

BikePark Wales

Archaeological Desk-based Assessment and ASIDOHL2



Prepared for

BikePark Wales

By



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Crynodeb Anweithredol

Comisiynwyd Archaeoleg Mynydd Du Cyf gan BikePark Wales, trwy eu hasiantau The Urbanists, i gwblhau asesiad desg archeolegol ac Asesiad o'r Arwyddocâd y Datblygiad ar Tirwedd Hanesyddol (AADTH2) ar yr Ardal Ddatblygiad arfaethedig o 36 pod gwersylla a 5 cabanau, codiad y bloc cawod/toiled a'r cread o man chwarae a phicnic. Adeiladu Ardal Barcio newydd (141 o leoedd) gyda maes parcio gorlif (85 lle), ynghyd â iard cynnal a chadw llwybrau, llwybrau mynediad priffyrdd newydd, gwaith proffil daear, draeniad, isadeiledd a gwaith tirwedd yn BikePark Wales, Gethin Woodland Centre, Abercanaid, Merthyr Tudful, CF48 1YZ.

Nodwyd yn ystod yr asesiad yr effeithiau uniongyrchol ac anuniongyrchol posibl o'r Datblygiad arfaethedig ynghyd ag asesiad o leoliad ac arwyddocâd asedau gwerth uchel.

Cafodd yr asesiad desg ei pharatoi yn unol â safonau proffesiynol y Sefydliad Siartredig Archeolegwyr a'i fwriad yw cwrdd â Safon a Chanllawiau ar gyfer Asesiadau Desg Archeolegol (2014). Paratowyd yr AADTH2 i safonau proffesiynol y Sefydliad Siartredig Archeolegwyr a'i fwriad yw cwrdd â'r Safon a'r Canllawiau a nodwyd gan CADW yn yr AADTH2 Canllawiadau ar gyfer Adfer Da wrth Ddefnyddio'r Gofrestr Tirweddau o Ddiddordeb Hanesyddol yng Nghymru yn y Broses Cynllunio a Datblygu (2^{il} Argraffiad 2007).

Non-Executive Summary

Black Mountains Archaeology Ltd was commissioned by BikePark Wales, through their agents The Urbanists, to carry out an Archaeological Desk-Based Assessment and an Assessment of the Significance of Development on Historic Landscape (ASIDOHL2) on the proposed Development Area of 36 camping pods and 5 chalets, erection of shower/toilet block and creation of play and picnic Area. Construction of new parking Area (141 spaces) with overflow carpark (85 spaces), together with a trail maintenance yard, new highway access routes, ground profile works, drainage, infrastructure and landscape works at Bike Park Wales, Gethin Woodland Centre, Abercanaid, Merthyr Tydfil, CF48 1YZ

The assessment has identified the potential direct and indirect effects of the proposed Development together with an assessment of the setting and significance of high value assets.

The archaeological desk-based assessment has been prepared to the professional standards of the Chartered Institute for Archaeologists and is intended to meet Standard and Guidance for Archaeological Desk-based Assessments (2014). The ASIDOHL2 has been prepared to the professional standards of the Chartered Institute for Archaeologists and is intended to meet Standard and Guidance set out by CADW in ASIDOHL2 Guide to Good Practice on Using the Register of Landscapes of Historic Interest in Wales in the Planning and Development Process (2nd Edition 2007).

Summary of Assessment

A Desk-Based Assessment has identified the potential direct and indirect effects of the proposed Development together with an assessment of the setting and significance of high value heritage assets. A total of 19 heritage assets have been identified. One heritage asset has been identified within the Development Area; 'Triangulation point' (GGAT03941m), with a further seven heritage assets within a 250m (radius) Study Area. For the purposes of setting and significance of heritage assets with a value of A or higher a total of six sites have been identified within a 1km (radius) Study Area and a further five within a wider Zone of Theoretical Visibility (ZTV (Figure 2).

The potential direct impact of the development on heritage assets is confined to one asset 'Triangulation point' (GGAT03941m), however, a site visit could not locate the feature and an assumption made that it is now destroyed resulting in a reduction of the Direct Impacts to None.

The ASIDOHL2 process considered the potential effect to all landscapes on the Register resulting in the identification of just a single landscape being affected, Merthyr Tydfil (HLW(MGI)2) Landscape of Outstanding Historic Interest. The remaining landscapes on the Register were discounted as having no effect. The closest landscape being Gelligaer Common HLW (MGI) 4, 2.5km east; East Fforest Fawr and Mynydd-y-Glog HLW (MGI) 3, 14.1km northeast; The Rhondda HLW (MGI) 5, 6.5km southwest and the Blaenavon World Heritage Site HLW (Gt) 1, 12km northeast.

*The ASIDOHL2 process has identified a single direct physical impact upon the historic landscape, in the Historic Landscape Character Area (HLCA) of 072 Waunwyllt, Pen-y-lan and Graig Gethin agricultural landscape. The direct physical impact has been assessed as **Slight** with the maximum area of the historic landscape character area that could be directly affected by the proposed development representing 2.34%, which is 0.07% of the total Registered historic landscape area. The proposed development impacting a slight land loss and consequent fragmentation and/or visual intrusion causing limited numbers of key elements to be removed or changed so that group value and/or coherence and/or integrity are slightly diminished, and/or amenity value slightly reduced with a slight reduction in the overall value of the historic landscape area on the Register.*

The ASIDOHL2 process initially identified a further 44 HLCAs belonging to Merthyr Tydfil (HLW(MGI)2) as being potentially effected (indirectly) by the proposed development. This number was refined down using a combination of visibility analyses utilising computer modelling of the 2m DTM and 2m DSM LiDAR datasets to generate Zones of Theoretical Visibility (ZTVs) from and to the proposed development area, several site visits, study of contour maps, aerial photographs and taking into the consideration of existing surface features such as forestry and the built environment using digital surface models (DSM) generated by LiDAR. A single registered park and garden was identified by the ZTV analysis; Cyfarthfa Castle (PGW(Gm)1(MER) is located 3.5km to the north of the proposed development area. Three SAMs were also identified by the ZTV analysis as being potentially indirectly affected; Merthyr Tramroad Tunnel (Trevithick's Tunnel) (SAMGm573) 1.3km Northeast, the Ffos-y-fran Deserted Iron Mining Village (SAMGm496) and also at Ffos-y-fran the Sarn Howell Pond and Watercourses (SAMGm494), both c2.5km to the northeast. A further SAM was

identified by the ZTVs located on Merthyr Common (Mynydd Cilfach-yr-encil) 2.7km to the east (Merthyr Common Round Cairns SAMGm222).

While theoretically visible, it has been established that the views to and from Cyfarthfa Castle and Park (PGW(Gm)1(MER; HLCA 013), Merthyr Tramroad Tunnel (Trevithick's Tunnel) (SAMGm573; HLCA 019), The Ffos-y-fran Deserted Iron Mining Village (SAMGm496; HLCA 077), Sarn Howell Pond and Watercourses (SAMGm494; HLCA 031) and Merthyr Common Round Cairns (SAMGm222; HLCA 077) are not indirectly physically effected by the proposed development. Based on the present assessment it is considered that the proposed development will have no permanent indirect physical impact on any of the statutory designated landscapes, sites and monuments noted above. As a result, the first part of Stage 3a was not carried out. No physical change from an increased risk of exposure, increased management needs, the severance or fragmentation of related elements, frustration or cessation of historic land-use practices and the frustration of access leading to decreased opportunities for education and enjoyment of the amenity elements will occur.

*The visibility analysis identified the potential indirect visual effect for up to 44 historic landscape character areas. Following detailed assessment and site visits, it is considered that of the 44 HLCAs initially identified by ZTVs as potentially visible only 15 HLCAs (see Stage 3b assessment) had the potential for indirect (non-physical) visual impacts. The remainder disregarded because of a lack of visibility due to the inter-visibility of HLCAs and the proposed development area being obscured by the built environment, trees and vegetation and topography. The magnitude of indirect visual effects has been assessed as **Very Slight**.*

*A total of 13 HLCAs were considered for the relative importance of parts or elements of HLCAs which may be directly or indirectly, wholly or partially, affected by the proposed development. The effect to three HLCA's (HLCA 021, 037 and 048) was assessed as so imperceptible that it was considered that they will not add to the relative importance evaluation in relation to the nature and extent of the proposed development. The remaining overall (combined) averaged landscape value was assessed as **Low**.*

*The final ASIDOHL2 assessment process identified the assessment of the overall significance of the impact of development and the effect that altering the Historic Character Area(s) concerned has on the whole of the historic landscape area on the Register (CADW 2007, 28). The effect of the development on each historic landscape character area was scored and the value assessed in relation to the likely loss and consequent reduction in value of the HLCA on the Register. The results indicated that the summary of overall significance of the impact of development on the historic landscape is **Slight**. The development impact on key elements is such that the value of the historic landscape area on the Register remains essentially unchanged.*

Acknowledgements and Copyright

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of this project. We are as ever hugely grateful to Lynne Moore of the NMR, RCAHMW, Calli Rouse of GGAT HER, Gareth Phillips of CADW, Emyr Evans of The National Library of Wales and Derek Elliott of CRAPW for their expert assistance. The copyright of this report is held by Black Mountains Archaeology Ltd, who have granted an exclusive licence to BikePark Wales and their agents The Urbanists 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.

Abbreviations

- AP: Aerial Photograph
- CRAPW: Central Register of Air Photography for Wales
- GGAT Glamorgan Gwent Archaeological Trust
- HER: Historic Environment Record (curated by Dyfed Archaeological Trust)
- HLCA Historic Landscape Character Area
- LB: Listed Building
- LPA: Local Planning Authority
- NGR: National Grid Reference
- NMR: National Monuments Record (curated by RCAHMW)
- NPRN: National Primary Record Number (in NMR)
- PRN: Primary Record Number (in HER - curated by Glamorgan-Gwent Archaeological Trust)
- RCAHMW: Royal Commission on the Ancient and Historical Monuments of Wales
- SAM: Scheduled Ancient Monument

1 Introduction

1.1 Project Background and Proposals

- 1.1.1 Black Mountains Archaeology Ltd/ Archaeoleg Mynydd Du Cyf was commissioned by BikePark Wales through their agents The Urbanists to carry out an archaeological desk-based assessment and an Assessment of the Significance of Development on Historic Landscape (ASIDOHL2) on the proposed development of 36 camping pods and 5 chalets, erection of shower/toilet block and creation of play and picnic area. Construction of new parking area (141 spaces) with overflow carpark (85 spaces), together with a trail maintenance yard, new highway access routes, ground profile works, drainage, infrastructure and landscape works at Bike Park Wales, Gethin Woodland Centre, Abercanaid, Merthyr Tydfil, CF48 1YZ.

1.2 Objectives

- 1.2.1 The purpose of a desk-based assessment as set out by the *Chartered Institute for Archaeologists* (2014) is to gain an understanding of the historic environment resource in order to formulate as required:

- an assessment of the potential for heritage assets to survive within the Area of Study.
- an assessment of the significance of the known or predicted heritage assets considering, their archaeological, historic, architectural and artistic interests.
- strategies for further evaluation whether or not intrusive, where the nature, extent or significance of the resource is not sufficiently well defined.
- an assessment of the impact of proposed Development or other land use changes on the significance of the heritage assets and their settings.
- strategies to conserve the significance of heritage assets, and their settings.
- design strategies to ensure new Development makes a positive contribution to the character and local distinctiveness of the historic environment and local place-shaping.
- proposals for further archaeological investigation within a programme of research, whether undertaken in response to a threat or not.

- 1.2.2 To this we can further add that the objectives of desk-based assessment are:

- An assessment of available information to determine the extent and character of heritage assets, in local, regional and national contexts.
- An assessment of the significance of heritage assets considering all of the cultural heritage values that people associate with it, or which prompt them to respond to it.
- An assessment of impact (physical or visual) on heritage assets and their setting.
- The careful consideration and presentation of mitigation recommendations aimed at reducing the impact of the Development on heritage assets and their setting.
- Finally, the presentation of this information in a written report and the preparation and deposition of an archive of data generated by the assessment in line with professional standards.

1.3 Legislative Framework

- 1.3.1 *Planning Policy Wales* (PPW 10th Edition) sets out the land use planning policies of the Welsh Government. Chapter 6 sets out the Welsh Government's policy towards the historic environment. It states "The historic environment of Wales is made up of individual historic features, archaeological sites, historic buildings and historic parks, gardens, townscapes and landscapes, collectively known as historic assets. The most important of these historic assets have statutory protection through scheduling, listing or designation as a conservation Area. Other assets are included in formal registers, which identify them as being of special historic interest. Many others make a positive contribution to local character and sense of place. Some, such as buried archaeological remains, have still to be identified. It is important to protect what is significant about these assets and sustain their distinctiveness. Historic assets should be the subject of recording and investigation when they are affected by proposals that alter or destroy them. Historic assets are a non-renewable resource." (PPW 2018, 123-129).
- 1.3.2 Underpinning PPW are a series of legislative powers and TANs. *The Planning (Wales) Act 2015* sets out a series of legislative changes to deliver reform of the planning system in Wales, to ensure that it is fair, resilient and enables Development. The 2015 Act also introduces a mandatory requirement to undertake pre-application consultation for certain types of Development. The *Town and Country Planning (Development Management Procedure) (Wales) (Amendment) Order 2016* defines in *Schedule 4(I)* the parameters and definitions for the requirement of pre-application consultation by Welsh Ministers, particularly in response to the effect of statutory designated monuments, buildings, and parks and gardens.
- 1.3.3 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 will support and promote the careful management of change in the historic environment in accordance with current conservation philosophy and practice. Following adoption of the TAN 24 Historic Environment on 31st May 2017, *Welsh Office Circulars 60/96 Planning and the Historic Environment: Archaeology*; *61/96 Planning and the Historic Environment: Historic Buildings and Conservation Areas*; and *1/98 Planning and the Historic Environment* have been cancelled. However, detailed advice on Environmental Impact Assessment is still contained within Welsh Office Circular 11/99 Environmental Impact Assessment.
- 1.3.4 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.

- 1.3.5 Cadw are the Welsh Government body responsible for determining applications for Scheduled Monument Consent (SMC) and is a statutory consultee for certain types of Developments affecting Scheduled Ancient Monuments, World Heritage Sites and Registered Historic Parks, Gardens and Landscapes, Strategic Environmental Assessments and scoping opinions for Environmental Impact Assessments (PPW 2016). Cadw published their *Conservation Principles* for the sustainable management of the historic environment in Wales in 2011. These principles provide the basis upon which Cadw discharges its statutory duties, makes decisions or offers advice about changes to historic assets. Cadw further advise that the *Conservation Principles* should also be used by others (including owners, developers and other public bodies) to assess the potential impacts of a Development proposal on the significance of any historic asset/assets and to assist in decision-making where the historic environment is affected by the planning process (PPW 2016).
- 1.3.6 Important or historic hedgerows (and boundaries) are protected under *The Environment Act 1995 (section 95)*. The *Hedgerow Regulations 1997* (under the 1995 Act) provides protection and guidance for those Development/agricultural activities outside of planning. The regulations permit the removal of any hedgerow (including any length of hedgerow) for 'carrying out Development for which planning permission has been granted' provided the loss of the hedgerow has been properly assessed against the benefits of the proposed Development.
- 1.3.7 Following review in 1998, a simplified set of assessment criteria was proposed where all substantially complete boundaries (hedgerows) that predate 1845 were to be afforded consideration/protection. The Environment, Transport and Regional Affairs Committee's Report 'The Protection of Field Boundaries' 1999 was acknowledged by Government but no amendments were made to the 1997 regulations. Judicial Review of the application in 2002 of the regulations (Flintshire County Council v NAW and Mr J T Morris) has clarified the interpretation of some of the criteria (see *The Hedgerow Regulations 1997, Schedule 1, Part 2 Archaeology and History* and Section 1.5 below).

1.4 Assessment Methodology (heritage assets)

- 1.4.1 The assessment of the historic environment includes the interrogation of a number of sources (but not limited to):
- Statutory designated monuments, buildings and landscapes (including conservation Areas, parks, gardens and battlefields).
 - Regional Historic Environment Record (HER).
 - National Monuments Record (NMR).
 - Aerial photographic archives.
 - Local and national archives.
 - Cartographic and documentary sources.

