City of London

Heritage Impact Assessment: Kensington Bridge

Prepared by:

AECOM Canada Ltd.
105 Commerce Valley Drive West, 7th Floor
Markham, ON L3T 7W3
Canada

T: 905.886.7022
F: 905.886.9494
www.aecom.com

Prepared for:

City of London

Date: April 2023

Project #: 60672088

Statement of Qualifications and Limitations

The attached Report (the "Report") has been prepared by AECOM Canada Ltd. ("AECOM") for the benefit of the Client ("Client") in accordance with the agreement between AECOM and Client, including the scope of work detailed therein (the "Agreement").

The information, data, recommendations, and conclusions contained in the Report (collectively, the "Information"):

- is subject to the scope, schedule, and other constraints and limitations in the Agreement and the qualifications contained in the Report (the "Limitations");
- represents AECOM's professional judgment in light of the Limitations and industry standards for the preparation of similar reports;
- may be based on information provided to AECOM which has not been independently verified;
- has not been updated since the date of issuance of the Report and its accuracy is limited to the time period and circumstances in which it was collected, processed, made or issued;
- must be read as a whole and sections thereof should not be read out of such context;
- was prepared for the specific purposes described in the Report and the Agreement; and
- in the case of subsurface, environmental or geotechnical conditions, may be based on limited testing and on the assumption that such conditions are uniform and not variable either geographically or over time.

AECOM shall be entitled to rely upon the accuracy and completeness of information that was provided to it and has no obligation to update such information. AECOM accepts no responsibility for any events or circumstances that may have occurred since the date on which the Report was prepared and, in the case of subsurface, environmental or geotechnical conditions, is not responsible for any variability in such conditions, geographically or over time.

AECOM agrees that the Report represents its professional judgement as described above and that the Information has been prepared for the specific purpose and use described in the Report and the Agreement, but AECOM makes no other representations, or any guarantees or warranties whatsoever, whether express or implied, with respect to the Report, the Information or any part thereof.

Without in any way limiting the generality of the foregoing, any estimates or opinions regarding probable construction costs or construction schedule provided by AECOM represent AECOM's professional judgement in light of its experience and the knowledge and information available to it at the time of preparation. Since AECOM has no control over market or economic conditions, prices for construction labour, equipment or materials or bidding procedures, AECOM, its directors, officers and employees are not able to, nor do they, make any representations, warranties or guarantees whatsoever, whether express or implied, with respect to such estimates or opinions, or their variance from actual construction costs or schedules, and accept no responsibility for any loss or damage arising therefrom or in any way related thereto. Persons relying on such estimates or opinions do so at their own risk.

Except (1) as agreed to in writing by AECOM and Client; (2) as required by-law; or (3) to the extent used by governmental reviewing agencies for the purpose of obtaining permits or approvals, the Report and the Information may be used and relied upon only by Client.

AECOM accepts no responsibility, and denies any liability whatsoever, to parties other than Client who may obtain access to the Report or the Information for any injury, loss or damage suffered by such parties arising from their use of, reliance upon, or decisions or actions based on the Report or any of the Information ("improper use of the Report"), except to the extent those parties have obtained the prior written consent of AECOM to use and rely upon the Report and the Information. Any injury, loss or damages arising from improper use of the Report shall be borne by the party making such use.

This Statement of Qualifications and Limitations is attached to and forms part of the Report and any use of the Report is subject to the terms hereof.

AECOM: 2015-04-13

Authors

Report Prepared By:

Insert electronic signature

Tara Jenkins, M.A., GPCertCHS, CAHP
Cultural Heritage Specialist

Report Checked By:

Insert electronic signature

John Pucchio, P. Eng.,
Senior Structural Engineer

Report Verified By:

Insert electronic signature

Adria Grant, M.A., CAHP
Associate Vice President
West & Ontario Department Manager

Table of Contents

page

1. Introduction 1
1.1 Study Purpose 1
1.2 Location and Physical Description of the Study Area 2
1.2.1 Location 2
1.2.2 Physical Description 2
1.3 Present Owner 6
1.4 Study Method 6
1.5 Summary of Potential Impacts 8

2. Policy Context 9
2.1 Environmental Assessment Act 9
2.2 City of London's *London Plan* 9
2.3 City of London's Register of Cultural Heritage Resources 10
2.4 City of London's *Strategic Plan* 10
2.5 Thames Valley Corridor Plan 10
2.6 The Thames River Heritage River Designation 12

3. Summary of Background Research and Analysis 13

4. Cultural Heritage Value 20
4.1 Statement of Cultural Heritage Value from the CHER 20
4.2 Blackfriars-Petersville Heritage Conservation District 20

5. Assessment of Existing Heritage Conditions 22
5.1 Context 22
5.2 Kensington Bridge 22

6. Description and Purpose of Proposed Activity 26
6.1 Description of the Property 26
6.1.1 Kensington Bridge Rehabilitation Scope of Work 0

7. Impact Assessment and Mitigation Measures 5
7.1 Assessment of Impacts 5
7.2 Impacts on Heritage Attributes on Kensington Bridge 5

7.3 Impacts on the Heritage Attributes of the Blackfriars/Petersville HCD 9
7.4 Downtown London HCD 9

8. Summary of Community Engagement 10
8.1 Context 10
8.2 Consultation 10

9. Recommendations 11

10. Photographs 13

11. Sources 29

List of Figures

Figure 1: Location of the Kensington Bridge on Current Topographic Map, outlined in red 4
Figure 2: Location of the Kensington Bridge on Current Aerial Photograph, outlined in red 5

List of Tables

Table 1: Potential impacts of each EA Alternative for Kensington Bridge 27
Table 2: Rehabilitation Plan based on the Single Structure Condition Report (AECOM 2021) 2
Table 3: Impacts of the 30% Detailed Design on Kensington Bridge 6
Table 4: Results of Engagement 10

Appendices

Appendix A. 1929 Original Design Drawings

Appendix B. Select 30% Detailed Design Drawings

Appendix C. Preferred Light Post Option

1. Introduction

1.1 Study Purpose

AECOM Canada Ltd. (AECOM) was retained by the City of London to conduct a Heritage Impact Assessment on Kensington Bridge (or the 'subject bridge') as part of the engineering services for the rehabilitation of the bridge as part of the Municipal Class Environmental Assessment ('MCEA'). The project is in Phase 3 which evaluates and identifies the Recommended Design Alternative from the Recommended Alternative Solution that was determined in Phase 2.

Kensington Bridge is designated under Part V of the *Ontario Heritage Act* as it is within the boundary of the Blackfriars/Petersville Heritage Conservation District (hereafter 'HCD'; By-law - 3437-179). Bridges over the Thames River are considered to contribute to the cultural heritage value of the HCD.[1] In addition, a Cultural Heritage Evaluation Report ('CHER') completed by AECOM in 2018 for the City of London determined the subject bridge meets five of the nine criteria prescribed in Ontario Regulation 9/06 of the *Ontario Heritage Act* and therefore is of significant cultural heritage value or interest.

Based on the cultural heritage significance of Kensington Bridge and deficiencies observed in the City of London Single Structure Condition Report (AECOM, June 2021), the bridge requires rehabilitation on several key components of the structure. In 2022, AECOM was contracted to develop the rehabilitation plan and design of Kensington Bridge in order to extend the service life of the structure for another 50 years. Therefore, this Heritage Impact Assessment ('HIA') as per Policy 565 of *The London Plan*, this HIA is required to assess the impacts of the Recommended Design Alternative on this cultural heritage resource and its heritage attributes as well as the character of the district more generally as per the Blackfriars/Petersville HCD Plan. The proposed rehabilitation work includes a complete concrete deck replacement, deck joint elimination, bearing replacement, ballast wall replacement, steel recoating and other major repairs including the replacement of the pedestrian railing, a new barrier system, and replacement of the lamp posts.

[1] The definition of a contributing property, as defined in the Blackfriars-Petersville HCD Plan is: "A property, structure, landscape element, or other attribute of a Heritage Conservation District that supports the identified cultural heritage values, character, and/or integrity of the Heritage Conservation District. Contributing resources are subject to the policies and guidelines for the conservation and alteration, and demolition. The bridges over the Thames (Blackfriars Bridge and Queens Avenue Bridge) are considered to be contributing resources and thus should be part of the district."

1.2 Location and Physical Description of the Study Area

1.2.1 Location

Kensington Bridge is shown on **Figure 1** and **Figure 2** which carries two lanes of eastbound traffic of Dundas Street into London's Downtown Core. It is considered a gateway structure between Blackfriars-Petersville HCD and the Downtown London HCD. The structure is located just north of the Forks of the Thames. The subject bridge is regarded as part of a group of bridges spanning the Thames River in the vicinity of the Forks of the Thames. This group includes the Wharncliffe Road Bridge (1958), Blackfriars Bridge (originally built in 1875), King Street Bridge (1897), Queen's Avenue Bridge (1973), Westminster Bridge (1977), Victoria Street Bridge (1926; now removed and new crossing underway), and the Canadian National Bridge over the main branch of the Thames River. These structures do not represent a family of bridges; however, they contribute to the character and significance of the Thames River and the understanding of the history and the evolution of the City of London.

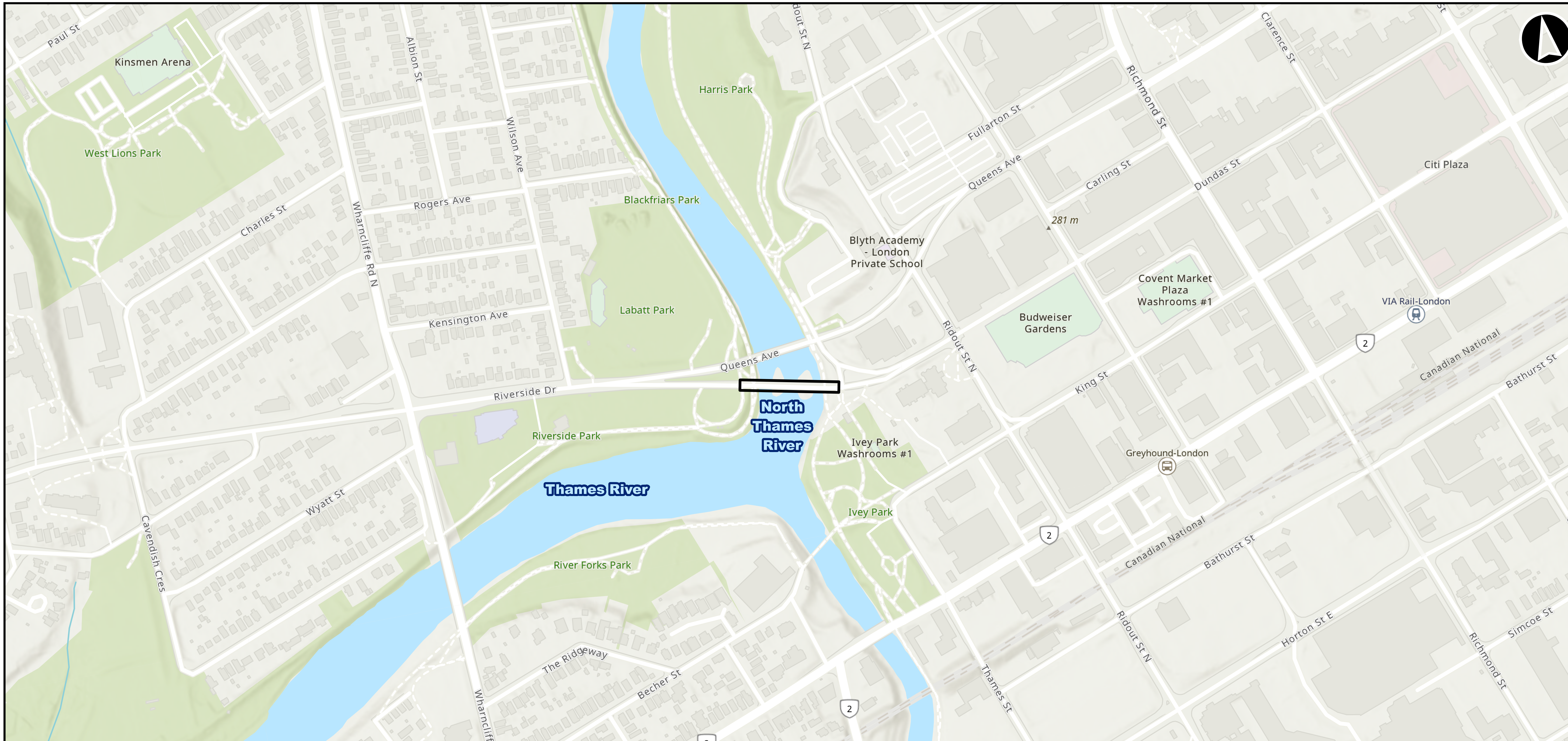
At the site of the existing Kensington Bridge, the Thames River flows through a wide channel with shallow sloped banks on the east side of the river. The west side of the Thames River is defined by the West London Dyke, which has recently undergone significant repairs and reconstruction. Two concrete piers, located in the river support the Kensington Bridge. The recreational path known as the Thames Valley Parkway ('TVP') extends along both the east and west banks of the Thames River at the Kensington Bridge. Both portions of the trail pass under the bridge.

1.2.2 Physical Description

Kensington Bridge is a three-span metal seven-panel rivet-connected modified Warren pony-truss structure built in 1930 by the Hamilton Bridge Company, a prolific Ontario bridge builder (**Photograph 1**, below). The bridge was designed by the Hamilton Bridge Company and by John Rostron who was the assistant engineer on structural works for the City of London (see **Appendix A**, the original design drawings). This three-span steel bridge was built to the same plan and around the same time as the skewed two-span Victoria Street Bridge (now removed and a new crossing underway). Kensington Bridge (and the former Victoria Street Bridge) is a rare variation of the Warren pony truss where the center panel "breaks" the Warren pattern and introduces a panel with two diagonals forming an "X" at this point, rather than continuing the Warren pattern. The superstructure rests upon two concrete abutments that are built into the earth embankments on either side of the Thames River. Two concrete piers are located within the river and support the bridge spans. It has a crossing length of 95.4 m and a deck travel width of 14.87 m. There is currently no posted load limit however historically, the bridge had a posted limit of 12 tones (AECOM, 2018a).

The design of Kensington Bridge has the feeling of a rural bridge that compliments the natural and scenic landscape of the Thames River Valley. In its setting, the structure is a landmark.

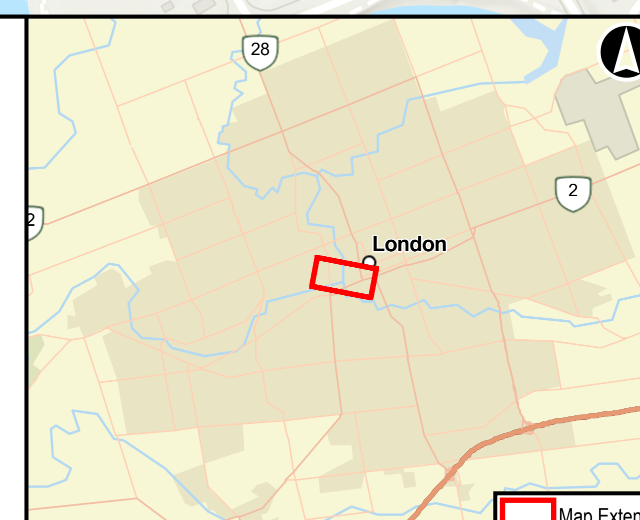
South Elevation of Kensington Bridge (AECOM, April 2022)



Basemaps provided by: Esri Community Maps Contributors, Province of Ontario, Esri Canada, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, NRCan, Parks Canada, Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen,

Legend

Subject Bridge



Kensington Bridge Heritage Impact Assessment

Location of the Kensington Bridge on Current Topographic Map

0 50 100 200 300 M

NAD 1983 UTM Zone 17N

Data Sources:
Contains Information licensed under the Open Government License Ontario.

Apr, 2023

P:60672088

Rev:00

1:5,000

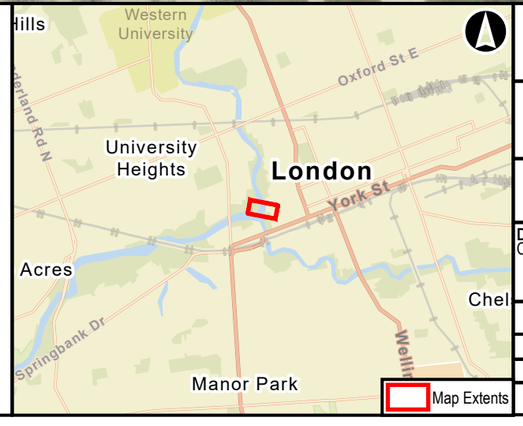
London CANADA

AECOM

Figure: 1

Legend

Subject Bridge



Kensington Bridge Heritage Impact Assessment

Location of the Kensington Bridge on Current Aerial Photograph

0 25 50 M

NAD 1983 UTM Zone 17N

Data Sources:
Contains Information licensed under the Open Government License Ontario.

Apr, 2023	
P:60672088	
Rev:00	
1:1,000	

London CANADA

AECOM

Figure: 2

1.3 Present Owner

Kensington Bridge is currently owned and maintained by the City of London.

1.4 Study Method

The objective of this HIA is to identify the potential impacts of the proposed rehabilitation to the heritage attributes identified for the structure. This document will provide:

- A location plan showing the contextual location of the site, including a description of the surrounding context;
- A historical summary of the history of the bridge (scoped from the CHER and Blackfriars/Petersville HCD Plan);
- A photographic record of the existing heritage conditions of the bridge;
- A review of the Statement of Significance from the CHER;
- Provisions of specifications for heritage sensitive removals/additions (i.e. handrailing replacement);
- A detailed description of the undertaking of the identified impacts;
- A summary of community engagement for the proposed undertaking; and
- A list of mitigation measures and recommendations to ensure that any impacts to the bridge are minimized.

The following key resources were reviewed for this HIA:

- The 30% Detailed Design for Kensington Bridge (prepared by AECOM, Oct. 2022)
- The Cultural Heritage Evaluation Report (CHER) and the Statement of Cultural Heritage Value and Heritage Attributes (AECOM, 2018a);
- The Blackfriars/Petersville Heritage Conservation District Study Report (Golder, 2014b)
- The Blackfriars/Petersville Heritage Conservation District Plan and Guidelines (Golder, 2014a)
- The Preliminary Structural Design Report Rev. 1, Kensington Bridge (1-BR-06), Riverside Drive over the Thames River (AECOM, 2018b)
- The City of London Structures Database, Single Structure Condition Report (AECOM, July 2021)

- 1928-1930 Original drawings of the superstructure and piers, by Hamilton Bridge Company and John R. Rostron (On file at the City of London) (see **Appendix A**)

A field review was completed by Tara Jenkins, AECOM Cultural Heritage Specialist on April 2, 2023, to document the existing heritage conditions of the bridge. The flooding of the Thames River imposed certain limitations on the photography.

Potential impacts to the subject bridge were evaluated according to the Ministry of Citizenship and Multiculturalism (MCM) *Ontario Heritage Toolkit, Heritage Resources in the Land Use Planning Process, InfoSheet #5 Heritage Impact Assessments and Conservation Plan*s (MCM 2006:3) and the Park's Canada *Standards and Guidelines for the Conservation of Historic Places in Canada* (2010). The MCM document defines "impact" as a change, either positive or negative, in an identified cultural heritage resource resulting from a particular activity. This HIA identifies *direct (physical) impacts*, *indirect impacts*, and/or *positive impacts* as the impact types that a construction component and/or activity may have on cultural heritage resources.

Impacts to heritage resources may be direct or indirect. Direct adverse impacts include (MCM 2006):

- Destruction, removal or relocation of any, or part of any, significant heritage attributes or features
- Alteration that is not sympathetic, or is incompatible, with the historic fabric or appearance

Indirect adverse impacts to cultural heritage resources may result in the direct destruction or alteration of a feature or its heritage attributes, thereby affecting the cultural heritage value of a property. Indirect impacts include (MCM, 2006):

- Shadows created that alter the appearance of a heritage attribute or change the exposure or visibility of a natural feature or plantings, such as a garden
- Isolation of a heritage attribute from its surrounding environment, context, or a significant relationship
- Direct or indirect obstruction of significant views or vistas from, within, or to a built or natural heritage feature
- A change in land use such as rezoning a battlefield from open space to residential use, allowing new development or site alteration to fill in the formerly open spaces
- Land disturbances such as a change in grade that alters soils, and drainage patterns that adversely affect an archaeological resource

A direct (physical) negative impact has a permanent and irreversible negative effect on the cultural heritage value or interest of a structure, or results in the loss of a heritage attribute. An indirect negative impact is the result of an activity on or near the property that may adversely affect its cultural heritage value or interest and/or heritage attributes. A positive impact will conserve or enhance the cultural heritage value or interest and/or heritage attributes of the property.

Where negative impacts of the rehabilitation on Kensington Bridge and/or its heritage attributes are identified, mitigative or avoidance measures or alternative development or site alteration approaches will be proposed. In addition, conservation options as outlined in the *Ontario Heritage Bridge Program* (MCC, 1991) which is regarded as the current best practice for conserving heritage bridges in Ontario and ensures that heritage concerns and appropriate mitigation options are considered.

1.5 Summary of Potential Impacts

These impacts were identified based on the 30% Detailed Design drawings for the rehabilitation of this bridge. Heritage attributes (see **Section 4**) that will be directly impacted by the project include:

Engineering Value:

- Decorative lamp posts in the centre of the bridge spans
- Handrailing original to the design of the bridge

The removal or demolition of the Kensington Bridge is not being considered. The detailed interventions of the proposed undertaking are discussed further in **Section 6.1.1**.

2. Policy Context

2.1 Environmental Assessment Act

This report was prepared to satisfy cultural heritage reporting requirements undertaken as part of the Ontario EA process. Pursuant to the Environmental Assessment Act (R.S.O. 1990, Chapter E. 18), applicable infrastructure improvements and development projects are subject to appropriate studies to evaluate and assess the potential related impacts of a project on the social, economic, or cultural environment, (i.e. the cultural heritage of an area). Infrastructure improvement projects have the potential to impact cultural heritage resources in various ways including, but not limited to:

1. Loss or displacement of cultural resources through removal or demolition;
2. Disruption of cultural resources due to the introduction of physical, visual, audible, or atmospheric elements that are not in keeping with the significance of the resource and its contextual surroundings.

2.2 City of London's *London Plan*

The *London Plan* is the City's Official Plan. The *London Plan* sets out a new approach for planning in London which emphasizes growing inward and upward, so that the City can reduce the costs of growth, create walkable communities, revitalize urban neighbourhoods and business areas, protect farmlands, and reduce greenhouse gases and energy consumption. The plan sets out to conserve the City's cultural heritage and protect environmental areas, hazard lands, and natural resources. The plan has currently been approved by the Ontario Ministry of Municipal Affairs.

Specifically related to heritage conservation, the *London Plan* outlines a number of policies related to the conservation of cultural heritage resources within the City. Most relevant to the Kensington Bridge MCEA, is the General Cultural Heritage Policies related to Design, which note:

> *(565_) New development, redevelopment, and all civic works and projects on and adjacent to heritage designated properties and properties listed on the Register will be design to protect the heritage attributes and character of those resources, to minimize visual and physical impact on these resources. A heritage impact assessment will be required for new development on and adjacent to heritage designated properties and properties listed on the Register to assess potential impacts, and explore alternative development approaches and mitigation measures to address any impact to the cultural heritage resource and its heritage attributes.*

(586_) The City shall not permit development and site alteration on adjacent lands to heritage designated properties or properties listed on the Register except where the proposed development and site alteration has been evaluated and it has been demonstrated that the heritage attributes of the heritage designated properties or properties listed on the Register will be conserved.

2.3 City of London's Register of Cultural Heritage Resources

The City of London's Register of Cultural Heritage Resources (hereafter the 'Heritage Register') was adopted pursuant to Section 27 of the Ontario Heritage Act by Municipal Council on March 26, 2007. The Register is a publicly accessible register of properties of cultural heritage value or interest. The Register includes properties that are Listed (Section 27 of the Ontario Heritage Act), individually designated properties under Part IV of the Ontario Heritage Act and/or designated as HCDs under Part V of the Ontario Heritage Act. The Register is a living document subject to changes and approvals by City Council, advised by CACP.

Kensington Bridge is presently on the Heritage Register as it is designated Part V of the Ontario Heritage Act; in the Blackfriars/Petersville HCD (see **Section 4** for the Statement of Cultural Heritage Value).

2.4 City of London's *Strategic Plan*

The *Strategic Plan for the City of London* (2015-2019) sets out a broad direction for the future of London. It identifies London City Council's vision, mission, values, strategic areas for focus and the specific strategies that define how Council and Administration will respond to the needs and aspirations of Londoners. As such, as part of the City's initiative for "Building a Sustainable City," the Strategic Plan identifies the management of upgrading of transportation infrastructure such as heritage bridges, and more specifically, the Heritage Bridge Preservation Strategy (Blackfriars Bridge and Meadowlily Footbridge) as a part of its focus on robust infrastructure.

