Ashton Canal Towpath Bridge Over Junction With Stockport Branch Canal

Grade II listed

Design and Access Statement



View looking up east ramp approach (photograph 12/2003)

Introduction

Stockport Arm Bridge is a Grade II Listed structure with several defects. The wrought iron bridge beams have surface corrosion throughout. The western span, southern edge beam has severe corrosion and web section loss. The western ramp's southern parapet has collapsed resulting in pedestrian falls from height risk. The steel fence adjacent to the western ramp has severe corrosion and is at risk of collapse. Works are proposed to address the structure's maintenance and safety risks.

The Stockport Arm Bridge is at the junction of the Ashton Canal and the former Stockport Branch canal. It consists of two spans, a shorter one over the disused arm of the steel works (wet dock, now buried) and a longer one over the main line of the

Stockport Branch canal. Ramp access is both to the east and west of the Ashton canal, and south to Stockport on its eastern side.

The bridges are riveted iron plate beams with transverse brick arches from the flanges of the beams. The external beams are in a very poor condition, particularly the bearing points. It should be noted that some of the bearing points at the ramp in the direction of Stockport are built in and cannot be inspected.

Nature of works

Beam repairs - all beams assessed. Patch repair and clean and paint with a corrosion inhibiting paint system or necessary strengthening works. Repair masonry around the beams.

Eastern span - the eastern bridge spans comprise longitudinal wrought iron beams with transverse concrete jack arches. The bridge beams have surface corrosion throughout. The jack arches appear to be a modern replacement and original construction assumed to be masonry jack arches. The majority of the paint system has failed due to corrosion, only paint on the edge beam web remains, see Photo 1.



Photo 1: Eastern span, northern edge beam



Photo 2: Eastern span soffit



Photo 9 – Corroded iron flange on the towpath below long span, also showing towpath abutment spalled and missing brickwork and missing pointing.

Western span - the western span has a similar construction to the eastern span but a shorter span length. The northern elevation has been blocked with a masonry wall, see Photo 3. Adjacent to the north-west pad stone is an area of missing masonry and adjacent to the north-east padstone is an area of hollow sounding masonry. The bridge beams have surface corrosion throughout and the paint system has completely failed.



Photo 3: Western span northern elevation

The southern edge beam has 100% section loss to the web above the padstone, see Photo 4. The southern elevation is open resulting in anti-social behaviour. The bridge deck and abutments are skewed 16°.



Photo 4: Western span, southern elevation



Photo 4 - View of the disused bay and corroded steel beam (short span)



Photo 2 – Short span west bearing point showing corrosion of ironwork.



Photo 3 - Showing corrosion of beam on short span, which is built into the adjacent wall of the Stockport access ramp.

Strengthening of the western span edge beam is required. The existing steel edge has severe corrosion and it is not feasible to replace it without removing a significant section of the bridge (parapet & bridge deck). Therefore, it is proposed to place a new beam beneath the corroded beam to make it redundant.

The defective wrought iron beam shall be supported by a 203x133x30 UB steel beam (strength grade S355) on a pair of masonry columns (like the canal side spanning beam). The steel beam has an approximately 84kg self-weight. The steel beam shall be painted in the same paint system and colour as the wrought iron beams. The void behind the southern edge beam shall be filled with ST4 concrete and the web faced with masonry.

The masonry columns shall be 350mm wide by 235mm deep. The masonry shall match the existing structure and bedded on NHL 3.5 lime mortar. At the masonry column and steel beam interface shall be a 140mm thick precast C40/50 concrete padstone. The masonry columns shall be tied to the masonry abutments with BPC stainless steel wall starter ties or similar approved, the ties shall be placed at every third course. The wall starter ties shall be installed in accordance with the manufacturer's specification.

The masonry columns shall be founded on 200mm thick ST4 concrete pad foundations.

The bridge deck is skewed 16°, the strengthening steel beam and masonry columns shall be cut to accommodate the skewed bridge deck.

Steel gate and fence - between the masonry columns shall be a black steel gate and fence to prevent unauthorised access/anti-social behaviour. The gate and fence system shall be First Fence's EnviroRail (1.5m high) flat top system or similar approved. The 300mm wide fencing either side of the gate is a non-standard width. The fencing system is modular and can be cut down to suite the opening. A standard fence panel shall be cut down produce the two 300mm wide fences and exposed steel substate shall be painted to prevent corrosion.

The fence panels shall be fixed to the masonry columns with M10 stainless steel (A4), 90mm long, hex head flange screw anchors, the fixings shall be installed in accordance with the manufacturer's specifications. The gate posts shall be secured to the ground with ST4 concrete foundations. The gate shall have a Gatemaster BLD4060P latch deadlock or similar approved, the lock to prevent unauthorised access.

Buried masonry wall - a trial dig undertaken 6th March 2025 found a buried masonry wall at the southern opening. This buried structure is likely related to the bridge's historic industrial use. The contractor shall dig a strip trench across the southern opening to expose the masonry wall. The Trust's heritage advisor shall attend site to record the arrangement of the buried masonry wall for the Trust's records. The Trust's designer shall attend site to examine the wall and determine the masonry wall partial take down extent. The masonry wall will have to be partially taken down to provide clearance for the new concrete foundations.

