APPENDIX M

Cultural Heritage Evaluation Report – Joshua Creek, Sixteen Mile Creek, and Bronte Creek Bridges

METROLINX

GO Rail Network Electrification TPAP

Final Cultural Heritage Evaluation Report:

Joshua Creek, Sixteen Mile Creek and Bronte Creek Bridges

For

METROLINX

Prepared by:

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Reviewed by:

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The above electronic signatures indicate that the named document is controlled by GF Canada ULC, and has been:

1. Prepared by qualified staff in accordance with generally accepted professional practice.
2. Checked for completeness and accuracy by the appointed discipline reviewers and that the discipline reviewers did not perform the original work.
3. Reviewed and resolved compatibility interfaces and potential conflicts among the involved disciplines.
4. Updated to address previously agreed-to reviewer comments, including any remaining comments from previous internal or external reviews.
5. Reviewed for conformance to scope and other statutory and regulatory requirements.
6. Determined suitable for submittal by the Project Manager.

REVISION HISTORY

Revision	Date	Comments
0	July 27, 2016	Initial Release to Metrolinx
1	December 23, 2016	Revised report reflecting new information, corrected information, client review comments, etc.
2	September 8, 2017	Final Report to Metrolinx reflecting new template and finalization

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APPENDIX A: COMMUNITY INPUT QUESTIONNAIRES

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REPORT DISCLAIMER

NOTWITHSTANDING the results and recommendations presented in this study, Archaeological Services Inc. notes that no cultural heritage assessment, no matter how thorough or carefully completed, can necessarily identify every property and/or structure that has not been previously identified as a known or potential cultural heritage resource. Cultural heritage assessments for transportation related projects are limited to the public right-of-way, and as such, potential cultural heritage resources on private property may be screened from view by vegetation and/or other barriers. In the event that a potential cultural heritage resource is found during subsequent construction activities, the consultant cultural heritage specialist and approval authority should be immediately notified.

Executive Summary

ASI was contracted by Morrison Hershfield on behalf of Metrolinx to conduct a Cultural Heritage Evaluation Report (CHER) and Cultural Heritage Evaluation Recommendation Report (CHERR) of Joshua Creek Bridge, Sixteen Mile Creek Bridge, and Bronte Creek Bridge along the Lakeshore West rail corridor as part of the GO Rail Network Electrification Transit Project Assessment Process (TPAP). Metrolinx is undertaking a TPAP study under *Ontario Regulation 231/08 - Transit Projects and Metrolinx Undertakings* for electrification of the GO Rail Network. All three bridges were identified as Potential Provincial Heritage Properties as part of the Cultural Heritage Screening Report completed for the GO Rail Network Electrification TPAP.

The following provides a brief description of each bridge included in this report:

- The Joshua Creek Bridge is located at Mile 18.90 of the GO Transit Lakeshore West rail corridor, and is owned by Metrolinx. The bridge carries three tracks of east-west rail traffic over Joshua Creek.
- The Sixteen Mile Creek Bridge is located at Mile 21.71 of the GO Transit Lakeshore West rail corridor, and is owned by Metrolinx. The bridge carries three tracks of east-west rail traffic over Sixteen Mile Creek.
- The Bronte Creek Bridge is located at Mile 25.87 of the GO Transit Lakeshore West rail corridor, and is owned by Metrolinx. The bridge carries three tracks of east-west rail traffic over Bronte Creek.

Part 1 of this CHER provides a description of the potential cultural heritage resources, including a summary of its historical and current context (Section 1), a description of methodology and sources (Section 2), existing heritage recognition of the resource (Section 3), a description of adjacent lands (Section 4), summary of previous archaeological assessment (Section 5), community input (Section 6), and discussion of cultural heritage value (Sections 7, 8, and 9). A data sheet is provided in Section 10 and figures, including mapping and photographs, are provided in Section 11. Part 2 of this CHER contains the Recommendations Report which presents the evaluation tables outlining criteria set out in Ontario Regulations 9/06 and 10/06 and recommended outcome of the evaluation.

The CHER was conducted by Joel Konrad, Cultural Heritage Specialist, ASI.

1 Introduction

ASI was contracted by Morrison Hershfield on behalf of Metrolinx to conduct a Cultural Heritage Evaluation Report (CHER) and Cultural Heritage Evaluation Recommendation Report (CHERR) of the Joshua Creek Bridge, Sixteen Mile Creek Bridge, and Bronte Creek Bridge along the Lakeshore West rail corridor as part of the GO Rail Network Electrification Transit Project Assessment Process (TPAP). Metrolinx is undertaking a TPAP study under *Ontario Regulation 231/08 - Transit Projects and Metrolinx Undertakings* for electrification of the GO Rail Network. All three bridges were identified as Potential Provincial Heritage Properties as part of the Cultural Heritage Screening Report completed for the GO Rail Network Electrification TPAP.

The objective of this CHER is to provide evidence about reasons why the subject resource may be of cultural heritage value or interest, and identify the physical elements that contribute to its heritage value. Research for this CHER was conducted under the senior project management of Lindsay Graves, Assistant Manager of the Cultural Heritage Division, ASI.

1.1 Joshua Creek Bridge

1.1.1 Historical Summary

The Joshua Creek Bridge is located straddling the boundary of Lot 4, Concession II south and Lot 4 Concession III south in the historic Township of Trafalgar South in the former County of Halton.

The earliest structural plans for the site were drawn by the Great Western Railway (GWR) and indicate the proportions for abutments dating to 1882. The structure was expanded to support an additional track with an extension of the abutments in 1891, though, according to the Metrolinx Master Bridge List, the two north structures were constructed in 1903. Precast slab abutments replaced much of the original abutments in 1952 and a structure carrying a third, service track was constructed in 1956. The structure carrying the south tracks was replaced in 2008 by a steel girder span and an alteration to the existing abutments. The bridge is the only structure on the property that is older than 40 years.

1.1.2 Description of Property

The Joshua Creek Bridge is located at Mile 18.90 of the GO Transit Lakeshore West rail corridor, and is located in the Town of Oakville (Figures 1-1 and 1-2). The bridge, built in 1903 and widened in 1956 and 2008, carries three tracks of rail traffic in an east and west direction across Joshua Creek, between Ford Drive and Maple Grove Drive. While rail traffic travels in an east-west direction, it should be noted that at this segment of the rail corridor, the bridge and corridor is on a northeast-southwest alignment, and

the Joshua Creek flows northwest to southeast under the bridge. The bridge is located within Metrolinx owned parcel PIN 24792-0074.

1.1.3 Current Context

The Joshua Creek Bridge is located on a minor waterway in the Town of Oakville. The general area around the Joshua Creek Bridge is woodlot and commercial, consisting of a combination of more recently constructed commercial complexes and older, established businesses.

The properties adjacent to the bridge include: a hydro corridor and Royal Windsor drive to the west and a single storey commercial building and parking area to the east.

Figure 1-1: Location of the Joshua Creek Bridge study area, in the Town of Oakville, Ontario (Open Street Map)

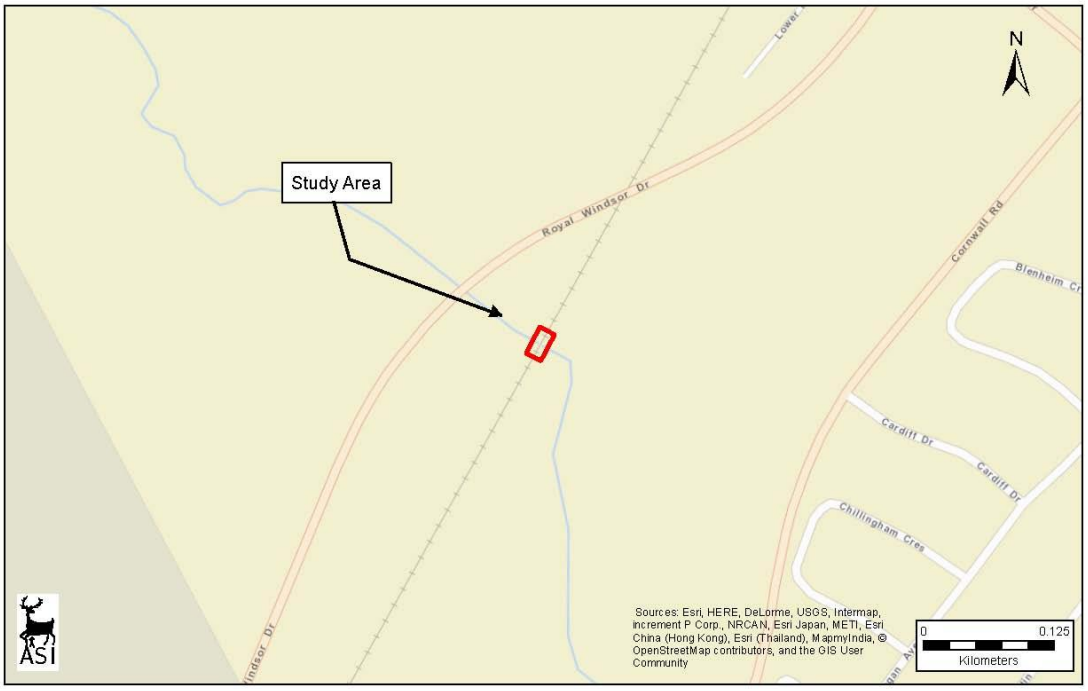


Figure-1-2: North elevation of the Joshua Creek Bridge



1.2 Sixteen Mile Creek Bridge

1.2.1 Historical Summary

The Sixteen Mile Creek Bridge is located in part of Lot 15, Concession III south in the historic Township of Trafalgar South in the former County of Halton. The bridge is located in the historic village of Oakville, west of the Oakville Train Station (present day Oakville GO Station).

Portions of the bridge likely date to 1855 at which time the Great Western Railway built the rail line connecting Hamilton to Toronto. This original structure consisted of a single track crossing a Warren Truss bridge with brick piers. However, according to existing plans, the current piers replaced parts or all of the original piers in 1892 while the deck truss was likely constructed between 1900 and 1902 to specifications outlined by the Grand Trunk Railway. A northern section comprised of steel beams was added to the bridge in 2008.

1.2.2 Description of Property

The Sixteen Mile Creek Bridge is located at Mile 21.71 of the GO Transit Lakeshore West rail corridor, and is located in the Town of Oakville (Figures 1-3 and 1-4). The bridge, built in 1902 and widened in

2008, is a five span viaduct structure that carries three tracks of rail traffic in an east and west direction across the Sixteen Mile Creek and Cross Avenue, east of Kerr Street. While rail traffic travels in an east-west direction, it should be noted that at this segment of the rail corridor, the bridge and corridor is on a northeast-southwest alignment, and the Sixteen Mile Creek flows northwest to southeast under the bridge. The bridge is located within Metrolinx owned parcel PIN 24816-0018.

1.2.3 Current Context

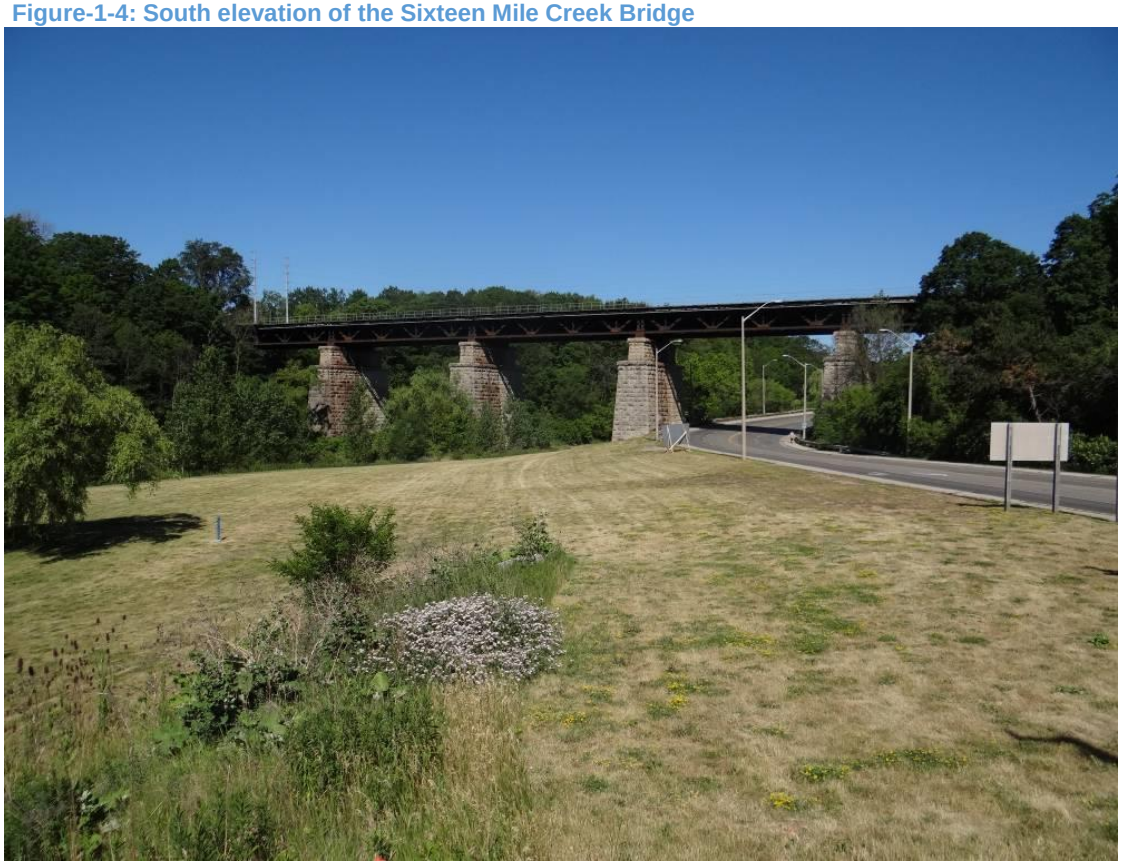
The Sixteen Mile Creek Bridge spans the Sixteen Mile Creek and Cross Road in the Town of Oakville. The general area around the Sixteen Mile Creek Bridge is mixed residential commercial, and recreational. The residential areas consist of multi-dwelling buildings. The commercial areas feature a combination of more recently constructed commercial complexes and older, established businesses. The recreational areas consist of green space along the banks of the river and a municipal park.

The properties adjacent to the bridge include: the Hogs Back Park to the east; undeveloped area next to a commercial plaza to the south; Cross Avenue and Parking for the Oakville GO Station to the north; and undeveloped areas along with bends of Sixteen Mile Creek to the west.

Figure-1-3: Location of the Sixteen Mile Creek Bridge study area in the Town of Oakville, Ontario (Open Street Map)



Figure-1-4: South elevation of the Sixteen Mile Creek Bridge



1.3 Bronte Creek Bridge

1.3.1 Historical Summary

The Bronte Creek Bridge is located in part of Lot 31, Concession III south in the historic Township of Trafalgar South in the former County of Halton. The bridge is located to the north of the historic village of Bronte, which developed around the mouth of Bronte Creek, between the shore of Lake Ontario and Rebecca Street.

The Bronte Creek Bridge is located along the Lakeshore West rail corridor at Bronte Creek. Portions of the bridge likely date to the 1850s, at which time the Great Western Railway built the rail line connecting Hamilton to Toronto. However, according to existing plans, the current deck truss was likely constructed between 1900 and 1902, at the same time the Sixteen Mile Creek deck truss was constructed. Minor alterations were undertaken to the steel portions of the bridge throughout the twentieth century while a modern addition to the north of the bridge was completed in 1989. The bridge is the only structure on the property that is older than 40 years.

1.3.2 Description of Property

The Bronte Creek Bridge is located at Mile 25.87 of the GO Transit Lakeshore West rail corridor, and is located in the Town of Oakville (Figures 1-5 and 1-6). The bridge, built between1900 and 1902 and again in 1989, is a six span viaduct structure that carries three tracks of rail traffic in an east and west direction across Bronte Creek, between Bronte Road and McPherson Road. While rail traffic travels in an east-west direction, it should be noted that at this segment of the rail corridor, the bridge and corridor is on a northeast-southwest alignment, and the Bronte Creek flows northwest to southeast under the bridge. The bridge is located within Metrolinx owned parcel PIN 24858-0098.

1.3.3 Current Context

The Bronte Creek Bridge spans the Bronte Creek in the Town of Oakville. The general area around the Bronte Creek Bridge is generally industrial and undeveloped. The commercial areas to the west and east feature a combination of more recently constructed commercial complexes and older, established businesses.

The properties adjacent to the bridge include: oil refinery to the south; an undeveloped area next to a transformer station to the west; an undeveloped area next to an auto sales centre; and an undeveloped area next to a single story commercial building to the east.

Figure-1-5: Location of the Bronte Creek Bridge study area in the Town of Oakville, Ontario (Open Street Map)

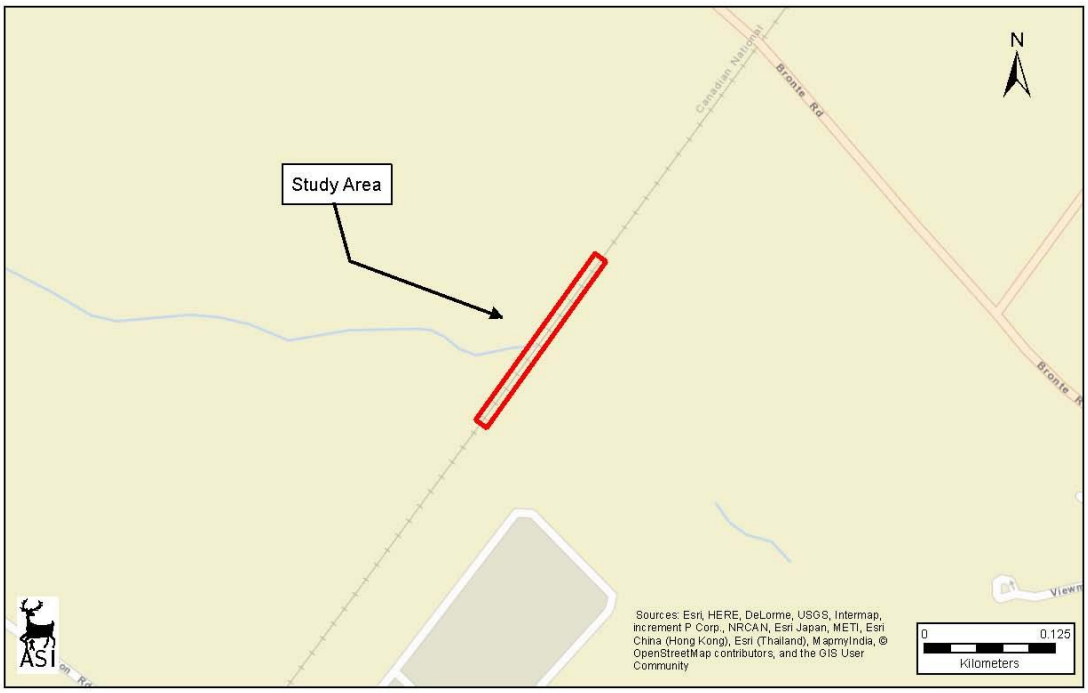
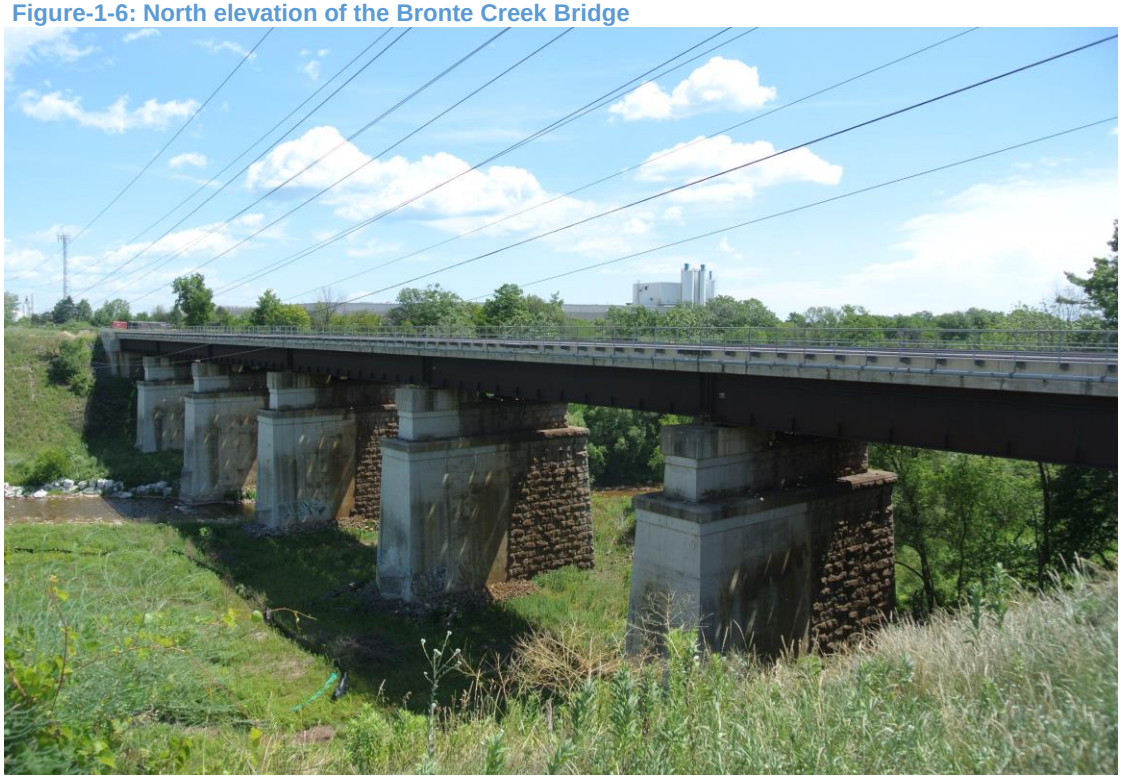


Figure-1-6: North elevation of the Bronte Creek Bridge



2 Methodology and Sources

2.1 Legislation and Policy Context

This cultural heritage screening considers cultural heritage resources in the context of improvements to specified areas, pursuant to *Ontario Regulation 231/08*: Transit Projects and Metrolinx Undertakings (Transit Projects Regulation) and the Ontario *Environmental Assessment Act* (EAA 1990). Pursuant to the *Environmental Assessment Act*, applicable infrastructure projects are subject to assessment so as to determine related impacts on above ground cultural heritage resources (MTO 2006). Infrastructure projects have the potential to impact cultural heritage resources in a variety of ways such as loss or displacement of resources through removal or demolition and the disruption of resources by introducing physical, visual, audible or atmospheric elements that are not in keeping with the resources and/or their setting.

When considering cultural heritage resources in the context of improvements to specified areas, a 40 year old threshold is used as a guiding principle when identifying cultural heritage resources. While identification of a resource that is 40 years old or older does not confer outright heritage significance, this threshold provides a means to collect information about resources that may retain heritage value.

Similarly, if a resource is slightly younger than 40 years old, this does not preclude the resource from retaining heritage value.

The TPAP is defined in sections 6-17 in Ontario Regulation 213/08: Transit Projects and Metrolinx Undertakings, and provides a series of relevant provisions and definitions. The TPAP Guide (January 2014) includes provisions to consider when the proposed project may have a negative impact on a matter of provincial importance, which is defined as follows (2014: 2):

> "*...a matter of provincial importance that relates to the natural environment or has cultural heritage value or interest...*"

The TPAP Guide further notes that identification and assessment of potentially impacted built heritage resources, cultural heritage landscapes, and protected heritage properties are relevant in determining if a matter is of 'provincial importance' (2014: 10). It should be noted that the TPAP Guide acknowledges that a built heritage resource, cultural heritage landscape, or protected heritage property does not necessarily need to meet criteria set out under Regulation 10/06 of the *Ontario Heritage Act* to be considered of 'provincial importance'.