2.5 Thames Valley Corridor Plan

The *Thames Valley Corridor Plan* (2011) is a key planning tool that provides recommendations on enhancing and protecting the corridors features and functions. Its vision is the following:

> The Thames Valley Corridor is London's most important natural, cultural, recreational and aesthetic resource. The City and community partners will preserve and enhance the natural environment, Thames River health, vistas, beauty and cultural heritage while accommodating compatible infrastructure, accessibility and recreation.

The plans make recommendations on bridges and valley crossings and are as follows:

B-1 Maintain and enhance views from the bridges into the Thames River Valley, and views of the bridges from existing vantage points. New or reconstructed bridges or valley crossings should create new vistas into the valley and create additional vantage points where possible.

B-2 New or reconstructed bridges or valley crossings should respect and protect the adjacent natural heritage features and functions, and methods for minimizing impacts should be employed in the design and construction of all transportation, communication, sewerage, or other infrastructure that cross the valley.

B-3 Preserve/maintain historic features, proportions, and structural attributes of the existing bridges, where feasible and with consideration to public safety and structural integrity.

B-4 Consider aesthetic bridge design in the bridge structure and components such as decorative railings, columns, or panel treatments as an enhancement to existing bridges, or in bridge reconstruction as part of a program of public art. Aesthetic bridge design should be in accordance with the 'Aesthetic Guidelines for Bridges' produced by the Ministry of Transportation, or design guidelines prepared by the City in the future.

B-5 Continue to celebrate and promote awareness of the history of London's bridges through bridge naming, heritage and interpretive plaques, and published material such as the Urban League of London's 'Celebrate the Thames' Thames Topics brochures (Booklet #6 Bridges). Bridge signage should be visible to vehicular traffic, boaters, and users of the Thames Valley Parkway system.

B-6 Identify key areas adjacent to Thames River bridges and crossings for urban design and ecological and/or decorative landscape enhancements, e.g., within the valley, or in open space lands associated with the road network.

B-7 For new or reconstructed bridges, consider opportunities for divided lane bridges to allow natural valley vegetation to penetrate road infrastructure (for example the City of Mississauga – Burnhamthorpe Road Bridge over the Credit River).

B-8 Urban land uses adjacent to the crossings and the Thames River should consider the maintenance of views to the river valley and demonstrate a high quality of design and aesthetics in built form and landscape.

B-9 Protect historic and distinctive bridges and features, including those of the modern period, through formal recognition. Heritage Bridge Evaluations should be completed for all bridges that have not been ranked, in order to identify their heritage value. Until such time as the City develops heritage bridge assessment guidelines, the assessments should be completed following the Ontario Heritage Bridge Guidelines for Provincially Owned Bridges (2008). The London Advisory Committee on Heritage shall review all Heritage Bridge Evaluations.

B-10 Integrate pedestrian/bike friendly measures into all bridge crossings and underpasses to facilitate connectivity.

2.6 The Thames River Heritage River Designation

The Thames River was formally designated a Canadian Heritage River on August 14, 2000. The designation was announced by the Minister of Canadian Heritage, the Honourable Sheila Copps and Ontario's Minister of Natural Resources, the Honourable John Snobelen. The Thames River is recognized as a heritage river for its outstanding contributions to the country's cultural heritage, natural heritage, and recreational opportunities. The broad goal of managing the Thames River as a Canadian Heritage River is: "To increase the appreciation, enjoyment and stewardship of the natural, and cultural heritage and recreational opportunities of the Thames River and its watershed through community cooperation and involvement" (Quinlan 2013:2). Kensington Bridge crosses the North Branch of the Thames River, near the Forks of the Thames.

3. Summary of Background Research and Analysis

The following section extrapolates from relevant sections in the CHER (AECOM, 2018a) and the Blackfriars-Petersville HCD Plan (Golder, 2014a). A more thorough historical summary of the local historical context, the history of bridge building in London and Ontario, as well as relevant organizations including the Hamilton Bridge Works Company, and John R. Rostron, are documented in the CHER. The section below has been included for specific contextual purposes related to the bridge itself.

The Kensington Bridge, which was inaugurated on October 4, 1930, is a modified steel Warren pony-truss bridge with three spans. It serves as an overpass for Dundas Street (Riverside Drive) over the North Branch of the Thames River and is the third bridge crossing in this location.

In 1871, the first crossing at this location was built as a two-span timber truss bridge (**Image 1**). This resulted in a new community extending west along the new east-west route. Popularly known as Kensington, the new community merged with Petersville in 1875 to form an incorporated village, called Petersville until 1881, when it changed its name to London West. Therefore, the 1871 bridge connected London to the Kensington/Petersville area and was appropriately named after the name of the area that it was built to service.

Image 1: Historical view from the west side of the Thames River showing the 1871 Kensington Bridge as well as Dundas Street rising up to Ridout Street at right (Western Archives. Western University. Regional Photograph Collection. RC80296)

In 1883, the timber bridge washed away in a flood event and a new wrought iron bridge was built in 1884 as a three-span Pratt truss bridge[2]. The Pratt truss has vertical beams in compression and diagonal wrought iron tie rods in tension (Cuming,1983). The 1884 Pratt truss bridge was built by the Dominion Bridge Company with the assistance of Isaac Crouse, a local 19th-century bridge expert, most notably associated with the nearby Blackfriars Bridge for $11,945 (Brock, 2011) (**Image 2**). In addition, as a result of the flood, timber and earthen embankments and an esplanade were erected between Napier Street and the Kensington Bridge.

Prior to 1895, the City would not allow the London Street Railway (LSR) to build streetcar tracks on the bridge, so the tracks were built along Riverside Drive/Dundas Street, and passengers were required to walk across a sidewalk on the side of the bridge. In 1895, the LSR built a bridge on the south side of the 1884 iron bridge in order to accommodate streetcar traffic. The LSR was carried on a new three-span bridge built in what looks like an identical fashion as the 1884 Pratt truss bridge, although with timber cribs for piers (**Image 2** and **Image 3**).

[2] The CHER had referred to this bridge as a Warren pony truss, but the span seen clearly in Image 4 below shows a Pratt truss type. The CHER referred to the 1884 iron bridge as a two-span, but it was three as indicated in Image 4 below and the Image 4 in the CHER on page 10.

Image 2: Photo-postcard view looking southwesterly toward the 1884 Kensington Bridge, 1908 (Western Archives. Western University, 1908 Doug Mercer Collection)

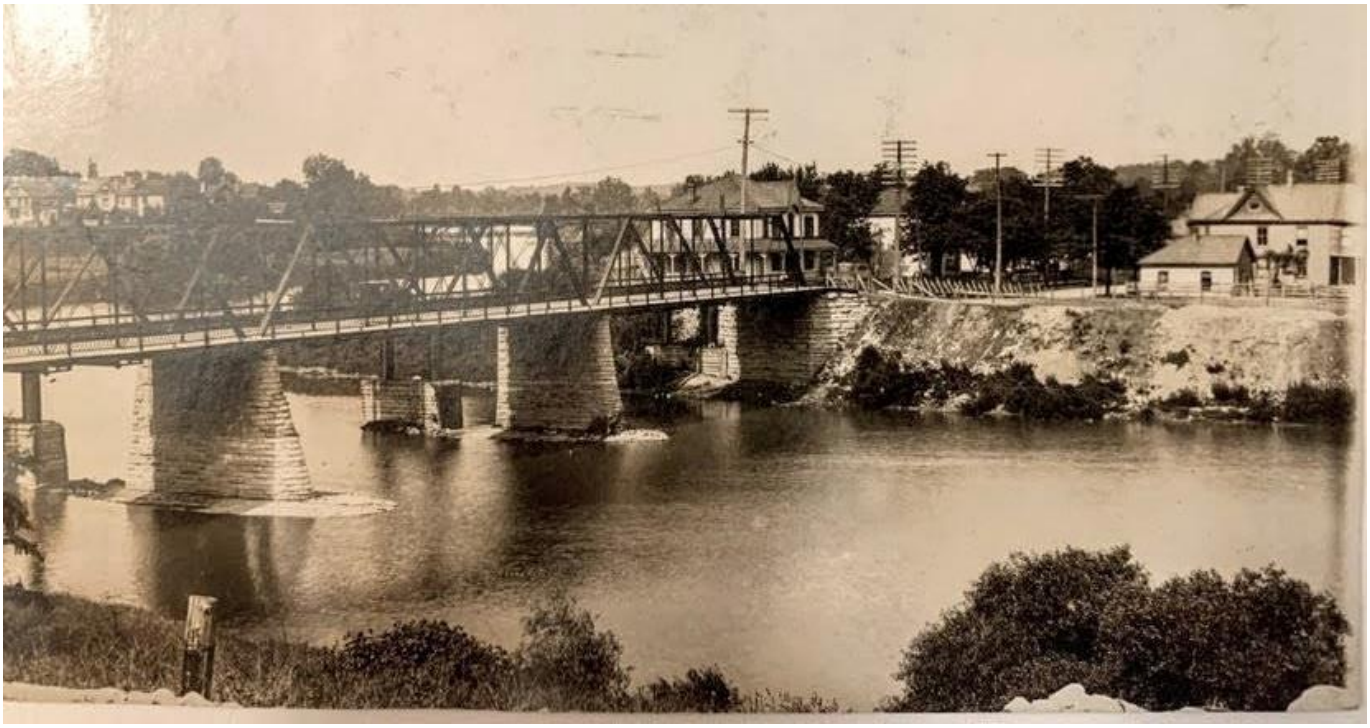


Image 3: Detail of the 1912 revised 1922 Fire Insurance Plan showing the 1884 Kensington Bridge and adjacent LDR Bridge

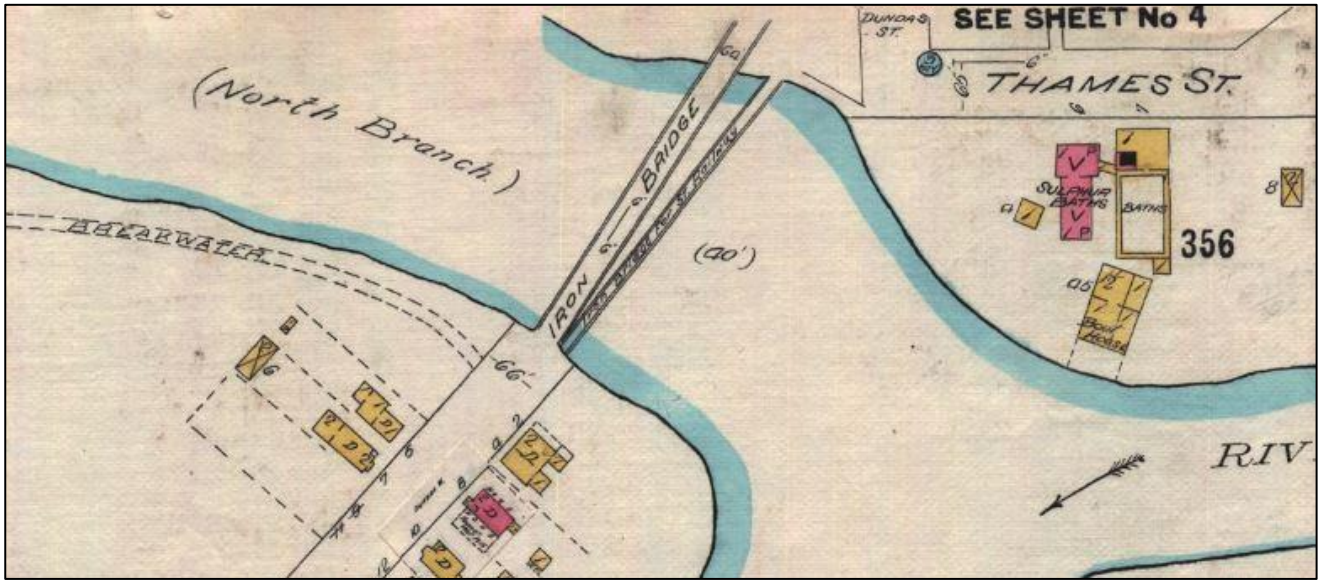


Image 4: View looking eastward toward Downtown London of the 1895 LSR bridge (on right) and the 1884 three-span Pratt truss bridge (on left), ca. 1923 (Western Archives. Western University. Regional Photograph Collection. RC60082)[3]

In 1929, the 1884 Pratt truss bridge and the 1895 LSR bridge were dismantled to make room for a new structure. The current existing bridge, still named Kensington Bridge, was built in 1930 as the third crossing carrying Dundas Street over the Thames River. Based on the original design drawings in **Appendix A**, the expansion aprons, handrail, stringers, floor beams, fascia girders, brackets, masonry diagram of the ballast walls, and trusses were designed by the Hamilton Bridge Company (approved 1929/1930). The concrete cement piers, the joints over the piers were designed by John R. Rostron, the City municipal engineer, who also designed with the Hamilton Bridge Company the Victoria Street Bridge in 1926. The Hamilton Bridge Company completed the erection diagram which noted that the bridge would be all rivet connected except for the handrails to posts and the expansion aprons to the stringers, which were bolted. The bridge was painted with two coats of Battleship Grey with slightly different shades. The lighter shade was to

[3] Vintage London, Facebook

be applied first. There were two large decorative pillars with ornate lamps erected at both ends of the bridge within the sidewalk area (**Image 5**). The pillars rose above the trusses. They were removed in 2006 and the date stone was salvaged and incorporated into the sidewalk (also no longer extant). The remnants of the posts have been entirely removed from the bridge in the early 21st century.

Image 5: Pillar with load limit and a date stone "Erected 1930" (Western University, London Free Press, January 9, 1960)

Kensington and Victoria Street bridges are almost identical with just an additional span on the subject bridge. The bridges are designed as modified steel Warren pony-truss bridges which were designed to withstand flooding (**Image 7**). Kensington Bridge, like many surviving metal truss bridges in Ontario, was built by the Hamilton Bridge Company. However, the Kensington Bridge is a rare variation of the modified Warren pony truss where the center panel "break" the Warren pattern and introduces a panel with two diagonals forming an "X", rather than continuing the Warren pattern (**Image 6**).

Image 6: Excerpt from the original drawings by municipal engineer John R. Rostron of Kensington Bridge showing the symmetrical truss plan and the "X"s, drawn in 1928 (On file at the City of London)

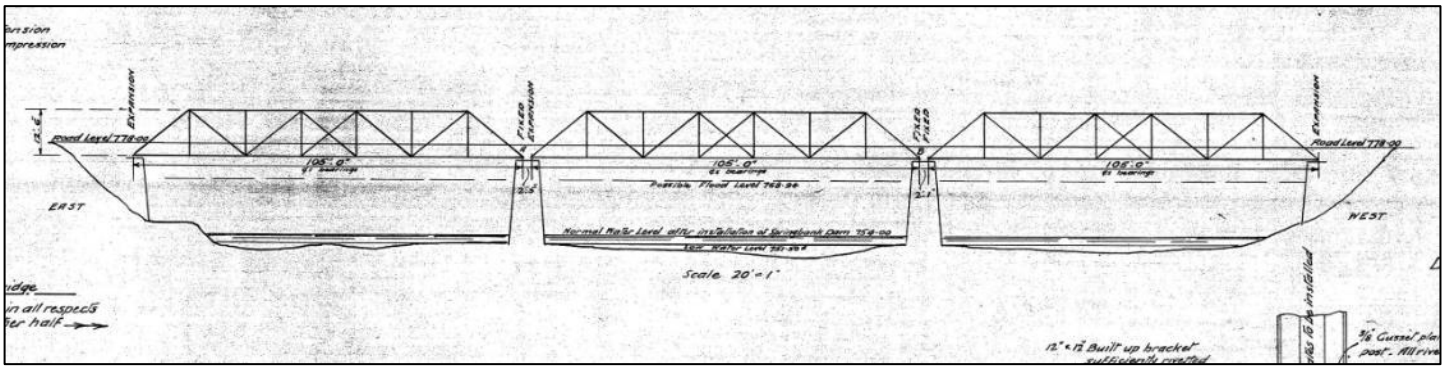


Image 7: Historical view in 1956 showing the existing Kensington Bridge with the concrete end posts and lighting systems that are no longer in place (London Free Press, January 26, 1956; Western University Archives, Negative Collection)[4]

[4] Vintage London, Facebook

4. Cultural Heritage Value

4.1 Statement of Cultural Heritage Value from the CHER

The draft Statement of Cultural Heritage Value was directly excerpted from the CHER (AECOM, 2018).

Description:

The Kensington Bridge is a three-span, modified Warren steel-pony truss bridge that carries Riverside Drive over the North Branch of the Thames River. The structure was built in 1930 as the third crossing of the Thames River at this location. It was designed by municipal engineer John R. Rostron, known also for his role is designing the nearby Victoria Bridge. The structure acts as a gateway structure between the Blackfriars/Petersville Heritage Conservation District and the Downtown London Heritage Conservation District.

Heritage Attributes:

The following are the heritage attributes of the Kensington Bridge:

- Location and setting of the bridge at the Forks of the Thames;
- Riveted, modified Warren painted steel pony truss structure including;
  - Three spans of 32m (104 feet) each and overall length of 96m (315 feet);
  - Steel top and bottom chords;
  - Riveted steel lattice details on underside of steel chords;
  - Steel gusset plates
- Remnants of decorative concrete and limestone end posts at west end of the bridge;
- Decorative lamp posts in centre of the bridge spans;
- Hand railings original to the design of the bridge.

4.2 Blackfriars-Petersville Heritage Conservation District

All properties included within the as part of the Blackfriars/Petersville HCD are designated under Part V of the *Ontario Heritage Act*. Therefore, Kensington Bridge is designated under Part V of the *Ontario Heritage Act* since the Plan includes it in its boundary. Furthermore, the Kensington Bridge provides a link between two of the City's HCDs; The Blackfriars/Petersville HCD is located immediately west of the Thames River, while the Downtown London HCD is located east of the Thames River.

The Blackfriars and Queens Avenue bridges over the Thames River are considered to be contributing resources as they enhance the sense of arrival into the district (Golder, 2014:92). [5] Kensington Bridge is not listed specifically as a heritage attribute or contributing to the Blackfriars/Petersville HCD, but the bridge does have a direct historical relationship with the Thames River, a heritage attribute of the district. The heritage attributes that contribute to the cultural heritage value of the Blackfriars/Petersville HCD are provided below:

- Various renditions of Ontario Cottage dwellings and similar styles;
- Dwellings that have survived the 1883 and 1937 floods, respectively;
- Modest, economical home building styles and techniques that are representative of the area's early working-class settlers;
- Building characteristics common to the district including form, massing, type, scale, roof pitches, and setbacks;
- Architectural details including buff brick materials, keyhole windows and historic fenestration,
  coloured and stained glass transoms, fanlights, London doors, porches, and bargeboard and
  gable detailing;
- Early historic suburban development patterns represented by the narrow internal streets, grids, walkable nature of the area, and survey types;
- Proximity and historical relationship with the Thames River;
- Long viewsheds along the narrow streets that terminate with views of the Thames River dyke
  system;
- Associated greenways along the Thames River dyke system;
- Enclosure provided by street trees and mature trees within the front and back yards of residential properties;
- Public greenspaces and parks;
- Blackfriars Bridge;
- Labatt Park;
- Jeanne-Sauvé Public School (former Empress Avenue School); and
- St. Georges Anglican Church. (Golder 2014)

[5] The definition of a contributing property, as defined in the Blackfriars-Petersville HCD Plan is: "A property, structure, landscape element, or other attribute of a Heritage Conservation District that supports the identified cultural heritage values, character, and/or integrity of the Heritage Conservation District. Contributing resources are subject to the policies and guidelines for the conservation and alteration, and demolition. The bridges over the Thames (Blackfriars and Queens) are considered to be contributing resources and thus should be part of the district."

5. Assessment of Existing Heritage Conditions

The assessment of existing heritage conditions was completed by Tara Jenkins, AECOM Cultural Heritage Specialist, on April 3, 2023. The assessment of the existing conditions was completed by foot, from the public rights-of-way. There were limitations to the on-site investigation as the Thames River was flooding and the TVP on the west side of the bridge was unsafe. Photographs taken in 2022 by AECOM's structural team were used to show the west abutment and wingwall.

At the time of the field review, there were no significant changes in the existing physical or material condition of the bridge from that described in the 2021 Single Structure Condition Report by AECOM.

For ease of description, the bridge is considered to have an east-west orientation. Select photographic documentation of the structure is provided in **Section 10**.

5.1 Context

Kensington Bridge is located in an urban area of London and carries Dundas Street across the North Branch of the Thames River, at the Forks of the Thames (**Photograph 1**). Two Bridge signs at the end of each of bridge indicate the crossing of the Thames River (**Photograph 2** and **Photograph 18).** Within the Thames River landscape, the Forks of the Thames is historically known as the birthplace of the City of London and visually forms a key landscape component in the area. Various bridge crossings have been built within the vicinity of the Forks of the Thames and they continue to be a key built component spanning the river, connecting the Downtown Core of London to the surrounding areas. The Queen's Avenue Bridge, located immediately north of the Kensington Bridge is the closest structure to the north, while the closest bridge to the south includes the Westminster Bridge. To the west, the Wharncliffe Road Bridge carries Wharncliffe Road South over the Thames River.

The TVP is located on the east and west banks of the Thames River (**Photograph 20**). It provides the local community with a walking trail to connect the residential and commercial areas. At the site of the existing Kensington Bridge, the Thames River flows through a wide channel with shallow sloped banks on the east side of the river. The west side of the Thames River is defined by the West London Dyke, which has recently undergone significant repairs and reconstruction. Two concrete piers, located within the river support the Kensington Bridge (**Photograph 19**).

5.2 Kensington Bridge

The Kensington Bridge is a three-span, seven-panel, rivet-connected steel Warren pony truss bridge, constructed in 1930.

The west approach to the bridge is generally level (**Photograph 2**). East of the bridge, Dundas Street curves north to align with Dundas Street in the Downtown Core. As it curves, the grade rises to meet with Ridout Street.

The steel end posts, top chord, bottom chord, and floor beam members of the superstructure consist of built-up structural steel sections (plates and angles) with riveted connections, while the stringers are rolled steel sections (**Photograph 3** and **Photograph 4**). The underside of the end posts and top chords have decorative lattice (**Photograph 13**). Unlike most verticals and diagonals on truss bridges, the vertical and diagonal members on the Kensington Bridge consist of heavy steel sections with riveted connections. The use of these members gives the truss structure a much more stout and heavy appearance than most truss bridges. Each truss is a simply supported structure with a span length of 32.00 m (centreline of bearings). Recent measurements of the bridge which account for additional space between the bearings at each truss, determine the total overall span length for the bridge is 97.38 m. The trusses are transversely spaced at 10.57 m and the overall width of the bridge is 14.94 m including the sidewalks.

There are cantilevered sidewalks and steel pedestrian handrailings located outside the main trusses (**Photograph 14**). Each sidewalk measures approximately 1.8 m in width. In addition, two decorative lampposts are located in the centre of the bridge between trusses and appear to have been a part of the original construction of the bridge with the exception of the light fixtures which have been replaced as well as the decorative arms. Attached to the handrailing system over the wingwalls, are two original concrete posts at the west end of the bridge and one on the east side of the bridge (although seen in **Image 7** the southeast concrete end post has been removed).

The existing deck consists of a 215 mm thick exposed reinforced concrete slab (165 mm original deck thickness and 50 mm thick overlay) supported on 11 longitudinal steel stringers (**Photograph 25**). The stringers are simply supported at each transverse floor beam. The steel floor beams connect to the bottom chords at truss joint locations. Between the floor beams are the longitudinal steel stringers that support the bridge deck. Two of the stringers located on each side of the structure centreline have a greater beam depth (compared to the other stringers) and originally supported streetcar tracks.

The superstructure rests on reinforced concrete abutments that are built into the earthen embankments. The east abutment and wingwalls are directly abutting the TVP on the east side of the river. In 2011, the face of the abutment was rehabilitated, and lettering was added to the abutment, visible from the TVP. The lettering includes “KENSINGTON BRIDGE DUNDAS STREET” along with two markers that show the food levels of two of London’s most historic floods, in 1883 and 1937 (**Photograph 21**). The west abutment is also constructed immediately adjacent to the TVP. As part of the rehabilitation efforts in 2011, the face of the abutment was also reconstructed with concrete block, configured to have the appearance of an ashlar stone abutment (**Photograph 28**). The facing of the abutment is also consistent with the facing of the

dyke walls. Two concrete piers are located within the river to support the bridge spans (**Photograph 24**).

The bridge is currently used as a vehicular bridge that accommodates two lanes of traffic, as well as a cycle lane and sidewalks. The Thames River signage is present at the bridge which indicates a crossing since 1872. The CHER noted, there are no remnants of the decorative concrete and limestone end posts at the west end of the bridge.

