

Application for Listed Building Consent

Core Drilling and Trial Holes at Clydach Brook Aqueduct, Resolven

Heritage Impact Assessment and Access Statement

Date: January 2023



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1 Introduction

- 1.1 This statement has been prepared in support of Network Rail's application for Listed Building Consent for investigative coring works to Clydach Brook Aqueduct located in Resolven.
- 1.2 This Heritage Impact Assessment and Access Statement incorporates an assessment of the proposed works, details on coring, planning policy, and heritage assessments. This Statement is divided into the following sections:
 - Site description and historical context and background;
 - Proposed Investigation Works;
 - Planning Policy Framework;
 - Assessment of the proposals; and
 - Conclusion

2 Site Description, Historical Context and Background

Site Description

- 2.1 The aqueduct is situated in the southeast of Resolven. The structure carries the Clydach Aqueduct over the single disused railway track, and a redundant track formation. The aqueduct fronts Commercial Road (B4434). The area is of general mixed use, with industrial and residential units located within 100 metres of the site.
- 2.2 The structure is an aqueduct, constructed of cast iron with 6 main 'fish bellied' beams. The outer two are I-section and the inner four inverted T-section, with a bulbed compression flange. Floor plates rest on each pair of beams. Panelled sides with 'George Henet Bridgewater Ironworks A.D 1849' on the NE side. The aqueduct has a rusticated pennant stone abutments each with 3 blind arches recessed into the face. The downstream bed of the aqueduct has a ramp of squared pennant sandstone blocks.
- 2.3 The aqueduct was granted listed status as a Grade II heritage structure on 15th December 2003 under reference 82270. A copy of the listing descriptions can be found in Appendix 1.

Site location Plan



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- 2.4 The aqueduct is listed for its special historic interest as a substantial cast iron aqueduct over a railway (former Vale of Neath Railway) designed by Brunel, the renowned Victorian engineer.
- 2.5 The Vale of Neath Railway was incorporated in 1846 and opened in 1851. Engineered by Isambard Kingdom Brunel, the line was built to a broad gauge. The aqueduct constructed from cast iron was built in 1849 by the George Hennet Bridgwater Ironworks to carry the Clydach Brook Over the Vale of Neath Railway Broad gauge double track. The Act for the railway from Neath to Aberdare (with Branch to Merthyr) was passed in 1846 and construction began shortly after with the IK Brunel as the engineer. The line to Aberdare was opened to good and passengers in 1851 and the Merthyr Branch from Gelli Tarw Junction in 1853.
- Current condition of the Aqueduct**
- 2.6 The Aqueduct is generally in poor external visual appearance and the works subject to this application focus on investigation works to ensure its structural integrity and scope of repairs and reinforcements required, and using the information gathered to develop a scheme to safeguard the aqueducts operational future.
- 2.7 The proposed investigation works are to establish the aqueducts structural condition specifically relating to scour. Scour is the removal of sediment such as sand and gravel from the bridge abutments or piers. Scour is caused by flowing water, which damage the external and internal structure of the aqueduct. Scour during flood events is one of the most significant threats to bridges over rivers and estuaries, and has been the cause of numerous bridge failures, with damaging consequences, including the risk of bridge collapses.
- 2.8 The focus of the proposed investigation works is to the pennant stone ramp to the channel weir as this is showing significant evidence of wash out, damage and deterioration.

3 Proposed Investigation Works

- 3.1 Clydach Brook Aqueduct's stone ramp shows significant loss of material, scour and ongoing deterioration. In order to fully understand the scope of works required to mitigate this deterioration, coring and a single trial pit is required to the specified ramp/piers/abutments to confirm the foundation type/depths as the information acquired from previous investigations has been inconclusive and therefore conservative values have been used. In addition, archive information is limited and not reliable enough to provide certainty over the values used in the assessment to develop an appropriate scheme.
- 3.2 Core drills will be carried out as proposed on W22-1188-JBA-00-00-DR-GT-0002. We propose to carry out up to 11 number core drills. The methodology of the core drilling is as per below:
- All proposed areas are to be premeasured and marked up prior to drilling;
 - All proposed works areas to be visually checked prior to works commencing with water levels checked at the start of the shift and at regular intervals throughout.;
 - 75mm Core holes will be drilled via handheld rigs.
 - While drilling water suppression will also be used to aid with the drilling process and act as dust suppression;
 - Once the required core depth (which will extend a minimum of 500mm beyond the foundation depth) has been reached all core samples are to be logged and all required information recorded on the relevant drill log records;
 - Once all the required information has been recorded, the core sample is to be reinserted into the core hole and reinstated. We will be reinserting the core sample into the same cores to ensure match and fit, we will also match the mortar sample and any new mortar on a like for like basis. An example of this type of reinstatement used on a similarly constructed aqueduct can be found below in figure 2.
 - 1 no. hand dug inspection pit is proposed to be carried out to 1.2/ minimum to continue to bridge abutment bearing shelf. This will be infilled on alike for like basis.