The analysis used throughout the cultural heritage resource assessment process addresses cultural heritage resources under other various pieces of legislation and their supporting guidelines:

- *Environmental Assessment Act* (R.S.O. 1990, Chapter E.18)
    - *Guideline for Preparing the Cultural Heritage Resource Component of Environmental Assessments* (MCC – MOE 1992)
    - *Guidelines on the Man-Made Heritage Component of Environmental Assessments* (MCR – MOE 1981)
- *Ontario Heritage Act* (R.S.O. 1990, Chapter O.18) and a number of guidelines and reference documents prepared by the Ministry of Tourism and Culture (MTC):
    - *Standards and Guidelines for the Conservation of Provincial Heritage Properties* (MTC 2010)
    - *Ontario Heritage Tool Kit* (MCL 2006)
- *Planning Act* (R.S.O. 1990, Chapter P.13) and the 2014 *Provincial Policy Statement*

This assessment was also guided by the *Metrolinx Interim Cultural Heritage Management Process* (Metrolinx 2013b), and the *Draft Terms of Reference for Consultants: Cultural Heritage Evaluation Report and Cultural Heritage Evaluation Report Recommendations* (Metrolinx 2014).

2.2 Approach to Cultural Heritage Evaluation Report

The scope of a CHER is guided by the Ministry of Tourism, Culture and Sport's *Ontario Heritage Toolkit* (2006) as well as the Metrolinx *Draft Terms of Reference for Consultants: Cultural Heritage Evaluation Report and Cultural Heritage Evaluation Report Recommendations* (2014). Generally, CHERs include the following components:

- A general description of the history of the study area as well as a detailed historical summary of property ownership and building(s) development;
- A description of the cultural heritage landscape and built heritage resources;
- Representative photographs of the exterior and interior of a building or structure, and character-defining architectural details;
- A cultural heritage resource evaluation guided by the *Ontario Heritage Act* criteria;
- A summary of heritage attributes;
- Historical mapping, photographs; and
- A location plan.

Fieldwork for Sixteen Mile Creek Bridge was conducted by John Sleath, Cultural Heritage Assistant, on 23 June 2016. Fieldwork for the Joshua Creek and Bronte Creek Bridges was conducted by Joel Konrad, Cultural Heritage Specialist, ASI, on 18 July 2016. Permission to enter was obtained to access Bronte Creek Bridge and Joshua Creek Bridge[1]. The Sixteen Mile Creek was accessible from the public right-of-way.

Using background information and data collected during the site visit, the cultural heritage resource is evaluated using criteria contained within Ontario Regulations 9/06 and 10/06 of the *Ontario Heritage Act*. The two criteria sets share a requirement to fully understand the history, design and associations of all cultural heritage resources of the property. The following differences between the two sets of criteria should be noted (Metrolinx 2014: 12):

- Regulation 9/06 requires a consideration of the community context
- Regulation 10/06 requires a consideration of the provincial context

2.2.1 List of Key Sources and Research Limitations

Key Sources

[1] Permission given from Infrastructure Ontario for Monday, July 18 2016.

Background historical research, which includes the consultation of primary and secondary source documents, photos, and historic mapping, was undertaken to identify early settlement patterns and broad agents or themes of change in a study area. In addition, on-site archival research was undertaken at the following libraries and archives to build upon information gleaned from other primary and secondary materials:

- Town of Oakville Public Library; and
- Archives of Ontario.

Where available, comprehensive bridge inventories were consulted for comparative analysis purposes to determine the potential design value of the subject bridge. The Metrolinx Master Bridge List (2015) recording information such as bridge name, location, construction date, material, bridge type, number of spans and overall bridge length, was provided by Metrolinx and utilized for comparative purposes. Additional sources were considered for comparative analysis where relevant.

Available federal, provincial and municipal heritage inventories and databases were also consulted to obtain information about the property. These included:

- The Town of Oakville's *Register of Properties of Cultural Heritage Value or Interest;*
- The Ontario Heritage Trust's *Provincial Plaque Program* database;
- Park's Canada's *Directory of Federal Heritage Designations*, a searchable on-line database that identifies National Historic Sites, National Historic Events, National Historic People, Heritage Railway Stations, Federal Heritage Buildings, and Heritage Lighthouses; and
- Park's Canada's *Historic Places* website: a searchable on-line register that provides information on historic places recognized for their heritage value at the local, provincial, territorial and national levels.

Previous consultant reports associated with potential above-ground cultural heritage resources and archaeological resources within and/or adjacent to the GO Network Electrification EA included the following:

- Cultural Heritage Screening Report: GO Rail Network Electrification TPAP (ASI 2016)

A full list of references consulted can be found in Section 20 of this CHER.

Research Limitations
No research limitations were identified.

2.3 Consultation

Consultation with the Ontario Heritage Trust, the Ministry of Tourism, Culture, and Sport (MTCS), and heritage staff at the Town of Oakville regarding the subject properties took place as part of the Cultural Heritage Screening Report (ASI 2016). However, given that the Sixteen Mile Creek Bridge in Oakville was identified as retaining municipal heritage recognition, additional consultation with heritage staff was undertaken as part of this CHER.

Susan Schappert, Heritage Planner at the Town of Oakville was consulted on June 9, 2016, via email and telephone. Susan confirmed that Sixteen Mile Creek Bridge is on the municipal heritage inventory, and that there is no additional information about the bridge on file at the municipality.

3 Heritage Recognitions

3.1 Joshua Creek Bridge

3.1.1 Municipal

The subject resource does not retain heritage recognition at the municipal level for the following reasons:

- The property is not listed on the Oakville Heritage Register.

3.1.2 Provincial

The subject resource does not retain heritage recognition at the provincial level for the following reasons:

- The property is owned by Metrolinx, however, is has not previously been identified as a Provincial Heritage Property; and
- The property has not been commemorated by the Ontario Heritage Trust.

3.1.3 Federal

The subject resource does not retain heritage recognition at the federal level for the following reasons:

- The property does not contain a Federal Heritage Building; and
- The property is not a National Historic Site.

3.2 Sixteen Mile Creek Bridge

3.2.1 Municipal

The subject resource retains heritage recognition at the municipal level for the following reasons:

- The property is listed on Oakville's Register of Properties of Cultural Heritage Value or Interest (not designated under Part IV of the *Ontario Heritage Act*). The description of this resource is as follows:
  - This property has potential cultural heritage value for its rail bridge and the historical associations with the historic rail lines and the development of the travel hubs of Trafalgar Township.

3.2.2 Provincial

The subject resource does not retain heritage recognition at the provincial level for the following reasons:

- The property is owned by Metrolinx, however, is has not previously been identified as a Provincial Heritage Property; and
- The property has not been commemorated by the Ontario Heritage Trust.

3.2.3 Federal

The subject resource does not retain heritage recognition at the federal level for the following reasons:

- The property does not contain a Federal Heritage Building; and
- The property is not a National Historic Site.

3.3 Bronte Creek Bridge

3.3.1 Municipal

The subject resource does not retain heritage recognition at the municipal level for the following reasons:

- The property is not listed on the Oakville Heritage Register.

3.3.2 Provincial

The subject resource does not retain heritage recognition at the provincial level for the following reasons:

- The property is owned by Metrolinx, however, is has not previously been identified as a Provincial Heritage Property; and
- The property has not been commemorated by the Ontario Heritage Trust.

3.3.3 Federal

The subject resource does not retain heritage recognition at the federal level for the following reasons:

- The property does not contain a Federal Heritage Building; and
- The property is not a National Historic Site.

4 Adjacent Lands

4.1 Joshua Creek Bridge

There are no protected heritage properties adjacent to Joshua Creek Bridge.

4.2 Sixteen Mile Creek Bridge

There are no protected heritage properties adjacent to Sixteen Mile Creek Bridge.

4.3 Bronte Creek Bridge

There are no protected heritage properties adjacent to Bronte Creek Bridge.

5 Summary of Archaeological Assessments

The Stage 1 Archaeological Assessment for the GO Rail Network Electrification TPAP is currently underway (ASI, in progress). Once completed, this report will provide information about archaeological potential in the study area.

6 Community Input

A number of stakeholder groups were contacted and asked to complete a questionnaire to collect any information relating to the three Lakeshore West rail corridor bridges. See Appendix A for questionnaire responses received and Table 6-1 for a list of organizations contacted and a description of information received. At the time of writing, responses were received from the Oakville Historical Society about the subject bridges as well as the Bronte Historical Society. No concerns regarding the heritage value or local community interest were identified.

A review of various online sources did not reveal any interest from the community in the potential heritage value of the subject bridges.

Table 6-1: Results of Community Consultation for Bridges in Oakville

Contact	Organization	Contact Information	Date(s) of Communications	Description of Information Received
n/a	Oakville Historical Society	information@ oakvillehistory.org	June 3, 2016	Response received June 19th from George Chisholm, President of the Oakville Historical Society. They do not have any historical photos or information on the three railway bridges in Oakville. He suggested that we look at the book *Steam at Oakville* by Allan Paterson and Dick George.
n/a	Bronte Historical Society	Brontehistorical society@bellnet.ca	June 3, 2016	Response received June 9th from Betty Strong, Volunteer.
n/a	Conservation Halton	envserv@ hrca.on.ca	June 3, 2016	No response received to date
n/a	Credit Valley Conservation Authority	June 3, 2016	June 3, 2016	No response received to date

7 Discussion of Cultural Heritage Value of Joshua Creek Bridge

7.1 Discussion of Historical or Associative Value

7.1.1 Settlement History

Trafalgar Township

The land within Trafalgar Township was acquired by the British from the Mississaugas in 1795. In 1806, Samuel Wilmot surveyed the townships of Nelson, Trafalgar and Toronto from land obtained in this purchase, using Dundas Street (Highway 5) as a baseline from which to survey two concessions north and four concessions south. Dundas Street had been surveyed in 1793 as a military road.

Trafalgar Township was first named "Grant Township" in honour of Alexander Grant, who was the administrator of Upper Canada. In 1806, it was renamed in honour of the victory by Horatio Viscount Nelson at Cabo Trafalgar in Spain the previous year. Nelson was initially settled by the children of Loyalists, soldiers who served during the War of 1812, and by immigrants from England, Scotland and Ireland. By the 1840s, the township was noted for its well cultivated farms (Smith 1846:197; Armstrong 1985:148; Rayburn 1997:348).

The earliest families to settle within the township included those of Sovereign, Proudfoot, Katting, Freeman, Post, Biggar, Mulholland, Kenney, Chalmer, Albertson, Chisholms, Sproat, Brown and Hagar. According to the 1877 atlas, it contained 548 inhabitants with one grist mill and four saw mills in 1817.

Early settlement was often influenced by the presence of watercourses. The development of the network of concession roads and railroads through the course of the nineteenth century also frequently influenced the setting of farmsteads and early industries.

Dundas Street, the baseline survey road in Trafalgar Township had been surveyed in 1793 as a military road connecting Lake Ontario, Lake Erie, Lake St. Clair and Lake Huron, as well as a road to aid Loyalist settlement and deter expansionist claims in Upper Canada. After the two concessions south of Dundas St. were opened up, two new east-west concession line access roads, the Upper Middle Road and the Lower Middle Road, were surveyed. These early east-west roads were later complemented in 1832 by the Lakeshore Road, which was constructed nearby and parallel to an aboriginal pathway skirting Lake Ontario. The concession roads of the 1806 survey, and the line roads running perpendicular, blocked out the township in areas a mile and quarter square with five 200-acre lots to a square. Between every five lots ran a line road (Mathews 1953:45).

Historic Mapping Review

The 1858 *Tremaine's Map of the County of Halton* (Figure 11-1) depicts the study area in a rural, agricultural context in the mid-nineteenth century. The rail line is present in the study area, as is Joshua

Creek. A roadway is depicted directly northwest of the rail line. The lot on which the bridge is located is owned by Benjamin Griggs, although no structures are noted.

The 1878 *Illustrated Historical Atlas of the County of Halton* (Figure 11-2) depicts the study area as retaining a rural, agricultural character into the late nineteenth-century. The lot on which the bridge is located is owned by Jason A. Conover, who is depicted as owning a farmhouse and associated orchard to the east of the railway and roadway. The subject bridge is located at the junction of the rail line and a roadway, although no structure is clearly depicted.

The 1909 Topographic Map (Figure 11-3) continues to depict the study area in a rural, agricultural setting into the twentieth century. The farmhouse southeast of the subject bridge noted on the 1878 *Altas* is still present in the twentieth century, as are the rail line, and the roadway that intersects with the rail line (labeled as Lower Middle Road). The rail line and the roadway are shown to be carried over Joshua Creek by an iron, and wooded bridge, respectively. The area surrounding the study area is largely agricultural, with woodlots surrounding the creek valley to the northwest.

The 1954 aerial photograph (Figure 11-4) depicts the study in a similar agricultural setting as previous mapping, with several main exceptions. Lower Middle Road is shown to have been realigned slightly to the north in the early twentieth century, and passes under the rail line by way of a grade-separated bridge. Another other major development noted is the construction of the Ford Motors automotive assembly plant to the southwest of the study area. While the area around the study area experienced development and changed in the mid twentieth-century, the immediate study area still retained an agricultural context. An historic photo depicts a steam locomotive crossing the bridge in the mid-twentieth century (Figure 11-7).

The 1976 Planning Map (Figure 11-5) depicts the immediate area surrounding the study area as undeveloped, presumably still utilized agricultural land. Development is slowly encroaching; the plan shows that lands to the southeast have been divided into residential lots for a growing subdivision.

The residential encroachment is further shown on the 1990 Planning Map (Figure 11-6). Cornwall Road to the south of the study area is extended past the Joshua Creek Bridge and the area to the south is completely divided into residential lots. The areas immediately adjacent to the study area remain undeveloped.

7.1.2 Significant Themes, Events and/or People

Railway Development

The Lakeshore West rail corridor follows the tracks initially laid in the mid 1850s from Toronto to Hamilton by the Hamilton & Toronto Railway Company (H&TR). The H&TR was established by Sir Allan

MacNab and a number of other investors, with additional financial support from England, and a charter was granted in 1852. Construction on the line began in 1853 and was completed in 1855 (Colin Churcher 2016). The line was initially leased to the Great Western Railway (GWR), who in turn supplied railway stations along the corridor and constructed the GWR branch between Hamilton and Toronto (Paterson & George 1988:13). Given that the GWR was headquartered in Hamilton, mileage started in Hamilton. Extending from Hamilton, the first train stations were as follows (Reynolds 2011):

- Hamilton, Stuart St. (Mile 0.00);
- Bronte (Mile 13.33);
- Oakville (Mile 17.57);
- Clarkson (Mile 22.82);
- Lorne Park (Mile 23.89)
- Port Credit (Mile 25.84);
- Mimico (Mile 32.26); and
- Sunnyside (Mile 35.18).

By the 1870s, there were five trains running daily between Toronto and Hamilton (Hicks 2006). Locomotives were now powered by coal rather than wood, and air brakes had been developed which allowed for trains to attain greater speeds. By 1872, iron rails were being replaced by the more resilient steel rails, greatly improving safety standards and reducing expenses. It was also around this time that the H&TR was absorbed into the GWR and the single track between Hamilton and Toronto became known as the Toronto Branch. Other lines constructed by, or purchased by, the GWR included: The Galt & Guelph Railway; the London & Port Sarnia Railway; and the Canada Air Line Railway (Reynolds 2011).

In 1882, the Grand Trunk Railway (GTR) merged with the GWR. Track mileage was reversed at this time, with Union Station in Toronto now at Mile 0.00. In the late 1890s the GTR began the double track program along the Toronto Branch rail corridor.

Due to financial difficulty, control of the GTR was assumed by the Canadian Government in 1919 and by 1923, the GTR was amalgamated with Canadian National Railways (CNR) (Andreae 1997). The CNR continued to operate freight and passenger trains along the Lakeshore West rail corridor on a regular basis, making this one of the busiest rail corridors in Canada. By the 1950s, automobiles and highways were replacing trains and railways as the preferred mode of transportation, which meant that it was becoming economically unviable for the CNR to continue passenger services. The following decades saw the introduction of GO Transit commuter rail service, beginning in May of 1967, and the creation of VIA Rail Canada by the federal government to ensure the continuity of intercity passenger train services (VIA Rail n.d.).

In the early 2000s, increase rail traffic on the Lakeshore West rail corridor necessitated the addition of a third track. Triple tracking was completed by 2008 and consisted of more than 29 miles (48 kilometres) of new track, 15 interlockings, and 25 bridges (AECOM n.d.). Work on a new bridge to carry the third track over Joshua Creek, on the north side of the existing 1903 and 1956 bridge, began in 2008.

Joseph Hobson and the Grand Trunk Railway
Designs for the "Plan of Abutments at 20 ½ M.P., Toronto Branch" were drawn in 1882 by the GWR and signed by Joseph Hobson, of the G.W. Division of the GTR's Engineer's Office. Additional drawings for the "Second Track, Toronto Branch, Extension of Abutments at 20.16 M.P." were drawn in 1891 and signed by Joseph Hobson, Chief Engineer. These show the plans for the abutments and subsequent plans for alterations to the same abutments to accommodate the installation of the second track.

Joseph Hobson began his career as a land surveyor and worked as a provincial land surveyor on the GTR between Toronto and Guelph in the mid 1850s. Hobson became county engineer for the County of Waterloo in 1858. In 1866, he relocated to Guelph and then Hamilton in 1875, working as assistant engineer for the GWR in various capacities. Over the next few decades, he continued up the ranks at the GWR and later the GTR, becoming chief engineer of the GTR west of Toronto in 1882, and finally chief engineer at the entire GTR in 1896. He is attributed to several significant engineering works in Ontario, including the St. Clair Tunnel (1881-1891), the International Bridge at Fort Erie, and the Victoria Bridge in Montreal. He retired as chief engineer in 1906, although continued to consult until his death in Hamilton in 1917 (Irwin 2009).

7.2 Discussion of Design and Physical Value

7.2.1 Physical Characteristics

The following description is based on historical photographs (Figure 11-7), design drawings (Figures 11-8 to 11-12), site visit (Figures 11-13 to 11-19), inspection reports, rehab drawings, and bridge inventory. The following drawings were available for review:

- G.W.R. Plan of Abutments at 20 ½ M.P., 1882, Joseph Hobson (Engineer);
- Second track Toronto branch extension of abutments, 1891, Joseph Hobson (Chief Engineer);
- Bridge over Stream Precast Slabs for Abutments, 1952, engineer illegible; and
- Extension to Bridge over Stream for New Service Track, 1956, E.J. Napier (Bridge Engineer).

The Joshua Creek Bridge was constructed in 1903 to carry two tracks of the GTR's Toronto Branch over the Joshua Creek in Trafalgar Township, Ontario. The earliest structural plans for the site indicate the proportions for abutments dating to 1882. These plans were created for the Great Western Railway and indicate that the abutments were 4.5 metres high and 5.4 metres wide. The structure was expanded to support an additional track with an extension of the abutments in 1891, though, according to the Metrolinx Master Bridge List, the two north structures were constructed in 1903. Upon construction, the single-span bridge featured steel beam construction and poured concrete piers.

Modifications
Precast slab abutments replaced much of the original abutments in 1952 and a structure carrying a third, service track was constructed in 1956. The structure carrying the south tracks was replaced in 2008 by a steel girder span and an alteration to the existing abutments.

Existing Conditions
The crossing is spanned by three related rail bridges. The north span carries the north track and consists of a single span, steel girder bridge with concrete abutments and masonry stone wingwalls. The four girders of the structure run east-west, measure 10.3 metres in length and are one metre high. A metal railing system is connected to the bridge deck on both the north and south sides of the structure and stretches from abutment to abutment. A second structure carrying the south track over Joshua Creek also consists of four steel girders running east west and measuring approximately 10.3 metres in length. Both bridges retain 30 10 x 10 ties and open decks. A final structure carries the service tracks over the watercourse and consists of steel girder bridge measuring 10.3 metres long resting on concrete abutments and retains a steel-ballasted deck. According to the Bridge Inspection Report, the bridge has no recommended upcoming work required.

7.2.2 Comparative Analysis

The Joshua Creek Bridge consists of three single-span, steel girder bridges resting on concrete abutments. The girders retain a consistent length of 10.3 metres and the overall bridges measure 10.6 metres in length each.

According to the Metrolinx Master Bridge List, the two northern structures were constructed in 1903 while the south structure was built in 1956 and replaced in 2008, making the structure the second oldest beam bridge on the Metrolinx Master Bridge List, with the Rouge River Pedestrian Bridge being the oldest, built in 1902.

The subject bridge is the 27th longest bridge of its type on the Metrolinx Master Bridge List at 10.6 metres, with the longest being the Sunnyside Pedestrian Bridge at 41.8 metres.

7.3 Discussion of Contextual Value

7.3.1 Description of Setting and Character of the Property and Surroundings

The Joshua Creek Bridge is located approximately 80 metres southeast of Royal Windsor Drive and 270 metres northwest of Cornwall Road in the Town of Oakville. The structures carry rail traffic over the Joshua Creek, which has it source north of Highway 407 and drains into Lake Ontario and flows generally from northwest to southeast beneath the structures. An industrial estate is located to the southeast of the structures, beyond which is Cornwell Road right-of-way. Grassland, shrubs, and low trees occupy the space between the structure and Royal Windsor Drive to the northwest, with a utility corridor located within the space. Though not directly adjacent to the bridge or surrounding lands, the Ford Assembly Plant dominates the landscape northwest of the Royal Windsor Drive and the subject bridge. The Joshua Creek Bridge is also located approximately 4.5 kilometres east of the rail bridge spanning the Sixteen-Mile Creek.

The Joshua Creek Bridge is not located directly adjacent to a vehicular right-of-way, though the north structure is partially visible from Royal Windsor Drive. While the beams, railings, and partial views of the abutments are captured from this vantage, the original masonry portions of the wingwalls are not visible.

7.3.2 Community Landmark

Due to the secluded nature of the property and its relative invisibility within the community, there is no evidence that the structures constitute a community landmark.

8 Discussion of Cultural Heritage Value of Sixteen Mile Creek Bridge

8.1 Discussion of Historical or Associative Value

8.1.1 Settlement History

Trafalgar Township

The land within Trafalgar Township was acquired by the British from the Mississaugas in 1795. In 1806, Samuel Wilmot surveyed the townships of Nelson, Trafalgar and Toronto from land obtained in this purchase, using Dundas Street (Highway 5) as a baseline from which to survey two concessions north and four concessions south. Dundas Street had been surveyed in 1793 as a military road.

Trafalgar Township was first named “Grant Township” in honour of Alexander Grant, who was the administrator of Upper Canada. In 1806, it was renamed in honour of the victory by Horatio Viscount Nelson at Cabo Trafalgar in Spain the previous year. Nelson was initially settled by the children of Loyalists, soldiers who served during the War of 1812, and by immigrants from England, Scotland and

Ireland. By the 1840s, the township was noted for its well cultivated farms (Smith 1846:197; Armstrong 1985:148; Rayburn 1997:348).

The earliest families to settle within the township included those of Sovereign, Proudfoot, Katting, Freeman, Post, Biggar, Mulholland, Kenney, Chalmer, Albertson, Chisholms, Sproat, Brown and Hagar. According to the 1877 atlas, it contained 548 inhabitants with one grist mill and four saw mills in 1817. Early settlement was often influenced by the presence of watercourses. The development of the network of concession roads and railroads through the course of the nineteenth century also frequently influenced the setting of farmsteads and early industries.

Dundas Street, the baseline survey road in Trafalgar Township had been surveyed in 1793 as a military road connecting Lake Ontario, Lake Erie, Lake St. Clair and Lake Huron, as well as a road to aid Loyalist settlement and deter expansionist claims in Upper Canada. After the two concessions south of Dundas St. were opened up, two new east-west concession line access roads, the Upper Middle Road and the Lower Middle Road, were surveyed. These early east-west roads were later complemented in 1832 by the Lakeshore Road, which was constructed nearby and parallel to an aboriginal pathway skirting Lake Ontario. The concession roads of the 1806 survey, and the line roads running perpendicular, blocked out the township in areas a mile and quarter square with five 200-acre lots to a square. Between every five lots ran a line road (Mathews 1953:45).

