



Cyngor Castell-nedd Port Talbot
Neath Port Talbot Council

NEATH PORT TALBOT COUNTY BOROUGH COUNCIL

**Environment, Regeneration and Street Scene Cabinet Board
6th October 2022**

**Joint Report of Head of Streetcare, Mike Roberts, and Head of
Engineering & Transport, Dave Griffiths**

Matter for Decision

Wards affected: Cymmer and Glyncorrwg

Gelli Houses Disused Railway Tunnel

Purpose of Report

1. To consider the condition of the disused railway tunnel and its priority for capital investment.

Executive Summary

2. The report outlines the condition of the structure and the options for continuing public safety.

Background

3. The Gelli Tunnel was built in 1882 as part of the Rhondda & Swansea Bay Railway. The first train passed through the tunnel on 2nd July 1890 and the structure continued to be used until the closure of the railway in June 1960.

4. The tunnel, which is horseshoe shaped in section, was cut through an outcrop of rock and has approximately three metres of cover at both ends. Both the portals and lining were originally built in masonry, however two additional brick rings were inserted at the eastern end as part of a subsequent strengthening scheme, which it is anticipated may have been prompted by the emergence of defects driven by movement in the superficial deposits above.
5. Bridleway 23/19/1 passes diagonally over the tunnel, approximately at its mid-point.
6. In February 2021 the Council received a request for filming in the tunnel when it came to light that whilst the Council held no records regarding the tunnel it is situated within land now owned by the Council and vested with Streetcare Services. In response, Streetcare Services requested a general inspection of the structure by the Bridges Section. The inspection report, including location plan, is given in Appendix A.
7. In summary, the report found that the tunnel was unsafe for public access, as sections of it had already collapsed. Whilst the brickwork section to the northern end of the tunnel is in a good condition, with only modest minor works required, the masonry span which accounts for the majority of the tunnel length is in a poor condition and requires substantial work.
8. As a consequence of the findings the application for filming was declined and an emergency closure put in place to prevent access for public safety. The initial emergency closure was achieved using Heras fencing but that proved to be inadequate given it was being regularly moved by third parties. Subsequently a more secure temporary closure in the form of

palisade fencing was erected, as shown in Appendix B, with gates to allow for access for any further inspection as required going forward.

9. Whilst the tunnel is a 'heritage' feature, it is not a Listed Structure. Furthermore, the Planning Section have confirmed that the route through the tunnel is not on the existing or proposed Active Travel Network Map.
10. The findings of the report has been raised at the Corporate Programme Steering Group leading to the presentation of this report.

Options for maintaining public safety

11. There are a number of options to ensure the longer term safety of the public:
 - Option 1: Strengthen and refurbish the tunnel to facilitate reopening;
 - Option 2: Permanent closure of the tunnel (leave as is and Monitor);
 - Option 3: Permanent closure including infilling of the tunnel; and;
 - Option 4: Collapsing-in of the tunnel & reinstatement of a Bridleway footbridge over the gap.

Option 1 - Strengthen and refurbish the tunnel for reopening

12. This option would involve the creation of an access track up to the tunnel and the erection of a substantial scaffold system in order to re-point & reinsert the missing masonry. The estimate for the repair work is £825K. Careful consideration would have to be taken when designing the repair works as the masonry lining within the tunnel has a potential for bat roosts.

13. Once completed there would be an ongoing requirement for a routine General Inspection every 2 years (circa £1K) and a more detailed Principal Inspection every 6 years (circa £5K). There would also be a need for periodic future maintenance as required at an unknown cost further to the inspection regime.
14. If this option is implemented the question of whether the tunnel is considered safe for public access may still arise. The tunnel is 153m in length and curved, so anyone using it cannot see directly through the tunnel, which is unlit. If it is considered necessary to light the tunnel for public safety reasons then the logistics of getting a power supply to the tunnel would be costly as would the installation and ongoing maintenance of any lighting system.

Option 2 - Permanent closure of the tunnel (essentially as existing)

15. This option would involve leaving the tunnel closed as existing, or for a more permanent closure bricking up both portals. Assuming a more permanent form of closure was required, estimates for the work range from £25K to £50K depending upon the materials used, blockwork being the cheapest and masonry the most expensive. From an aesthetic perspective masonry would be the better option but there are few vantage points from where the portals can be seen. If left as is there would need to be periodic inspection and maintenance of the palisade fencing.
16. With the potential for bat roosts within the tunnel, any constructed walls at the portals could be finished so that there is a gap between the top of the wall and the underside of the crown of the arch barrel. A decision would need to be made whether to continue to inspect the tunnel after it is closed. Secure doors could be constructed into any walls to allow access (at an additional cost of £10K), however in this situation inside the tunnel would then be defined as a Confined Space and consequently any entry made by inspection teams would have to

be in accordance with The Confined Spaces Regulations 1997. A General Inspection every 2 years would cost circa £2K, and a more detailed Principal Inspection every 6 years circa £7K.