Figure 2



4 Planning Policy Framework

- 4.1 This section summarises relevant planning policy and guidance in the consideration of this application for Listed Building Consent.

Historic Environment (Wales) Act 2016

- 4.2 The Act gives more effective protection to listed buildings and improves the sustainable management of the historic environment.

Planning (Listed Buildings and Conservation Areas) Act 1990

- 4.3 The Planning (Listed Buildings and Conservation Areas) Act 1990 for England and Wales sets out the Government's policy and guidance to Local Planning Authorities on the operation of the planning system and the identification and protection of historic buildings, conservation areas, and other elements of the historic environment.
- 4.4 Section 66 of the Act requires Local Planning Authorities, in the consideration of whether to grant permission for development which affects a Listed Building or its setting, to have special regard to certain matters, including the desirability of preserving the listed building or its setting, or any special features of architectural or historic interest which it may possess.

Planning (Listed Buildings and Conservation Areas) (Wales) Regulations 2012 and Planning (Listed Buildings and Conservation Areas) Wales (Amendment) Regulations 2017

- 4.5 The 2012 Regulations sets out the framework and procedures in relation to the submission of applications for Listed Building Consent. This includes the requirements in terms of the content of such submissions, the scope of the accompanying Design and Access Statement and the timescales for consultation.
- 4.6 The 2017 Amendment requires applications for listed building consent to be accompanied by a heritage impact statement which examines the impact of the proposed development upon the special architectural or historic interest of the listed building.

Planning Policy Wales (Edition 11, February 2021)

- 4.7 PPW Edition 11 reflects the Historic Environment (Wales) Act 2016. It is identified that change which has an impact on historic assets must be managed in a sensitive and sustainable way.
- 4.8 Para. 6.1.6 identifies that one of Welsh Government's objectives is to:
"safeguard the character of historic buildings and manage change so that their special architectural and historic interest is preserved".
- 4.9 PPW sets out a general presumption in favour of the preservation of a listed building and its setting with the primary material consideration being to have special regard to the desirability of preserving the building, its setting or any features of special architectural or historic interest it possesses with the aim of finding the best way to protect a listed building's special qualities. The proposed remediation works have been designed to protect, repair and conserve the special character of the footbridge.
- 4.10 It is noted that LBC applications must justify the proposals and show why the alteration of a listed building is desirable or necessary.

Technical Advice Note 12: Design (March 2016)

- 4.11 Within Section 5.6 (The Historic Environment) of TAN12 achieving good design within the historic environment is identified. The benefit of pre-application discussions is also highlighted to ensure the preservation or enhancement of specific qualities of the historic environment.
- 4.12 With respect to areas of architectural and / or historic value sustaining character is recognised as important.
- 4.13 Para. 5.6.3 states that in the design of alterations or extensions to listed buildings professional expertise is necessary to assess the elements which make up the special interest of the building and achieve a balance between sensitive change and maintenance of integrity. Para. 5.6.4 goes on to say that in the alteration of listed buildings efforts should be made to use local materials or materials which have equivalent appearance, colour and weathering characteristics.

Technical Advice Note 24: Historic Environment (May 2017)

- 4.14 TAN24 replaces Welsh Officer Circular 61/96 'Planning and the Historic Environment: Historic Buildings and Conservation Areas' and provides current guidance on the considerations for the assessment of proposals within the setting of listed buildings which include the significance of the asset and its setting, its prominence, and non-visual factors affecting the setting of the historic asset such as noise (para. 1.26).
- 4.15 The Advice Note identifies that applicant for listed building consent require a heritage impact statement to ensure that the significance of the building is taken into account in the development and design of proposals. Consequently, this report includes a Heritage Impact Statement in sections 2 and 5.
- 4.16 Advice is given to local planning authorities on LBC considerations, which include the importance and grade of the building and its intrinsic architectural or historic interest; the physical features of the structure which justify its listing and contribute to its significance; the contribution of the setting of the listed building; the impact of the proposed works on the building's significance; and the extent to which the proposed works would bring substantial community benefits (para. 5.13).

Managing Change to listed Buildings in Wales (Cadw)

- 4.17 Managing Change to Listed Buildings in Wales supplements Planning Policy Wales 1 and Technical Advice Note 24. It sets out general principles to consider when making changes to listed buildings and explains

how to apply for listed building consent, including the roles and responsibilities of owners, local planning authorities and the Welsh Government's Historic Environment Service (Cadw).

