Leeds CITY COUNCIL

Agenda Item: 3951/2016
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Report to Chief Officer (Highways and Transportation)

Date: **22 November 2016**

Subject: **Request to Waiver of Contract Procedure Rules 8.1 and 8.2 for the Supply of Termarust HRCSA Paint System by Vector Corrosion for the Leeds Bridge Strengthening Scheme**

Are specific electoral Wards affected? If relevant, name(s) of Ward(s): City and Hunslet	☒ Yes	☐ No
Are there implications for equality and diversity and cohesion and integration?	☐ Yes	☒ No
Is the decision eligible for Call-In	☐ Yes	☒ No
Does the report contain confidential or exempt information? If relevant, Access to Information Procedure Rule number: Appendix number:	☐ Yes	☒ No

Summary of main issues

1. Leeds Bridge is a Grade II listed structure (currently 7.5 tonne weight restricted) and needs strengthening to preserve its use by buses and emergency vehicles (currently exempt from the weight restriction). The works cost of the strengthening is approximately £1.7m which includes repainting of the whole bridge.

2. The bridge is in an area at risk of flooding and as such the Environment Agency has imposed significant constraints on the temporary works required to repaint the bridge. Traditional painting methods (blast cleaning and repainting with a multi coat system) are expensive and take a long time.

3. A “High Ratio Co-Polymerised Calcium Sulfonate Alkyd” (HRCSA) paint system has been sourced from North America that does not require blast cleaning as a preparation, and is a one coat system. Providing savings in cost and time.

4. Termarust Ltd is the sole known manufacturer of the system. The estimated cost of the paint system is approximately £95k.

5. The system also incorporates a penetrant that prevents future rusting in areas where “pack rusting” has occurred as is the case with Leeds Bridge. This will significantly minimise the number of future maintenance interventions required to preserve the bridge’s load carrying capacity and provide significant cost saving in the whole life maintenance.

Recommendations

6. The Chief Officer of Highways and Transportation is recommended to approve the waiver of Contract Procedure Rules 8.1 and 8.2 – (Intermediate Value Procurements) so that the Council can specify the use of the High Ratio Co-Polymerised Calcium Sulfonate Alkyd paint system manufactured by Termarust Ltd in its specification for the Leeds Bridge Strengthening Scheme, at an estimated cost of £95,000.

1 Purpose of this report

1.1 To approve the waiver of Contract Procedure Rules 8.1 and 8.2 to specify the purchase without seeking competition of Termarust HRCSA Paint System in the Leeds Bridge Strengthening Scheme contract documents.

2 Background information

2.1 Leeds Bridge is a Grade II listed single span bridge constructed in the 1870's and listed in 1974. It carries Bridge End over the navigable River Aire, and is located immediately to the south of the junction of Bridge End with The Calls/Swinegate (The Loop) and Briggate.

2.2 It is constructed of arched wrought iron internal girders and cast iron external fascia girders incorporating decorative panels and parapets. The wrought iron girders are of riveted plate construction with the top and bottom flanges of the beams comprising of multiple plates. This is of particular relevance to Leeds Bridge as "pack rusting" whereby corrosion of the individual plates force them apart is occurring and this is significantly affecting the capacity and anticipated life of the bridge. (See Photos 2 and 3 in Appendix A of this report)

2.3 The bridge is currently subject to a 7.5 tonnes weight limit with exemptions for buses (18 tonnes) and emergency service vehicles. Recent assessment work has demonstrated that this exemption is at risk due to the ongoing deterioration of the bridge.

2.4 Preparatory maintenance works were carried out in 2012 to the most critical and at risk elements (predominantly comprising of blast cleaning and repainting approximately the end 2 metres of the internal arch girder beams only) to preserve this exemption and the capacity of the girders whilst a strengthening scheme was designed. These works lasted 9 weeks and the cost was of the order of £340,000 and utilised pontoons to carry out the works that were removed from the bridge at the end of each day.

2.5 Strengthening works are programmed to be carried out next year. These works will comprise of strengthening of the existing weak deck elements, and repainting of the existing ironwork. It is anticipated that the duration of the strengthening works will be of the order of 12 months, with the repainting works lasting a further 6 months after this. The maintenance works (in 2.4 above) will be incorporated into the repainting works.

2.6 The strengthening works will result in a number of sub-standard existing deck elements becoming either redundant (although retained due to the listed nature of the bridge) or strengthened. Thus the existing weight limit will no longer be required for structural reasons. However, the condition of the main arch girders is such that they are only just able to carry full vehicular loading (as detailed in the Road Vehicles (Construction and Use) Regulations). Further deterioration in the condition of the arch girders would result in the re-introduction of a weight limit. Specialist advice has indicated that strengthening of the arch girders would be difficult without significantly affecting the listing.

2.7 The River Aire is navigable at Leeds Bridge and is deemed to be a flood risk. Works are currently being undertaken as part of the Flood Alleviation Scheme to reduce this risk, but consultation undertaken with the Environment Agency has concluded that significant constraints with regards temporary works will be imposed on the proposed bridgeworks.

2.8 There is currently no access to the underside of the bridge other than via the river and no exposed ground other than at very low water levels.

2.9 As the arch girders have solid spandrel plates between the top of the arch and the underside of the deck, temporary works, particularly at the ends of the arches, will need to fit between the arch girders and will be up to 3 metres high. These temporary works will need to be removable at the end of each day.

2.10 Testing has demonstrated that the existing paint on the bridge contains lead. Removal of the existing paint is a potential health hazard and could lead to contamination of the River Aire and its environs.

