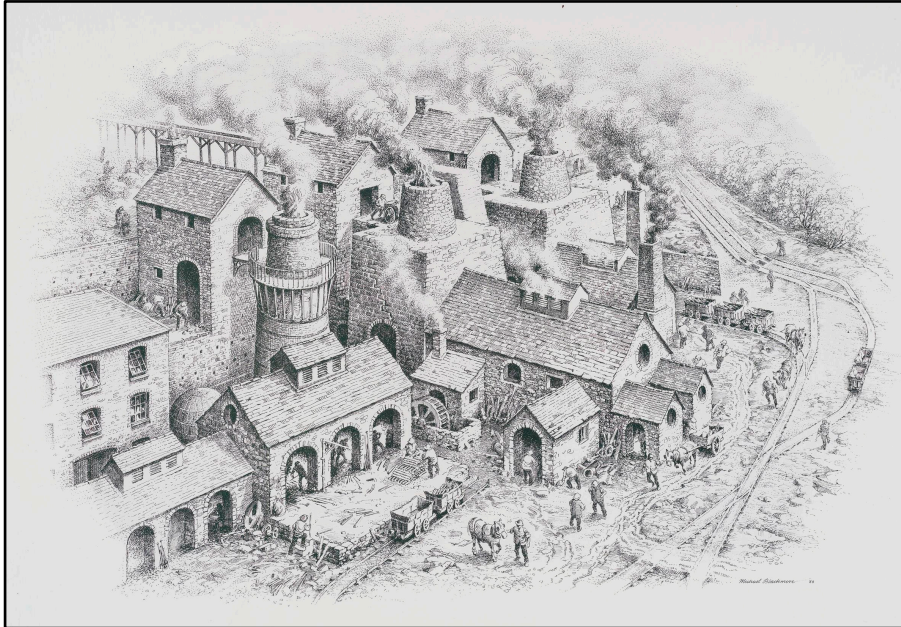


**Clydach Ironworks,
Monmouthshire
Archaeological Watching Brief**



Prepared
for

**Tilhill Forestry
Church Bank,
Llandovery,
Carmarthenshire,
SA20 0BA**

By



**- BLACK MOUNTAINS ARCHAEOLOGY -
- ARCHAEOLEG MYNYDD DU -**

| CONTENTS | PAGE |
|--|-------------|
| Summary..... | 3 |
| 1 Introduction | 5 |
| 1.1 Project Background and Proposals..... | 5 |
| 1.2 Objectives..... | 5 |
| 1.3 Legislative Framework..... | 6 |
| 1.4 Location, Topography and Geology..... | 6 |
| 1.5 History and Archaeology | 7 |
| 2 Methodology..... | 9 |
| 3 Results | 10 |
| 3.2 Pathway (Figure 2, Plates 2–8)..... | 10 |
| 3.3 Earthen Mound (Figure 2, Plate 1) | 10 |
| 3.4 Fence Posts (Figure 2, Plates 9–12)..... | 11 |
| 4 Conclusion | 11 |
| 5 Bibliography | 13 |
| 6 Appendices..... | 14 |
| 6.1 Appendix I: Figures..... | 14 |
| 6.2 Appendix II: Plates..... | 16 |
| 6.3 Appendix II: Context Inventory | 22 |

FIGURES

| | |
|---|----|
| Figure 1. Map showing location of development area (SAMBr161) | 14 |
| Figure 2. Plan showing location of excavation areas within SAMBr161 | 15 |

PLATES

| | |
|--|----|
| Plate 1. Excavation area for earthen mound (view north, scale 2x1m) | 16 |
| Plate 2. North-eastern end of proposed pathway after excavation (view northeast, scale 2x1m) | 16 |
| Plate 3. View of proposed pathway after excavation, towards north-eastern end, approaching hillslope to southwest of site (view southwest, scale 2x1m) | 17 |
| Plate 4. Upslope view of proposed pathway, after excavation, at base of hillslope to southwest of site (view southwest, scale 2x1m)..... | 17 |
| Plate 5. Upslope view of proposed pathway, after excavation, towards middle of hillslope to southwest of site (view southwest, scale 2x1m)..... | 18 |

Plate 6. Upslope view of proposed pathway, after excavation, approaching top of hillslope to southwest of site (view southwest, scale 2x1m)..... 18

Plate 7. Downslope view of proposed pathway, after excavation, towards middle of hillslope to southwest of site (view northeast, scale 2x1m) 19

Plate 8. Downslope view of proposed pathway, after excavation, approaching base of hillslope to southwest of site (view northeast, scale 2x1m) 19

Plate 9. Representative photograph of fence posthole within area over former cement works..... 20

Plate 10. Trajectory of fence postholes within area over former cement works..... 20

Plate 11. First test pit excavated in advance of construction of fence line to southwest of Smart's Bridge 21

Plate 12. Second test pit excavated in advance of construction of fence line to southwest of Smart's Bridge 21

Summary

Comisiynwyd Archeoleg Mynydd Du Cyf gan Tilhill Forestry, Church Bank, Llanymddyfri, Sir Gaerfyrddin, SA20 OBA i gwblhau briff gwyllo archeolegol yn ystod gwaith daear yn gysylltiedig â datblygiad arfaethedig yn y Gwaith Haearn Clydach, De Clydach, Sir Fynwy. Mae'r gwaith haearn hwn a'u hamgylchoedd uniongyrchol yn Mae'r gwaith haearn hwn a'r ardal gyfagos yn cynnwys Heneb Rhestredig (SAMBr161). Roedd y gwrthgloddiau arfaethedig yn cynnwys adeiladu trac, twmpath pridd a ffensys pren.