This assessment of existing heritage conditions indicates that the majority of the key members are original to the bridge, however, components of the bridge have undergone rehabilitation with a few removals including:

1960- Replacement of the concrete deck and expansion joints, replacement of select longitudinal stringers, the addition of shear connectors to other stringers (for composite action), general structural steel repairs and strengthening of truss members/connection

1985- Structural steel cleaned and recoated

1996 - Structural steel cleaned and recoated

2006 - Repaired concrete curbing and sidewalks & removed electrical boxes in sidewalks

2008 - Repair concrete bearing seats

2010 - Abutment refacing

2012 - Replaced expansion joints

2014 - Joint replacement over piers

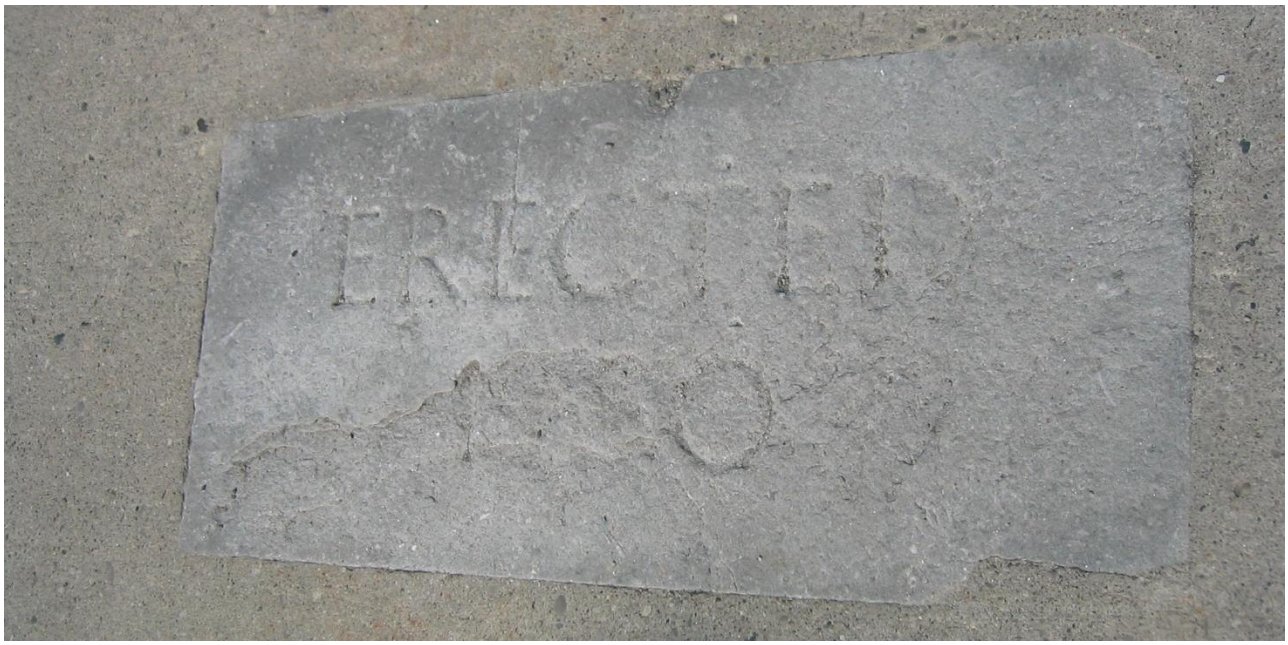
2018 - Repair deck delamination

2019 - Deck delamination and joint repairs

Date unknown (post-1956) – original posts included large ornate lamps as a gateway-like feature at each approach (seen in **Image 7**, above) were removed.

Date unknown (post-2005)- date stone in the sidewalk with “Erected 1930” (**Image 8**, below), salvaged from the pillar as seen in **Image 5** above, has been removed or covered over.

Image 8: Date stone in sidewalk, photographed by Nathan Holth on July 12, 2005 (historicbridges.org)



.

6. Description and Purpose of Proposed Activity

6.1 Description of the Property

The MCEA study is completed in accordance with the Ontario Environmental Assessment Act and will fulfill the requirements of the MCEA process for Schedule C. The project includes the following phases:

Phase 1: Problem and Opportunity: Review background planning and policy documents, identify study area needs, problems and opportunities

Phase 2: Alternative Solutions- Review the existing environment, identify, and evaluate feasible alternative solutions and select the Recommended Alternative Solution.

Phase 3: Alternative Design Concepts- Develop and evaluate alternative designs, identify environmental impacts and required mitigation measures, and select the Recommend Design Alternative.

Phase 4: Environmental Study Report- Document the decision making process in an ESR and publish the Notice of Completion for a 30-day comment period.

Phases 1 and 2 for this MCEA have been completed. In Phase 2, a Public Information Centre (PIC #1) was held, and the following Alternative Planning Solutions were considered:

1. Do nothing
2. Rehabilitate the Existing Structure
3. Replace the Structure

The MCEA evaluated the alternatives in Phase 2 for their varying impacts to the environment and socio-economic impacts. The following table summarizes the evaluation of the alternatives for cultural heritage:

Table 1: Potential impacts of each EA Alternative for Kensington Bridge

Alternative	Replacement/ Rehabilitation	Description of Alternative	Potential Impacts to Heritage Value
1. Do nothing	-	The alternative would leave the bridge *in-situ* in its existing condition with no major modifications undertaken.	A “do-nothing” approach for Kensington Bridge was screened out at an early stage due to the age of the structure and deficiencies documented in a 2021 Single Structure Condition Report. Kensington needs rehabilitation on several key components of the structure in order to achieve a minimum 50-year service life objective. A “do-nothing” approach would eventually require the permanent closure of the bridge as the structure continues to deteriorate. Therefore, this was considered a viable option.
2. Rehabilitate the Existing Structure	Rehabilitation	This alternative involves completing the rehabilitation of the existing structure to achieve a minimum 50-year service objective. This would include deck replacement, patch repairs, joint elimination, structural steel strengthening and recoating, substructure repairs, replacement of street lighting, replacement of the railing system, and installation of a metal tube barrier system.	Impacts to the cultural heritage value of the bridge are anticipated to be low. Some heritage attributes will be affected by rehabilitation, but the general appearance of the bridge will be conserved. Therefore, this alternative was selected as the Recommended Alternative Solution.

Alternative	Replacement/ Rehabilitation	Description of Alternative	Potential Impacts to Heritage Value
3. a) Eliminate the Bridge, Build a new Bridge on the Existing Alignment	Replacement	This alternative would result in the demolition of the existing Kensington Bridge and the construction of a new bridge on its alignment.	Impacts to the cultural heritage value would be high as a result of this alternative. All physical heritage attributes would be lost, with the exception of conserving this alignment as a crossing as it has been for 152 years. Therefore, this was not considered a viable option.
3 b) New bridge on a new alignment to the south	Replacement	This alternative would result in the demolition of the existing Kensington Bridge and the construction of a new bridge on a new alignment, south of the existing bridge.	Impacts to the cultural heritage value would be very high as a result of this alternative. All heritage attributes would be lost. Therefore, this was not considered a viable option.

Currently, the AECOM project team is in Phase 4. At the outset of the design process, AECOM provided input to the bridge design team on how to best rehabilitate the bridge with heritage considerations that could potentially conserve several elements of the existing bridge. This Heritage Impact Assessment is based on the 30% Detailed Design which carries forward the heritage attributes of this significant heritage bridge.

6.1.1 Kensington Bridge Rehabilitation Scope of Work

In Phase 3 of the MCEA process, another Public Information Centre (PIC #2) was held which looked at design alternatives on top of the base scope of rehabilitation. The plan is to continue the use of this bridge *in-situ* for vehicular use. The result was the Recommend Design Alternative for Kensington Bridge which includes:

Base Scope:

- Deck replacement
- Bridge jacking and bearing replacement
- Concrete patch repairs on the abutments and piers
- Elimination of the deck joints
- Minor structural steel strengthening
- Recoating of all structural steel with similar grey colour to the existing
- Substructure repairs
- Replacement of the street lighting on the bridge with a comparable new light with decorative sleaves

It should be noted, after the structural engineers reviewed the existing bridge arrangement, it was found that the bridge could be converted to a semi-integral abutment bridge. This means that the deck will then extend beyond the abutments and modification of the ballast walls at both ends of the bridge to suit. The deck expansion joints will be removed and replaced with a flexible link slabs.

Additional Scope:

- Install a new metal tube barrier system to protect the truss
- Replace the handrailing system
- Install decorative concrete pillars on the west end bridge, outside of the walking area

The new metal tube railing system is required for safety to keep the protection of vehicular and cyclist impacts to the trusses. The new barrier will be adjacent to the curb on the north side and will be adjacent to the trusses on the south side of the bridge. The barrier will not attach to the trusses. The tube system has less aesthetic impact than a concrete parapet wall. Therefore, the installation will not directly impact the trusses, it will preserve views of the bridge and Thames River and will help maintain its service life.

Two new proposed concrete pillars without light fixtures are proposed as additional work. The proposed concrete pillars are viewed as a positive opportunity to replicate the original decorative concrete and limestone pillars that were removed in the 21st century.[6] Since the original drawings do not include the design of the pillars, the design for the new pillars should be replicated (visually similar) through the use of historical photographs. The design should consider reincorporating a date stone. The pillars will be fully detached from the bridge and will be constructed at the west end of the bridge only outside of the sidewalk. The pillars will add value to the bridge as a gateway feature into the Downtown core of London.

Overall, the proposed rehabilitation plan fits with the conservation option (3) in the *Ontario Heritage Bridge Program* to retain the bridge with sympathetic modifications (MCM, 1991). This approach will ensure all modifications are sympathetic and will ensure the cultural heritage value of the bridge is conserved. The proposed rehabilitation is also in line with the *Thames Valley Corridor Plan* (2011) which promotes a design with aesthetic value including decorative railings and enhancing a bridge crossing through design (i.e., adding gateway pillars).

Table 2 outlines the deficiencies on the superstructure and substructure documented by AECOM and the recommended rehabilitation.

[6] Removed prior to 2005 based on Nathan Holth's documentation of the bridge in 2005 when the date stone was within the sidewalk.

Table 2: Rehabilitation Plan based on the Single Structure Condition Report (AECOM 2021)		
Element Name	**Deficiency**	**Recommended Repair/Rehabilitation**
Superstructure		
Top Chord	Fair condition, light to medium corrosion, pealing of coating	Repair steel elements where required
Bottom Chord	Poor condition, section loss on bottom chord/perforations adjacent to abutments and piers, lacing bars severely corroded with perforations	Abrasive blast cleaning of steel, localized replacement of steel members on the bottom chord
Diagonal Chords	Fair condition- light to medium corrosion, pealing of coating	Repair steel elements where required (further review in detailed design)- plates may be required and welded to the diagonal members (obscured from view)
Floor Beams	Fair condition, light to medium corrosion, flaking of the steel, general coating break down, the floor beam connections to the bottom chord joints at the abutments and piers in poor condition with medium to severe corrosion and section loss, localized areas of perforations	Abrasive blast cleaning of steel, potential localized repair or replacement of steel members on floor beams if condition warrants
Rivets	Some corrosion near expansion joints	Replace deteriorated rivets on bottom chord truss joints with bolts
Stringers	Fair condition, light to medium corrosion, flaking of the steel, general coating break down	None noted. Potential repair of members if condition warrants.
Concrete Deck Slab	fair to poor condition, localized poor areas, light to medium delamination’s and spalling with exposed rebar	Full deck replacement, waterproof and asphalt pave new deck

Table 2: Rehabilitation Plan based on the Single Structure Condition Report (AECOM 2021)		
Element Name	**Deficiency**	**Recommended Repair/Rehabilitation**
Deck Wearing Surface	good condition, some cracking, light to medium scaling and abrasion	Full deck replacement, waterproof and asphalt pave new deck
Deck Drains (12)	Fair to poor condition with medium to severe corrosion and section loss at the base of the downspouts	Removal of the deck drains and install new ones as part of the deck reconstruction. Drains will be piped to side locations to avoid direct spilling into the river.
Sidewalks/curbs/median	fair condition, localized poor area, cracking and scaling	Remove curbs and sidewalks and reconstruct with a slightly widened sidewalk with the full deck replacement.
Expansion Joints at Abutments and Piers	fair condition, narrow cracks	Eliminate expansion joints (piers and abutments), and convert to a semi-integral abutment system with flexible link slabs at east and west piers
Railing System	fair to poor condition, localized light to severe corrosion, section loss (holes), section loss and perforations, breakdown of the coating system	Complete removal and sympathetic replication of a new railing system
Substructure		
Concrete approach slabs	It is unclear if there are approach slabs on the current bridge.	Removal of approach slabs are required for the conversion to semi-integral system, new sleeper slabs to accommodate expansion at the end of approach slabs, asphalt paving after the full deck replacement
Concrete Piers	Fair condition, poor areas, narrow horizontal and vertical cracking, light to medium scaling, light erosion, light disintegration, light corrosion, limited inspection due to access	Potential modification at the top of the piers to suit new bearings. Minor concrete patching on the top half of the piers, as required, to original surface.

Table 2: Rehabilitation Plan based on the Single Structure Condition Report (AECOM 2021)		
Element Name	**Deficiency**	**Recommended Repair/Rehabilitation**
Abutments and Ballast walls	Refaced surfaces of the west and east abutments, good condition with light honeycombing and some rust staining. Narrow cracking, light to medium scaling and light to medium disintegration on ballast walls.	West abutment: ■ patch repairs, pigmented sealer with compatible colour ■ Reconstruct ballast walls to suit the link slabs after the joint is removed, including an extension over the ballast wall East abutment: ■ patch repairs, pigmented sealer with compatible colour ■ Reconstruct ballast walls to suit the link slabs after the joint is removed, including an extension over the ballast wall
Abutment and Pier Bearing Plates (Seats)	Fair to poor condition with light to severe corrosion, flaking and pack rust	Jack bridge and support bridge and replace with new laminated elastomeric bearings
Wingwalls	Fair condition, light to medium disintegration at the top of the NW and SE wingwalls. Narrow random cracking.	Patch repairs

7. Impact Assessment and Mitigation Measures

7.1 Assessment of Impacts

As discussed in **Section 1.6** of this report, the impacts of the undertaking are considered against a range of possible impacts based on the *Ontario Heritage Tool Kit, Heritage Resources in the Land Use Planning Process, InfoSheet #5 Heritage Impact Assessments and Conservation Plans* (MCM 2006:3).

7.2 Impacts on Heritage Attributes on Kensington Bridge

The impacts of the 30% Detailed Design drawings on the heritage attributes of the existing bridge are identified in **Table 3**. In general, the proposed bridge rehabilitation has a sympathetic design framework developed to conserve the existing superstructure and substructure and thus, all interventions will protect the cultural heritage value and heritage attributes of Kensington Bridge. **Appendix B** contains the select 30% Detailed Design that was reviewed for this impact assessment.

Table 3: Impacts of the 30% Detailed Design on Kensington Bridge		
Heritage Attribute	**Potential Impact**	**Mitigation Measures**
Heritage Attributes identified in the CHER		
Location and setting of the bridge at the Forks of the Thames	No impact. Based on the 30% Detailed Design, the rehabilitation plan is to restore deteriorated elements of the substructure and superstructure. Therefore, based on the 30% Detailed Design the bridge will be retained in place.	■ No mitigation measures are required.
Riveted, modified Warren painted steel pony truss structure including; ■ Three spans of 32m (104 feet) each and overall length of 96m (315 feet); ■ Steel top and bottom chords; ■ Riveted steel lattice details on underside of steel chords; ■ Steel gusset plates	Minor alteration (repair/rehabilitation) to a heritage attribute that is sympathetic to the historical fabric. Based on the 30% Detailed Design, the three spans will be retained as well as the steel top and bottom chords, diagonals, and steel gusset plates. The rehabilitation plan does not include a change to the riveted steel lattice on the underside of the steel chords. Additional plates may be required to install on the trusses for strengthening, but they will be designed to be obscured from view. The recoating of the steel will be completed with grey, similar to the existing colour. Therefore, based on the 30% Detailed Design, it is not anticipated that the rehabilitation plan for the truss structure will be negative. The rehabilitation will be completed sympathetically.	■ If new material to strengthen the truss is required, ensure an appropriate substitute material is selected to match as closely as possible in form, material, detailing, and be of adequate strength ■ The design of Link Slab (for expansion joint elimination) should be completed in a mannor which will not inadvertently introduce stresses and associated damage to the superstructure

Table 3: Impacts of the 30% Detailed Design on Kensington Bridge		
Heritage Attribute	**Potential Impact**	**Mitigation Measures**
Remnants of decorative concrete and limestone end posts at west end of the bridge	No impact. The remnants were no longer extant, as noted in the CHER.	■ Not applicable.
Decorative lamp posts in centre of the bridge spans	Direct adverse impact. The deck replacement requires removal of the existing two lamp posts (including decorative base sleeves) at the centre of the bridge. Given their already poor condition and required removal, replacement of the lamp post is anticipated. The proposed location for the lights is presented on the SK2 in **Appendix B.** Four lights will be included between the trusses on each pier. This will align with the symmetry of the bridge and enhance the lighting of the bridge.	■ No mitigation measures are required. Despite the loss of the original sleaves of the lamp posts, the lamp posts are proposed to be designed to be sympathetic to the current posts. The decorative sleeve will be mimicked, but the lighting to be upgraded up to current standards. **Appendix C** provides the preferred lighting options which include a custom decorative base pole, SDL LED outdoor luminaire which displays the old-fashioned charm of traditional lighting, and a single bend colonial bracket arm that includes a decorative scroll. This opportunity to reinstall a decorative arm and light fixture is a positive opportunity and mitigates the direct adverse impact to this heritage attribute.

Table 3: Impacts of the 30% Detailed Design on Kensington Bridge		
Heritage Attribute	**Potential Impact**	**Mitigation Measures**
Hand railings original to the design of the bridge	Direct adverse impact. Based on the 30% Detailed Design, the original handrailing system will be replaced with a similar style of handrailing. The new handrailing, referred to as the Pedestrian Guard on the 30% Detailed Design, will be reconstructed on each side of the bridge with steel. The new railing should be patterned from the original 1929 design drawings by the Hamilton Bride Company in **Appendix A**, with anticipated minor modifications required to meet current bridge code railing requirements, and increase railing safety (with slightly reduced the top rail dimension, elimination of the top rail cover, and reduced post spacing). Therefore, the new railing has been designed to replicate the aesthetic appeal, so the cultural heritage value of the bridge is conserved, and the overall landscape setting of the Thames River is maintained. It should be noted, that although the two west concrete end posts and the one east concrete end posts are not listed as heritage attributes of the bridge, they are original and will be retained and the new handrailing will be joined to those original features.	■ Use the 1929 design drawings of the hand railings as a guide in the design of the new handrailing. ■ Repair concrete end posts if required and join to the new hand railing system.

7.3 Impacts on the Heritage Attributes of the Blackfriars/Petersville HCD

The heritage attributes of the Blackfriars/Petersville HCD are listed in **Section 4** of this report. Kensington Bridge is close to Labatt Park which is a heritage landmark within the boundary of the HCD. In addition, all the greenways along the Thames River dyke system are heritage attributes that are directly adjacent to the bridge crossing. The bridge rehabilitation is generally confined to the vicinity of the bridge and even with the addition of the new concrete pillars, the changes will not directly adversely impact Labatt Park or the Thames River Valley. Kensington Bridge, although not a heritage attribute of the HCD, is considered in this HIA to be part of the streetscape and landscape of the HCD that contributes to its cultural heritage value. A goal of the HCD, which this rehabilitation plan adheres to, is to encourage the retention and maintenance of the area's significant streetscape and landscape features that contribute to the cultural heritage value (Golder, 2014:10). The changes proposed are sensitive to the heritage character of the district.

7.4 Downtown London HCD

Although Kensington Bridge is not part of the Downtown London HCD, it is a gateway to this district which enhances the sense of arrival into the district. The proposed concrete pillars at the west end of the bridge are an additional scope in this rehabilitation plan, but they are a positive opportunity to improve this bridge as a gateway feature into the Downtown London HCD.

8. Summary of Community Engagement

8.1 Context

Community engagement was undertaken as a part of the CHER and additional research has not been undertaken for this HIA. **Table 4** below includes a summary of the engagement activities as well as relevant feedback as a part of the impact assessment.

8.2 Consultation

The following stakeholders were contacted with inquiries regarding background information on the Kensington Bridge.

Table 4: Results of Engagement

Contact	Organization	Date(s) of Communications	Description of Information Received
Nathan Holth	Historicbridges.org	April 3, 2023	Requested the location of the date stone be photographed in 2005 and see if he documented the date in the field.
Kyle Gonyou, Heritage Planner	City of London	April 3, 2023	Tara Jenkins emailed Kyle Gonyou to ask about his heritage concerns based on the Recommended Design Alternative. A response was received on April 4, 2023, and Kyle stated his high-level concerns were the impacts of the new handrailing, the new crash barrier (does it attach to the truss or freestanding?), the new street lighting (seeking more of a restoration approach). Previous discussions at LACH/CACP had indicated the bridge is kept grey. The positives of the rehabilitation are the new west pillars and new lighting).

The report will be reviewed by CACP, and all input/feedback will be incorporated into the final draft of this HIA.

9. Recommendations

Standard 11 of the *Standards and Guidelines for the Conservation of Historic Places in Canada* (Parks Canada 2010) states that new construction may be needed to assure the continued use of the historic place. Standard 10 states that replacing elements that can be repaired are discouraged in a rehabilitation project. Standard 10 also states that if the deterioration is not properly addressed, it can result in a loss of heritage value. In the case of Kensington Bridge, the deteriorated parts of the constructed elements will be repaired or replaced in such a manner that is physically and visually compatible with the bridge. More specifically, the repairs will ultimately extend the service life of this heritage bridge for at minimum another 50 years.

This HIA report did find the proposed design to have direct adverse impacts on the cultural heritage value of the structure, however the rehabilitation plan minimizes those impacts. The 30% Detailed Design drawings provide opportunities for the greatest degree of conservation of cultural heritage value or interest while accommodating infrastructure improvements.

Following the evaluation of potential impacts on the heritage attributes, the following recommendations should be considered and implemented for Kensington Bridge to further ensure the heritage character of the bridge is conserved in its context:

1. The design for expansion joint elimination should be completed in a manner which will not impact the long-term performance of the structure. All bridge components are inspected bi-annually as part of the City's Bridge Management System (BMS).

2. Ensure materials, assemblies and construction methods are well suited to the existing materials regarding the steel modified Warren pony truss superstructure and the masonry abutments.

3. Since the 30% Design drawings do not include the original design of the new detached pillars, the design for the new pillars should be replicated (visually similar) using historical photographs (for example in **Image 5**, above). The design should consider reincorporating a date stone.

4. Use the 1929 design drawings of the handrailing as a guide in the replication (with some modifications) of the new steel handrailing, although with the few minor design changes to reduce injury, meet code requirements, and increase structure integrity (reduce the top rail dimension, eliminate the top rail cover, and reduce post spacing).

5. Repair *in situ* the original concrete end posts (patch repairs, pigmented sealers) if required, and join to the new handrailing system.

6. Any physical impact to the bridge requires municipal approval through a Heritage Alteration Permit (City of London) approval prior to construction.

7. Ensure there is minimal intervention in the Thames River Valley. Construction staging areas should be suitable planned to avoid impact to the greenways along the Thames River dyke system, heritage attributes of the Blackfriars/Petersville HCD. If the Bridge signs along the east and west approaches require removal during construction, ensure to reinstate them in the vicinity of their current positions (see **Photograph 2** and **Photograph 18**).