Town of Oakville

The town of Oakville began as a "flourishing" post office town situated on part Lots 12 to 16, Concession 3, South of Dundas Street, and on part Lots 11-17, Broken Front Concession, in Trafalgar Township. It was developed as a town site in 1827 by merchant-miller William Chisholm. The place was originally named Sixteen Mile Creek, but the name was changed to "Oakville" at the suggestion of Robert Baldwin Sullivan, on account of the large number of white oaks that grew in the area. Two wharves extended into Lake Ontario at the mouth of the Sixteen Mile Creek which formed a protective harbour, and Oakville was therefore a port of entry. Registered plans of subdivision for this village date from 1837-1861. This town was also served by the Hamilton and Toronto Branch of the Great Western Railroad (now part of the CNR). The original depot was located in the vicinity of the present Oakville GO Station.

Historic Map Review

The 1858 Tremaine map (Figure 11-20) shows the rail line crossing Sixteen Mile Creek. No structures are illustrated adjacent to the bridge. The bridge is located west of Oakville.

In 1877, the town contained a square reserved for a market and town hall. It contained five churches, stores, hotels, mills and factories, ship building yards, two telegraph offices and a weekly newspaper. The population was about 1,684 (Crossby 1873:232; Mathews 1953; Young 1957; Winearls 1991:757-

758; Scott 1997:165; Rayburn 1997:252). The 1877 *Illustrated Historical Atlas Map* (Figure 11-21) shows the rail crossing Sixteen Mile Creek in the Town of Oakville.

The 1954 aerial photograph (Figure 11-22) shows the growth experienced in Oakville, with residential lots following the path of Sixteen Mile Creek to the south of the study area. Shepherd Avenue is shown to the southeast of the study area. The lands adjacent to the Sixteen Mile Creek Bridge remain undeveloped, identifiable as being growth typical of that seen on the banks of a watercourse of this size.

The 1976 Planning Map (Figure 11-23) shows further infrastructure development and residential expansion around the study area. Cross Avenue has been established and a bridge carrying the railway over Cross Avenue is adjacent to the northeast of the study area. The lands immediately adjacent to the north, east, south, and west remain undeveloped. There is a boundary following the path of the watercourse that likely indicates

The 1990 Public Works Map (Figure 11-24) depicts the area in a similar manner to the 1976 Planning Map, with the lands immediately adjacent as undeveloped. The dashed line likely represents an ecological boundary protecting lands adjacent to the banks of Sixteen Mile Creek.

8.1.2 Significant Themes, Events and/or People

Railway Development

The Lakeshore West rail corridor follows the tracks initially laid in the mid 1850s from Toronto to Hamilton by the Hamilton & Toronto Railway Company (H&TR). The H&TR was established by Sir Allan MacNab and a number of other investors, with additional financial support from England, and a charter was granted in 1852. Construction on the line began in 1853 and was completed in 1855 (Colin Churcher 2016). The line was initially leased to the Great Western Railway (GWR), who in turn supplied railway stations along the corridor and constructed the GWR branch between Hamilton and Toronto (Paterson & George 1988:13). Given that the GWR was headquartered in Hamilton, mileage started in Hamilton. Extending from Hamilton, the first train stations were as follows (Reynolds 2011):

- Hamilton, Stuart St. (Mile 0.00);
- Bronte (Mile 13.33);
- Oakville (Mile 17.57);
- Clarkson (Mile 22.82);
- Lorne Park (Mile 23.89)
- Port Credit (Mile 25.84);
- Mimico (Mile 32.26); and
- Sunnyside (Mile 35.18).

By the 1870s, there were five trains running daily between Toronto and Hamilton (Hicks 2006). Locomotives were now powered by coal rather than wood, and air brakes had been developed which allowed for trains to attain greater speeds. By 1872, iron rails were being replaced by the more resilient steel rails, greatly improving safety standards and reducing expenses. It was also around this time that the H&TR was absorbed into the GWR and the single track between Hamilton and Toronto became known as the Toronto Branch. Other lines constructed by, or purchased by, the GWR included: The Galt & Guelph Railway; the London & Port Sarnia Railway; and the Canada Air Line Railway (Reynolds 2011).

In 1882, the Grand Trunk Railway (GTR) merged with the GWR. Track mileage was reversed at this time, with Union Station in Toronto now at Mile 0.00. In the late 1890s the GTR began the double track program along the Toronto Branch rail corridor.

Due to financial difficulty, control of the GTR was assumed by the Canadian Government in 1919 and by 1923, the GTR was amalgamated with Canadian National Railways (CNR) (Andreae 1997). The CNR continued to operate freight and passenger trains along the Lakeshore West rail corridor on a regular basis, making this one of the busiest rail corridors in Canada. By the 1950s, automobiles and highways were replacing trains and railways as the preferred mode of transportation, which meant that it was becoming economically unviable for the CNR to continue passenger services. The following decades saw the introduction of GO Transit commuter rail service, beginning in May of 1967, and the creation of VIA Rail Canada by the federal government to ensure the continuity of intercity passenger train services (VIA Rail n.d.).

In the early 2000s, increase rail traffic on the Lakeshore West rail corridor necessitated the addition of a third track. Triple tracking was completed by 2008 and consisted of more than 29 miles (48 kilometres) of new track, 15 interlockings, and 25 bridges (AECOM n.d.).

Joseph Hobson and the Grand Trunk Railway

Designs for the abutments at the "Oakville Bridge" were drawn in 1891 and signed by Joseph Hobson, Chief Engineer. These show the plans for the abutments and subsequent plans for alterations to the same abutments to accommodate the installation of the second track.

Joseph Hobson began his career as a land surveyor and worked as a provincial land surveyor on the GTR between Toronto and Guelph in the mid-1850s. Hobson became county engineer for the County of Waterloo in 1858. In 1866, he relocated to Guelph and then Hamilton in 1875, working as assistant engineer for the GWR in various capacities. Over the next few decades, he continued up the ranks at the GWR and later the GTR, becoming chief engineer of the GTR west of Toronto in 1882, and finally chief engineer at the entire GTR in 1896. He is attributed to several significant engineering works in Ontario, including the St. Clair Tunnel (1881-1891), the International Bridge at Fort Erie, and the Victoria Bridge in

Montreal. He retired as chief engineer in 1906, although continued to consult until his death in Hamilton in 1917 (Irwin 2009).

Detroit Bridge and Iron Works
The Detroit Bridge and Iron Works was established in 1863 and occupied land primarily on Foundry Street in Detroit, Michigan. During the final quarter of the nineteenth century, the company produced steel for a number of prominent bridges in the United States and Canada, including three bridges over the Mississippi (at Burlington, Quincy, and Hannibal) as well as two bridges over the Missouri River (at Bismarck and St. Joseph). The company was consolidated into the American Bridge Company in 1900 (Farmer 1884: 805-806)

8.2 Discussion of Design and Physical Value

8.2.1 Physical Characteristics

The following description is based on historical photographs (Figures 11-25 to 11-27), design drawings (Figures 11-28 to 11-38), site visit (Figures 11-39 to 11-45), inspection reports, rehab drawings, and bridge inventory. The following drawings were available for review:

- G.T.R. Plan Bridge Renewals at 17.32 M.P., 1889, Joseph Hobson (Engineer);
- Second track Toronto branch – Oakville Bridge, 1892, Joseph Hobson (Chief Engineer);
- G.T.R Oakville Bridge – Plan of Encasing Masonry for South Track Piers, Joseph Hobson (Chief Engineer;
- G.T.R. System 16th District – Oakville Viaduct and brickwork removed, East Abutment, 1901, Joseph Hobson;
- G.T.R. Deck Lattice Plan for Oakville and Bronte Creek Bridges, 1900, engineer not identified;
- Plan of steel repairs, 1972, CNR; and
- Plan of Steel Repairs, 1992, CNR.

The Sixteen Mile Creek Bridge was constructed between 1900-1902 to carry two tracks of the GTR's Toronto Branch over the Sixteen Mile Creek at Oakville, Ontario. The five-span bridge features a Warren deck truss and masonry abutments and piers. Portions of the bridge likely date to 1855 at which time the Great Western Railway built the rail line connecting Hamilton to Toronto. This original structure consisted of a single track crossing a Warren Truss bridge with brick piers. However, according to existing plans, the current piers replaced parts or all of the original piers in 1892 while the deck truss was likely constructed between 1900 and 1902.

Modifications

The subject bridge was likely built in 1855 with, according to existing engineering drawings, renewals undertaken in 1889, 1892, and 1899. A new, double-track Warren deck truss bridge was placed on the modified piers between 1900-1902 and the steel structure was refurbished in 1971. The bridge was expanded in 2008 to include a third track to the north. This modern addition features steel beam construction.

Existing Conditions

The structure carries three tracks over Cross Avenue and the Sixteen Mile Creek and consists of a mixture of steel truss and steel beam construction resting on four stone piers and stone abutments. The south section of the bridge consists of a deck truss resting upon steel bearings and stone piers, with members held together by steel rivets. In contrast, the north half of the bridge is constructed of steel beams with members connected with bolts. The piers consist of stone piercaps and are separated into two vertical halves. The southern half of the piers were constructed in the mid-nineteenth century while the north half have been constructed in 2008 and are possibly built by stone composite rather than cut stone. The bridge deck consists of a mixture of concrete slab on the north side and steel and wood beams on the south and is lined with a steel railing system on the north and south sides of the structure. According to the Bridge Inspection Report conducted in 2013, the original tracks to the south of the bridge will need replacing and moderate rehabilitation of the approaches should be undertaken.

8.2.2 Comparative Analysis

The five-span, Sixteen Mile Creek Bridge is comprised of a deck truss bridge with individual span lengths, from east to west, of 90 ft, 89 ft, 90 ft, 89 ft, and 89 ft (27.4 m, 27.1, 27.4 m, 27.1 m, and 27.1 m), for an overall span length of 490 ft (149 m). Deck truss railway and road bridges were introduced to the Ontario landscape in the late nineteenth century and become more popular in the early part of the twentieth century, when steel was becoming more affordable and available (Cuming 1984). This type of bridge is typically used to span waterways and/or valleys, where overhead clearance is not necessarily an issue.

According to a review of the Metrolinx Bridge Inventory (2015), there are 5 other deck truss railway bridges owned by Metrolinx. These are summarized as follows:

- Five-span Rouge River Bridge, Toronto, Lakeshore East Corridor, which included a 140 ft (43 m) double track central deck truss span with four double track approach spans, with a total bridge length of 236 ft (72 m);
- Three Span, Credit River Bridge, Mississauga, Lakeshore West Corridor, built 1903, 30 ft, 210 ft, and 30 ft (9 m, 63, 9 m) span lengths, and 270 ft (82 m) total bridge length.

- Six-span Bronte Creek, Oakville, Lakeshore West Corridor, built 1900/1902, 93 ft (28 m) span length, and 558 ft (170 m) total bridge length;
- Single-span Mimico Creek Bridge, Toronto, Lakeshore West Corridor, built 1902, measuring 100 ft (31m); and
- Two-span Etobicoke Creek Bridge, Toronto, Lakeshore West Corridor, built 1903, with a 92 ft (28m) span length, and total bridge length of 184 ft (56 m).

According to the bridge inventory maintained by www.historicbridges.org, there are over twenty deck truss road and highway bridges in Ontario. A summary of these is provided in Appendix B. It is important to note that this list should not be considered exhaustive, as a complete inventory of bridges in Ontario is not available.

Based on this review, the subject bridge is not considered to be the oldest example of a deck truss, or significant in terms of individual span length or overall bridge length.

8.3 Discussion of Contextual Value

8.3.1 Description of Setting and Character of the Property and Surroundings

The Sixteen Mile Creek Bridge is located to the northwest of Cornwall Road and southeast of Highway 403/QEW in the Town of Oakville. The bridge spans both Cross Avenue and the Sixteen Mile Creek and is oriented in a generally northeast-southwest direction. The northeast abutment is located adjacent to high-rise residential properties and Oakville GO Station while the southwest abutment is located adjacent to low-rise commercial estates, small businesses, and residential housing. Green space and woodlots flanking the Sixteen Mile Creek generally characterize the land to the southeast and northwest of the bridge, with the exception of Cornwall Road approximately 138 metres to the southeast of the structure. Overall, the bridge is located within an urban watershed and the dominant feature is the Sixteen Mile Creek. The creek appears to follow its natural alignment and is bordered by stone beaches with a noticeable absence of riparian ecology in this location.

8.3.2 Community Landmark

The Sixteen Mile Creek Bridge is prominently located adjacent to the intersection of Cross Avenue and Cornwall Road. Apart from the introduction of modern infrastructure along Cornwall road and the construction of Cross Avenue, the creek valley remains relatively underdeveloped, reflecting the bridges original setting. Due to the bridge's listing on the heritage inventory, significant views to the bridge, particularly from the south toward the Warren Truss members, as well as its accessibility and high visibility, the structure is likely considered a landmark within the community.

9 Discussion of Cultural Heritage Value of Bronte Creek Bridge

9.1 Discussion of Historical or Associative Value

9.1.1 Settlement History

Trafalgar Township

The land within Trafalgar Township was acquired by the British from the Mississaugas in 1795. In 1806, Samuel Wilmot surveyed the townships of Nelson, Trafalgar and Toronto from land obtained in this purchase, using Dundas Street (Highway 5) as a baseline from which to survey two concessions north and four concessions south. Dundas Street had been surveyed in 1793 as a military road.

Trafalgar Township was first named "Grant Township" in honour of Alexander Grant, who was the administrator of Upper Canada. In 1806, it was renamed in honour of the victory by Horatio Viscount Nelson at Cabo Trafalgar in Spain the previous year. Nelson was initially settled by the children of Loyalists, soldiers who served during the War of 1812, and by immigrants from England, Scotland and Ireland. By the 1840s, the township was noted for its well cultivated farms (Smith 1846:197; Armstrong 1985:148; Rayburn 1997:348).

The earliest families to settle within the township included those of Sovereign, Proudfoot, Katting, Freeman, Post, Biggar, Mulholland, Kenney, Chalmer, Albertson, Chisholms, Sproat, Brown and Hagar. According to the 1877 atlas, it contained 548 inhabitants with one grist mill and four saw mills in 1817.

Early settlement was often influenced by the presence of watercourses. The development of the network of concession roads and railroads through the course of the nineteenth century also frequently influenced the siting of farmsteads and early industries.

Dundas Street, the baseline survey road in Trafalgar Township had been surveyed in 1793 as a military road connecting Lake Ontario, Lake Erie, Lake St. Clair and Lake Huron, as well as a road to aid Loyalist settlement and deter expansionist claims in Upper Canada. After the two concessions south of Dundas St. were opened up, two new east-west concession line access roads, the Upper Middle Road and the Lower Middle Road, were surveyed. These early east-west roads were later complemented in 1832 by the Lakeshore Road, which was constructed nearby and parallel to an aboriginal pathway skirting Lake Ontario. The concession roads of the 1806 survey, and the line roads running perpendicular, blocked out the township in areas a mile and quarter square with five 200-acre lots to a square. Between every five lots ran a line road (Mathews 1953:45).

Village of Bronte

European settlement in the Township of Bronte began in 1807. The settlement was situated at the mouth of Bronte Creek and named for one of the titles of Lord Horatio Nelson, the Duke of Bronte. The

village grew from a shipping depot for wheat and lumber to a fishing community and, during the twentieth century, was used as a recreational marina (Rayburn 1997: 44).

Historic Mapping Review

The 1858 *Tremaine's Map of the County of Halton* (Figure 11-46) depicts the study area in a rural, agricultural context in the mid-nineteenth century. The rail line is present in the study area, as is Bronte Creek. A roadway is depicted to the southeast of the rail line as well as to the northeast, now known as Bronte Road. The lot on which the bridge is located is owned by J.F. Mott, although no structures are noted. Bronte Creek Rail Depot is depicted to the northeast of the structure, though no substantial settlement is indicated here at this time.

The 1878 *Illustrated Historical Atlas of the County of Halton* (Figure 11-47) depicts the study area as retaining a rural, agricultural character into the late nineteenth century. The bridge is depicted by two parallel lines on either side of the railway crossing the Bronte Creek. The Bronte Creek Rail Depot is still visible to the northeast of the structure in addition to a settlement at Bronte in the same vicinity. Other dwellings are scattered throughout the area, however no additional structures appear to be adjacent to the bridge.

The 1909 Topographic Map (Figure 11-48) depicts the study area in a rural, agricultural setting into the twentieth century. While a structure is located to the southeast of the bridge, likely associated with the adjacent railway, no dwellings are located close to the structure. Bronte Road is depicted as a major thoroughfare in the area, though the road to the southeast of the structure appears as an unmaintained road. The area surrounding the study area is largely agricultural, with woodlots surrounding the creek valley on all sides.

The 1954 aerial photograph (Figure 11-49) depicts the study in a similar agricultural setting as previous mapping, with one notable exception. The road depicted to the southeast of the rail line was removed by this time, creating a deeper isolation of the bridge. Bronte Station is indicated on the map, though it is unclear how large the settlement surrounding the station is. The photo demonstrates the isolation of the structure and its considerable distance from any public thoroughfares.

The 1976 and 1990 Planning Maps (Figures 11-50 and 11-51) confirm that little development occurred directly adjacent to the bridge to the end of the twentieth century. One notable exception is the construction of an oil refinery to the south of the structure and the creation of infrastructure (such as roads) to support it. However, rural agricultural land and woodlots were still present to the north, east, and west of the structure.

9.1.2 Significant Themes, Events and/or People

Railway Development

The Lakeshore West rail corridor follows the tracks initially laid in the mid 1850s from Toronto to Hamilton by the Hamilton & Toronto Railway Company (H&TR). The H&TR was established by Sir Allan MacNab and a number of other investors, with additional financial support from England, and a charter was granted in 1852. Construction on the line began in 1853 and was completed in 1855 (Colin Churcher 2016). The line was initially leased to the Great Western Railway (GWR), who in turn supplied railway stations along the corridor and constructed the GWR branch between Hamilton and Toronto (Paterson & George 1988:13). Given that the GWR was headquartered in Hamilton, mileage started in Hamilton. Extending from Hamilton, the first train stations were as follows (Reynolds 2011):

- Hamilton, Stuart St. (Mile 0.00);
- Bronte (Mile 13.33);
- Oakville (Mile 17.57);
- Clarkson (Mile 22.82);
- Lorne Park (Mile 23.89)
- Port Credit (Mile 25.84);
- Mimico (Mile 32.26); and
- Sunnyside (Mile 35.18).

By the 1870s, there were five trains running daily between Toronto and Hamilton (Hicks 2006). Locomotives were now powered by coal rather than wood, and air brakes had been developed which allowed for trains to attain greater speeds. By 1872, iron rails were being replaced by the more resilient steel rails, greatly improving safety standards and reducing expenses. It was also around this time that the H&TR was absorbed into the GWR and the single track between Hamilton and Toronto became known as the Toronto Branch. Other lines constructed by, or purchased by, the GWR included: The Galt & Guelph Railway; the London & Port Sarnia Railway; and the Canada Air Line Railway (Reynolds 2011).

In 1882, the Grand Trunk Railway (GTR) merged with the GWR. Track mileage was reversed at this time, with Union Station in Toronto now at Mile 0.00. In the late 1890s the GTR began the double track program along the Toronto Branch rail corridor.

Due to financial difficulty, control of the GTR was assumed by the Canadian Government in 1919 and by 1923, the GTR was amalgamated with Canadian National Railways (CNR) (Andreae 1997). The CNR continued to operate freight and passenger trains along the Lakeshore West rail corridor on a regular basis, making this one of the busiest rail corridors in Canada. By the 1950s, automobiles and highways were replacing trains and railways as the preferred mode of transportation, which meant that it was becoming economically unviable for the CNR to continue passenger services. The following decades saw the introduction of GO Transit commuter rail service, beginning in May of 1967, and the creation of VIA

Rail Canada by the federal government to ensure the continuity of intercity passenger train services (VIA Rail n.d.).

Detroit Bridge and Iron Works

The Detroit Bridge and Iron Works was established in 1863 and occupied land primarily on Foundry Street in Detroit, Michigan. During the final quarter of the nineteenth century, the company produced steel for a number of prominent bridges in the United States and Canada, including three bridges over the Mississippi (at Burlington, Quincy, and Hannibal) as well as two bridges over the Missouri River (at Bismarck and St. Joseph). The company was consolidated into the American Bridge Company in 1900 (Farmer 1884: 805-806)

9.2 Discussion of Design and Physical Value

9.2.1 Physical Characteristics

The following description is based on historical photographs (Figure 11-52), design drawings (Figure 11-53), site visit (Figures 11-54 to 11-61), inspection reports, rehab drawings, and bridge inventory. The following drawings were available for review:

- G.T.R. Deck Lattice Plan for Oakville and Bronte Creek Bridges, 1900, CNR.

The Bronte Creek Bridge was constructed between 1900 and 1902 to carry two tracks of the GTR's Toronto Branch over the Bronte Creek in the Town of Oakville, Ontario. The six-span bridge features a Warren deck truss and masonry abutments and piers. Portions of the bridge likely date to the 1850s, at which time the Great Western Railway built the rail line connecting Hamilton to Toronto. However, according to existing plans, the current deck truss was likely constructed between 1900 and 1902, at the same time the Sixteen Mile Creek deck truss was constructed.

The subject bridge piers were likely constructed in the nineteenth or early twentieth century with, according to existing engineering drawings, renewals undertaken between 1900 and 1902 and a major addition to the north of the structure likely completed in 1989.

Modifications

In 1989, CNR undertook an expansion of the bridge from two tracks to three, resulting in the construction of concrete pier additions to the north of the existing piers and abutments. The additional material supports steel beams which in turn support a concrete deck and single rail track.

Existing Conditions

The structure carries three tracks over Bronte Creek and consists of a mixture of steel truss and steel beam construction resting on five stone piers and stone abutments, resulting in a six-span structure. The south section of the bridge consists of a deck truss resting upon steel bearings and stone piers, with members held together by steel rivets. In contrast, the north half of the bridge is constructed of steel beams with members connected with bolts resting upon concrete piers with concrete piercaps. The concrete piers are affixed to the north side of the stone piers to create unified structural features. The southern half of each pier was likely constructed in the mid-nineteenth century while the north half appear to have been constructed in 1989. The bridge deck consists of a mixture of concrete slab on the north side and steel and wood beams on the south and is lined with a steel railing system on the north and south sides of the structure.

9.2.2 Comparative Analysis

The six-span, Bronte Creek Bridge is comprised of a deck truss bridge, with beam addition to the north to accommodate a third track, with individual span lengths, from east to west, of 84 ft, 84 ft, 83, 84 ft, 84, and 90 ft (25.6 m, 25.6, 25.2, 25.6, 25.6, and 27.4 m), for an overall span length of 558 ft (170 m). Deck truss railway and road bridges were introduced to the Ontario landscape in the late nineteenth century and become more popular in the early part of the twentieth century, when steel was becoming more affordable and available (Cuming 1984). This type of bridge is typically used to span waterways and/or valleys, where overhead clearance is not necessarily an issue.

According to a review of the Metrolinx Bridge Inventory (2015), there are 5 other deck truss railway bridges owned by Metrolinx. These are summarized as follows:

- Five-span Rouge River Bridge, Toronto, Lakeshore East Corridor, which included a 140 ft (43 m) double track central deck truss span with four double track approach spans, with a total bridge length of 236 ft (72 m);
- Three Span, Credit River Bridge, Mississauga, Lakeshore West Corridor, built 1903, 30 ft, 210 ft, and 30 ft (9 m, 63, 9 m) span lengths, and 270 ft (82 m) total bridge length.
- Five-span, Sixteen Mile Creek Bridge, Oakville, Lakeshore West Corridor, built 1902, 98 ft (30 m) span length, and 490 ft (149 m) total bridge span length;
- Single-span Mimico Creek Bridge, Toronto, Lakeshore West Corridor, built 1902, measuring 100 ft (31m); and
- Two-span Etobicoke Creek Bridge, Toronto, Lakeshore West Corridor, built 1903, with a 92 ft (28m) span length, and total bridge length of 184 ft (56 m).

According to the bridge inventory maintained by www.historicbridges.org, there are over twenty deck truss road and highway bridges in Ontario. A summary of these is provided in Appendix B. It is important

to note that this list should not be considered exhaustive, as a complete inventory of bridges in Ontario is not available.

Based on this review, the subject bridge is not considered to be the oldest example of a deck truss. However, the bridge is significant in terms of overall bridge length, being the longest deck truss bridge owned by Metrolinx, but only the fifth longest when compared to other deck truss bridges in the province (see Appendix B).