3 Reason for Contract Procedure Rules Waiver

3.1 Traditional repainting methods for structural metalwork require a degree of surface preparation ranging from mechanical abrasion for maintenance painting (typically leaving non loose or damaged paint intact) to blast cleaning to bare metal. The greater the degree of surface preparation, the longer the period before repainting is required. For reference, new metalwork is typically shop blasted and has a required period of:-

(i)	No maintenance	-	Up to 12 years
(ii)	Minor maintenance	-	12 to 20 years
(iii)	Major maintenance	-	20+ years

3.2 The number of coats required for new paint systems is dependent on the type of paint used but can be up to four coats. Each coat requires drying time prior to the application of the next coat.

3.3 In view of the difficulty in carrying out painting works due to the lack of access to the underside of the bridge and the constraints with regards temporary works (due to the flood risk) it has been decided that the system selected should provide a similar level of protection to that for new metalwork.

3.4 It has been estimated that to carry out blast cleaning and repainting of the bridge in the traditional manner could take nearly two years (due to the temporary works constraints), cost around £2m, and comprise a significant contamination risk due to the materials used to abrade the existing paint that contains lead.

3.5 Termarust are a Canadian company who manufacture a one coat paint system that can be applied without the need to blast clean to bare metal. The paint system uses HRCSA paint that has been specifically developed for long term performance. The required surface preparation consists of high pressure water jetting only (after the removal of black iron oxides) thus minimising the risk due to the lead in the paint. Full encapsulation of the area cleaned is not required; typically mesh netting only to catch any loose paint flakes. Termarust are currently the sole known manufacturer of this system.

3.6 It is estimated that the cost of repainting the bridge (including surface preparation as above) is approximately £400k and will take 20 weeks. Of this, the cost of the supply of the paint subject to this waiver report is £95k (including one years inflation to cover duration of the strengthening works).

3.7 A particular benefit of the Termarust system is the use of an active penetrant that is applied to crevices (in the case of Leeds Bridge between plates that have been forced apart due to pack rusting).This penetrant remains active and reacts to prevent future rusting occurring. This is deemed the best option for protecting the capacity of the bridge. Also as the Termarust paint system can be “wet on wet” applied, this does not significantly affect the duration of the painting works.

3.8 Whilst there has been little use of the Termarust system in the UK, it has been successfully used on high profile bridges in extreme conditions for over twenty years in North America. Some case studies are attached to this document in Appendix A for information. Of particular note is the lack of deterioration of the system (after 18 years on some structures) and the control of pack rusting. Termarust provide a 5 year warranty on their paint system based on suitable surface preparation. An independent paintwork inspector has been located with experience of the use of Termarust who is qualified to certify the surface preparation. In view of the case histories, however, it is expected that Termarust will provide a similar level of protection to that detailed in 3.1 previous.

3.9 The US Department of Transportation, Federal Highway Administration published a report (FHWA-HRT-11-046) in June 2011 titled “Performance Evaluation of One-Coat Systems for New Steel Bridges” that detailed the results of testing carried out on various systems - one, two and three coat. The HRCSA system was ranked 2nd behind the traditional blast clean three coat system, only as a result of the time taken to cure.

3.10 Recently the system has also been used in Poland (for the base of street lighting columns), and Network Rail have successfully used the system on Selby Swing Bridge (See Case History 6 in Appendix A of this report).

3.11 There are other North American companies that also manufacture a similar but not identical system (in particular the penetrant is generally omitted), but they have no European supplier.

3.12 The main disadvantages of the system are that it takes a significant period of time to cure and it cannot be used on “trafficked” areas. In the case of Leeds Bridge this refers to the bridge parapets that will be blast cleaned and painted in the traditional manner. This is not deemed critical as liaison with the Environment Agency has led to reduced constraints on the temporary works for this element of the painting works provided they do not extend below the bridge soffit.

3.13 CSA (Calcium Sulfonate modified Alkyd) paints (also one coat) are also available (from North America) but are typically highly variable and for use only in the short term and have thus been discounted from being an appropriate paint system for Leeds Bridge.

3.14 Similarly “grease paint” one coat systems are available, but these again are typically only a short term solution (Highway Specification quotes use on structures with less than 20 years life).

Consequences if the proposed action is not approved

3.15 The alternative of repainting the underside of the bridge utilising traditional methods would be prohibitively expensive and cause unacceptable disruption to traffic due to the duration to undertake the works.

3.16 The alternative method requires the removal of the existing lead based paintwork which will increase the risk to health and contamination to the River Aire.

3.17 Without the active penetrant there will be no protection from pack rusting and impact on the future structural integrity of the bridge.

4. Corporate Considerations

4.1 Consultation and Engagement

4.1.1 Preliminary consultation for the bridge strengthening scheme has been undertaken with local Members, residents and business. The duration of the works is a major concern.

4.1.2 Consultation has also been undertaken with Leeds City Council Network Management, UTMC, Traffic and Transportation sections and with First Bus and WYCA with regards the works. Similarly the duration of the works is of concern as a northbound traffic closure is required for the duration of the strengthening works.

4.2 Equality and Diversity / Cohesion and Integration

4.2.1 An Equality Impact assessment screening has been carried out (as part of the approval of the “Planned Highway Asset Maintenance Programmes 2016-17”

report, approved 20th April 2016) which has confirmed that an Equality, Diversity, Cohesion and Integration impact assessment is not required. (See Appendix B).

4.3 Council Policies and Best Council Plan

4.3.1 The bridge strengthening scheme is consistent with the aims contained within the "Best Council Plan 2015-20 – Update for 2016/17" document.

(i) By maintaining the use of the bridge by buses, including Park and Ride buses, the scheme aligns with the "improving air quality", "helping deliver a well-connected transport system" and "providing an inclusive, accessible range of transport options" priorities.
(ii) By removing a structural constraint (the existing weight limit), the scheme aligns with the "supporting economic growth and access to economic opportunities" priority for businesses to the south side of the city centre.
(iii) By retaining the listed bridge and restoring its appearance by repainting, the cultural heritage of the city is retained and enhanced thus aligning with the "enhancing the quality of our public realm and green spaces" priority.

