge #25 CHER & HIA, Blandford-Blenheim Township, ON
- Holland Mills Road Bridge CHER & HIA, Wilmot Township, ON
- Irvine Street (Watt) Bridge Cultural Heritage Evaluation Report, Township of Centre Wellington, ON
- Uno Park Road Bridge, Cultural Heritage Evaluation Report, Harley Township, ON

Heritage Master Plans and Landscape Plans

- Alton Mill Landscape, Caledon, ON
- Black Creek Pioneer Village Master Plan, Toronto, ON
- Britannia School Farm Master Plan, Peel Board of Education/Mississauga, ON
- Confederation Boulevard (Sussex Drive) Urban Design, Site Plans, NCC/Ottawa, ON
- Doon Heritage Crossroads Master Plan and Site Plans, Region of Waterloo/Kitchener, ON
- Downtown Guelph Private Realm Improvements Manual, City of Guelph, ON
- Downtown Guelph Public Realm Plan, City of Guelph, ON
- Dundurn Castle Landscape Restoration Feasibility Study, City of Hamilton, ON
- Elam Martin Heritage Farmstead Master Plan, City of Waterloo, ON
- Exhibition Park Master Plan, City of Guelph, ON
- George Brown House Landscape Restoration, Toronto, ON
- *Grand River Corridor Conservation Plan*, GRCA/Regional Municipality of Waterloo, ON
- Greenwood Cemetery Master Plan, Owen Sound, ON
- Hamilton Unified Family Courthouse Landscape Restoration Plan, Hamilton, ON
- John Galt Park, City of Guelph, ON
- Judy LaMarsh Memorial Park Master Plan, NCC/Ottawa, ON
- Langdon Hall Gardens Restoration and Site Plans, Cambridge, ON
- London Psychiatric Hospital Cultural Heritage Stewardship Plan, London, ON
- McKay / Varley House Landscape Restoration Plan, Markham (Unionville), ON
- Museum of Natural Science/Magnet School 59/ Landscape Restoration and Site Plans, City of Buffalo, NY
- Muskoka Pioneer Village Master Plan, MNR/Huntsville, ON
- Peel Heritage Centre Adaptive Re-use, Landscape Design, Brampton, ON
- Phyllis Rawlinson Park Master Plan (winning design competition), Town of Richmond Hill, ON
- Prime Ministerial Precinct and Rideau Hall Master Plan, NCC/Ottawa, ON
- Queen/Picton Streets Streetscape Plans, Town of Niagara-on-the-Lake, ON
- Regional Heritage Centre Feasibility Study and Site Selection, Region of Waterloo, ON
- Rockway Gardens Master Plan, Kitchener Horticultural Society/City of Kitchener, ON
- St. George's Square, City of Guelph, ON
- St. James Cemetery Master Plan, Toronto, ON
- St. James Park Victorian Garden, City of Toronto, ON
- Tipperary Creek (Wanuskewin) Heritage Conservation Area Master Plan, Meewasin Valley Authority, Saskatoon, SK
- Whitehern Landscape Restoration Plan, Hamilton, ON
- Woodside National Historic Park Landscape Restoration, Parks Canada/Kitchener, ON

Cultural Heritage Evaluation Reports (CHER), Cultural Heritage Inventories and Cultural Heritage Landscape Evaluations

- Belfountain Area Heritage Inventory for Environmental Assessment, Peel Region, ON
- Chappell Estate / Riverside / Mississauga Public Garden Heritage Inventory, Mississauga, ON
- 8895 County Road 124 Cultural Heritage Opinion Report, Erin (Ospringe), ON
- County of Waterloo Courthouse Building Cultural Heritage Evaluation Report, Kitchener, ON
- Cruickston Park Farm & Cruickston Hall - Cultural Heritage Resources Study, Cambridge, ON
- Doon Valley Golf Course - Cultural Heritage and Archaeological Resources Inventory, Kitchener/Cambridge, ON
- Government of Ontario Light Rail Transit (GO-ALRT) Route Selection, Cultural and Natural Resources Inventory for Environmental Assessment, Hamilton/Burlington, ON
- Hancock Woodlands Cultural Heritage Assessment, City of Mississauga, ON
- Hespeler West Secondary Plan - Heritage Resources Assessment, City of Cambridge, ON
- Highway 400 to 404 Link Cultural Heritage Inventory for Environmental Assessment, Bradford, ON
- Highway 401 to 407 Links Cultural Heritage Inventory for Environmental Assessment, Pickering/Ajax/Whitby/ Bowmanville, ON
- Homer Watson House Cultural Heritage Evaluation Report, Kitchener, ON