9.3 Discussion of Contextual Value

9.3.1 Description of Setting and Character of the Property and Surroundings

The Bronte Creek Bridge is located approximately 700 metres southeast of Highway 403/QEW in the Town of Oakville. The bridge spans Bronte Creek, formerly the Twelve Mile Creek, and is oriented generally in a northeast-southwest direction. The northeast abutment is surrounded by grass and woodlot with a gravel service road accessing the structure from the south and terminating under the bridge. Light industrial properties are located to the north and southeast, while a hydro corridor runs parallel to the bridge on the north side. The southwest abutment is surrounded by grassland and woodlots as well as the hydro corridor to the northwest. The Suncor Oil Refinery, located at 3275 Rebecca Street, is located to the south while decommissioned remnant refinery infrastructure is located to the west of the bridge. Overall, the bridge is located within an urban watershed and the dominant feature is Bronte Creek. The creek appears to follow its natural alignment and is bordered by stone beaches and riparian ecology such as wild grasses.

9.3.2 Community Landmark

Due to the secluded nature of the structure and the restricted access to adjacent lands, there is no evidence that the bridge constitutes a community landmark.

10 Data Sheets

10.1 Joshua Creek Bridge





Property Name:	Joshua Creek Bridge, Mile 18.90
Municipal Address:	49° 29’09.09 N 79° 39’25.92” W
Municipality:	Town of Oakville
Metrolinx/GO Transit Rail Corridor:	GO Transit Lakeshore West Corridor
PIN:	24792-0074
Ownership:	Metrolinx
Date of Construction:	Original abutments - 1882 (Great Western Railway Drawings)
Date of Significant Alterations:	1891, 1952, and 1956 (see Structural Drawings in Section 11)
Architect/Designer/Builder:	Engineer: John Hobson, Grand Trunk Railway
Previous Owner(s)/Occupant(s):	Great Western Railway, Grand Trunk Railway, Canadian National Railways
Current Function:	Rail Bridge
Previous Function(s)	Rail Bridge
Heritage Recognition/Protection:	No formal heritage protections
Local Heritage Interest:	No apparent local heritage interest
Adjacent Lands:	No protected heritage properties

10.2 `Sixteen Mile Creek Bridge





Property Name:	Sixteen Mile Creek, Mile 21.71
Municipal Address:	43° 27’ 02.58” N 79° 41’13.08” W
Municipality:	Town of Oakville
Metrolinx/GO Transit Rail Corridor:	GO Transit Lakeshore West Corridor
PIN:	24816-0018
Ownership:	Metrolinx
Date of Construction:	1855. Rebuilt in 1900-1902 (Grand Trunk Railway Structural Drawings)
Date of Significant Alterations:	1892, 1900-1902, 1971 and 1989 (see Structural Drawings in Section 11)
Architect/Designer/Builder:	Engineer: John Hobson, Grand Trunk Railway
Previous Owner(s)/Occupant(s):	Great Western Railway, Grand Trunk Railway, Canadian National Railways
Current Function:	Rail Bridge
Previous Function(s)	Rail Bridge
Heritage Recognition/Protection:	The structure is Listed on the Register of Properties of Cultural Heritage Value or Interest
Local Heritage Interest:	An Inventory Report has been completed for the bridge with the purpose of evaluating the priority level of the heritage structure
Adjacent Lands:	No protected heritage properties

10.3 Bronte Creek Bridge





Property Name:	Bronte Creek Bridge, Mile 25.87
Municipal Address:	43° 24’ 10.22” N 79° 44’ 12.17” W
Municipality:	Town of Oakville
Metrolinx/GO Transit Rail Corridor:	GO Transit Lakeshore West Corridor
PIN:	24858-0098
Ownership:	Metrolinx
Date of Construction:	Current structure constructed between 1900 and 1902 (Grand Trunk Railway Structural Drawings, Section 11); Date of abutments/original piers is unknown.
Date of Significant Alterations:	1989 – Expanded to include a 3rd track
Architect/Designer/Builder:	Engineer: Grand Trunk Railway
Previous Owner(s)/Occupant(s):	Great Western Railway, Grand Trunk Railway, Canadian National Railways
Current Function:	Rail Bridge
Previous Function(s)	Rail Bridge
Heritage Recognition/Protection:	No formal heritage protections
Local Heritage Interest:	No apparent local heritage interest
Adjacent Lands:	No protected heritage properties

11 Figures

11.1 Joshua Creek Bridge

Figure 11-1: View of the study area on 1858 historic mapping (Tremaine 1858)



Figure 11-2: View of the study area on 1877 historic mapping (Pope 1878)



Figure 11-3: View of the study area on 1909 Topographic Map (Ministry of Militia and Defense 1909)

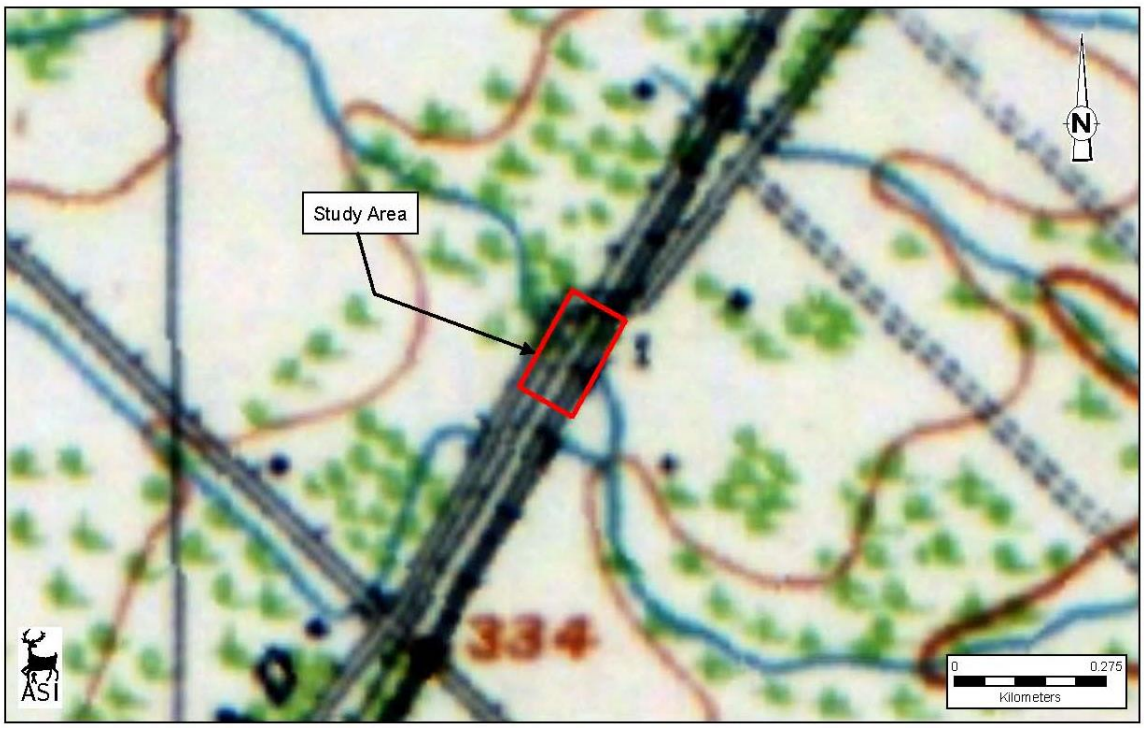


Figure 11-4: View of the study area on 1954 aerial photograph (Hunting Survey Corporation Limited 1954)

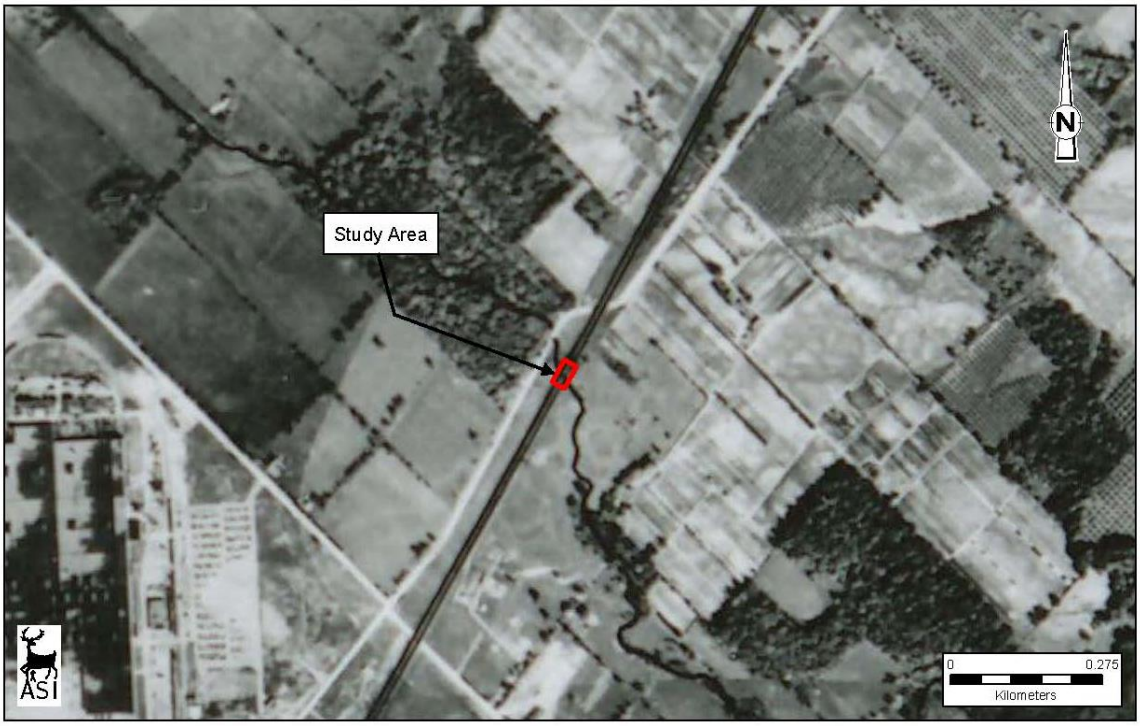


Figure 11-5: View of the study area on 1976 Public Works mapping (Town of Oakville Planning Map 1976)

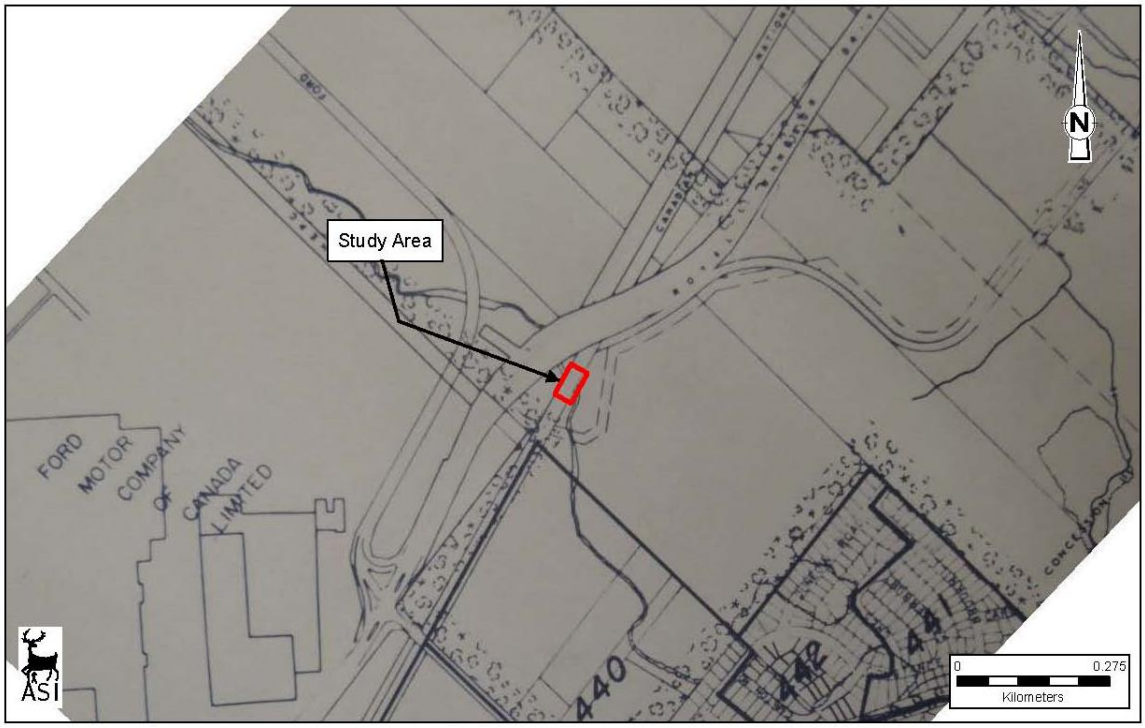


Figure 11-6: View of the study area on 1990 Public Works mapping (Town of Oakville Planning Map 1990)



Figure 11-7: View of a train crossing the Joshua Creek Bridge, looking north, mid-twentieth century (*Steam at Oakville* 1988)



Figure 11-8: Plan of the abutments for the Joshua Creek Bridge (Great Western Railway 1882)

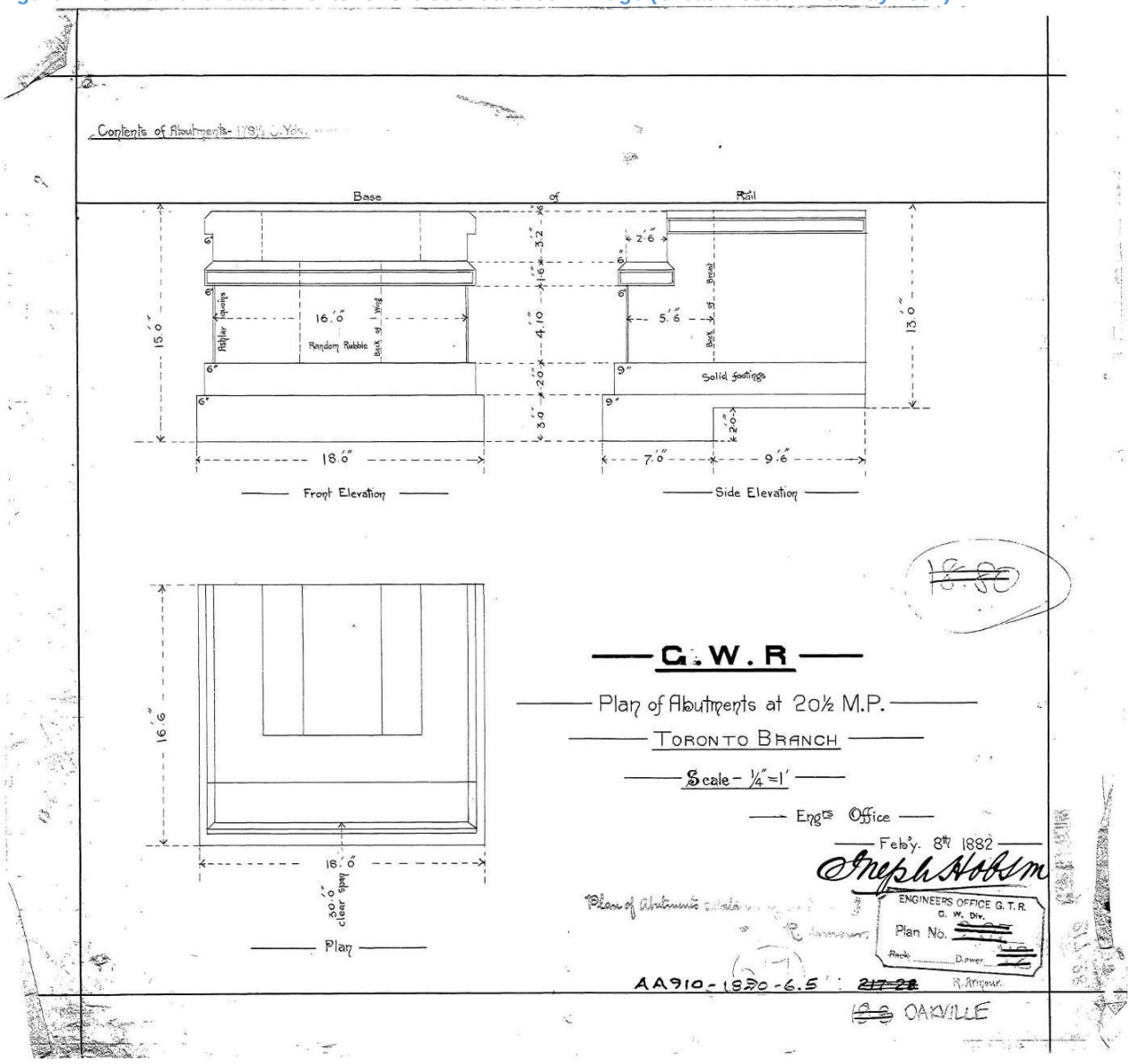


Figure 11-9: Extension of abutments at Joshua Creek Bridge (Grand Trunk Railway 1891)

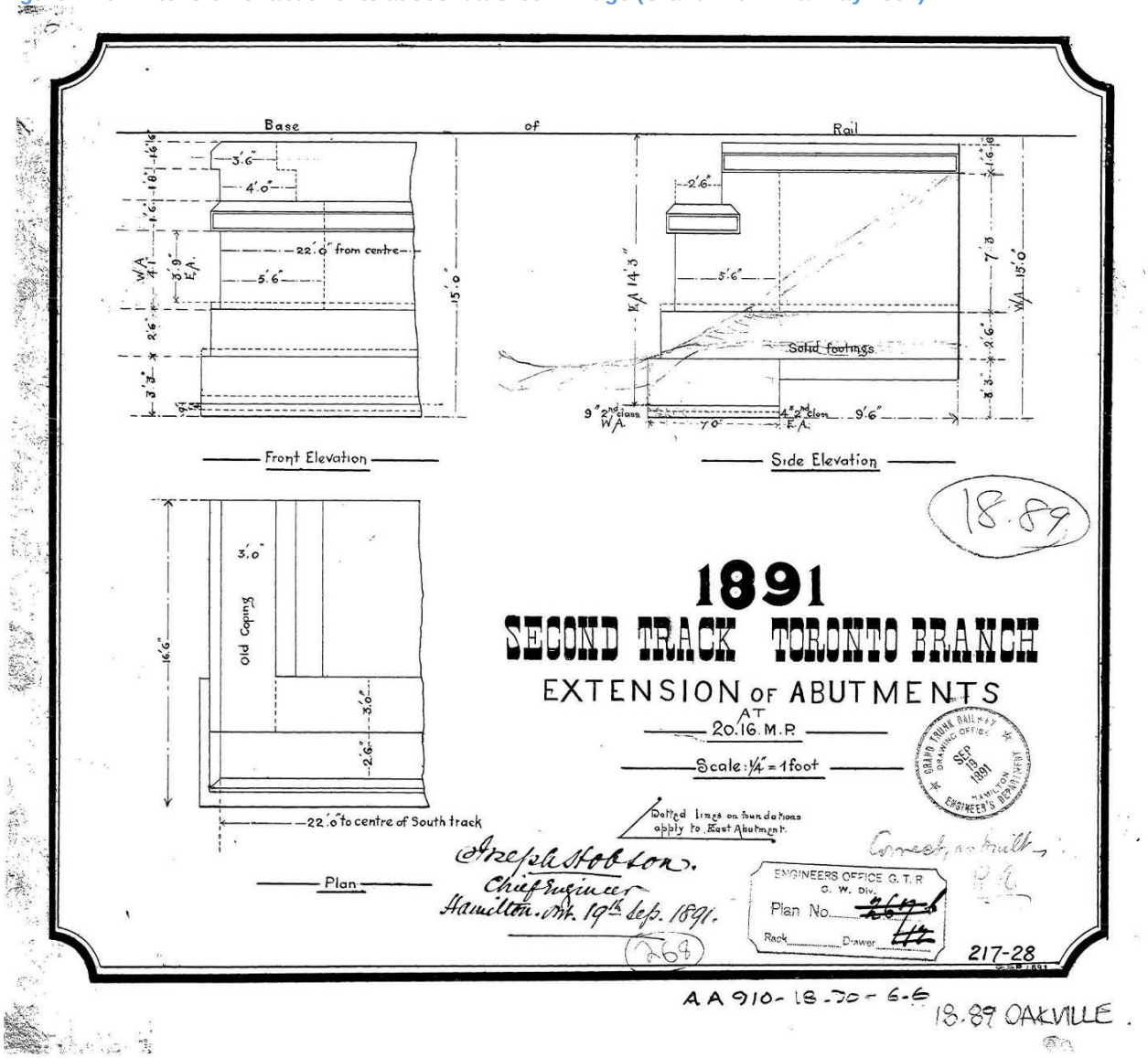


Figure 11-10: Structural drawings for new, precast abutments at the Joshua Creek Bridge (Canadian National Railways 1952).

