

**Bryn Oer Tramroad,  
Talybont-on-Usk,  
Brecon Beacons National Park**

**Archaeological Watching Brief and Walkover Survey  
(An Interim Report)**



Prepared for

**Brecon Beacons National Park Authority**

By



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Cover Image: South-facing view along Bryn Oer Tramroad towards the Nant Ddu River, south of Talybont Reservoir

## Crynodeb/Summary

*Comisiynwyd Archeoleg Mynydd Du Cyf gan yr Awdurdod Parc Cenedlaethol Bannau Brycheiniog (BBNPA) i ymgymryd â briff gwyllo archeolegol yn ystod rhaglen o waith cadwraeth ar Dramffordd Bryn Oer. Roedd y gwaith cadwraeth a welwyd yn ystod y briff gwyllo wedi'i gyfyngu i'r darn o dramffordd yn union i'r de o Dal-y-bont ar Wysg ger Aberhonddu, Powys. Yn unol ag argymhellion a wnaed gan Alice Thorne o BBNPA, cynhaliwyd y briff gwyllo archeolegol ar y cyd ag arolwg cerdded ychwanegol o Dramffordd Bryn Oer. Yn ystod yr arolwg hwn, cofnodwyd lleoliad nodweddion allweddol ar hyd y dramffordd gan ddefnyddio GPS llaw, a darparwyd disgrifiad sylfaenol o'u cyflwr ffisegol hefyd.*

*Yn ystod y briff gwyllo archeolegol, cafodd gwaith tir sy'n gysylltiedig â chadwraeth naw nodwedd ei fonitro. Roedd pob un o'r nodweddion hyn yn cynnwys cwlffertau, y mae eu henwau wedi'u cofnodi fel Historic Culvert II (ID26), Historic Culvert III (ID27), Historic Culvert IV (ID28), Historic Culvert V (ID29), Bryn Melyn Culvert I (ID30), Historic Culvert VI (ID33), Historic Culvert VII (ID34), Historic Culvert IX (ID36) and Historic Culvert X (ID43).*

*Aseiad interim yn unig yw'r adroddiad presennol, a bydd y canlyniadau'n cael eu diweddarau wrth i'r rhaglen gadwraeth barhau. Mae'r adroddiad presennol yn hefyd nodi'r gofynion ar gyfer briff gwyllo archeolegol yn unol â Standard and Guidance for an Archaeological Watching Brief gan y Chartered Institute of Archaeologists (cyhoeddwyd 2014, diwygiedwyd 2020).*

*Black Mountains Archaeology Ltd were commissioned by the Brecon Beacons National Park Authority (BBNPA) to undertake an archaeological watching brief during a programme of conservation works at the Bryn Oer Tramroad. The conservation works observed during the watching brief were confined to the stretch of tramroad immediately south of Talybont-on-Usk near Brecon, Powys. In accordance with recommendations made by Alice Thorne of the BBNPA, the archaeological watching brief was undertaken in conjunction with an additional walkover survey of the Bryn Oer Tramroad. During this survey, the positions of key features situated along the tramroad were recorded using a handheld GPS, while a basic description of their physical state was also provided.*

*During the archaeological watching brief, groundworks associated with the conservation of nine features were monitored. Each of these features comprised culverts, the names of which have been recorded as: Historic Culvert II (ID26), Historic Culvert III (ID27), Historic Culvert IV (ID28), Historic Culvert V (ID29), Bryn Melyn Culvert I (ID30), Historic Culvert VI (ID33), Historic Culvert VII (ID34), Historic Culvert IX (ID36) and Historic Culvert X (ID43).*

*The present report comprises an interim assessment only, the results of which will be updated as the conservation programme continues. The present report sets out the results for the archaeological watching brief in accordance with the Chartered Institute of Archaeologists' Standard and Guidance for an Archaeological Watching Brief (published 2014, revised 2020).*

## Acknowledgements and Copyright

The project was managed by Richard Lewis BA MCIfA. The report, illustrations and Welsh translation were compiled by Dr Rhys Morgan PhD. The archaeological watching brief and survey was also undertaken by Dr Rhys Morgan. The author would like to thank Alice Thorne, Brecon Beacons National Park Authority Heritage Officer, for her guidance prior to and during the writing of this report. In addition, her guided tours of the Bryn Oer Tramroad were invaluable. The author would also like to thank Rhys Powell, warden for the Brecon Beacons National Park, as well as his colleagues Gareth and Sam, for seamlessly incorporating the archaeological watching brief into their work routine. The copyright of this report is held by Black Mountains Archaeology Ltd, who have granted an exclusive licence to the Brecon Beacons National Park Authority and their agents enabling them to use and reproduce the material it contains. Ordnance Survey maps are reproduced under licence 100058761. Black Mountains Archaeology Ltd retains copyright of any annotations.

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# 1 Introduction

## 1.1 Project Background

- 1.1.1 Black Mountains Archaeology Ltd/Archeoleg Mynydd Du Cyf were commissioned by the Brecon Beacons National Park Authority (BBNPA) to undertake an archaeological watching brief during a programme of conservation works at the Bryn Oer Tramroad. The conservation works observed during the watching brief were confined to the stretch of tramroad immediately south of Talybont-on-Usk near Brecon, Powys. These works formed part of an ongoing conservation project that was agreed upon following the *Water Management and Condition Survey* (Berry 2022). The present report comprises an interim assessment only, the results of which will be updated as the conservation programme continues. In accordance with recommendations made by Alice Thorne of the BBNPA, the archaeological watching brief undertaken in conjunction with an additional walkover survey of the Bryn Oer Tramroad. During this survey, the positions of key features situated along the tramroad were recorded using a handheld GPS, while a basic description of their physical state was also provided.
- 1.1.2 The planned conservation works were undertaken (and will continue to be undertaken) with the intention of maintain existing drainage systems along the Bryn Oer Tramroad, as well as to enable and sustain the growth of sward cover across the tramroad substrate (see Appendix IV). Again, these aims were agreed upon in consideration of the *Water Management and Condition Survey* (Berry 2022), which divided the features associated with the tramroad into three groups based on the priority of their conservation. These three groups include:
- **Priority 1a–c:** features that require ‘immediate’ conservation action, which may involve the facilitation of other Priority 1 works.
  - **Priority 2:** features that require conservation action so that their presentation to as well as access, understanding and appreciation by the public can be enhanced.
  - **Priority 3:** features that require desirable conservation action so that their presentation to as well as access, understanding and appreciation by the public can be enhanced.
- 1.1.3 As a result of the additional walkover conducted in conjunction with the archaeological watching, new features were recorded along the length of the tramroad, while the coordinates of recorded features were refined. As a result, the *Water Management and Condition Survey* (Berry 2022) was amended in accordance with the findings of the walkover survey.
- 1.1.4 The programme of conservation works monitored by archaeological watching brief covered those features belonging to the Priority 1a and 1b groups. In total, conservation works were applied to nine features.
- 1.1.5 The archaeological watching brief and the present report were undertaken to the professional standards of 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 by CIfA, 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. The Research Framework identifies that tramroads and other industrial transport corridors represent a key research priority for the ongoing study of industrial Wales, with a particular emphasis on an assessment of their significance, form and archaeological survival, as well as their engineering, the industries they served and the settlements they sustained.

## 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 Bryn Oer Tramroad covers a large and topographically varied area (Figures 1 and 2). From its southern limit in Trefil (NGR SO (3)11954 (2)12976, *circa* 420mOD), the tramroad extends for approximately 3km along a small incline within the Nant Trefil Valley, nestled between the hills of Cefn yr Ystrad and Mynydd Llangynidr to the west and east respectively. Beyond this point, the course of the tramroad snakes around the western and northern edges of the Dyffryn Cwannon Valley near the Nant Ddu River. The meandering course, necessitated by the presence of this valley, extends for approximately 4km until the tramroad reaches the southeast edge of the Talybont Reservoir (NGR SO (3)10110 (2)17629, *circa* 390mOD), where its course extends towards the northeast for a further 3km. Beyond here, the tramroad runs along the northern foothills of Tor y Foel, before descending their northern slopes at the base of which Talybont-on-Usk is situated (NGR SO (3)11473 (2)22518, *circa* 130mOD). This final stretch of tramroad extends for approximately 3km through the Upper Caerfanell Valley.
- 1.4.2 By the same virtue, the tramroad also traverses a wide variety of geological deposits. However, the area to which the Priority 1a and 1b features are confined, immediately east of Talybont Reservoir, is rather uniform in terms of geology. The superficial geological deposits within this area comprise coarse, reddish loams of the Eardiston 2 type. These deposits cover a broad region and extend towards and beyond Talybont-on-Usk in the north. The underlying bedrock deposits comprise Devonian and Permo-Triassic sandstone (SSEW 1983, 9).

## 1.5 History and Archaeology

### 1.5.1 The Canals

- 1.5.2 Construction of the Monmouthshire Canal was authorised by the Monmouthshire Canal Act 1792, which also established the Company of Proprietors of the Monmouthshire Canal Navigation. A year later, the Brecknock and Abergavenny Canal Act 1793 was passed, which both authorised the construction of the Brecknock and Abergavenny (B&A) Canal and established the Company of Proprietors of the Brecknock and Abergavenny Canal Navigation. Initially, both canals were conceived as separate enterprises, with the former extending from Pontnewydd to Newport, with an additional arm leading to Crumlin, and the latter from Brecon to Caerleon. However, the proprietors of both canals agreed to form a junction in Pontymoile, approximately



4km north of Pontnewydd. With this junction, a continuous transportation route was established, which traversed much of southeast Wales. This route had reached its maximum extent by the end of the eighteenth century when, as a result of the Monmouth Canal Act 1797, the Newport terminus of the Monmouthshire Canal was extended southward towards Potter Street. By 1799, the two canals covered nearly 124km and incorporated 180 locks (Ransom 1979, 40).

1.5.3 Despite the large areas they covered, canals were, by themselves, a relatively ineffective means of transporting freight, as they comprised singular, undeviating routes rather than expansive networks. In this respect, the number of clients that could potentially use the canal for transporting their wares was confined to those who had, by virtue of proximity, ready access to a given canal. Therefore, it was essential that canal transportation was augmented by and connected to other transport systems, most notably tramroads. Through the construction of tramroads, the proprietors of canals could ensure a client base that was both large in scale and diverse in composition. The use of tramroads, moreover, negated the need to extend the canals themselves, which was both costly and time consuming, particularly when the construction of additional lockage is taken into consideration.

