Magnox

01 November 2022

Trawsfynydd Lake Footbridge - Briefing Note for Community Council

November 2022 Revision 1.0

Introduction

The construction of Maentwrog hydroelectric power station in the 1920s involved the formation of a manmade reservoir called Llyn Trawsfynydd. At the same time a footbridge was installed to provide a crossing over the southern reaches of the lake. The footbridge is owned by the Nuclear Decommissioning Authority (NDA) with Magnox Ltd responsible for its ongoing maintenance. It is not needed by Magnox for any operational purpose.

The footbridge has remained open for the past 100 years apart from several short temporary closures to allow maintenance work to take place, generally taking a few weeks at a time.

Recent inspections and maintenance

Every six years Magnox arranges principal inspections of the bridge and ensures maintenance is undertaken where needed. In 2008 and 2016 Magnox replaced timber deck boards and in 2012 replaced numerous trestles and spans.

Following recommendations from a survey of the bridge undertaken in 2022 we have now closed the bridge for safety reasons.

The footbridge is located at the southern end of Llyn Trawsfynydd as shown in **Figure 1** below and is within land owned by the NDA.

Figure 1: Location of the Trawsfynydd Footbridge

Bridge Inspection Requirements and Findings

Magnox instructed an engineering consultant to assess the bridge's current condition, provide advice on maintenance requirements, including an estimate of associated costs, and provide an estimate of the long-term viability of the structure.

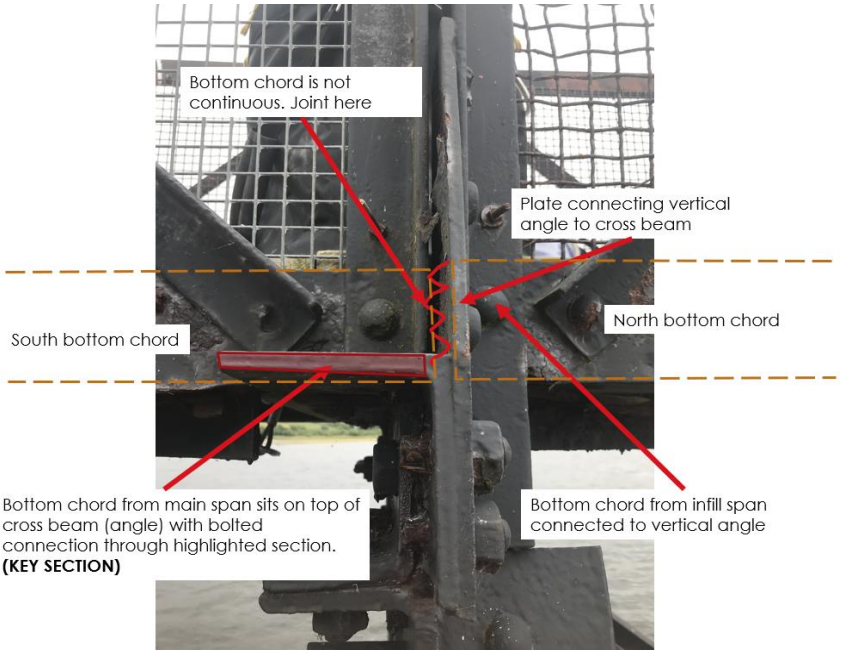
The engineering consultant undertook an inspection of both the above and below water elements of the structure and provided the following: -

- A full report on all structural and non-structural elements. This included a completed bridge inspection pro forma in accordance with the bridge condition indicators documentation for each individual span.
- Using the above criteria, they confirmed the existing structural capacity and estimated the remaining lifespan for the structure.
- A provision of recommendations for required future works, maintenance/repair/replacement.

The bridge is made up of steel lattice girders spanning between trestle towers. The lattice girders form the parapets of the structure and are connected to the deck elements and trestles via bolts and rivets.

At the trestle locations continuity of the structure is heavily reliant on a bolted connection through small plates between the top chords of each of the parapets, with no other significant connection present.

If there is a lot of section loss to key elements and fasteners the connection detail becomes vulnerable, which is evident within several spans. See below photographs.