- Lakewood Golf Course Cultural Landscape Assessment, Tecumseh, ON
- Landfill Site Selection, Cultural Heritage Inventory for Environmental Assessment, Region of Halton, ON
- Niska Road Cultural Heritage Landscape Addendum, City of Guelph, ON
- 154 Ontario Street, Historical - Associative Evaluation, Guelph, ON
- 35 Sheldon Avenue North, Cultural Heritage Evaluation Report, Kitchener, ON
- Silvercreek (LaFarge Lands) Cultural Landscape Assessment, Guelph, ON
- South Kitchener Transportation Study, Heritage Resources Assessment, Region of Waterloo, ON
- 53 Surrey Street East and 41, 43, 45 Wyndham Street South Cultural Heritage Evaluation Guelph, ON
- Swift Current CPR Station Gardens condition report and feasibility study for rehabilitation/reuse, Swift Current, SK
- University of Guelph, McNaughton Farm House, Cultural Heritage Resource Assessment, Puslinch Township, ON
- University of Guelph, Trent Institute Cultural Heritage Resource Assessment, Guelph, ON
- University of Guelph, 1 and 10 Trent Lane Cultural Heritage Resource Assessments, Guelph, ON
- 2007 Victoria Road South Heritage Evaluation, Guelph, ON
- Waterloo Valleylands Study, Heritage and Recreational Resources mapping and policies, Region of Waterloo
- 69 Woolwich Street (with references to 59, 63-67, 75 Woolwich Street) Cultural Heritage Evaluation Report, Guelph, ON

<u>Cultural Heritage Resource Impact Assessments (CHRIA/CHIA/HIS/HIA) and Cultural Landscape Heritage Impact Statements</u>

- 33 Arkell Road Heritage Impact Assessment, Guelph, ON
- 86 Arthur Street, Heritage Impact Assessment, Guelph, ON
- William Barber House, 5155 Mississauga Road , Heritage Impact Assessment, Mississauga, ON
- Barra Castle Heritage Impact Assessment, Kitchener, ON
- 72 Beaumont Crescent Heritage Impact Assessment, Guelph, ON
- Biltmore Hat Factory Heritage Impact Assessment, Guelph, ON
- 140 Blue Heron Ridge Heritage Impact Assessment, Cambridge, ON
- 25 Breithaupt Street Heritage Impact Assessment, Kitchener, ON
- 51 Breithaupt Street Heritage Impact Assessment, Kitchener, ON
- 215 Broadway Street Heritage Impact Statement, Mississauga, ON
- Cambridge Retirement Complex on the former Tiger Brand Lands, Heritage Impact Assessment, Cambridge, ON
- Cambridge Retirement Complex on the former Tiger Brand Lands, Heritage Impact Assessment Addendum, Cambridge, ON
- 27-31 Cambridge Street, Heritage Impact Assessment, Cambridge, ON
- 3075 Cawthra Road Heritage Impact Statement, Mississauga, ON
- 58 Church Street Heritage Impact Assessment, Churchville Heritage Conservation District, Brampton, ON
- City Centre Heritage Impact Assessment, Kitchener, ON
- 175 Cityview Drive Heritage Impact Assessment, Guelph, ON
- 12724 Coleraine Drive Cultural Heritage Impact Statement, Caledon (Bolton), ON
- 12880 Coleraine Drive Cultural Heritage Impact Statement, Caledon (Bolton), ON
- Cordingly House Heritage Impact Statement, Mississauga, ON
- 264 Crawley Road Heritage Impact Assessment (farmstead, house & barn), Guelph, ON
- 31-43 David Street (25 Joseph Street) Heritage Impact Assessment, Kitchener, ON
- 35 David Street (Phase II) Heritage Impact Assessment, Kitchener, ON
- 75 Dublin Street Heritage Impact Assessment, Guelph, ON
- 24, 26, 28 and 32 Dundas Street East Heritage Impact Statement, Mississauga, (Cooksville), ON
- 1261 Dundas Street South Heritage Impact Assessment, Cambridge, ON
- 172 - 178 Elizabeth Street Heritage Impact Assessment, Guelph, ON
- 19 Esandar Drive, Heritage Impact Assessment, Toronto, ON
- 14 Forbes Avenue Heritage Impact Assessment, Guelph, ON
- 369 Frederick Street Heritage Impact Assessment, Kitchener, ON
- 42 Front Street South Heritage Impact Assessment, Mississauga, ON
- Grey Silo Golf Course/Elam Martin Farmstead Heritage Impact Assessment, City of Waterloo, ON
- GRCA Lands, 748 Zeller Drive Heritage Impact Assessment Addendum, Kitchener, ON