- 4.18 This document has been used to consider the appropriateness of the proposals, specifically in the use of a modern material such as Polycarbonate. In particular the requirement to: "Retain all historic materials and finishes wherever practicable; repair where necessary; respect inherited character in any renewal." (p5)

Local Planning Policy

- 4.19 Neath Port Talbot LDP (2011-2026) was adopted on 27th January 2016. The Neath Port Talbot LDP is the primary planning policy document for the County Borough. It sets out the planning policies and land use allocations that will shape the future of the County Borough area and will guide development management decisions. The LDP replaces the Neath Port Talbot Unitary Development Plan (2008). The key policies for consideration of these proposals are outlined below for convenience:
- 4.20 Strategic Policy SP21 Built Environment and Historic Heritage outlined your authority's objective that the built environment and historic heritage will, where appropriate, be conserved and enhanced. One of the key aspects of this policy is to safeguard features of historic and cultural importance and enable protection of listed building and their structures. The works proposed as part of this application are to ensure and safety and longevity of the listed structure and is therefore compliant with this policy.
- 4.21 The proposals held within this Listed Building Application have been developed with the above legislative and policy considerations in mind, and we consider that the proposals comply with all the relevant requirements.

5 Assessment of the Proposals

- 5.1 This section considers the proposed works to the aqueduct in the context of national and local planning policy guidance as outlined above, together with heritage, design, access and other relevant matters.

Design Principles and Concepts

- 5.2 As outlined above, we have identified that Clydach Brook Aqueduct is currently at risk from the impact of scour and shows significant signs of deterioration. The structure has been identified as requiring intervention, and the scope of investigative works will be used to inform any scheme for repair and/or reinforcement.
- 5.3 This application therefore seeks consent for up to 11 no. core drills, which will be used to determine in detail the risk of damage from scour at this structure. Depending on the findings of the core drills, the information will be used to determine if any further reinforcement works are required. If there is a requirement for additional works, these will form part of a separate Listed Building Consent application.

Heritage Assessment

Assessment of Significance

- 5.4 The aqueduct is listed by Cadw reference 82270. The structure was designated for its special historic interest as a substantial cast iron aqueduct over a railway, designed by Brunel, the renowned Victorian engineer.
- 5.5 As part of the proposals, there will be no amendments to the physical structure, and only includes a number 75mm core drills, which will be reinstated with the original core material, and like for like matching mortar and a single inspection pit.

Impact upon the setting of the aqueduct

- 5.6 The setting of the aqueduct and the nearby listed and scheduled structures will be unaffected as the proposed works when completed are so minor that they will not be noticeable from any public vantage point.

Design Considerations

Layout and Scale

- 5.7 There will be no alteration to the layout and positioning or positioning of the structure.

Appearance

- 5.8 Upon completion of the core drilling, the core will be reinstalled and like for like matching mortar will be

used to set the core.

Access Considerations

- 5.9 The proposed works will have no impact on accessing the site and will not require any scaffolding or fixings to undertake the work.

6 Conclusion

- 6.1 Network Rail is seeking listed building consent to undertake 11x core drills and a single inspection pit into the structure, as outlined in W22-1188-JBA-00-00-DR-GT-0002. These works require 11x 75mm cores to be drilled into the ramp, to establish the construction of the foundations, and identify any risks of scour to the asset. These core drills will then be reinstalled with matching mortar. On completion, the works are so minor that there will be no significant impact to the listed structure or surrounding listed and scheduled structures.
- 6.2 For the reasons outlined in this Supporting Statement Network Rail believes the proposed development to be in accordance with both national and local planning and heritage policy. We therefore trust that Neath Port Talbot Council will support the proposal submitted under this application for Listed Building Consent.

Appendix 1 – Listing Description

Full Report for Listed Buildings



Cadw



Llywodraeth Cymru
Welsh Government

Summary Description of a Listed Buildings

Reference Number	Building Number	Grade	Status	Date of Designation	Date of Amendment
82270		II	Designated	15/12/2003	15/12/2003

Name of Property	Address
Clydach Brook aqueduct over former Vale of Neath Railway	

Location

Unitary Authority	Community	Town	Locality	Easting	Northing
Neath Port Talbot	Resolven	Neath	Resolven	283045	202710

Street Side	Location
NE	Situated in the centre of Resolven just NE and parallel with the road bridge carrying Commercial Road over the former Vale of Neath railway.

Description

Broad Class	Period
Transport	

History

Cast iron aqueduct built 1849 by the George Hennet Bridgewater Ironworks to carry the Clydach Brook over the Vale of Neath Railway broad gauge double track. The Act for the railway from Neath to Aberdare (with a branch to Merthyr) was passed in 1846 and construction began shortly after with I K Brunel as the engineer. The line to Aberdare was opened to goods and passengers in 1851 and the Merthyr branch from Gelli Tarw Junction in 1853.

Exterior

Aqueduct, cast iron, with 6 main 'fish-bellied' beams. The outer two are I-section and the inner four inverted T-section, with a bulbed compression flange. Floor-plates rest on each pair of beams. Panelled sides with 'George Hennet Bridgewater Ironworks A.D. 1849' on the NE side. The aqueduct has rusticated Pennant sandstone abutments each with 3 blind arches recessed into the face. The downstream bed of the aqueduct has a ramp of squared Pennant sandstone blocks.

Interior

Reason for designation

Listed for its special historic interest as a substantial cast iron aqueduct over a railway designed by Brunel, the renowned Victorian engineer,

Network Rail (Property)

www.networkrail.co.uk