#### 1.5.4 Canal Tramroads

1.5.5 Approximately 34 tramroads were constructed in association with the Monmouthshire and the B&A Canals, with around 21 being connected to the former and thirteen to the latter. Yet it must be acknowledged that, firstly, this figure represents a rather conservative estimate and, secondly, the dividing line between canal tramroads and other types of tramroads was often blurred. This is exemplified by, for example, the tramroads that connected the various ironworks of the Llwyd, Ebbw and Sirhowy Valleys. Some of these tramroads led directly to the canals, such as the Blaenavon, Clydach or Hill's Tramroad, yet others did not, such as the Aberbeeg, Harford's or Rassau Tramroads. Adding to this complexity, many of the tramroads were linked via junctions, while others formed direct and seamless connections. Therefore, these tramroads are best understood as forming an interconnected network that linked a variety of different industries, of which the canals were part. Indeed, it has been suggested elsewhere that this network may have once constituted the longest chain of tramroads in the world (see Gladwin and Gladwin 1991, 76).

1.5.6 The canals were, from the very beginning, intended to be serviced by a collection of tramroads, whose establishment was enabled by the same 1792 and 1793 Acts that authorised the funding and construction of the canals. These acts stipulated that tramroads could be constructed up to eight miles (or 13km) from the canals. Moreover, by implementing special acts of incorporation, the canal companies could acquire land and property for the purpose of building tramroads via compulsory purchase (Ward 1974, 144). Some of the first tramroads to be constructed were the Clydach Tramroad of 1794, which linked Clydach Ironworks to Gilwern Wharf, and Caerleon Tramroad, also of 1794, which ran from Caerleon to the Monmouthshire Canal in Cwmbran. By the beginning of the nineteenth century, further tramroad construction

was required, resulting in the passing of, for example, the Canal Navigation Act 1802, allowing funds to be raised for this purpose. As a result of such acts, tramroads continued to be incorporated into the canal network and by the early 1840s this network had reached its zenith. During this time, the canal network extended from Newport in the south to Presteigne in the north and Rhymney in the west to Hereford in the east. It was only a decade afterwards that the canals and their tramroads began to decline when, in recognition of the superiority of steam locomotives in transporting freight, the proprietors of the canals merged and became the Monmouthshire Railway and Canal Company. By the 1850s, the company had established major railway routes both along and beyond the old canals, therefore ending their dominance over industrial transport.

- 1.5.7 The tramroads built in association with the Monmouth and B&A Canals were, like most other tramroads of the period, horse drawn. Moreover, the majority of these tramroads, initially at least, comprised plateways, which incorporated cast iron rails with vertical flanges on their inner edges, making each rail L-shaped in profile. The presence of a flange on the rail meant that the incorporation of flanges on the wheels of the trams using the plateways was unnecessary. In other words, it was the design of the rail and not the wheel that prevented the trams from slipping off the tramroad. The first use of plateways was in 1787, when the Sheffield colliery manager John Curr designed them for use in his mines. Plateways could be differentiated from edgeways; these were a later invention, being first used in 1789 by the engineer William Jessop. Edgeway rails incorporated no flanges, therefore necessitating the inclusion of flanges on the tram wheels.
- 1.5.8 The fact that most of the tramroads associated with the Monmouth and B&A Canals were constructed as plateways was due, in large part, to the decisions of Benjamin Outram, who served as engineering advisor to the canal companies on matters of tramroad construction. Outram was a proponent of plateways as opposed to edgeways and in 1799 he advised that all tramroads connected to the canals, which at this time comprised edgeways, be converted to plateways. However, it must also be acknowledged that the use of L-shaped plates was already an established tradition in South Wales at this time, as James Cockshutt had been casting 'dram plates' in Merthyr Tydfil since at least 1788 (van Laun and Bick 2000). For the purposes of fixing the plate rails in place, Outram mounted them onto stone rail supports using 3ft long, or 'Outram standard', iron rail spikes. Generally, the hole into which the spike was inserted was filled with a wooden plug before the spike was hammered in, therefore ensuring a tight seal. A cast iron sleeper was then inserted between each pair of stone supports. Outram had been using this method of laying plates since at least 1793, when he built a tramroad from Crich to the Cromford Canal in Derbyshire, which incorporated the first known instances of stone rather than timber rail supports (Riden 1997, 283). However, the L-shaped plates of these tramroads broke frequently due to the brittleness of the cast iron from which they were made combined with their structurally weak form. As a response to the problem, a regulation was agreed upon in 1806 that

restricted the weight of all laden trams on the tramroads to a maximum of 56 cwt (Tasker 1992, 6), therefore lightening the burden on tramroad plates.

#### 1.5.9 History of the Bryn Oer Tramroad

1.5.10 The story of the Bryn Oer Tramroad begins with Benjamin Hall, who (among other roles) served as proprietor of the Union Ironworks in Rhymney, which he acquired from the Crawshay family in 1810. At this time, the Rhymney Valley represented an inauspicious location for industry, as unlike the Sirhowy and Ebbw Valleys to the east and the Taff Valleys to the west, it was unconnected to an extensive transport system. As a result, the haulage of pig iron from his ironworks to the canals proved costly for Hall, who at this time was relying on pack horses to transport his iron to the tramroads of the Sirhowy Valley. Limestone was, furthermore, being transported to the ironworks via the Tredegar Tramroad, which incurred significant toll charges. In order to reduce his haulage expenses, Hall needed to establish his own tramroad to the nearest canal, which was the B&A Canal to the north. As detailed above, the Brecknock and Abergavenny Canal Act 1793 imposed an eight-mile clause on the construction of canal tramroads. This legal limitation proved problematic for Hall. Although the B&A Canal at Cwmcrawnon passed within under 7 miles (10.8km) of the Union Ironworks, its position beyond the slopes of Mynydd Llangynidr, twinned with the lack of wharfage in that area, meant that this route was unviable. The only feasible route to the B&A Canal led towards Talybont-on-Usk at the head of the Caerfanell Valley, which used the Nant Trefil Valley as a natural corridor between the uplands. This route was in excess of 11 miles (18.5km) in length. Yet Hall had devised a way around this issue.

1.5.11 To the south of the Nant Trefil Valley, near the western slopes of Rhymney Hill, was an area known as Bryn Oer (meaning 'Cold Hill' in Welsh), within which Hall owned a small collection of collieries. These collieries were, from 1814, being leased to George Overton and Jonathan Dixon who, incidentally, were also interested in establishing a direct route to Talybont-on-Usk so they could transport their coal via canal. Therefore, it was decided by Hall, Overton and Dixon that a new tramroad should be constructed, which led towards the Caerfanell Valley from Trefil, to the north of Bryn Oer. This route, in length, would be precisely eight miles. Furthermore, Hall could have access to this new route by establishing his own private tramroad from Rhymney to Trefil. It seems that the lease agreement for the Bryn Oer Collieries was signed specifically to encourage the construction of the new tramroad, as the Brinore Company, who served as the proprietors of the tramroad, was established four months prior to the signing of the lease (Rattenbury 1980, 100–1). In addition to Hall, Overton and Dixon, the shareholders of the Brinore Company comprised a range of local industrialists who would ultimately benefit from the new tramroad. As the proprietors of the B&A Canal had declined to construct the tramroad themselves, funds were collected from individual investors, with 130 shares being floated for this purpose, each with a value of £100 (the equivalent of over £4,600 today). In total, construction of the tramroad cost £12,800 (or over £735,000 today). This new tramroad became known as the 'Bryn Oer Tramroad' – a name that derived from those same collieries that sparked its

construction in the first place. Yet the tramroad was also known by the alternative, Anglicised name of 'Brinore'.

- 1.5.12 In 1814, construction of the Bryn Oer Tramroad began in earnest and by 1815 it was open for business. During the same year, Hall had completed construction of his private tramroad, which ran from the lower furnace of the Union Ironworks to the Quarryman's Arms at Trefil, at which point it formed a connection with the Bryn Oer Tramroad. Naturally, both tramroads shared the same gauge width, which was 3ft 6in. In addition, a second branch was incorporated into Hall's tramroad that linked Trefil to the upper furnace of his ironworks. This private tramroad is often seen as forming part of the Bryn Oer Tramroad (see Rattenbury 1964), which in practice was true. However, after their construction in 1815, these tramroads were, for legal reasons, regarded as separate. As well as serving the Union Ironworks and the Bryn Oer Collieries, the Bryn Oer Tramroad also served the limestone quarries at Trefil, while pig iron from the Tredegar Ironworks was also hauled along the tramroad (Hodge 2020, 219). The transport of Trefil Limestone proved particularly lucrative for the Brinore Company, which was highly sought after as flux for iron smelting (Rees 1975, 172). Moreover, at Talybont-on-Usk, a bank of lime kilns was constructed by Overton and Dixon beneath the tramroad itself, which burnt limestone hauled from Trefil. Lime produced within these kilns was collected in barrels, which were discharged directly into the canal wharf (Hughes 1990, 338).
- 1.5.13 Aside from these major clients, the Brinore Company collected additional income from small-scale, independent tram owners who were able to use the tramroad upon the payment of toll charges. Local farmers could also pay tolls to walk their livestock along the tramroad. Indeed, this toll system applied, initially at least, to all canal tramroads across South Wales (Hughes 2008, 30). The amount charged by the Brinore Company to those clients who used their tramroad varied depending on the product being transported. By the mid-nineteenth century, these products were divided into four broad classes. The first class was the least costly, which included lime, limestone, iron, building materials, materials for road repairs, hay, straw, corn and manure. The transportation of these items along the tramroad cost one penny (the equivalent of 33 pence today) per ton per mile. The second class comprised timber, the charge placed on which was one and a half pence (or 50 pence today) per ton per mile. The third class comprised fuels (most notably bituminous and anthracitic coal, coke, cinders and charcoal) as well as grain and merchandise, which cost two pence (or 66 pence today) per ton per mile. Finally, the fourth class comprised all and any forms of livestock, which cost four pence (or £1.32 today) per ton per mile.
- 1.5.14 The transportation of freight along the Bryn Oer Tramroad was achieved via horse-drawn trams, which were either connected as trains with coupling links and pins or were being pulled on their own. Each tram or train of trams was drawn in single file and traffic travelling both northward and southward did so on the same set of rails. In order to prevent the convergence of trams travelling in opposite directions, turnouts (or passing bays) were established along the tramroad, which comprised short sidings that allowed one tram or train to pass another. The loaded trams possessed right of way

over the empty trams. This rule was set up in order to prevent, as much as possible, potential delays in the delivery of freight caused by congestion. Whenever an encounter occurred on the tramroad, it was the responsibility of those accompanying the empty trams to pull into the turnout, therefore allowing the loaded trams to pass via the main line. Alternatively, if an encounter occurred beyond the nearest turnout, then the empty trams would be reversed to that turnout. In terms of distribution, turnouts were positioned evenly along the tramroad, every half a mile or so depending on the vagaries of topography or landscape. Today, the remains of very few of these turnouts survive.