10. Photographs

Photograph 1:View of the Forks of the Thames River, looking southwestward from Kensington Bridge (AECOM, April 2023)

Photograph 2:View of bridge from Dundas Street, looking east (AECOM, April 2023)

Photograph 3:West end portal view (AECOM, April 2023)

Photograph 4:East end portal view (AECOM, April 2023)

Photograph 5: Sidewalk portal view on north side, looking east (AECOM, April 2023)

Photograph 6: Sidewalk portal view on south side, looking east (AECOM, April 2023)

Photograph 7: Sidewalk portal view on south side, looking west (AECOM April 2023)

Photograph 8: Sidewalk portal view on north side, looking west (AECOM, April 2023)

Photograph 9: Southwest concrete post and handrailing (AECOM, April 2023)

Photograph 10: Northwest concrete post and handrailing (AECOM April 2023)

Photograph 11: West expansion joint over the abutment (AECOM, April 2023)

Photograph 12: Top chord connections, including steel gusset plates, as viewed from the south sidewalk (AECOM April 2023)

Photograph 13: Riveted lattice on the top chord (AECOM, April 2023)

Photograph 14: Handrailing system (AECOM, April 2023)

Photograph 15: Intermediate connection viewed from the south sidewalk (AECOM, April 2023)

Photograph 16: Light post decorative sleave on south side of bridge (AECOM April 2023)

Photograph 17: North light post located in the centre of the bridge over the pier (AECOM, April 2023)

Photograph 18: Northeast original concrete end post connected to the handrailing and Bridge sign: "Thames River, Kensington Bridge, Since 1872" (AECOM, April 2023)

Photograph 19: Oblique view of the south elevation from the southeast quadrant and piers (AECOM, April 2023)

Photograph 20: View of the east end abutment and TVP below bridge (AECOM, April 2023)

Photograph 21: Close-up of the east abutment (AECOM, 2021)

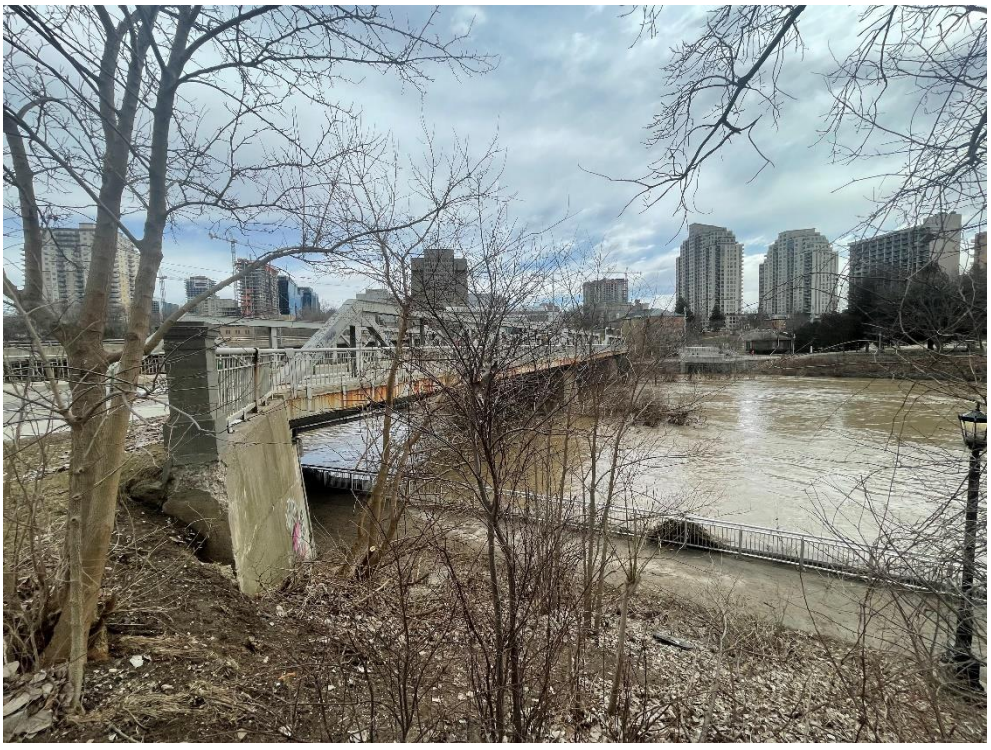
Photograph 22: View of underside of bridge at the east abutment with conduits (AECOM, April 2023)

Photograph 23: View of the east pier from the underside of the east end of the bridge (AECOM, April 2023)

Photograph 24: Oblique view of bridge from the northeast quadrant (AECOM, April 2023)

Photograph 25: View of the concrete deck soffit, the steel stringers and steal floor beams (AECOM, April 2023)

Photograph 26: View of V-lacing on the bottom chord with gusset plates (AECOM, April 2023)



Photograph 27: Distant view of the south elevation from the southwest quadrant (AECOM, April 2023)

Photograph 28: West abutment with stone cladding (AECOM, 2022)

Photograph 29: Southwest wingwall (AECOM, 2022)

11. Sources

Primary and Secondary Sources:

AECOM

2018a Cultural Heritage Evaluation Report, Kensington Bridge (1-BR-06), London, Ontario. On file at AECOM and the City of London.

20018b Preliminary Structural Design Report Rev. 1. Kensington Bridge (1-BR-06), Riverside Drive over the Thames River. On file at AECOM and the City of London.

2021 City of London Structures Database: Single Structure Condition Report. On file at AECOM and the City of London.

Brock, D.

2011 *Fragments of the Forks: London Ontario's Legacy*. London: The London & Middlesex Historical Society.

Cuming, D.

1983 *Discovering Heritage Bridges on Ontario's Roads*. Toronto: Boston Mills Press.

Provincial Standards and Resources:

Government of Ontario:

O. Reg. 9/06: Criteria for Determining Cultural Heritage Value or Interest; made under the Ontario Heritage Act. Available online at https://www.ontario.ca/laws/regulation/060009

Government of Ontario:

Ontario Heritage Act, R.S.O. 1990, c.0.18. Available online at https://www.ontario.ca/laws/statute/90o18

Government of Ontario:

Planning Act, R.S.O. 1990, c. P.13. Available online at https://www.ontario.ca/laws/statute/90p13

Government of Ontario, 2020:

Provincial Policy Statement. Available online at https://www.ontario.ca/page/provincial-policy-statement-2020

Ministry of Heritage, Sport, Tourism, and Culture Industries (MHSTCI), 2006:

Ontario Heritage Tool Kit. Available online at: http://www.mtc.gov.on.ca/en/heritage/heritage_toolkit.shtml

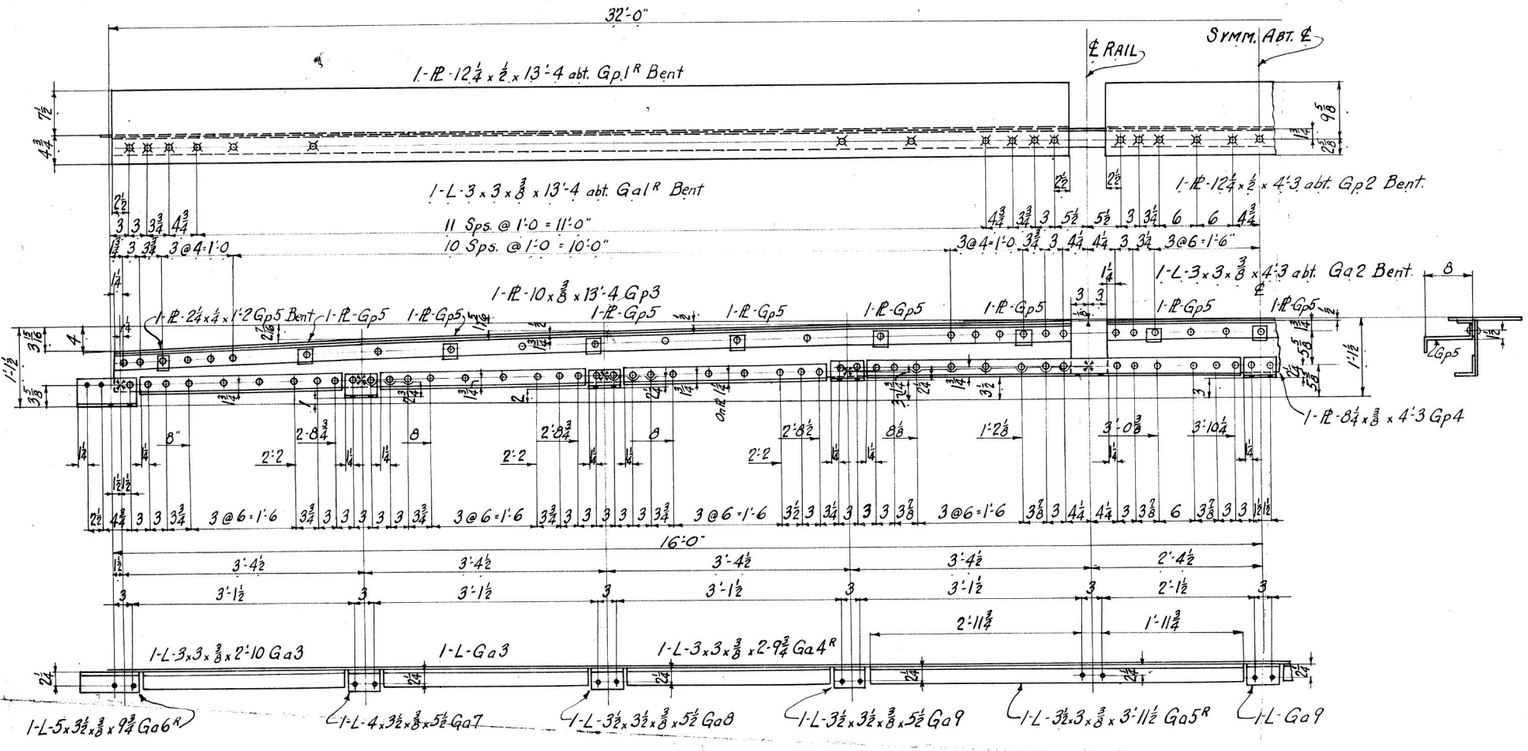
Ministry of Heritage, Sport, Tourism, and Culture Industries (MHSTCI), 2007:
Heritage Conservation Principles for Land Use Planning. Available online at: http://www.mtc.gov.on.ca/en/publications/InfoSheet_Principles_Land use_Planning.pdf

Ministry of Heritage, Sport, Tourism, and Culture Industries (MHSTCI), 2010:
Standards & Guidelines for the Conservation of Provincial Heritage Properties Available online at: http://www.mtc.gov.on.ca/en/heritage/MTCS_Heritage_IE_Process.pdf

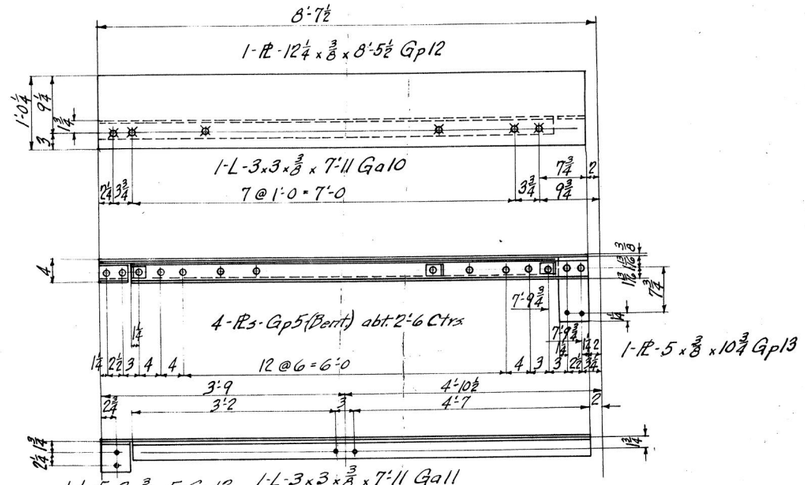
Parks Canada, 2010:
Standards and Guidelines for the Conservation of Historic Places in Canada. Available online at:
https://www.historicplaces.ca/media/18072/81468-parks-s+g-eng-web2.pdf

Appendix A

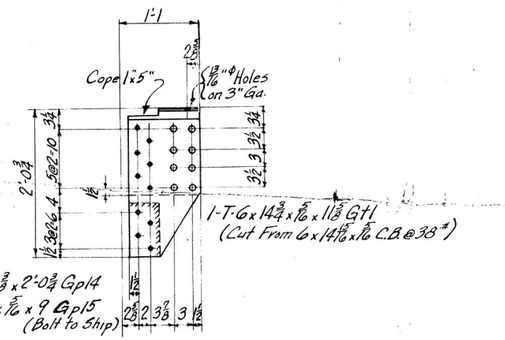
1929 Original Design Drawings



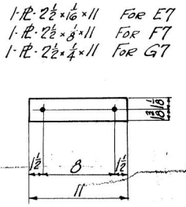
3-EXPANSION APRONS - A7



3-EXPANSION APRONS - C7R - AS SHOWN.
3-EXPANSION APRONS - C7L - OPP. HAND.

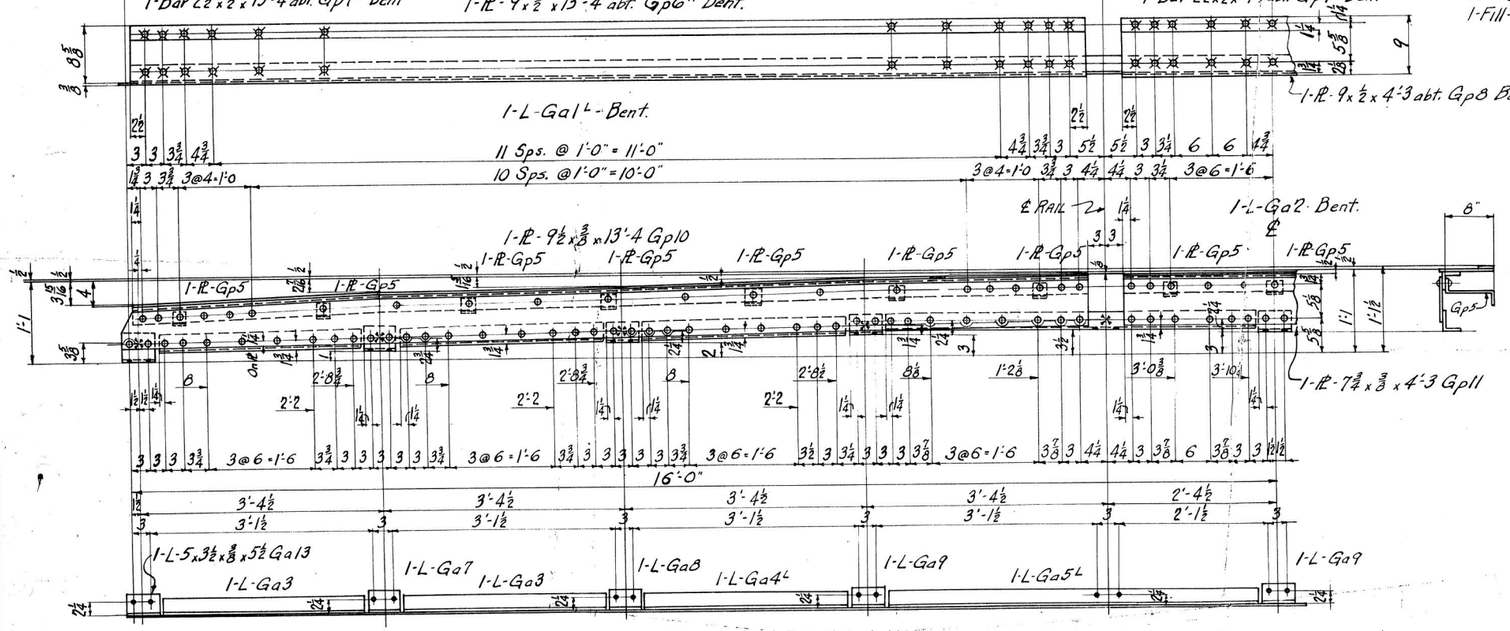


4-BRACKETS - D7R AS SHOWN
4-BRACKETS - D7L - OPP. HAND
7/8" ø Rivets
15/16" ø Holes or noted



1-PL-2½ x 1/16 x 11 FOR E7
1-PL-2½ x ⅜ x 11 FOR F7
1-PL-2½ x ¼ x 11 FOR G7

126-PLATES-E7
126-PLATES-F7
126-PLATES-G7



1-EXPANSION APRON - B7

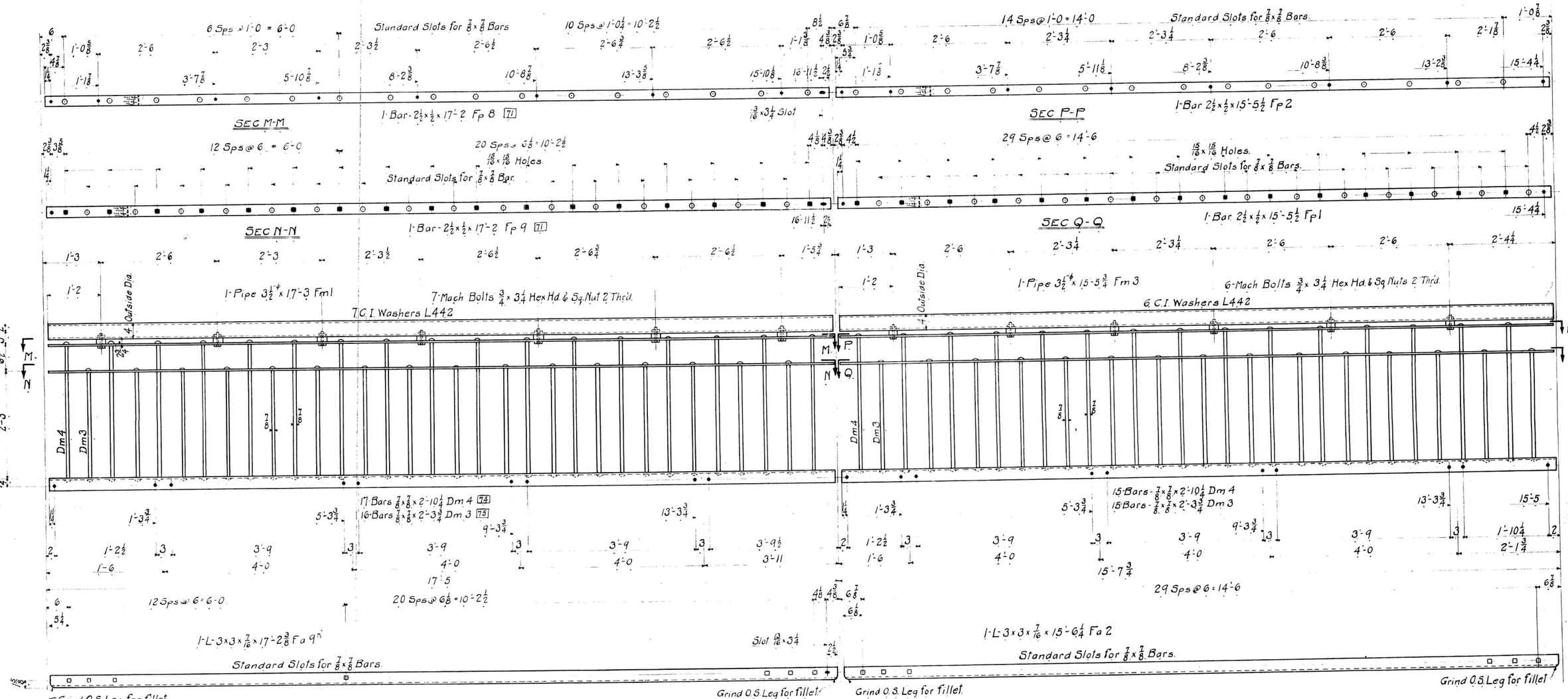
NOTES	REVISED	LAST ASSEMBLY MARKS
RIVETS 7/8" ø		Ga13
HOLES 15/16" ø or noted.		Gp15
PAINT		Gt1

CUSTOMER: CITY OF LONDON
NAME OF STRUCTURE: KENSINGTON BRIDGE DUNDAS ST. OVER RIVER THAMES
LOCATION:
TITLE OF DRAWING: EXPANSION APRONS

HAMILTON BRIDGE COMPANY, Ltd.
HAMILTON, ONTARIO

MADE BY R.B.H. STARTED Jan. 17-30 COMPLETED Jan. 20-30 CONTRACT 5917
TRACED BY H.D.O. " Jan. 22 30 " Jan. WORK ORDER 8911
CHECKED " "
APPROVED DATE DRAWING 7

SHOP BILLS



1-HANDRAIL SECTION - A6.R AS SHOWN
1-HANDRAIL SECTION - A6.L OPP HAND

for Details of Dm 3, Dm 4 L442 and Standard Slots see Dwg 4

2-HANDRAIL SECTIONS - B6.R AS SHOWN
2-HANDRAIL SECTIONS - B6.L OPP HAND

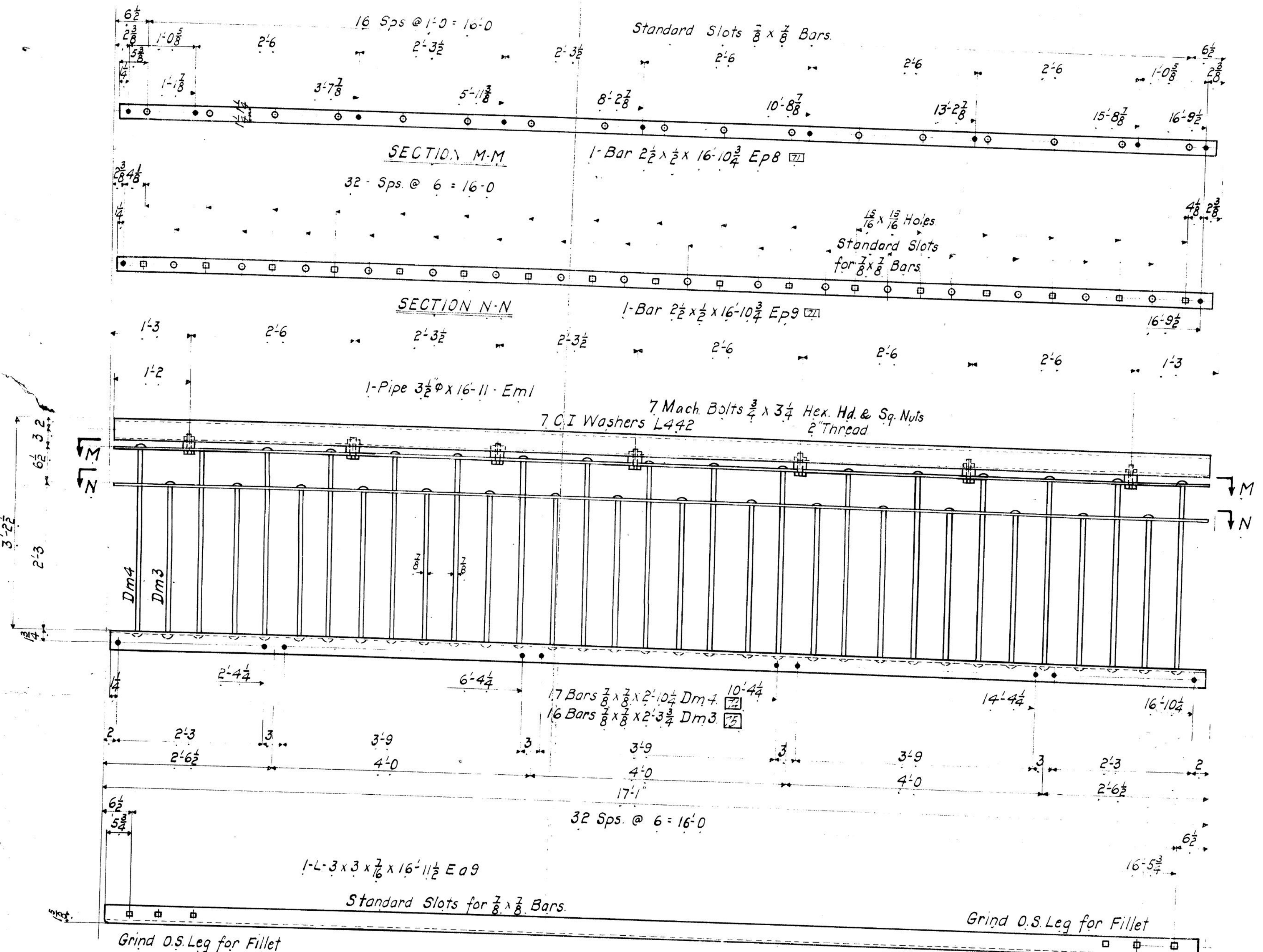
NOTES	REVISED
RIVETS HOLES 13/16 Unless Noted. PAINT One Coat Kromate Metal Primer. Specifications - Ontario Railway & Municipal Board	LAST ASSEMBLY MARKS

CUSTOMER: CITY OF LONDON
NAME OF STRUCTURE: KINSINGTON BRIDGE DUNDAS ST
LOCATION: OVER RIVER THAMES
TITLE OF DRAWING: HANDRAIL