4.3.2 The proposed use of the Termarust HRCSA paint system aligns with the "spending money wisely" council value by minimising the number and cost of future maintenance painting interventions in addition to the aims in Section 4.3.1 above.

4.3.3 The bridge strengthening scheme is consistent with the "Leeds' economy will be prosperous and sustainable" vision in the "Our Vision for 2030" document by contributing to "high-quality, accessible, affordable and reliable public transport" as stated in Section 4.3.1 (i) and (ii).

4.3.4 The bridge strengthening scheme is consistent with the "Best city …. for business" vision in the "Our Vision for 2030" document by supporting businesses to grow as stated in Section 4.3.1 (ii). The proposed use of the Termarust HRCSA paint system also aligns with this vision by minimising the duration of the painting works.

4.3.5 The bridge strengthening scheme is consistent with the "Best city for communities" vision in the "Our Vision for 2030" document by retaining the heritage of the bridge and enhancing its appearance.

4.4 Resources and value for money

4.4.1 Resources included in the "Planned Highway Asset Maintenance Programmes 2016-17" report (approved on 20th April 2016), was estimated with the use of the Termarust paint system. The cost of a traditional blast clean and multiple coat paint system could not be accommodated within the costings in that report.

4.4.2 The proposal within this report represents the best value solution in terms of cost, traffic disruption (by minimising the duration of the painting works); minimises the risk to health posed by the lead in the existing paint and minimises the number of future maintenance interventions required.

4.5 Legal Implications, Access to Information and Call In

4.5.1 This is an administrative decision and is not subject to Call In and there are no grounds for treating the contents of this report as confidential within the Council's Access to Information Rules.

4.5.2 Specifying the purchase in this way could leave the Council open to a potential claim from other providers, to whom this could be of interest, that it has not been wholly transparent. In terms of transparency it should be noted that case law suggests that the Council should always consider whether contracts of this value would be of interest to providers in other Member States and if it would, subject the matter to a degree of European wide advertising.

4.5.3 The Chief Officer (Highways & Transportation) has considered this and, due to the nature of the supplies being delivered and the relatively low value of this contract, is of the view that it would not be of interest to suppliers in other EU Member States.

4.5.4 There is a risk of an ombudsman investigation arising from a complaint that the Council has not followed reasonable procedures, resulting in a loss of opportunity. Obviously, the complainant would have to establish maladministration. It is not considered that such an investigation would necessarily result in a finding of maladministration however such investigations are by their nature more subjective than legal proceedings.

4.5.5 Although there is no overriding legal obstacle preventing the waiver of CPR 8.1 and 8.2, the above comments should be noted. In making their final decision, the Chief Officer (Highways & Transportation) should be aware of the risk of challenge to the Council and satisfied that the course of action chosen represents Best Value for the Council.

4.6 Risk Management

4.6.1 As identified in section 4.5 above, there is a risk to the Council in specifying the supplier directly in this way. However, the Chief Officer (Highways and Transportation) considers that the risks are outweighed by the benefits of awarding a contract to this provider, and the resource/value for money implications of doing so.

4.6.2 It is considered that in terms of the risk of challenge to the procurement route of this contract, the Council has taken steps to mitigate this. The contract, given its value, falls outside any remit of the Public Contracts Regulations 2015 beyond the duty to act transparently, fairly and non-discriminatorily that applies to all contracts.

5 Conclusion

5.1 Leeds Bridge (a Grade II listed structure) currently has a weight limit imposed on it with a PSV exemption (for buses and emergency vehicles) that due to the condition of the bridge is now at risk.

5.2 Work to strengthen the bridge is currently programmed to start next year and last for 18 months. Painting of the bridge is part of the work and is needed to preserve the heritage of the bridge and its load carrying capacity.

5.3 To repaint the underside of the bridge utilising traditional methods would be prohibitively expensive and cause unacceptable disruption to traffic due to the duration to undertake the works. This method also carries the risk to health and contamination to the River Aire from the presence of lead in the existing paint.

5.4 The use of the Termarust paint system is the most cost effective alternative, takes a much shorter duration to apply and minimises the risk of contamination from the existing lead based paint.

6. Recommendations

6.1 The Chief Officer of Highways and Transportation is recommended to approve the waiver of Contract Procedure Rules 8.1 and 8.2 – (Intermediate Value Procurements) so that the Council can specify the use of the High Ratio Co-Polymerised Calcium Sulfonate Alkyd paint system manufactured by Termarust Ltd in its specification for the Leeds Bridge Strengthening Scheme, at an estimated cost of £95,000.

7 Background documents[1]

7.1 Extracts from the "Planned Highway Asset Maintenance Programmes 2016-17" report, approved 20th April 2016 containing the Equality, Diversity, Cohesion and Integration impact assessment are included in Appendix B of this report.

[1] The background documents listed in this section are available to download from the Council's website, unless they contain confidential or exempt information. The list of background documents does not include published works.