1.5.15 As a result of the construction of the railroads, the Bryn Oer Tramroad was operating at a significantly reduced capacity by the mid-nineteenth century. The opening of the Merthyr and Brecon Railway in the 1860s represented a major blow to the financial success of the tramroad. Furthermore, an 1886 1<sup>st</sup> Edition Ordnance Survey map (*Brecknockshire Sheet XXXIV.SE*) demonstrates that the stretch of railway between the stations of Pentir Rhiw (then Pant-y-Rhiw) to Talybont-on-Usk truncated, and therefore destroyed, the final 88m of the tramroad. This stretch originally terminated at the canal wharf near the centre of Talybont-on-Usk, as is demonstrated on the 1839 Tithe map of the local area (*Map of the Parish of Llanthetty in the County of Brecon*). The construction of the later railway line, which crossed directly over the B&A Canal, meant that the link between the Bryn Oer Tramroad and the canal wharf was effectively severed. Nevertheless, the tramroad continued to facilitate haulage operations during the following decades, albeit on a significantly reduced scale. This continuation in use may be explained by the fact that the tramroad remained the only viable industrial transport route between the Upper Caerfanell Valley and Trefil until the end of the nineteenth century. The exact nature of the later haulage activities conducted on the tramroad are largely unknown.

#### 1.5.16 **Form of the Bryn Oer Tramroad**

1.5.17 When traveling along the Bryn Oer Tramroad today, it becomes clear that it crosses a rather varied landscape. From its southern limit in Trefil, the tramroad extended for approximately 3km along a small incline within the Nant Trefil Valley, nestled between the hills of Cefn yr Ystrad and Mynydd Llangynidr to the west and east respectively. Bounding the eastern edge of the tramroad along this section is the Scheduled Monument of Trefil Quarries North (SMMm338), which is Post-medieval and modern date. Beyond this point, the tramroad snaked around the western and northern edges of the Dyffryn Crawnnon Valley near the Nant Ddu River. The meandering course necessitated by the presence of this valley extended for approximately 4km and once the tramroad reached the southeast edge of what is now the Talybont Reservoir, its course extended towards the northeast for a further 3km. Along this section, the tramroad is bounded on its western edge by the Pen Bwlych Glaschwmm Pillow Mounds (SMBr252), which are of medieval date. Beyond here, the tramroad ran along the northern foothills of Tor y Foel, before descending their northern slopes at the base of which Talybont-on-Usk is situated. This final stretch of tramroad extended for approximately 3km through the Upper Caerfanell Valley.

1.5.18 Although construction of the first tramroad network was overseen by Outram, the Bryn Oer Tramroad, in being a later addition to this network, was built by George Overton. Prior to its construction, Overton had already gained a reputation as a seasoned builder of tramroads, particularly in Merthyr Tydfil and the Rhondda. For example, Overton oversaw the construction of the Merthyr Tramroad, opened in 1804, and of the Hirwaun Tramroad, opened around 1808. The track gauge of the Bryn Oer Tramroad measured 3ft 6in (1,067mm). Each section of plate rail measured approximately 3ft 11in in length, which were fixed to Old Red sandstone blocks. The tradition of using stone rail supports was directly inspired by Outram. Situated between each stone support on the Bryn Oer Tramroad was a cast iron rail tie or sleeper, which were fastened to the blocks via cast iron chairs with dovetail joints (van Laun 2001, 61).

#### 1.5.19 Site Specific

1.5.20 The programme of conservation works monitored by the archaeological watching brief covered those features belonging to the Priority 1a and 1b groups. In total, groundworks associated with nine of these features was monitored, which were concentrated around a broad area to the east and south of the Talybont Reservoir. These features are outlined in Table 1 below. Aside from one of these features (ID 26), which was discovered during the watching brief itself, these features have undergone previous investigation (see Hankinson and Jones 2004) and are detailed in Figure 1 and 2 and Appendix IV.

1.5.21 The identification of features and structures associated with the Bryn Oer Tramroad is still at present an ongoing process. Furthermore, there may exist some degree of changeability in the priority groupings of these features and structures. As a result, the ongoing archaeological watching brief may, if necessary, adapt to the changing needs or schedules of the conservation programme.

ID	Name	PRN	X (Easting)	Y (Northing)	Feature Description
26	Historic Culvert II	None	310432	218108	Historic culvert identified during watching brief in April 2022, descending towards outfall, rough, slab lintels but no slab floor, exterior revetment walls at outfall
27	Historic Culvert III	None	310508	218215	Historic culvert, square in profile, descending towards outfall, rough, drystone walls and stone slab floor and lintels
28	Historic Culvert IV	None	310525	218240	Historic culvert, square in profile, descending towards outfall, rough, drystone walls with slab lintels but no slab floor
29	Historic Culvert V	None	310579	218321	Historic culvert, square in profile, descending towards outfall, rough, drystone walls with slab lintels but no slab floor
30	Bryn Melyn Culvert I	82564	310614	218395	Historic culvert, square in profile, descending towards outfall, with rough, drystone walls with slab lintels but no slab floor
33	Historic Culvert VI	None	310650	218108	Historic culvert, square in profile, descending towards outfall, rough, drystone walls with slab lintels but no slab floor, reveted at inflow end

ID	Name	PRN	X (Easting)	Y (Northing)	Feature Description
34	Historic Culvert VII	None	310658	218580	Historic culvert, square in profile, descending towards outfall, rough, drystone walls with slab lintels but no slab floor
36	Historic Culvert IX	None	310667	218686	Historic culvert, arched, rough, drystone walls with slab lintels but no slab floor, winged revetments at outfall end
43	Historic Culvert X	None	310582	219171	Historic culvert, square in profile, descending towards outfall, rough, drystone walls with slab lintels but no slab floor

Table 1. Features monitored during the archaeological watching brief

## 2 Methodology

- 2.1.1 The archaeological watching brief monitored groundworks associated with those nine features included in Table 1 above, all of which comprised culverts. These groundworks involved efforts to unblock the culverts by removing silt and/or collapsed pieces of masonry, as well as by removing (where necessary) soil in and around the inflow and/or outflow ends. The inflow and outfall heads of these culverts were recorded via standard photography in addition to takings notes on their structure and form. During the watching brief, one previously unrecorded culvert was discovered, which was subsequently subject to groundworks. This culvert has been included in Table 1 as Bryn Melyn Culvert I (ID 30).
- 2.1.2 The archaeological recording techniques conformed to the best industry standard. All archaeological structures and deposits were recorded using a single context continuous numbering system and are summarised in Appendix III. All contexts were photographed in digital with suitable scales using a Canon EOS 2000D DSLR camera with a 24.7mp, 22.3mm x 14.9mm CMOS sensor. The investigations were tied to the Ordnance Survey National Grid and Datum using a EMLID Reach GN55/ Glonass (GPS) Receiver and data logger with a <20mm tolerance.
- 2.1.3 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.)
- 2.1.4 As well as the archaeological watching brief, a walkover survey of the Bryn Oer Tramroad was undertaken for the purposes of clarifying the positions and coordinates of all known archaeological features along its length. Coordinates were obtained via the use of a hand-held GPS data logger, while a basic description of their physical state was also obtained, which informed the final gazetteer compiled by Berry (2022). Moreover, two previously unrecorded features were noted, which are known as Historic Culvert I (ID 15) and Possible Culvert (ID 40).

## 3 Results

### 3.1 Archaeological Watching Brief

- 3.1.1 The archaeological watching brief observed all ground penetrating works associated with the Priority 1 conservation works applied to a total of nine archaeological features,

all of which comprised culverts, which have been included in Table 1 above. These features were dispersed along, and were confined to, a stretch of the Bryn Oer Tramroad immediately east of Talybont Reservoir. Contextual information regarding the individual structures and deposits encountered during the watching brief can be found in Appendix III.

3.1.2 **Historic Culvert II (ID 26)** (Figure 1 and 2; Plate 1 and 2)

3.1.3 This culvert is broadly situated at NGR SO 10432 18108, which denotes a position close to Talybont Reservoir in an area of woodland along the Beacons Way public footpath. The culvert is located at a height of *circa* 360mOD and is oriented E/W. Groundworks comprised, firstly, the excavation of soil towards either end of the culvert in order to reveal the inflow and outfall heads and, secondly, the unblocking of the culvert via hand tools. More specifically, the process of unblocking the culvert was performed via the use of spades and telescopic rods. Attempts at revealing and unblocking the inflow and outfall heads of the culvert were successful. However, attempts at unblocking the culvert proper were ultimately unsuccessful due to the presence of fallen masonry towards its centre, which likely comprised a lintel slab. Excavations were conducted at 0.58m in depth at the eastern inflow end and at 0.75m at the western outfall end.

3.1.4 The inflow head of the culvert, situated on the eastern edge of the tramroad, included a horizontally laid, sandstone lintel slab [001], which in section measured 0.3m in width x 0.07m in depth. Above this lintel was 0.4m of tramroad substrate. This substrate has been numbered (002) and comprised compacted, mid-brown clay with frequent angular sandstone fragments throughout, 0.01–0.1m in size. A single piece of masonry, numbered [003], was situated on the southern edge of the outfall head, measuring 0.1m wide x 0.5m deep in section. This piece of masonry represented the remnants of the southern side wall. Towards the opposite side, no corresponding pieces of masonry were recorded, suggesting that the northern side wall of the inflow head had been destroyed prior to groundworks. Moreover, no basal slabs were recorded. The entire inflow head has been numbered [004]. In profile, the opening of the inflow head measured 0.17m high x 0.26m wide.

3.1.5 The outfall head of the culvert, situated on the western edge of the tramroad, again included a horizontally laid, sandstone lintel slab [005], which in section measured 0.4m in width x 0.7m in depth. Above this lintel was again 0.4m of tramroad substrate (002). No remnants of side walling were observed within the outfall head itself, yet to the exterior of the head a pair of revetment walls were observed. These walls were parallel with the edges of the culvert and extended 0.6m beyond the mouth of the outfall. In height, these walls measured a maximum of 0.25m. Structurally, these walls comprised single faces of irregularly coursed sandstone masonry and served to retain substrate (002) to either side of the outfall. The southern revetment wall has been numbered [006], while the northern has been numbered [007]. The entire outflow head has been numbered [008]. In profile, the opening of the inflow head measured 0.3m high x 0.28m wide.