HAMILTON BRIDGE COMPANY, Ltd.
HAMILTON, ONTARIO

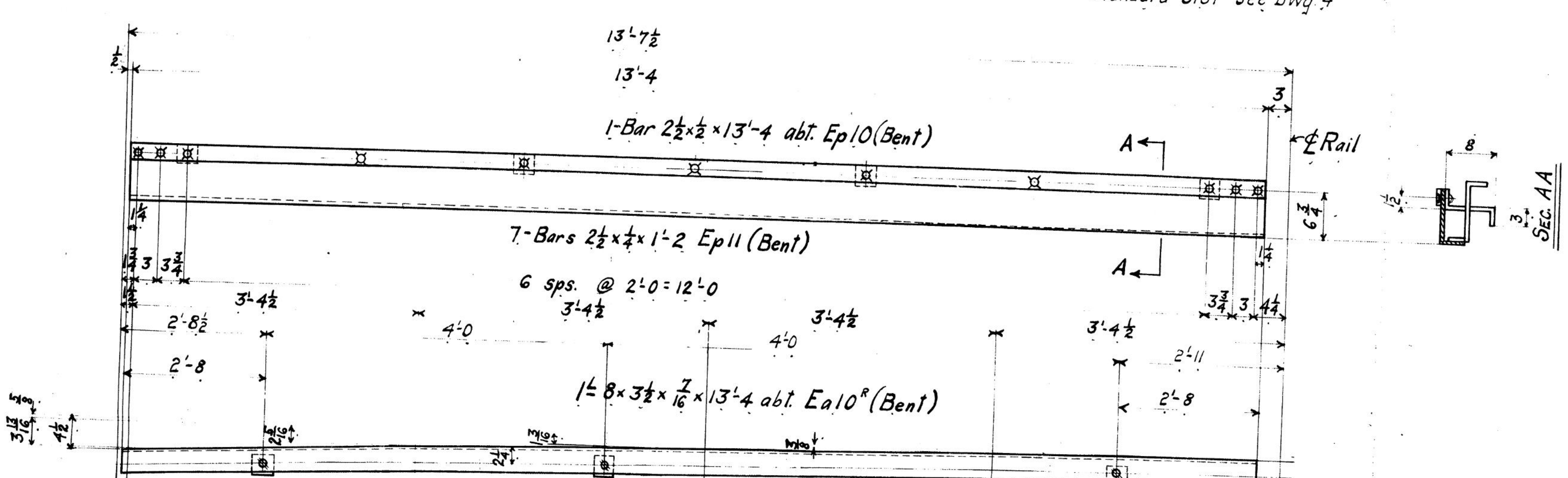
MADE BY C.K STARTED June 13/29 COMPLETED June 13/29 CONTRACT 5917
TRACED BY B.C. - Jan 10/30 - Jan 10/30 WORK ORDER 8911
CHECKED - - - -
APPROVED - DATE - DRAWING 6

SHOP BILLS

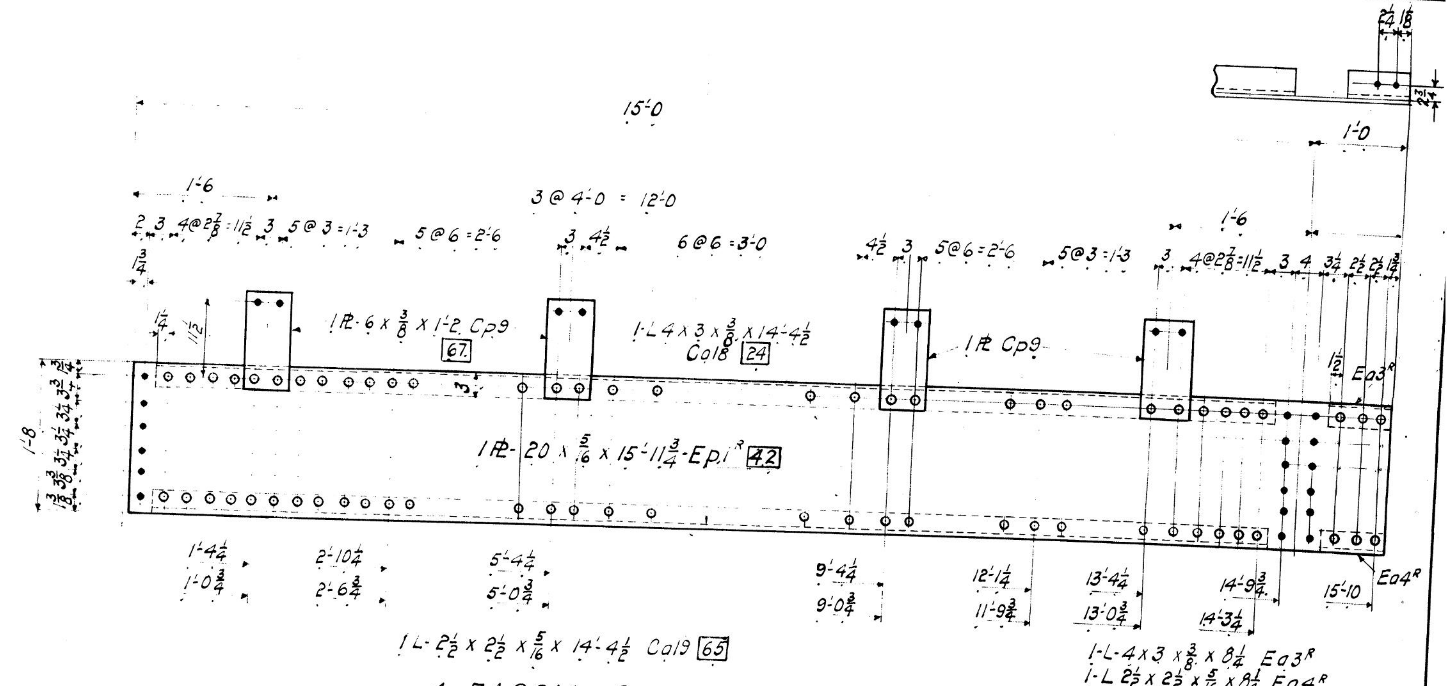


2-HANDRAIL SECTION - B5

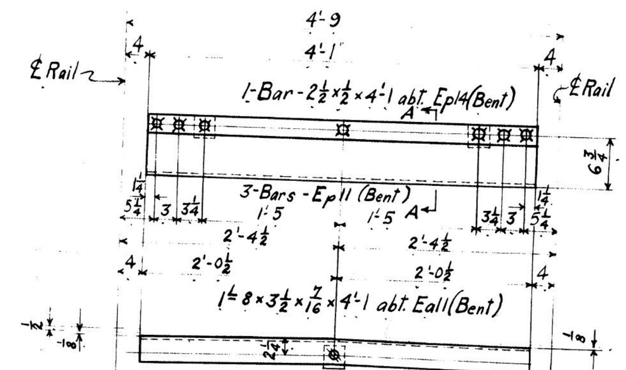
NOTE - For Details of Dm3 Dm4 and L442 and Standard Slot see Dwg. 4



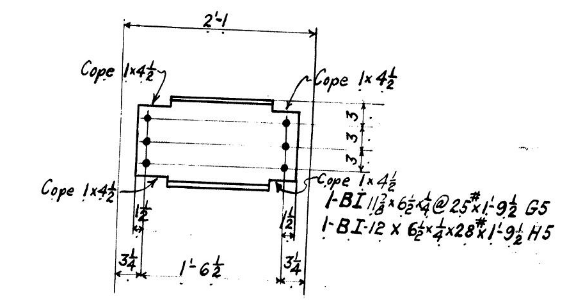
2- ANGLES - C5R As Shown
2- ANGLES - C5L Opp. Hand



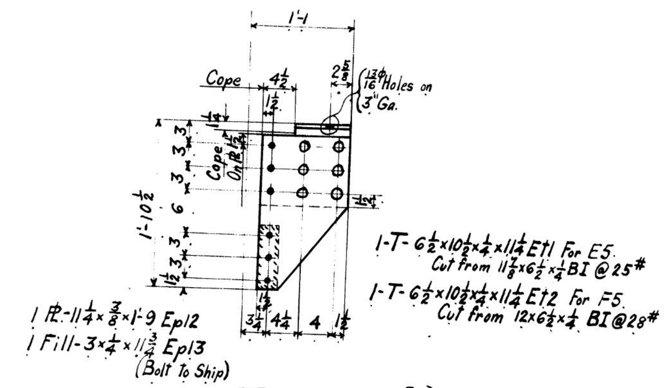
4-FASCIA GIRDERS A5R As Shown
4-FASCIA GIRDERS A5L Opp. Hand



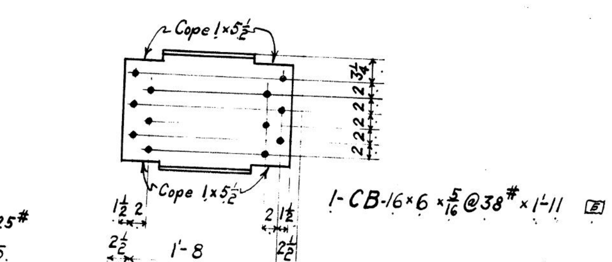
2-ANGLES - D5



1-STRINGER - G5 } 15/16 φ Holes
8- Do. - H5



2-BRACKETS - E5R } 7/8 φ Rivets
2- Do. - E5L } 15/16 φ Holes Unless Noted.
16- Do. - F5R
16- Do. - F5L



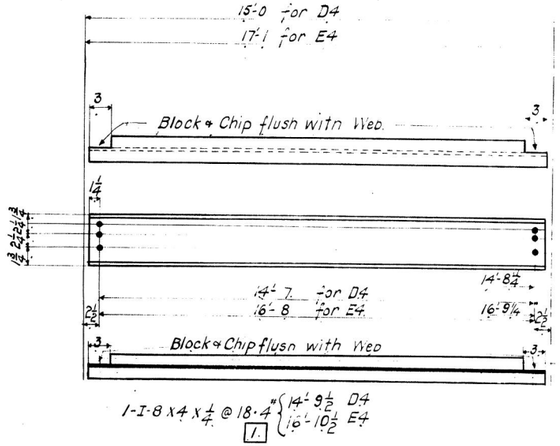
2- STRINGERS - J5 (15/16 φ Holes)

NOTES		REVISED
RIVETS	3/4 φ	
HOLES	13/16 or noted	
PAINT	One Coat ... Specifications Ontario Railways Municipal Board ...	LAST ASSEMBLY MARKS

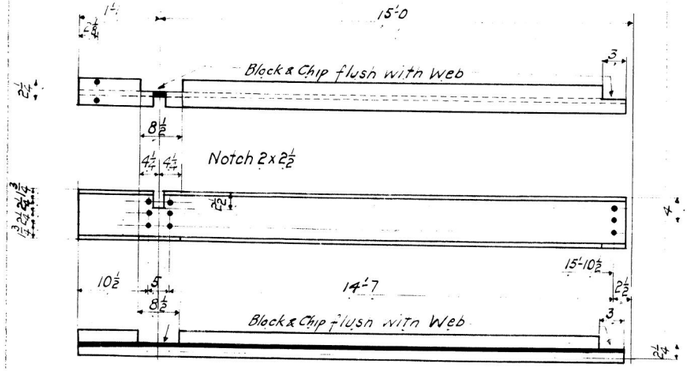
CUSTOMER	CITY OF LONDON
NAME OF STRUCTURE	KINGSINGTON BRIDGE, DUNDAS ST.
LOCATION	OVER THAMES RIVER
TITLE OF DRAWING	HANDRAIL - FASCIA GIRDER

HAMILTON BRIDGE COMPANY, Ltd.
HAMILTON, ONTARIO

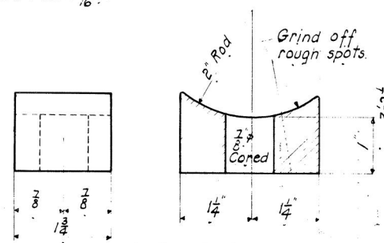
		STARTED	COMPLETED	
MADE BY	C.K.	June 12/29	June 13/29	CONTRACT 5917
TRACED BY	M.E.S.	Jan. 6.29	June 7/29	
CHECKED	N.M.R.			WORK ORDER 8911

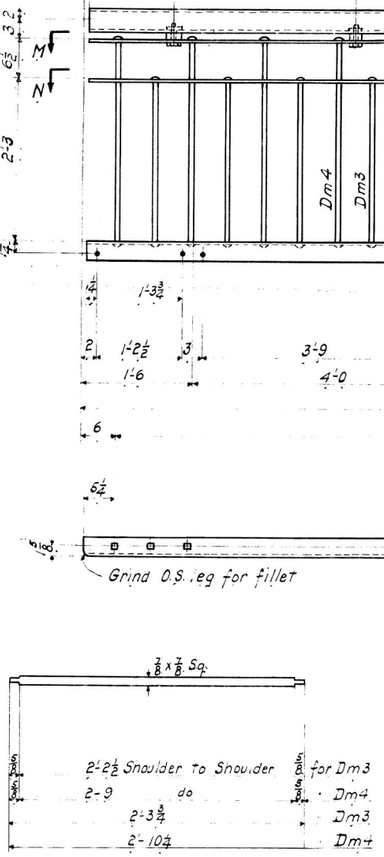


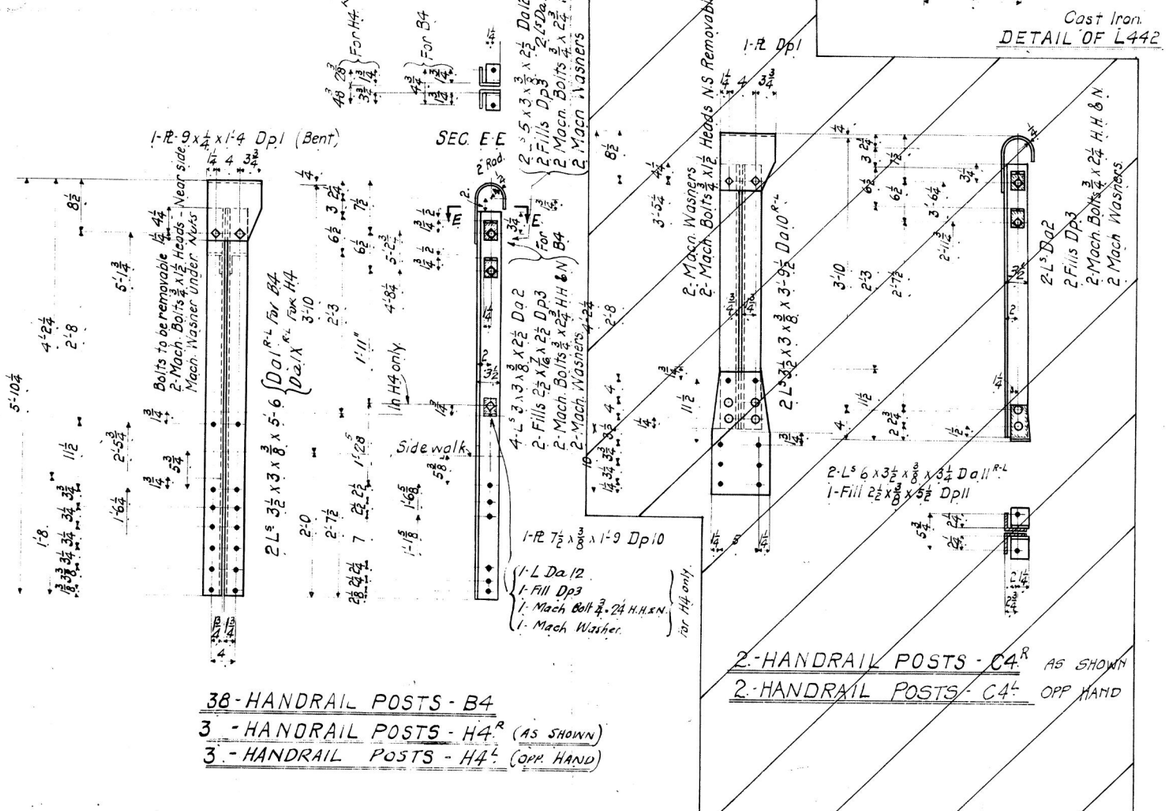
32 - SIDE WALK STRINGERS - D4
2 - SIDE WALK STRINGERS - E4
Punch 5/8 and Ream to 13/16 ϕ



4 SIDE WALK STRINGERS G4R
4 SIDE WALK STRINGERS G4L
Punch 5/8 and ream 13/16 ϕ.



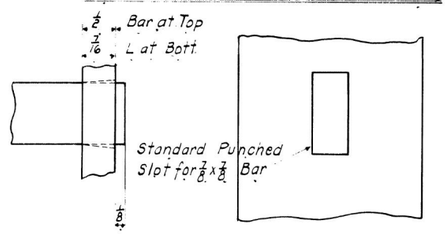




38 - HANDRAIL POSTS - B4
3 - HANDRAIL POSTS - H4R (AS SHOWN)
3 - HANDRAIL POSTS - H4L (OPP. HAND)

2 - HANDRAIL POSTS - C4R AS SHOWN
2 - HANDRAIL POSTS - C4L OPP HAND

38 - HANDRAIL SECTIONS - A4



DETAIL AT END OF Dm3 & Dm4

NOTES
RIVETS 3/4 ϕ
HOLES 13/16 or noted.
PAINT One Coat Kromate Metal Primer
Specifications Ontario Railway & Municipal Board 1916

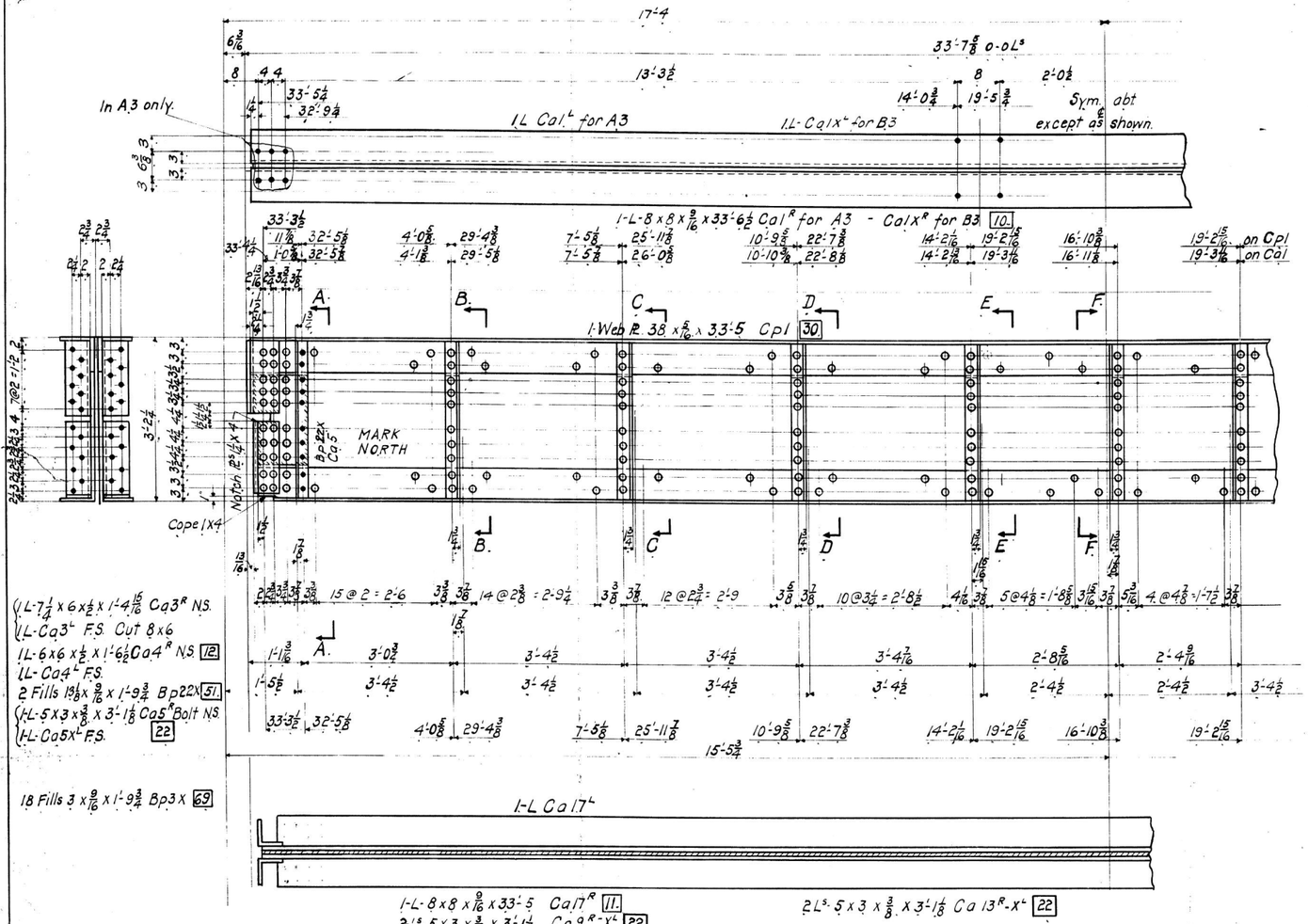
REVISED

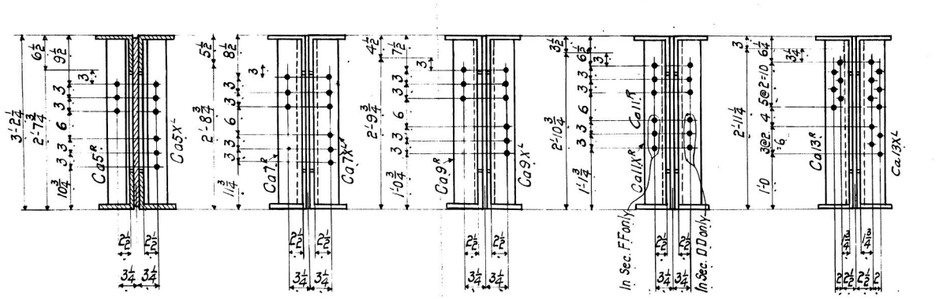
LAST ASSEMBLY MARKS

CUSTOMER CITY OF LONDON
NAME OF STRUCTURE KENSINGTON BRIDGE, DUNDAS ST.
LOCATION OVER RIVER THAMES
TITLE OF DRAWING STRINGERS & HANDRAIL

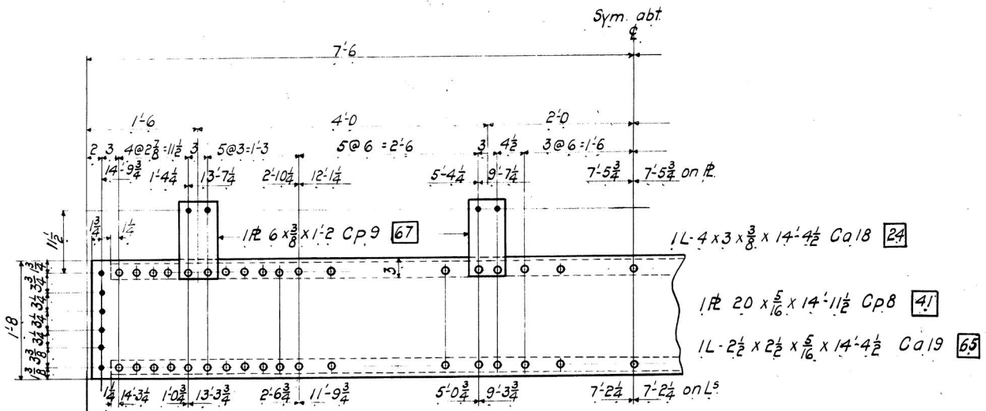
HAMILTON BRIDGE COMPANY, Ltd.
HAMILTON, ONTARIO

MADE BY C.K. STARTED June 1/29 COMPLETED June 12/29 CONTRACT 5917
TRACED BY M.E.S. " Jan. 4/30 " Jan. 6/30 WORK ORDER 8911
CHECKED " " " " " "
APPROVED " DATE " DRAWING 4



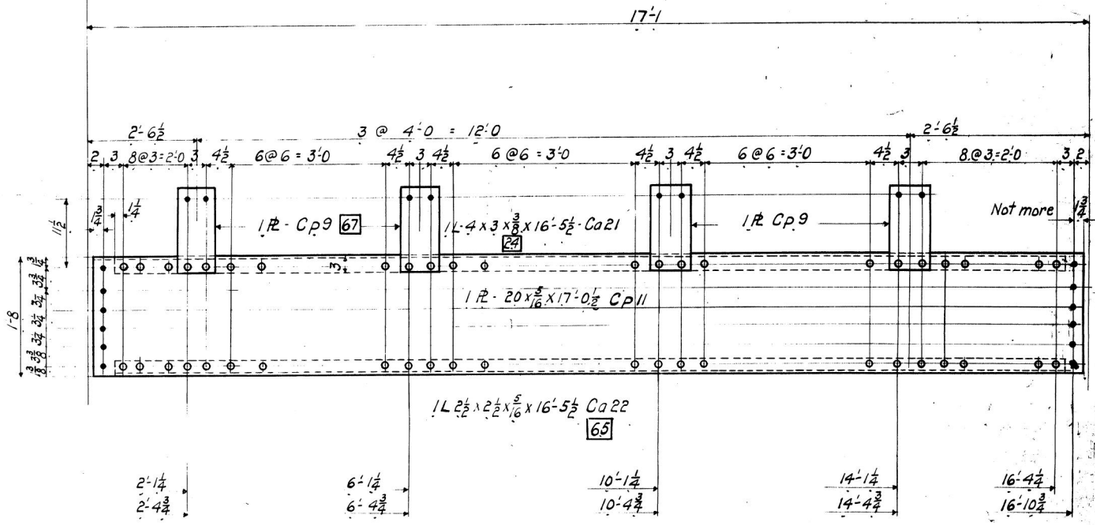


2 - FLOOR BEAMS - A3 R. As Shown.
3 - FLOOR BEAMS - A3 L. Opp Hand.
1 - FLOOR BEAM - B3 R As Shown.