Fel un o amodau'r Cydsyniad Heneb Hynafol Rhestredig (SMC) a ddarperir gan Cadw, roedd yn ofynnol i raglen waith ar ffurf briff gwyllo archeolegol cael ei cynnal yn ystod yr holl waith daear yn yr Heneb Gofrestredig (SAMBr161). Roedd gan y gweithiau hyn y potensial i ddatgelu nodweddion archeolegol, dyddodion ac arteffactau sy'n gysylltiedig â gweithgaredd diwydiannol Ôl-ganoloesol Gwaith Haearn Clydach. Yn benodol, mae'r dramffordd sy'n arwain at Smart's Bridge, sy'n croesi Afon Clydach ar ymyl ogleddol y gwaith haearn, yn gorwedd yn uniongyrchol o fewn ardal y gwaith arfaethedig.

Mae'r adroddiad presennol yn nodi canlyniadau'r briff gwyllo archeolegol yn unol â Safon a Chanllawiau ar gyfer Briff Gwyllo Archeolegol gan y Sefydliad Siartredig Archeolegwyr, cyhoeddwyd 2014, diwygiwyd 2020.

Black Mountains Archaeology Ltd were commissioned by Tilhill Forestry, Church Bank, Llandovery, Carmarthenshire, SA20 OBA to carry out an archaeological watching brief during groundworks associated with improvement works to the Clydach Ironworks, Clydach South, Monmouthshire. The ironworks and their immediate environs comprise a Scheduled Ancient Monument (SAMBr161). The proposed groundworks consisted of the construction of a pathway, the excavation of a small area for a proposed earth banked amphitheatre and metal fencing.

As a condition of the Scheduled Ancient Monument Consent (SMC) provided by Cadw, a programme of work in the form of an archaeological watching brief was required during all groundworks within the Scheduled Ancient Monument (SAMBr161). These works had the potential to uncover archaeological features, deposits and artefacts associated with the Post-medieval industrial activity of the Clydach Ironworks. In particular, the tramroad leading up to Smart's Bridge, which crosses the River Clydach on the northern edge of the ironworks, directly within the area of the proposed works.

The present report sets out the requirements for an archaeological watching brief in accordance with the Chartered Institute for Archaeologists' Standard and Guidance for an Archaeological Watching Brief (published 2014, revised 2020).

Acknowledgements and Copyright

The report was written by Dr Rhys Morgan PhD. The project was managed by Richard Lewis BA MCIfA. The fieldwork was undertaken by Dr Rhys Morgan and Richard Lewis. The Welsh translation and illustrations were provided by Dr Rhys Morgan. Copyright for this report is held by Black Mountains Archaeology Ltd/Archeoleg Mynydd Du Cyf, who have granted exclusive license to Tilhill Forestry, enabling them to use and produce the materials it contains. Black Mountains Archaeology Ltd retain copyright of any annotations. The author is grateful to Chris Williams of Tilhill Forestry and the staff of Nu-Landscapes Ltd for their

cooperation throughout the project, as well as Will Davies of Cadw for his helpful advice and support.

| | Name | Date |
|-----------------------------|-----------------|-------------|
| Report prepared by | Dr Rhys Morgan | 07/06/21 |
| Quality assurance by | Libby Langlands | 14/06/21 |
| Signed off by | Richard Lewis | 18/06/21 |

1 Introduction

1.1 Project Background and Proposals

- 1.1.1 Black Mountains Archaeology Ltd/ Archeoleg Mynydd Du Cyf were commissioned by Tilhill Forestry, Church Bank, Llandoverly, Carmarthenshire, SA20 0BA to carry out an archaeological watching brief during groundworks associated with improvement works to the Clydach Ironworks, Clydach South, Monmouthshire. The ironworks and their immediate environs comprise a Scheduled Ancient Monument (SAMBr161). The proposed groundworks consisted of the construction of a pathway, the excavation of a small area for a proposed earth banked amphitheatre and metal fencing.
- 1.1.2 As a condition of the Scheduled Ancient Monument Consent (SMC) provided by Cadw, a programme of work in the form of an archaeological watching brief was required to be during all groundworks within the Scheduled Ancient Monument (SAMBr161). These works had the potential to uncover archaeological features, deposits and artefacts associated with the Post-medieval industrial activity of the Clydach Ironworks. In particular, the tramroad leading up to Smart's Bridge, which crosses the River Clydach on the northern edge of the ironworks, lies directly within the area of the proposed works.
- 1.1.3 The present report sets out the requirements for an archaeological watching brief in accordance with the Chartered Institute for Archaeologists' *Standard and Guidance for an Archaeological Watching Brief* (published 2014, revised 2020).