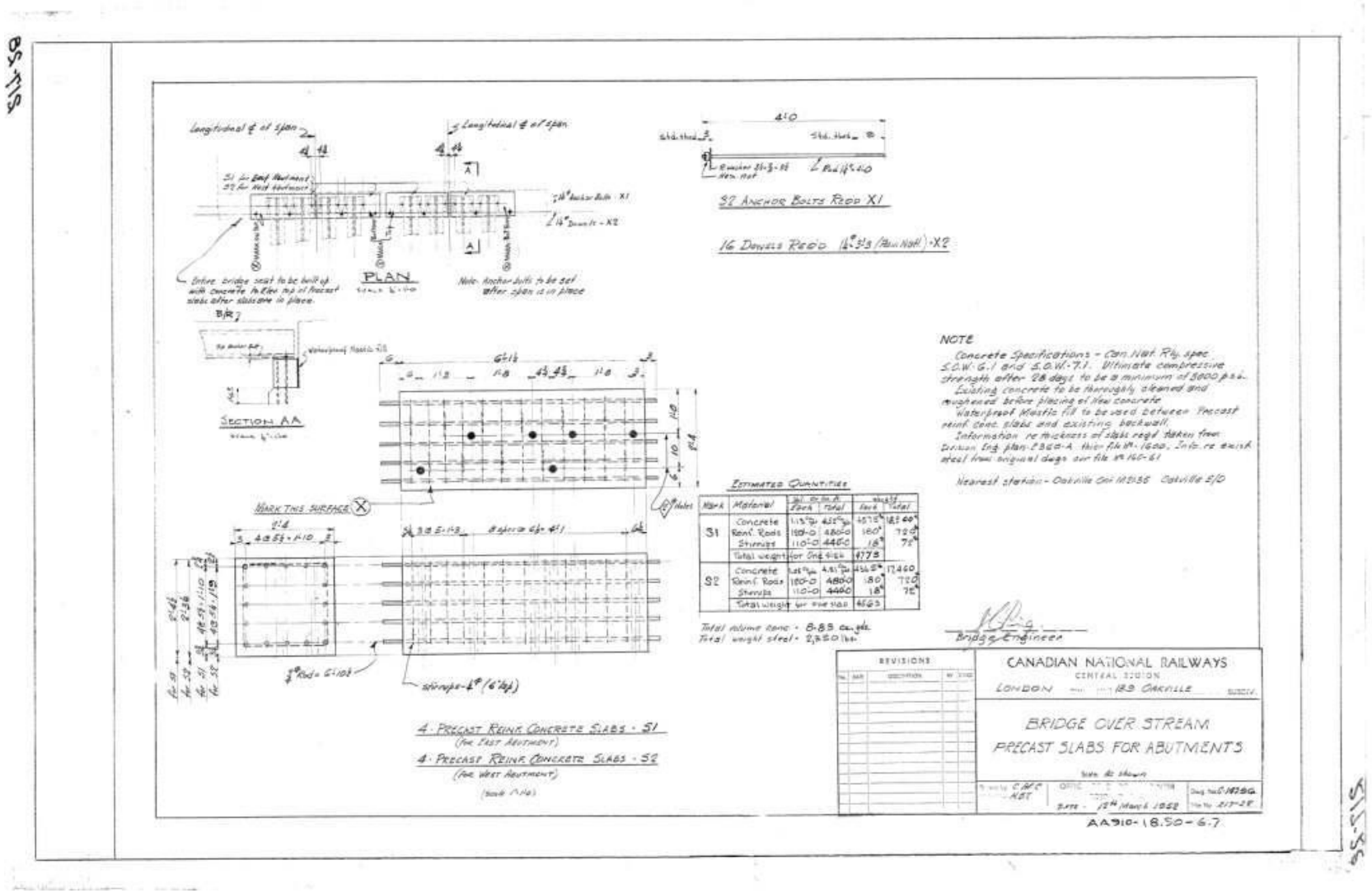


Figure 11-11: Structural drawings of the extension to the Joshua Creek Bridge. (Canadian National Railways 1956)

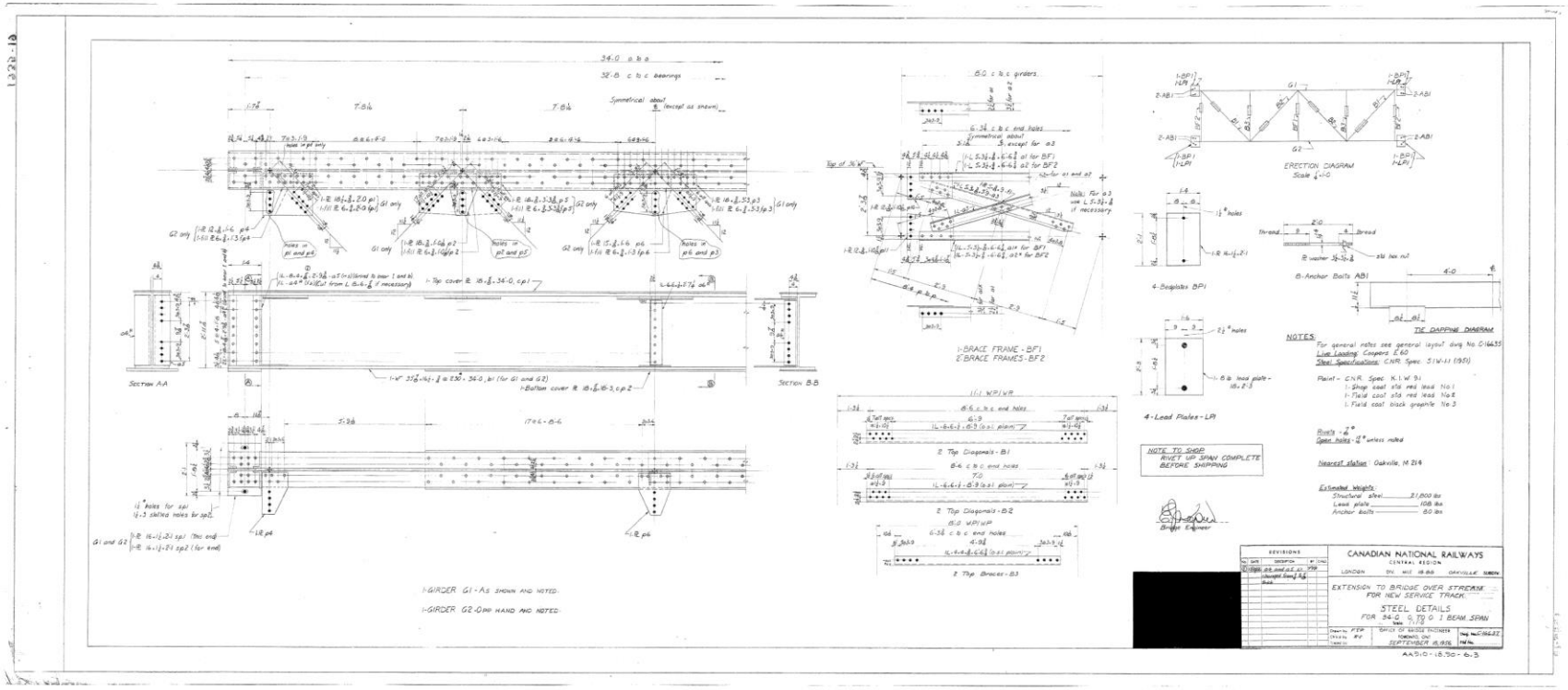


Figure 11-12: Structural drawings of the extension to the Joshua Creek Bridge. (Canadian National Railways 2007)

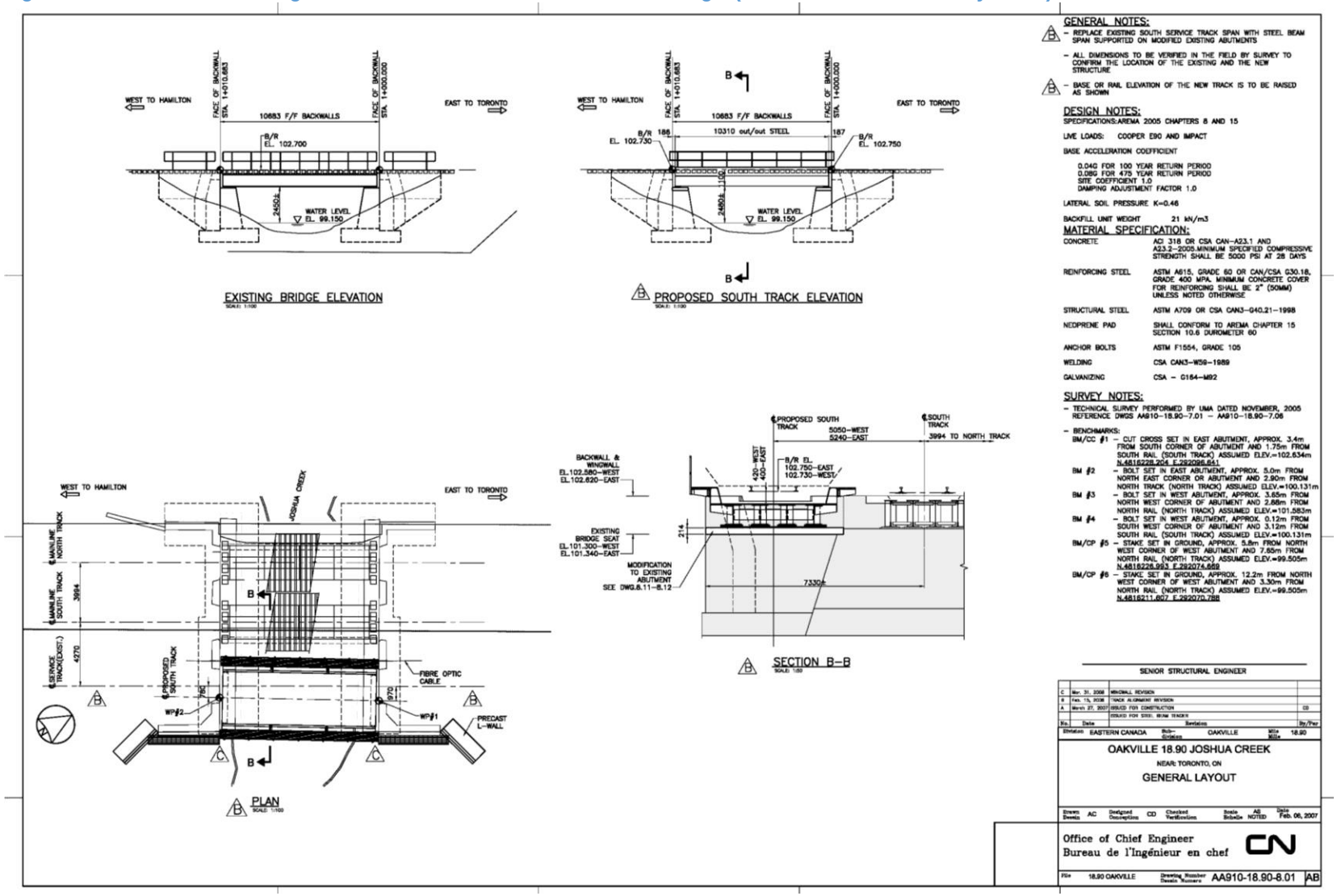


Figure 11-13: View of north elevation, looking south.

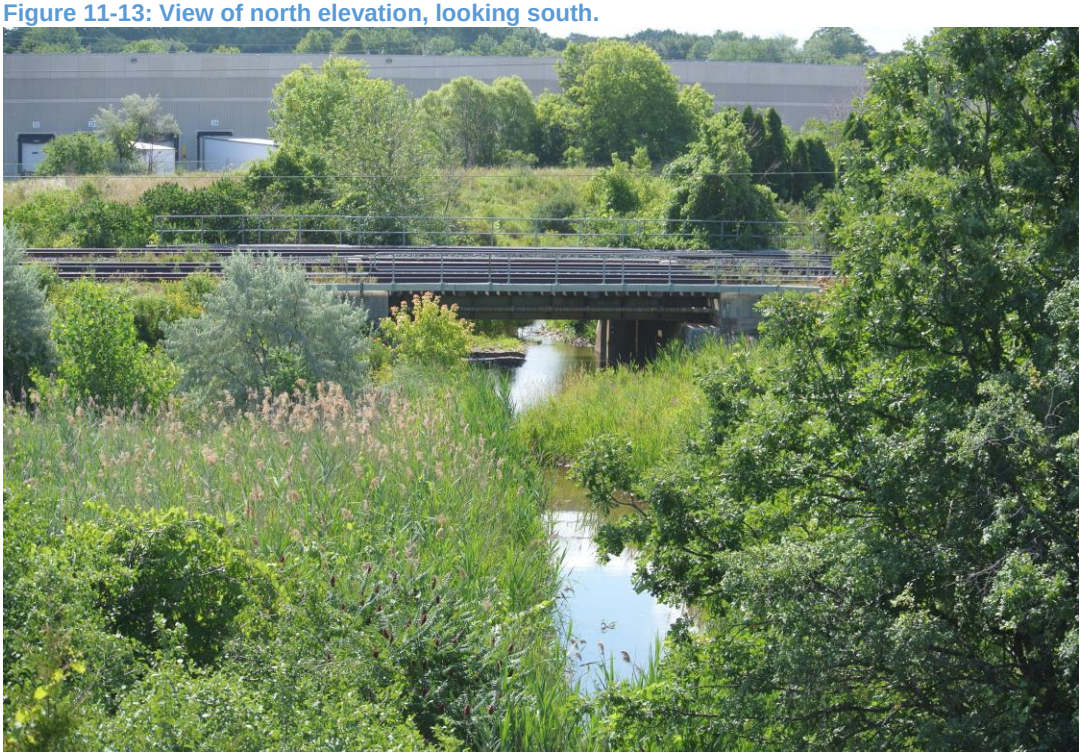


Figure 11-14: View towards the west abutment, looking south.



Figure 11-15: View of the east abutment, looking south.



Figure 11-16: Steel Girders supporting bridge deck, looking south.

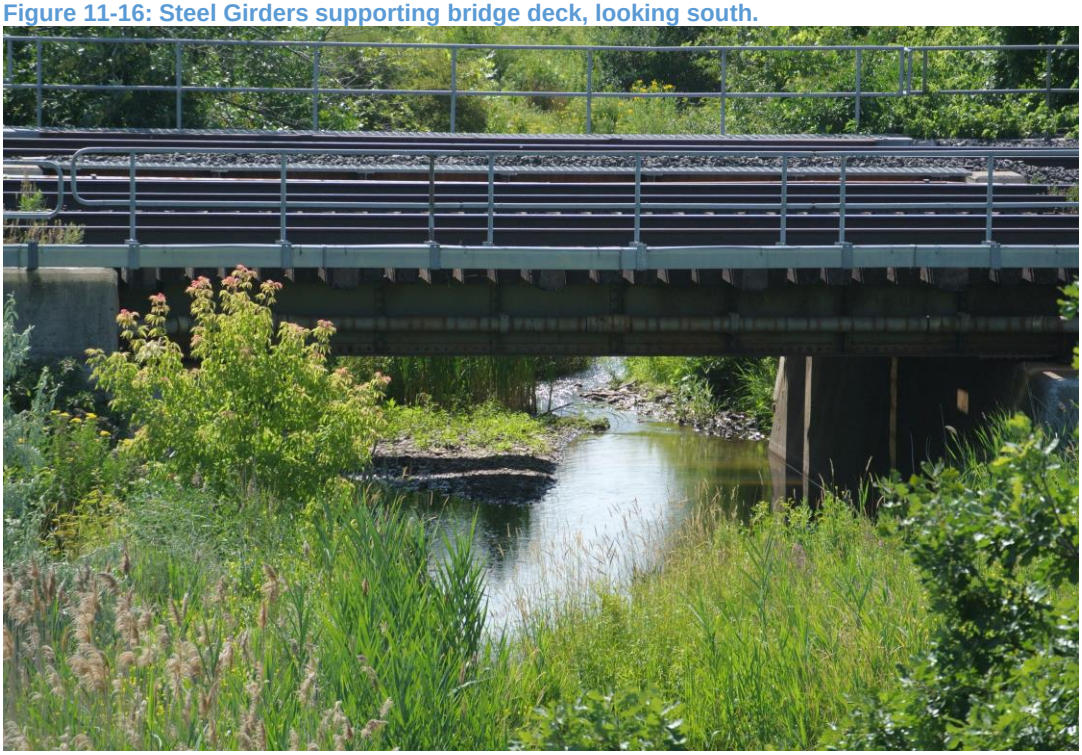


Figure 11-17: View of the railing system atop the bridge deck, looking south.

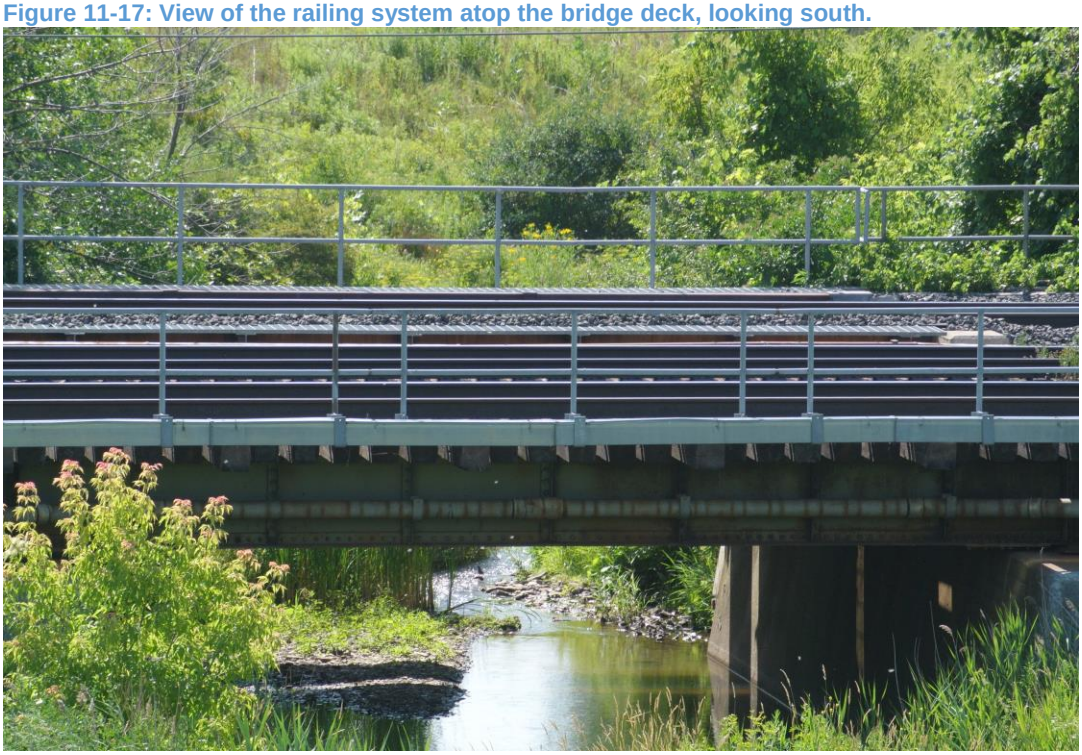


Figure 11-18: View of the bridge deck, looking southwest.



Figure 11-19: View towards the Joshua Creek Bridge from the Royal Windsor Drive Bridge crossing the rail corridor, looking southwest.



11.2 Sixteen Mile Creek

Figure 11-20: Location of the study area on 1858 historic mapping (Tremaine 1858)

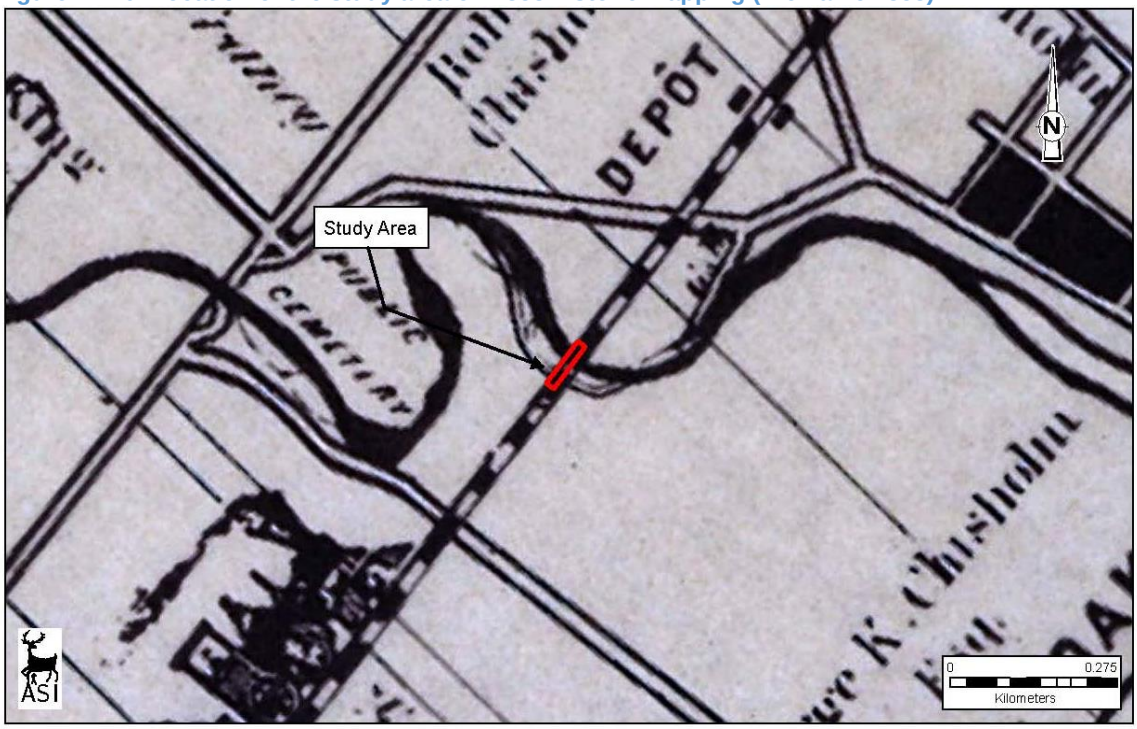


Figure 11-21: Location of the study area on 1877 historic mapping (Pope 1877)

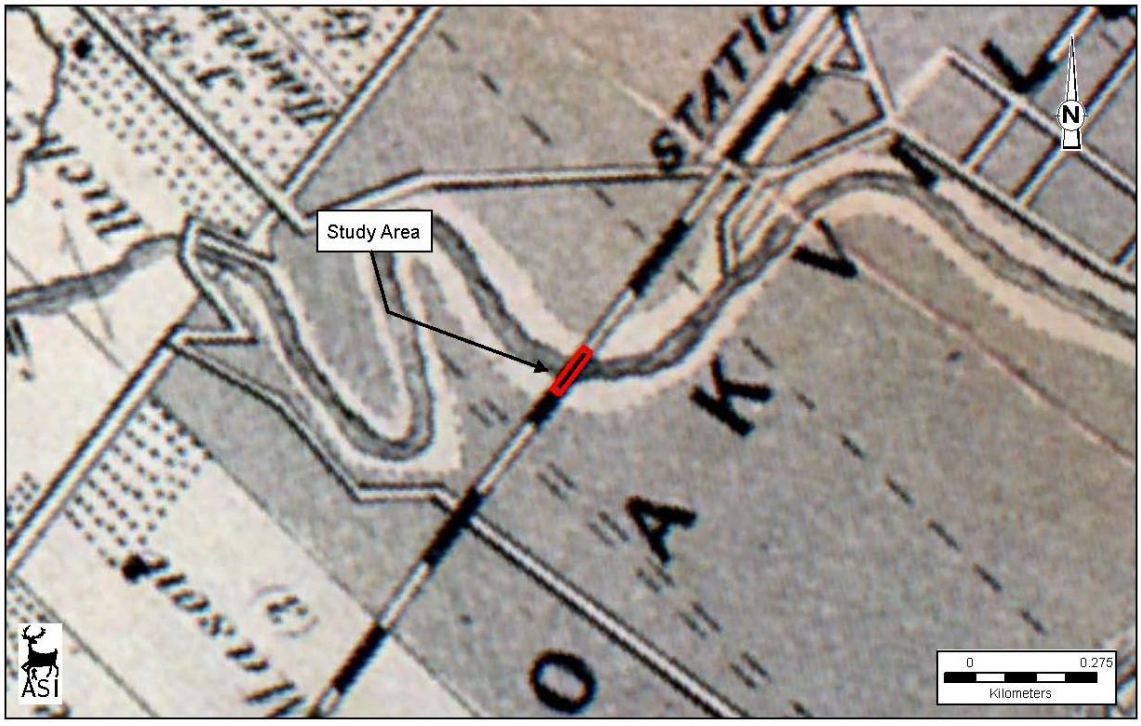


Figure 11-22: Location of the study area on 1954 aerial photograph (Hunting Survey Corporation Limited 1954)



Figure 11-23: Location of the study area on 1976 Public Works Map (Town of Oakville Planning Map 1976)



Figure 11-24: Location of the study area on 1990 Public Works Map (Town of Oakville Planning Map 1990)



Figure 11-25: 'A Postcard Depicting the Grand Trunk Railway Bridge in Oakville', former bridge spanning the Sixteen Mile Creek, date unknown. (Trafalgar Township Historical Society, date unknown)



Figure 11-26: Train 6123 crosses the Sixteen Mile Creek Bridge, looking northeast, c. 1958 (Steam at Oakville 1988)



Figure 11-27: Train crossing the Sixteen Mile Creek Bridge, looking south, mid-twentieth century (Steam at Oakville 1988)



Figure 11-28: Structural drawings of bridge renewals for the Sixteen Mile Creek Bridge. (Grand Trunk Railway 1889)

