

Application for Listed Building Consent

*Phase 2 works to repair and reinstate
Clydach Brook Aqueduct, including
reconstruction of collapsed wing wall and
reinstatement of pennant stone slipway
at Clydach Brook Aqueduct, Resolven*

Heritage Impact Assessment and Access Statement

Date: June 2025



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1 Introduction

This statement has been prepared in support of Network Rail's application for Listed Building Consent for emergency Phase 1 repair and reinforcement works to Clydach Brook Aqueduct located in Resolven.

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;
- Existing Failure
- Proposed Works;
- Planning Policy Framework;
- Assessment of the proposals; and
- Conclusion

2 Site Description, Historical Context and Background

Site Description

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.

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 Hennek 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.

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



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.

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 Hennek 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 goods and passengers in 1851 and the Merthyr Branch from Gelli Tarw Junction in 1853.

Current condition of the Aqueduct and Context to this Application

The Clydach Brook Aqueduct is currently in a poor visual and physical condition, with evident external deterioration. The focus of the works proposed within this application is to build upon previously approved investigative efforts by assessing the aqueduct's structural integrity and identifying the necessary repairs and reinforcements required to ensure its long-term operational viability. These proposals are informed by detailed investigative works undertaken under earlier consents and represent the next phase in safeguarding the heritage asset.

Following the approval of Listed Building Consent for initial investigative works (ref. P2023/0020), a series of structural investigations were undertaken on site. These revealed a serious risk of structural failure, necessitating immediate intervention. At that stage, detailed discussions were held with the local planning authority regarding the need for emergency reactive works to prevent the collapse of the listed structure.

It was agreed that emergency works could proceed in parallel with a Listed Building Consent application. The authority acknowledged that, should the urgency of the works outpace the formal consent process, a retrospective application could be submitted to regularise any necessary interventions undertaken to protect the heritage asset.

Subsequently, Listed Building Consent for the Phase 1 works was granted (ref. 2023/0743). As outlined in that application, the stone ramp of the aqueduct had suffered significant material loss due to scour and general degradation. Emergency stabilisation works were undertaken, which included the placement of mass concrete in the larger voids and the use of low-pressure, non-shrink grout to infill smaller cavities. A temporary rock armour apron was installed at the toe of the structure to provide interim protection and reduce the risk of further erosion or deep excavation.

Additionally, prior to mobilisation, a section of the aqueduct's wing wall had failed, requiring further urgent attention. Although the wall was intended to be reconstructed on a like-for-like basis using the original stone, licensing constraints imposed by Natural Resources Wales (NRW) prevented its reconstruction within the Phase 1 works. Instead, the original stonework was carefully salvaged and stored locally for reuse. The reinstatement of the wing wall now forms part of the current Phase 2 proposals, as detailed within this application.

Below are some images of the weir prior to phase 1 works:



3 Proposed Phase 2 Development

The proposed permanent works aim to reinstate the weir as closely as possible to its original condition using carefully selected, sympathetically sourced stone setts, ensuring the materials and construction methods are in keeping with the existing historic character. The sets will maintain the original 'S' nature of the weir, and no proposal to alter the layout or detail of the weir is proposed

To inform the design process, extensive hydraulic modelling—both one-dimensional and three-dimensional—has been carried out by JBA Consulting. This modelling has enabled a detailed understanding of how the reinstated weir will affect flow depth, velocity, and scour both over the structure and in the immediate downstream channel. The modelling has also supported a series of design iterations, ensuring the final proposal achieves hydraulic efficiency while minimising impact on the watercourse and surrounding environment.

The reinstated weir will connect at its downstream extent to a newly constructed concrete stilling basin, designed to reduce flow velocity and mitigate further downstream erosion. In line with best practice, rock armour will be introduced beyond the stilling basin's upstand to form a transitional protective layer between the engineered structure and the natural riverbed. This approach will help to dissipate turbulence and reduce the potential for local scour or disturbance of the river substrate.

The stone sets making up the weir will be reused, however currently approximately 50 % of the setts are missing. We have however secured a source of like for like stone sets from a local quarry, and any missing setts will be replaced on a like for like basis to match existing.

To reinforce the structure voids and areas of weakness will be reinforced with mass concrete backing behind the original reused, reclaimed and like for like replacement of masonry. For example, prior to reconstructing the collapsed wing wall, mass pour concrete will be used to reinforce this retaining wall.

In addition, a collapsed section of retaining wall on the northern bank will be reinstated as closely and sensitively as possible to its original form, using materials and techniques that reflect the historic character of the structure and setting.