APPENDIX A

GENERAL PHOTOGRAPHS AND CASE HISTORIES OF USE OF TERMARUST PAINT SYSTEM

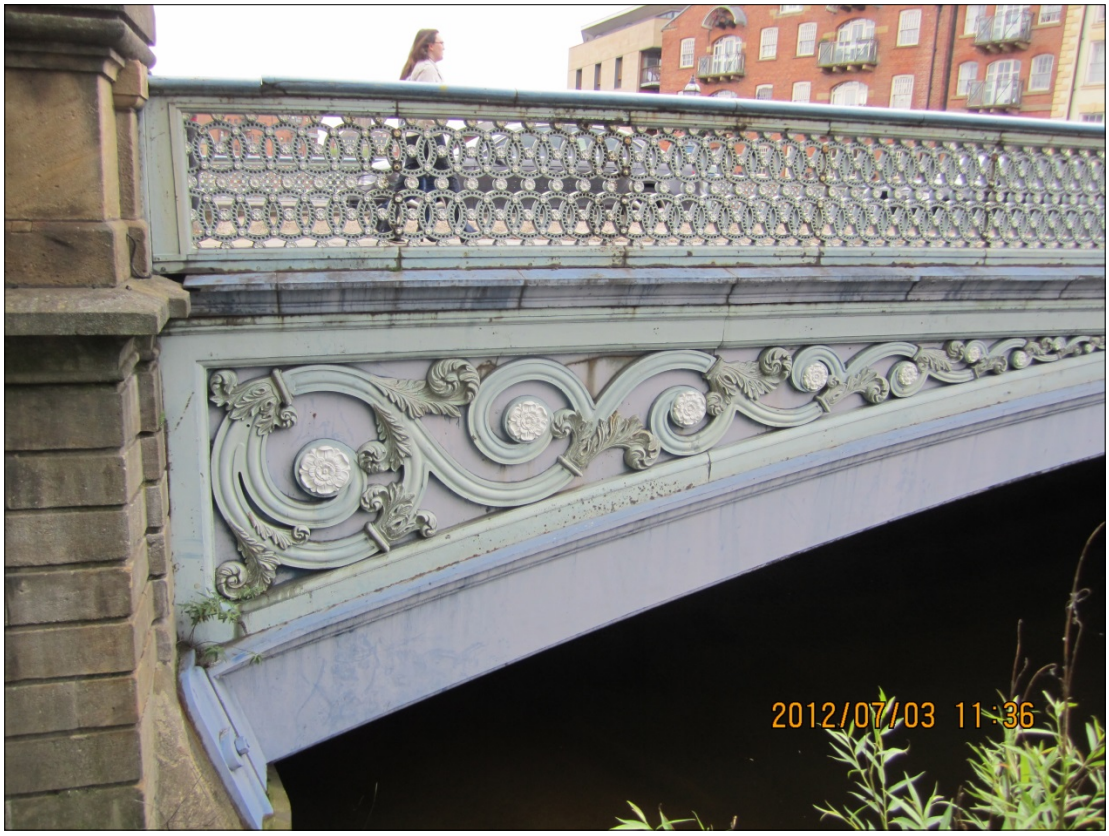

Photo 1 – Faded Condition of Paintwork on Leeds Bridge

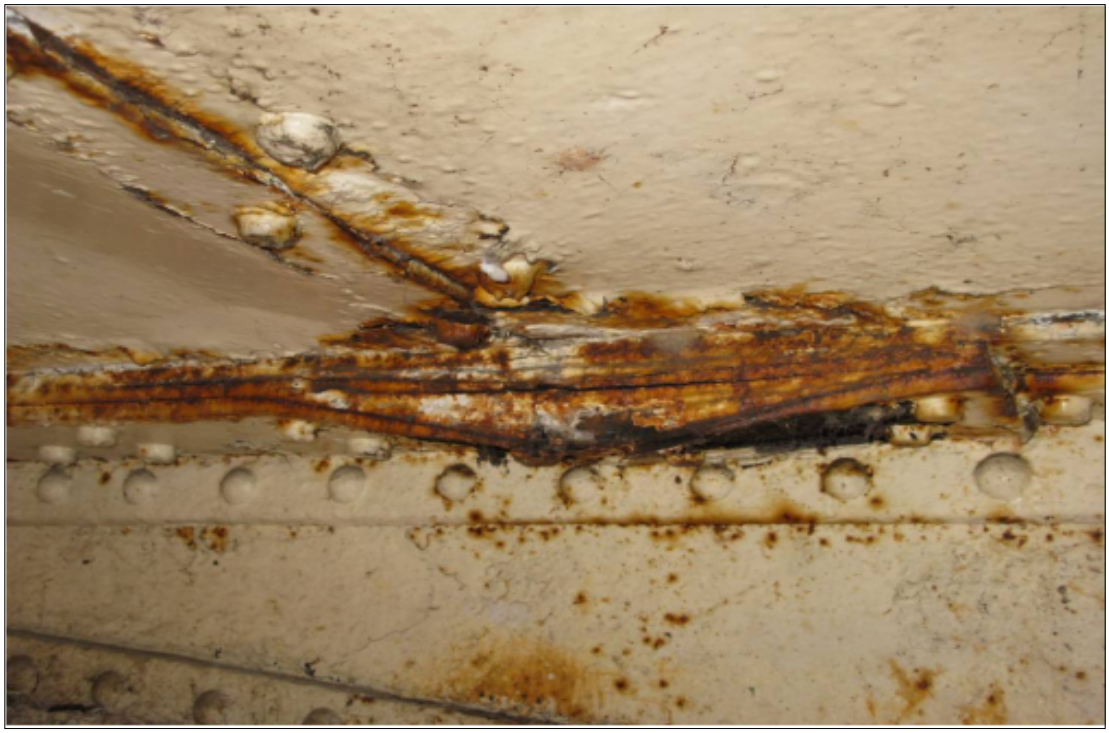

Photo 2 – Example of “Pack Rusting” on Leeds Bridge