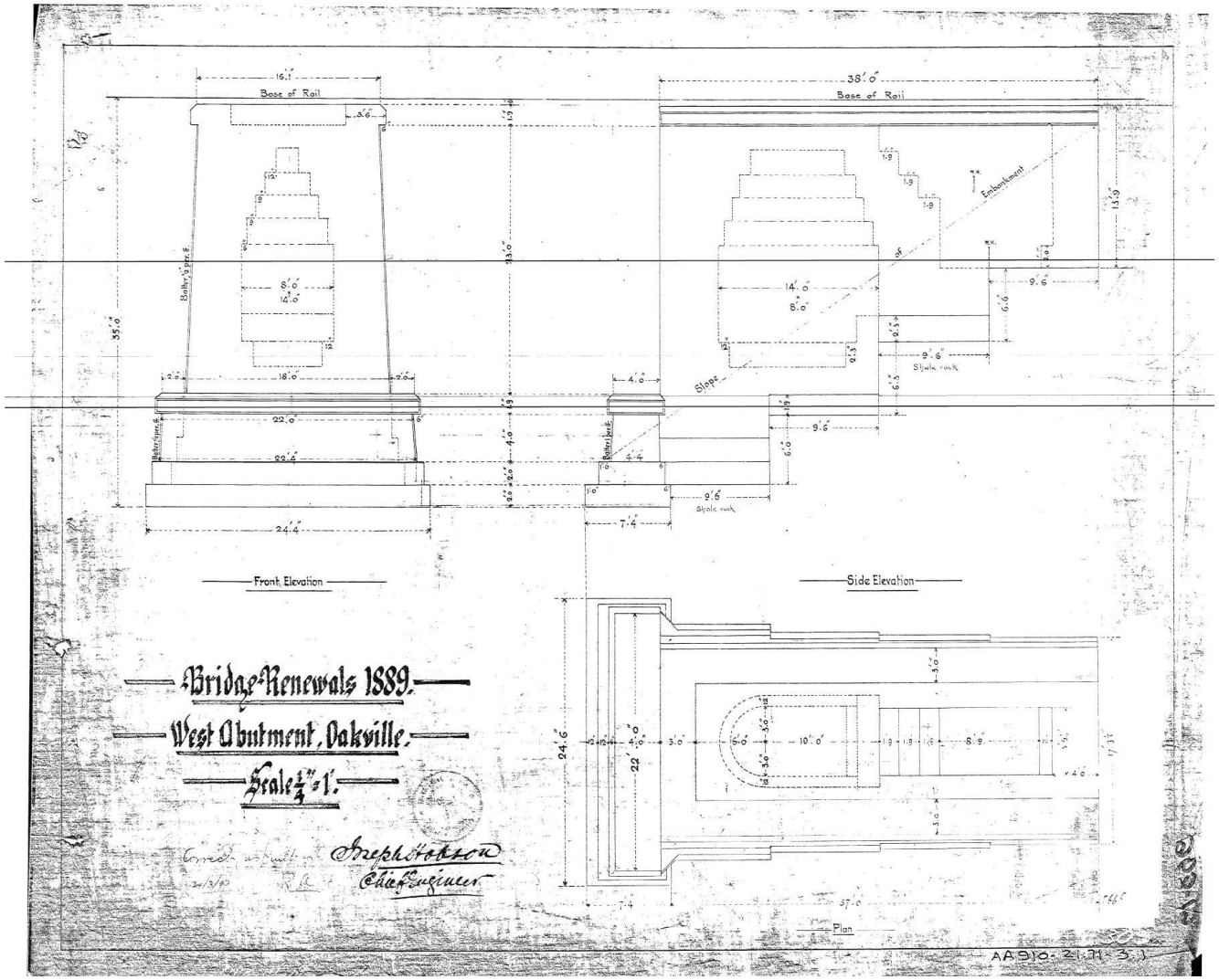


Figure 11-29: Structural drawing of the construction of a second track on the Sixteen Mile Creek Bridge (Grand Trunk Railway 1891)

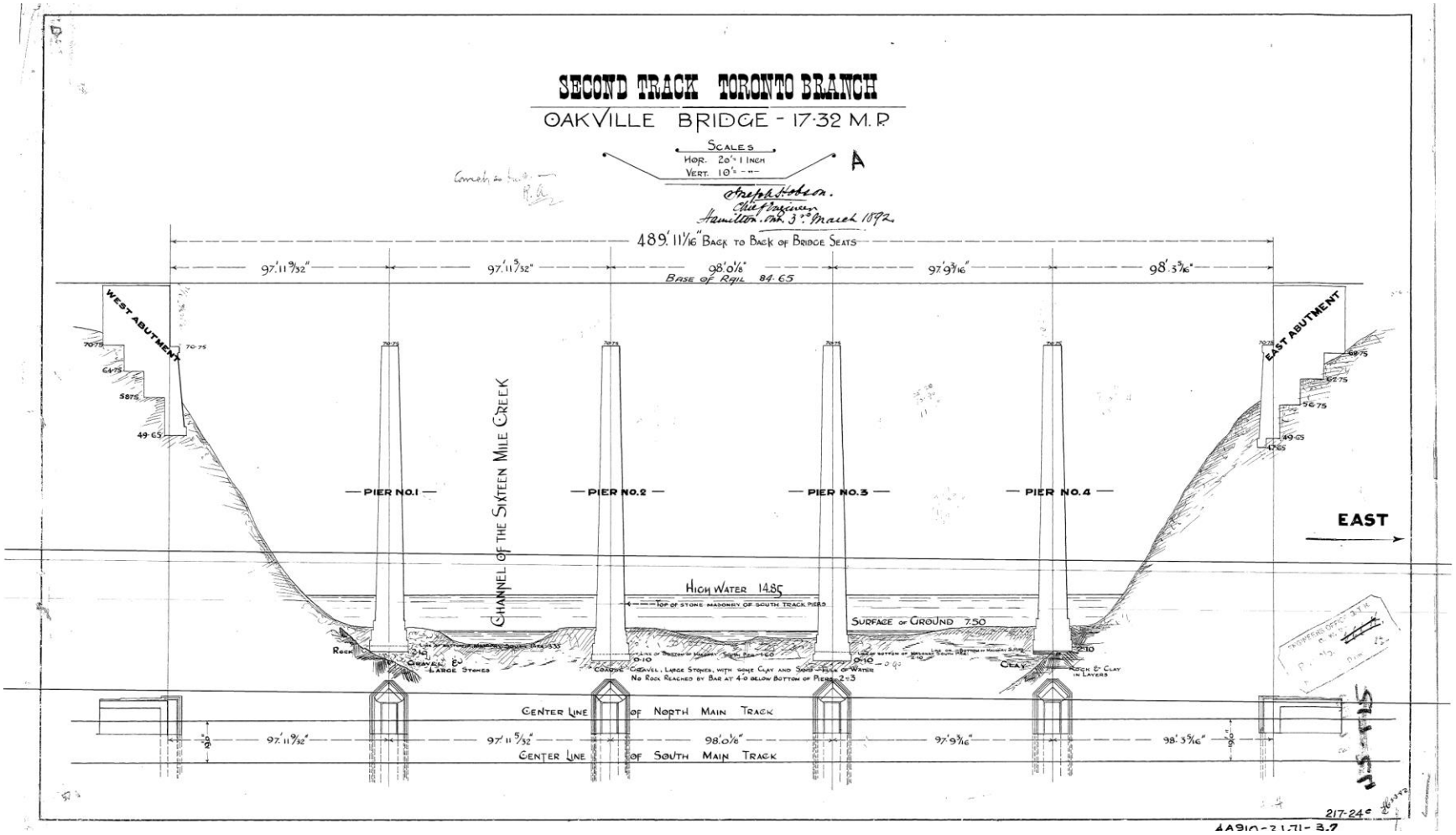


Figure 11-30: Structural drawings of the construction of a second track on the Sixteen Mile Creek Bridge. (Grand Trunk Railway 1892)

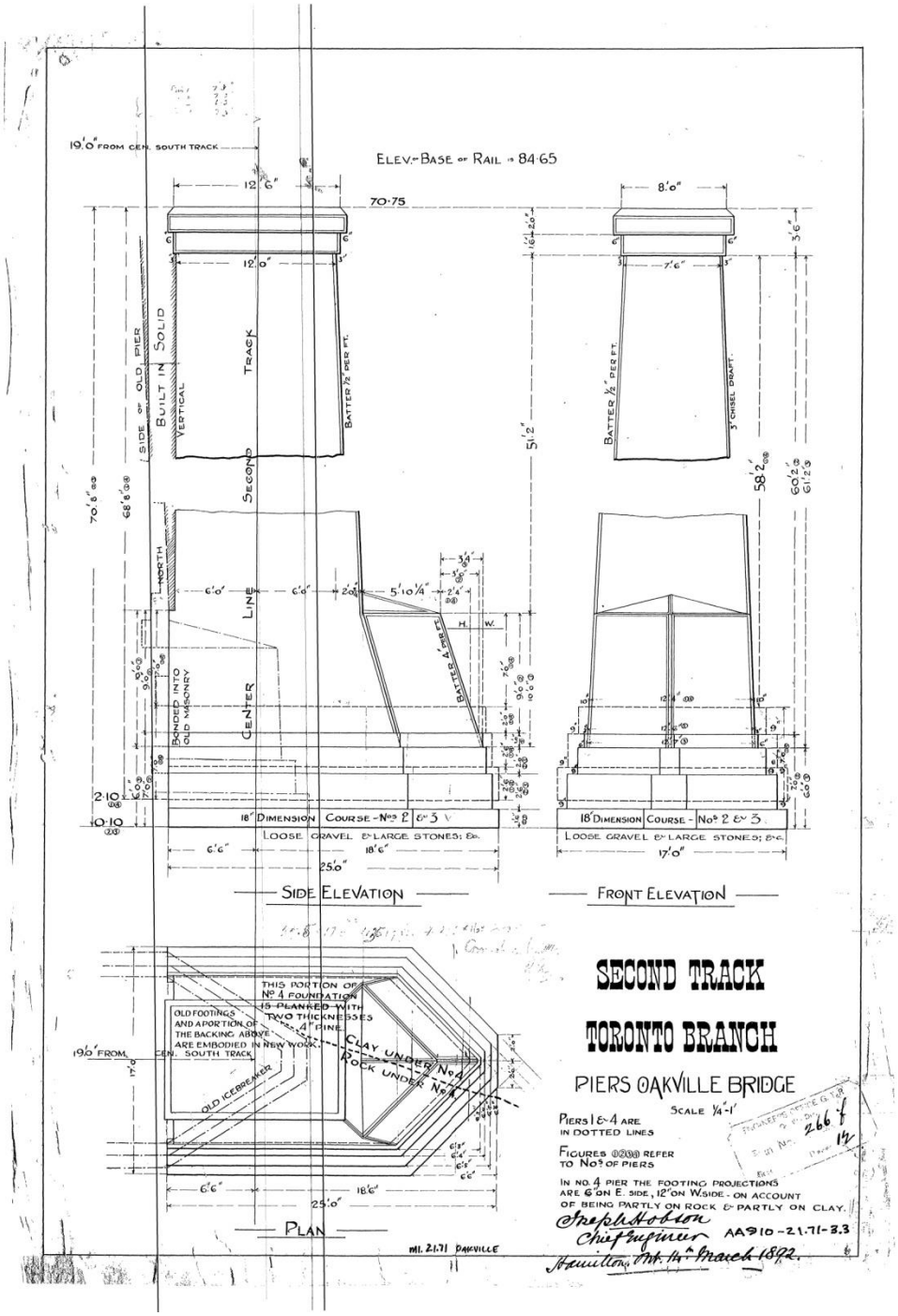


Figure 11-31: Structural drawings of the construction of a second track on the Sixteen Mile Creek Bridge. (Grand Trunk Railway 1892)

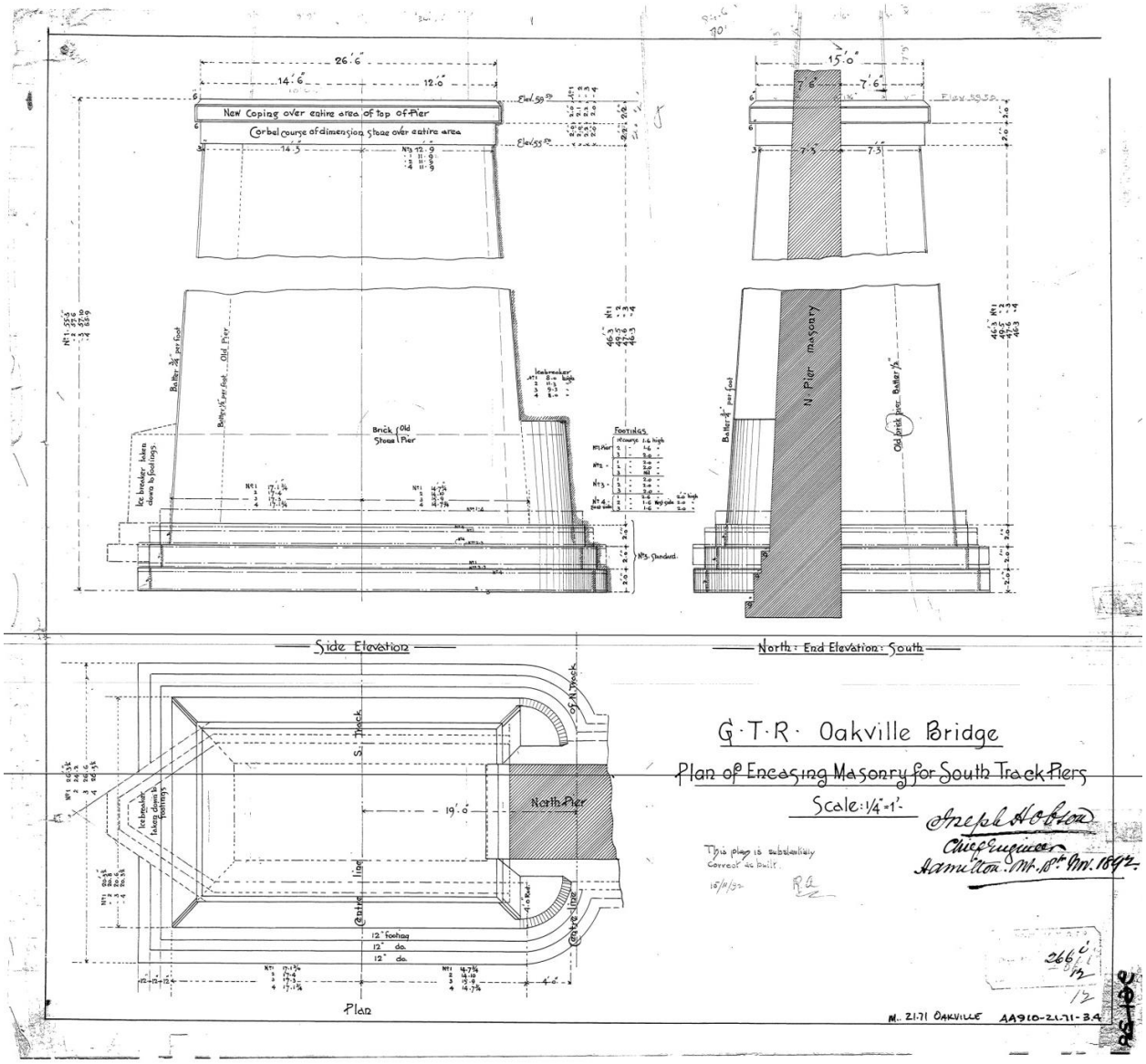


Figure 11-32: Structural drawings of the construction of a second track on the Sixteen Mile Creek Bridge (GTR 1892)

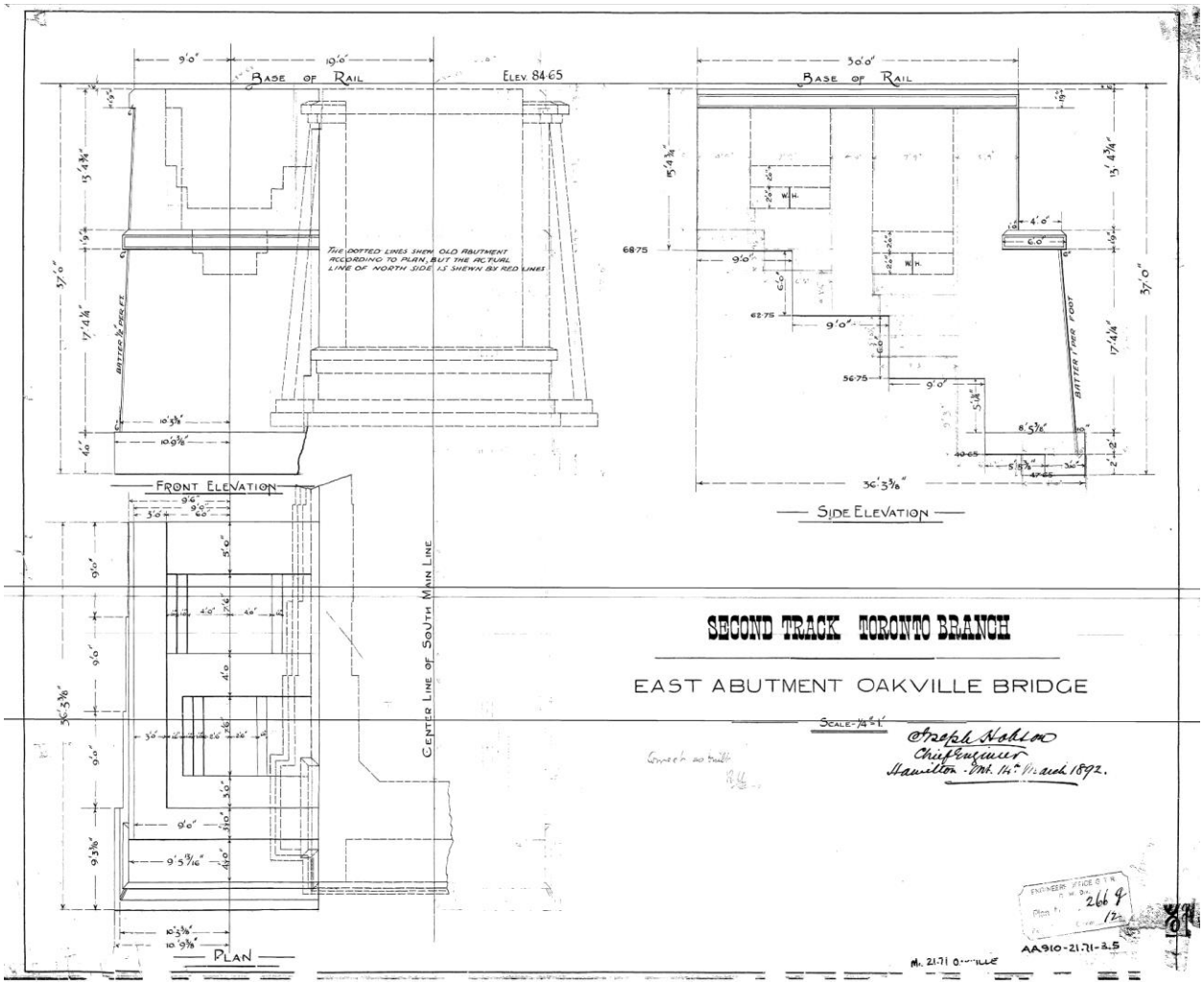


Figure 11-33: Plan of old masonry and brickwork removed, east abutment of the Sixteen Mile Creek Bridge. (Grand Trunk Railway 1901)

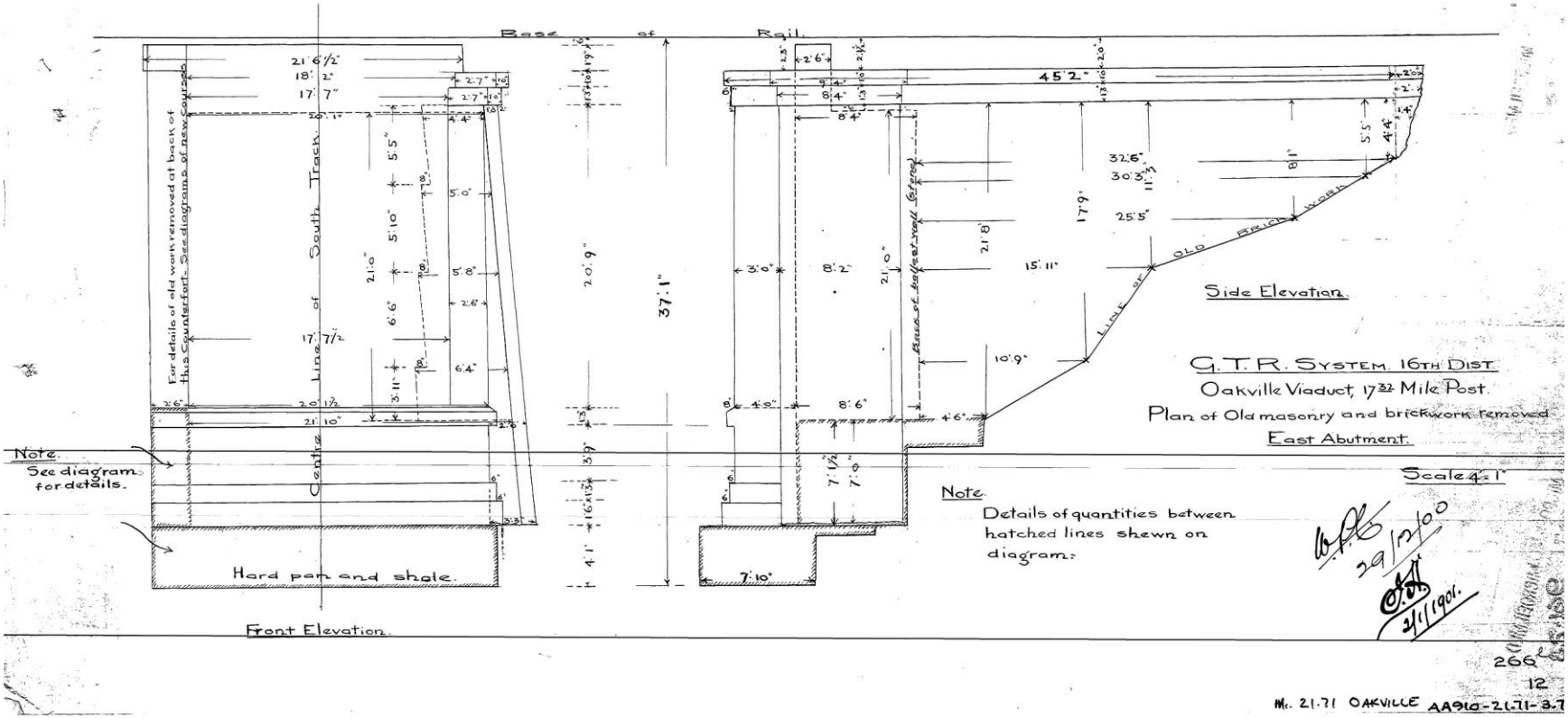


Figure 11-34: Structural drawings of the Sixteen Mile Creek Bridge and Bronte Creek Bridge (Grand Trunk Railway 1900)

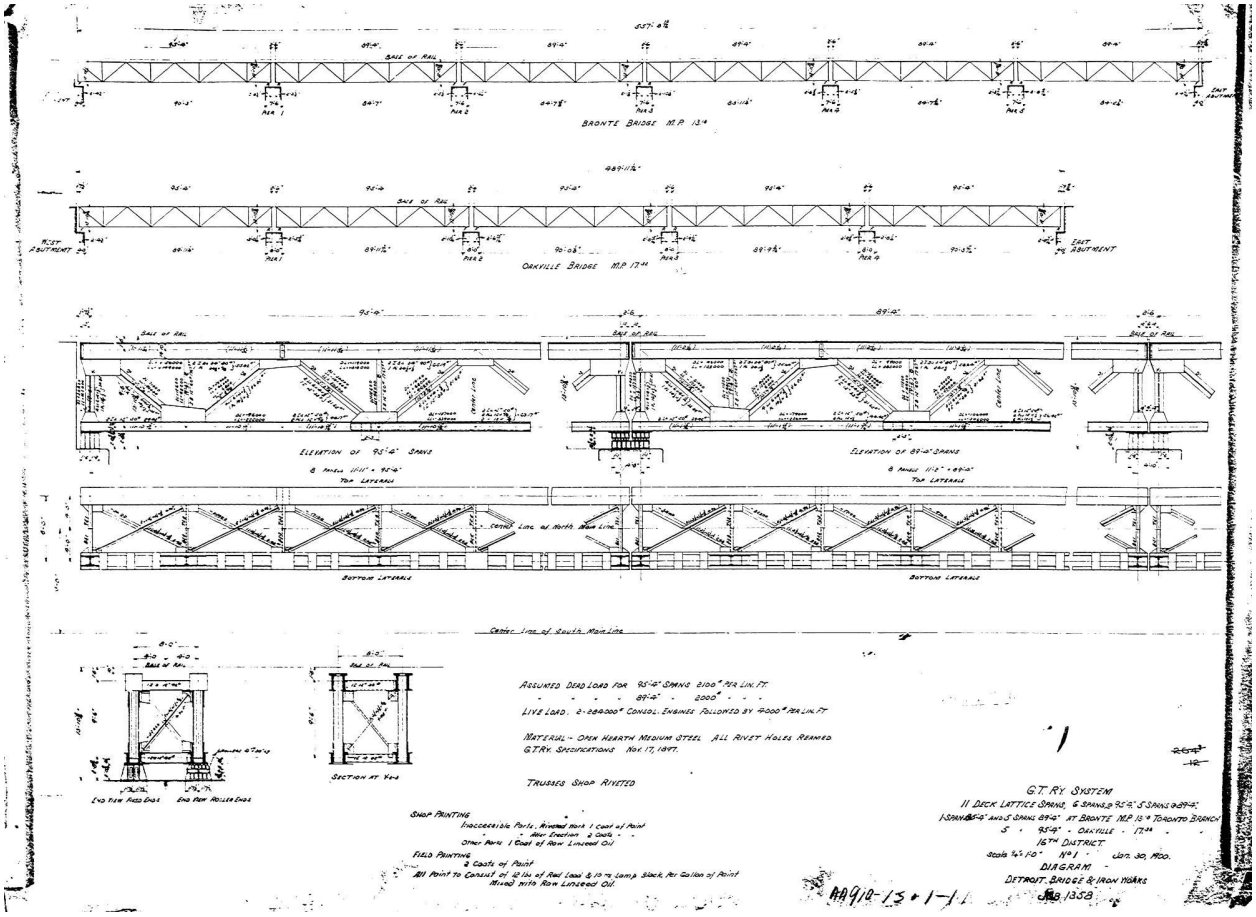


Figure 11-35: Structural drawings of repair work on the Sixteen Mile Creek Bridge. (Canadian National Railway 1971)