- 1.4.2 Information on statutory designated sites (World Heritage Sites, Scheduled Ancient Monuments, Listed Buildings, Conservation Areas, Registered Landscapes, Battlefields, Parks and Gardens) was obtained from Cadw (received 10/09/19) and accessed through Cof Cymru - National Historic Assets of Wales (a Welsh Government online mapping resource). Information recorded on the Regional Historic Environment Record (Enquiry No. 6103) and National Monuments Record (Enquiry number RC19-0562) were assessed as was collections of aerial photographs held by the Central Register of Air Photography for Wales (received 02/09/19). Cartographic Archives held by The National Library of Wales were also consulted (Request No 14903817, received 02/10/19).
- 1.4.3 The assessment reviewed the existing information pertaining to the Historic Environment based on a 250m Study Area centred on NGR SO 05160 03410. Statutory designated sites with an 'A' Value were assessed within a wider 1km Study Area for the impact to their setting together with a selection of wider sites based on 'Zone of Theoretical Visibility' (ZTV) Analysis (see Figures 1 and 2).
- 1.4.4 Important or historic hedgerows were assessed according to current legislation that details the following criteria:
- The hedgerow marks the boundary, or part of the boundary, of at least one historic parish or township; and for this purpose, "historic" means existing before 1850.
 - The hedgerow incorporates an archaeological feature which is (a) included in the schedule of monuments compiled by the Secretary of State under Section 1 (schedule of monuments) of the Ancient Monuments and Archaeological Areas Act 1979(7); or (b) recorded at the relevant date in a Historic Environment Record.
 - The hedgerow (a) is situated wholly or partly within an archaeological site included or recorded as mentioned in paragraph 2 or on land adjacent to and associated with such a site; and (b) is associated with any monument or feature on that site.
 - The hedgerow (a) marks the boundary of a pre-1600 AD estate or manor recorded at the relevant date in a Historic Environment Record or in a document held at that date at a Record Office; or (b) is visibly related to any building or other feature of such an estate or manor.
 - The hedgerow (a) is recorded in a document held at the relevant date at a Record Office as an integral part of a field system pre-dating the Inclosure Acts; or (b) is part of, or visibly related to, any building or other feature associated with such a system, and that system (i) is substantially complete; or (ii) is of a pattern which is recorded in a document prepared before the relevant date by a local planning authority, within the meaning of the 1990 Act, for the purposes of Development control within the authority's Area, as a key landscape characteristic.
 - There are other criteria relating to rights of way and ecology.

- 1.4.5 Heritage assets are categorised according to the only values that are nationally agreed in the *Department of Transport/Welsh Office/Scottish Office Design Manual for Roads and Bridges Vol. 11 Section 3 Part 2* (HA 208/07 Cultural Heritage) 2007, amended 2009 (DMRB 2007). A cultural heritage asset is an individual archaeological site or building, a monument or group of monuments, an historic building or group of buildings, an historic landscape etc., which, together with its setting, can be considered as a unit for assessment. Heritage assets are assessed according to the following criteria:
- 1.4.6 Understanding value is subjective beyond any statutory or registered designation and is based on the professional experience and knowledge of the assessor. Other factors do contribute to the overall assessment of value (and significance) of heritage assets and the assessment criteria below contributes to an overall robust assessment framework.

Value			Criteria
A*	Very High	International/National	World Heritage Sites (including nominated sites). Assets of acknowledged international importance. Assets that can contribute significantly to acknowledged international research objectives.
A	High	National	Scheduled Monuments (including proposed sites). Undesignated assets of schedulable quality and importance. Assets that can contribute significantly to acknowledged national research objectives.
B	Medium	Regional	Designated or undesignated assets that contribute to regional research objectives.
C	Low	Local	Designated and undesignated assets of local importance. Assets compromised by poor preservation and/or poor survival of contextual associations. Assets of limited value, but with potential to contribute to local research objectives.
D	Negligible	Local	Assets with very little or no surviving archaeological interest.
U	Unknown	Unknown	The importance of the resource has not been ascertained.

Table 1. Factors for assessing the value of heritage assets (after Table 5.1 DMRB 2009).

Effect	Category					
	A*	A	B	C	D	U
Very High	Very Significant	Very Significant	Very Significant	Significant	Significant	Unknown
High	Very Significant	Very Significant	Very Significant	Significant	Significant	Unknown
Moderate	Very Significant	Very Significant	Significant	Significant	Slight Significance	Unknown
Low	Very Significant	Significant	Significant	Slight Significance	Slight Significance	Unknown
None	None	None	None	None	None	None

Table 2. Significance of effect to heritage assets (matrix).

- 1.4.7 The criteria below is adapted from notes made in Annex 2 of the DMRB Vol. 11 Section 3 Part 2 (HA 208/07 Cultural Heritage) 2007 that refer to the Scheduling Criteria as set out by the Ancient Monument and Archaeological Areas Act 1979 and The Historic Environment (Wales) Act 2016 and finally Stage 4 Evaluating Relative Importance as set out in ASIDOHL2, Guide to Good Practice on Using the Register of Landscapes of Historic Interest in Wales in the Planning and Development Process (2nd Edition 2007). While comprehensive, the criteria should not be regarded as definitive, rather they are indicators which contribute to a wider judgement based on the professional experience of the assessor and the circumstance and context of the assessment and heritage asset. An ASIDOHL2 is a staged approach to assessing the significance of impact to historic landscapes (and constituent character Areas) as characterised in the *Register of Landscapes of Outstanding Historic Interest in Wales* (Pt 2.1, 1998) and *Register of Landscapes of Special Historic Interest in Wales* (Pt 2.2, 2001) to the method set out in the *Guide to Good Practice on Using the register of Landscapes of Historic Interest in Wales in the Planning and Development Process (revised 2nd Edition 2007)*.
- 1.4.8 **Rarity:** there are some monument categories, which in certain periods are so scarce that all surviving examples which still retain some archaeological potential should be preserved. This should be assessed in relation to what survives today, since elements of a once common type may now be rare.
- Very high: sole survivor of its type.
 - High: very few sites of this type are known.
 - Medium: the site is not unusual, but cannot be considered common.
 - Low: the site is quite common.
- 1.4.9 **Documentation and association:** the significance of a heritage asset may be enhanced by the existence of records of previous investigations or, in the case of more recent monuments, by the supporting evidence of contemporary written records. Furthermore, any important historical associations relating to the heritage asset, such as institutions, cultural figures, movements or events, will enhance value. The survival of documentation and/or historic association that increases our understanding of a heritage asset will raise its importance, though this is difficult to quantify owing to the extremely varied nature of documentary and historical material. Therefore, a professional judgment is given based on the actual amount or importance of evidence and its academic value.
- Very High: a highly significant, authentic and nationally well-known association(s) and/or complete documentary record, or exceptionally important sources available.
 - High: a significant, authentic and regionally well-known association(s) and/or considerable quantity of relevant material, or highly important sources available.
 - Moderate: an authentic, but less significant, perhaps locally well-known association(s) and/or some relevant material, or moderately important sources available.
 - Low: unauthenticated or a little known association(s) and/or little relevant material, or only modestly important sources available.

- None: no known associations and/or relevant material available.
- 1.4.10 **Group Value:** relates to the diversity (or similarity) of elements including their structural and functional coherence. The value of a single monument (such as a field system) may be greatly enhanced by its association with related contemporary monuments (such as a settlement and cemetery) or with monuments of different periods.
- Very high: largely complete interconnected complex of heritage assets or landscapes (e.g UNESCO World Heritage Site).
 - High: significant survival of an interconnected complex of heritage assets.
 - Moderate: some surviving elements of an interconnected complex of heritage assets; some disintegration has occurred.
 - Low: single or unconnected/unrelated groups of heritage assets.
- 1.4.11 **Survival/Condition:** the survival of a monument's archaeological potential both above and below ground is a particularly important consideration and should be assessed in relation to its present condition and surviving features. The Historic Environment Records (HERs) of the four Welsh Archaeological Trusts note the condition of sites according to the following criteria:
- Intact: the site is intact.
 - Near intact: the site is nearly intact.
 - Damaged: the site has been moderately damaged.
 - Near destroyed: the site has nearly been destroyed.
 - Destroyed: the site has been destroyed.
 - Restored: the site has been restored.
 - Moved: the site has been moved (usually finds).
 - Not known: the condition of the site is not known.
- 1.4.12 To these criteria, we can add the following assessment:
- Very Good: elements surviving in very good condition for their class.
 - Good: elements surviving in good or above average condition for their class.
 - Moderate: elements surviving in moderate or average condition for their class.
 - Fair elements surviving in fair or below average condition for their class.
 - Poor elements surviving in poor condition for their class.
- 1.4.13 **Direct Effects** are outcomes resulting from an assessment of the impact of the proposed Development on the heritage asset or landscape. The direct effect of a course of action (e.g. Development) can only be assessed once the assessment criteria above has been completed and potential outcomes fully understood (as far as any Development proposal or construction design is reasonably understood). The direct effect of the proposed Development on heritage assets has been assessed using the following criteria:
- Very high: total loss of the integrity of the heritage asset(s).
 - High: significant loss of integrity to the heritage asset(s), significant reduction of group and rarity values.
 - Moderate: some loss of integrity to heritage asset(s) and reduction in value.

- Low: slight loss of integrity to heritage asset(s) and value.
- None: no perceived or identified effect, or loss in value.
- Beneficial: Development will protect, preserve or enhance the heritage asset resulting in an increase in value.

1.4.14 Assessing **Indirect Effects (visual)** to heritage assets is intrinsically linked to setting and significance (see section 1.6). The criteria below are adapted from standard EIA evaluation criteria and Stage 3 Assessment of Indirect Impacts of Development as set out in *ASIDOHL2, Guide to Good Practice on Using the Register of Landscapes of Historic Interest in Wales in the Planning and Development Process (2nd Edition 2007)*. Assessment is confined to sites of International, National and in some cases Regional value.

- Very severe: the key views and/or essential lines of sight to and from the heritage asset are dominated or obscured by the Development resulting in severance of cultural heritage links.
- Severe: the key views and/or essential lines of sight to and from the heritage asset are interrupted by the Development resulting in partial severance of cultural heritage links.
- Considerable: the key views and/or essential lines of sight to and from the heritage asset are significantly visible resulting in limited severance of cultural heritage links.
- Moderate: the key views and/or essential lines of sight to and from the heritage asset are visible resulting in some severance of cultural heritage links.
- Slight: the key views and/or essential lines of sight to and from the heritage asset are noticeable resulting in diminished cultural heritage links.
- Very slight: the key views and/or essential lines of sight to and from the heritage asset are noticeable resulting in little discernible severance of cultural heritage links.
- None: the key views and/or essential lines of sight to and from the heritage asset are not noticeable resulting in no severance of cultural heritage links.

1.5 Assessment Methodology (setting and significance)

1.5.1 The *Setting of Historic Assets in Wales 2017 (The Historic Environment (Wales) Act 2016, Annex 6)* explains what **setting** is, how it contributes to the **significance** of a historic asset and why it is important. It also outlines the principles used to assess the potential impact of Development or land management proposals on the settings of World Heritage Sites, ancient monuments (scheduled and unscheduled), listed buildings, registered historic landscapes, parks and gardens, and conservation Areas. These principles, however, are equally applicable to all individual historic assets, irrespective of their designation.

1.5.2 Certain major developments require pre-application consultation with the local planning authority and, where specialist advice is required, the Welsh Ministers through Cadw. Any Development likely to directly or indirectly (visual) effect a statutory designated heritage asset or high value undesignated heritage asset and its setting will likely require 'consultation before grant of permission' under the *Town and Country Planning (Development Management Procedure) (Wales) (Amendment) Order 2016, schedule 4 (1)(i) and (ii)* if the proposed Development meets any of the following criteria:

- Development likely to affect the site of a registered historic park or garden or its setting.
- Development is within a registered historic landscape that requires an Environmental Impact Assessment and ASIDOHL2.
- Development likely to have an impact on the outstanding universal value of a World Heritage Site.
- Development is within a distance of 0.5 kilometres from any point of the perimeter of a scheduled monument.
- Development is within a distance of 1 kilometre from the perimeter of a scheduled monument and is 15 metres or more in height, or has an Area of 0.2 hectares or more.
- Development is within a distance of 2 kilometres from the perimeter of a scheduled monument and is 50 metres or more in height, or has an Area of 0.5 hectares or more.
- Development is within a distance of 3 kilometres from the perimeter of a scheduled monument and is 75 metres or more in height, or has an Area of 1 hectare or more.
- Development is within a distance of 5 kilometres from the perimeter of a scheduled monument and is 100 metres or more in height, or has an Area of 1 hectare or more.

1.5.3 An assessment of the impact of the proposed Development on the setting of the statutory designated heritage asset or high value undesignated heritage asset will be required if any of the criteria in 1.5.2 above are met. The assessment of the setting of heritage assets follows the four-stage approach detailed in the *Setting of Historic Assets in Wales 2017 (The Historic Environment (Wales) Act 2016, Annex 6)*:

- Stage 1: Identify the historic assets that might be affected by a proposed change or Development and their significance.
- Stage 2: Define and analyse the settings to understand how they contribute to the ways in which the historic assets are understood, appreciated and experienced.
- Stage 3: Evaluate the potential impact of a proposed change or Development on those settings.
- Stage 4: Consider options to mitigate the potential impact of a proposed change or Development on those settings.

- 1.5.4 The assessment of **significance** is intrinsically linked to the setting (see paragraphs 1.5.1 to 1.5.3 above) and value (see criteria in section 1.5 above) of a heritage asset/registered landscape, park and garden.
- 1.5.5 The significance of an historic asset embraces all of the cultural heritage values that people associate with it, or which prompt them to respond to it. These values tend to grow in strength and complexity over time, as understanding deepens and people's perceptions evolve (*Conservation Principles for the sustainable management of the historic environment in Wales 2011, p10*).
- 1.5.6 There are four values that need to be considered when assessing significance and these are set out in Cadw's *Conservation Principles for the sustainable management of the historic environment in Wales*:
- 1.5.7 **Evidential value**: relates to those elements of a heritage asset that can provide evidence about past human activity, including its physical remains or historic fabric. These may be visible and relatively easy to assess, or they may be buried below ground, under water or be hidden by later fabric. These remains provide the primary evidence for when and how a heritage asset was made or built, what it was used for and how it has changed over time. The unrecorded loss of historic fabric represents the destruction of the primary evidence. Additional evidential values can be gained from documentary sources, pictorial records and archaeological archives or museum collections. To assess the significance of this aspect of an asset, all this evidence needs to be gathered in a systematic way and any gaps in the evidence identified.
- 1.5.8 **Historical value**: a heritage asset might illustrate a particular aspect of past life or it might be associated with a notable family, person, event or movement. These illustrative or associative values of a heritage asset may be less tangible than its evidential value but will often connect past people, events and aspects of life with the present. Of course, the functions of a heritage asset are likely to change over time and so the full range of changing historical values might not become clear until all the evidential values have been gathered together. Historical values are not so easily diminished by change as evidential values and are harmed only to the extent that adaptation has obliterated them or concealed them.
- 1.5.9 **Aesthetic value**: relates to the way in which people draw sensory and intellectual stimulation from a heritage asset. This might include the form of a heritage asset, its external appearance and how it lies within its setting. It can be the result of conscious design or it might be a seemingly fortuitous outcome of the way in which a heritage asset has evolved and been used over time, or it may be a combination of both. The form of an asset normally changes over time. Sometimes earlier pictorial records and written descriptions will be more powerful in many people's minds than what survives today. Some important viewpoints may be lost or screened, or access to them may be temporarily denied.
- 1.5.10 To assess this aspect of an asset, again the evidence of the present and past form must be gathered systematically. This needs to be complemented by a thorough appreciation on site of the external appearance of an asset in its setting. Inevitably understanding the aesthetic value of a heritage asset will be more subjective than the Study of its evidential and historical values.

- 1.5.11 Much of it will involve trying to express the aesthetic qualities or the relative value of different parts of its form or design. It is important to seek the views of others with a knowledge and appreciation of the heritage asset on what they consider to be the significant aesthetic values.
- 1.5.12 **Communal value:** relates to the meanings that a heritage asset has for the people who relate to it, or for whom it figures in their collective experience or memory. It is closely linked to historical and aesthetic values but tends to have additional or specific aspects. Communal value might be commemorative or symbolic. For example, people might draw part of their identity or collective memory from a heritage asset, or have emotional links to it. Such values often change over time and they may be important for remembering both positive and uncomfortable events, attitudes or periods in Wales's history. Heritage assets can also have social value, acting as a source of social interaction, distinctiveness or coherence; economic value, providing a valuable source of income or employment; or they may have spiritual value, emanating from religious beliefs or modern perceptions of the spirit of a place.
- 1.5.13 The first stage of assessing significance is by understanding the value of the heritage asset by carefully considering its history, fabric and character and then comparing these values with other similarly designated or types of heritage asset locally, regionally or if necessary nationally. The outcome of this process is a Statement of Significance, which is partly a subjective exercise based on the assessor's experience and knowledge.