Repaint bridge beams - the bridge beams (eastern & western spans) surfaces shall be cleaned to a St.3 (very thorough hand and power tool cleaning) surface preparation. The bridge beams shall be repainted in Regal Paint's 2-pack epoxy metal primer and 2-pack epoxy top coat or similar approved. The Trust's heritage advisor is to specify the paint colour (to match existing).

The existing metalwork paint has been found to contain lead. The existing lead paint shall be removed with chemical paint stripper to avoid releasing lead particles into the air. Abrading the lead paint shall be avoided. The removed lead paint shall be bagged and taken to a hazardous waste process facility for disposal.

SW Parapet rebuild – the 2.8m high parapet collapsed in 2021. Its remnant has loose and rotated masonry. It appears that the parapet had been artificially raised in the C20 in order to connect to a factory wall (subsequently demolished); the surviving brickwork appears to be of a different phase and of poor construction, with no buttress to help support the c. 3m brickwork. It is noted that the north-west parapet has a different arrangement to the south-west parapet which slopes down to the ground, see Photo 5.

It is proposed to re-build the parapet to its original height (matching the height of the Stockport ramp parapets). Original copers and brickwork are within the bushes beneath

the ramp - these will be reinstated. Matching bricks will be used where those salvaged from the collapse are unsuitable for reinstatement. In addition, two bat bricks will be incorporated into the new parapet in order to compensate for potential habitat loss from vegetation clearance around the structure (subject to Trust ecologist and heritage advisor supervision).

The contractor shall retrieve, clean and reuse the masonry and coping stones from the collapsed parapet and take down the defective masonry prior to rebuilding the structure. The south-west ramp parapet shall be re-built to match the gradient of the north-west parapet with a minimum 1.1m parapet height above the surfacing.

The bridge appears to be constructed with an English garden brick bond, the rebuilt parapet shall match the existing construction. The masonry shall be bedded on NHL 3.5 lime mortar. If the existing material is insufficient, imported masonry and coping stones shall match the existing. The Trust's heritage advisor shall approve the mortar type, colour and finish, brick bond, and imported masonry.

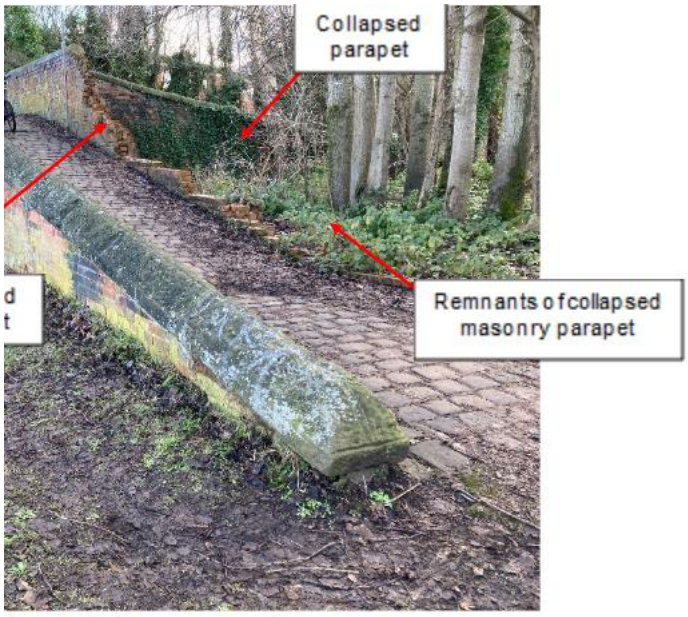


Photo 5: Western ramp parapet



Western ramp parapet and adjoining steel fence (ownership unknown)



Parapet before the collapse.



Parapet before the collapse.



Photo 6 - Ramp to downstream direction of the Ashton Canal, and the collapsed parapet (over short span).



Ramp down to the Stockport Branch

Selective pointing and brickwork repairs - to main parapets over the canal span. Also, around the short span beam on the canal side there are sections of brickwork which are missing and pointing required.

The northern elevation has two areas (assume $2m^2$) of defective masonry adjacent to the northern elevation pad stones. The contractor shall take down the defective masonry and rebuild the structure like for like.



Photo 1 - Ashton canal side of the bridge showing disused bay. Brickwork repairs also shown.



Photo 10 – Missing pointing and damaged brickwork to parapet over long span.

Removal of steel railings - the heavy duty 2.8m high steel railings at the end of the former parapet is suffering from corrosion at its feet and is at risk of falling. There is 100% section loss to the fence post and the fence is leaning backward, see Photo 6.

It is intended to remove the length of fence between the parapet and the footpath to the park to avoid the future risk of the fence falling when the parapet is rebuilt. The ground shall be back filled with topsoil and grass seed applied.

This element of works does not appear to affect the character of the listed building or require LBC. However, it is included for completeness.



Western steel fence



Photo 6: Western steel fence

Conclusions

Repair works are required to the listed building for public safety and to ensure its proper preservation (avoiding the need for more intrusive interventions to the historic fabric at a later date). The need for minimum intervention to the historic fabric has informed scheme design.

Adrian Dowd MRTPI IHBC

Heritage Advisor, Canal & River Trust