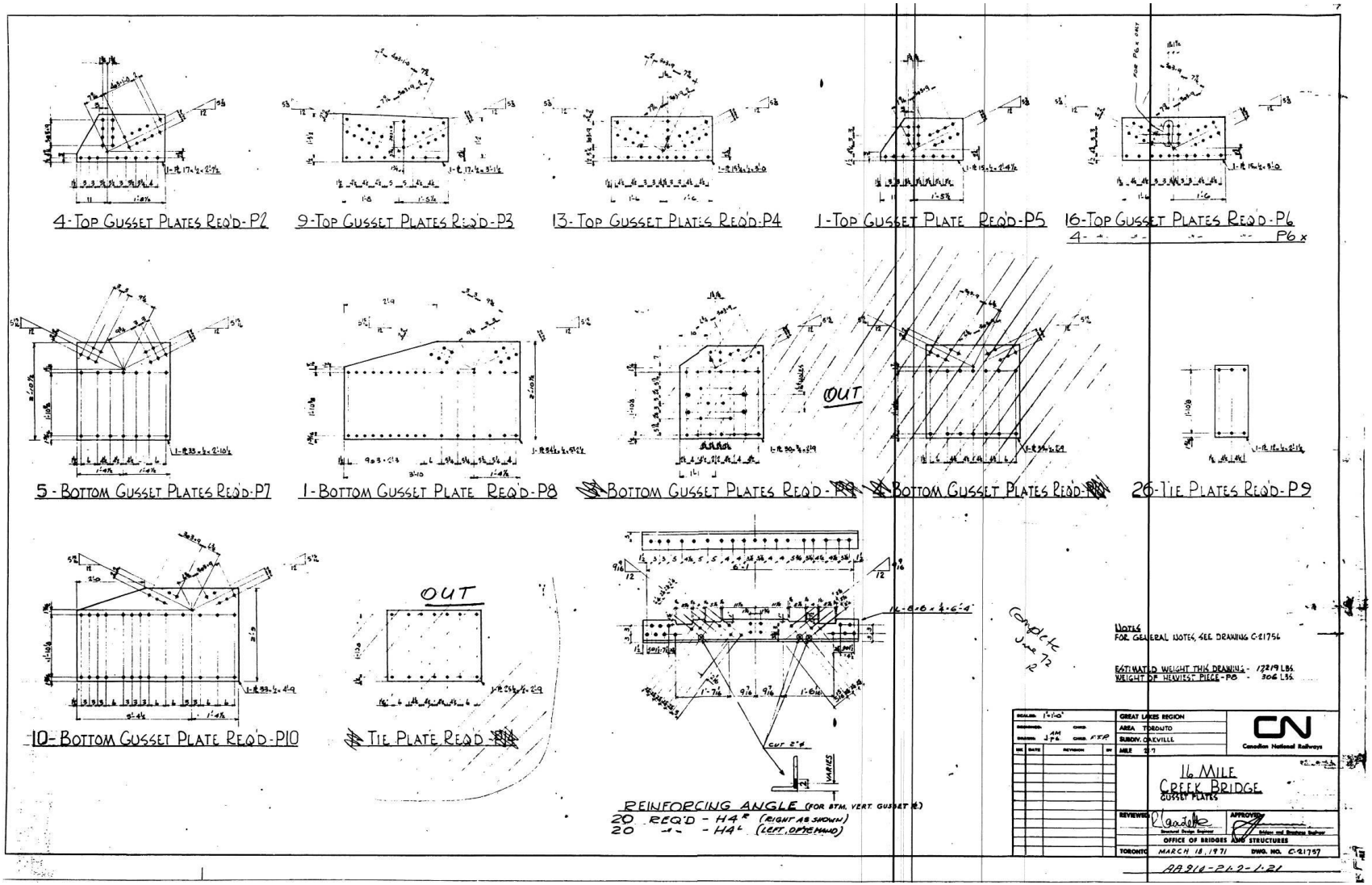


Figure 11-36: Structural drawings of repair work on the Sixteen Mile Creek Bridge (Canadian National Railway 1972)

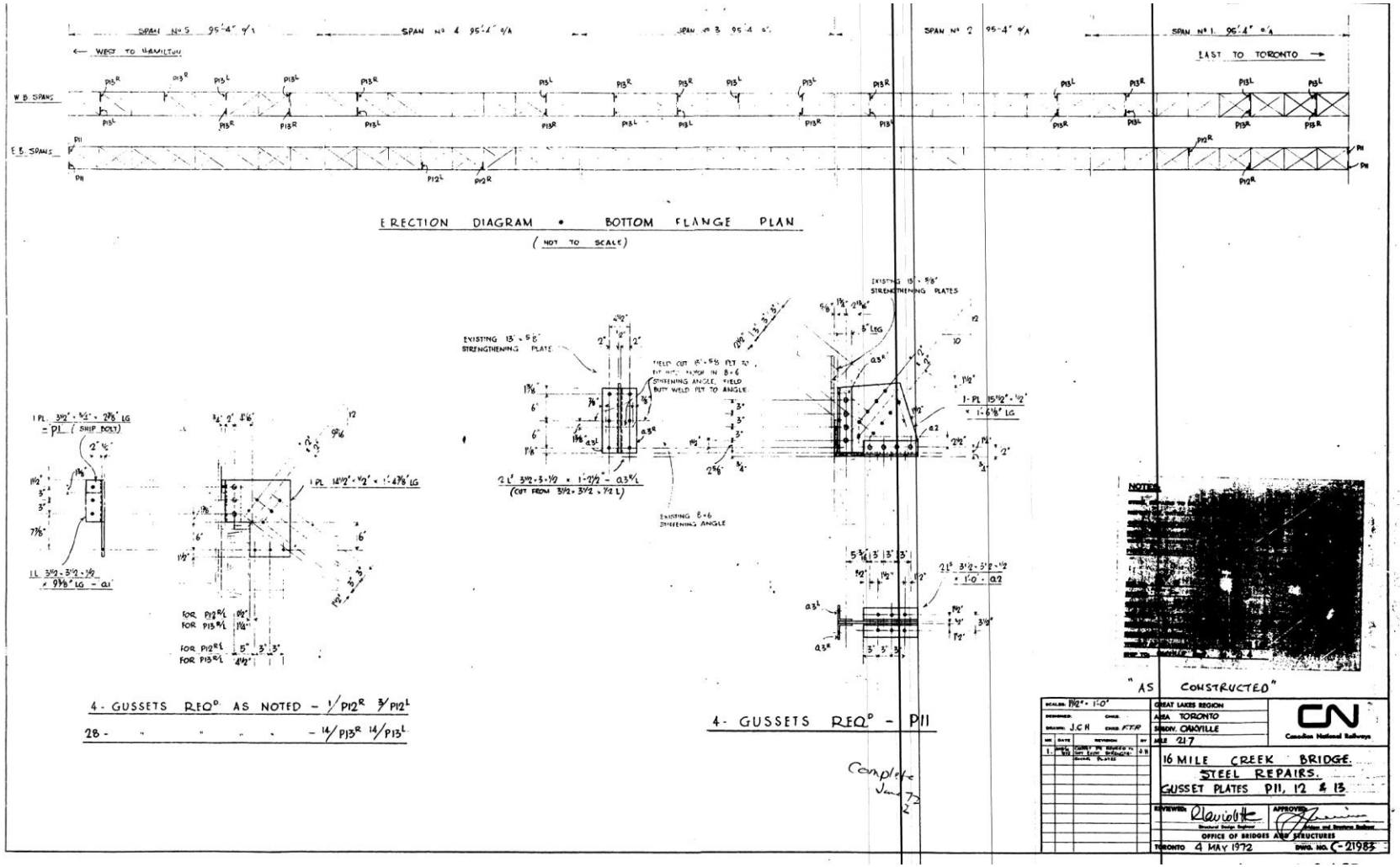


Figure 11-37: Structural drawings of repair work on the Sixteen Mile Creek Bridge. (Canadian National Railway 1992)

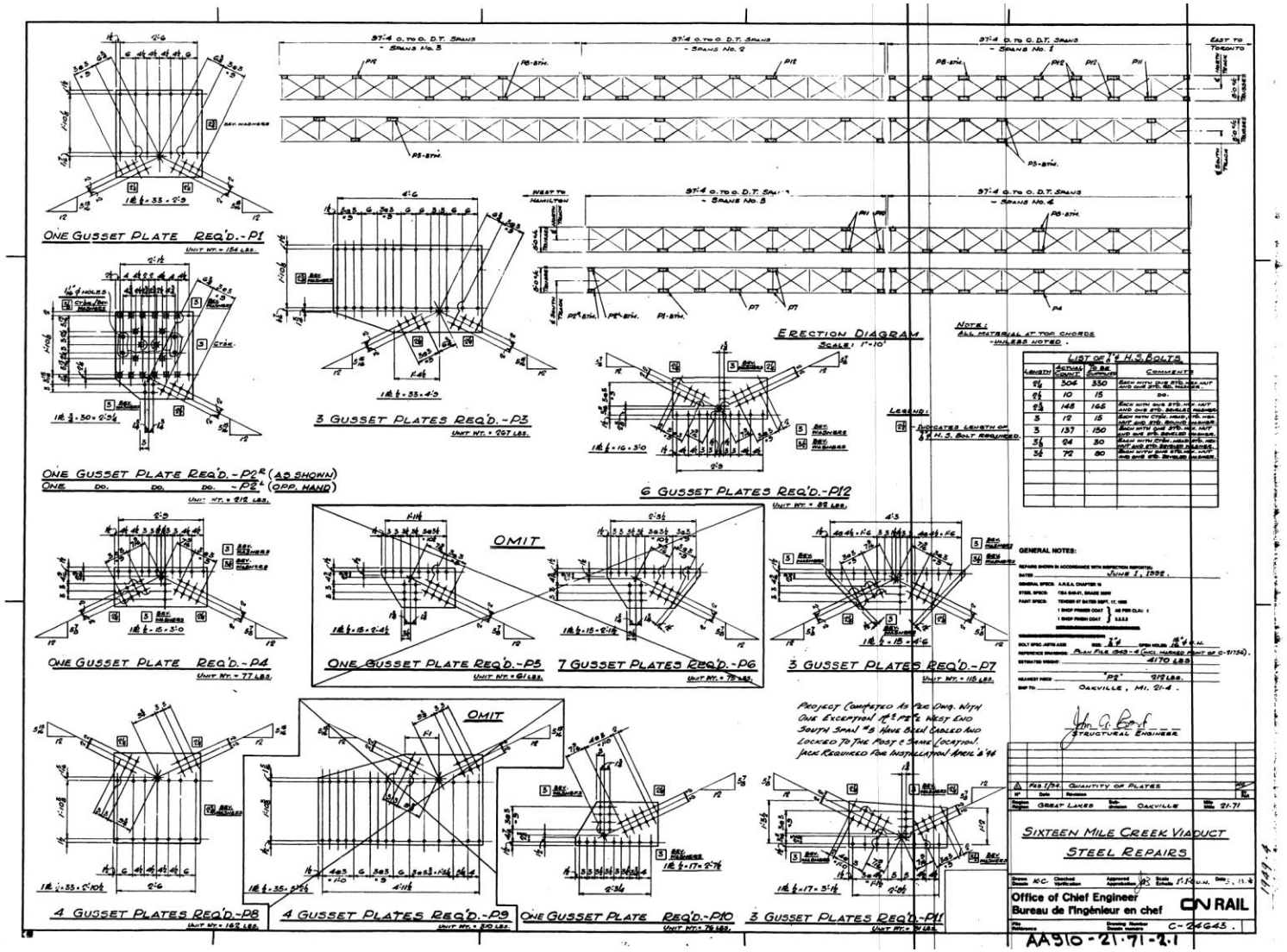


Figure 11-38: Structural drawings of structural addition to the Sixteen Mile Creek Bridge. (Canadian National Railway 2008)

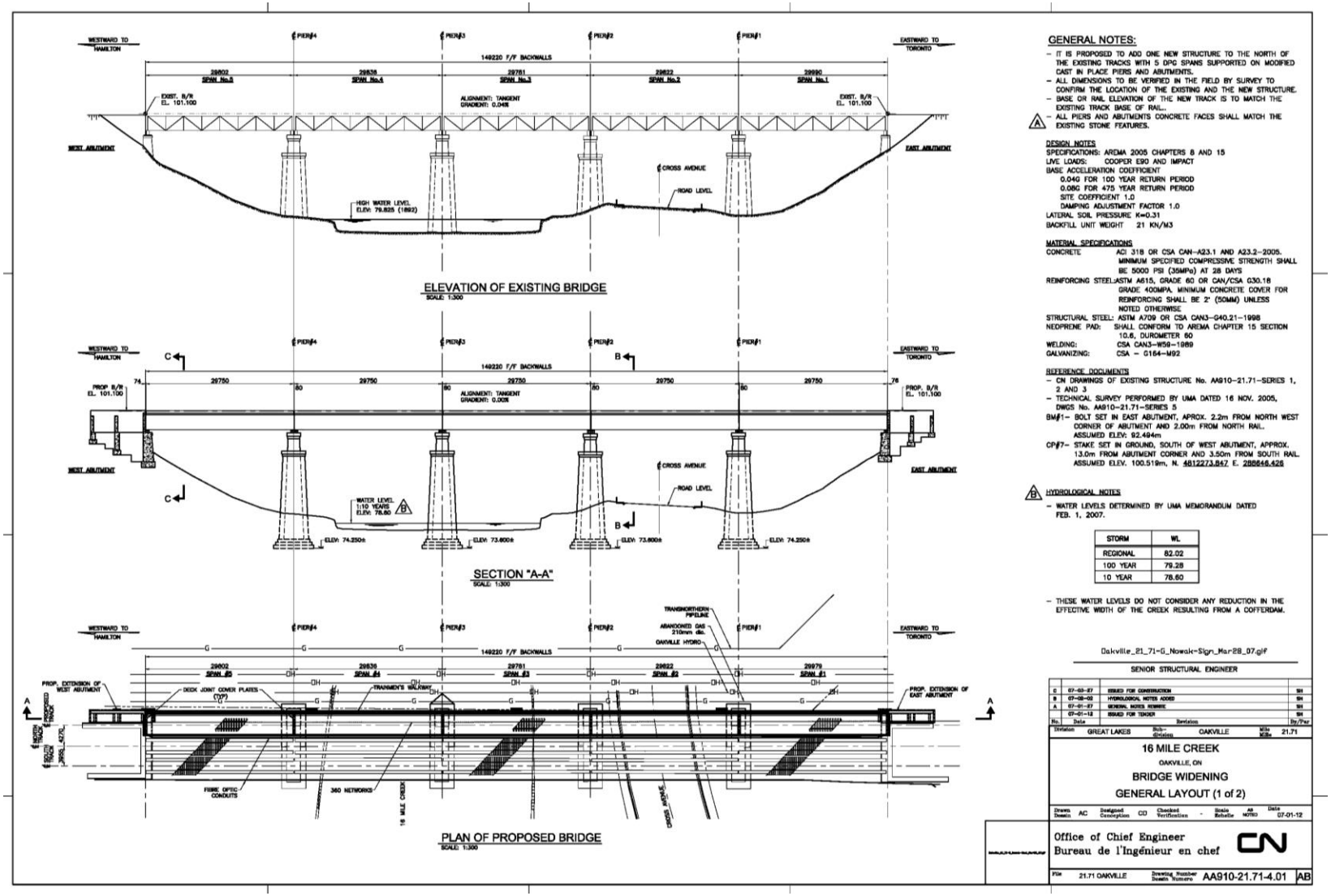


Figure 11-39: View of northwest elevation, looking south.



Figure 11-40: Oblique view of the south elevation, looking west.



Figure 11-41: View toward the spans across Sixteen Mile Creek.



Figure 11-42: View toward the spans across Cross Avenue.



Figure 11-43: View toward pier on west bank of Sixteen Mile Creek, looking south.



Figure 11-44: View of the bridge soffit, Cross Avenue, and the piers to the west of Cross Avenue right-of-way. Note the differentiation in the stone underscoring the modern additions to the piers on the north side.



Figure 11-45: Detail view of one of the piers.



11.3 Bronte Creek Bridge

Figure 11-46: Location of the study area on 1858 historic mapping (Tremaine 1858)

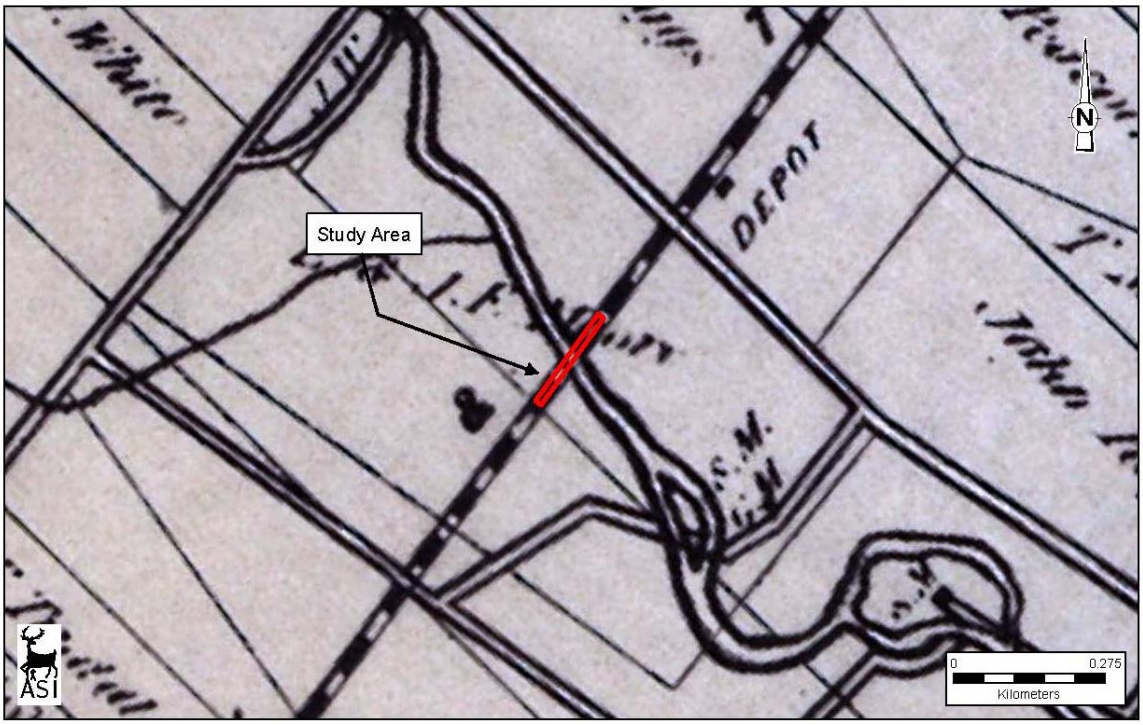


Figure 11-47: Location of the study area on 1877 historic mapping (Pope 1877)

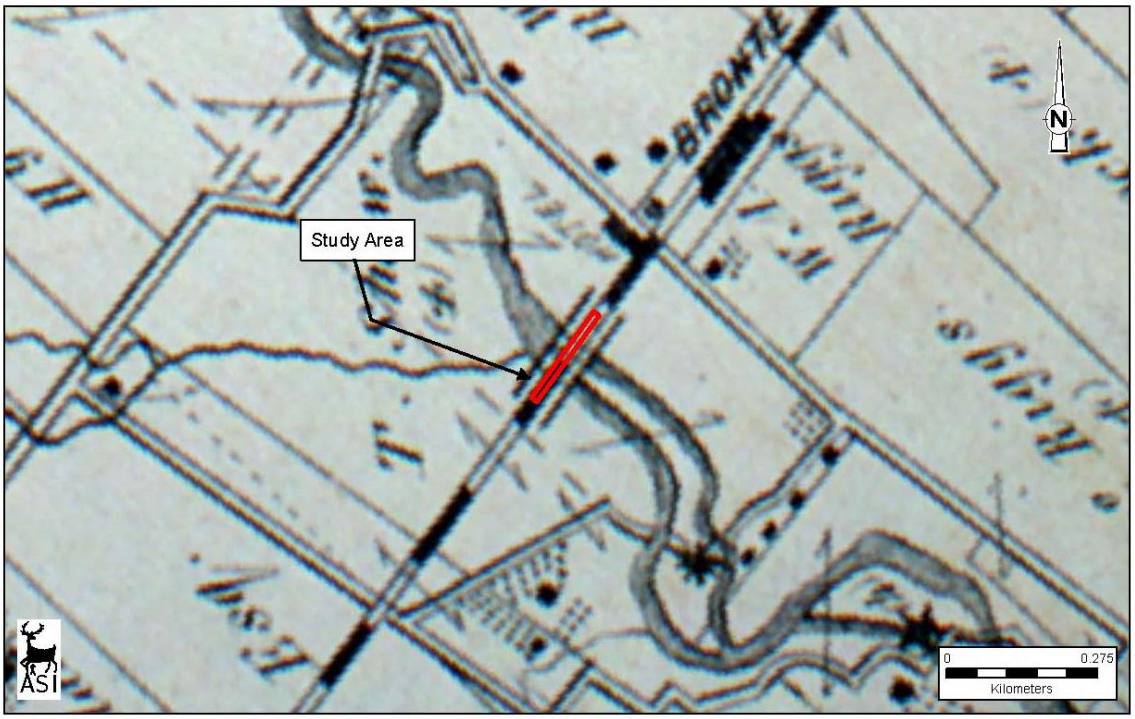


Figure 11-48: View of the study area on 1909 historic mapping (Ministry of Militia and Defense 1909)



Figure 11-49: View of the study area on 1954 historic mapping (Hunting Survey Corporation Limited 1954)

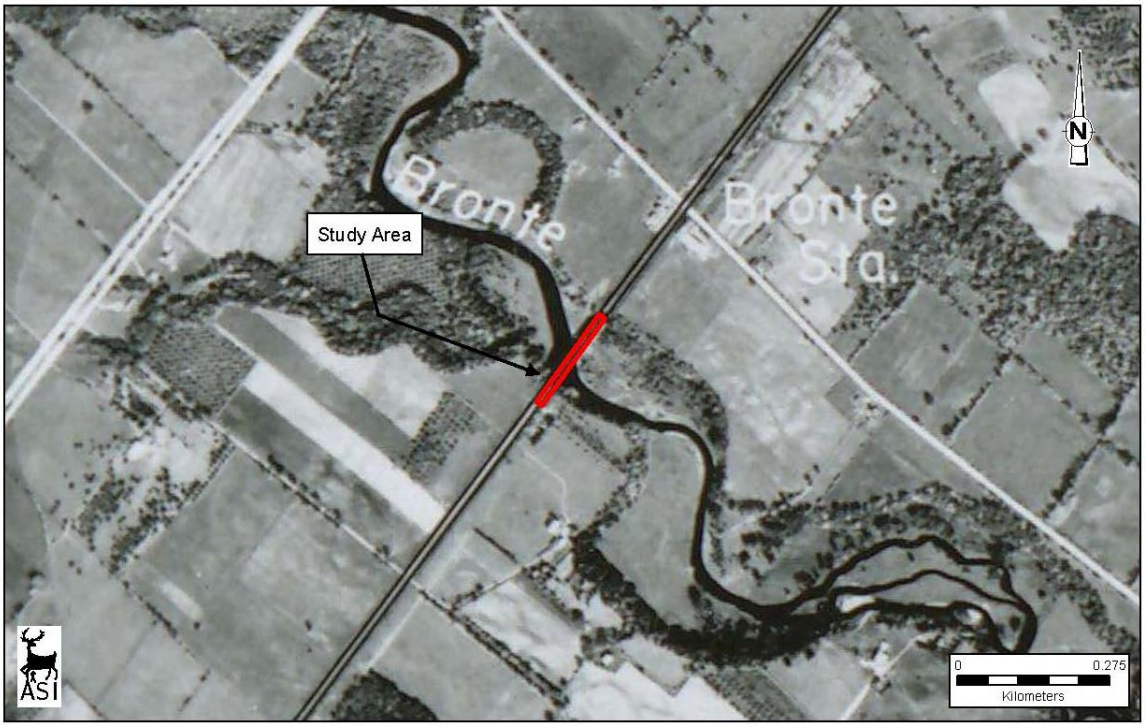


Figure 11-50: View of the study area on 1976 historic mapping (Town of Oakville Planning Map 1976)