1.2 Objectives

- 1.2.1 The definition of an archaeological Watching Brief as set out by the *Chartered Institute for Archaeologists* (CIfA) is a formal programme of observation and investigation conducted during any operation carried out for non-archaeological reasons. This will be within a specified area or site on land, inter-tidal zone or underwater, where there is a possibility that archaeological deposits may be disturbed or destroyed. The programme will result in the preparation of a report and ordered archive.
- 1.2.2 The purpose of an archaeological watching brief as defined CIfA (published 2014, revised 2020) is:
- to allow, within the resources available, the preservation by record of archaeological deposits, the presence and nature of which could not be established (or established with sufficient accuracy) in advance of development or other potentially disruptive works.
 - to provide an opportunity, if needed, for the watching archaeologist to signal to all interested parties, before the destruction of the material in question, that an archaeological find has been made for which the resources allocated to the watching brief itself are not sufficient to support treatment to a satisfactory and proper standard.
- 1.2.3 A watching brief is not intended to reduce the requirement for excavation or preservation of known or inferred deposits, and it is intended to guide, not replace, any requirement for contingent excavation or preservation of possible deposits.
- 1.2.4 The objective of a watching brief is to establish and make available information about the archaeological resource existing on a site.

- 1.2.5 (*Chartered Institute for Archaeologists Standard and Guidance for an Archaeological Watching Brief*, published 2014, revised 2020)
- 1.2.6 The Research Framework for Wales sets out the knowledge base of past research and sets out a rationale for future studies (<https://www.archaeoleg.org.uk/index.html>). The present investigations will be undertaken considering the key themes and where there are limitations in current knowledge, particularly where the present investigations can enhance our understanding of some of these key areas. For example, current important Industrial themes for consideration where there are weaknesses in the knowledge base are: the significance and scale of technical change within the major industries of coal, iron, copper, tin, lead and slate, and the impact of that change within the landscape; their context and significance in terms of similar sites elsewhere in the world; their relationship with the markets they served. It has been noted that a gap still exists in our understanding of the 'scientific' elements of past industries, particularly metallurgical industries where limited scientific investigation has been undertaken as there has tended to be a reliance on contemporary documentary accounts to tell us 'what we need to know'. An opportunity exists to pursue an avenue of research in the identification of waste products from the metallurgical industries; more specifically collaboration with metallurgists would be worthwhile to establish if it is possible to identify the unique qualities and origin of these wastes and whether anything could be understood about the processing of these materials on-site.

1.3 Legislative Framework

- 1.3.1 Any works affecting an ancient monument and its setting are protected through implementation of the *Ancient Monument and Archaeological Areas Act 1979*. In Wales the 1979 Act has been strengthened by *The Historic Environment (Wales) Act 2016*. The 2016 Act makes important improvements for the protection and management of the Welsh historic environment. It also stands at the centre of an integrated package of secondary legislation (Annexes 1-6), new and updated planning policy and advice, and best-practice guidance on a wide range of topics (*TAN 24 Historic Environment*). Taken together, these support and promote the careful management of change in the historic environment in accordance with current conservation philosophy and practice.
- 1.3.2 The *Ancient Monument and Archaeological Areas Act 1979* and *The Historic Environment (Wales) Act 2016* sets out a presumption in favour of preservation in-situ concerning sites and monuments of national importance (scheduled/listed), and there exists in the current Planning Policy Wales (Chapter 6) a presumption in favour of preservation in-situ of all types of heritage assets.

1.4 Location, Topography and Geology

- 1.4.1 The proposed development is centred on NGR SO 2290 1326 and comprises the site of Clydach Ironworks, Clydach South, Monmouthshire. Running along the north-western outskirts of the site is the Heads of the Valleys Road (A465), while to the southwest is Haymans Cottage. Immediately south of the site is the village of Clydach. The proposed development is also situated within the Clydach Gorge (Cwm Clydach), which runs for approximately 5.6km from Brynmawr to Gilwern. The nearest church

to the proposed development is Nazareth Chapel, approximately 0.53km to the south in the village of Clydach.

- 1.4.2 The superficial geology within the proposed development comprise Devensian till in the form of diamicton. These layers were deposited up to 2 million years ago during the Quaternary period within a local environment previously dominated by ice age conditions. The underlying bedrock consists of interbedded sandstone and subequal and subordinate argillaceous rocks of the Brownstone Formation. These bedrock deposits formed approximately 393–419 million years ago in the Devonian period, within a local environment previously dominated by rivers (BGS 2021).

1.5 History and Archaeology

- 1.5.1 Both the Clydach Ironworks and the wider community of Clydach South are included within the Cwm Clydach Registered Historic Landscape of Special Historic Interest (HLW(Gt)4), which features outstanding remnants of the area's industrial past. The historic landscape of Cwm Clydach borders and is historically and socioeconomically connected to the industrial World Heritage Site of Blaenavon to the immediate southeast. Within its curtilage are the Scheduled Ancient Monuments of Clydach Ironworks and Smart's Bridge (SAMBr161), Llanelly Furnace (SAMBr160), Clydach Railroad Section (SAMMM263) and Gilwern Embankment (SAMMM251). The listed buildings within its confines include the nearby Tramroad Bridge near Forge House (LB23840), some of the earliest industrial worker housing surviving in Wales (6 and 7 Forge Row LB23838/23839) and Clydach House (LB6667), built in 1693 for Francis Lewis, manager of the Llanelly Furnace. The historic landscape is also characterised as a unique microcosm of Welsh industry, consisting of extractive processes (quarrying), woodland management, early ironworking and the remains of an integrated and impressive transport system of waggonways, tramroads, railways and canals (Cadw and ICOMOS 2001, 64-67).
- 1.5.2 The groundworks are situated within the Scheduled Ancient Monument of Clydach Ironworks and Smart's Bridge (SAMBr161), which contains the remains of a major iron production site founded between 1793–95 by Edward Frere and Thomas Cooke on the southern edge of Clydach Gorge. The tract of land on which this ironworks was constructed was originally subleased to Frere and Cooke by the Duke of Beaufort, who at that time had ownership of the Clydach mineral property. Three years after the founding of the ironworks, Frere and Cooke went into partnership with Edward and John Kendall of the Beaufort Ironworks, which led to the Clydach Ironworks Company being established (Barber 2007, 192). At its peak, the centre of the ironworks comprised four coke-fired blast furnaces and a cast house. Also associated with the blast furnaces were a corresponding series of charge houses, within which raw materials were collected prior to being loaded into the furnaces. Once sufficient amounts of smelted iron had collected within the base of the furnaces, it was tapped, causing it to flow into 'pig beds', which constituted small furrows cut into the sand of the cast house floor. The hot air for the furnaces was supplied by a Boulton and Watt engine, manufactured by the Neath Abbey Company, as well as a sizeable overshot waterwheel measuring 12.8m in diameter and constructed from cast iron. Initially, the ironworks comprised a single blast furnace. However, a second furnace was added by 1805, while a third and fourth was constructed by 1825 and 1839 respectively (Riden