- 3.1.6 The fill of Historic Culvert II, numbered (009), comprised a mid-brown silty clay deposit of low–medium compaction with occasional small stones throughout. This deposit was observed as being identical at both inflow and outfall end.
- 3.1.7 **Historic Culvert III (ID 27)** (Figure 1 and 2; Plate 3 and 4)
- 3.1.8 This culvert is broadly situated at NGR SO 10508 18215, which denotes a position close to Talybont Reservoir in an area of woodland along the Beacons Way public footpath. The culvert is located at a height of *circa* 350mOD and is oriented E/W. Groundworks comprised, firstly, the excavation of soil towards either end of the culvert in order to reveal the outfall head and, secondly, the unblocking of the culvert via hand tools. More specifically, the process of unblocking the culvert was performed via the use of spades and telescopic rods. The unblocking of the inflow and outfall heads of the culvert were successful and so too were attempts at unblocking the culvert itself. Excavations were conducted at 0.34m in depth at the eastern inflow, while no excavations were required at the western outfall end, which was already exposed.
- 3.1.9 The inflow head of the culvert, situated on the eastern edge of the tramroad, included a horizontally laid, sandstone lintel slab [010]. This lintel was markedly large and was also fully exposed during conservation works, meaning that its full dimensions were ascertained, which were 0.7m long x 0.22m wide x 0.06m deep. The slab was aligned laterally across the top of the inflow head and extended beyond the sides of the head on either side. Above this lintel was 0.1m of tramroad substrate. This substrate has been numbered (011) and was identical in composition to deposit (002). Remnants of side walling were observed within the inflow head, which survived in a reasonably good condition. The northern wall is numbered [012] and the southern is numbered [013]. Both walls were seen to comprise a single face of irregularly coursed sandstone masonry, although much of this masonry had been displaced. The height of both walls was approximately 0.2m. The line of wall [013] was also seen to extend beyond the mouth of the outfall head to form a small revetment on its southern edge. No basal slabs were recorded. The entire inflow head has been numbered [014]. In profile, the opening of the inflow head measured 0.3m high x 0.3m wide.
- 3.1.10 The outfall head of the culvert, situated on the western edge of the tramroad, again included a horizontally laid, sandstone lintel slab [015], which in section measured 0.6m in width x 0.1m in depth. Above this lintel was approximately 0.3m of substrate (011). The lintel was suspended above a pair of side walls, which survived in a comparatively good condition. Both walls were formed of four courses of stacked sandstone masonry, each measuring 0.45m high x 0.2m wide. The southern wall has been numbered [016] and the northern has been numbered [017]. To the front of the outfall head was a mess of displaced masonry, the origin of which is unknown. However, it is possible that some of this masonry originally formed the floor of the outfall head. Other than this, no evidence existed indicating a floor. The entire inflow head has been numbered [018]. In profile, the opening of the inflow head measured 0.45m high x 0.6m wide.

- 3.1.11 The fill of Historic Culvert II, numbered (019), comprised a mid-brown silty clay deposit of low–medium compaction with occasional small stones throughout. This deposit was observed as being identical at both inflow and outfall end.
- 3.1.12 **Historic Culvert IV (ID 28)** (Figure 1 and 2; Plate 5 and 6)
- 3.1.13 This culvert is broadly situated at NGR SO 10525 18240, which denotes a position close to Talybont Reservoir in an area of woodland along the Beacons Way public footpath. The culvert is located at a height of *circa* 350mOD and is oriented E/W. Groundworks comprised, firstly, the excavation of soil towards either end of the culvert in order to reveal the inflow and outfall heads and, secondly, the unblocking of the culvert via hand tools. More specifically, the process of unblocking the culvert was performed via the use of spades and telescopic rods. The unblocking of the inflow and outfall heads of the culvert were successful and so too were attempts at unblocking the culvert itself. Excavations were conducted at 0.5m in depth at the eastern inflow end and at 0.7m at the western outfall end.
- 3.1.14 The inflow head of the culvert, situated on the eastern edge of the tramroad, included a horizontally laid, sandstone lintel slab [020], which in section measured 0.25m in width x 0.07m in depth. Above this lintel was 0.08m of tramroad substrate. This substrate has been numbered (021) and was identical in composition to deposit (002). The side walls of the inflow head survived in good condition, which comprised single faces of irregularly coursed sandstone masonry 0.25m in height. The northern wall has been numbered [022] while the southern has been numbered [023]. The latter wall was seen to extend beyond the mouth of the inflow head to form a small revetment on its southern edge. No basal slabs were recorded. The entire inflow head has been numbered [024]. In profile, the opening of the inflow head measured 0.25m high x 0.3m wide.
- 3.1.15 The outfall head of the culvert, situated on the western edge of the tramroad, again included a horizontally laid, sandstone lintel slab [025], which in section measured 0.3m in width x 0.1m in depth. Although *in situ*, this lintel was discovered in relatively poor condition and was fractured in two. Above this lintel was 0.4m of substrate (021). Remnants of neither side walls nor basal slabs were recorded. However, the presence of fallen and broken stones on the northern edge of the outfall head may have represented the partial remains of the northern wall, although this is tentative. The entire outfall head has been numbered [026]. In profile, the opening of the inflow head measured 0.25m high x 0.25m wide.
- 3.1.16 The fill of Historic Culvert IV, numbered (027), comprised a mid-brown silty clay deposit of low–medium compaction with occasional small stones throughout. This deposit was observed as being identical at both inflow and outfall end.
- 3.1.17 **Historic Culvert V (ID 29)** (Figure 1 and 2; Plate 7 and 8)
- 3.1.18 This culvert is broadly situated at NGR SO 10579 18321, which denotes a position close to Talybont Reservoir in an area of woodland along the Beacons Way public footpath. The culvert is located at a height of *circa* 350mOD and is oriented E/W. Groundworks

comprised, firstly, the excavation of soil towards either end of the culvert in order to reveal the inflow and outfall heads and, secondly, the unblocking of the culvert via hand tools. More specifically, the process of unblocking the culvert was performed via the use of spades and telescopic rods. The unblocking of the inflow and outfall heads of the culvert were successful and so too were attempts at unblocking the culvert itself. Prior to the excavation of the outfall head a tree was cut down, which was situated above the head and therefore threatened its structural stability. Excavations were conducted at 0.4m in depth at the eastern inflow end while only shallow scraping of exterior silt was required at the eastern outfall end.

- 3.1.19 The inflow head of the culvert, situated on the eastern edge of the tramroad, included a horizontally laid, sandstone lintel slab [028], which in section measured 0.35m in width x 0.07m in depth. The edges of this lintel extended beyond the width of the inflow head. Above this lintel was 0.26m of tramroad substrate. This substrate has been numbered (029) and was identical in composition to deposit (002). Remnants of collapsed walling were observed on the southern edge of the inflow head, which comprised at least three dislodged stone. This wall has been numbered [030] and appears to have originally stood at only 0.1m high. No comment could be made on the original structure of the wall. Moreover, no corresponding side wall was observed on the opposite, northern side of the inflow head. Remnants of a possible floor were observed in the form of a flag stone projecting from the northern edge of the inflow head, which was likely positioned below wall [030]. This stone, numbered [031], measured 0.1m wide x 0.05m deep. The entire inflow head has been numbered [032]. In profile, the opening of the inflow head measured 0.1m high x 0.25m wide.
- 3.1.20 The outfall head of the culvert, situated on the western edge of the tramroad, again included a horizontally laid, sandstone lintel slab [033], which in section measured approximately 0.24m in width x 0.1m in depth. This lintel had slipped from its original position and was seen to slope downwards from south to north. Above this lintel was 0.25m of substrate (029). The side walls of the outfall head survived in a notably good condition. Both walls comprised stacks of sandstone masonry blocks, three courses high. The southern wall, numbered [034], measured 0.2m high x 0.13m wide. The northern wall, numbered [035], measured 0.18m high, while its width could not be ascertained. No basal slabs were observed, although the base of the outfall head was heavily disturbed by rooting. The entire outfall head has been numbered [036]. In profile, the opening of the inflow head measured 0.18–0.2m high x 0.28m wide.
- 3.1.21 The fill of Historic Culvert V, numbered (037), comprised a mid-brown silty clay deposit of low–medium compaction with occasional small stones throughout. This deposit was observed as being identical at both inflow and outfall end.
- 3.1.22 **Bryn Melyn Culvert I (ID 30)** (Figure 1 and 2; Plate 9 and 10)
- 3.1.23 This culvert is broadly situated at NGR SO 10614 18395, which denotes a position close to Talybont Reservoir in an area of woodland along the Beacons Way public footpath. The culvert is located at a height of *circa* 350mOD and is oriented E/W. This culvert was identified during the conservation works themselves and was initially identified by the

narrow drain running downslope from the east towards the tramroad substrate. The area to which this drain led was investigated and it was subsequently determined that a culvert was positioned here. Groundworks comprised, firstly, the excavation of soil towards either end of the culvert in order to reveal the inflow and outfall heads and, secondly, the unblocking of the culvert via hand tools. More specifically, the process of unblocking the culvert was performed via the use of spades and telescopic rods. The unblocking of the inflow and outfall heads of the culvert were successful and so too was the unblocking of the culvert proper. Excavations were conducted at 0.55m in depth at the eastern inflow end and at 0.3m at the western outfall end.

- 3.1.24 The inflow head of the culvert, situated on the eastern edge of the tramroad, included horizontally laid, sandstone lintel slab [038], which in section measured 0.3m in width x 0.08m in depth. This lintel was marginally dislodged and sloped slightly from north to south. Above this lintel was 0.3m of tramroad substrate. This substrate has been numbered (039) and was identical in composition to deposit (002). Neither side walls nor basal slabs were noted, although only a partial view of the interior of the inflow head was possible. The entire inflow head has been numbered [040]. In profile, the opening of the inflow head measured 0.1–0.3m high x 0.31m wide.
- 3.1.25 The outfall head of the culvert, situated on the western edge of the tramroad, again included a horizontally laid, sandstone lintel slab [041], which in section measured 0.35m in width x 0.08m in depth. Again, this lintel was marginally dislodged and sloped slightly from north to south. Above this lintel was 0.1m of substrate (039). Neither side walls nor basal slabs were noted, although only a partial view of the interior of the inflow head was possible. The entire outfall head has been numbered [042]. In profile, the opening of the outfall head measured 0.1–0.17m high x 0.28m wide.
- 3.1.26 The fill of Bryn Melyn Culvert I, numbered (043), comprised a mid-brown silty clay deposit of low–medium compaction with occasional small stones throughout. This deposit was observed as being identical at both inflow and outfall end.
- 3.1.27 **Historic Culvert VI (ID 33)** (Figure 1 and 2; Plate 11 and 12)
- 3.1.28 This culvert is broadly situated at NGR SO 10650 18558, which denotes a position close to Talybont Reservoir in an area of woodland along the Beacons Way public footpath. The culvert is located at a height of *circa* 340mOD and is oriented E/W. Groundworks comprised, firstly, the excavation of soil towards either end of the culvert in order to reveal the inflow and outfall heads and, secondly, the unblocking of the culvert via hand tools. More specifically, the process of unblocking the culvert was performed via the use of spades and telescopic rods. The unblocking of the inflow and outfall heads of the culvert were successful and so too were attempts at unblocking the culvert itself. Excavations were conducted at 0.4m in depth at the eastern inflow end while only shallow scraping of exterior silt was required at the eastern outfall end.
- 3.1.29 The inflow head of the culvert, situated on the eastern edge of the tramroad, included a horizontally laid, sandstone lintel slab [044], which in section measured 0.4m in width x 0.07m in depth. Above this lintel was 0.1m of tramroad substrate. This substrate has

been numbered (045) and was identical in composition to deposit (002). The lintel was seen to be keyed into a revetment wall, which defined the inflow head on its southern edge. This revetment wall, numbered [046], was found in a good state of preservation and was well constructed. In composition, the wall comprised a stack of six sandstone flags, which together measured 0.5m high. The wall was also seen to extend 0.57m beyond the inflow head. Views of the interior of the inflow head were partial and neither side walls nor basal slabs were observed. However, it is possible that revetment wall [046] represented a continuation of a southern side wall. The entire inflow head has been numbered [047]. In profile, the opening of the inflow head measured 0.3m high x 0.38m wide.