2 Baseline

2.1 Location, Topography and Geology

- 2.1.1 The proposed development area is located on land adjacent to BikePark Wales (NGR SO 05160 03410). The current facilities at BikePark Wales consist of tracks and trails, a café building and car parking areas and the proposed Development Area is currently under woodland and scrub. The site is situated within Gethin Woods towards the base of the north east facing slope of Mynydd Gethin, overlooking the village of Abercanaid and the Taff valley and just within the country boundary of Merthyr Tydfil (Figures 1.1-1.3).
- 2.1.2 The geology of the proposed Development is the South Wales Middle Coal Measures Formation consisting of mudstone, siltstone and sandstone. These sedimentary rocks formed approximately 318 to 309.5 million years ago in the Carboniferous Period. These sedimentary rocks are fluvial in origin; its beds and deposits formed from detrital material reflecting a past local environment of swamps, estuaries and deltas. Overlying superficial deposits consist of Divensian and Diamecton Till; detrital sedimentary deposits formed up to 2 million years ago in the Ice Age conditions of the Quaternary Period (British Geological Survey 2019).

2.2 Conservation Areas

- 2.2.1 The Study Area does not fall within any Conservation Areas. However, there are Conservation Areas within the Merthyr Tydfil Registered Historic Landscape (HLW(MGI)2). These include Cyfarthfa (CA526) located c.3.5km to the northwest (of the Development Area), Morgantown (CA24), Town Centre (CA26), Thomastown (CA525) all located c.3km to the north, Council and Urban Street Penydarren (CA524) located c.4km to the northeast and Dowlais (CA23) located c.4.5km to the northeast (Figure 1.2).

2.3 Registered Landscapes, Parks and Gardens, Scheduled Ancient Monuments and Listed Buildings

- 2.3.1 The Study Area is located within the CADW Landscape of Outstanding Historic Interest of Merthyr Tydfil (HLW(MGI)2). Designated in 2001, Merthyr Tydfil occupies a natural basin at the head of the Taff Valley and is celebrated as “probably the largest iron-making town in the world in the early to mid-19th Century...(that) rapidly transformed from a modest village in the 1750s to the largest town in Wales by 1801” (CADW 1998. p47). The Merthyr landscape contains a significant number of relics of this industrial past including remains of a number of “large ironworks, features relating to coal mining, waterpower leats, an early iron bridge, power and transportation systems including early tram roads, terraced industrial housing and Cyfarthfa Castle” (ibid) (Figure 1.3).
- 2.3.2 There are five further historic landscapes in the wider region of Mid Glamorgan that required consideration. These include ‘Gelli-gaer Common’ (HLW(MGI/P)4) located c.3.8km to the east (of the Development Area), ‘East Forest Fawr and Mynydd-y-Glôg’ (HLW(MGI/P)3) located c.7km to the northwest, ‘The Rhondda’ (HLW(MGI)5) located c.7km to the southwest, ‘Clydach Gorge’ (HLW(Gt)4) located 16.7km to the northeast and the World Heritage Site of Blaenavon (HLW(Gt)1) located 17km to the northeast.

- 2.3.3 The designated Historic Landscape of Merthyr Tydfil underwent a further Historic Landscape Characterisation Assessment, carried out by Glamorgan-Gwent Archaeological Trust in 2003, which produced a total of 79 Historic Landscape Character Areas (HLCAs) (Roberts 2003).
- 2.3.4 The Development Area is located within HLCA 072 'Waunwyllt, Pen-y-lan and Graig Gethin', which is characterised as an "agricultural landscape of dispersed post-medieval settlement with upland sheep farming; irregular evolved field pattern of drystone walled enclosures largely hidden in forestry; extractive landscape associated with the steam coal trade" (Roberts 2003. p148).
- 2.3.5 Adjacent to HLCA 072, and within the 1km Study Area are three further HLCAs. The largest of these is HLCA014 'River Taff Canal and Railway Corridor' characterised as a "main north-south communication corridor canal, tramroad, industrial and public railroad corridor, 18th and 19th century extractive features, principally pits, levels and mines and associated water management features; industrial housing; important historic and cultural associations; ancient woodland" (ibid. p73). In addition, HLCA017 'Graig' which is characterised as an "early canal side colliery settlement (Glamorganshire Canal) and coal pit" (ibid. p78) and HLCA079 'A470(T) Road' which is characterised as a "north-south road transport corridor, late 20th century; former railway corridor (second half of 19th century); former industrial extractive landscape associated with the steam coal trade" (ibid. p157).
- 2.3.6 There are no Scheduled Ancient Monuments or Listed Buildings within the Development Area or the 250m Study Area. Within the 1km Study Area there are three Scheduled Ancient Monuments; 'Abercanaid Haystack Boiler' (SAMGM572, NPRN309757, GGAT02137m) located c.400m to the northeast (of the Development Area) (Plate 47), 'Vale of Neath Railway Cutting and Tunnel Portal' (SAMGM606, GGAT02500.4m, GGAT02500.5m) located c.900m to the northwest (Plate 41-43) and 'Cwm Pit' (SAMGM607, NPRN33467, GGAT02821m) located c.980m to the northwest (Plate 44).
- 2.3.7 Further Scheduled Ancient Monuments outside the 1km Study Area but still within the Zone of Theoretical Visibility (ZTV) include 'Merthyr Tramroad Tunnel' (SAMGM573) located c.1.4km to the northeast, 'Merthyr Common Round Cairns' (SAMGM222) located c.2.7m to the east and 'Ffos-y-fran Deserted Iron Mining Village' (SAMGM496) and Sarn Howell Ponds (SAMGM494) located c.2.7km to the northeast (Plate 50).
- 2.3.8 There are no Listed Buildings within the development area or the 250m study area. Within the 1km study area there are 41 Grade II Listed Buildings but no Grade I Listed Buildings. These include Industrialist's houses 'Upper Abercanaid House' (LB11494) and 'Garden Walls and Gate Piers' (LB11495) located c.700m to the north of the Development Area, 'Llwyn-yr-eos House' (LB11497) located c.500m to the northeast and 'Pentrebach House' (LB11503) and 'Garden Walls' (LB11504) located c.1km to the northeast. The remainder consist of Gethin Tramway Bridge (LB81751) located c.500m to the east, 'Sion Independent Chapel' (LB21318) located c.600m to the northeast and terraced workers' housing on Quay Row in Upper Abercanaid (LB81754, LB81755, LB81753, LB11496) located c.700m to the north, River Row (LB11502, LB81724-LB81728) and Nightingale Street (LB11498-LB11501, LB81729-LB81748) in Abercanaid located c.500m to the northeast.

- 2.3.9 Further important Listed Buildings outside the 1km Study Area but still within the Zone of Theoretical Visibility (ZTV) include Grade I Listed Buildings 'Cyfarthfa Castle' (LB11396) and 'School at Cyfarthfa Castle' (LB11397) both c.3.9km to the north.
- 2.3.10 The Study Area does not include any Registered Parks and Gardens. However, within the wider HLW(MGI)2 Merthyr Tydfil Historic Landscape there are three Designated sites. These are PGW(GM)1(MER) 'Cyfarthfa Castle' (Grade II*) located c3.5km to the north of the development site, PGW(GM)70(MER) 'Cefn Coed Cemetery and Jewish Burial Ground' (Grade II) located c.5km to the north northwest and PGW(GM)69(MER) 'Aberfan Cemetery, Garden of Remembrance and Former Tips and Slide Area' (Grade II) located 1.6km to the south (CADW. 2000. p94). Both Cefn Coed Cemetery and Jewish Burial Ground and Aberfan Cemetery, Garden of Remembrance and Former Tips and Slide Area are not intervisible from the study area.
- 2.3.11 The Natural Resources Wales LANDMAP data was not consulted for this Study Area as the Historic Landscape Characterisation provides a considerably more detailed assessment of the Area.

2.4 General – Archaeological and Historical

2.4.1 Prehistoric – up to 43 AD

- 2.4.2 The earliest evidence for human activity in the study area is a Mesolithic flint scatter (GGAT00880m) located 500m to the north of the development area. The findspot consists of a group of 2-10 Mesolithic blades, flakes and microliths of more than one tool type (HER, Wymer 1977). The find is the only evidence of Mesolithic activity in the Merthyr Vale although there are many examples further afield, particularly to the west in the uplands of the Cynon Valley.
- 2.4.3 Whilst there is no Neolithic evidence within the study area there have been a number of findspots just to the west near the summit of Mynydd Merthyr. Two Neolithic arrowheads (GGAT01642m and GGAT01643m) and a Neolithic adze (GGAT01209m) were discovered during the laying of Forestry Commission tracks in the 1970s (Savory 1971, 1972, 1973). The concentration of finds here suggests Neolithic settlement activity. Indeed, further axe fragments have been discovered in Merthyr Tydfil (GGAT00478m) and further north in the Vaynor Area (GGAT00804m) and (GGAT01118m), where a Neolithic hut site was excavated 1958 (GGAT01100m).
- 2.4.4 The Merthyr Vale is home to a remarkable number of Bronze Age monuments with strings of ring cairns and burial mounds featured along the ridges of Mynydd Merthyr to the West and Mynydd Cyfach-yr-encil to the East, known collectively as the 'Merthyr Tydfil Group'. The Group contains 34 cairns, 14 of which are ring cairns (RCAHMW 1976). The 1km Study Area features a Bronze Age cist (GGAT00498m) to the south west of the Development Area, which was reported prior to 1953 but has since been lost to afforestation (GGAT HER). Just outside the Study Area to the south west are Carn Castell y Meibion Ring Cairn (SAMGM586) and Darren Fawr Ring Cairns (SAMGB287) which, though in much disturbed condition, are scheduled due to their significant archaeological potential and high group value. The Scheduled Ancient Monument 'Merthyr Common Round Cairns' (GGAT04553m, NPRN305664, SAMGM222) is located c.2.6km to the east (RCAHMW 1976).

- 2.4.5 There is no evidence for Iron Age presence within the Study Area, the nearest being c2.5km to the north west of the Development Area where a Scheduled probable Iron Age enclosure is situated at 'Gwersyll' (GGAT00483m, NPRN305673, SAMGM239). There are a number of defensive and settlement sites in the wider Merthyr Vale Area including the hut circles and enclosures at Buarth Maen (GGAT00449m, NPRN262046, SAMGM401).
- 2.4.6 Roman & Early-medieval
- 2.4.7 Similarly, Roman evidence is absent from the Study Area and is focused on Penydarren Fort (GGAT00823m, NPRN301352), a Roman military settlement located c.3.2km to the north of the Development Area. Roman finds at nearby Glenthorne House have been interpreted as a possible cemetery linked to the fort (GGAT00479m). Further afield, a roman road (RR621, SAMGM556) between the roman fort at Cardiff and Castell Collen in Brecon runs north/ south c. 5km east of the Development Area.
- 2.4.8 Early medieval activity in Merthyr Tydfil is indicated by a number of inscribed stones, the closest being within St Tydfil's Church in Merthyr Tydfil (GGAT04660m) and another found on Mynydd Merthyr to the south of the Development Area, now kept by the National Museum of Wales (GGAT00529m). The place-name is associated with Tudfyl, the daughter of 5th century king Brychan Brycheiniog. It is believed that the place name Merthyr meaning 'Martyr', together with the presence of an inscribed stone and a 13th century account of a shrine at Merthyr (GGAT04660m) confirms a pre-Norman foundation for St Tydfil's Church (GGAT00457m, LB11449) (GGAT HER, Evans 2003).
- 2.4.9 Medieval
- 2.4.10 In the medieval period Merthyr Tydfil was in the cantref on Senghenydd, which formed a part of the Lordship of Glamorgan. The Development Site at the time would have been situated within a pastoral landscape of grazing sheep and cattle. Nearby medieval sites include Court House (GGAT00477m, NPRN18415, LB11376) in Merthyr Tydfil reported to be a 12th century manor house now incorporated within an 18th century structure. In addition, historical accounts suggest the presence of a watermill (GGAT00453m) at Merthyr Tydfil as well as a medieval bridge at Pontrhun (GGAT01816m), c.2km south east of the Development site. Further afield, the remains of long huts such as those at Cilfach-yr-encil (GGAT01723m, NPRN15375, GGAT01724, NPRN226565) offer an insight into the nature of rural upland hafodau settlement in the period (RCAHMW 1982).
- 2.4.11 Post-medieval
- 2.4.12 The Post-medieval period sees a shift from an agricultural economy in the 16th century to one dominated by industry with Merthyr Tydfil becoming the iron-producing powerhouse of the world by the end of the 19th century. It is for this reason that Merthyr Tydfil has been designated as an Outstanding Landscape of Historic Interest (CADW 1998).
- 2.4.13 Agriculture
- 2.4.14 A 1729 map (Figure 2) illustrates a rural landscape of upland farmsteads and mountain paths (See 2.6.1). The 1850 tithe map (Figure 4) also gives this impression with the land surrounding the Study Area recorded as predominantly pasture, with some arable and fir plantation (see 2.6.7).

2.4.15 The ruinous remains of the farmsteads of Pen-y-lan (GGAT03746m) and Graig (GGAT03753m) are situated within the 1km Study Area just to the North of the Development Area, whilst a large number of sheepfolds, including one in the 250m Study Area (GGAT03745m), are tangible evidence of the importance of sheep farming in the early Post-medieval period.

2.4.16 *Industry*

2.4.17 An earlier 1799 map (Figure 3) shows a slightly different picture with coal and iron mines illustrated on the uplands of both sides of the valley including in close proximity to the Study Area. These mines existed to service the ironworks that had been founded at Merthyr: 'Dowlais' (founded 1759) (GGAT01615m, NPRN34084), 'Cyfarthfa' (1765) (GGAT01169m, NPRN34078), 'Penydarren' (1784) (GGAT01170m, NPRN34113) and 'Plymouth' (1763) (GGAT05237m, NPRN34114). 'Cwm Pit' (GGAT02821m, NPRN33467, SAMGM607) and 'Cwm Glo (Robbins) Pit' (GGAT02826m, NPRN262079, SAMGM611), which are located within the Study Area to the north of the Development Area, are known to be early collieries and are likely to be those depicted on the map. The layout and development of these sites, and their significant historical associations, have been discussed extensively by Lawler (2000) and includes the Listed 'Base of Chimney at Cwm Pit' (LB81752).

2.4.18 The early 19th century saw the coal industry intensify in order to meet with demand, with collieries opening all over Merthyr Tyfil and the neighbouring valleys. Gethin Colliery (GGAT02191m, NPRN33486), which is situated to the southeast of the Development Area and within the 1km Study Area, is one such example. Opened in 1849 by the Cyfarthfa Iron Company, the Gethin Colliery was the first deep pit sunk with the intention of mining the steam coal located at the south end of the valley (GGAT 1996). Gethin Colliery consisted of two pits; Pit No 1 on the eastern side of Glamorganshire Canal and Pit No 2 on the western side. GGAT (1996) concludes that Gethin No 2 Pit was originally powered using a water balance lift, utilising water from Webbers Pond (GGAT, before converting to steam power in the 1860s (p5). Gethin Pit was in operation in tandem with neighbouring Castle Pit until the end of the 1920s when it was used only as a ventilation shaft, before being abandoned in the 1950s and demolished in the late 1960s. The association with the Cyfarthfa Ironworks both commercially and physically via the Gethin Railway results in a high group value for Gethin Pit and Webbers Pond (GGAT02522m, GGATE000274).

2.4.19 Of most significance for this study, the 1919 Ordnance Survey map (Figure 6) places 'Waunwylt Colliery' on, or in close proximity to, the Development Site (see 2.6.10). Whilst the features of the colliery, Level (GGAT06431m) and Airshaft (GGAT06429m), are not marked on previous maps, the 1919 map illustrates an 'Old Tramway' suggesting at least one earlier phase. The Waunwylt Level was opened in 1828 by Robert and Lucy Thomas to access the 4 foot seam of steam coal that they would sell both locally and in Cardiff. This was closely followed by the opening of Graig Pit in the 1830s (welshcoalmines.co.uk Accessed 18/09/19). As a result, they were celebrated as the "pioneers in 1828 of the South Wales Steam Coal Trade" and a memorial fountain (LB11448) was erected in the late 19th century, adjacent to St Tydfil's Church (CADW).