and Owen 1995, 9). Immediately north of this site is Smart's Bridge, which crosses the River Clydach. This bridge was constructed in 1824 for the purpose of supporting a tramroad that transported materials to and from the ironworks via the Clydach Railway. The bridge comprises four ribs that spring from masonry set into a cast iron frame and spans a total of 7.5m (Cossons and Trinder 2002, 76). Immediately to the west of Smart's Bridge was a three-storey terrace of worker housing, dating to around the turn of the 19th century (Newman 2000, 281).

- 1.5.3 Financially, Clydach Ironworks remained largely inefficient throughout its use and attempts were made between 1846–66 to convert the works into a steel production site (Protheroe-Jones 1995, 21), which were ultimately unsuccessful. Moreover, the ironworks went bankrupt in 1861, leading to it being taken over by the New Clydach Sheet and Bar Iron Company Ltd, which then fell into liquidation in 1869 (King 2020, 498). Prior to this, in 1866, the operations of the company at the ironworks were halted, which had by this time accrued assets of £21,000 and liabilities of £24,000 (Ince 1993, 135). In 1796, the recorded production of pig iron at the ironworks was 1,660 tons, which had risen to 10,038 tons by 1840. By the middle of the 19th century, the ironworks employed approximately 1,350 men and boys, of which many worked in the nearby iron ore quarries and coal mines. By 1871, Clydach Ironworks ceased operations, during which time the works fell under the ownership of John Jayne (Riden and Owen 1995, 9). The overall lack of success that afflicted the ironworks may be explained by the owners' reliance on borrowed capital in conjunction with other factors such as the poor quality of coal and iron ore within the immediate area (Lloyd 1906, 193). In fact, it is well attested to that during the 19th century the ironmasters of South Wales, most notably those in charge of the Clydach, Hirwaun and Plymouth works, often failed to justify their bankers' confidence in their manufacturing operations (Birch 1967, 209). By 1905, the site of Clydach Ironworks underwent significant clearance and demolition in advance of the construction of a wool factory. Later, the site was reclaimed again and large portions of it were redeveloped as housing estate (Roberts 2005, 43).
- 1.5.4 According to Cuyler's journal of 1807 (see van Laun 2008, 33), a series of coking beds were located only a short distance from the ironworks' furnaces, which at that time numbered two in total. These coking beds comprised mounds of bituminous coal that were fired at relatively low temperatures for the purposes of manufacturing coke. This procedure of manufacturing coke accords well with those in operation throughout Britain in the late 18th century (Tylecoat 1992, 123). While coke was manufactured on site, limestone, which was used as flux within the blast furnaces, was transported to the ironworks from Llanelly Quarry, situated to the southwest (van Laun 2001, 65) down a long tramroad incline.

- 1.5.5 Local sources have stated that a blast furnace and forge were also established on the southern side of the Clydach Gorge (King 2020, 496). Wilkins (1903, 17) notes a Hanbury ironworks on the River Clydach by 1615, likely referring to the Llanelly Furnace (BR160). Schubert (1957, 176, 358, 371, 423) and Rees (1967) note the existence of a small furnace about 12ft high in 1590 located on the mountain slope south of the River Clydach 'on the spot' of the Clydach railway station with a forge located nearby by 1600. Both closed by 1607 with the works (furnace and forge) moved to the north side of the River Clydach 'near Clydach House' in 1606 with a new forge by 1615 (Wilkins 1903, 17). It is conceivable then that the Llanelly Furnace and Forge may predate the generally accepted construction date of 1684 by some years. Indeed, the earliest record may be articles of agreement from 1663, in which Capel Hanbury had liberty to build a weir to divert water from the River Clydach for his ironworks at Llanelly (Riden 1993, 23; Gwent RO, D8A, JCH1272).
- 1.5.6 The Llanelly Furnace remained in use until the mid-late 18th century, just before the construction of the first blast furnaces at the Clydach Ironworks. In conjunction with the establishment of the Llanelly Furnace a later forge was also constructed, which was founded by Major John Hanbury, who also possessed ownership of another forge in Tintern as well as a wire works outside of Usk (Minchinton 1957, 13). During the 19th century, this forge was supplied in part by pig iron from the Clydach Ironworks, where it was beaten by water-powered trip hammers in order to convert it into wrought iron (van Laun 2008, 61). Immediately southwest of the ironworks is the site of a series of rolling mills, which were powered by waterwheels connected to a leat fed by the River Clydach to the west (Hughes 1990, 321). Poole (1886, 235) records that in 1830 these rolling mills operated via waterpower alone and without the use of steam engines.
- 1.5.7 **Cartographic evidence**
- 1.5.8 On the 1847 Tithe Map of the local area (*No. 2 Plan of the Parish of Llanelly in the County of Brecon*), the vast majority of land parcels situated along the southern banks of the River Clydach are shown as being owned by or leased to the Clydach Iron and Coal Company. At the heart of the ironworks was Land Parcel 801, within which the blast furnaces were situated. A short distance to the southeast, in an area now occupied by a sports field, was Land Parcel 800, which is recorded as being a coke yard. Towards the northeast of the blast furnaces are land parcels being used as quarries, sawpits and timber yards, while to the southwest, within Land Parcel 711, were the rolling mills. The Tithe Map also shows that these rolling mills were surrounded on their southern and eastern sides by a series of worker housing and gardens. Today, this entire area is occupied by modern housing estate.