- 3.1.30 The outfall head of the culvert, situated on the western edge of the tramroad, included a horizontally laid, sandstone lintel, which comprised a pair of slabs laid side by side. Together, these slabs, and therefore the lintel of the outfall head, measured 0.34m wide x 0.05m deep. This lintel has been numbered [048]. Above this lintel was 0.65m of substrate (045), which at this end was significantly disturbed by large tree roots. The northern edge of the outfall head was disturbed by rooting and no structural remains were observed. However, on its southern edge were the remains of a well preserved side wall, numbered [049]. This wall measured 0.18m high and comprised a single course of facing stones. This wall was also irregularly coursed. No basal slabs were observed. The entire outfall head has been numbered [050]. In profile, the opening of the outfall head measured 0.2 high x 0.17m wide.
- 3.1.31 The fill of Historic Culvert VI, numbered (051), comprised a mid-brown silty clay deposit of low–medium compaction with occasional small stones throughout. This deposit was observed as being identical at both inflow and outfall end.
- 3.1.32 **Historic Culvert VII (ID 34)** (Figure 1 and 2; Plate 13 and 14)
- 3.1.33 This culvert is broadly situated at NGR SO 10658 18580, which denotes a position close to Talybont Reservoir in an area of woodland along the Beacons Way public footpath. The culvert is located at a height of *circa* 340mOD and is oriented E/W. Groundworks comprised, firstly, the excavation of soil towards either end of the culvert in order to reveal the inflow and outfall heads and, secondly, the unblocking of the culvert via hand tools. More specifically, the process of unblocking the culvert was performed via the use of spades and telescopic rods. The unblocking of the inflow and outfall heads of the culvert were successful. However, the unblocking of the culvert proper was unsuccessful, as large sections of it were blocked with fallen masonry. Excavations were conducted at 0.4m in depth at the eastern inflow end and 0.4m in depth at the western outfall end.
- 3.1.34 The inflow head of the culvert, situated on the eastern edge of the tramroad, included comparatively small lintel, which comprised a piece of sandstone measuring 0.2m wide x 0.08m deep. This lintel stone is numbered [052]. Neither side walls nor basal slabs were observed. Above this lintel was 0.3m of tramroad substrate. This substrate has been numbered (053) and was identical in composition to deposit (002). Although functioning, the inflow head was notably crude in form, representing a small opening

in the tramroad substrate. The entire inflow head has been numbered [054]. In profile, the opening of the inflow head measured 0.2m high x 0.2m wide.

- 3.1.35 The outfall head of the culvert, situated on the western edge of the tramroad, included a horizontally laid, sandstone lintel slab [055], which in section measured approximately 0.24m in width x 0.1m in depth. Above this lintel was 0.29m of substrate (053). The northern edge of the outfall head was in a poor state of preservation. However, a side wall was noted on the opposite, southern edge. This wall, numbered [056], comprised a single face of sandstone masonry, irregularly coursed, measuring 0.2m high. The entire outfall head has been numbered [057]. In profile, the opening of the inflow head measured 0.2m high x 0.37m wide.
- 3.1.36 The fill of Historic Culvert VII, numbered (058), comprised a mid-brown silty clay deposit of low–medium compaction with occasional small stones throughout. This deposit was observed as being identical at both inflow and outfall end.
- 3.1.37 **Historic Culvert IX (ID 36)** (Figure 1 and 2; Plate 15 and 16)
- 3.1.38 This culvert is broadly situated at NGR SO 10667 18686, which denotes a position close to Talybont Reservoir in an area of woodland along the Beacons Way public footpath. The culvert is located at a height of *circa* 330mOD and is oriented E/W. The eastern inflow head of this culvert was already clear of silt and no excavations were required at this end. The western outfall head was, however, filled with silt and excavations were required to unblock it. More specifically, the process of unblocking this end was performed via the use of spades and telescopic rods. This process was successful. No excavations were required within the culvert itself as water was already running through it. Excavations at the outfall end comprised the scraping away of silt and were conducted at approximately 0.15m in depth.
- 3.1.39 The inflow head of the culvert, situated on the eastern edge of the tramroad, included a horizontally laid, sandstone lintel slab [059], which in section measured 0.54m in width x 0.06m in depth. Above this lintel was 0.18m of tramroad substrate. This substrate has been numbered (060) and was identical in composition to deposit (002). No side wall was observed on the northern edge of the inflow head. However, on its southern edge the partial remains of a side wall were observed, which were heavily disturbed. The remains of this side wall, numbered [061], comprised three stone slabs stacked one on top of the other. The uppermost stone had slipped out of place and was resultantly positioned at a broadly 45-degree angle. Moreover, as a result of this disturbance, there was no longer any physical contact between wall [061] and lintel [059], meaning that the latter was suspended rather precariously above the former. The surviving height of wall [061] was 0.15m, while its surviving width was 0.25m. No basal slabs were observed. The entire inflow head has been numbered [062]. In profile, the opening of the inflow head measured 0.3m high x 0.6m wide.
- 3.1.40 The outfall head of the culvert, situated on the western edge of the tramroad a slab-built arch positioned above a pair of side walls. The arch, numbered [063], comprised a single course of slab voussoirs measuring 0.13m high x approximately 0.3m wide. A

single springer stone was also observed on the southern edge of the arch, which was placed at an approximately 45-degree angle. No corresponding springer was observed on the northern end of the arch, although this end was obscured by soil and vegetation. Above arch [063] was 0.25m of tramroad substrate (060). The side walls of the outfall head comprised single courses of facing stones measuring approximately 0.2m in height. The northern side wall is numbered [064] and the southern is numbered [065], on top of which the southern springer of arch [063] sat. No basal slabs were observed. The entire outfall head has been numbered [066]. In profile, the opening of the outfall head measured 0.2 high x 0.4m wide.

- 3.1.41 The fill of Historic Culvert IX, numbered (067), comprised a mid-brown silty clay deposit of low–medium compaction with occasional small stones throughout. This deposit was observed as being identical at both inflow and outfall end.
- 3.1.42 **Historic Culvert X (ID43)** (Figure 1 and 2; Plate 17 and 18)
- 3.1.43 This culvert is broadly situated at NGR SO 10582 19171, which denotes a position close to Talybont Reservoir in an area of woodland along the Beacons Way public footpath. The culvert is located at a height of *circa* 310mOD and is oriented E/W. Groundworks comprised, firstly, the excavation of soil towards either end of the culvert in order to reveal the inflow and outfall heads and, secondly, the unblocking of the culvert via hand tools. More specifically, the process of unblocking the culvert was performed via the use of spades and telescopic rods. The unblocking of the inflow and outfall heads was successful, yet the unblocking of the culvert proper was unsuccessful, as large sections of it were blocked with fallen masonry. Excavations were conducted at 0.4m in depth at the eastern inflow end and 0.15m in depth at the western outfall end.
- 3.1.44 The inflow head of the culvert, situated on the eastern edge of the tramroad, included a horizontally laid, sandstone lintel slab [068], which in section measured 0.35m in width x 0.06m in depth. Situated directly above this lintel was a stone support, which comprised three slabs and one block of masonry. This stone support measured 0.2m deep x 0.35m wide and is numbered [069]. Situated directly above support [069] was 0.1m of tramroad substrate. This substrate has been numbered (070) and was identical in composition to deposit (002). Neither side walls nor basal slabs were observed within the inflow head. The entire inflow head has been numbered [071]. In profile, the opening of the inflow head measured 0.15m high x 0.35m wide.
- 3.1.45 The outfall head of the culvert, situated on the western edge of the tramroad, included a horizontally laid, sandstone lintel slab [072], which in section measured approximately 0.28m in width x 0.06m in depth. Situated above this lintel was 0.15m of (070) This lintel was suspended above a pair of side walls, each of which were composed of lines of large slabs placed in single file along the culvert edge. The southern side wall has been numbered [073] while the northern has been numbered [074]. Both side walls measured 0.8m wide x 0.23m high. No basal slabs were observed. The entire outfall head has been numbered [075]. In profile, the opening of the outfall head measured 0.2 high x 0.25m wide.

3.1.46 The fill of Historic Culvert IX, numbered (076), comprised a mid-brown silty clay deposit of low–medium compaction with occasional small stones throughout. This deposit was observed as being identical at both inflow and outfall end.

## 3.2 Walkover Survey

3.2.1 A walkover survey of the Bryn Oer Tramroad was undertaken for the purposes of clarifying the positions and coordinates of all known archaeological features along its length. Coordinates were obtained via the use of a hand-held GPS logger, while a basic description of their physical state was also provided. During the walkover survey, two previously unrecorded features were noted, which are known as Historic Culvert I (ID 15) and Possible Culvert (ID 40). The results of the walkover survey are presented in the form of a Gazetteer (Appendix IV).