2.4.20 However, the 'Waunwyllt Colliery' in the Study Area does not appear on the Ordnance Survey map until 1919 showing that the site represents a later phase of industry. James (2003) states that the workings on Nant Graig were developed some time after 1898 (p.148) and the 'Welsh Coalmines' website expands that 'New' Waunwyllt Level was opened in 1909 by Thomas Merthyr Colliery Company and in 1918 employed 117 men underground and 20 on the surface before being closed on 13th July 1920 (Accessed 18/09/19).

2.4.21 *Transport*

2.4.22 In the early industrial phase of the 18th century, Merthyr Tydfil was serviced by the Cyfarthfa Canal (SAMGM467), which was cut in the late 1770s to transport coal from Cwm Pit to Cyfarthfa Ironworks (CADW) and the Glamorganshire Canal (GGAT01682.0s) opened in 1794 to transport iron to Cardiff. In addition, the Merthyr Tramroad (GGAT05202m, SAMGM573) was opened in 1802 to bypass the Glamorganshire Canal for the benefit of the ironworks on the eastern side of the valley (AIA 2003).

2.4.23 In the 19th century the canals were gradually superseded by the introduction of the railways. The Taff Valley Railway (running North/ South) was incorporated in 1836 to connect Merthyr Tydfil with Cardiff and the Vale of Neath Railway (running east/ West) was incorporated in 1846 to connect Merthyr Tydfil with the docks at Neath and Briton Ferry (Barrie 1980). Both were engineered by Isambard Kingdom Brunel. The Vale of Neath Railway route included a tunnel through Mynydd Aberdare, which is Designated as "a monument of national importance to enhance and illustrate our knowledge and understanding of the development of the transport network in South East Wales in the 19th Century" (CADW). The cutting and tunnel entrance survive within the 1km Study Area (GGAT02500.4m, SAMGM606) and are described as "unaltered since their completion and the best examples of the work of Isambard Kingdom Brunel to survive in Wales" (ibid). In addition to these large cross-country lines there were a number of smaller industrial lines such as the Gethin Line (discussed above) and the Cwm Pit Line (GGAT02858.0m).

2.4.24 *Workers' Housing and Listed Buildings*

2.4.25 In addition to the agricultural, industrial and transport sites, the Merthyr Tydfil Historic Landscape Area is characterised by a significant number of examples of workers' housing. Whilst there are no examples within the Development Area, the village of Abercanaid is within the 1km Study Area and contains a large number of Grade II listed examples. The oldest of these dating to the 1830-40s consisted of three rows of terraced cottages known as 'The Squares'. 'David Square' (GGAT01215m, NPRN18543), 'Catherine Square' (GGAT04370m, NPRN18261 and GGAT04371m, NPRN18263) and 'Henry Square' (GGAT04368m, NPRN18960 and GGAT04369m, NPRN18122) are illustrated on the 1850 tithe map, but have been demolished in favour of modern housing. However, the later c.1860s terraces, sandwiched between the river and the Glamorganshire Canal, have survived including the Grade II listed Nightingale Street, Quay Row and River Row. Further listed buildings in Abercanaid include Sion Independent Chapel (LB21318) and Industrialists' houses Pentrebach House (LB11503) and Llwyn-yr-Eos House (LB11497).

2.5 Previous Studies

- 2.5.1 There have been no recorded archaeological investigations within the Development Area itself however there have been a number of investigations within the Study Area.
- 2.5.2 A desk-based assessment was undertaken in by GGAT in 1991 (GGATE003675) in advance of land reclamation for the construction of the A470 which identified a number of industrial relics that required further assessment and recording prior to their demolition. Subsequently a detailed field survey was carried out in 1995 which included Webbers Pond (GGAT02522m, GGATE000274), which lies on the eastern edge of our 250m Study Area (GGAT, 1991) (Plate 14). Webbers Pond was found to be a large pond measuring 130 x 38m and was presumed to be for the provision of a water balance lift at Gethin No. 2 Pit (Lawler 1995).
- 2.5.3 Other features included in this Study that were within the Gethin No.2 Pit complex were Incline, Gethin No. 2 Pit (GGAT02523m, GGATE000275) Incline Haulage Engine House (GGAT02524m, GGATE000281), Winding Engine House (GGAT02525m, GGATE000282), and South (GGAT02526m, GGATE000283) and North Compressor Houses. In addition, Graig Road Railway Bridge (GGAT02521m, GGATE000280), further to the north but still within the 1km Study Area, was included in the field survey and was the subject of a further watching brief (GGATE000280). Following this detailed recording, these features were demolished in 1995 apart from Webbers Pond which survives as the site of a Nature Reserve.
- 2.5.4 A desk-based assessment was undertaken in 2000 for a large proposed Development site at Rhyd-y-Car to the north west of the current Development Area (GGATE002656). The Study collated and assessed a large number of archaeological sites and features relating to coal mining at Cwm Glo (Robbins) Pit and Cwm Du Colliery, as well as farmsteads and domestic structures, and stretches of industrial tramroads, canals and railways. Archaeological Areas 6 and 7 fall within the current 1km Study Area. Area 6 is described as 'Canal and Cwm Pit Railway Corridor characterised by substantial terraced embankments, waste tips and frequent structures' and Area 7 is described as 'GWR and Gethin Railway corridor characterised by substantial terraced embankments, with much recent reclamation' (Lawler 2000).
- 2.5.5 A further historic landscape study was undertaken in 2004 by Archaeological Investigations Ltd (E005424) covering a similar area of West Merthyr as the Rhyd-y-Car Study described above.

2.6 Cartographic Evidence

- 2.6.1 A 1729 map of South Wales shows the Area of Merthyr Tydfil in impressive detail (Figure 2). The landscape surrounding the Study Area is illustrated as mountainous uplands without the tree cover illustrated further down the valley. The substantial Taff river provides the boundary between Caerphilly Hundred to the east in which Merthyr Tydfil village is located, and Glamorgan to the west. The landscape is characterised by farmsteads and unmade roads with occasional churches, bridges and manor houses, all consistent with what was then an agrarian economy. The evidence for industry is slight and is limited to mills and coal pits, the nearest being to the north east of the Study Area on the Monmouthshire border.

- 2.6.2 A 1799 map of the County of Glamorgan shows the Merthyr Tydfil Area to be much changed (Figure 3). Coal and iron mines are marked within the vicinity of the Study Area. Further afield, the Cyfarthfa Iron works and Penydarren works are established as are 'Dowlais Furnace' and 'Plymouth Furnace'. This new industrial landscape is serviced by the 'Cyfarthfa Canal' and the 'Cardiff (Glamorganshire) Canal' located to the east of the Development Area as well as a network of turnpike routes. Merthyr Tydfil is illustrated as a market town. The present village of Abercanaid is not yet constructed.
- 2.6.3 The 1850 tithe map for the parish of Merthyr Tydfil records that the Development Area sits within three parcels of land (Figure 4). The southernmost of these was '1244, Fur Plantation' owned and kept in hand by 'Lord Dynevor and the Representatives of the Late Richards John Matthews'. North of this lay two parcels of land owned by the same but occupied by John Ward. The western of these is described as '1245, Pasture, Wood' and the eastern is described as '1246, Meadow'. The surrounding area is recorded as predominantly laid to pasture and occasional arable fields. Immediately to the north west of the Development site lie 'The Graig' and 'Pen-y-lan' Farms. To the east of the Study Area lies the Glamorganshire (Cardiff) Canal which runs parallel to the River Taff. To the north lies the Vale of Neath Railway which runs in a south west/north east direction and bounds Glynderys Pond which is marked as owned by the Canal Company.
- 2.6.4 Further afield the Plymouth Ironworks and Dyffryn Furnaces to the east and Ynys Fach and Cyfarthfa Works to the North. The tithe map does not mark the locations of coal workings, however, several parcels of land described as 'rubbish tip' are evidence of this activity in the wider Area. Also of note is the increased number of terraced worker's housing including the first rows at Llwyn-yr-Eos that would develop into the present village of Abercanaid.
- 2.6.5 The 1881 Ordnance Survey Map (1st Edition 1:2500) (Figure 5) highlights the enormous scale of development in the Merthyr Tydfil Area in the late 19th Century and how the natural basin within the Taff valley could accommodate this growth. The map shows a significant number of new collieries surrounding the Study Area that were established to provide coal to the ironworks. These include Gethin Pit, Graig Pit an Upper Abercanaid Pit to the east and Cwm Pit, Rhyd-y-Car Pit and Glyndyrys Pit to the north. The village of Abercanaid is shown to have expanded to accommodate planned streets of terraced worker's cottages as well as a school and chapel. The map also shows that the Study Area is largely cut off from this development both by topography and by the intercutting transport networks of the Glamorganshire Canal, the new Taff Vale Railway and the industrial Gethin railway on the east and the Neath Valley Railway to the north. The Development Area itself remains a fir plantation within an upland landscape of woodland and pasture.
- 2.6.6 The 1919 Ordnance Survey Map (3rd Edition 1:2500) (Figure 6) there is little change to the landscape setting of the Development Area however 'Waunwyllt Colliery' is marked in close proximity, just to the north of the River Graig. A 'Level' is illustrated from which a tramway extends to a station near Graig Cottage. In addition, there is an 'Old Tramway' indicating an earlier phase of working. An 'Airshaft' is also marked.

- 2.6.7 The 1957-1964 Ordnance Survey Map (4th Edition 1:2500) (Figure 7) illustrates that by this time the 'Waunwylt Colliery' was disused with features described as 'Old Level' and 'Old Shaft' and 'disused tramway'. An area in close proximity to the Development Area is marked with various 'sinks', 'issues' and 'collects' and there are numerous slag heaps illustrated. Graig Farm and Pen-y-lan Farm are marked as 'ruins'. The wider industrial landscape has also transformed with Gethin Pit and the majority of others disused and a large factory at Pentrebach. Glamorganshire Canal is also marked as disused.

2.7 Aerial Photographic Evidence (Plates 54-57)

- 2.7.1 Aerial Photographs of the Development Area were sourced from the Central Register of Aerial Photos Wales and were found to be in line with the map evidence.
- 2.7.2 In particular, aerial photograph 3408 taken in 1951 shows the remains of Graig Farm, Waunwylt Colliery and Gethin Pit 2 including Webbers Pond in very clear detail. The old tramroad from Waunwylt Level to Graig can be seen where there is a very large tip adjacent to the railway. The Development Area appears to include a small copse of woodland surrounded by open heathland or pasture.
- 2.7.3 An aerial photograph dated to 1975 shows the Development Area as rather scoured pasture with much less tree cover in the surrounding area than present (Plate 54).
- 2.7.4 Further aerial photographs dated to 1990 and 2009 show the current layout of access roads. They also show the Development Area and the surrounding land becoming increasingly wooded in character.

2.8 Site Visit (Plates 1-53)

- 2.8.1 Walkover surveys were conducted on 23/09/19, 30/09/19 and 06/10/19. The Development Area, both Study Areas (250m and 1km) and the wider (historic) landscape was photographed from key views.
- 2.8.2 The site visit was unable to confirm the presence of the one heritage site located within the Development Area, 'Triangulation Point, Abercanaid' (GGAT03941m). It is assumed Destroyed by 20th century forestry plantation.
- 2.8.3 Important heritage sites within the 1km Study Area were photographed and a note on their condition made. Notably Waunwylt Colliery (BPW01) to the north, Webbers Pond (GGAT02522m) to the southeast, Pen-y-Lan Farm (GGAT03746m) to the west and Vale of Neath Railway Tunnel (SAMGM606) and Cwm Pit (SAMGM607) and Chimney Base (LB81752) to the north.
- 2.8.4 A selection of Historic Landscape Character Areas were visited and key views to and from the Development Area were photographed.
- 2.8.5 No visual interruption or effects were noted to the viewsheds from/to the any of the sites visited due to the presence of dense tree cover.
- 2.8.6 The survey was undertaken in fair weather that deteriorated during the site visit with cloud and heavy showers. Photographs were taken in breaks in the weather and a return visit was made in some instances to ensure good visibility was recorded.

3 Identified Heritage Assets

3.1 Sites of Archaeological and Historical Interest

3.1.1 A total of 20 heritage assets have been identified for assessment. One heritage asset has been identified within the Development Area; (GGAT03941m) 'Triangulation Point, Abercanaid' with a further 5 heritage assets within a 250m (radius) Study Area; and for the purposes of the assessment of setting and significance of heritage assets with a value of A or higher, a total of 6 have been identified within a 1km (radius) Study Area and 6 within a wider range of visibility identified within the 'Zone of Theoretical Visibility' (ZTV) (See Table 3).

3.1.2 The Development Area is located within the Landscape of Outstanding Historic Interest (HLW(MGI)2) 'Merthyr Tydfil' and specifically within the Historic Landscape Character Area (HLCA072) 'Waunwyllt, Pen-y-lan and Graig Gethin'.

Table 3. Identified heritage assets

Fig ID	ID	Name	NGR	Period	Type	Designation	Designation ID	Value
Within Development Area								
1	GGAT03941m	Triangulation point	SO0519503499	Post-Medieval	Trig point	None	None	D
Within 250m Study Area								
2	GGAT02522	Webbers Pond, Gethin No 2 Pit	SO05560334	Post-Medieval	Pond	None	None	C
3	GGAT03745m	Sheepfold	SO0524403173	Post-Medieval	Sheepfold	None	None	D
4	GGAT06429	Air Shaft (Waunwyllt Colliery)	SO0483303481	Post-Medieval	Shaft	None	None	C
5	GGAT06430m	Structure (Waunwyllt Colliery)	SO0472903388	Post-Medieval	Structure	None	None	C
6	GGAT06431	Level (Waunwyllt Colliery)	SO0493403485	Post-Medieval	Level	None	None	C
7	BPW01	Tramway (Waunwyllt Colliery)	SO0482303438	Post-Medieval	Tramway	None	None	C
8	BPW02	Level	SO0461703431	Post-Medieval	Level	None	None	C
Within 1km								
Class A Monuments only								
9	GGAT02137m, NPRN309757, SAMGM572	Abercanaid Haystack Boiler	SO05560376	Post-Medieval	Haystack boiler	SAM	GM572	A
10	GGAT02412m, NPRN232778, SAMGM467	Cyfarthfa Canal	SO04220549	Post-Medieval	Canal	SAM	GM467	A
11	GGAT02500.4m, SAMGM606	Vale of Neath Railway Cutting	SO0434604154	Post-Medieval	Railway Cutting	SAM	GM606 near intact	A

Fig ID	ID	Name	NGR	Period	Type	Designation	Designation ID	Value
12	GGAT02500.5m, SAMGM606	Vale of Neath Railway Tunnel	SO0434604154	Post-Medieval	Railway Tunnel	SAM	GM606 near intact	A
13	GGAT02821m, NPRN33467, SAMGM607	Cwm Pit Mine	SO044043	Post-Medieval	Colliery	SAM	GM607	A
14	GGAT02826m, NPRN262079, SAMGM611	Cwm Glo Mine (Robbins Pit)	SO03820561	Post-Medieval	Colliery	SAM	GM611	A
	Further Afield	Based on Zone of Theoretical Visibility (ZTV) Analysis. Class A Monuments Only						
15	GGAT05202m, NPRN34853, SAMGM573	Merthyr Tramroad Tunnel	SO0559804908	Post-Medieval	Tramroad Tunnel	SAM	GM573	A
16	GGAT00066m, NPRN275885, GM496	Ffos-y-fran Deserted Iron Mining Village & Sarn Howell Ponds	SO0713805678	Post-Medieval	Industrial monument	SAM	GM494 & GM496	A
17	GGAT04553m, NPRN305664, SAMGM222	Merthyr Common Round Cairns	SO0784603964	Bronze Age	Cairns	SAM	GM222	A
18	GGAT01089m, NPRN18054, LB11396	Cyfarthfa Castle	SO0418607329	Post-Medieval	Country House	Grade I	LB11396	A
19	NPRN31777, LB11397	School at Cyfarthfa Castle	SO0410807369	Post-Medieval	School	Grade I	LB11397	A
20	GGAT02442, NPRN301660, PGWGM1	Cyfarthfa Castle Park and Garden	SO0432807430	Post-Medieval	Park	Grade II*	PGWGM1	A

4 Assessment of Heritage Assets

4.1 Potential Direct Impacts of the Development on Heritage Assets

- 4.1.1 The potential impact of the proposed Development on heritage assets has been assessed using the design information provided by BikePark Wales through their agents The Urbanists. The potential direct impact of the Development on heritage assets is confined to one site (GGAT03941m) 'Triangulation Point, Abercanaid' and proposed development area lies wholly within Historic Landscape Character Area (HLCA072) 'Waunwyllt, Pen-y-lan and Graig Gethin'.
- 4.1.2 The potential direct effect on (GGAT03941m) 'Triangulation Point, Abercanaid' has been assessed as None as it was not possible to locate the heritage asset during the site visit confirmed and it is assumed destroyed by 20th century forestry plantation. The potential direct effect on the (HLCA072) 'Waunwyllt, Pen-y-lan and Graig Gethin' have been assessed as Slight (see ASIDOHL2 below). The remaining heritage assets have been assessed as having no direct effect by the proposed Development.