2 Methodology

- 2.1.1 The archaeological watching brief observed excavations associated with the construction of a pathway, the excavation of a small area for a proposed earth banked amphitheatre and fencing.
- 2.1.2 No deposits of archaeological interest were encountered during the watching brief. During excavations for the pathway and earth banked amphitheatre, a thick demolition deposit was encountered. Excavations for the metal fencing near the site's

northern entry failed to penetrate the modern concrete surface that currently defines this area.

- 2.1.3 No finds or samples were recovered during the archaeological watching brief, partly due to the visible contamination that affected much of the site's superficial deposits.
- 2.1.4 The archaeological watching brief was carried out to the standards of the Chartered Institute for Archaeologists' *Standard and Guidance for an Archaeological Watching Brief*, published 2014, revised 2020.
- 2.1.5 A digital copy of the report and archive will be supplied to the regional HER, the LPA and the Royal Commission on the Ancient and Historical Monuments of Wales. All data will be submitted to the relevant archives in accordance with the RCAHMW's *Guidance for Digital Archaeological Archives* (2015) and the regional HER's *Guidance for the Submission of Data to the Welsh Historic Environment Records (HERs)* (2018).

3 Results

- 3.1.1 The archaeological watching brief observed ground penetrating works associated with the construction of a pathway, the excavation for an earth banked amphitheatre and metal fencing. In all, the development area comprised the open area of ground immediately west of the extant structures belonging to the former ironworks; the hillslope to the southwest, along which the old tramroad leading up to Smart's Bridge ran; and a level area of concrete immediately southwest of the site entrance, to which Station Road leads onto from the east. This area was previously occupied by a cement works. Contextual information regarding the individual deposits encountered during the watching brief can be found in Appendix III.

3.2 Pathway (Figure 2, Plates 2–8)

- 3.2.1 The proposed pathway extended for approximately 86m in a broadly NE/SW direction. Excavation for the pathway began in the open area situated towards the eastern edge of the extant structures of the Clydach Ironworks, approximately 22m southwest of Smart's Bridge. Excavations for the pathway extended from this point to the summit of the small hillslope situated on the southwestern edge of the proposed development. The level of the present ground surface varied. The ground surface of the area immediately west of the extant ironworks was 143.59mOD, while the surface of the summit of the hillslope was 165.5mOD. The base of excavation within the former area was 143.35mOD, while in the latter it was 165.25mOD.
- 3.2.2 During excavations, two deposits were encountered. The uppermost deposit (001) comprised a dark brown silty clay topsoil with occasional rooting throughout, 0.24m deep. This deposit was encountered within the level area west of the extant ironworks. Excavations along the hillslope revealed a different deposit (002), which comprised black or dark brown silty clay with frequent colliery waste and fragments of slag and furnace waste throughout, 0.25m+ deep.

3.3 Earth banked amphitheatre (Figure 2, Plate 1)

- 3.3.1 The proposed earth banked amphitheatre was situated on the level area immediately to the northwest of the extant ironworks. Groundworks comprised a shallow excavation of an oval-shaped area measuring approximately 19m long x 8m wide.

Spoil was then used to form the earthen mound, which was to be situated directly within the newly excavated area. The maximum depth of excavation was 0.25–0.30m. The level of the present ground surface was 143.58mOD. The level at the base of excavation was 143.28mOD.

- 3.3.2 During excavations, two deposits were encountered. The first (003) comprised a dark brown silty clay topsoil with occasional rooting throughout. This deposit measured approximately 0.15m in depth. The second deposit (004) was seen to underlie (003) and consisted of black or dark brown silty clay with frequent colliery waste and fragments of slag and furnace waste throughout. Deposit (004) was very uneven but was encountered at a depth of 0.15–0.2m+.