## 4 Discussion and Conclusion

4.1.1 The archaeological watching brief observed all groundworks associated with the conservation of nine culverts incorporated into the Bryn Oer Tramroad. Eight of these culverts could be broadly categorised as being of the box type (Historic Culverts II-V, Bryn Melyn Culvert I, Historic Culverts VI, VII and X) as both of their inflow and outfall heads were of a simple box shape in section. One of these culverts (Historic Culvert IX) could be categorised as a mixture of the box and arched type, as its inflow head [062] was box-shaped in section and its outfall head [066] was arched-shaped. The composition of the culvert heads was variable, as the construction of their side walls displayed some degree of difference. The side walls of six culvert heads were demonstrably composed of single courses of flat slabs. These walls include [012] and [013] from inflow head [014] (Historic Culvert III), [022] and [023] from inflow head [024] (Historic Culvert IV), [049] from outfall head [050] (Historic Culvert VI), [056] from outfall head [057] (Historic Culvert VII) and [073] and [074] from outfall head [075] (Historic Culvert X). On the other hand, the side walls of four culvert heads were demonstrably composed of stacked masonry blocks. These walls include [016] and [107] from outfall head [018] (Historic Culvert III), [030] from inflow head [030] (Historic Culvert V), [034] and [035] from outfall head [036] (Historic Culvert V), [061] from inflow head [062] (Historic Culvert IX) and [064] and [065] from outfall head [066] (Historic Culvert IX). Overall, it seems that no discernible pattern existed in the construction of these side walls and that construction methods were perhaps dictated by the stone available to the builders. Moreover, it should be mentioned that no side walls were discovered in association with several culvert heads, including outfall head [008] (Historic Culvert II), outfall head [026] (Historic Culvert IV), inflow head [040] (Bryn Melyn Culvert I), outfall head [042] (Bryn Melyn Culvert I), inflow head [047] (Historic Culvert VI), inflow head [054] (Historic Culvert VII) and inflow head [071] (Historic Culvert X). It should also be mentioned that side wall [003] from inflow head [004] (Historic Culvert II) survived in such a poor condition that its original structure could not be analysed. With regards to those culvert heads with no walls, it appears likely that, in consideration of wall [003], these were destroyed prior to the watching



brief. Furthermore, it may be the case that evidence for side walls existed beyond the culvert heads themselves, within the culverts proper.

- 4.1.2 In terms of stratigraphy, there are two possibilities as to how the culverts were constructed. The first possibility is that the tramroad substrate was laid first, before the culverts were constructed by cutting into it. This is highly unlikely, as drainage would have been a serious concern during the construction of the tramroad itself. Therefore, the second possibility is more likely – that the culverts were constructed first, before being overlain with the tramroad substrate. As was mentioned by Rattenbury (1964, 179), the initial construction stage associated with the tramroad was the forming of a shelf cut via the use of gunpowder. Once the shelf cut was formed, the culverts would then have been built directly above the base of the cut. However, it is noteworthy that the base of the shelf cut, which would comprise a superficial geological deposit, was not encountered during the watching brief.

## 5 Bibliography

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## 6 Appendixes

### 6.1 Appendix I – Figures

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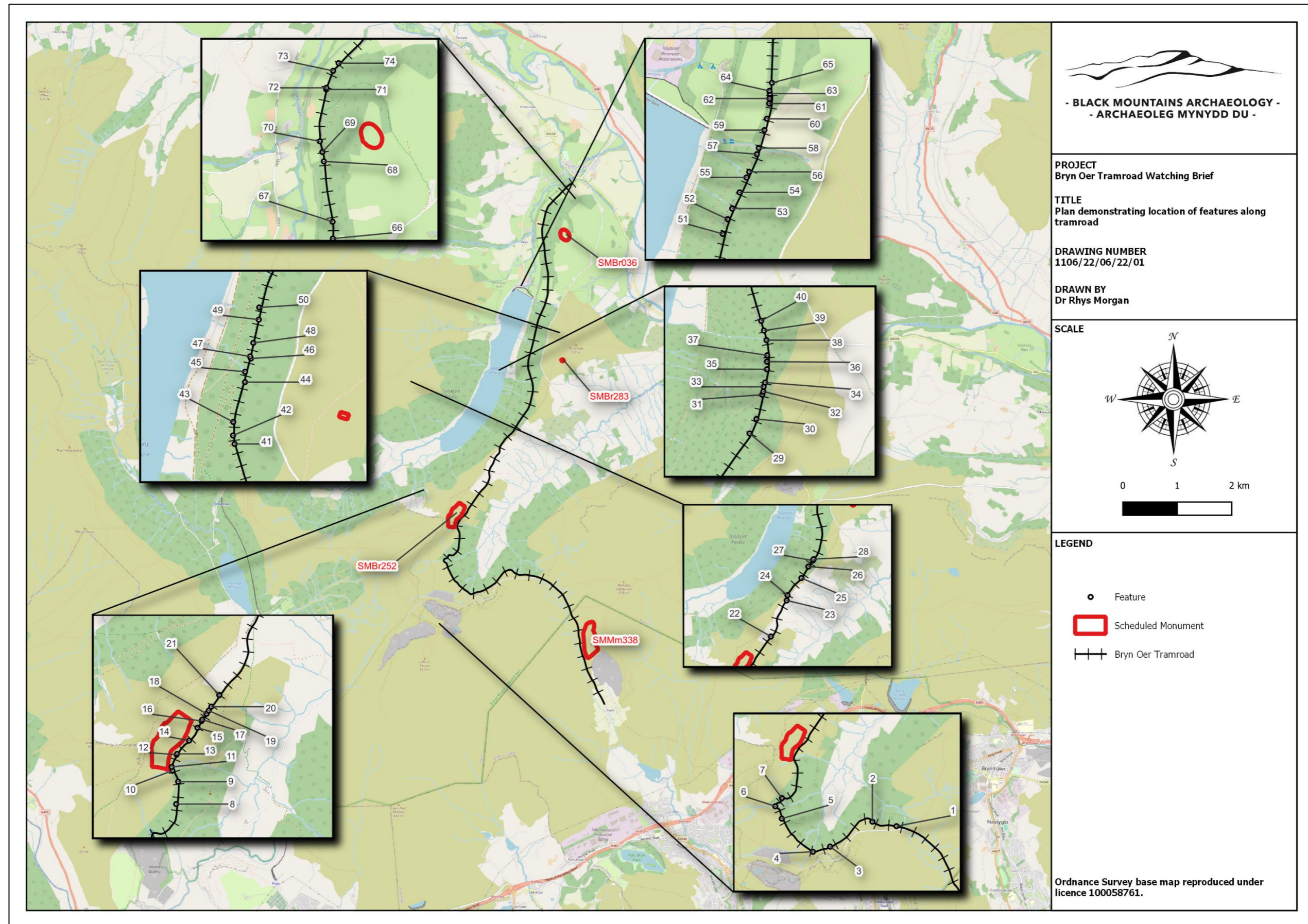


Figure 1. Plan demonstrating position of all known features on the Bryn Oer Tramroad (see Appendix IV for features IDs)

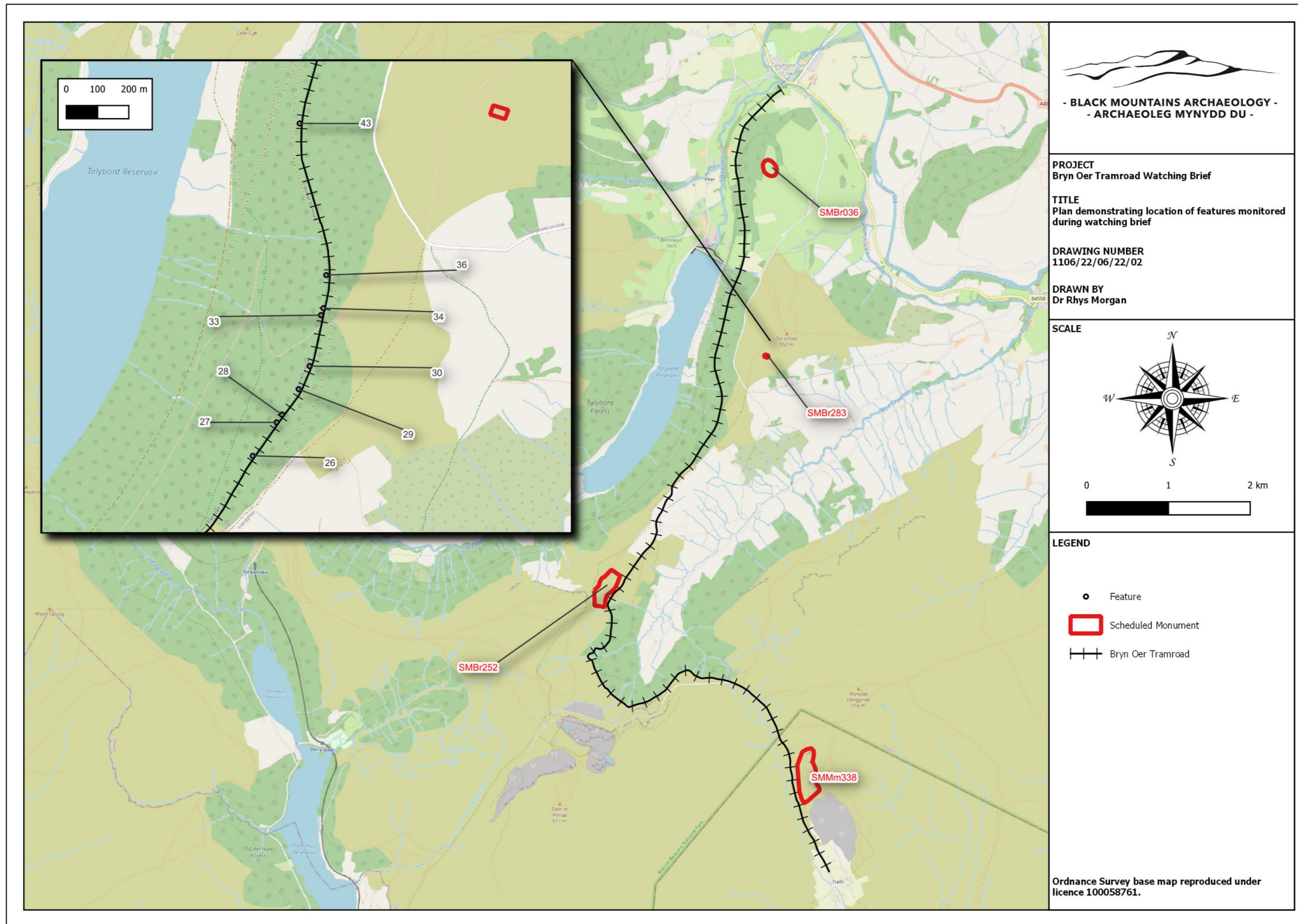


Figure 2. Location of all features monitored during watching brief (see Appendix IV for features IDs)

## 6.2 Appendix II – Plates

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Plate 1. Outfall head [008] of Historic Culvert II (ID26 in Appendix IV)



Plate 2. Inflow head [004] of Historic Culvert II (ID26 in Appendix IV)



Plate 3. Inflow head [014] of Historic Culvert III (ID27 in Appendix IV)



Plate 4. Outfall head [018] of Historic Culvert III (ID27 in Appendix IV)





Plate 5. Inflow head [024] of Historic Culvert IV (ID28 in Appendix IV)



Plate 6. Outfall head [026] of Historic Culvert IV (ID28 in Appendix IV)



Plate 7. Inflow head [032] of Historic Culvert V (ID29 in Appendix IV)



Plate 8. Outfall head [036] of Historic Culvert V (ID29 in Appendix IV)



Plate 9. Inflow head [040] of Bryn Melyn Culvert I (ID30 in Appendix IV)