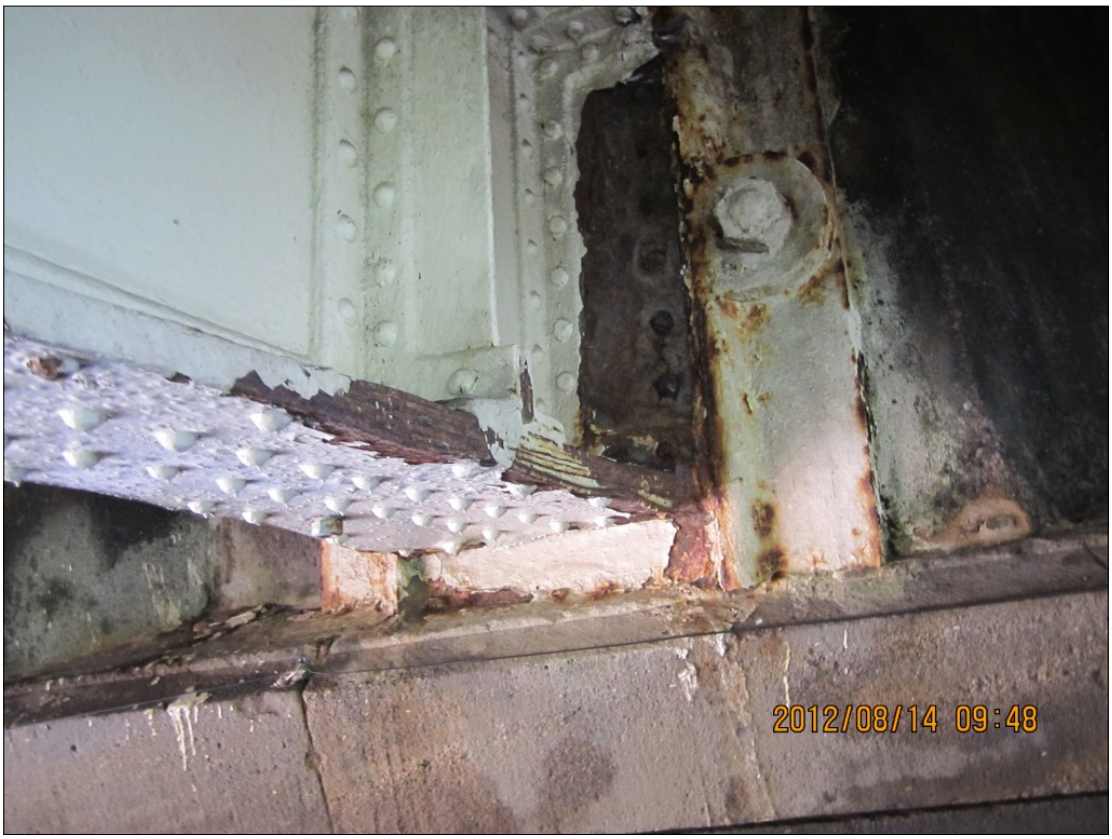

Photo 3 – Example of “Pack Rusting” to Main Arch Beam at Leeds Bridge

Case History 1 – Steuben County, NY, Truss Bridge

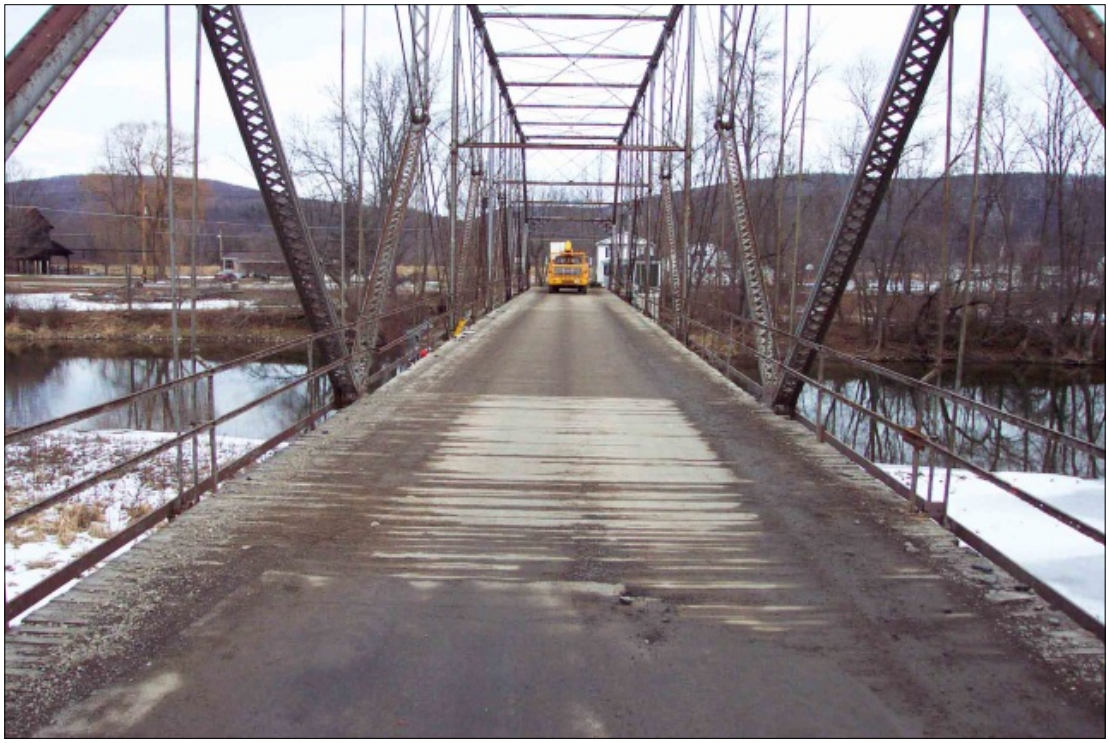

Photo 4 – Prior to Painting

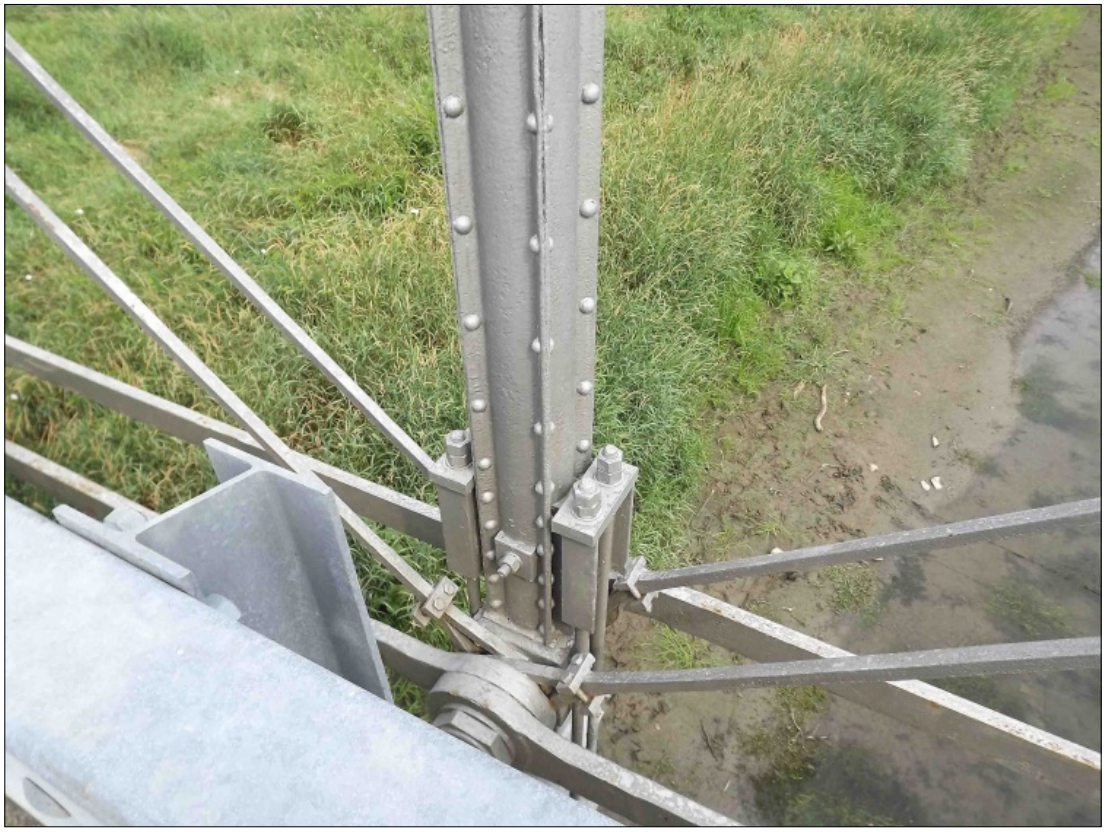

Photo 5 – 8 Years After Application of Termarust