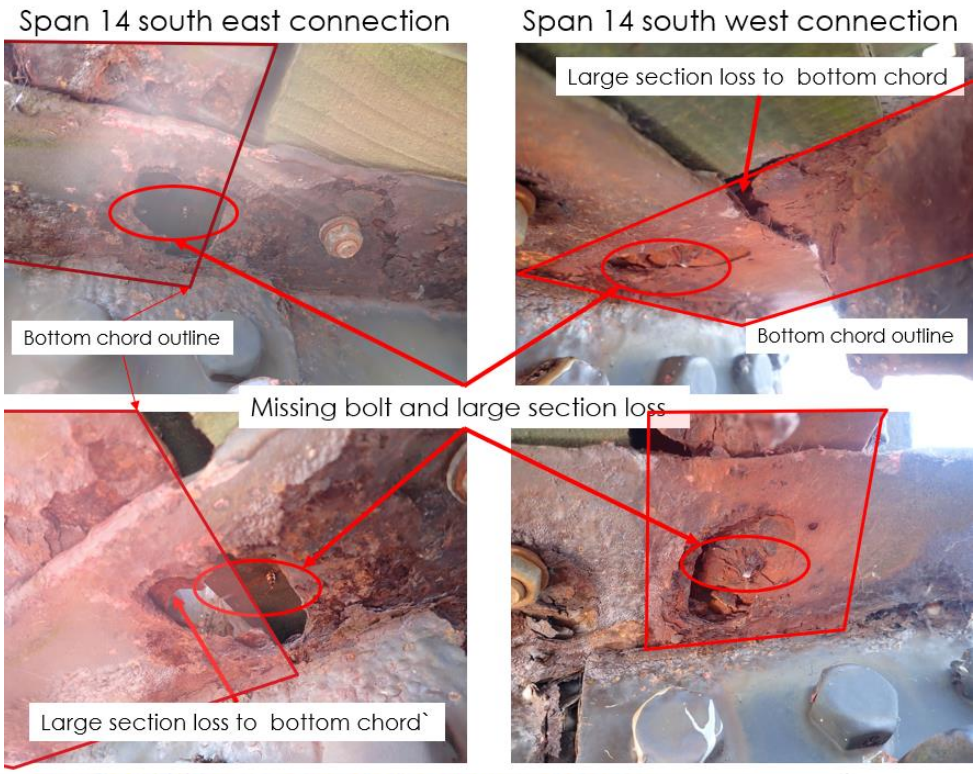


Photo 23: Typical LOS around top bolts on cross beams

Photo 8: Section loss to bottom diagonal, trestle 3

Photo 25: LOS to bay 9 cross beam Span 10

Photo 26: LOS to bay 2 cross beam, span 12

Key recommendation from the report

The key recommendation from the report, based on the significant safety risks associated with the use of the bridge in its current condition, was the bridge should be closed immediately to the public.

Magnox closed the bridge to the public with immediate effect on 9 August 2022 to prevent the risk of serious injury resulting from local failure of the bridge structure, with permanent barriers installed four weeks later.

Assessment of Next Steps

Magnox is currently assessing next steps.

Based on design requirements, planning consents, environmental surveys, procurement, and construction, it is estimated remedial works could take around 12 to 24 months to deliver. A high-level construction cost for carrying out the remedial works to Trawsfynydd Footbridge is estimated at £2.26 million. This estimate is indicative and could decrease by up to half or increase by up to 100%. It is estimated that remedial works could extend the residual life of the footbridge by approximately 18 years. The extended residual life estimate is governed by the steel trestles.

Funding for these works would need a strong business case demonstrating value for the UK taxpayer.

Community and Stakeholder Engagement

Magnox's work to date has focussed on understanding the complex engineering issues and associated risks to enable us to proactively engage with the local community and relevant stakeholders.

Magnox is committed to working and engaging with local communities on what is important, and we are developing an engagement plan and timetable to ensure we speak to those concerned.

We have had initial informal engagement with members of the Community Council on this matter and welcome feedback from the Community Council on how and when we engage with local stakeholders and will be in contact to discuss this further in the coming weeks.

Suggested dates and times for a meeting:

- 10:00 – 11:00, 28 November
- 14:00 – 15:00, 28 November
- 09:00 – 10:00, 29 November