Plate 10. Outfall head [042] of Bryn Melyn Culvert I (ID30 in Appendix IV)



Plate 11. Inflow head [047] of Historic Culvert VI (ID33 in Appendix IV)



Plate 12. Outfall head [050] of Historic Culvert VI (ID33 in Appendix IV)



Plate 13. Inflow head [054] of Historic Culvert VII (ID34 in Appendix IV)



Plate 14. Outfall head [057] of Historic Culvert VII (ID34 in Appendix IV)



Plate 15. Inflow head [062] of Historic Culvert IX (ID36 in Appendix IV)



Plate 16. Outfall head [066] of Historic Culvert IX (ID36 in Appendix IV)



Plate 17. Inflow head [071] of Historic Culvert X (ID43 in Appendix IV)



Plate 18. Outfall head [075] of Historic Culvert X (ID43 in Appendix IV)

### 6.3 Appendix III – Archaeological Watching Brief Context Inventory

Context	Type	Feature	Depth/Dimensions	Description	Period
001	Structure	Historic Culvert II (ID 26)	0.3m wide x 0.07m deep	Sandstone lintel slab defining top of inflow head [004].	Post-medieval
002	Deposit	Historic Culvert II (ID 26)	0.4m deep	Tramroad substrate. Compacted, mid-brown clay with frequent angular sandstone fragments throughout, 0.01–0.1m in size.	Post-medieval
003	Structure	Historic Culvert II (ID 26)	0.1m wide x 0.5m deep	Single piece of sandstone masonry. Remnant of southern side wall of inflow head [004].	Post-medieval
004	Structure	Historic Culvert II (ID 26)	0.17m high x 0.26m wide	Inflow head of Historic Culvert II. Situated on eastern edge of tramroad. Composed of [001] and [003]. Infilled with (010).	Post-medieval
005	Structure	Historic Culvert II (ID 26)	0.4m wide x 0.7m deep	Sandstone lintel slab defining top of outfall head [008].	Post-medieval
006	Structure	Historic Culvert II (ID 26)	0.6m long x 0.25m high (max)	Southern exterior revetment wall of outfall head [008]. Composed of single face of irregularly coursed masonry.	Post-medieval
007	Structure	Historic Culvert II (ID 26)	0.6m long x 0.25m high (max)	Northern exterior revetment wall of outfall head [008]. Composed of single face of irregularly coursed masonry.	Post-medieval
008	Structure	Historic Culvert II (ID 26)	0.3m high x 0.28m wide	Outfall head of Historic Culvert II. Situated on western edge of tramroad. Composed of [005], [006] and [007]. Infilled with (009).	Post-medieval
009	Deposit	Historic Culvert II (ID 26)		Fill of Historic Culvert II. Infills both [004] and [008]. Comprises mid-brown silty clay deposit of low–medium compaction with occasional small stones throughout.	Post-medieval
010	Structure	Historic Culvert III (ID 27)	0.7m long x 0.22m wide x 0.06m deep	Sandstone lintel slab defining top of inflow head [014].	Post-medieval
011	Deposit	Historic Culvert III (ID 27)	0.1–c0.3m m deep	Tramroad substrate. Compacted, mid-brown clay with frequent angular sandstone fragments throughout, 0.01–0.1m in size.	Post-medieval
012	Structure	Historic Culvert III (ID 27)	0.2m high	Northern side wall of inflow head [014]. Composed of single face of irregularly coursed masonry.	Post-medieval
013	Structure	Historic Culvert III (ID 27)	0.2m high	Southern side wall of inflow head [014]. Composed of single face of irregularly coursed masonry.	Post-medieval
014	Structure	Historic Culvert III (ID 27)	0.3m high x 0.3m wide	Inflow head of Historic Culvert III. Situated on eastern edge of tramroad. Composed of [010], [012] and [013]. Infilled with (019).	Post-medieval
015	Structure	Historic Culvert III (ID 27)	0.6m wide x 0.1m deep	Sandstone lintel slab defining top of outfall head [018].	Post-medieval
016	Structure	Historic Culvert III (ID 27)	0.45m high x 0.2m wide	Southern side wall of outfall head [018]. formed of four courses of stacked sandstone masonry.	Post-medieval



Context	Type	Feature	Depth/Dimensions	Description	Period
017	Structure	Historic Culvert III (ID 27)	0.45m high x 0.2m wide	Northern side wall of outfall head [018]. formed of four courses of stacked sandstone masonry.	Post-medieval
018	Structure	Historic Culvert III (ID 27)	0.45m high x 0.6m wide	Outfall head of Historic Culvert III (ID 27). Situated on western edge of tramroad. Composed of [015], [016] and [017]. Infilled with [019].	Post-medieval
019	Deposit	Historic Culvert III (ID 27)		Fill of Historic Culvert III. Infills both [014] and [018]. Comprises mid-brown silty clay deposit of low-medium compaction with occasional small stones throughout.	Post-medieval
020	Structure	Historic Culvert IV (ID 28)	0.25m wide x 0.07m deep	Sandstone lintel slab defining top of outfall head [024].	Post-medieval
021	Deposit	Historic Culvert IV (ID 28)	0.08–0.4m deep	Tramroad substrate. Compacted, mid-brown clay with frequent angular sandstone fragments throughout, 0.01–0.1m in size.	Post-medieval
022	Structure	Historic Culvert IV (ID 28)	0.25m high	Northern side wall of inflow head [024]. Composed of single face of irregularly coursed masonry.	Post-medieval
023	Structure	Historic Culvert IV (ID 28)	0.25m high	Southern side wall of inflow head [024]. Composed of single face of irregularly coursed masonry.	Post-medieval
024	Structure	Historic Culvert IV (ID 28)	0.25m high x 0.3m wide	Inflow head of Historic Culvert IV. Situated on eastern edge of tramroad. Composed of [021], [022] and [023]. Infilled with [027].	Post-medieval
025	Structure	Historic Culvert IV (ID 28)	0.3m wide x 0.1m deep	Sandstone lintel slab defining top of outfall head [026].	Post-medieval
026	Structure	Historic Culvert IV (ID 28)	0.25m high x 0.25m wide	Outfall head of Historic Culvert IV. Situated on western edge of tramroad. Composed of [025]. Infilled with [027].	Post-medieval
027	Deposit	Historic Culvert IV (ID 28)		Fill of Historic Culvert IV. Infills both [024] and [026]. Comprises mid-brown silty clay deposit of low-medium compaction with occasional small stones throughout.	Post-medieval
028	Structure	Historic Culvert V (ID 29)	0.35m wide x 0.07m deep	Sandstone lintel slab defining top of inflow head [032].	Post-medieval
029	Deposit	Historic Culvert V (ID 29)	0.25–0.26m deep	Tramroad substrate. Compacted, mid-brown clay with frequent angular sandstone fragments throughout, 0.01–0.1m in size.	Post-medieval
030	Structure	Historic Culvert V (ID 29)	0.1m high	Northern side wall of inflow head [032]. Heavily disturbed.	Post-medieval
031	Structure	Historic Culvert V (ID 29)	0.1m wide x 0.05m deep	Possible remnants of floor associated with inflow head [032].	Post-medieval
032	Structure	Historic Culvert V (ID 29)	0.1m high x 0.25m wide	Inflow head of Historic Culvert V. Situated on eastern edge of tramroad. Composed of [028], [030] and [031]. Infilled with [037].	Post-medieval
033	Structure	Historic Culvert V (ID 29)	0.24m wide x 0.1m deep	Sandstone lintel slab defining top of outfall head [036].	Post-medieval
034	Structure	Historic Culvert V (ID 29)	0.2m high x 0.13m wide	Southern side wall of outfall head [036]. Composed of stacked sandstone masonry.	Post-medieval

Context	Type	Feature	Depth/Dimensions	Description	Period
035	Structure	Historic Culvert V (ID 29)	0.18m high	Northern side wall of outfall head [036]. Composed of stacked sandstone masonry.	Post-medieval
036	Structure	Historic Culvert V (ID 29)	0.18–0.2m high x 0.28m wide	Outfall head of Historic Culvert V. Situated on western edge of tramroad. Composed of [033], [034] and [035]. Infilled with [037].	Post-medieval
037	Deposit	Historic Culvert V (ID 29)		Fill of Historic Culvert V. Infills both [032] and [036]. Comprises mid-brown silty clay deposit of low–medium compaction with occasional small stones throughout.	Post-medieval
038	Structure	Bryn Melyn Culvert I (ID30)	0.3m wide x 0.08m deep	Sandstone lintel slab defining top of inflow head [040].	Post-medieval
039	Deposit	Bryn Melyn Culvert I (ID30)	0.1–0.3m deep	Tramroad substrate. Compacted, mid-brown clay with frequent angular sandstone fragments throughout, 0.01–0.1m in size.	Post-medieval
040	Structure	Bryn Melyn Culvert I (ID30)	0.1–0.3m high x 0.31m wide	Inflow head of Bryn Melyn Culvert I. Situated on eastern edge of tramroad. Composed of [039]. Infilled with [043].	Post-medieval
041	Structure	Bryn Melyn Culvert I (ID30)	0.35m wide x 0.08m deep	Sandstone lintel slab defining top of inflow head [041].	Post-medieval
042	Structure	Bryn Melyn Culvert I (ID30)	0.1–0.17m high x 0.28m wide	Outfall head of Bryn Melyn Culvert I. Situated on western edge of tramroad. Composed of [041]. Infilled with [043].	Post-medieval
043	Deposit	Bryn Melyn Culvert I (ID30)		Fill of Bryn Melyn Culvert I. Infills both [040] and [042]. Comprises mid-brown silty clay deposit of low–medium compaction with occasional small stones throughout.	Post-medieval
044	Structure	Historic Culvert VI (ID33)	0.4m wide x 0.07m deep	Sandstone lintel slab defining top of inflow head [047].	Post-medieval
045	Deposit	Historic Culvert VI (ID33)	0.1–0.65m deep	Tramroad substrate. Compacted, mid-brown clay with frequent angular sandstone fragments throughout, 0.01–0.1m in size. Significantly disturbed by large tree roots at western outfall end of culvert.	Post-medieval
046	Structure	Historic Culvert VI (ID33)	0.5m high x 0.57m long	Revetment wall of southern edge of inflow head [047]. Comprised a stack of six flagstones.	Post-medieval
047	Structure	Historic Culvert VI (ID33)	0.3m high x 0.38m wide	Inflow head of Historic Culvert VI. Situated on eastern edge of tramroad. Composed of [045] and [046]. Infilled with [051].	Post-medieval
048	Structure	Historic Culvert VI (ID33)	0.34m wide x 0.05m deep	Sandstone lintel slab defining top of inflow head [050].	Post-medieval
049	Structure	Historic Culvert VI (ID33)	0.18m high	Southern side wall of outfall head [050]. comprised a single course of facing stones. Irregularly coursed.	Post-medieval
050	Structure	Historic Culvert VI (ID33)	0.2 high x 0.17m wide	Outfall head of Historic Culvert VI. Situated on western edge of tramroad. Composed of [048] and [049]. Infilled with [051].	Post-medieval
051	Deposit	Historic Culvert VI (ID33)		Fill of Historic Culvert VI. Infills both [047] and [050]. Comprises mid-brown silty clay deposit of low–	Post-medieval