Case History 2 – Kenora Kewatin Bridge

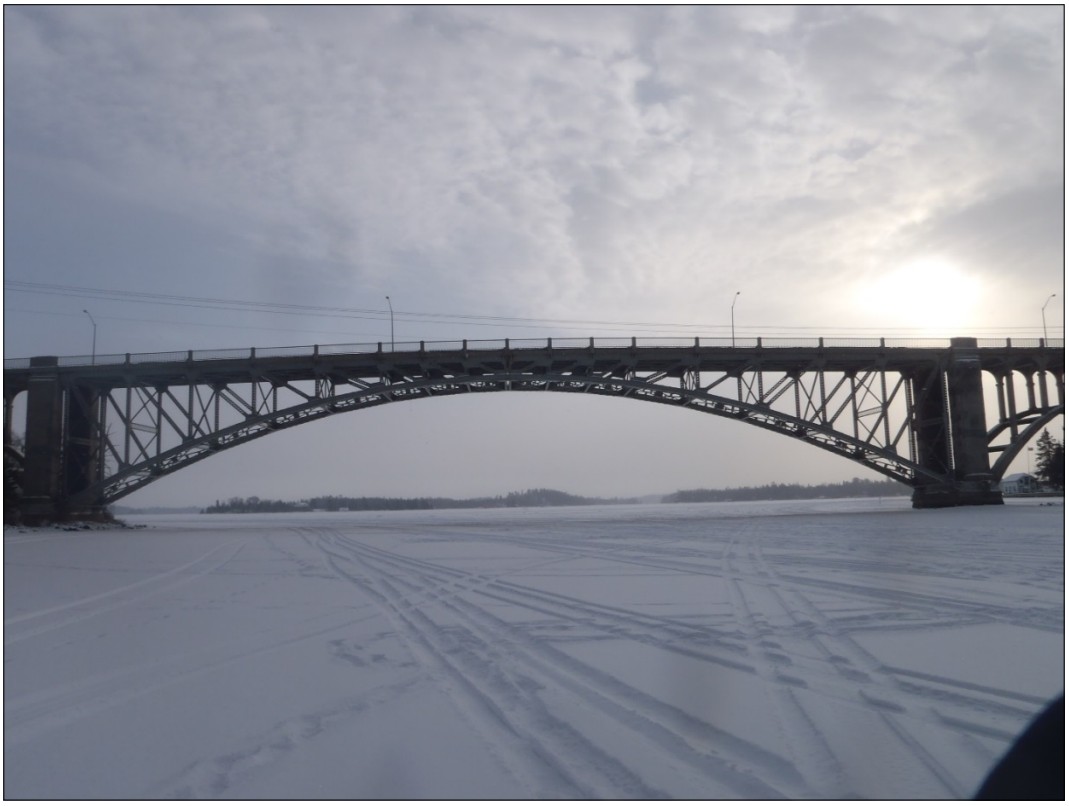

Photo 6 – Elevation on Bridge

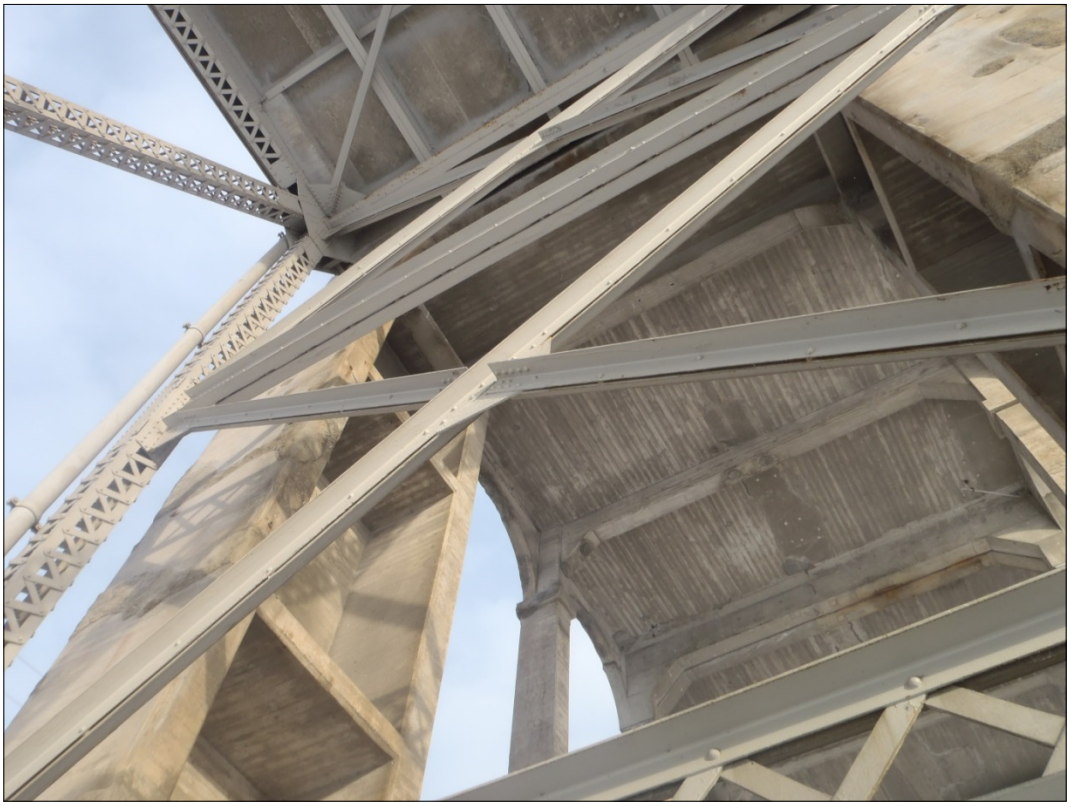

Photo 7 – 10 Years After Application of Termarust

Case History 4 – Arizona Avenue Truss Bridge, Washington D.C