32 - FASCIA GIRDERS - C3

Rivets ◇ 7/8" Open holes ◇ 13/16" ϕ



2 - FASCIA GIRDERS E3

Rivets ◇ 7/8" Open Holes ◇ 13/16"

NOTES
RIVETS 7/8" ϕ or noted
HOLES 15/16" ϕ or noted
For 15/16" ϕ Holes, Punch 5/8" ϕ & Ream to full size
For 13/16" ϕ Holes, Punch 5/8" ϕ & Ream to full size
FLOOR BEAM end connections to be reamed to steel template.
PAINT One Coat Kromate Metal Primer
Specifications - Ontario Railway & Municipal Board. 1916

REVISED

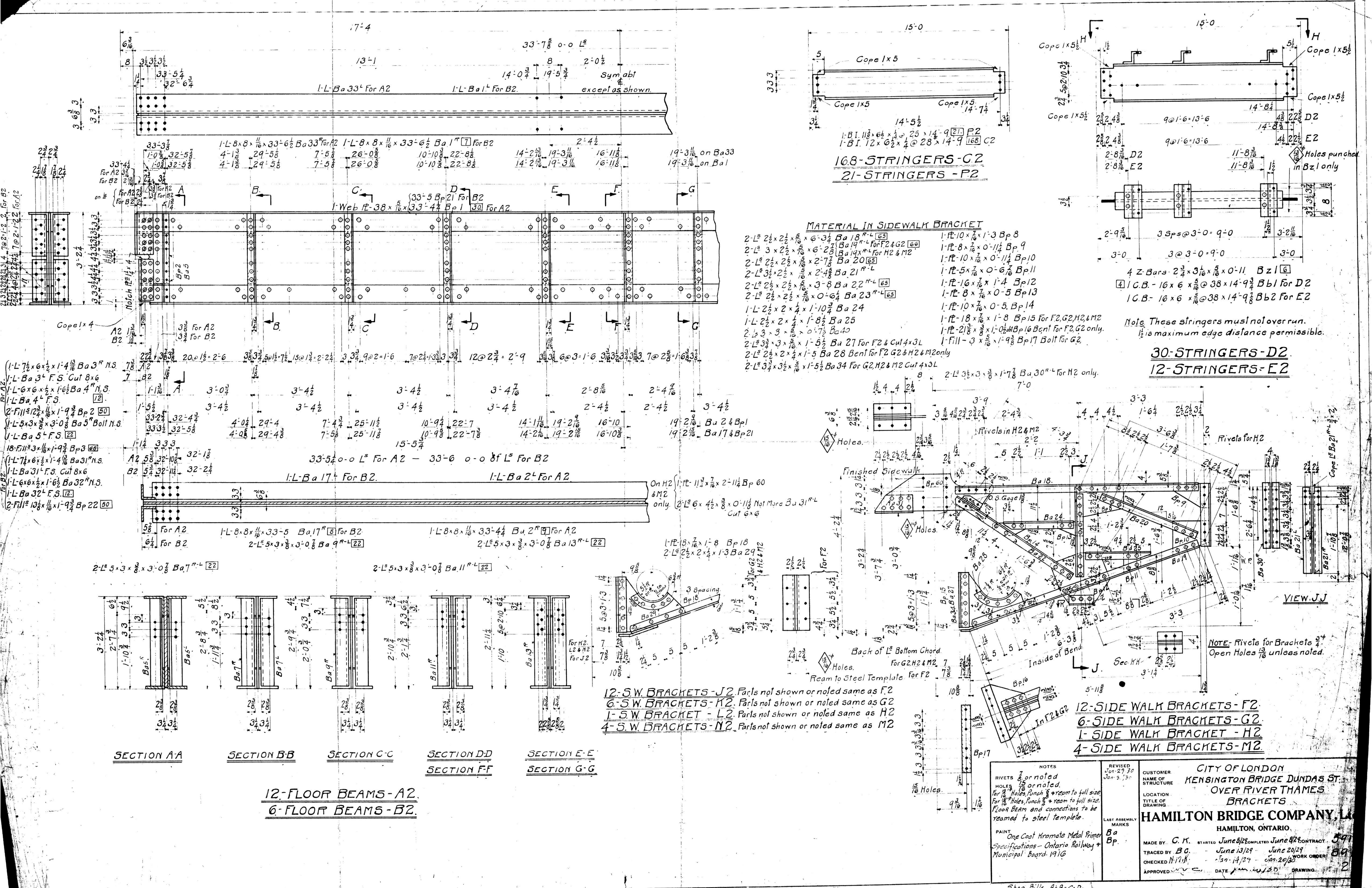
LAST ASSEMBLY MARKS
Ca 23
Cp 11

CUSTOMER CITY OF LONDON
NAME OF STRUCTURE KENSINGTON BRIDGE, DUNDAS ST.
LOCATION OVER RIVER THAMES
TITLE OF DRAWING FLOOR BEAMS & FASCIA GIRDERS

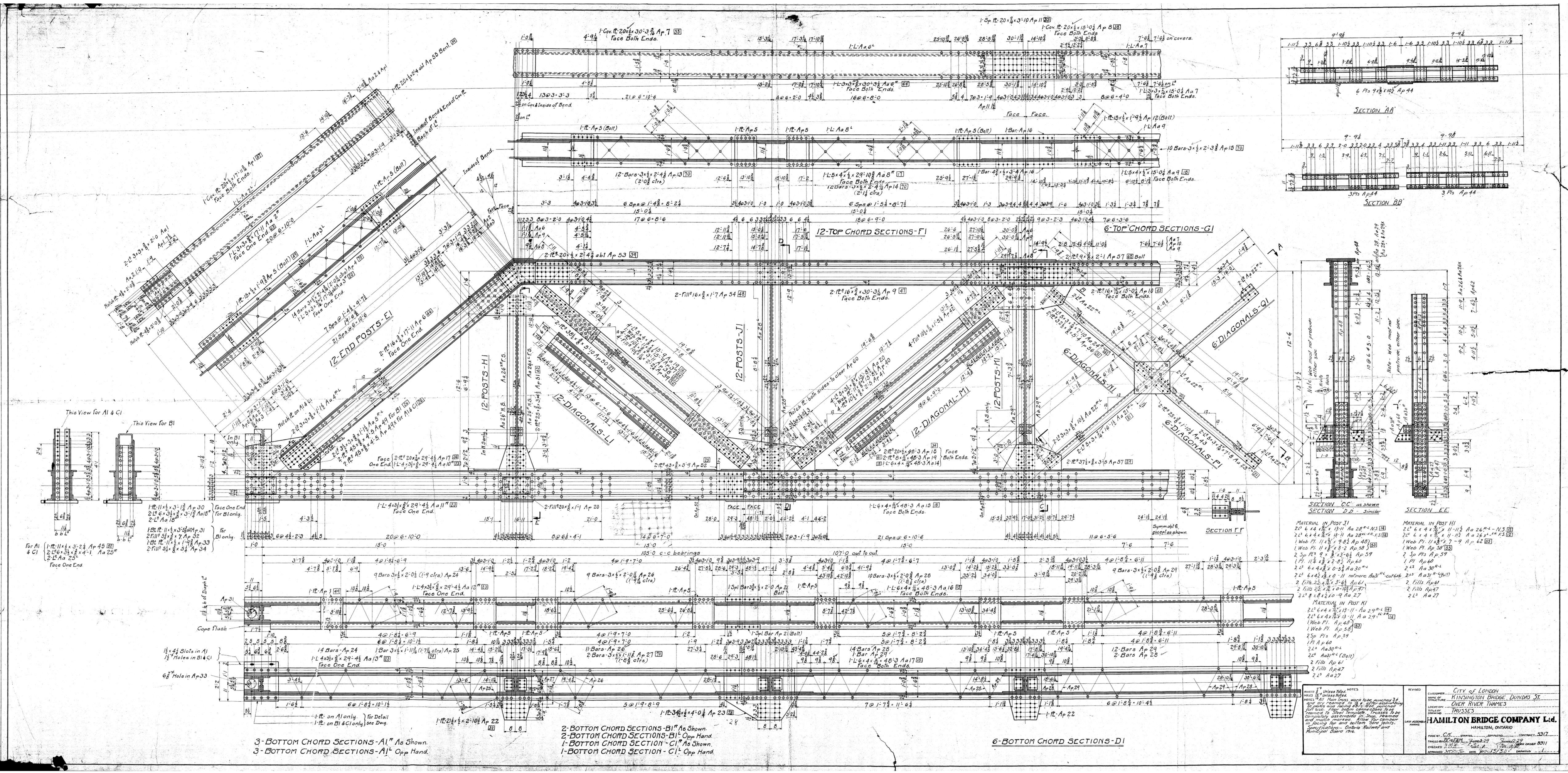
HAMILTON BRIDGE COMPANY, Lt
HAMILTON, ONTARIO

MADE BY C.K. STARTED June 10-29 COMPLETED June 11-29 CONTRACT 55
TRACED BY MES - Jan. 8-30 - Jan. 10-30 WORK ORDER
CHECKED N.M.K. - Jan. 14 - Jan. 22/30
APPROVED DATE Jan. 25/30 DRAWING

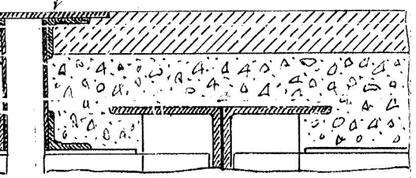
Bills A B



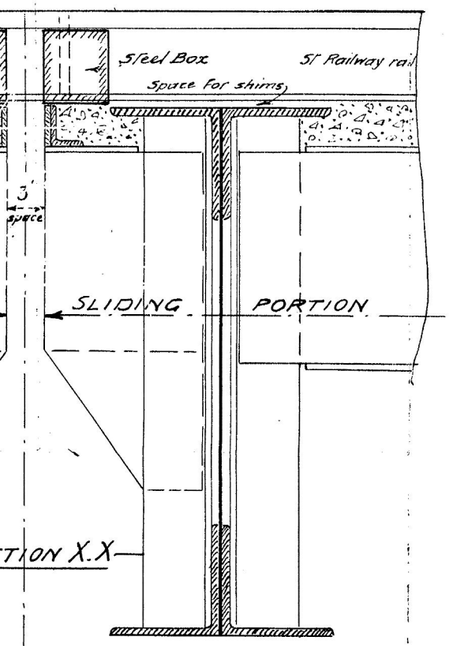
168-STRINGERS-C2
21-STRINGERS-P2
1-B.I. 12 x 6½ x ¼ @ 28 x 14'-9 [168] C2
Cope 1x5
30-STRINGERS-D2
12-STRINGERS-E2
4 Z-Bars 2¾ x 3⅛ x ⅜ x 0'-11 Bz1 [6]
[4] 1 C.B.- 16 x 6 x ⅝ @ 38 x 14'-9¾ Bb1 For D2
1 C.B.- 16 x 6 x ⅝ @ 38 x 14'-9⅞ Bb2 For E2
Note. These stringers must not over run. 1½ is maximum edge distance permissible.
Holes punched in Bz1 only
MATERIAL IN SIDEWALK BRACKET
2-L^s 2½ x 2½ x 5/16 x 6'-3¼ Ba 18 R-L [65]
2-L^s 3 x 2½ x 5/16 x 6'-2⅞ Ba 19 R-L For F2 & G2 [66]; Ba 14 X R-L For H2 & M2
2-L^s 2½ x 2½ x 5/16 x 2'-7⅞ Ba 20 [65]
2-L^s 3½ x 2½ x 5/16 x 2'-4⅞ Ba 21 R-L
2-L^s 2½ x 2½ x 5/16 x 3'-8 Ba 22 R-L [65]
2-L^s 2½ x 2½ x 5/16 x 0'-6¼ Ba 23 R-L [65]
1-L 2½ x 2 x ¼ x 1'-10¾ Ba 24
1-L 2½ x 2 x ¼ x 1'-8½ Ba 25
2-L^s 3½ x 3½ x ⅜ x 1'-5½ Ba 27 For F2 & Cut 4x3L
2-L^s 2½ x 2 x ¼ x 1'-5 Ba 28 Bent for F2 G2 & H2 & M2 only
2-L^s 3¾ x 3½ x ⅜ x 1'-5½ Ba 34 For G2, H2 & M2 Cut 4x3L
1-Pl. 10 x 7/16 x 1'-3 Bp 8
1-Pl. 8 x 7/16 x 0'-11½ Bp 9
1-Pl. 10 x 7/16 x 0'-11¼ Bp 10
1-Pl. 5 x 7/16 x 0'-6⅞ Bp 11
1-Pl. 16 x 7/16 x 1'-4 Bp 12
1-Pl. 8 x 7/16 x 0'-5 Bp 13
1-Pl. 10 x 7/16 x 0'-5 Bp 14
1-Pl. 18 x 7/16 x 1'-8 Bp 15 For F2, G2, H2 & M2
1-Pl. 21⅜ x ⅜ x 1'-0⅞ Bp 16 Bent for F2, G2 only
1-Fill - 3 x 5/16 x 1'-9⅜ Bp 17 Bolt for G2
2-L^s 3½ x 3 x ⅜ x 1'-7⅞ Ba 30 R-L For H2 only
Finished Sidewalk
Rivets in H2 & M2
Rivets for H2
VIEW J-J
NOTE - Rivets for Brackets ¾. Open Holes 13/16 unless noted.
Back of L^s Bottom Chord
Ream to Steel Template
Inside of Bend
12-S.W. BRACKETS - J2 Parts not shown or noted same as F2
6-S.W. BRACKETS - K2 Parts not shown or noted same as G2
1-S.W. BRACKET - L2 Parts not shown or noted same as H2
4-S.W. BRACKETS - N2 Parts not shown or noted same as M2
12-SIDE WALK BRACKETS - F2
6-SIDE WALK BRACKETS - G2
1-SIDE WALK BRACKET - H2
4-SIDE WALK BRACKETS - M2
1-Web Pl. 38 x 5/16 x 33'-4¼ Bp 1 [30] For A2
33'-5 Bp 21 For B2
1-L Ba 33^L For A2
1-L Ba 1^L For B2
Sym abt ℄ except as shown.
1-L 8 x 8 x 11/16 x 33'-6½ Ba 33^R For A2
1-L 8 x 8 x 11/16 x 33'-6½ Ba 1^R [7] For B2
33'-5¼ o-o L^s For A2 — 33'-6 o-o of L^s For B2
1-L Ba 17^L For B2.
1-L Ba 2^L For A2
1-L 8 x 8 x 11/16 x 33'-5 Ba 17^R [8] For B2
1-L 8 x 8 x 11/16 x 33'-4¼ Ba 2^R [9] For A2
2-L^s 5 x 3 x ⅜ x 3'-0⅞ Ba 9 R-L [22]
2-L^s 5 x 3 x ⅜ x 3'-0⅞ Ba 13 R-L [22]
2-L^s 5 x 3 x ⅜ x 3'-0⅞ Ba 7 R-L [22]
2-L^s 5 x 3 x ⅜ x 3'-0⅞ Ba 11 R-L [22]
On H2 & M2 only. 1-Pl. 11⅜ x 7/16 x 2'-11¼ Bp 60
2-L^s 6 x 4½ x ⅜ x 0'-11½ Not More 3a 31 R-L Cut 6x6
1-Pl. 18 x 7/16 x 1'-8 Bp 18
2-L^s 2½ x 2 x ¼ x 1'-3 Ba 29
SECTION A-A
SECTION B-B
SECTION C-C
SECTION D-D
SECTION F-F
SECTION E-E
SECTION G-G
12-FLOOR BEAMS - A2.
6-FLOOR BEAMS - B2.
NOTES
RIVETS ⅞ or noted
HOLES 15/16 or noted.
For 13/16 Holes Punch ⅝ + ream to full size
For 15/16 Holes Punch ¾ + ream to full size.
Floor Beam and connections to be reamed to steel template.
PAINT One Coat Kromate Metal Primer
Specifications - Ontario Railway + Municipal Board 1916
REVISED Jan. 29 30 Jan. 3 30
LAST ASSEMBLY MARKS Ba Bp.
CUSTOMER CITY OF LONDON
NAME OF STRUCTURE KENSINGTON BRIDGE DUNDAS ST. OVER RIVER THAMES
TITLE OF DRAWING BRACKETS
HAMILTON BRIDGE COMPANY, Ltd.
HAMILTON, ONTARIO.
MADE BY C.K. STARTED June 5/29 COMPLETED June 8/29
TRACED BY B.C. June 13/29 June 20/29
CHECKED N.M.K. Jan. 14/29 Jan. 20/30


12-TOP CHORD SECTIONS-F1
6-TOP CHORD SECTIONS-G1
12-END POSTS-E1
12-POSTS-H1
12-POSTS-J1
12-POSTS-K1
12-DIAGONALS-L1
12-DIAGONAL-M1
6-DIAGONALS-N1
6-DIAGONALS-P1
6-DIAGONALS-Q1
SECTION AA
SECTION BB
SECTION CC as shown
SECTION DD - similar
SECTION EE
SECTION FF
This View for A1 & C1
This View for B1
105-0 c-c bearings
107-0 out to out.
3-BOTTOM CHORD SECTIONS-A1R As Shown.
3-BOTTOM CHORD SECTIONS-A1L Opp Hand.
2-BOTTOM CHORD SECTIONS-B1R As Shown.
2-BOTTOM CHORD SECTIONS-B1L Opp Hand.
1-BOTTOM CHORD SECTION-C1R As Shown.
1-BOTTOM CHORD SECTION-C1L Opp Hand.
6-BOTTOM CHORD SECTIONS-D1
Note - Web must not protrude either side
MATERIAL IN POST J1
2Ls 6 x 4 x 9/16 x 13-11 Aa 28 R-L N.S. 14
2Ls 6 x 4 x 9/16 x 13-11 Aa 28 XL-XR F.S. 14
1 Web Pl. 11 x 3/8 x 9-8 1/2 Ap 48
1 Web Pl. 11 x 3/8 x 3-2 Ap 58 53
2 Sp Pls 9 x 3/8 x 3-6 1/2 Ap 59
1 Pl. 11 3/4 x 3/8 x 2-8 1/2 Ap 60
2 Ls 6 x 4 x 3/8 x 0-5 3/4 Aa 30 R-L
2 Ls 6 x 4 1/2 x 3/8 x 0-11 not more Aa 31 R-L - cut 6x6
2 Fills 2 1/2 x 9/16 x 3-6 1/2 Ap 61
2 Fills 2 1/2 x 7/16 x 0-10 1/2 Ap 47
2 Ls 8 x 8 x 1/2 x 0-9 Aa 27
MATERIAL IN POST K1
2Ls 6 x 4 x 9/16 x 13-11 - Aa 29 R-L 14
2Ls 6 x 4 x 9/16 x 13-11 Aa 29 XL-XR 14
1 Web Pl. Ap 48
1 Web Pl. Ap 58 53
2 Sp Pls Ap 59
1 Pl Ap 60
2 Ls Aa 30 R-L
2 Ls Aa 31 R-L (Bolt)
2 Fills Ap 61
2 Fills Ap 47
2 Ls Aa 27
MATERIAL IN POST H1
2Ls 6 x 4 x 9/16 x 11-11 1/2 Aa 26 R-L - N.S. 12
2Ls 6 x 4 x 9/16 x 11-11 1/2 Aa 26 XL-XR F.S. 12
1 Web Pl. 11 x 3/8 x 7-9 Ap 62 55
1 Web Pl. Ap 58 55
2 Sp Pls Ap 59
1 Pl Ap 60
2 Ls Aa 30 R-L
2 Ls Aa 31 R-L (Bolt)
2 Fills Ap 61
2 Fills Ap 47
2 Ls Aa 27
NOTES
RIVETS 7/8" Unless Noted.
HOLES 15/16" Unless Noted.
NOTES All Main Truss work to be punched 3/4" and dry reamed to 15/16" after assembling. Tie plates and lacing bars to be punched full size. Floor beam connections to be reamed to Steel Template. Trusses to be completely assembled in Shop, reamed and match marked. Allow for camber in facing top and bottom cord joints. Specifications:- Ontario Railway and Municipal Board 1916.
REVISED
LAST ASSEMBLY MARKS
CUSTOMER CITY of LONDON
NAME OF STRUCTURE KINSINGTON BRIDGE, DUNDAS ST.
LOCATION OVER RIVER THAMES
TITLE OF DRAWING TRUSSES
HAMILTON BRIDGE COMPANY Ltd.
HAMILTON, ONTARIO
MADE BY C.K. STARTED COMPLETED CONTRACT 5917
TRACED BY BC & FAM June 3-29 June 12-29 WORK ORDER 8911
CHECKED Jan. 4 Jan. 10/30
APPROVED DATE Jan. 13/30 DRAWING 1

g plate

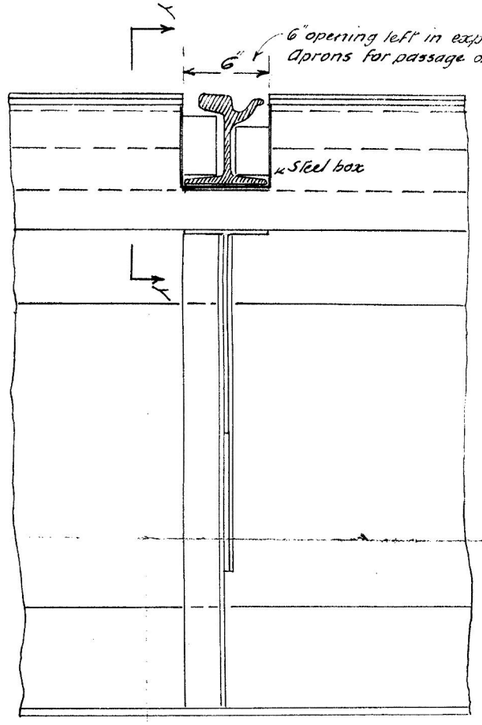


TION Y-Y



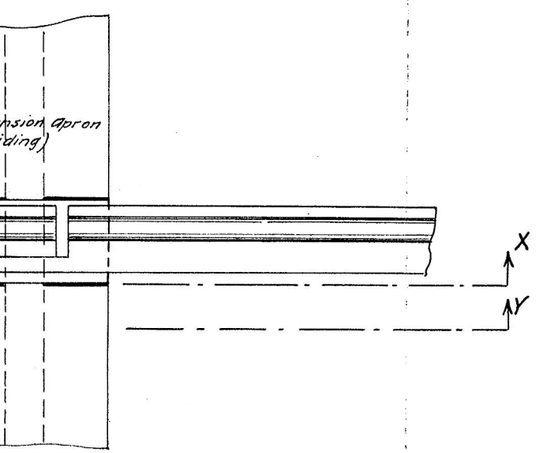
TION X.X

SLIDING FLOOR BEAM.

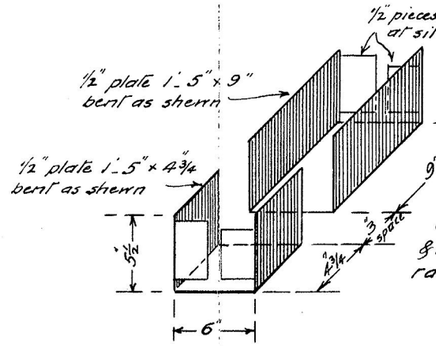


SECTION W-W

nsion Apron
ding)



N (at Road Level)



Isometric View of Steel Boxes to keep concrete & asphalt clear of expansion joint in rail & to allow free movement of rail bonding strips.

CITY OF LONDON

KENSINGTON BRIDGE (DUNDAS ST.)

Proposed Expansion joint over Pier No 1.

City Engineers Office - Scale 1/4" = 1' - London Ont.

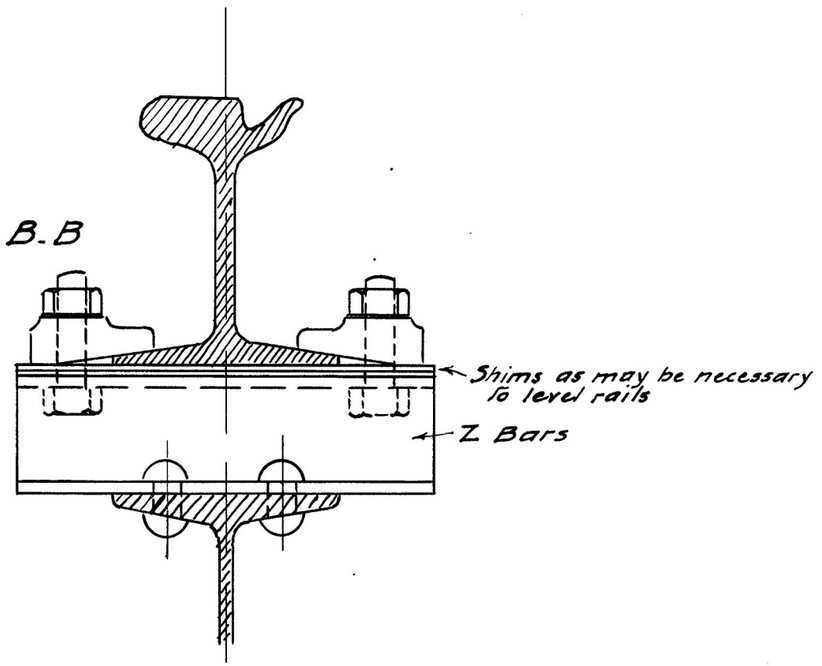
Dept of Bridges Feb. 14th 1930.