4.2 Potential Indirect Impacts of the Development on Heritage Assets

- 4.2.1 For the purposes of the assessment of indirect impacts from the proposed development on heritage assets only sites of International and National importance have been assessed. These sites fall within a 1km Study Area and a wider Zone of Theoretical Visibility (ZTV) and are listed in Table 3 and described in Section 2.3.6.
- 4.2.2 The following sites in the 1km study were assessed for potential indirect impacts. The site visits established no intervisibility with the proposed development area and therefore no indirect effect.
- GGAT02137m, NPRN309757, SAMGM572 Abercanaid Haystack Boiler
 - GGAT02412m, NPRN232778, SAMGM467 Cyfarthfa Canal
 - GGAT02500.4m, SAMGM606 Vale of Neath Railway Cutting
 - GGAT02500.5m, SAMGM606 Vale of Neath Railway Tunnel
 - GGAT02821m, NPRN33467, SAMGM607 Cwm Pit Mine
 - GGAT02826m, NPRN262079, SAMGM611 Cwm Glo Mine (Robbins Pit)
- 4.2.3 Historic Landscape Character Area (HLCA072) 'Waunwyllt, Pen-y-lan and Graig Gethin' has been assessed as having a Very Slight indirect effect (see ASIDOHL2 below). Whilst the development will significantly change the character within the Development Area, its immediate setting within a woodland environment minimises inter-visibility between the site and other parts of the Historic Landscape Character Area and it therefore has little effect on its agricultural and extractive character as outlined in section 2.3.3. The overall effects to this landscape are discussed in greater detail below (ASIDOHL2 section).

4.2.4 The last column “Setting Effects Y/N” identifies those heritage assets that may have indirect visual impacts to the setting of the monument (Stage 1 as set out in *Setting of Historic Assets in Wales 2017 (The Historic Environment (Wales) Act 2016, Annex 6)*).

Fig ID	ID	Name		Period	Type	Designation	Designation ID	Value	Rarity	Documentation/Association	Group Value	Survival/Condition	Direct Effect	Significance of Direct Effect	Indirect Effect	Setting Effect Yes/No
	Within Development Area															
1	GGAT03941m	Triangulation point	SO0519503499	Post-Medieval	Trig point	None	None	D	Low	Low	High	Destroyed	None	None	None	None
	Within 250m															
2	GGAT02522	Webbers Pond, Gethin No 2 Pit	SO05560334	Post-Medieval	Pond	None	None	C	Medium	Moderate	None	Intact	None	None	None	None
3	GGAT03745m	Sheepfold	SO0524403173	Post-Medieval	Sheepfold	None	None	D	Low	Low	High	Unknown	None	None	None	None
4	GGAT06429	Air Shaft	SO0483303481	Post-Medieval	Shaft	None	None	C	Low	Moderate	High	Near destroyed/ Poor	None	None	None	None
5	GGAT06430m	Structure	SO0472903388	Post-Medieval	Structure	None	None	C	Low	Moderate	High	Near destroyed/ Poor	None	None	None	None
6	GGAT06431	Level	SO0493403485	Post-Medieval	Level	None	None	C	Low	Moderate	High	Near destroyed/ Poor	None	None	None	None
7	BPW01	Tramway	SO0482303438	Post-Medieval	Tramway	None	None	C	Low	Moderate	High	Near destroyed/ Poor	None	None	None	None
8	BPW02	Level	SO0461703431	Post-Medieval	Level	None	None	C	Low	Moderate	High	Near destroyed/ Poor	None	None	None	None
	Within 1km	Based on Zone of Theoretical Visibility (ZTV) Analysis. Class A Monuments Only														
9	GGAT02137m, NPRN309757, SAMGM572	Abercanaid Haystack Boiler	SO05560376	Post-Medieval	Haystack boiler	SAM	GM572	A	High	Low	Low	Near intact/ Good	None	None	None	None
10	GGAT02412m, NPRN232778, SAMGM467	Cyfarthfa Canal	SO04220549	Post-Medieval	Canal	SAM	GM467	A	Medium	Moderate	High	Near destroyed/ Poor	None	None	None	None
11	GGAT02500.4m, SAMGM606	Vale of Neath Railway Cutting	SO0434604154	Post-Medieval	Railway Cutting	SAM	GM606	A	Low	High	High	Near intact/ Moderate	None	None	None	None
12	GGAT02500.5m, SAMGM606	Vale of Neath Railway Tunnel	SO0434604154	Post-Medieval	Railway Tunnel	SAM	GM606	A	High	High	High	Intact/ Good	None	None	None	None
13	GGAT02821m, NPRN33467, SAMGM607	Cwm Pit Mine	SO044043	Post-Medieval	Colliery	SAM	GM607	A	High	Moderate	High	Near destroyed/ Poor	None	None	None	None
14	GGAT02826m, NPRN262079, SAMGM611	Cwm Glo Mine (Robbins Pit)	SO03820561	Post-Medieval	Colliery	SAM	GM611	A	High	Moderate	High	Near destroyed/ Poor	None	None	None	None
	Further Afield	Based on Zone of Theoretical Visibility (ZTV) Analysis. Class A Monuments Only														
15	GGAT05202m, NPRN34853, SAMGM573	Merthyr Tramroad Tunnel	SO0559804908	Post-Medieval	Tramroad Tunnel	SAM	GM573	A	Medium	High	High	Intact/ good	None	None	None	None
16	GGAT00066m, NPRN275885, GM496	Ffos-y-fran Deserted Iron Mining Village & Sarn Howell Ponds	SO0713805678	Post-Medieval	Industrial monument	SAM	GM494 & GM496	A	High	High	High	Near destroyed/ Poor	None	None	None	None

Fig ID	ID	Name		Period	Type	Designation	Designation ID	Value	Rarity	Documentation/Association	Group Value	Survival/Condition	Direct Effect	Significance of Direct Effect	Indirect Effect	Setting Effect Yes/No
17	GGAT04553m, NPRN305664, SAMGM222	Merthyr Common Round Cairns	SO0784603964	Bronze Age	Cairns	SAM	GM222	A	Low	Low	High	Near destroyed/ Fair	None	None	None	None
18	GGAT01089m, NPRN18054, LB11396	Cyfarthfa Castle	SO0418607329	Post-Medieval	Country House	Grade I	LB11396	A	Medium	High	High	Intact/good	None	None	None	None
19	NPRN31777, LB11397	School at Cyfarthfa Castle	SO0410807369	Post-Medieval	School	Grade I	LB11397	A	Medium	High	High	Intact/good	None	None	None	None
20	GGAT02442, NPRN301660, PGWGM1	Cyfarthfa Castle Park and Garden	SO0432807430	Post-Medieval	Park	Grade II*	PGWGM1	A	Medium	High	High	Intact/good	None	None	None	None

Table 4. Assessment of direct and indirect effects on heritage assets

4.3 Setting and Significance – Stage 1

- 4.3.1 Potential indirect impacts of the Development on heritage assets are confined to the impacts upon the setting of International and National value heritage assets (A* and A class), these include Scheduled Ancient Monuments, Registered Landscapes, Parks and Gardens and sometimes Grade I and I* Listed Buildings. Grade II and II* buildings are considered if their setting includes or is included with a Registered Landscape or Park and Garden.
- 4.3.2 For the purposes of the assessment of setting and significance of heritage assets with a value of A or higher, no assets have been identified within a 250m (radius) Study Area. However, six Value A sites were considered for assessment within a 1km (radius) Study Area and a further five Value A sites located beyond 1km (radius) were considered for assessment based on Zone of Theoretical Visibility (ZTV) Analysis.
- 4.3.3 For the purposes of the assessment of setting and significance of Registered Landscapes, Parks and Gardens, the proposed development area is wholly within the Merthyr Tydfil Landscape of Outstanding Historic Interest, which is therefore considered to have a possible effect; in particular HLCA 072 'Waunwyllt, Pen-y-lan and Graig Gethin'.
- 4.3.4 Summary of Significance and Setting**
- 4.3.5 It is considered that there are no indirect effects to the setting or significance of the identified heritage assets noted above and detailed in Table 4. An assessment of potential landscape effects of the proposed development, in particular the direct and indirect effects to historic landscapes on the Register, have been completed below (see ASIDOHL2 section).

5 Mitigation Recommendations

- 5.1.1 The assessment has identified the potential direct and indirect effects of the proposed development together with an assessment of the setting and significance of high value heritage assets. The proposed development area contains a single identified heritage asset 'Triangulation Point, Abercanaid' (GGAT03941m), however, no trace of this site was identifiable during the site visits and it is assumed destroyed by the 20th century forestry plantation. No further archaeological sites were noted within the proposed development area, which is comprised of largely landscaped car parking originally for the Gethin Woodland site and reutilised for parking for BikePark Wales. The 20th century forestry plantation has significantly impacted upon former field boundaries within the forest with little of these features identifiable on the ground.
- 5.1.2 The potential impact of the proposed development on heritage assets is confined to one Historic Landscape Character Area (HLCA 072) 'Waunwyllt, Pen-y-lan and Graig Gethin' which has been assessed as having a Slight overall significance of the impact of development on the historic landscape.
- 5.1.3 No mitigation is deemed necessary for the potential direct effects on Triangulation Point, Abercanaid' (GGAT03941m) and (HLCA 072) 'Waunwyllt, Pen-y-lan and Graig Gethin' as it is considered unlikely that archaeological remains will be disturbed during the proposed ground works.

6 Assessment of Residual Impacts

- 6.1.1 The proposed development will involve the small loss of some forestry areas and alteration to existing car parking areas. However, the nature of the proposed development and sensitive proposals for the erection of the 36 camping pods and five chalets, shower/toilet block, play and picnic area and new parking areas within the woodland complimented by further sensitive planting will reduce any residual negative impacts.

7 Assessment of the Significance of the Impact of the Development on Historic Landscape Areas (ASIDOHL2)

7.1 Project Background

- 7.1.1 Black Mountains Archaeology Ltd/Archaeoleg Mynydd Du Cyf was commissioned by Bike Park Wales, through their agents The Urbanists, to carry out an Assessment of the Significance of Development on Historic Landscape (ASIDOHL 2) on the proposed development of 36 camping pods and five chalets, erection of shower/toilet block and creation of play and picnic area. Construction of new parking area (141 spaces) with overflow carpark (85 spaces), together with a trail maintenance yard, new highway access routes, ground profile works, drainage, infrastructure and landscape works at Bike Park Wales, Gethin Woodland Centre, Abercanaid, Merthyr Tydfil, CF48 1YZ.
- 7.1.2 The development area is located within the CADW/ICOMOS *Landscape of Outstanding Historic Interest of Merthyr Tydfil (HLW(MGI)2)*. Designated in 2001, Merthyr Tydfil occupies a natural basin at the head of the Taff Valley and is celebrated as “probably the largest iron-making town in the world in the early to mid-19th Century...(that) rapidly transformed from a modest village in the 1750s to the largest town in Wales by 1801” (CADW 1998, 47). The Merthyr landscape contains a significant number of relics of this industrial past including remains of a number of “large ironworks, features relating to coal mining, waterpower leats, an early iron bridge, power and transportation systems including early tram roads, terraced industrial housing and Cyfarthfa Castle”. The present development area is located wholly within Historic Landscape Character Area (HLCA) 072 Waunwyllt, Pen-y-lan and Graig Gethin agricultural landscape (Roberts 2003, 148).

7.2 The Register of Historic Landscapes and Historic Landscape Characterisation

- 7.2.1 CADW, and the Countryside Council for Wales (now Natural Resources Wales) with support from the four regional Welsh Archaeological Trusts (WATs), published together with the International Council on Monuments and Sites (ICOMOS UK) the first part (2.1) of the *Register of Landscapes, Parks and Gardens of Special Historic Interest in Wales* (CADW and ICOMOS 1998). Part 1 deals with *Registered Parks and Gardens*, Part 2.1 *Landscapes of Outstanding Historic Interest* and Part 2.2 regional *Landscapes of Special Historic Interest*. CADW then implemented an ambitious programme of Historic Landscape Characterisation in the early 2000s, which was undertaken by the four regional Welsh Archaeological Trusts (WATs), which further refined the definitions and character of the constituent parts of the individual historic landscapes. Each historic landscape area being sub-divided into a number of Historic Landscape Character Areas (HLCAs).

- 7.2.2 CADW note “...the Register is a means of recognising historic landscapes as one of the nation’s most valuable cultural assets, and as special, often fragile and irreplaceable, parts of our heritage”. The *Historic Environment (Wales) Act 2016* provides a statutory duty to maintain the registers and the registers are key factors in the planning process. Any development likely to directly or indirectly (visual) effect a statutory designated heritage asset or high value undesignated heritage asset and its setting will likely require ‘consultation before grant of permission’ under the *Town and Country Planning (Development Management Procedure) (Wales) (Amendment) Order 2016, schedule 4 (1)(i) and (ii)* if the proposed development meets any of the following criteria:
- development likely to affect the site of a registered historic park or garden or its setting.
 - development is within a registered historic landscape that requires an Environmental Impact Assessment and ASIDOHL2.

7.3 Methodology

- 7.3.1 The method for conducting an ASIDOHL2 assessment is set out by CADW in ASIDOHL2 Guide to Good Practice on Using the Register of Landscapes of Historic Interest in Wales in the Planning and Development Process (2nd Edition 2007) (Appendix V). The assessment utilises the HLCAs as a basic unit of measurement, which can be variable as each HLCA may not be entirely representative of the wider historic landscape character and value (e.g an agricultural character area forming part of an industrial historic landscape). Nevertheless, the HLCAs contribute to the value of the wider historic landscape in ASIDOHL2 terms. The ASIDOHL2 assessment is broken into five stages. Stage 1 is the compilation of contextual data, usually in the form of baseline information for an archaeological desk-based assessment (see above). Stages 2-4 assesses each HLCA for direct and indirect effects by the proposed development and Stage 5 combines the results of Stages 2-4 to produce an assessment of the overall impact on the Historic Landscape (CADW 2007, Table 1, 15).
- 7.3.2 Heritage assets are categorised according to the only values that are nationally agreed in the Department of Transport/Welsh Office/Scottish Office Design Manual for Roads and Bridges Vol. 11 Section 3 Part 2 (HA 208/07 Cultural Heritage) 2007, amended 2009 (DMRB 2007) (see Table 1 above). CADW published their Conservation Principles for the sustainable management of the historic environment in Wales in 2011. These principles provide the basis upon which CADW discharges its statutory duties, makes decisions or offers advice about changes to historic assets. CADW further advise that the Conservation Principles should also be used by others (including owners, developers and other public bodies) to assess the potential impacts of a development proposal on the significance of any historic asset/assets and to assist in decision-making where the historic environment is affected by the planning process (PPW 2016).
- 7.3.3 There are four values that need to be considered when assessing significance and these are set out in CADW’s *Conservation Principles for the sustainable management of the historic environment in Wales*: Evidential value; Historical value; Aesthetic value and Communal value.