- Hancock Woodlands Heritage Impact Statement, City of Mississauga, ON
- 132 Hart's Lane, Hart Farm Heritage Impact Assessment, Guelph, ON
- 9675, 9687, 9697 Keele Street Heritage Impact Assessment, City of Vaughan (Maple) ON
- 13165 Keele Street Cultural Heritage Resource Impact Assessment, King Township (King City), ON
- 151 King Street North Heritage Impact Assessment, Waterloo, ON
- Kip Co. Lands Developments Ltd. Cultural Heritage Resource Impact Assessment - Woodbridge Heritage Conservation District, City of Vaughan (Woodbridge) ON
- 20415 Leslie Street Heritage Impact Assessment, East Gwillimbury, ON
- 117 Liverpool Street Heritage Impact Assessment, Guelph, ON
- 36-46 Main Street Heritage Impact Assessment, Mississauga, ON
- 30 - 40 Margaret Avenue Heritage Impact Assessment, Kitchener, ON
- 19 - 37 Mill Street Scoped Heritage Impact Assessment, Kitchener, ON
- 2610, 2620 and 2630 Mississauga Road, Cultural Landscape Heritage Impact Statement, Mississauga, ON
- 4067 Mississauga Road, Cultural Landscape Heritage Impact Statement, Mississauga, ON
- 1142 Mona Road, Heritage Impact Assessment, Mississauga, ON
- 1245 Mona Road, Heritage Impact Statement, Mississauga, ON
- 15 Mont Street, Heritage Impact Assessment, Guelph, ON
- Proposed Region of Waterloo Multimodal Hub at 16 Victoria Street North, 50 & 60 Victoria Street North, and 520 & 510 King Street West, Heritage Study and Heritage Impact Assessment, Kitchener, ON
- 6671 Ninth Line Heritage Impact Statement, Cordingley House Restoration & Renovation, Mississauga, ON
- 266-280 Northumberland Street (The Gore) Heritage Impact Assessment, North Dumfries (Ayr), ON
- 324 Old Huron Road Heritage Impact Assessment, Kitchener, ON
- 40 Queen Street South Heritage Impact Statement, Mississauga, (Streetsville), ON
- Rockway Holdings Limited Lands north of Fairway Road Extension Heritage Impact Assessment, Kitchener, ON
- 259 St. Andrew Street East Cultural Heritage Assessment, Fergus, ON
- 35 Sheldon Avenue, Heritage Impact Assessment, Kitchener, ON
- 2300 Speakman Drive Heritage Impact Assessment, Mississauga, ON
- 10431 The Gore Road Heritage Impact Assessment, Brampton, ON
- Thorny-Brae Heritage Impact Statement, Mississauga, ON
- 7 Town Crier Lane, Heritage Impact Assessment, Markham, ON
- University of Guelph, 3 - 7 Gordon Street Houses, Heritage Impact Assessment, Guelph, ON
- University of Guelph, Harrison House, Heritage Impact Assessment, Guelph, ON
- Victoria Park Proposed Washroom Cultural Heritage Impact Assessment, Kitchener, ON
- 927 Victoria Road South (barn) Heritage Impact Assessment, Guelph, ON
- 272-274 Victoria Street Heritage Impact Assessment, Mississauga, ON
- 26 - 32 Water Street North Heritage Impact Assessment, Cambridge (Galt), ON
- Winzen Developments Heritage Impact Assessment, Cambridge, ON
- 248-260 Woodbridge Avenue Cultural Heritage Resource Impact Assessment and Heritage Conservation District Conformity Report, Woodbridge Heritage Conservation District, City of Vaughan (Woodbridge)
- 35 Wright Street Cultural Heritage Resource Impact Assessment, Richmond Hill, ON
- 1123 York Road Heritage Impact Assessment, Guelph, ON
- 14288 Yonge Street, Heritage Impact Assessment, Aurora, ON