3.4 Fence Posts (Figure 2, Plates 9–12)

- 3.4.1 Fence posts were excavated in two separate areas of the site. The first area was situated to the northeast of the extant ironworks, within approximately 36m of the north-eastern edge of the proposed earthen mound. This area was small and roughly rectangular shaped. The second area was situated immediately to the southwest of Smart's Bridge and comprised a thin strip running along the south-eastern edge of the River Clydach. The excavation of two test pits were recorded within this second area, the negative results of which indicated that a watching brief on the remainder of the area was not required.
- 3.4.2 Excavations within the first area were achieved using a hydraulic pecker and reached a maximum depth of 0.25m. The area within which these excavations were conducted was covered with a thick surface deposit of concrete (005). During excavations, concrete (005) was not fully penetrated, and no underlying deposits were observed.
- 3.4.3 Excavations of the two test pits within the second area were conducted to depths of 0.25–0.4m. Both test pits measured 0.3m wide x 0.5m long. The first test pit was situated approximately 8.5m to the southwest of Smart's Bridge. Within this test pit a single deposit was encountered (006), which comprised a dark brown silty clay topsoil with frequent rooting throughout, 0.1m deep. The second test pit was situated approximately 17m to the southwest of Smart's Bridge. Within this test pit three deposits were encountered. The uppermost deposit (007) comprised topsoil identical in composition to (005), 0.1m deep. Underlying topsoil (007) was a mid-brown subsoil comprising very friable silty clay (008), 0.15m deep. The lowermost deposit (009) comprised black loam with fragments of colliery waste and slag throughout, 0.15m+ deep.

4 Conclusion

- 4.1.1 During the archaeological watching brief, groundworks associated with pathway, earth banked amphitheatre and a series of fenceposts were monitored. No archaeological features, deposits or artefacts were encountered. The lowermost deposits observed during the watching brief, represented by contexts (004) and (008), which were encountered between 0.15–0.25m below the present ground surface, comprised a layers of demolition material. In considering that this material contained slag, colliery waste and some furnace waste, it remains possible that it resulted from the demolition of the ironworks. However, as the depths at which these deposits were

encountered were very shallow, it is more likely that deposits (004) and (009) comprised modern levelling material.

5 Bibliography

- Barber, C, 2007, *In the Footsteps of Alexander Cordell*, Blorenge Books.
- Barber, C, 2019, *Hill's Tramroad: Blaenavon World Heritage Site*, Amberley.
- Cadw and ICOMOS, 2001, *Landscapes of Special Historic Interest in Wales*, Pt **2.2**, Cardiff.
- Cossons, N and Trinder, BS, 2002, *The Iron Bridge: Symbol of the Industrial Revolution*, Phillimore.
- King, P, 2020, *A Gazetteer of the British Iron Industry, 1490–1815*, BAR Publishing.
- Lloyd, J, 1902, *The Early History of the Old South Wales Ironworks, 1760 to 1840*, Bedford Press.
- Hughes, S, 1990, *The Archaeology of an Early Railway System: The Brecon Forest Tramroads*, RCAHMW.
- Ince, L, 1993, *The South Wales Iron Industry, 1750–1885*, Ferric.
- Minchinton, WE, 1957, *The British Tinplate Industry, a History*, Clarendon Press.
- Newman, J, 2000, *The Buildings of Wales: Gwent/Monmouthshire*, University of Wales Press.
- Poole, E, 1886, *The Illustrated History and Biography of Brecknockshire from the Earliest Times to Present Day*, Edwin Poole.
- Protheroe-Jones, R, 1995, *Welsh Steel*, National Museum of Wales.
- Rees, DM, 1967, *Mines, Mills and Furnaces*, National Museum of Wales.
- Riden, P and Owen, JG, 1995, *British Blast Furnace Statistics 1790–1980*, Merton Priory Press.
- Roberts, R, 2005, *Southeast Wales Industrial Ironworks Year 1: The Core Ironworks Areas*, GGAT Report No. **2005/56**.
- Schubert, HR, 1957, *History of the British Iron and Steel Industry from c. 450 B.C. to AD 1775*, Routledge and Kegan Paul.
- Tylecoat, RF, 1992, *A History of Metallurgy (Second Edition)*, Maney.
- van Laun, J, 2001, *Early Limestone Railways: How Railways Developed to Feed the Furnaces of the Industrial Revolution in South East Wales*, Newcomen Society.
- van Laun, J, 2008, *The Clydach Gorge: Industrial Archaeological Trails*, Blorenge Books.

Other sources

British Geological Survey (BGS), 2021, <http://www.bgs.ac.uk>, accessed 01/04/21.