4 Planning Policy Framework

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

Historic Environment (Wales) Act 2016

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

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.

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

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.

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 12, February 2024)

Chapter 6 (Distinctive and Natural Place) of PPW has been revised within Edition 12 to reflect 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 (para. 6.1).

Para. 6.1.10 identifies that one of Welsh Government's objectives is to:

“There should be a general presumption in favour of the preservation or enhancement of a listed building and its setting, which might extend beyond its curtilage. For any development proposal affecting a listed building or its setting, the primary material consideration is the building, its setting or any features of special architectural or historic interest which it possesses.”.

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 (para. 6.1.11.) The proposed works have been designed to protect, repair, and conserve the special character of the station.

It is noted that LBC applications must justify the proposals and show why the alteration of a listed building is desirable or necessary, this document addresses this.

Technical Advice Note 24: Historic Environment (May 2017)

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).

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.

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)

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).

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

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:

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 safety and longevity of the listed structure and is therefore compliant with this policy.

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

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

The Clydach Brook Aqueduct was previously identified as being at significant risk due to scour-related erosion, a condition further exacerbated by the collapse of a section of the wing wall and general structural deterioration. In response, a programme of Phase 1 emergency works was undertaken to stabilise the structure and mitigate the immediate risk of further failure.

This application now seeks consent for the next phase of works, which are focused on addressing the remaining elements of structural vulnerability and restoring the aqueduct's historic form. The proposed works include the infilling of residual scour voids, the installation of temporary rock armour for ongoing protection, and the reconstruction of the previously collapsed wing wall using carefully retained original materials to ensure a faithful, like-for-like reinstatement in keeping with the structure's historic character.

Heritage Assessment

Assessment of Significance

The aqueduct is a Grade II listed structure, designated by Cadw under reference number 82270, and recognised for its special historic interest as a substantial cast iron aqueduct spanning a railway. It is

attributed to Isambard Kingdom Brunel, one of the most distinguished engineers of the Victorian period, whose contributions significantly shaped the development of Britain's transport infrastructure.

Emergency stabilisation works have already been undertaken as part of Phase 1 to address the immediate risk of structural failure and to prevent further deterioration. These urgent interventions were essential to secure the integrity of the aqueduct in the short term. The current Phase 2 proposals now seek to address the remaining structural vulnerabilities and focus on reinstating lost historic fabric, including the reinstallation of pennant stone on the slipway. Collectively, these works aim to return the structure to its original historic appearance, in a manner that is sympathetic to its heritage significance.

Impact upon the setting of the aqueduct

The proposed works have been carefully designed to ensure they do not adversely impact the setting or appearance of the aqueduct. All interventions are either restorative in nature or focused on stabilisation using materials and methods that are sympathetic to the original structure. The reinstatement of the collapsed wing wall will be carried out using the original stone, and the reinstatement of the pennant stone slipway will reflect the historic design. As such, the works will preserve the visual character of the aqueduct and its surrounding context, ensuring its special architectural and historic interest remains unharmed.

6 Conclusion

The Clydach Brook Aqueduct, designated as a Grade II listed structure by Cadw (ref. 82270), is of special historic interest as a substantial cast iron aqueduct spanning a railway. Attributed to the celebrated Victorian engineer Isambard Kingdom Brunel, the structure holds significant architectural and historical value.

Recent inspections identified that the aqueduct had suffered considerable deterioration due to scour and material loss, which was further exacerbated by the collapse of a section of the wing wall. In response, emergency stabilisation works were undertaken as part of a Phase 1 programme to address the most immediate risks to the structural integrity of the aqueduct. These works included the infilling of voids using mass concrete and non-shrink grout, the installation of temporary rock armour to protect against further erosion, and the careful salvage and storage of original materials from the collapsed wing wall.

The current Phase 2 proposals seek to address the remaining vulnerabilities of the structure while restoring its original historic appearance. This includes the reconstruction of the collapsed wing wall using reclaimed original stone on a like-for-like basis and the reinstatement of the pennant stone facing on the slipway. The works have been designed with full regard to the heritage significance of the aqueduct, employing traditional materials and conservation-led techniques to ensure authenticity and minimal visual or physical impact.

Importantly, the proposals have been informed by detailed hydraulic modelling to ensure that the interventions are not only sympathetic in heritage terms but also technically robust in managing flow, velocity, and scour risk.

The proposed works will not harm the setting or appearance of the aqueduct. All interventions are either restorative or designed to be visually unobtrusive, preserving the character and integrity of both the structure and its immediate context.

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