<u>Heritage Conservation Plans</u>

- William Barber House, 5155 Mississauga Road , Heritage Conservation Plan, Mississauga, ON
- 51 Breithaupt Street Heritage Conservation Plan, Kitchener, ON
- Hamilton Psychiatric Hospital Conservation Plan, for Infrastructure Ontario, Hamilton, ON
- Harrop Barn Heritage Conservation Plan, Milton, ON
- 120 Huron Street Conservation Plan, Guelph, ON
- 324 Old Huron Road Conservation Plan, Kitchener, ON

- 264 Woolwich Street Heritage Conservation Plan, Guelph, ON
- 14288 Yonge Street Heritage Conservation Plan, Aurora, ON
- 1123 York Road Heritage Conservation Plan, Guelph, ON

Heritage Conservation District Studies and Plans

- Downtown Whitby Heritage Conservation District Study and Plan, Town of Whitby, ON
- MacGregor/Albert Heritage Conservation District Study and Plan, City of Waterloo, ON
- Queen Street East Heritage Conservation District Study, Toronto, ON
- University of Toronto & Queen's Park Heritage Conservation District Study, City of Toronto, ON

Cultural Heritage Landscape Inventories/Studies

- Cultural Heritage Landscape Study, City of Kitchener, ON
- Cultural Heritage Landscape Inventory, City of Mississauga, ON
- Cultural Heritage Scoping Study, Township of Centre Wellington, ON

Peer Reviews

- Acton Quarry Cultural Heritage Landscape & Built Heritage Study & Assessment Peer Review, Acton, ON
- Belvedere Terrace - Peer Review, Assessment of Proposals for Heritage Property, Parry Sound, ON
- Forbes Estate Heritage Impact Assessment Peer Review, Cambridge (Hespeler), ON
- Heritage Square Heritage Impact Assessment Peer Review for Township of Centre Wellington (Fergus), ON
- Little Folks Heritage Impact Assessment Peer Review for Township of Centre Wellington (Elora), ON
- Potter Foundry and the Elora South Condos Heritage Impact Assessment Peer Review for Township of Centre Wellington (Elora), ON
- Expert Services in Defence of Appeals to 2014 City of Markham Official Plan, Part 1, Site Specific Appeals, Markham, ON
- Heritage Conservation Documents for Fourward Holdings development proposal for 558 Welbanks Road, Prince Edward County, ON

Expert Witness Experience

- Oelbaum Ontario Municipal Board Hearing, Eramosa Township, ON, 1988
- Roselawn Centre Conservation Review Board Hearing, Port Colborne, ON, 1993
- Halton Landfill, Joint Environmental Assessment Act and Environmental Protection Act Board Hearing, 1994
- OPA 129 Ontario Municipal Board Hearing, Richmond Hill, ON, 1996
- Diamond Property Ontario Municipal Board Hearing, Aurora, ON, 1998
- Harbour View Investments Ontario Municipal Board Hearing, Town of Caledon, ON, 1998
- Aurora South Landowners Ontario Municipal Board Hearing, Aurora, ON, 2000
- Ballycroy Golf Course Ontario Municipal Board Hearing, Palgrave, ON, 2002
- Doon Valley Golf Course Ontario Municipal Board Hearing, Cambridge, ON, 2002
- Maple Grove Community Ontario Municipal Board Hearing, North York, ON, 2002
- Maryvale Crescent Ontario Municipal Board Hearing, Richmond Hill, ON, 2003
- LaFarge Lands Ontario Municipal Board Mediation, Guelph, ON, 2007
- 255 Geddes Street, Elora, ON, heritage opinion evidence - Ontario Superior Court of Justice, 2010
- Downey Trail Ontario Municipal Board Hearing, Guelph, ON, 2010
- Wilson Farmhouse Conservation Review Board Hearing, Guelph, ON, 2014
- 85 Victoria Street, Churchville Heritage Conservation District, Ontario Municipal Board Hearing, Brampton, ON, 2016
- Haylock / Youngblood Development OMB Mediation Hearing, Centre Wellington, ON, 2018
- Riverbank Drive LPAT Mediation Hearing, Cambridge, ON, 2019