Photo 8 – 10 Years After Application of Termarust

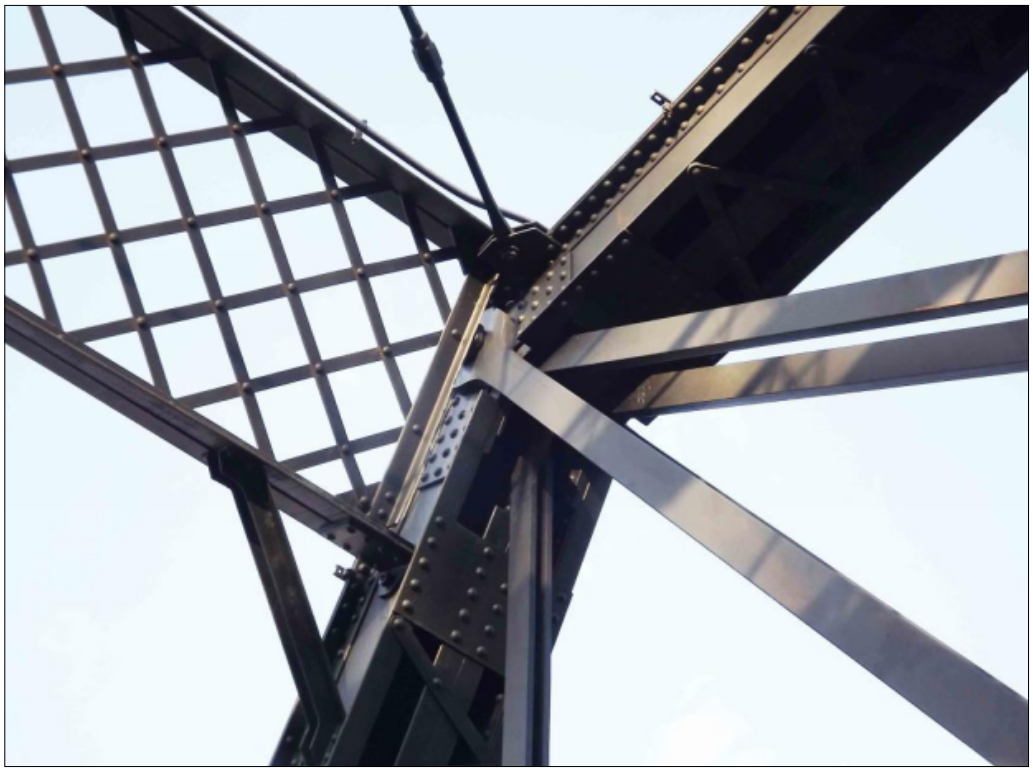

Photo 9 – 15 Years After Application of Termarust

Case History 5 – Rosedale Bridge Alberta

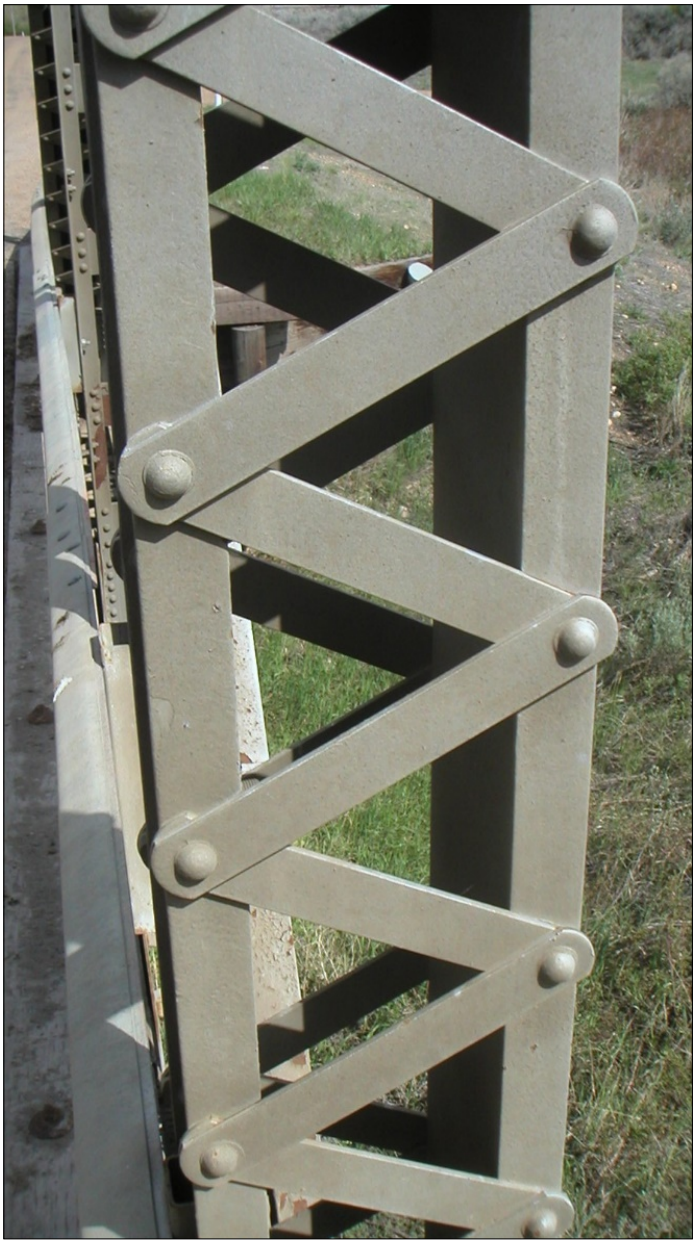

Photo 10 – 22 Years After Application of Termarust

Case History 6 – Selby Swing Bridge, UK