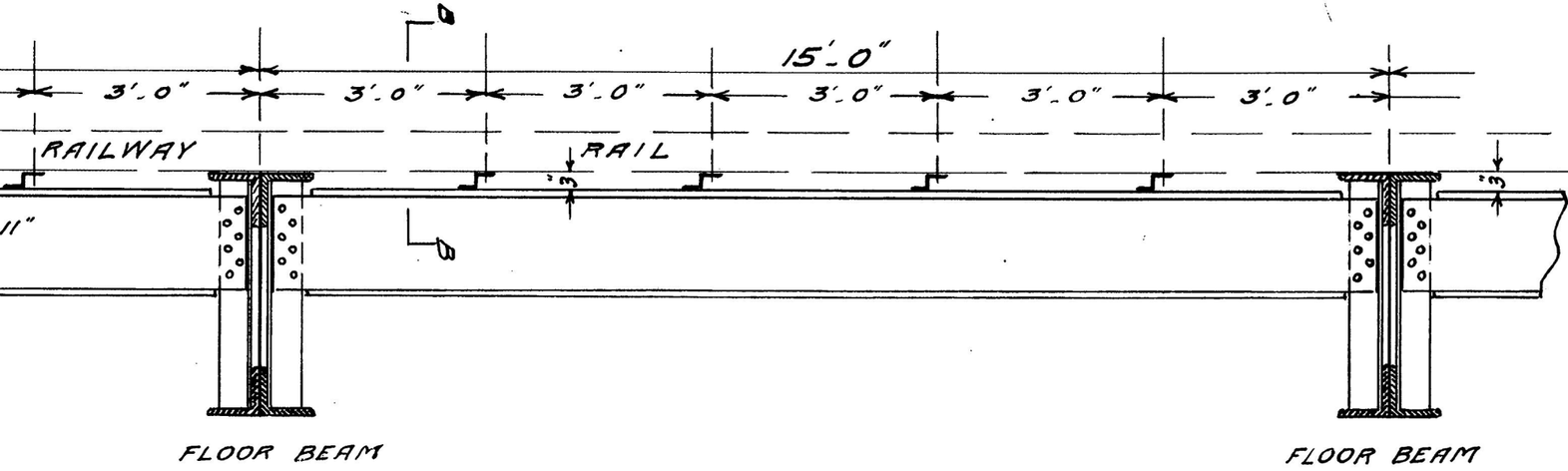
City Engineer

V.1 - 136

5.

ENLARGED SECTION B.B
Scale 3"=1'



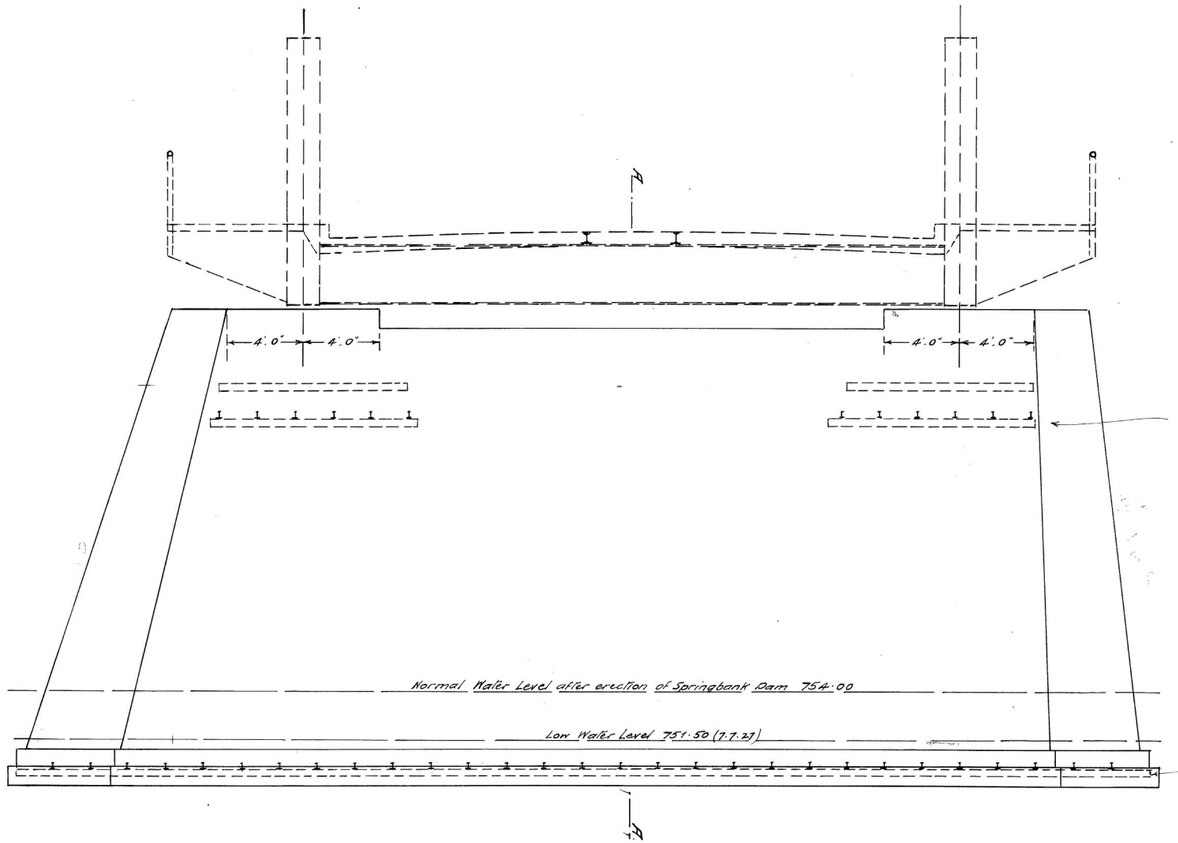


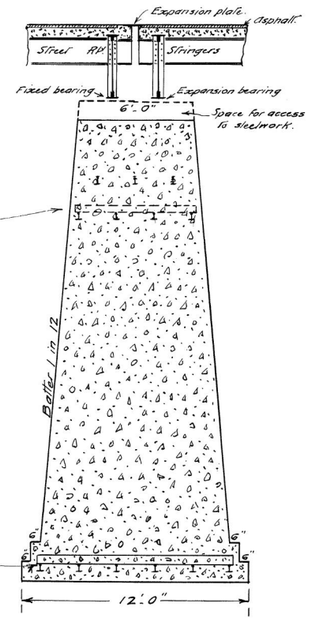
CITY OF LONDON
KENSINGTON BRIDGE (DUNDAS STREET)
Longitudinal Section shewing Street Railway rail attachments to steelwork of Bridge.
(Accompanying Plan 2 to the Street R'y Co)

City Engineers Office
Dept. of Structural Work.
scale 1/2"=1'
London Ont.
Feb'y 5th 1930.

W. P. Mear
City Engineer

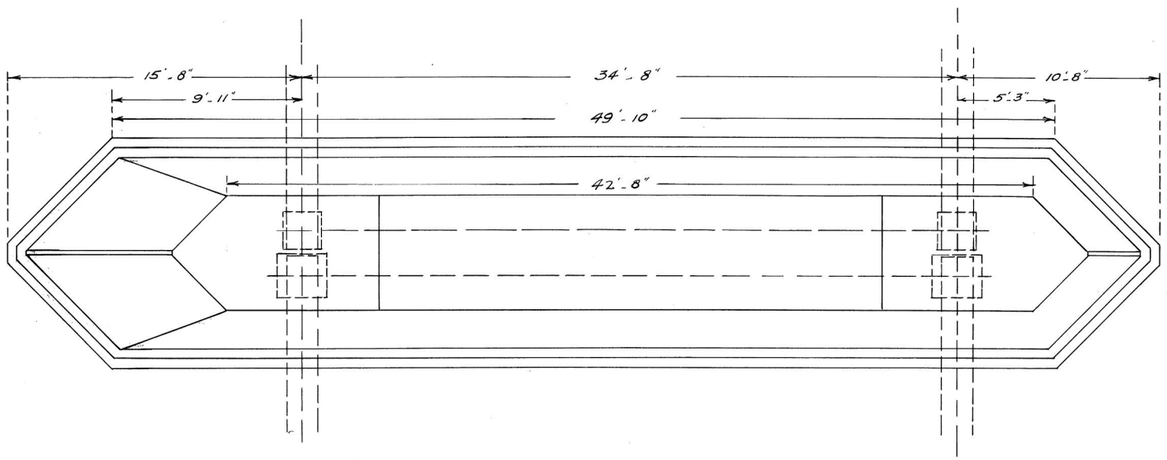
Y1-135





SECTION A.A

EAST & WEST PIERS



CITY OF LONDON

KENSINGTON BRIDGE (DUNDAS ST.)

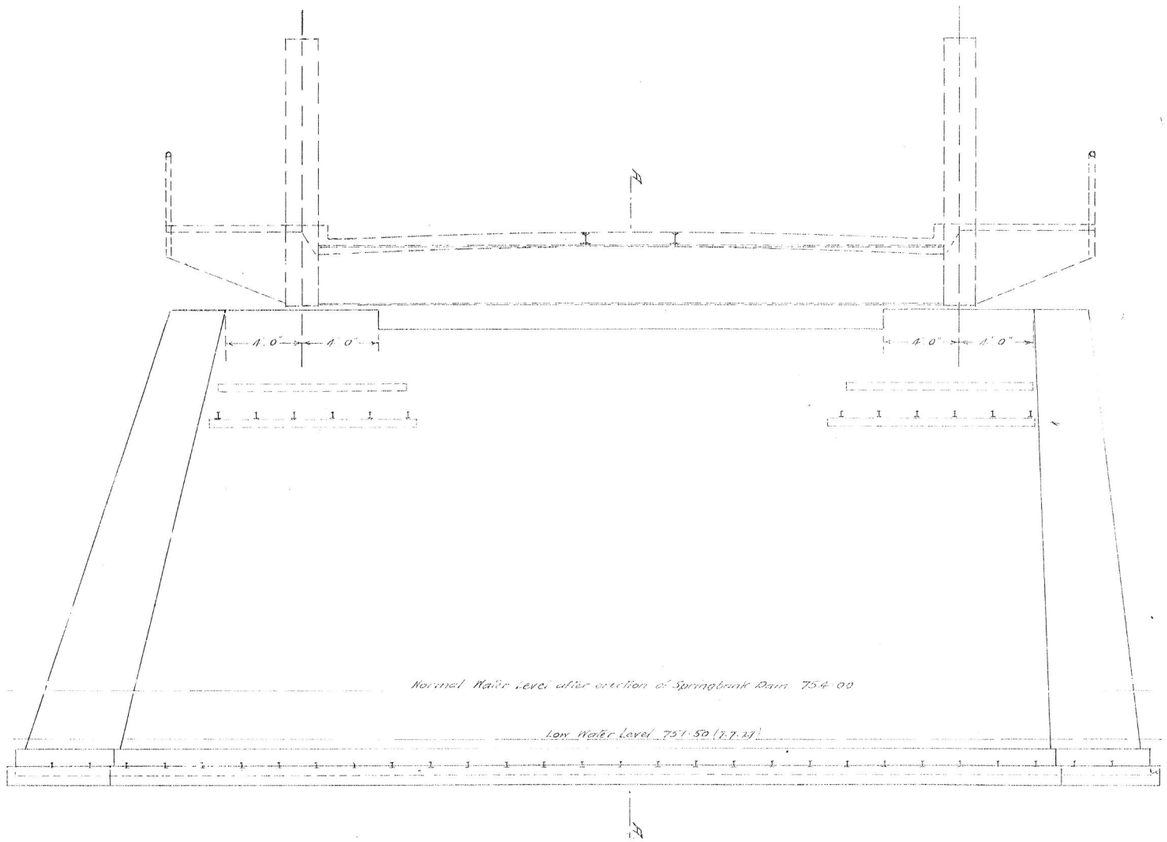
Plan of Cement Concrete Piers.

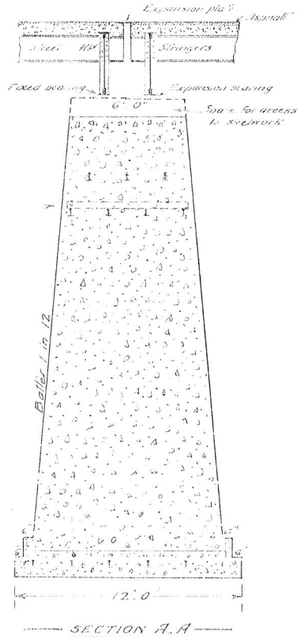
City Engineer's Office, London Ont.

Dept. of Structural Work, Scale 1/8" = 1', 13th Mch. 1928.

J. A. A.

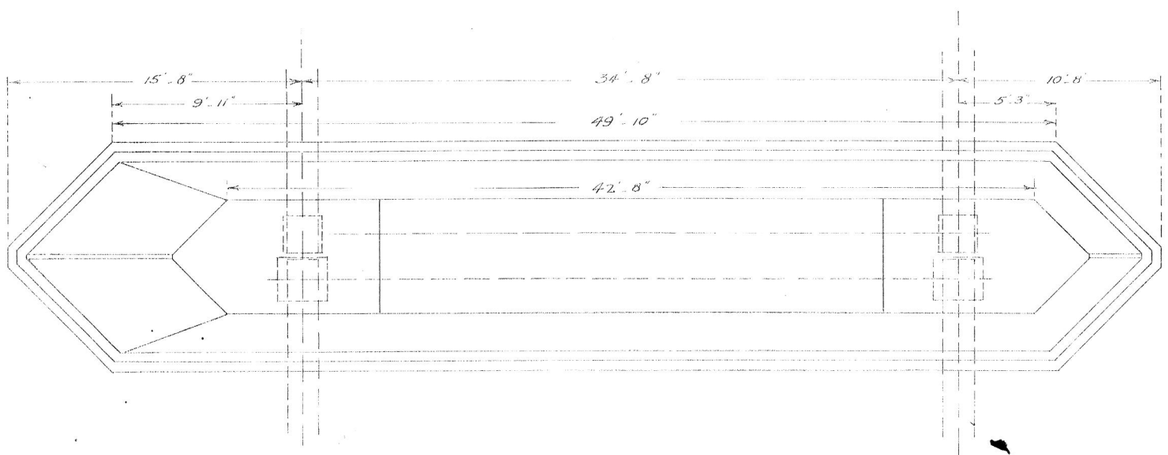
City Engineer.





SECTION A-A

EAST & WEST PIERS



CITY OF LONDON

KENSINGTON BRIDGE (DUNDAS ST.)

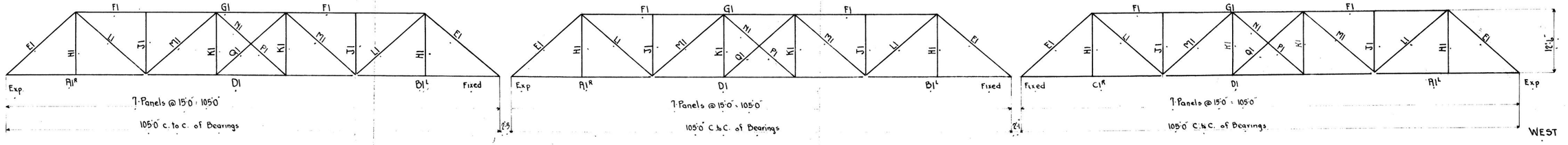
Plan of Cement Concrete Piers

City Engineers Office, London Ont.

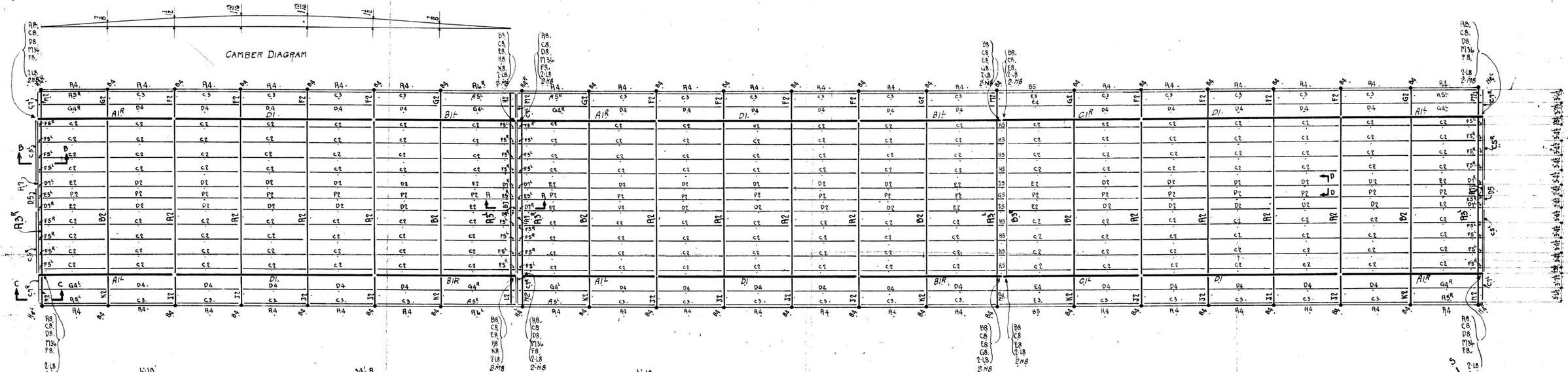
Dept. of Structural Work — Scale 1/8" = 1' — 13th Feb. 1928

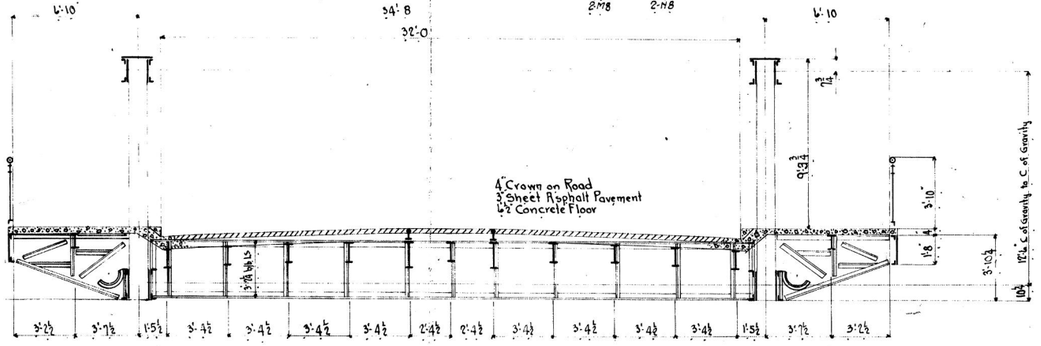
J. A. R.

City Engineer

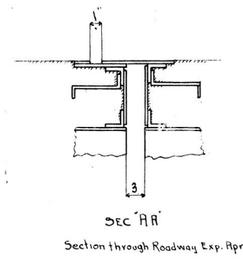


CAMBER DIAGRAM

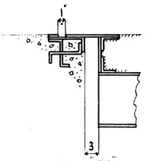




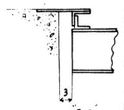
-TYPICAL CROSS SECTION-



SEC AA
Section through Roadway Exp. Apron

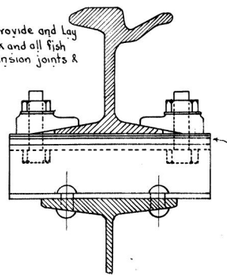


SEC. BB
Through Roadway Exp. Apron



SEC CC
Through Sidewalk Exp Apron

The City of London will provide and Lay the steel railway track and all fish plates, bolts, clips, expansion joints & boxes etc. etc.



Shims E1, F1, G1 to be used as necessary to level the rails

SEC DD

NOTES

FIELD RIVETS 3/4 ø 7/8

HOLES
All Field Connections Riveted except Handrails to Posts & Expansion Aprons to Stringers which are to be bolted.

FIELD PAINT Two Coats Battleship Grey of slightly different shades - the lighter shade to be applied first.

REVISED

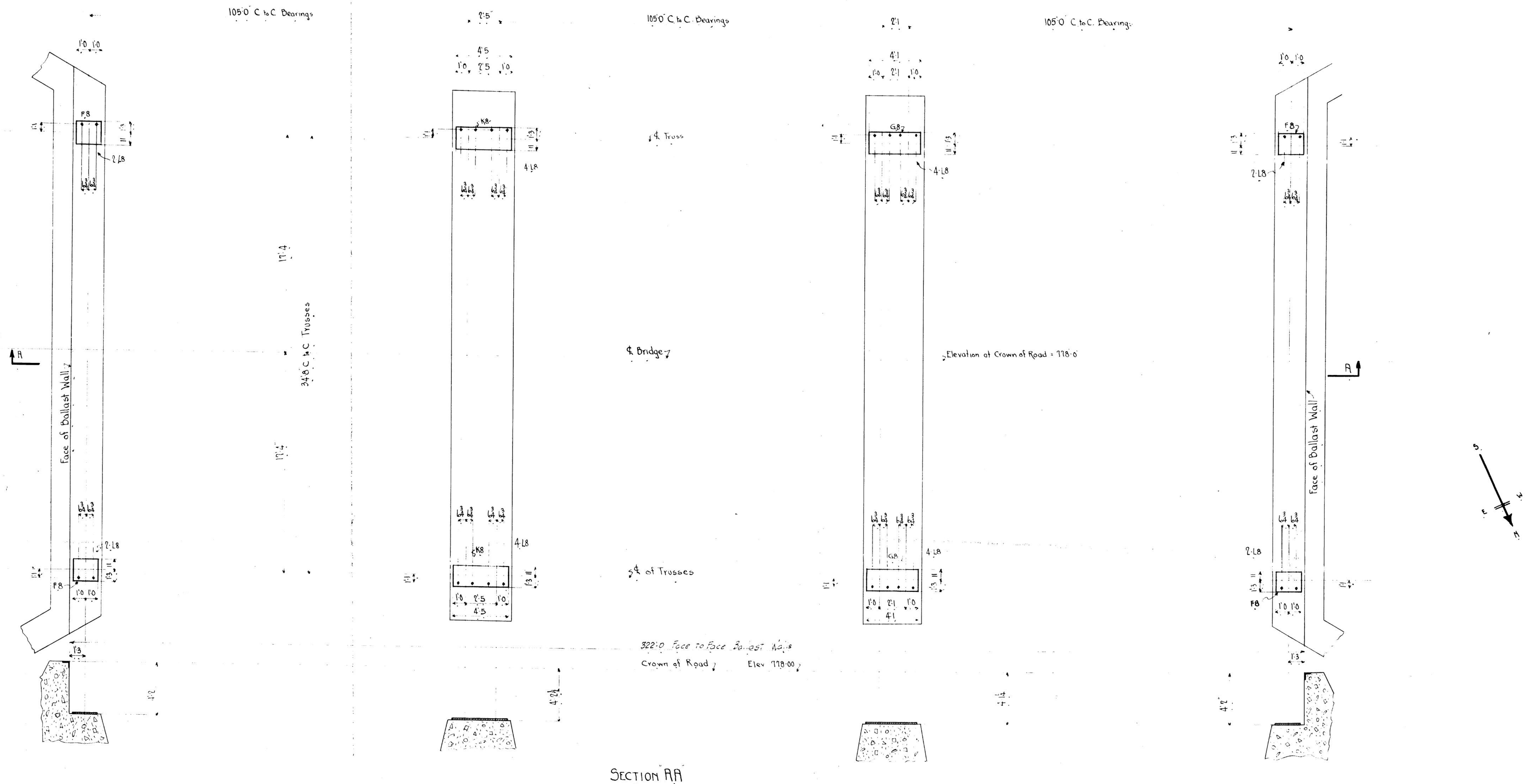
LAST ASSEMBLY MARKS

CUSTOMER CITY OF LONDON
NAME OF STRUCTURE KENSINGTON BRIDGE DUNDAS ST.
LOCATION OVER RIVER THAMES
TITLE OF DRAWING ERECTION DIAGRAM