8 Assessment

8.1 Registered Landscapes, Parks and Gardens

- 8.1.1 The proposed development area lies within the *Landscape of Outstanding Historic Interest of Merthyr Tydfil (HLW(MGI)2)* (CADW/ICOMOS 1998), totalling an area approximately 47.4km² in size, and is located wholly within HLCA 072 'Waunwyllt, Pen-y-lan and Graig Gethin', which is characterised as an "agricultural landscape of dispersed post-medieval settlement with upland sheep farming; irregular evolved field pattern of drystone walled enclosures largely hidden in forestry; extractive landscape associated with the steam coal trade" (Roberts 2003, 148). The proposed development area is currently forestry parking and metalled tracks associated with its former use as Gethin Woodland Park. An area of deciduous woodland survives in the eastern part of the proposed development area. Forestry plantation planted in the 20th century dominates the remaining areas.
- 8.1.2 There is a single heritage asset identified within the proposed development area (GGATHER03941m), a trig point noted on OS 6 inch 2nd edition 1900 map. The site walkover could not find any trace of this heritage asset and it is presumed destroyed by 20th century forest plantation. Elements of the Post-medieval agricultural landscape survive just outside the proposed development area, e.g. Pen-y-lan Farm (GGATHER03746m) and Sheepfold (GGATHER03745m), as do later Post-medieval Industrial remains such as Webbers Pond, Gethin No.2 Pit (GGATHER02522m) and Waunwyllt Colliery (Level), air shaft and tramroad (GGATHER06431). There are no Scheduled Ancient Monuments (SAMs) in the proposed development area or 250m study area. A 1km buffer area was applied around the proposed development area that identified three SAMs: Abercanaid haystack boiler (SAMGm572), Vale of Neath railway cutting and tunnel portal (SAMGm606) and Cwm Pit and head of railway (SAMGm607). The site walkover established that these SAMs and their setting do not have any intervisibility with the proposed development area due to the terrain and forestry tree cover.
- 8.1.3 Visibility analysis has been carried out utilising the 2m DTM and 2 DSM LiDAR datasets (downloaded from Lle – Geo-Portal for Wales) to generate Zones of Theoretical Visibility (ZTVs) from and to the proposed development area (Figures 1.2 and 1.3). No additional registered historic landscapes are visible to or from the proposed development area. The closest registered landscapes being *Gelligaer Common HLW (MGI) 4*, 2.5km east; *East Fforest Fawr and Mynydd-y-Glog HLW (MGI) 3*, 14.1km northeast; *The Rhondda HLW (MGI) 5*, 6.5km southwest and the *Blaenavon World Heritage Site HLW (Gt) 1*, 12km northeast. A single registered park and garden was identified by the ZTV analysis; Cyfarthfa Castle (PGW(Gm)1(MER)) is located 3.5km to the north of the proposed development area. Three SAMs were also identified by the ZTV analysis as being potentially indirectly affected; Merthyr Tramroad Tunnel (Trevithick's Tunnel) (SAMGm573) 1.3km Northeast, the Ffos-y-fran Deserted Iron Mining Village (SAMGm496) and also at Ffos-y-fran the Sarn Howell Pond and Watercourses (SAMGm494), both c2.5km to the northeast.

8.1.4 A further SAM was identified by the ZVTs located on Merthyr Common (Mynydd Cilfach-yr-encil) 2.7km to the east (Merthyr Common Round Cairns SAMGm222). The SAM is comprised of six Bronze Age burial cairns aligned north-south and dispersed over several kilometres along the ridgeline of Mynydd Cilfach-yr-encil.

8.1.5 The visibility analysis (ZTVs) has identified the potential indirect effect for up to a further 44-character areas, which are listed below:

- HLCA 001 Merthyr Tydfil: Historic and Commercial Core
- HLCA 002 Williamstown, Cae-Pent-Tywyll, Tydfil's Well and Morgan Town
- HLCA 003 Penydarren Park and Gwaelod-y-Garth
- HLCA 004 Penydarren Iron Works Area
- HLCA 005 Penydarren
- HLCA 006 Merthyr Tydfil, South: Plymouth Street Area
- HLCA 007 Dowlais
- HLCA 008 Dowlais Iron Works Area
- HLCA 010 Ynys Fach Iron Works Area
- HLCA 011 Llwyn-Celyn and Ynys Fach
- HLCA 012 Cyfathfa Iron Works Cinder Tips
- HLCA 013 Cyfarthfa Castle and Park
- HLCA 014 River Taff Canal and Railway Corridor
- HLCA 015 Taff Vale Industrial and Business Parks
- HLCA 016 Upper Abercanaid
- HLCA 018 Abercanaid and Llwyn-yr-Eos
- HLCA 019 Penydarren Tramroad Corridor
- HLCA 020 Pentrebach
- HLCA 021 Clyn-Mil and Wernlas Opencast Area
- HLCA 022 Clyn-Mil, Pencoedcae and Trebeddau
- HLCA 023 Clyn-Mil Workings
- HLCA 024 Graweth and Pen-y-Lan
- HLCA 025 Nantyrolyn and Bwllfa Workings
- HLCA 026 Cilfach-yr-Encil
- HLCA 028 Taff Vale Railway Corridor
- HLCA 029 Ivor Iron Works Area
- HLCA 031 Merthyr Common Central
- HLCA 034 Thomas Town (West)
- HLCA 036 Thomas Town (East) and Penyard
- HLCA 037 Ysgubor Newydd
- HLCA 038 Mountain Hare
- HLCA 039 Ffos-y-fran
- HLCA 040 Incline Top
- HLCA 048 Cwm Blacks

- HLCA 049 Bon-y-maen
- HLCA 050 Gurnos and Galon-Uchaf
- HLCA 052 Gurnos Farm and Bunker's Hill
- HLCA 053 Y Graig, Gurnos
- HLCA 054 Lakeside Gardens
- HLCA 055 Cefn Coed-y-Cymmer
- HLCA 056 A465(T) Heads of the Valley Road
- HLCA 077 Merthyr Common
- HLCA 078 Dowlais Great Tip, Trecatti, Trehir and Twyn-y-Waun
- HLCA 079 A470(T) Road

8.1.6 The full descriptions of each of these character areas can be found in the Merthyr Tydfil historic landscape characterisation report (Roberts 2003) and on the Glamorgan-Gwent Archaeological Trust's Historic Landscape Characterisation webpages, which can be found here:

8.1.7 http://www.ggat.org.uk/cadw/historic_landscape/Merthyr_Tydfil/English/Merthyr_Main.htm.

8.2 Stage 2: Assessment of Direct, Physical Impacts on the registered historic landscape

8.2.1 The proposed development area totals 3.544ha and lies wholly with HLCA 072, which has a total area of 151.2ha. The maximum area of the historic landscape character area that could be directly affected by the proposed development represents 2.34%, which is 0.07% of the total registered historic landscape area.

8.2.2 There is a single heritage asset identified within the proposed development area (GGATHER03941m), a trig point noted on OS 6 inch 2nd edition 1900 map. The site walkover could not find any trace of this heritage asset and it is presumed destroyed by 20th century forest plantation. Elements of the Post-medieval agricultural landscape survive just outside the proposed development area, e.g. Pen-y-lan Farm (GGATHER03746m) and Sheepfold (GGATHER03745m), as do later Post-medieval Industrial remains such as Webbers Pond, Gethin No.2 Pit (GGATHER02522m) and Waunwylt Colliery (Level), air shaft and tramroad incline (GGATHER06431).

Table 5. Assessment of Direct, Physical Impacts

ASIDOHL2 Stage 2: Assessment of Direct, Physical Impacts on Historic Character Area HLCA 072				
(a) Absolute Impact (Loss of Area)			Magnitude and Score	
3.544ha of a total of 4740ha = 0.07%			Very Slight - 1	
(B)Relative and Landscape Impacts (Loss of known Characteristics or Elements) and Scores				
Element / % of Loss	Category	Magnitude	Landscape Value	Landscape Visual Effect
Post-medieval agricultural and settlement landscape – less than 1%	C – 2	Very Slight – 1	Very Low – sites may be located under forestry cover, but definitive examples survive outside development area – 1	Very Slightly Reduced – 1

Post-medieval Industrial Transport Corridor, railways, tramroads and tracks – less than 1%	C – 2	Very Slight – 1	Very Low – no railways or tramroads present, sites may be located under forestry cover, but definitive examples survive outside development area – 1	Very Slightly Reduced – 1
Post-medieval Industrial Extractive Landscape – less than 1%	C – 2	Very Slight – 1	Very Low – no collieries or levels present, sites may be located under forestry cover, but definitive examples survive outside development area – 1	Very Slightly Reduced – 1
Summary of the Magnitude of Direct, Physical Impacts on Historic Character Area HLCA 072				
Score			Grading	
6			Slight	
Summary of Overall Magnitude of Direct, Physical Impacts on Historic Landscape Character Areas				
HLCA	Score		Grading	
HLCA072	6		Slight	

8.3 Stage 3: Assessment of Indirect, Physical Impacts on the registered historic landscape

- 8.3.1 Stage 3 describes and quantifies indirect impacts of the development on theoretically and physically visible registered landscapes, individual HLCAs and/or HLCAs connected by setting to HLCAs in the development area. Indirect effects are sub-divided into two potential impacts, Indirect Physical impacts and Indirect non-physical Visual impacts.
- 8.3.2 Physical impacts can result from an increased risk of exposure, increased management needs, the severance or fragmentation of related elements, frustration or cessation of historic land-use practices and the frustration of access leading to decreased opportunities for education and enjoyment of the amenity elements (CADW 2007, 20, i-v).
- 8.3.3 Visual Impacts (non-physical) can occur as a result of impacts to elements of an HLCA from which the development can be seen (views to and from) or obstructed (direct line of sight); the creation of inappropriate visual connections and finally the visual impact of the development area itself in relation to the existing historic character of the HLCA when considering its form or appearance (CADW 2007, 21, i-iv)
- 8.3.4 The magnitude of indirect impacts has been assessed using ZTVs (see above) in GIS computer modelling, several site visits, contour maps, aerial photographs and taking into consideration existing surface features such as forestry and the built environment using digital surface models (DSM) generated by LiDAR. Indirect Visual Effects have been assessed utilising the criteria set out in 1.4 above in accordance with ASIDOHL2 guidelines.

- 8.3.5 A single registered park and garden was identified by the ZTV analysis; Cyfarthfa Castle and Park (PGW(Gm)1(MER) is located 3.5km to the north of the proposed development area (HLCA 013). Three SAMs were also identified by the ZTV analysis as being potentially indirectly affected; Merthyr Tramroad Tunnel (Trevithick's Tunnel) (SAMGm573) 1.3km Northeast (HLCA 019), the Ffos-y-fran Deserted Iron Mining Village (SAMGm496; HLCA 077) and also at Ffos-y-fran the Sarn Howell Pond and Watercourses (SAMGm494; HLCA 031), both c2.5km to the northeast. A further SAM was identified by the ZTVs located on Merthyr Common (Mynydd Cilfach-yr-encil) 2.7km to the east (Merthyr Common Round Cairns SAMGm222; HLCA 077). The SAM is comprised of six Bronze Age burial cairns aligned north-south and dispersed over several kilometres along the ridgeline of Mynydd Cilfach-yr-encil. The visibility analysis (ZTVs) has also identified the potential indirect effect for up to a further 44 historic landscape character areas, which are listed above.
- 8.3.6 Indirect, Physical Impacts (a)
- 8.3.7 While theoretically visible, the views to and from Cyfarthfa Castle and Park (PGW(Gm)1(MER; HLCA 013) are obscured by the trees in the parkland and where a break in the canopy allowed the proposed development area was also obscured by 20th century forestry plantation, albeit with small treeless patches representing the larger forestry car parking. Likewise, while theoretically visible the views to and from Merthyr Tramroad Tunnel (Trevithick's Tunnel) (SAMGm573; HLCA 019) are obscured by tree cover along for the former tramroad. The mountain bike trails are visible on the mountain from the Tramroad Tunnel but the proposed development area is largely obscured by trees, with some small treeless patches representing the larger forestry car parking.
- 8.3.8 The Ffos-y-fran Deserted Iron Mining Village (SAMGm496; HLCA 077) and Sarn Howell Pond and Watercourses (SAMGm494; HLCA 031) are located on Merthyr Common some distance from the proposed development area. While some of the mountain bike trails are visible as tiny sinuous lines on the other side of the valley, the proposed development area is obscured by forestry. Likewise, the giant spoil storage tips of the Ffos-y-fran surface mine are visible from the proposed development area but the two SAMs are too distant for any meaningful views.
- 8.3.9 The six Bronze Age barrows (SAMGm222; HLCA 077) on Merthyr Common (Mynydd Cilfach-yr-encil) have commanding views over the Taff Valley. The proposed development area is some distance away and not clearly visible, although the small treeless patches representing the larger forestry car parking can just be made out with the mountain bike trails visible as tiny sinuous lines.
- 8.3.10 The proposed development area is located on the western side of the Taff Valley at a height of around 250mOD and therefore theoretically visible to a total of 44 HLCAs. The proposed development comprises 36 camping pods and five chalets, erection of shower/toilet block and creation of play and picnic area, new parking and overflow carpark. The proposed development area is currently forestry plantation and the footprint of the proposed development has been designed to be sensitive to the existing forest. Further sensitive tree planting and soft landscaping will help mitigate the proposed visual footprint within the 20th century forestry plantation. Therefore, it is considered that there will be no indirect physical impacts to the identified 44 HLCAs.

8.3.11 Based on the present assessment it is considered that the proposed development will have no permanent indirect physical impact on any of the statutory designated landscapes, sites and monuments noted above. As a result, the first part of Stage 3a has not been carried out. No physical change from an increased risk of exposure, increased management needs, the severance or fragmentation of related elements, frustration or cessation of historic land-use practices and the frustration of access leading to decreased opportunities for education and enjoyment of the amenity elements will occur (CADW 2007, 20, i-v).

8.3.12 Indirect (non-physical) Visual Impacts (b)

8.3.13 The indirect visual impacts to sites that lie with the proposed development area and 250m buffer area have been assessed above (see Table 4). A 1km study area was also applied to identify potential impacts upon the setting of International and National value heritage assets (A* and A class), these include Scheduled Ancient Monuments, Registered Landscapes, Parks and Gardens and sometimes Grade I and I* Listed Buildings. The visibility analysis (ZTVs) has identified the potential indirect effect for up to a further 44 historic landscape character areas. Indirect Visual Impacts have been assessed using ZTVs (see above) in GIS computer modelling, several site visits, contour maps, aerial photographs and taking into consideration existing surface features such as forestry and the built environment using digital surface models (DSM) generated by LiDAR. Following detailed assessment and site visits, it is considered that of the 44 HLCAs initially identified by ZTVs as potentially visible only 15 HLCAs (set out below) have the potential for indirect (non-physical) visual impacts. The remainder disregarded because of a lack of visibility due to the inter-visibility of HLCAs and the proposed development area being obscured by the built environment, trees and vegetation and topography

8.3.14 HLCAs with the potential for indirect (non-physical) visual impacts:

- HLCA 014 River Taff Canal and Railway Corridor
- HLCA 019 Penydarrren Tramroad Corridor
- HLCA 020 Pentrebach
- HLCA 021 Clyn-Mil and Wernlas Opencast Area
- HLCA 022 Clyn-Mil, Pencoedcae and Trebeddau
- HLCA 023 Clyn-Mil Workings
- HLCA 024 Graweth and Pen-y-Lan
- HLCA 025 Nantyrodyn and Bwllfa Workings
- HLCA 026 Cilfach-yr-Encil
- HLCA 031 Merthyr Common Central
- HLCA 037 Ysgubor Newydd
- HLCA 039 Ffos-y-fran
- HLCA 048 Cwm Blacks
- HLCA 077 Merthyr Common
- HLCA 079 A470(T) Road