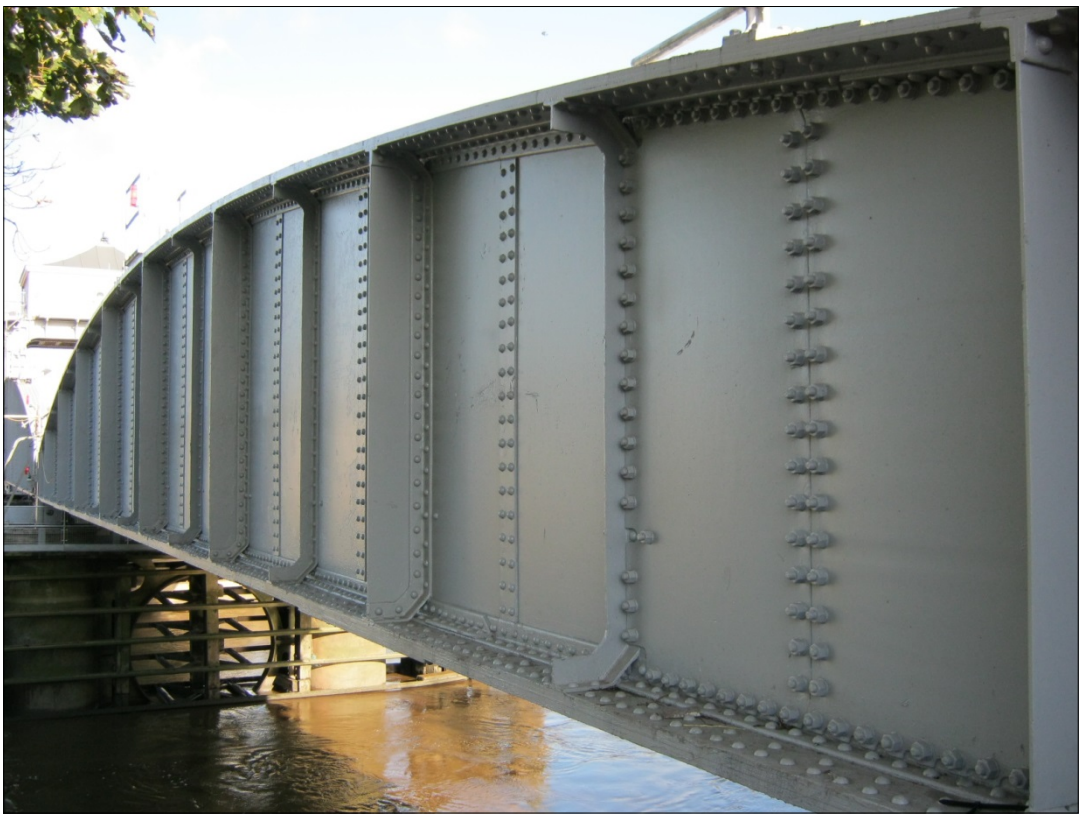

Photo 11 – After Application of Termarust

APPENDIX B

Extracts from the "Planned Highway Asset Maintenance Programmes 2016-17" report, approved 20th April 2016 containing the Equality, Diversity, Cohesion and Integration impact assessment.