17. The tunnel was constructed by cutting through the rock and then lining the inside with masonry. The masonry lining serves two functions, structural integrity and an aesthetic finish. There are no records of the make-up of the rock mass that was cut through so it is not known how fractured the rock is. Theoretically, the masonry lining could collapse exposing the profile of the rock cutting. In areas of good rock the arch profile would be maintained and there would be no structural collapse. However, if there are areas of fractured rock small pockets of the roof could collapse and extend up towards the surface, over time, forming a hole in the ground. Whilst the area is woodland, which is fenced off, there is still a potential for public access and there is also a potential for any ground opening to form on the bridleway.

Option 3 - Closure and infilling of the tunnel

18. This option would involve bricking up both portals to give a more permanent closure solution and then infilling with foamed concrete. This option would provide a permanent support to the masonry lining and the rock profile. Drainage works would need to be incorporated along with mitigation works for loss of bat roosts. The estimated cost for this option is £700K and there would be no future liabilities.

Option 4 - Collapsing the tunnel and reinstating the bridleway

19. This option would involve the intentional internal collapsing of the tunnel by drilling into the rock overhead and using explosives to bring down the roof. This form of demolition is highly specialised work and would likely leave a channel-like deformation in the landscape with potential vertical faces as, over time, the debris in the collapse would consolidate. Although this option has the

potential for loss of bat roosts it may however create other favourable biodiversity habitats. There would be an ongoing requirement to erect and maintain fencing along the top of the channel to keep unauthorised access to any vertical faces, subject to any longer term infilling of the channel. There would also be a requirement to reinstate the bridleway via a new bridge over the gap to maintain the route which would itself need to be inspected and maintained into the future. The estimated cost for this option is in the region £250K to £400K. To obtain a more accurate estimate a detailed topographical survey and site investigation would be needed.

Financial Impact

20. In summary, the potential one-off capital and ongoing revenue implications of the options are indicated below:

Option 1: £825K capital expenditure + future inspection costs and ongoing maintenance liabilities;

Option 2: £35-50K + future inspection costs and fencing liabilities;

Option 3: £700K + no future liabilities;

Option 4: £250-400K (subject to ground investigation) + future inspection costs & liabilities for the fencing & bridge.

Integrated Impact Assessment

21. A first stage impact assessment has been undertaken to assist the Council in discharging its legislative duties (under the Equality Act 2010, the Welsh Language Standards (No.1) Regulations 2015, the Well-being of Future Generations (Wales) Act 2015 and the Environment (Wales) Act 2016. The first stage assessment as provided in Appendix C has indicated that a more in-depth assessment is not required for the way forward proposed which in summary reflects the as existing position.

Valleys Community Impacts

22. Options 3 & 4 would result in the loss of a 'heritage' feature in the Afan Valley.

Workforce Impacts

23. If the tunnel is not infilled or collapsed and the tunnel is sealed by more permanent masonry closures then it would expose future inspectors and others to confined space working in future.

Legal Impacts

24. There are no implications associated with this report.

Risk Management Impacts

25. Options 1, 2 & 4 would remove the hazard and the risk in the short to medium term but would need regular inspections and a maintenance programme of some form in the longer term. Option 3 would remove the hazard and address longer term risk.

Consultation

26. There is no requirement under the Constitution for external consultation on this item.

Recommendations

Having had due regard to the first stage Integrated Impact Assessment it is recommended that Option 2 be pursued for the foreseeable future, with palisade fencing to each end of the tunnel being maintained as existing.

Reason for Proposed Decision

To determine the way forward regarding the structure.

Implementation of Decision

The decision is proposed for implementation after the three day call in period.

Appendices

Appendix A: Gelli Houses Disused Railway Tunnel, General Inspection Feb 2021.

Appendix B: Photograph of current fencing.

Appendix C: Integrated Impact Screening Assessment.

Officer Contact

Mr. Hasan Hasan, Engineering Manager

Tel. No. 01639 686463

Email h.hasan@npt.gov.uk

Mr. James Davies, Neighbourhood Services Manager

Tel. No. 01639 686408

Email j.davies19@npt.gov.uk