Table 6. Stage 3b: Assessment of Indirect (non-physical) Impacts

ASIDOHL2 Stage 3b: Assessment of Indirect (non-physical) Impacts on Historic Character Areas													
Impacts to...											Total Scores		
HLCA	Views To/From Element Partially Altered	Magnitude & Score	Visual Connections between Related Elements occluded/obstructed	Magnitude & Score	(inappropriate) Visual Connections between Elements not intended to be Inter-visible	Magnitude & Score	Development Form (scale, distribution of features)	Magnitude & Score	Development Appearance (size, shape, colour of features)	Magnitude & Score	Assessment Score (average)	Overall Magnitude of Indirect Impacts on 28 Point Scale	
HLCA 014	A – 4	Very Slight – 1	None	0	None	0	4	Very Slight – 1	4	Very Slight – 1	5	(0 + 5 = 5) 5 x 28 ÷ 20 = 7 – Slight	
HLCA 019	A – 4	Very Slight – 1	None	0	None	0	4	Very Slight – 1	4	Very Slight – 1	5	(0 + 5 = 5) 5 x 28 ÷ 20 = 7 – Slight	
HLCA 020	C – 2	Very Slight – 1	None	0	None	0	2	Very Slight – 1	2	Very Slight – 1	3	(0 + 3 = 3) 3 x 28 ÷ 20 = 4 –Slight	
HLCA 021	D – 1	Very Slight – 1	None	0	None	0	1	Very Slight – 1	1	Very Slight – 1	2	(0 + 2 = 2) 2 x 28 ÷ 20 = 3 – Very Slight	
HLCA 022	C – 2	Very Slight – 1	None	0	None	0	2	Very Slight – 1	2	Very Slight – 1	3	(0 + 3 = 3) 3 x 28 ÷ 20 = 4 –Slight	
HLCA 023	D – 1	Very Slight – 1	None	0	None	0	1	Very Slight – 1	1	Very Slight – 1	2	(0 + 2 = 2) 2 x 28 ÷ 20 = 3 – Very Slight	
HLCA 024	C – 2	Very Slight – 1	None	0	None	0	2	Very Slight – 1	2	Very Slight – 1	3	(0 + 3 = 3) 3 x 28 ÷ 20 = 4 –Slight	
HLCA 025	C – 2	Very Slight – 1	None	0	None	0	2	Very Slight – 1	2	Very Slight – 1	3	(0 + 3 = 3) 3 x 28 ÷ 20 = 4 –Slight	
HLCA 026	C – 2	Very Slight – 1	None	0	None	0	2	Very Slight – 1	2	Very Slight – 1	3	(0 + 3 = 3) 3 x 28 ÷ 20 = 4 –Slight	
HLCA 031	A – 4	Very Slight – 1	None	0	None	0	4	Very Slight – 1	4	Very Slight – 1	5	(0 + 5 = 5) 5 x 28 ÷ 20 = 7 – Slight	
HLCA 037	D – 1	Very Slight – 1	None	0	None	0	1	Very Slight – 1	1	Very Slight – 1	2	(0 + 2 = 2) 2 x 28 ÷ 20 = 3 – Very Slight	
HLCA 039	A – 4	Very Slight – 1	None	0	None	0	4	Very Slight – 1	4	Very Slight – 1	5	(0 + 5 = 5) 5 x 28 ÷ 20 = 7 – Slight	
HLCA 048	D – 1	Very Slight – 1	None	0	None	0	1	Very Slight – 1	1	Very Slight – 1	2	(0 + 2 = 2) 2 x 28 ÷ 20 = 3 – Very Slight	
HLCA 077	A – 4	Very Slight – 1	None	0	None	0	4	Very Slight – 1	4	Very Slight – 1	5	(0 + 5 = 5) 5 x 28 ÷ 20 = 7 – Slight	
HLCA 079	C – 2	Very Slight – 1	None	0	None	0	2	Very Slight – 1	2	Very Slight – 1	3	(0 + 3 = 3) 3 x 28 ÷ 20 = 4 –Slight	
Combined HLCA Assessment Score and Overall Magnitude of Indirect Impacts										51 ÷ 15 = 3.4 = 3 (rounded)		Very Slight	

Note. Indirect Visual Effects (magnitude and score) have been assessed based on professional judgement utilising the criteria set out in section 1.4 above and in accordance ASIDOHL2 guidelines (CADW 2007, 20-22).

8.4 Stage 4: Evaluation of Relative Importance

8.4.1 Stage 4 evaluates the relative importance of parts or elements (sites, monuments and landscapes) of HLCAs which may be directly or indirectly, wholly or partially, affected by the proposed development in relation to:

- (a) the whole of the HLCA(s) concerned, and or;
- (b) the whole of the Historic Landscape on the Register, followed by;
- (c) an evaluation of the relative importance of the HLCA(s) concerned within the national context.

8.4.2 Stage 4 should then be completed with a determination of the average, overall value of all the historic character areas (or parts thereof) affected (CADW 2007, 23-28).

8.4.3 The criteria for determining the relative importance or value (of HLCAs and their constituent elements or parts) in Stage 4, steps (a), (b) and (c) are as follows (CADW 2007, 24-25):

- Rarity
- Representativeness
- Documentation
- Group value
- Survival
- Condition
- Coherence
- Integrity
- Potential
- Amenity
- Associations

8.4.4 As noted above, the proposed development area totals 3.544ha and lies wholly with HLCA 072, which has a total area of 151.2ha. The maximum area of the historic landscape character area that could be directly affected by the proposed development represents 2.34%, which is 0.07% of the total registered historic landscape area. A further 15 HLCAs have been identified as having an indirect effect (see Stage 3). The indirect impacts to three HLCAs are imperceptible to such a degree that it is considered that they will not add to the relative importance evaluation in relation to the nature and extent of the proposed development. These are HLCA 021 Clyn-Mil and Wernlas Opencast Area, where the landscape while industrial in nature is substantially altered (20th century restored opencast); HLCA 037 Ysgubor Newydd, which is modern housing and roads and HLCA 048 Cwm Blacks reclaimed 19th century works.

8.4.5 A total of 13 HLCAs are considered below for the relative importance of parts or elements of HLCAs which may be directly or indirectly, wholly or partially, affected by the proposed development:

- HLCA 072 Waunwyllt, Pen-y-lan and Graig Gethin
- HLCA 014 River Taff Canal and Railway Corridor
- HLCA 019 Penydarrren Tramroad Corridor

- HLCA 020 Pentrebach
- HLCA 022 Clyn-Mil, Pencoedcae and Trebeddau
- HLCA 023 Clyn-Mil Workings
- HLCA 024 Graweth and Pen-y-Lan
- HLCA 025 Nantyrodyn and Bwllfa Workings
- HLCA 026 Cilfach-yr-Encil
- HLCA 031 Merthyr Common Central
- HLCA 039 Ffos-y-fran
- HLCA 077 Merthyr Common
- HLCA 079 A470(T) Road

8.4.6 HLCA 072 Waunwyllt, Pen-y-lan and Graig Gethin

Evaluation of the Relative Importance of the HLCA						
Criteria ↓	Value →	V High/V Good	High/Good	Mod/Med	Low	V Low/Poor
(a) HLCAs which may be directly or indirectly, wholly or partially, affected by the proposed development in relation to the whole of the Historic Landscape Character Area						
Rarity					✓	
Representativeness			✓			
Documentation					✓	
Group value					✓	
Survival				✓		
Condition				✓		
Coherence			✓			
Integrity						✓
Potential			✓			
Amenity	✓					
Associations				✓		
(b) HLCAs which may be directly or indirectly, wholly or partially, affected by the proposed development in relation to the whole of the Historic Landscape on the Register						
Rarity					✓	
Representativeness					✓	
Documentation					✓	
Group value					✓	
Survival				✓		
Condition				✓		
Coherence			✓			
Integrity				✓		
Potential				✓		
Amenity	✓					
Associations				✓		
(c) HLCAs which may be directly or indirectly, wholly or partially, affected by the proposed development in relation to the relative importance of the HLCA(s) concerned within the national context						
Rarity					✓	
Representativeness					✓	
Documentation					✓	
Group value					✓	
Survival				✓		
Condition				✓		
Coherence				✓		
Integrity				✓		

Potential		✓			
Amenity	✓				
Associations			✓		
Overall Evaluation Scores					
(a)	(b)	(c)	Equation Score	Overall Score 0 – 100	
(1 x V High @ 5) + (3 x High @ 4) + (3 x Med @ 3) + (3 x Low @ 2) + (1 x V Low @ 1) = 33 x 55 ÷ 100 = 18.15	(1 x V High @ 5) + (1 x High @ 4) + (5 x Med @ 3) + (4 x Low @ 2) = 32 x 55 ÷ 100 = 17.6	(1 x V High @ 5) + (1 x High @ 4) + (5 x Med @ 3) + (4 x Low @ 2) = 32 x 55 ÷ 100 = 17.6	(18.15 + 17.6 + 17.6) ÷ 3 = 17.78	18 – Low	

8.4.7 The historic landscape has been characterised as “Agricultural landscape of dispersed post-medieval settlement associated with upland sheep farming; irregular evolved field pattern of drystone walled-enclosures largely hidden in forestry; Ancient Woodland and 20th century forestry; extractive landscape associated with the steam coal trade” Roberts 2003, 148).

8.4.8 There is a single heritage asset identified within the proposed development area (GGATHER03941m), a trig point noted on OS 6 inch 2nd edition 1900 map. The site walkover could not find any trace of this heritage asset and it is presumed destroyed by 20th century forest plantation. Elements of the Post-medieval agricultural landscape survive just outside the proposed development area, e.g. Pen-y-lan Farm (GGATHER03746m) and Sheepfold (GGATHER03745m), as do later Post-medieval Industrial remains such as Webbers Pond, Gethin No.2 Pit (GGATHER02522m) and Waunwyllt Colliery (Level), air shaft and tramroad incline (GGATHER06431).

8.4.9 HLCA 014 River Taff Canal and Railway Corridor

Evaluation of the Relative Importance of the HLCA						
Criteria ↓	Value →	V High/V Good	High/Good	Mod/Med	Low	V Low/Poor
(a) HLCAs which may be directly or indirectly, wholly or partially, affected by the proposed development in relation to the whole of the Historic Landscape Character Area						
Rarity						
Representativeness						
Documentation						
Group value						
Survival						
Condition						
Coherence						
Integrity						
Potential						
Amenity						
Associations						
(b) HLCAs which may be directly or indirectly, wholly or partially, affected by the proposed development in relation to the whole of the Historic Landscape on the Register						
Rarity				✓		
Representativeness				✓		
Documentation				✓		
Group value			✓			
Survival					✓	
Condition					✓	
Coherence				✓		

Integrity				✓	
Potential			✓		
Amenity			✓		
Associations			✓		
(c) HLCAs which may be directly or indirectly, wholly or partially, affected by the proposed development in relation to the relative importance of the HLCA(s) concerned within the national context					
Rarity				✓	
Representativeness			✓		
Documentation				✓	
Group value				✓	
Survival				✓	
Condition				✓	
Coherence				✓	
Integrity				✓	
Potential			✓		
Amenity				✓	
Associations				✓	
Overall Evaluation Scores					
(a)	(b)	(c)	Equation Score	Overall Score 0 – 100	
	(1 x High @ 4) + (7 x Med @ 3) + (3 x Low @ 2) = 31 x 55 ÷ 100 = 17.05	(2 x Med @ 3) + (9 x Low @ 2) = 24 x 55 ÷ 100 = 13.2	$(17.05 + 13.2) \div 2 = \mathbf{15.125}$	15 – Low	

8.4.10 The historic landscape has been characterised as “Main north-south communication corridor canal, tramroad, industrial and public railroad corridor; 18th and 19th century extractive features, principally pits, levels and mines and associated water management features; industrial housing; important historic and cultural associations; Ancient Woodland” (Roberts 2003, 73).

8.4.11 HLCA 019 Penydarrren Tramroad Corridor

Evaluation of the Relative Importance of the HLCA						
Criteria ↓	Value →	V High/V Good	High/Good	Mod/Med	Low	V Low/Poor
(a) HLCAs which may be directly or indirectly, wholly or partially, affected by the proposed development in relation to the whole of the Historic Landscape Character Area						
Rarity						
Representativeness						
Documentation						
Group value						
Survival						
Condition						
Coherence						
Integrity						
Potential						
Amenity						
Associations						
(b) HLCAs which may be directly or indirectly, wholly or partially, affected by the proposed development in relation to the whole of the Historic Landscape on the Register						
Rarity	✓					
Representativeness		✓				
Documentation		✓				
Group value		✓				

Survival		✓			
Condition			✓		
Coherence			✓		
Integrity				✓	
Potential	✓				
Amenity		✓			
Associations	✓				
(c) HLCAs which may be directly or indirectly, wholly or partially, affected by the proposed development in relation to the relative importance of the HLCA(s) concerned within the national context					
Rarity	✓				
Representativeness		✓			
Documentation		✓			
Group value		✓			
Survival		✓			
Condition			✓		
Coherence			✓		
Integrity				✓	
Potential	✓				
Amenity		✓			
Associations	✓				
Overall Evaluation Scores					
(a)	(b)	(c)	Equation Score	Overall Score 0 – 100	
	(3 x V High @ 5) + (5 x High @ 4) + (2 x Med @ 3) + (1 x Low @ 2) = 43 x 55 ÷ 100 = 23.65	(3 x V High @ 5) + (5 x High @ 4) + (2 x Med @ 3) + (1 x Low @ 2) = 43 x 55 ÷ 100 = 23.65	(23.65 + 23.65) ÷ 2 = 23.65	24 – Moderate	

8.4.12 The historic landscape has been characterised as “Corridor of nationally important Penydarren Tramroad and other mineral lines, Plymouth Iron Works site; historic associations; site of industrial housing; mining features” (Roberts 2003, 80). The HLCA contains one SAM, Trevithick’s Tramroad Tunnel (SAMGm573), and despite largescale reclamation in the 1970s there remains a significant potential for buried remains of the tramroad and other elements of the Penydarren Ironworks.

8.4.13 HLCA 020 Pentrebach

Evaluation of the Relative Importance of the HLCA						
Criteria ↓	Value →	V High/V Good	High/Good	Mod/Med	Low	V Low/Poor
(a) HLCAs which may be directly or indirectly, wholly or partially, affected by the proposed development in relation to the whole of the Historic Landscape Character Area						
Rarity						
Representativeness						
Documentation						
Group value						
Survival						
Condition						
Coherence						
Integrity						
Potential						
Amenity						
Associations						

(b) HLCAs which may be directly or indirectly, wholly or partially, affected by the proposed development in relation to the whole of the Historic Landscape on the Register					
Rarity				✓	
Representativeness				✓	
Documentation				✓	
Group value				✓	
Survival					✓
Condition				✓	
Coherence				✓	
Integrity					✓
Potential				✓	
Amenity				✓	
Associations				✓	
(c) HLCAs which may be directly or indirectly, wholly or partially, affected by the proposed development in relation to the relative importance of the HLCA(s) concerned within the national context					
Rarity				✓	
Representativeness				✓	
Documentation				✓	
Group value				✓	
Survival					✓
Condition				✓	
Coherence				✓	
Integrity					✓
Potential					✓
Amenity					✓
Associations				✓	
Overall Evaluation Scores					
(a)	(b)	(c)	Equation Score	Overall Score 0 – 100	
	(9 x Low @ 2) + (2 x V Low @ 1) = 20 x 55 ÷ 100 = 11	(7 x Low @ 2) + (4 x V Low @ 1) = 18 x 55 ÷ 100 = 9.9	$(11 + 9.9) \div 2 = 10.45$	10– Low	

8.4.14 The historic landscape has been characterised as “Industrial settlement: pre-1850s isolated industrial rows with early 20th century colliery based expansion and later social housing; transport and water management features, ironmaster’s residence” (Roberts 2003, 82). Some pre-1850s housing survives but the landscape character today is largely the result of early 20th century industrial, and later 20th century social housing.

8.4.15 HLCA 022 Clyn-Mil, Pencoedcae and Trebeddau

Evaluation of the Relative Importance of the HLCA						
Criteria ↓	Value →	V High/V Good	High/Good	Mod/Med	Low	V Low/Poor
(a) HLCAs which may be directly or indirectly, wholly or partially, affected by the proposed development in relation to the whole of the Historic Landscape Character Area						
Rarity						
Representativeness						
Documentation						
Group value						
Survival						
Condition						
Coherence						
Integrity						

Potential					
Amenity					
Associations					
(b) HLCAs which may be directly or indirectly, wholly or partially, affected by the proposed development in relation to the whole of the Historic Landscape on the Register					
Rarity				✓	
Representativeness			✓		
Documentation				✓	
Group value			✓		
Survival					✓
Condition					✓
Coherence				✓	
Integrity				✓	
Potential				✓	
Amenity				✓	
Associations				✓	
(c) HLCAs which may be directly or indirectly, wholly or partially, affected by the proposed development in relation to the relative importance of the HLCA(s) concerned within the national context					
Rarity				✓	
Representativeness				✓	
Documentation				✓	
Group value				✓	
Survival					✓
Condition					✓
Coherence				✓	
Integrity					✓
Potential					✓
Amenity				✓	
Associations					✓
Overall Evaluation Scores					
(a)	(b)	(c)	Equation Score	Overall Score 0 – 100	
	(2 x Med @ 3) + (7 x Low @ 2) + (2 x V Low @ 1) = x 55 ÷ 100 = 12.1	(6 x Low @ 2) + (5 x V Low @ 1) = 17 x 55 ÷ 100 = 9.35	$(12.1 + 9.35) \div 2 = \mathbf{10.725}$	11 – Low	

8.4.16 The historic landscape has been characterised as “Agricultural enclosure; site of late 18th/19th century coal and iron ore workings; site of industrial transport and water management features; post-medieval farmsteads and industrial stables; limited reclamation” (Roberts 2003, 85). The character of the landscape today is agricultural with the remnants of past industrial workings, opencast and reclamation.