6 Appendices

6.1 Appendix I: Figures

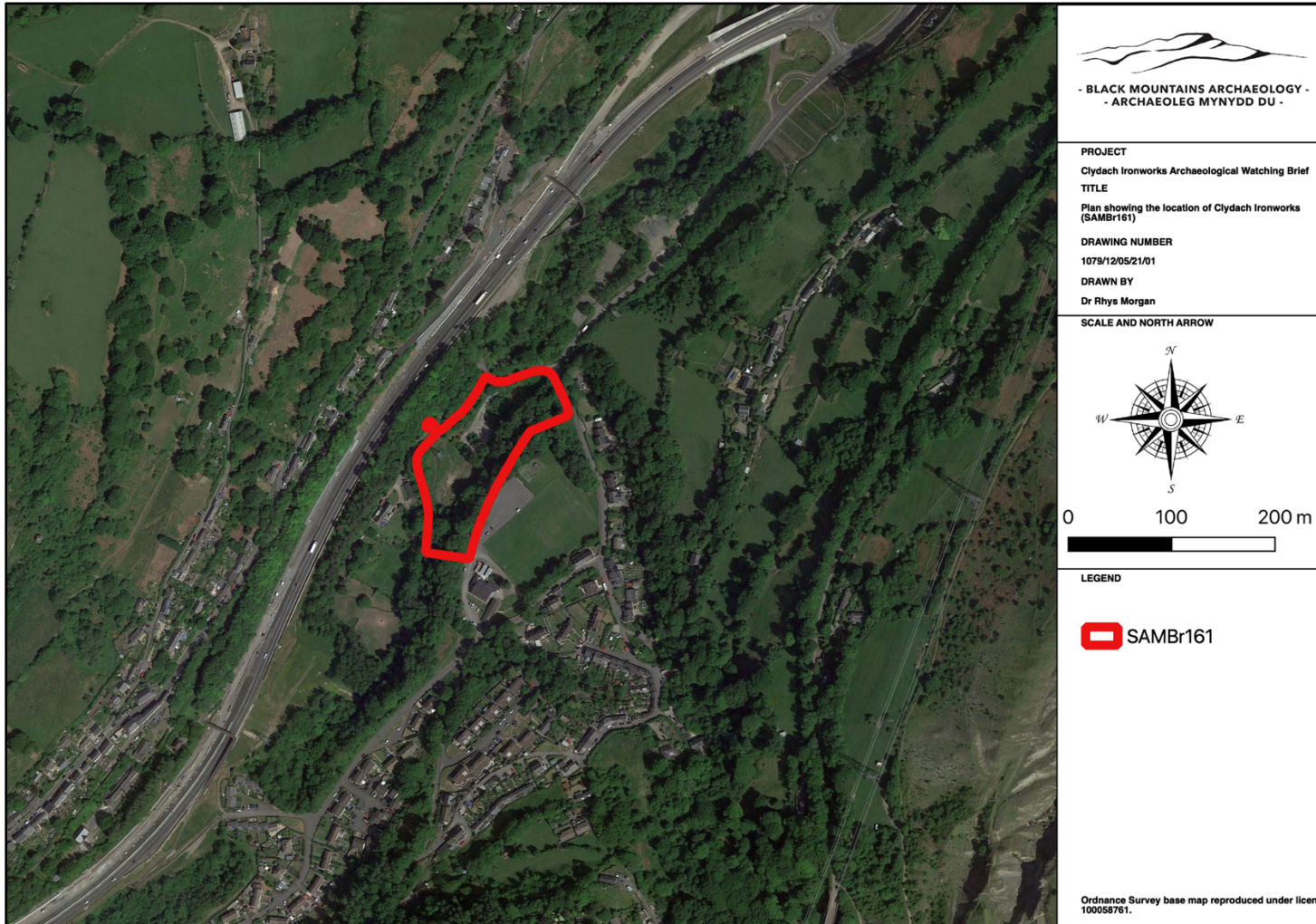


Figure 1. Map showing location of development area (SAMBr161)



Figure 2. Plan showing location of excavation areas within SAMBr161

6.2 Appendix II: Plates



Plate 1. Excavation area for earthen mound (view north, scale 2x1m)



Plate 2. North-eastern end of proposed pathway after excavation (view northeast, scale 2x1m)

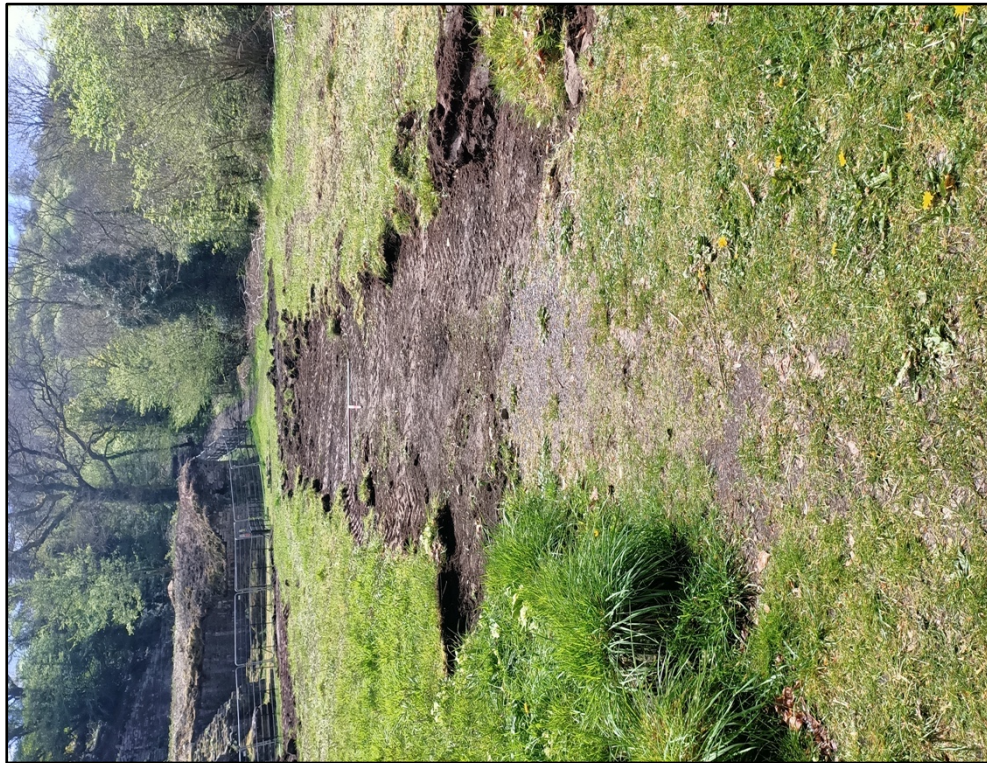


Plate 3. View of proposed pathway after excavation, towards north-eastern end, approaching hillslope to southwest of site (view southwest, scale 2x1m)