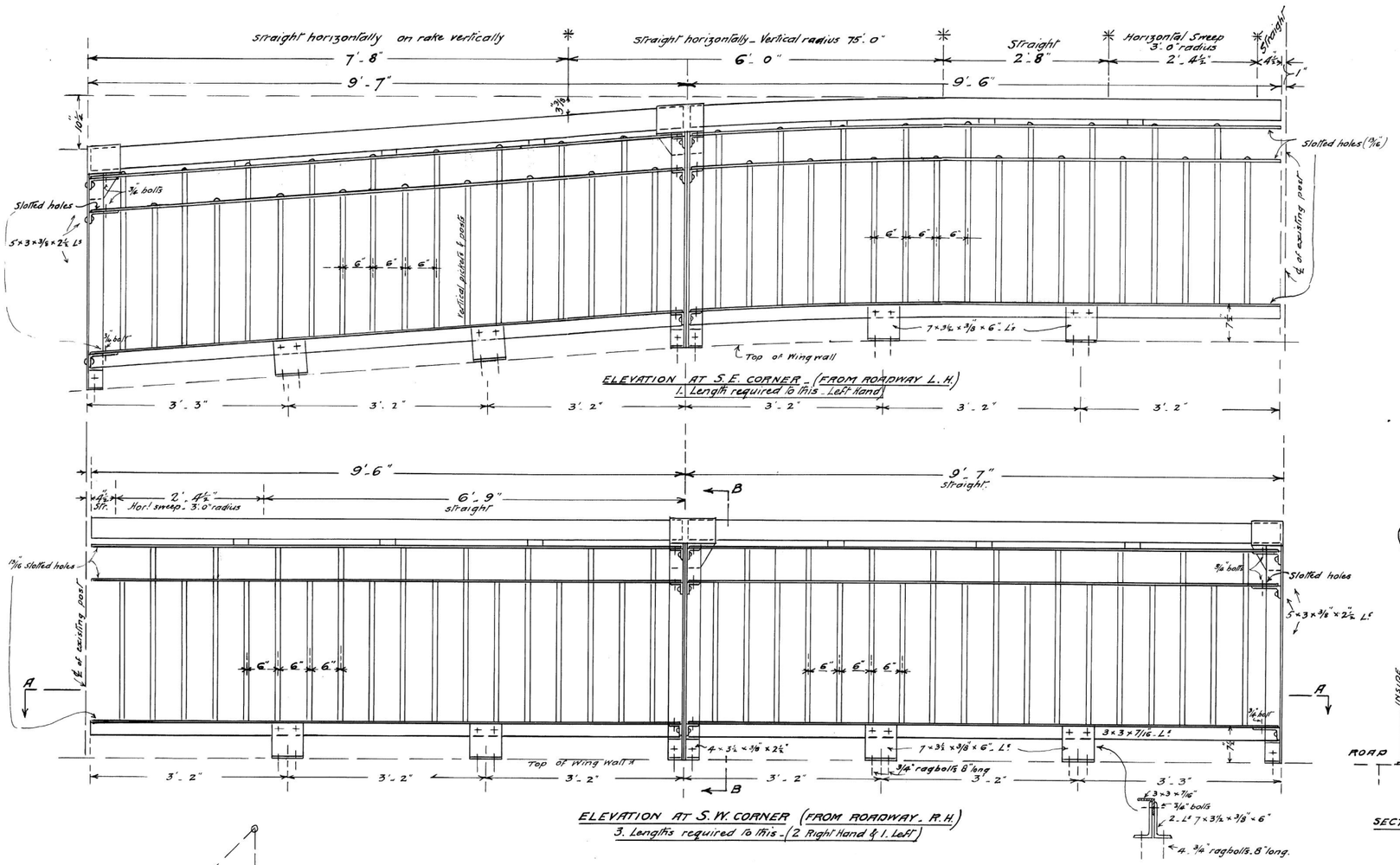
HAMILTON BRIDGE COMPANY, Ltd.
HAMILTON, ONTARIO

MADE BY ABH STARTED COMPLETED CONTRACT 591
TRACED BY H.M.D. " Jan. 20/29. " Jan. 21/29.
CHECKED N.H.H. " Jan. 24/29 " Jan. 23/29 WORK ORDER
APPROVED W.V.C. DATE Jan. 24/29 DRAWING E2

SHOP BILLS



NOTES	REVISED	
RIVETS		CUSTOMER CITY OF LONDON
HOLES		NAME OF STRUCTURE KENSINGTON BRIDGE DUNDAS ST
		LOCATION OVER THAMES RIVER
		TITLE OF DRAWING MASONRY DIAGRAM
	LAST ASSEMBLY MARKS	**HAMILTON BRIDGE COMPANY, Ltd.**
PAINT		HAMILTON, ONTARIO
		MADE BY R.B.H. STARTED Jan 21/30 COMPLETED Jan 22/30 CONTRACT 5917
		TRACED BY N.M.B. " Jan 23/30 " Jan 23/30
		CHECKED [illegible] " Jan 24 " Jan 25/30 WORK ORDER
		APPROVED [illegible] DATE [illegible] /30 DRAWING E1



NOTE - All details not noted to be similar to bridge railing already supplied & fixed.
All bolts ¾" ϕ supplied with railing
Insides of posts to be on road side

[redacted] at Bridge

CITY OF LONDON

KENSINGTON BRIDGE (DUNDAS ST.)

Details of railing required for Wing Walls.

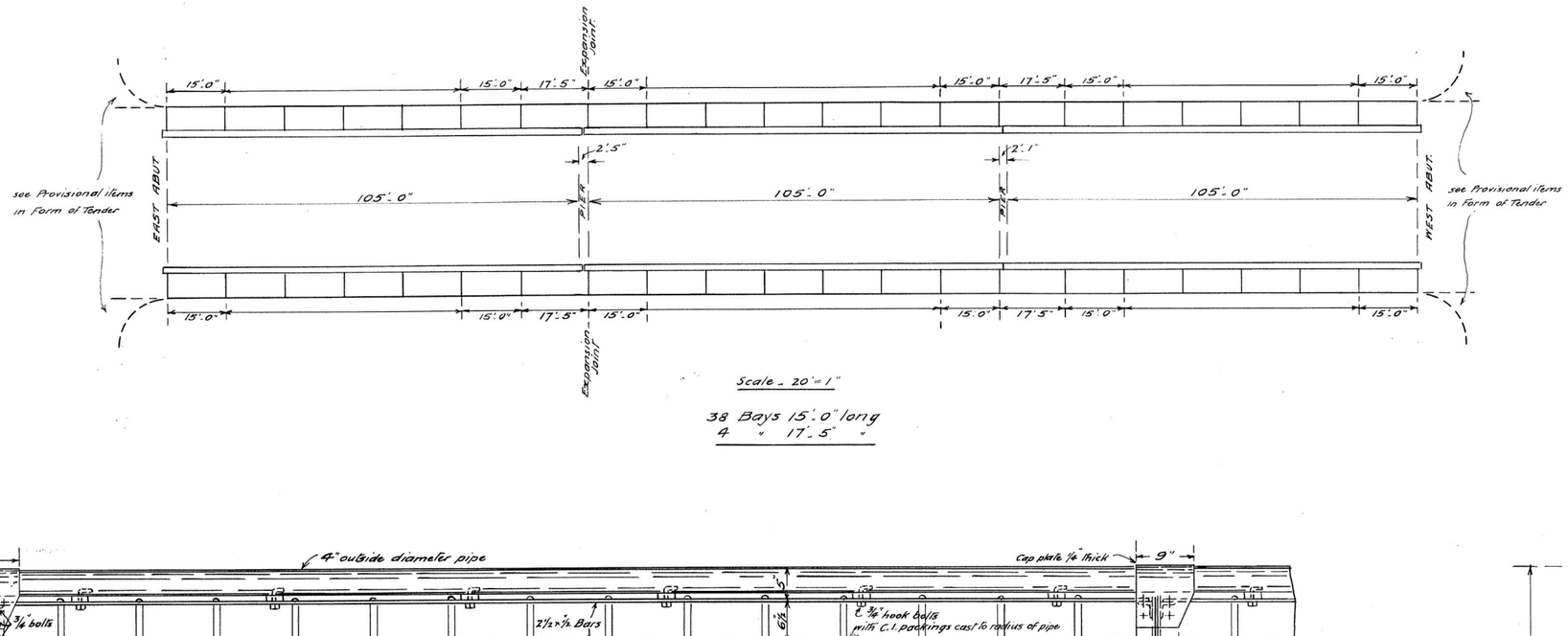
Scale - 1" = 1'

City Engineer's Office
Dept. of Structural Work.

London, Ont.
Oct.r 7th 1930.

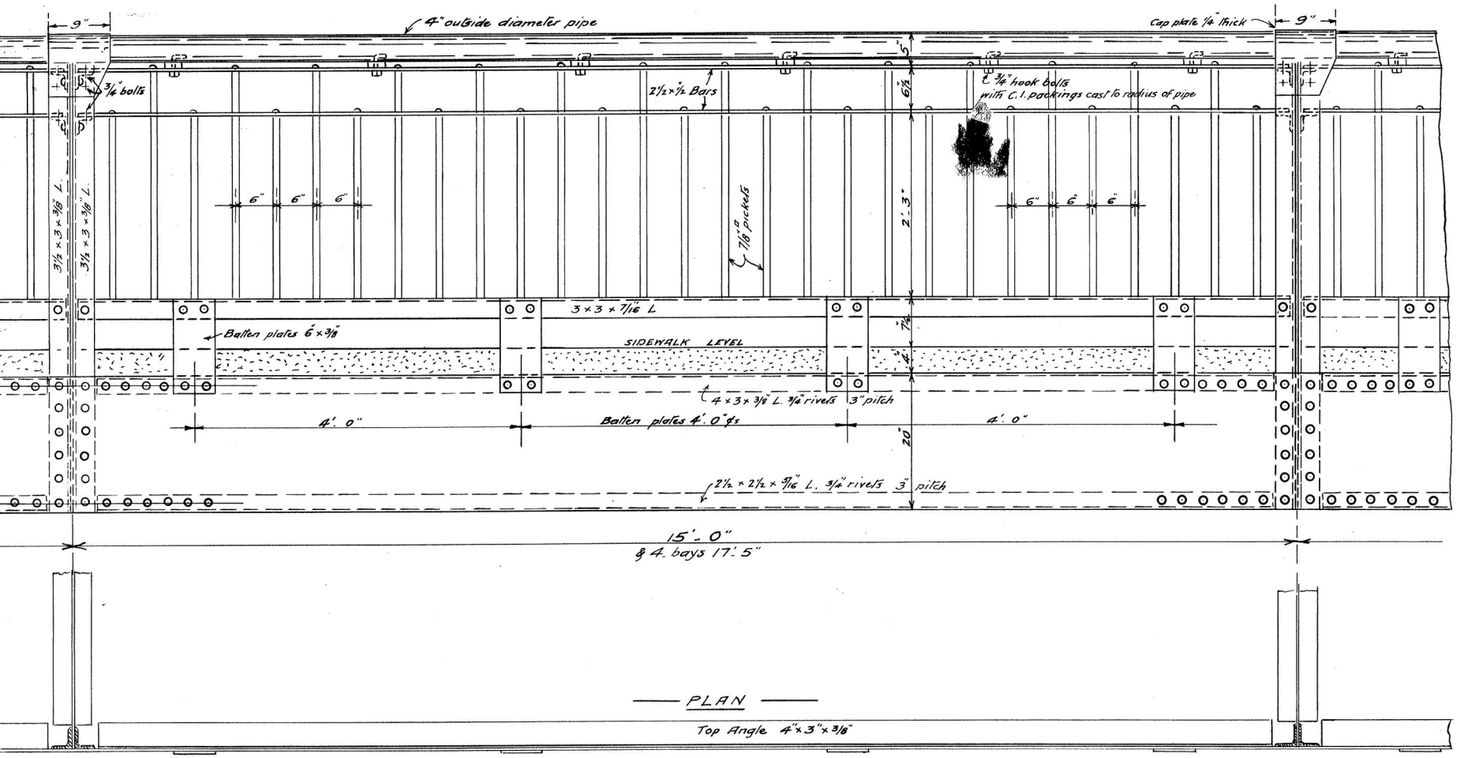
W.P. Mearns
City Engineer

KEY PLAN

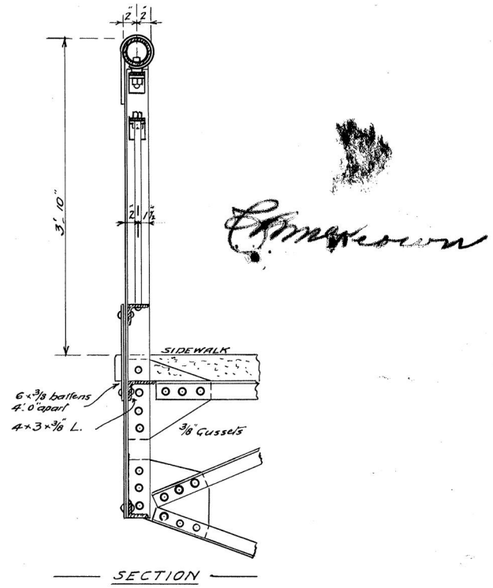


Scale - 20'=1"

38 Bays 15'.0" long
4 " 17'.5" "



PLAN



SECTION

CITY OF LONDON

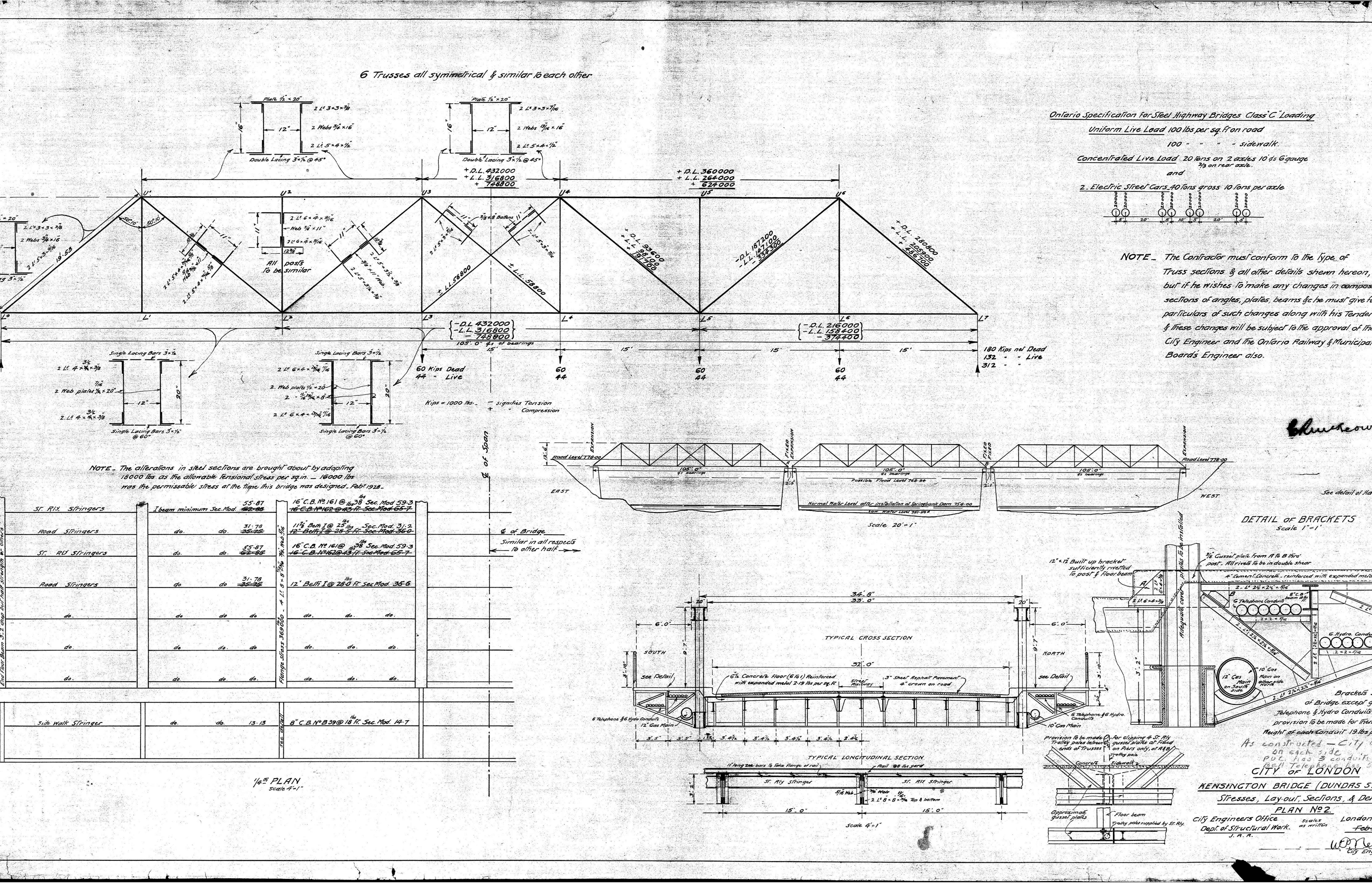
KENSINGTON BRIDGE (DUNDAS STREET)

Details of Railing

PLAN No 3

City Engineer's Office — Scale 1"=1' — London Ont. Feb.y 1928.
Dept. of Structural Work
J. R. R.

C. J. Mackenzie
City Engineer



6 Trusses all symmetrical & similar to each other
Ontario Specification for Steel Highway Bridges Class "C" Loading
Uniform Live Load 100 lbs per sq. ft on road
100 " " " " sidewalk.
Concentrated Live Load 20 tons on 2 axles 10' c/s 6' gauge
2/3 on rear axle.
and
2 Electric Street Cars 40 tons gross 10 tons per axle
NOTE _ The Contractor must conform to the type of Truss sections & all other details shewn hereon, but if he wishes to make any changes in composite sections of angles, plates, beams &c he must give full particulars of such changes along with his Tender & these changes will be subject to the approval of the City Engineer and the Ontario Railway & Municipal Board's Engineer also.
+ D.L. 432000
+ L.L. 316800
+ 748800
+ D.L. 360000
+ L.L. 264000
+ 624000
-D.L. 432000
-L.L. 316800
-748800
-D.L. 216000
-L.L. 158400
-374400
105'-0" c/s of bearings
180 Kips net Dead
132 " " Live
312 " "
60 Kips Dead
44 " Live
Kips = 1000 lbs.
- signifies Tension
+ " Compression
Single Lacing Bars 3 × 1/2
Double Lacing 3 × 1/2 @ 45°
All posts to be similar
NOTE _ The alterations in steel sections are brought about by adopting 18000 lbs as the allowable tensional stress per sq.in. _ 16000 lbs was the permissable stress at the time this bridge was designed. Feb. 1928.
St. Rly. Stringers
Road Stringers
Side Walk Stringer
℄ of Bridge
Similar in all respects to other half
1/4 th PLAN
Scale 4' = 1'
Road Level 778.00
EAST
WEST
Possible Flood Level 768.84
Normal Water Level after installation of Springbank Dam 759.00
Scale 20' = 1'
TYPICAL CROSS SECTION
SOUTH
NORTH
6 1/2" Concrete Floor (6 to 1) Reinforced with expanded metal 2.19 lbs per sq. ft.
3" Sheet Asphalt Pavement 4" crown on road
TYPICAL LONGITUDINAL SECTION
St. Rly Stringer
Scale 4' = 1'
DETAIL OF BRACKETS
Scale 1' = 1'
Provision to be made for clipping 4 St. Rly Trolley poles between gusset plates at fixed ends of Trusses on Piers only
Floor beam
Trolley poles supplied by St. Rly.
As constructed — City
CITY OF LONDON
KENSINGTON BRIDGE (DUNDAS ST.)
Stresses, Lay-out, Sections, & De
PLAN No 2.
City Engineers Office
Dept. of Structural Work.
Scales as written
London

THAMES ST.

THAMES

The Street Railway Tracks & Street Railway Bridge as shewn by dotted lines to be removed entirely by The Street Railway Company.

DUNDAS STREET

Kerb & Sidewalk To be removed by City.

The Highway Bridge as shewn by dotted lines To be removed entirely. The removal of the Ironwork only Masonry only of the Bridge included in this Contract.

RIVER

KENS

City Eng
Dept. o

THAMES ST.

THAMES

The Street Railway Tracks & Street Railway Bridge as shewn by dotted lines to be removed entirely by The Street Railway Company.

DUNDAS STREET

Kerb & Sidewalk to be removed by City.

The Highway Bridge as shewn by dotted lines to be removed entirely. The removal of the Ironwork only / Masonry only of the Bridge included in this Contract.

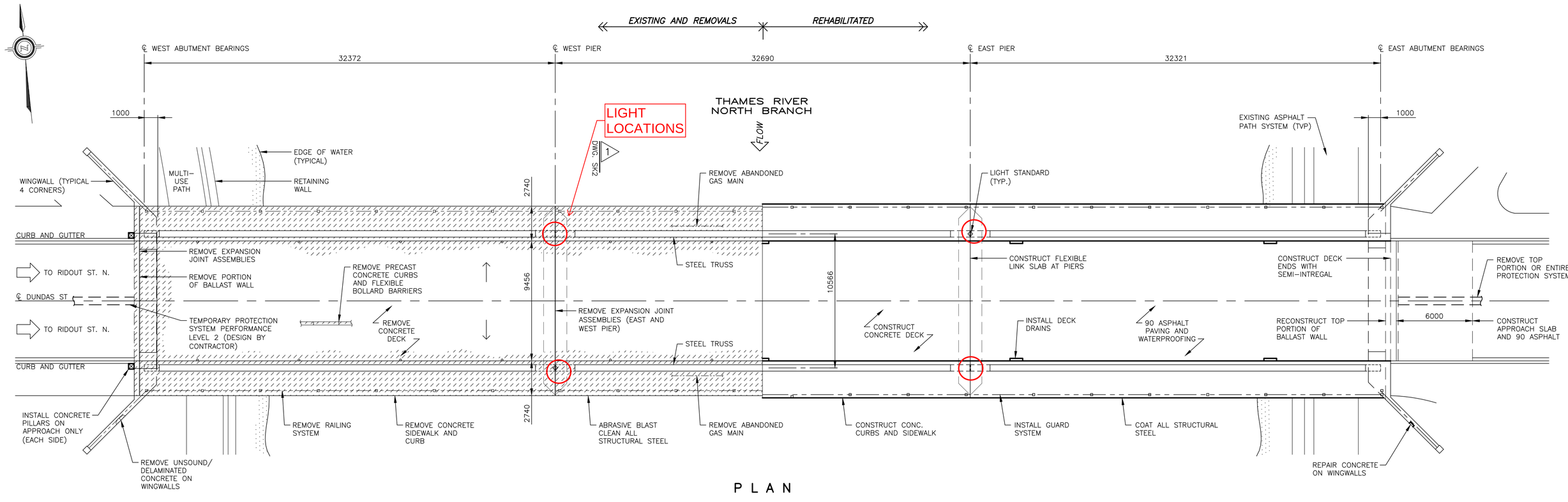
RIVER

KE

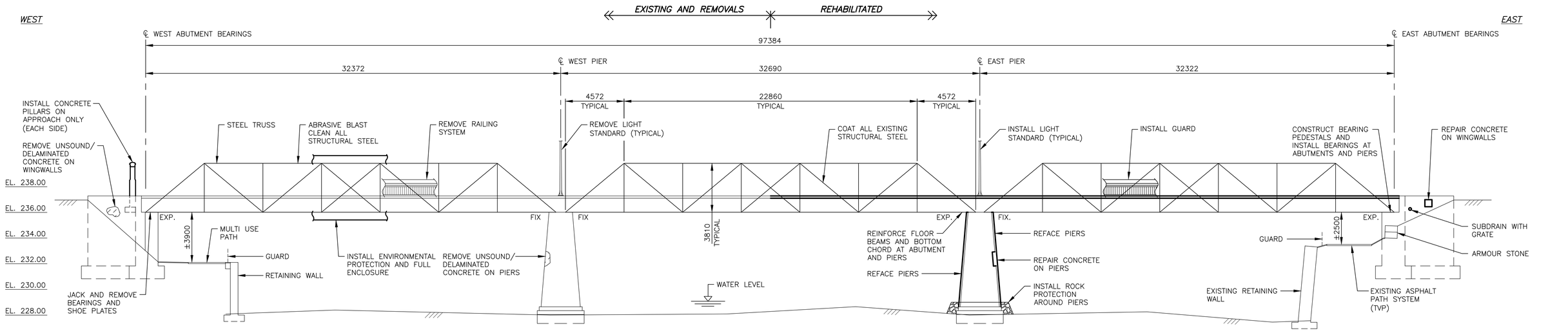
Cit
D

Appendix B

Select 30% Detailed Design Drawings



PLAN



ELEVATION

EXISTING SERVICES	DRAWING #, SOURCE	DATE	AS CONSTRUCTED SERVICES	COMPLETION

DETAILS		No.	REVISIONS	DATE	CONSULTANT
DESIGN	J.P.	-	-	-	-
DRAWN BY	T.G.				
CHECKED	-				
APPROVED	-				
DATE	OCT. 2022				

AECOM
London, Ontario
519.673.0510

60672088–SHT–30–SK1

ENGINEER'S STAMP

CORPORATION OF THE CITY OF LONDON
London CANADA

SCALE
NOT TO SCALE

TITLE
KENSINGTON BRIDGE (1–BR–06)
DUNDAS STREET OVER THAMES RIVER
STRUCTURAL
GENERAL ARRANGEMENT

SHEET No.
SK1

PLAN FILE No.

DATE: 1/6/2023 11:59:11 AM DRAWING FILE: L:\DCS\Projects_TRN\60672088_Kensington_BridgeEA\900_CAD_GIS\910_CAD\20-SHEETS\S\60672088-SHT-30-SK1