

Archaeology Wales

Pwll Ddu Tunnel, Blaenavon

Archaeological Watching Brief



By

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Report No: 1227

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Summary

An Archaeological Watching Brief was carried out during works to install new water management features within the scheduled area at Pwll Ddu Tunnel, Blaenavon. The works involved the excavation of a 140m drainage trench along the western edge of the tramway, and the excavation of a trench for the installation of new gabion baskets immediately to the east of the tunnel entrance. An investigative trench was excavated on the top of the tunnel to reveal the original brickwork and assess its condition.

The works were carried out under Scheduled Monument Consent, issued by Cadw on 15th October 2013.

No features of archaeological significance were revealed during the works as the trenches cut through modern silt deposits and modern made ground. The brickwork of the tunnel was revealed to be sound and in good condition.

1. Introduction

In April 2014, Archaeology Wales was commissioned to carry out a watching brief during the excavation of a new drainage channel and the installation of new gabion baskets on the route of the former tramway at the entrance to Pwll Ddu tunnel, southern portal (NGR: SO 24820 09699; fig. 1). The site is a Scheduled Ancient Monument (MM223) comprising the tunnel portal, tips, tunnel man's house and the tramway extending for 240m from the tunnel entrance to the B4248. The site lies within the Blaenavon Industrial Landscape World Heritage Site. Scheduled Monument Consent was granted by Cadw on the 15th October 2013.

The works were carried out to alleviate serious problems with water run-off that threatened to undermine the stability of the scheduled monument. The work involved the excavation of a trench 140m long, 0.4m wide and 0.6m deep, positioned along the western edge of the tramway. This trench links up to an existing water outlet into which new drains will be channelled from the high ground above the tunnel entrance. The southern end of the new drainage trench flows out into an area of boggy ground towards the southern end of the scheduled area. On the eastern side of the tunnel portal a 2.5m long, 1m wide and 1.3m deep trench was excavated to allow new gabion baskets to be installed. These are designed, in conjunction with the new water management systems, to prevent water flowing on to the track bed of the tramway. In addition, a 1.5m long by 1m wide trench was excavated on the top of the tunnel, immediately adjacent to the extant tunnel portal, to investigate the stability of the original tunnel structure in advance of proposed works to conserve and rebuild the tunnel portal.

The work was carried out on the 12th May 2014 by Dr Amelia Pannett, Project Manager, Archaeology Wales.

2. Site Description

2.1 Location, Geology and Topography

The Pwll Ddu tunnel is located on the north-western side of Blaenavon, on the edge of the South Wales Coal Measures, at around 400m AOD. It is located in a landscape dominated by spoil tips, with much of the surrounding original ground surface buried under several metres of mining waste.

2.2 History of the Pwll Ddu Tunnel

The Pwll Ddu tunnel, which opened in 1815, was constructed to allow rapid and relatively easy movement between the two sides of the Blorenge. It was the longest tramroad tunnel in Britain at the time, at around 2km in length, and linked the quarries at Pwll Ddu and the Forge at Garn Dyrys, on the northern side of the Blorenge, to the Ironworks in Blaenavon.

The tunnel was in use for nearly 140 years before falling into disrepair and finally becoming blocked in the later twentieth century. The site was scheduled as a monument of national significance in 1994. In 2011, a programme of excavation and restoration was carried out by the Forgotten Landscapes Partnership, which revealed the southern portal of the tunnel and the original bed of the tramway. The tunnel portal was rebuilt and the tramway bed covered by geotextile and gravel. Since these works, problems with rain water run-off and vandalism have threatened the monument.

3. Watching Brief Results

The watching brief was carried out during the excavation of the trench along the western side of the tramway, to the south of the tunnel, during the excavation of the trench for the gabion baskets and during the excavation of the exploratory trench on the top of the tunnel entrance.

3.1 Drainage trench along western edge of tramway

The trench was excavated by a 3t mechanical excavator fitted with a 0.4m wide toothless bucket (fig. 2). The trench was excavated in spits to a depth of 0.6m.

The trench was excavated through a homogenous deposit of dark brown/grey silt containing modern plastic, metal and glass (fig. 2). Patches of coal dust were identified along the line of the trench, but investigation revealed these to be dumps of material within the silt and not related to any archaeology.

No finds or features of archaeological interest were revealed during the excavation of the new drainage trench. The trench flowed with water as soon as a breach was made between it and the existing water outlet at the northern end of the new drain (fig. 3).

3.2 Trench for Gabion baskets

A trench measuring 2.5m long and 1m wide was excavated into the bank immediately south-east of the Pwll Ddu tunnel portal. The trench was dug through the bank of the tramway, which comprised made ground, and a deposit of waterborne rocks that had washed down the steep slope of the spoil tip (fig. 4).

The bank material comprised fragments of shale, sandstone and limestone together with modern scalplings, and appears to have been built relatively recently, probably during the 2011 restoration works. No features of archaeological interest were revealed.

3.3 Tunnel top investigation trench

A small trench, measuring 1.5m long by 1m wide and up to 0.5m deep, was excavated through the ground overlying the top of the tunnel to reveal the original brick arch of the tunnel (fig.

5). The aim was to establish how far below the ground the original structure is, what state of repair it is in, what works were undertaken during the 2011 restoration and what impact these had had on the original brickwork.

The trench revealed a layer of modern concrete, 0.25m thick on the southern side of the trench. This was related to the 2011 restoration works and partly overlay the original brickwork of the tunnel. The original tunnel masonry was revealed as the large, buff, furnace bricks extant at the base of the portal arch – seven of the bricks were revealed in the trench and these were found to be sturdy and sound, with no signs of cracks or failure in the joints.