Plate 4. Upslope view of proposed pathway, after excavation, at base of hillslope to southwest of site (view southwest, scale 2x1m)



Plate 5. Upslope view of proposed pathway, after excavation, towards middle of hillslope to southwest of site (view southwest, scale 2x1m)



Plate 6. Upslope view of proposed pathway, after excavation, approaching top of hillslope to southwest of site (view southwest, scale 2x1m)



Plate 7. Downslope view of proposed pathway, after excavation, towards middle of hillslope to southwest of site (view northeast, scale 2x1m)



Plate 8. Downslope view of proposed pathway, after excavation, approaching base of hillslope to southwest of site (view northeast, scale 2x1m)



Plate 9. Representative photograph of fence posthole within area over former cement works



Plate 10. Trajectory of fence postholes within area over former cement works



Plate 11. First test pit excavated in advance of construction of fence line to southwest of Smart's Bridge



Plate 12. Second test pit excavated in advance of construction of fence line to southwest of Smart's Bridge

6.3 Appendix II: Context Inventory

Pathway

The proposed pathway extended for approximately 86m in a broadly NE/SW direction. Excavation for the pathway began in the open area situated towards the eastern edge of the extant blast furnaces of the Clydach Ironworks, approximately 22m southwest of Smart's Bridge. Excavations for the pathway extended from this point to the summit of the small hillslope situated on the southwestern edge of the proposed development. The level of the present ground surface varied. The ground surface of the area immediately west of the extant ironworks was 143.59mOD, while at the surface of the summit of the hillslope was 165.5mOD. The base of excavation within the former area was 143.35mOD, while in the latter it was 165.25mOD.

| Context | Type | Depth | Description | Period |
|---------|---------|--------|---|----------------------|
| 001 | Deposit | 0.24m | Topsoil. Dark brown silty clay topsoil with occasional rooting throughout. | Modern |
| 002 | Deposit | 0.25m+ | Black or dark brown silty clay with frequent colliery waste and fragments of slag and furnace waste throughout. | Post-medieval/Modern |

Earthen Mound

The proposed earthen mound was situated on the level area immediately to the northwest of the extant ironworks. Groundworks associated with this mound comprised a shallow excavation of an oval-shaped area measuring approximately 19m long x 8m wide. Spoil was then used to form the earthen mound, which was to be situated directly within the newly excavated area. The maximum depth of excavation was 0.25–0.30m. The level of the present ground surface was 143.58mOD. The level at the base of excavation was 143.28mOD.

| Context | Type | Depth | Description | Period |
|---------|---------|--------|--|----------------------|
| 003 | Deposit | 0.15m | Dark brown silty clay topsoil with occasional rooting throughout. Overlies (004). | Modern |
| 004 | | 0.25m+ | Black or dark brown silty clay with frequent colliery waste and fragments of slag and furnace waste throughout. (underlies (003)). | Post-medieval/Modern |

Fence posts

Fence posts were excavated in two separate areas of the site. The first area was situated to the northeast of the extant ironworks, within approximately 36m of the north-eastern edge of the proposed earthen mound. This area was small and roughly rectangular shaped. The second area was situated immediately to the southwest of Smart's Bridge and comprised a thin strip of land running along the south-eastern edge of the River Clydach. Excavations within this second area were not observed directly. Instead, the excavation of two test pits were recorded.

| Context | Type | Depth | Description | Period |
|---------|---------|--------|--|----------------------|
| 005 | Deposit | 0.25m+ | Modern concrete deposit. | Modern |
| 006 | Deposit | 0.1m | Dark brown silty clay topsoil with frequent rooting throughout. | Modern |
| 007 | Deposit | 0.1m | Dark brown silty clay topsoil with frequent rooting throughout. Overlies (008). | Modern |
| 008 | Deposit | 0.15m | Mid-brown subsoil comprising very friable silty clay. Overlies (009). Underlies (007). | Post-medieval/modern |
| 009 | Deposit | 0.15m+ | Black loam with fragments of colliery waste and slag throughout. Underlies (008). | Post-medieval/modern |



- BLACK MOUNTAINS ARCHAEOLOGY - - ARCHAEOLEG MYNYDD DU -

Yn rhan o'n hawydd i wella ansawdd ein gwasanaeth, rydym yn croesawu unrhyw adborth y gallwch ei ddarparu.

As part of our desire to improve our quality of service we welcome any feedback you are able to provide.

Archaeoleg Mynydd Du Cyf/Black Mountains Archaeology Ltd
Swyddfa Gofrestredig/Registered Office: Unit 23, Victoria Business Park, Innovation Centre,
Festival Drive, Ebbw Vale, NP23 8XA
Cofrestredig yng Nghymru, Rhif y Cwmni/Registered in Wales, Company No: 10679784
Ffôn/Tel: 07834715033
E-bost/Email: info@bmarchaeology.com
Gwefan/Web: <https://blackmountainsarchaeology.com/>
Cymdeithasol/Social: <https://twitter.com/bmarchaeology?lang=en-gb>