Context	Type	Feature	Depth/Dimensions	Description	Period
				medium compaction with occasional small stones throughout.	
052	Structure	Historic Culvert VII (ID34)	0.2m wide x 0.08m deep	Sandstone lintel slab defining top of inflow head [054].	Post-medieval
053	Deposit	Historic Culvert VII (ID34)	0.29–0.3m deep	Tramroad substrate. Compacted, mid-brown clay with frequent angular sandstone fragments throughout, 0.01–0.1m in size.	Post-medieval
054	Structure	Historic Culvert VII (ID34)	0.2m high x 0.2m wide	Inflow head of Historic Culvert VI. Situated on eastern edge of tramroad. Composed of [052]. Infilled with (058).	Post-medieval
055	Structure	Historic Culvert VII (ID34)	0.24m wide x 0.1m deep	Sandstone lintel slab defining top of outfall head [057].	Post-medieval
056	Structure	Historic Culvert VII (ID34)	0.2m high	Southern side wall of outfall head [057]. Comprised a single face of sandstone masonry, irregularly coursed.	Post-medieval
057	Structure	Historic Culvert VII (ID34)	0.2m high x 0.37m wide	Outfall head of Historic Culvert VII. Situated on western edge of tramroad. Composed of [055] and [056]. Infilled with (05).	Post-medieval
058	Deposit	Historic Culvert VII (ID34)		Fill of Historic Culvert VII. Infills both [054] and [057]. Comprises mid-brown silty clay deposit of low–medium compaction with occasional small stones throughout.	Post-medieval
059	Structure	Historic Culvert IX (ID36)	0.54m wide x 0.06m deep	Sandstone lintel slab defining top of inflow head [062].	Post-medieval
060	Deposit	Historic Culvert IX (ID36)	0.18–0.25m deep	Tramroad substrate. Compacted, mid-brown clay with frequent angular sandstone fragments throughout, 0.01–0.1m in size.	Post-medieval
061	Structure	Historic Culvert IX (ID36)	0.15m high x 0.25m wide	Southern side wall of inflow head [062]. Comprised a disturbed stack of stone slabs.	Post-medieval
062	Structure	Historic Culvert IX (ID36)	0.3m high x 0.6m wide	Inflow head of Historic Culvert IX. Situated on eastern edge of tramroad. Composed of [059] and [061]. Infilled with (067).	Post-medieval
063	Structure	Historic Culvert IX (ID36)	0.13m high x c 0.3m wide	Arch of outfall head [066]. Composed of single course of slab voussoirs and single surviving springer.	Post-medieval
064	Structure	Historic Culvert IX (ID36)	c 0.2m high	Southern side wall of outfall head [066]. Composed of single course of facing slabs.	Post-medieval
065	Structure	Historic Culvert IX (ID36)	c 0.2m high	Northern side wall of outfall head [066]. Composed of single course of facing slabs.	Post-medieval
066	Structure	Historic Culvert IX (ID36)	0.2 high x 0.4m wide	Outfall head of Historic Culvert IX. Situated on western edge of tramroad. Composed of [063], [064] and [065]. Infilled with (067).	Post-medieval
067	Deposit	Historic Culvert IX (ID36)		Fill of Historic Culvert IX. Infills both [062] and [066]. Comprises mid-brown silty clay deposit of low–medium compaction with occasional small stones throughout.	Post-medieval
068	Structure	Historic Culvert X (ID43)	0.35m wide x 0.06m deep	Sandstone lintel slab defining top of inflow head [071].	Post-medieval

Context	Type	Feature	Depth/Dimensions	Description	Period
069	Structure	Historic Culvert X (ID43)	0.2m deep x 0.35m wide	Support structure situated directly above lintel [068]. Composed of three slabs and one block of masonry.	Post-medieval
070	Deposit	Historic Culvert X (ID43)	0.1–0.15m deep	Tramroad substrate. Compacted, mid-brown clay with frequent angular sandstone fragments throughout, 0.01–0.1m in size.	Post-medieval
071	Structure	Historic Culvert X (ID43)	0.15m high x 0.35m wide	Inflow head of Historic Culvert X. Situated on eastern edge of tramroad. Composed of [068] and [069]. Infilled with (076).	Post-medieval
072	Structure	Historic Culvert X (ID43)	0.28m wide x 0.06m deep	Sandstone lintel slab defining top of outfall head [075].	Post-medieval
073	Structure	Historic Culvert X (ID43)	0.8m wide x 0.23m high	Southern side wall of outfall head [075]. Composed of line of large slabs placed in single file along the culvert edge.	Post-medieval
074	Structure	Historic Culvert X (ID43)	0.8m wide x 0.23m high	Northern side wall of outfall head [075]. Composed of line of large slabs placed in single file along the culvert edge.	Post-medieval
075	Structure	Historic Culvert X (ID43)	0.2 high x 0.25m wide	Outfall head of Historic Culvert X. Situated on western edge of tramroad. Composed of [072], [073] and [074]. Infilled with (076).	Post-medieval
076	Deposit	Historic Culvert X (ID43)		Fill of Historic Culvert X. Infills both [071] and [075]. Comprises mid-brown silty clay deposit of low–medium compaction with occasional small stones throughout.	Post-medieval

Table 2. Archaeological Watching Brief Context inventory

## 6.4 Appendix IV – Gazetteer of Features

ID	Name	PRN	X	Y	Priority
1	Daren-ddu Culvert	81971	310640	215260	n/a
2	Pen-y-waun Culvert	81975	310320	215320	2
3	Cwar Blaen-dyffryn Culvert	81977	309760	214990	3
4	Afon Crawnon Culvert	81933	309531	214921	1
5	Brinore Tramroad Graffiti	81989	309120	215360	n/a
6	Nant Ddu Culvert I	87027	309033	215524	n/a
7	Nant Ddu Culvert II	87026	309121	215632	3
8	Glascwm-uchaf Tramway Passing Bay	81999	309310	215860	3
9	Glascwm-uchaf Culvert II	82501	309326	216037	1
10	Glascwm-uchaf Tramway Passing Bay	81955	309280	216124	n/a
11	Glascwm-uchaf Culvert	87025	309275	216154	3
12	Possible Culvert (Blocked) I	None	309313	216251	3
13	Pen Bwlch Glasgwm Culvert	82563	309317	216257	3
14	Possible Historic Culvert	None	309412	216362	3
15	Historic Culvert I	None	309479	216463	3
16	Modern Culvert I	None	309511	216517	n/a
17	Possible Culvert (Blocked) II	None	309517	216528	3
18	Possible Culvert (Blocked) III	None	309550	216574	3
19	Modern Culvert II	None	309568	216599	n/a
20	Modern Culvert III	None	309588	216630	n/a
21	Gelli-bant Culvert	82506	309651	216722	n/a
22	Gelli-bant Tramway Passing Bay	81953	309765	216869	n/a
23	Pen Rhiw-calch Tramway Passing Bay	81943	310047	217508	2
24	Pen Rhiw-calch Bridge	81942	310060	217600	3
25	Culvert	None	310306	217905	n/a
26	Historic Culvert II	None	310432	218108	n/a
27	Historic Culvert III	None	310508	218215	2
28	Historic Culvert IV	None	310525	218240	3
29	Historic Culvert V	None	310579	218321	1
30	Bryn Melyn Culvert I	82564	310614	218395	n/a
31	Bryn Melyn Tramway Passing Bay	81951	310643	218518	1
32	Modern Culvert IV	None	310649	218534	n/a
33	Historic Culvert VI	None	310650	218558	1
34	Historic Culvert VII	None	310658	218580	2
35	Historic Culvert VIII	None	310667	218647	1
36	Historic Culvert IX	None	310667	218686	1 and 2
37	Pant-y-rhiw Culvert	82543	310668	218718	3
38	Modern Culvert V	None	310665	218795	n/a
39	Modern Culvert VI	None	310652	218844	n/a
40	Possible Culvert	None	310638	218893	n/a
41	Modern Culvert VII	None	310590	219044	n/a
42	Pant-y-rhiw Tramway Passing Bay	82524	310581	219093	1 and 2
43	Historic Culvert X	None	310582	219171	1 and 3
44	Historic Culvert XI	None	310650	219400	2
45	Pant-y-rhiw Culvert	82528	310650	219460	1
46	Rhyd-y-bine Tramway Passing Bay II	81950	310684	219536	1 and 2
47	Historic Culvert XII	None	310679	219548	1
48	Talybont Reservoir Culvert	82568	310698	219626	n/a
49	Modern Drainage Crossing I	None	310729	219760	3
50	Historic Culvert XIII	None	310732	219830	2
51	Rhyd-y-bine Tramway Passing Bay I	81949	310755	219915	1 and 2
52	Modern Drainage Crossing II	None	310775	219973	3
53	Rhyd-y-bine Culvert	82535	310793	220015	1
54	Modern Culvert VIII	None	310822	220079	3

ID	Name	PRN	X	Y	Priority
55	Historic Culvert XIV	None	310849	220138	1
56	Danywenallt Culvert II	82539	310860	220160	n/a
57	Danywenallt Culvert III	82541	310890	220230	1
58	Danywenallt Culvert IV	87028	310898	220254	1
59	Historic Culvert XV	None	310920	220325	1 and 2
60	Danywenallt Culvert V	82565	310930	220370	n/a
61	Historic Culvert XVI	None	310939	220430	1 and 2
62	Danywenallt Culvert VI	82566	310940	220450	1
63	Drainage Feature	None	310942	220469	2 and 3
64	Danywenallt Culvert VII	82567	310940	220480	1
65	Dan y Wenallt Tramway Passing Bay	81948	310950	220512	1
66	Danywenallt Gateway	82545	310952	220678	n/a
67	Craig Dan-y-wenallt Culvert	82546	310949	220814	1
68	Craig Dan-y-wenallt Gateway	82550	310879	221301	n/a
69	Craig Dan-y-wenallt Tramway Passing Bay II	87021	310867	221377	3
70	Craig Dan-y-wenallt Tramway Passing Bay I	87020	310846	221463	1 and 3
71	Dan-y-wenallt Isaf Tramway Passing Bay	87019	310898	221882	n/a
72	Modern Drain Crossing III	None	310899	221895	n/a

Table 3. Gazetteer of features identified on Bryn Oer Tramroad walkover survey (with those monitored during watching brief in grey)



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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

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