The trench was backfilled to prevent disturbance to the original tunnel structure.

4. Discussion and Conclusions

The watching brief, undertaken during the installation of new water management features at Pwll Ddu tunnel did not reveal any features of archaeological significance. The new drainage trench, located along the western side of the tramway, cut through modern silt deposits and did not impact on the original tram bed, while the gabion basket trench only impacted on a deposit of modern made ground and waterborne rocks. The investigation trench, excavated to assess the condition of the original brick structure of the tunnel, revealed both the original bricks and modern concrete associated with the rebuilding in 2011. The original bricks do not appear to have been adversely impacted by the recent works and are in a sound and stable condition.

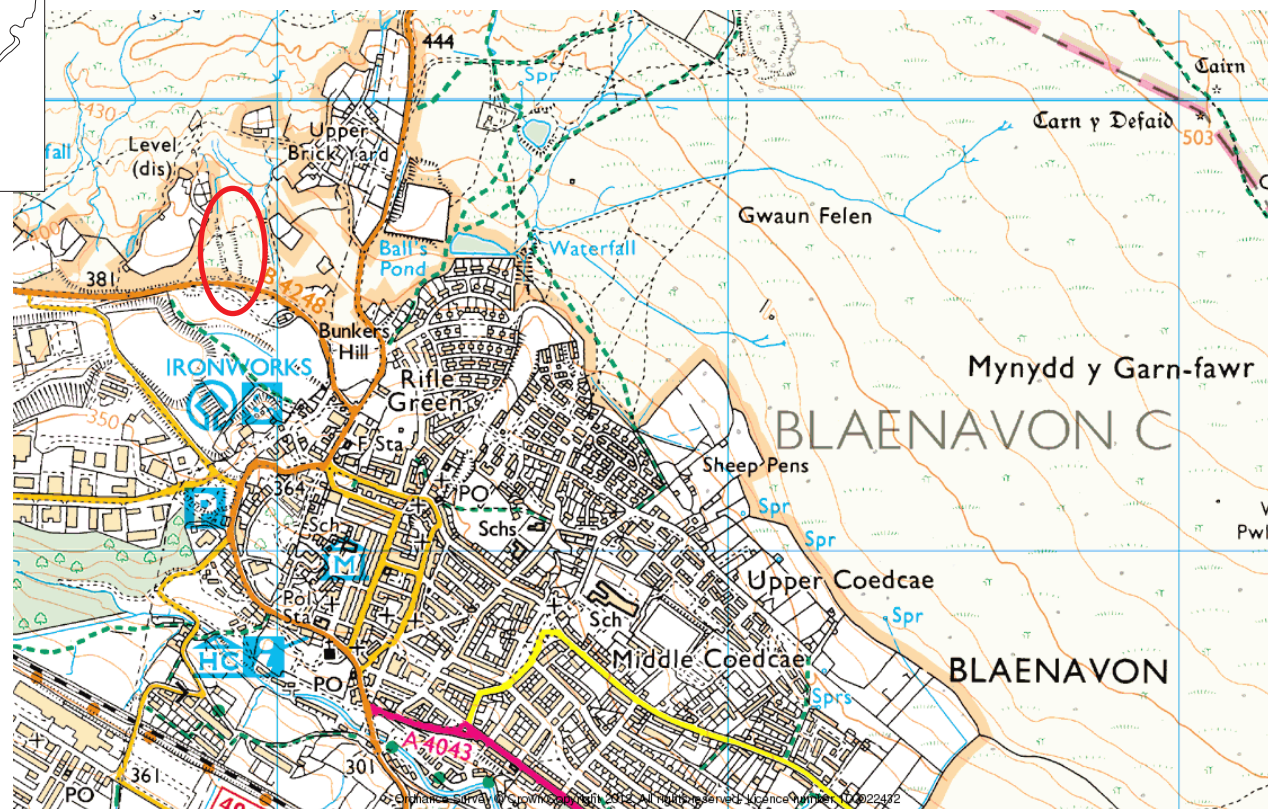
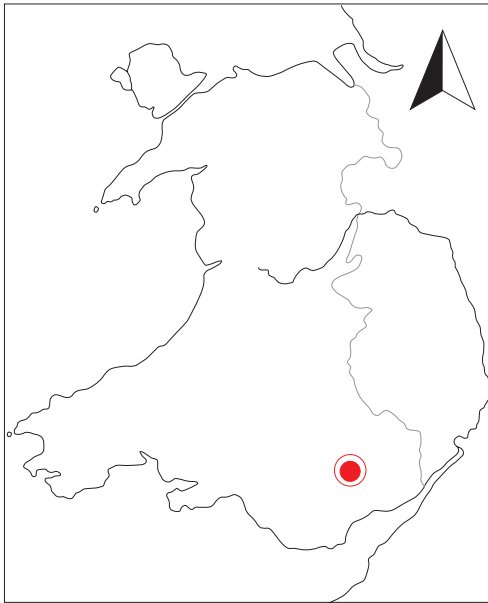


Fig. 1
Location of
site



Fig. 2
Trench excavated
along the western
edge of the
tramway.

Looking North

Scale = 2m



Fig. 3
Water flowing along
the newly
excavated trench.

Looking North

Scale = 2m



a. Before excavation - showing the deposit of water bourned rocks on the tramway edge



b. Gabion basket trench, post-excitation

Fig. 4
The gabion baskets
area

Looking South-East

Scale = 2m



a. Location of the investigation trench



b. Original brickwork (right) and modern concrete (left)

Fig. 5
The tunnel top
investigation trench

Looking North-West

Scale = 2m

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