Figure 11-51: View of the study area on 1990 historic mapping (Town of Oakville Planning Map 1990)

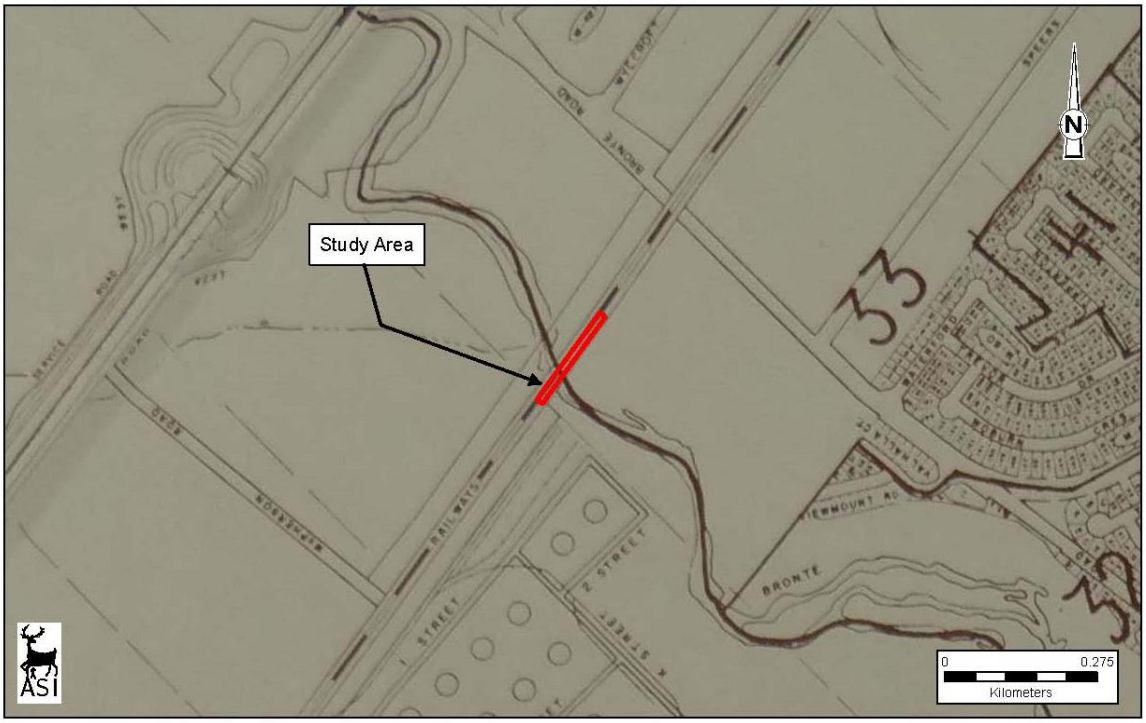


Figure 11-52: Photograph of unknown boys in front of Bronte Creek Bridge, c. 1910 (Trafalgar Township Historical Society)

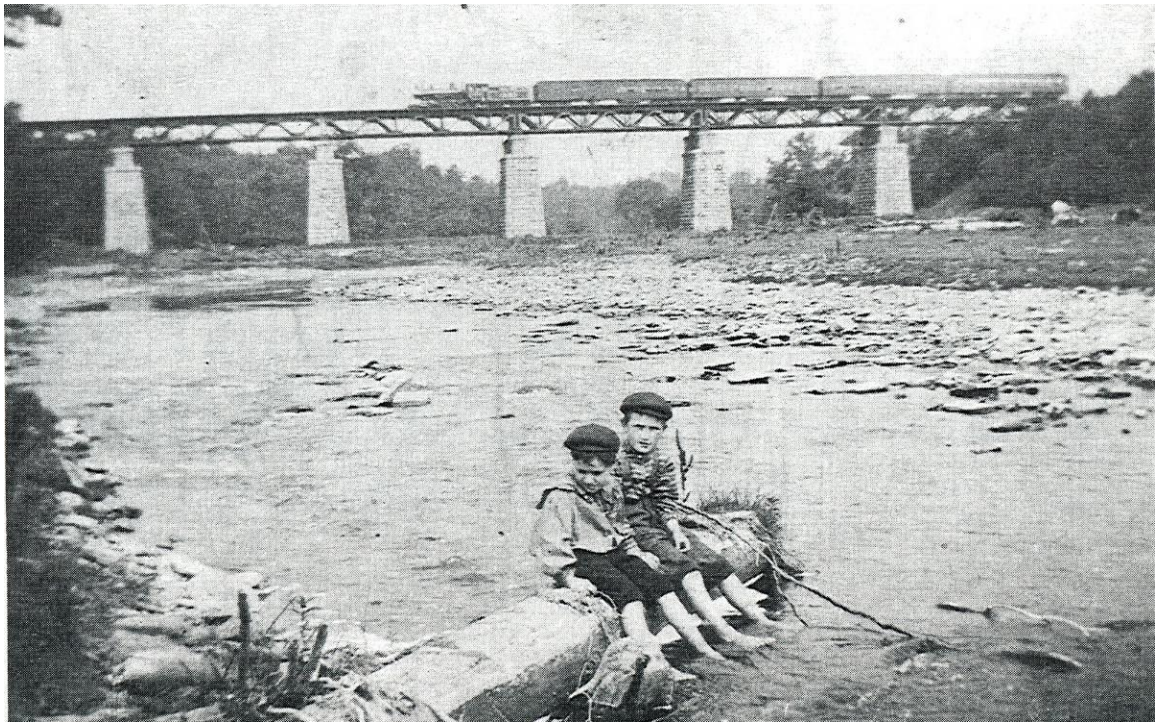


Figure 11-53: Structural drawings of the Sixteen Mile Creek Bridge and the Bronte Creek Bridge (Grand Trunk Railway 1900)

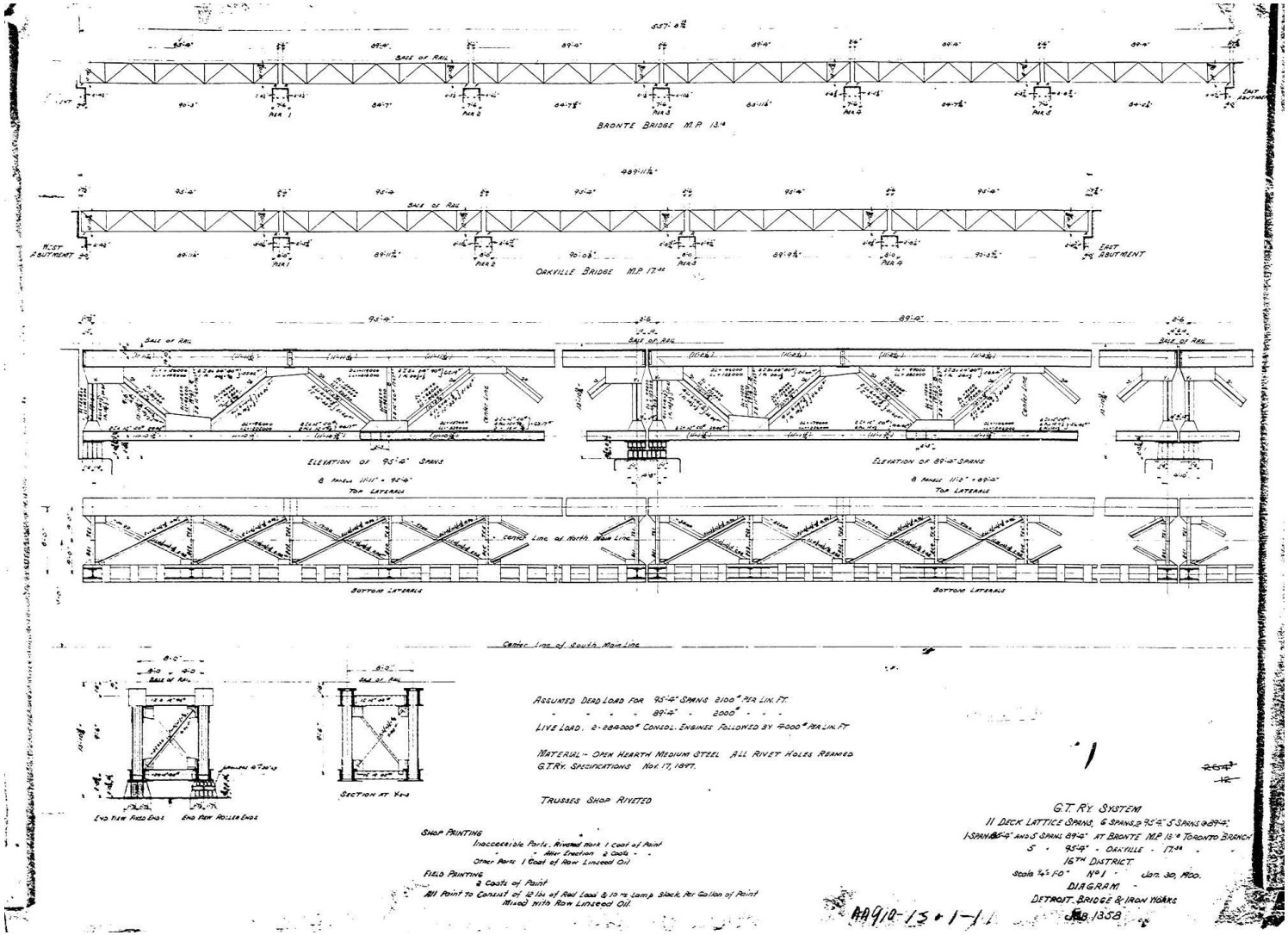


Figure 11-54: Oblique view of the north elevation, looking east.



Figure 11-55: Oblique view of the north elevation, looking south.



Figure 11-56: Detail of the east abutment, looking southeast.



Figure 11-57: Detail of the west abutment, looking south.



Figure 11-58: Detail of the west abutment. Note the date marker on the modern, north side of the abutment.



Figure 11-59: View of one of the bridge piers. Note the differentiation in the material with the modern additions to the piers on the north side.



Figure 11-60: Detail view of the bearings on the south side of the bridge.



Figure 11-61: Detail view of the steel girders on the north side of the bridge.



12 Chronology

12.1 Joshua Creek Bridge

Date	Event	Reference
1855	The Great Western Railway is built and begins service.	Andreae 1997
1858	Earliest map to show the Great Western Railway crossing the Joshua Creek.	Tremaine 1858
1882	Original piers constructed for bridge.	Great Western Railway Plans 1882
1891	Bridge expanded to included second track.	Grand Trunk Railway Plans 1891
1952-1956	Repairs to steel members.	Canadian National Railway Plans 1971
1972	CNR commuter service begins	Garcia and Bow 2014
1982	GO Transit takes over commuter service	Garcia and Bow 2014
2007	Bridge rehabilitation results in the expansion of the structure to the south through the inclusion of modern piers and steel girders.	Canadian National Railways 2008

12.2 Sixteen Mile Creek Bridge

Date	Event	Reference
1855	The Great Western Railway is built and begins service.	Andreae 1997
1858	Earliest map to show the Great Western Railway crossing the Sixteen Mile Creek.	Tremaine 1858
1892	Original piers partially or fully replaced.	Grand Trunk Railway Plans 1892
1900-1902	Original truss is replaced with new Warren Truss structure.	Grand Trunk Railway Plans 1900
1971	Repairs to steel members.	Canadian National Railway Plans 1971
1972	CNR commuter service begins	Garcia and Bow 2014
1982	GO Transit takes over commuter service	Garcia and Bow 2014
2008	Bridge rehabilitation results in the expansion of the structure to the north through the inclusion of modern pier additions and steel girders.	Canadian National Railways 2008

12.3 Bronte Creek Bridge

Date	Event	Reference
1855	The Great Western Railway is built and begins service.	Andreae 1997
1858	Earliest map to show the Great Western Railway crossing the Bronte Creek.	Tremaine 1858
1900-1902	Original truss is replaced with new Warren Truss structure.	Grand Trunk Railway Plans 1900
1972	CNR commuter service begins	Garcia and Bow 2014
1982	GO Transit takes over commuter service	Garcia and Bow 2014
1989	Bridge rehabilitation results in the expansion of the structure to the north through the inclusion of modern piers and steel girders.	Canadian National Railways 2008

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14 Project Personnel

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Cultural Heritage Specialist:	Joel Konrad, PhD *Cultural Heritage Specialist*
Project Coordinator:	Sarah Jagelewski, Hon. BA *Staff Archaeologist* *Assistant Manager, Environmental Assessment Division*
Project Administration:	Carol Bella, Hon. BA *Research Archaeologist* *Administrative Assistant*
Report Preparation:	Joel Konrad Lindsay Graves
Graphics:	Blake Williams, MLitt *Geomatics Specialist*
Report Reviewers:	Lindsay Graves Lisa Merritt

APPENDIX A: Community Input Questionnaires

Cultural Heritage Evaluation Report Questionnaire

Subject *

Bronte Creek Railway Bridge

Response By *

Betty Strong, volunteer Bronte Historical Societyinsert name here]

Name of Organization *

Bronte Historical Society

Date *

MM DD YYYY

06 / 09 / 2016

1. Have you collected any historical information on the property? *

- ○ Yes
- ◉ No

If yes, please provide a short description of this collection:

2. Is there any local interest in the history of the property relating to (please check all that apply): *

- ☐ Historical or Associative Value
- ☐ Design or Physical Value
- ☐ Contextual Value
- ☑ Other: Cultural Heritage Landscape survey.

If yes, please provide additional information regarding your selection(s) above:

Please contact the Town of Oakville.

3. Do you know whether the lands where the property is located may be valued by a community, including First Nations? *

- ◉ Yes
- ○ No

If yes, please provide a short description:

First Nations occupied the river valley, on a seasonal basis, for fishing, hunting, etc.

4. Please provide any additional comments you think are relevant.

Conservation Halton, Halton Region Heritage Services, the Town of Oakville or Trafalgar Township Historical Society may have information related to this subject property.

Appendix B: Deck Truss Bridges in Ontario

Information Compiled from www.historicbridges.org	
16 Mile Creek Railway Bridge	Railroad (Canadian National and Go Transit) Over 16 Mile Creek and Cross Avenue Oakville: Halton Region, Ontario Metal 8 Panel Rivet-Connected Warren Deck Truss, Fixed Length: 490 ft Main Spans: 5 Built By: Unknown This deck truss bridge noted for its very shallow trusses was more recently widened on one side with girders.
Bayfield Bridge	KH-21 (Bluewater Highway) Over Bayfield River Bayfield: Huron County, Ontario Metal Rivet-Connected Warren Deck Truss, Fixed Main Spans: 2 Built 1949 By: Unknown An attractive two-span deck truss with v-lacing hidden under an ugly deck.

Bayview Avenue Bridge	Bayview Avenue Over West Branch Don River Toronto: Toronto City, Ontario Metal 10 Panel Bolt-Connected Warren Deck Truss, Fixed and Approach Spans: Metal Deck Girder, Fixed Length: 900 ft Main Span: 155 ft Built 1929 By: Unknown and Margison and Babcock This multi-span deck truss bridge was widened with a very similar looking parallel set of trusses in 1960.
Bracebridge Railway Bridge	Railroad (Canadian National) Over North Branch Muskoka River Bracebridge: Muskoka District, Ontario Metal 6 Panel Pin-Connected Pratt Deck Truss, Fixed and Approach Spans: Metal Deck Girder, Fixed Main Spans: 1 Built By: Unknown This is a rare example of a pin-connected deck truss in Ontario.
Burgoyne Bridge (Demolished)	St. Paul Street Over 12 Mile Creek St. Catharines: Niagara Region, Ontario Metal 6 Panel Rivet-Connected Warren Deck Truss, Fixed and Approach Spans: Metal Deck Girder, Fixed Length: 1236 ft Main Span: 120 ft Roadway: 30 ft Main Spans: 7 Built 1915 By: Dominion Steel and Coal Corporation and Sprague and Reppert of Pittsburgh, Pennsylvania
Cayuga Railway Bridge	Railroad (Abandoned Canadian National) Over Grand River Cayuga: Haldimand County, Ontario Metal 5 Panel Rivet-Connected Pratt Deck Truss, Fixed and Approach Spans: Metal Deck Girder, Fixed

	Main Spans: 5 Built By: Unknown An impressive multi-span deck truss with a pleasing trapezoid truss shape and stone piers.
Dorchester Bridge	Bridge Street Over South Branch Thames River Dorchester: Middlesex County, Ontario Metal 6 Panel Rivet-Connected Warren Deck Truss, Fixed Main Spans: 1 Built 1923 By: Unknown This bridge is an uncommon example of a highway deck truss in Ontario.
Forks of the Credit Railway Bridge	Railroad (Canadian Pacific) Over Erin Branch Credit River and Forks of the Credit Road Caledon (Near Belfountain): Peel Region, Ontario Metal 12 Panel Rivet-Connected Warren Deck Truss, Fixed and Approach Spans: Metal Deck Girder, Fixed Main Spans: 1 Built By: Unknown This bridge is located in a scenic area where railway and river wind through the Niagara Escarpment. **Homer Lift Bridge**
Welland Canal Bridge #4 / Queenston Street Bridge	Queenston Street Over Welland Canal St. Catharines: Niagara Region, Ontario Metal Rivet-Connected Pratt Deck Truss, Movable: Double Leaf Bascule (Rolling Lift) and Approach Spans: Metal Deck Girder, Fixed Main Spans: 1 Built By: Unknown A rare Ontario example of a deck truss bascule bridge, this is a rolling lift.

Leaside Bridge / Confederation Bridge	Millwood Road Over Don River, Don Valley Parkway, and Railroad Toronto: Toronto City, Ontario Metal 8 Panel Rivet-Connected Warren Deck Truss, Fixed Length: 1443 ft Main Span: 125 ft Main Spans: 11 Built 1927 By: Unknown and Frank Barber of Toronto, Ontario This tall and long bridge was widened significantly in the late 1960s.
London Thames River Railway Bridge	Railroad (Canadian National) Over Thames River London: Middlesex County, Ontario Metal 8 Panel Rivet-Connected Warren Deck Truss, Fixed and Approach Spans: Metal Stringer (Multi-Beam), Fixed Main Spans: 2 Built By: Unknown Setting new standards for massive, this bridge has gargantuan members and connections.
Constable Rick Hopkins Memorial Bridge	KH-6 (Main Street) Over South Saugeen River Wellington North (Mt. Forest): Wellington County, Ontario Metal 10 Panel Bolt-Connected Pratt Deck Truss, Fixed Main Spans: 1 Built 1961 By: Unknown This is a rare example of a highway deck truss in this region of Ontario.
Mt. Pleasant Road Bridge	Mt. Pleasant Road Over Rosedale Ravine, Rosedale Valley Road, Castle Frank Brook Toronto: Toronto City, Ontario Metal 8 Panel Rivet-Connected Warren Deck Truss, Fixed

	Length: 440 ft Main Span: 100 ft Main Spans: 3 Built 1948 By: Unknown This is a later but uncommon example of a riveted deck truss bridge with good integrity.
KH-11 Northbound Bridge	KH-11 Northbound Over South Branch Muskoka River Bracebridge: Muskoka District, Ontario Metal 12 Panel Rivet-Connected Warren Deck Truss, Fixed and Approach Spans: Metal Stringer (Multi-Beam), Fixed Main Spans: 2 Built 1952 By: Unknown This deck truss crosses over an impressive gorge and waterfall.
Paisley Railway Bridge	Railroad (Rail-Trail) Over Teeswater River Paisley: Bruce County, Ontario Metal 10 Panel Rivet-Connected Warren Deck Truss, Fixed and Approach Spans: Metal Deck Girder, Fixed Length: 607 ft Main Spans: 1 Built 1926 By: Unknown Although a nice looking high level deck truss, also noteworthy are remains of Phoenix colums under the bridge.
Paris Railway Bridge	Railroad (Canadian National) Over Grand River Paris: Brant County, Ontario Metal 8 Panel Rivet-Connected Warren Deck Truss, Fixed Main Spans: 5

	Built By: Unknown This is a large high level deck truss that remains in heavy use by trains.
Penetangore River Bridge / Huron Terrace Bridge	Huron Terrace Over Penetangore River Kincardine: Bruce County, Ontario Metal 8 Panel Rivet-Connected Warren Deck Truss, Fixed and Approach Spans: Metal Deck Girder, Fixed Main Spans: 1 Built 1934 By: Hamilton Bridge Company of Hamilton, Ontario This impressive deck truss retains excellent historic integrity and is a significant part of Canadian heritage and innovation.
Port Credit Railway Bridge	Railroad (Go, Canadian National) Over Credit River Mississauga: Peel Region, Ontario Metal 10 Panel Multiple-Type-Connected Inverted Bowstring Deck Truss, Fixed and Approach Spans: Metal Stringer (Multi-Beam), Fixed Length: 270 ft Main Spans: 1 Built By: Unknown This bridge's extremely unusual design gives it a very high level of heritage significance.
Southampton Bridge	KH-21 (Albert Street) Over Saugeen River Southampton (Saugeen Shores): Bruce County, Ontario Metal Continuous 14 Panel Bolt-Connected Warren Deck Truss, Fixed Main Spans: 3 Built 1959 By: Unknown and Reginald Arthur Blyth

	A rare, and relatively late example of continuous deck bridge construction.
St. Thomas Canadian National Railway Bridge	Railway (Canadian National) Over Kettle Creek St. Thomas: Elgin County, Ontario Metal 6 Panel Rivet-Connected Pratt Deck Truss, Fixed and Approach Spans: Metal Deck Girder, Fixed Main Spans: 1 Built By: Unknown One of two large high level rail bridges in St. Thomas, this bridge appears to be built of imported German steel.
Tansley Bridge / Dundas Street Bridge	Dundas Street (RR-5) Over Bronte Creek Burlington: Halton Region, Ontario Metal Continuous 16 Panel Rivet-Connected Warren Deck Truss, Fixed Length: 700 ft Main Spans: 4 Built 1948 By: Unknown Although it has been widened on one side with ugly beams, the original part of this bridge is a beautiful example of a deck truss bridge.
Thomas B. McQuesten High Level Bridge	York Boulevard Over Desjardins Canal Hamilton: Hamilton City, Ontario Metal Cantilever Rivet-Connected Deck Truss, Fixed Roadway: 54 ft Main Spans: 3 Built 1932 By: Hamilton Bridge Company of Hamilton, Ontario and James, Proctor, and Redfern of Toronto, Ontario This highly decorated landmark bridge is very beautiful and also has a high level of heritage and technological significance.

Wingham Railway Bridge	Railroad (Wingham Community Rail-Trail, Former Canadian National) Over Maitland River Wingham (North Huron): Huron County, Ontario Metal 10 Panel Pin-Connected Warren Deck Truss, Fixed and Approach Spans: Metal 8 Panel Rivet-Connected Warren Deck Truss, Fixed Main Spans: 1 Built 1915 By: Unknown A variety of spans were relocated here in 1915 to construct this unique bridge, including a rare pin-connected Warren truss.