8.4.17 HLCA 023 Clyn-Mil Workings

Evaluation of the Relative Importance of the HLCA						
Criteria ↓	Value →	V High/V Good	High/Good	Mod/Med	Low	V Low/Poor
(a) HLCAs which may be directly or indirectly, wholly or partially, affected by the proposed development in relation to the whole of the Historic Landscape Character Area						
Rarity						
Representativeness						
Documentation						
Group value						
Survival						

Condition					
Coherence					
Integrity					
Potential					
Amenity					
Associations					
(b) HLCAs which may be directly or indirectly, wholly or partially, affected by the proposed development in relation to the whole of the Historic Landscape on the Register					
Rarity			✓		
Representativeness			✓		
Documentation			✓		
Group value			✓		
Survival				✓	
Condition				✓	
Coherence			✓		
Integrity			✓		
Potential			✓		
Amenity				✓	
Associations			✓		
(c) HLCAs which may be directly or indirectly, wholly or partially, affected by the proposed development in relation to the relative importance of the HLCA(s) concerned within the national context					
Rarity				✓	
Representativeness				✓	
Documentation			✓		
Group value			✓		
Survival				✓	
Condition				✓	
Coherence					
Integrity				✓	
Potential				✓	
Amenity				✓	
Associations			✓		
Overall Evaluation Scores					
(a)	(b)	(c)	Equation Score	Overall Score 0 – 100	
	(8 x Med @ 3) + (3 x Low @ 2) = 30 x 55 ÷ 100 = 16.5	(3 x Med @ 3) + (8 x Low @ 2) = 25 x 55 ÷ 100 = 13.75	(16.5 + 13.75) ÷ 2 = 15.125	15 – Low	

8.4.18 The historic landscape has been characterised as “Area of enclosed upland; remains of early ironstone and coal workings, largely surface workings; industrial tramroad network and water management; Ancient Woodland; drystone and hedged bank field boundaries; close association with adjacent areas” (Roberts 2003, 86). The landscape today is agricultural but characterised by late 18th and 19th century ironstone and coal extraction and tramroad network including some very early crown patch working, associated with the Plymouth Ironworks. The area has Historic landscape connections to HLCA 22 Clyn-Mil, Pencoedcae and Trebeddau and HLCA 039 Ffos-y-fran and the Deserted Iron Mining Village and patch workings (SAMGm496).

8.4.19 HLCA 024 Graweth and Pen-y-Lan

Evaluation of the Relative Importance of the HLCA						
Criteria ↓	Value →	V High/V Good	High/Good	Mod/Med	Low	V Low/Poor

(a) HLCAs which may be directly or indirectly, wholly or partially, affected by the proposed development in relation to the whole of the Historic Landscape Character Area					
Rarity					
Representativeness					
Documentation					
Group value					
Survival					
Condition					
Coherence					
Integrity					
Potential					
Amenity					
Associations					
(b) HLCAs which may be directly or indirectly, wholly or partially, affected by the proposed development in relation to the whole of the Historic Landscape on the Register					
Rarity			✓		
Representativeness				✓	
Documentation				✓	
Group value				✓	
Survival			✓		
Condition			✓		
Coherence				✓	
Integrity			✓		
Potential				✓	
Amenity				✓	
Associations				✓	
(c) HLCAs which may be directly or indirectly, wholly or partially, affected by the proposed development in relation to the relative importance of the HLCA(s) concerned within the national context					
Rarity				✓	
Representativeness					✓
Documentation				✓	
Group value				✓	
Survival			✓		
Condition			✓		
Coherence				✓	
Integrity			✓		
Potential				✓	
Amenity				✓	
Associations				✓	
Overall Evaluation Scores					
(a)	(b)	(c)	Equation Score	Overall Score 0 – 100	
	(4 x Med @ 3) + (7 x Low @ 2) = 26 x 55 ÷ 100 = 14.3	(3 x Med @ 3) + (7 x Low @ 2) + (1 x V Low @ 1) = 24 x 55 ÷ 100 = 13.2	(14.3 + 13.2) ÷ 2 = 13.75	14 – Low	

8.4.20 The historic landscape has been characterised as “Surviving area of post-medieval evolved irregular small agricultural enclosures with relatively small-scale industrial influence (coal and iron ore) for the area” (Roberts 2003, 87). The landscape today is agricultural characterised by post-medieval land holdings that may have medieval origins. Some 19th and 20th industrial activity on the fringes of the character area. The area is characterised by small scale enclosure of drystone walls and isolated farmsteads that reflects the former agricultural landscape now hidden under 20th century forestry plantation, which the proposed development area lies within, HLCA 079 Waunwyllt, Pen-y-lan and Graig Gethin.

8.4.21 HLCA 025 Nantyrodyn and Bwllfa Workings

Evaluation of the Relative Importance of the HLCA						
Criteria ↓	Value →	V High/V Good	High/Good	Mod/Med	Low	V Low/Poor
(a) HLCAs which may be directly or indirectly, wholly or partially, affected by the proposed development in relation to the whole of the Historic Landscape Character Area						
Rarity						
Representativeness						
Documentation						
Group value						
Survival						
Condition						
Coherence						
Integrity						
Potential						
Amenity						
Associations						
(b) HLCAs which may be directly or indirectly, wholly or partially, affected by the proposed development in relation to the whole of the Historic Landscape on the Register						
Rarity					✓	
Representativeness					✓	
Documentation					✓	
Group value				✓		
Survival				✓		
Condition					✓	
Coherence				✓		
Integrity			✓			
Potential				✓		
Amenity				✓		
Associations					✓	
(c) HLCAs which may be directly or indirectly, wholly or partially, affected by the proposed development in relation to the relative importance of the HLCA(s) concerned within the national context						
Rarity					✓	
Representativeness					✓	
Documentation				✓		
Group value					✓	
Survival					✓	
Condition					✓	
Coherence				✓		
Integrity				✓		
Potential				✓		
Amenity				✓		
Associations					✓	

Overall Evaluation Scores				
(a)	(b)	(c)	Equation Score	Overall Score 0 – 100
	(1 x High @ 4) + (5 x Med @ 3) + (5 x Low @ 2) = 29 x 55 ÷ 100 = 15.95	(5 x Med @ 3) + (6 x Low @ 2) = 27 x 55 ÷ 100 = 14.85	(15.95 + 14.85) ÷ 2 = 15.4	15 – Low

8.4.22 The historic landscape has been characterised as “Minor post-medieval enclosure and settlement (ruinous); extractive industrial landscape: trial and coal levels; agricultural/industrial tracks/possible tramway and incline corridor; Ancient Woodland” (Roberts 2003, 88). The landscape today is agricultural common land and ancient woodland characterised significant 19th and 20th industrial extractive activity.

8.4.23 HLCA 026 Cilfach-yr-Encil

Evaluation of the Relative Importance of the HLCA						
Criteria ↓	Value →	V High/V Good	High/Good	Mod/Med	Low	V Low/Poor
(a) HLCAs which may be directly or indirectly, wholly or partially, affected by the proposed development in relation to the whole of the Historic Landscape Character Area						
Rarity						
Representativeness						
Documentation						
Group value						
Survival						
Condition						
Coherence						
Integrity						
Potential						
Amenity						
Associations						
(b) HLCAs which may be directly or indirectly, wholly or partially, affected by the proposed development in relation to the whole of the Historic Landscape on the Register						
Rarity					✓	
Representativeness					✓	
Documentation					✓	
Group value				✓		
Survival				✓		
Condition				✓		
Coherence					✓	
Integrity				✓		
Potential				✓		
Amenity				✓		
Associations					✓	
(c) HLCAs which may be directly or indirectly, wholly or partially, affected by the proposed development in relation to the relative importance of the HLCA(s) concerned within the national context						
Rarity					✓	
Representativeness					✓	
Documentation					✓	
Group value				✓		
Survival				✓		
Condition				✓		
Coherence					✓	
Integrity					✓	

Potential				✓	
Amenity				✓	
Associations				✓	
Overall Evaluation Scores					
(a)	(b)	(c)	Equation Score	Overall Score 0 – 100	
	(6 x Med @ 3) + (5 x Low @ 2) = 28 x 55 ÷ 100 = 15.4	(3 x Med @ 3) + (8 x Low @ 2) = 25 x 55 ÷ 100 = 13.75	(15.4 + 13.75) ÷ 2 = 14.575	15 – Low	

8.4.24 The historic landscape has been characterised as “Surviving area of pre-industrial evolved irregular small agricultural enclosures with little industrial influence” (Roberts 2003, 90). The landscape today is agricultural characterised by post-medieval land holdings and enclosure in the early 19th century. There is little industrial activity in the area. The area is characterised by small scale enclosure of drystone walls and isolated farmsteads that reflects the former agricultural landscape now hidden under 20th century forestry plantation, which the proposed development area lies within, HLCA 079 Waunwyllt, Pen-y-lan and Graig Gethin.

8.4.25 HLCA 031 Merthyr Common Central

Evaluation of the Relative Importance of the HLCA						
Criteria ↓	Value →	V High/V Good	High/Good	Mod/Med	Low	V Low/Poor
(a) HLCAs which may be directly or indirectly, wholly or partially, affected by the proposed development in relation to the whole of the Historic Landscape Character Area						
Rarity						
Representativeness						
Documentation						
Group value						
Survival						
Condition						
Coherence						
Integrity						
Potential						
Amenity						
Associations						
(b) HLCAs which may be directly or indirectly, wholly or partially, affected by the proposed development in relation to the whole of the Historic Landscape on the Register						
Rarity	✓					
Representativeness		✓				
Documentation		✓				
Group value		✓				
Survival					✓	
Condition					✓	
Coherence		✓				
Integrity				✓		
Potential		✓				
Amenity		✓				
Associations	✓					
(c) HLCAs which may be directly or indirectly, wholly or partially, affected by the proposed development in relation to the relative importance of the HLCA(s) concerned within the national context						
Rarity		✓				
Representativeness		✓				
Documentation		✓				

Group value		✓			
Survival				✓	
Condition				✓	
Coherence		✓			
Integrity			✓		
Potential		✓			
Amenity		✓			
Associations	✓				
Overall Evaluation Scores					
(a)	(b)	(c)	Equation Score	Overall Score 0 – 100	
	(2 x V High @ 5) + (6 x High @ 4) + (1 x Med @ 3) + (2 x Low @ 2) = 41 x 55 ÷ 100 = 22.55	(1 x V High @ 5) + (7 x High @ 4) + (1 x Med @ 3) + (2 x Low @ 2) = 40 x 55 ÷ 100 = 22	$(22.55 + 22) \div 2 = \mathbf{22.25}$	22 – Moderate	

8.4.26 The historic landscape has been characterised as “Nationally important Industrial landscape; water management and extractive features associated with the Dowlais and Penydarren Ironworks; industrial and post-medieval upland settlement; transport networks —industrial and public rail; area of industrially altered common” (Roberts 2003, 96). The landscape today has been substantially altered by the Ffos-y-fran surface mine with the almost complete removal of all archaeological and historical features, including the Dowlais Free Drainage System (DFDS), crown patch workings, ironstone mines and later collieries. However, pockets of original industrial features do survive, such as those at the Sarn Howell Ponds (SAMGm494), which include the restored DFDS aqueduct (GGAT02761m) and the Deserted Iron Mining Village and patch workings (SAMGm496). This area also includes a brick works, the remains of the Penydarren Incline engine house and a section of the Great Western and Rhymney Railway’s Taff Bargoed Joint Line.

8.4.27 HLCA 039 Ffos-y-fran

Evaluation of the Relative Importance of the HLCA						
Criteria ↓	Value →	V High/V Good	High/Good	Mod/Med	Low	V Low/Poor
(a) HLCAs which may be directly or indirectly, wholly or partially, affected by the proposed development in relation to the whole of the Historic Landscape Character Area						
Rarity						
Representativeness						
Documentation						
Group value						
Survival						
Condition						
Coherence						
Integrity						
Potential						
Amenity						
Associations						
(b) HLCAs which may be directly or indirectly, wholly or partially, affected by the proposed development in relation to the whole of the Historic Landscape on the Register						
Rarity	✓					
Representativeness		✓				

Documentation		✓			
Group value		✓			
Survival				✓	
Condition				✓	
Coherence		✓			
Integrity			✓		
Potential		✓			
Amenity		✓			
Associations	✓				
(c) HLCAs which may be directly or indirectly, wholly or partially, affected by the proposed development in relation to the relative importance of the HLCA(s) concerned within the national context					
Rarity		✓			
Representativeness		✓			
Documentation		✓			
Group value		✓			
Survival				✓	
Condition				✓	
Coherence		✓			
Integrity			✓		
Potential		✓			
Amenity		✓			
Associations	✓				
Overall Evaluation Scores					
(a)	(b)	(c)	Equation Score	Overall Score 0 – 100	
	(2 x V High @ 5) + (6 x High @ 4) + (1 x Med @ 3) + (2 x Low @ 2) = 41 x 55 ÷ 100 = 22.55	(1 x V High @ 5) + (7 x High @ 4) + (1 x Med @ 3) + (2 x Low @ 2) = 40 x 55 ÷ 100 = 22	(22.55 + 22) ÷ 2 = 22.25	22 – Moderate	

8.4.28 The historic landscape has been characterised as “Nationally important Industrial landscape associated with the Dowlais Ironworks; industrially altered upland Common: intensive area of extractive features predominantly early to mid 19th century coal and ironstone workings along mineral outcrop, primarily levels and pits, also early remains of crown pit workings, and patch workings; transport networks; industrial and public rail, drainage features: the Dowlais Free Drainage System; industrial settlement: includes scheduled Ffos-y-fran Iron Worker’s settlement” (Roberts 2003, 109). The landscape today has been substantially altered by the Ffos-y-fran surface mine with the almost complete removal of all archaeological and historical features, including the Dowlais Free Drainage System (DFDS), crown patch workings, ironstone mines and later collieries. However, pockets of original industrial features do survive, such as those at the Sarn Howell Ponds (SAMGm494), which include the restored DFDS aqueduct (GGAT02761m) and the Deserted Iron Mining Village and patch workings (SAMGm496).

8.4.29 HLCA 077 Merthyr Common

Evaluation of the Relative Importance of the HLCA						
Criteria ↓	Value →	V High/V Good	High/Good	Mod/Med	Low	V Low/Poor
(a) HLCAs which may be directly or indirectly, wholly or partially, affected by the proposed development in relation to the whole of the Historic Landscape Character Area						

Rarity					
Representativeness					
Documentation					
Group value					
Survival					
Condition					
Coherence					
Integrity					
Potential					
Amenity					
Associations					
(b) HLCAs which may be directly or indirectly, wholly or partially, affected by the proposed development in relation to the whole of the Historic Landscape on the Register					
Rarity		✓			
Representativeness	✓				
Documentation					✓
Group value		✓			
Survival			✓		
Condition			✓		
Coherence		✓			
Integrity		✓			
Potential	✓				
Amenity	✓				
Associations				✓	
(c) HLCAs which may be directly or indirectly, wholly or partially, affected by the proposed development in relation to the relative importance of the HLCA(s) concerned within the national context					
Rarity		✓			
Representativeness		✓			
Documentation					✓
Group value			✓		
Survival				✓	
Condition				✓	
Coherence			✓		
Integrity			✓		
Potential		✓			
Amenity		✓			
Associations				✓	
Overall Evaluation Scores					
(a)	(b)	(c)	Equation Score	Overall Score 0 – 100	
	(3 x V High @ 5) + (4 x High @ 4) + (2 x Med @ 3) + (1 x Low @ 2) + (1 V Low @ 1) = 40 x 55 ÷ 100 = 22	(4 x High @ 4) + (3 x Med @ 3) + (3 x Low @ 2) + (1 V Low @ 1) = 32 x 55 ÷ 100 = 17.6	(22 + 17.6) ÷ 2 = 19.8	20 – Moderate	

8.4.30 The historic landscape has been characterised as “an important relict pre-historic funerary and ritual landscape: Bronze Age Cairns; Common Land; open mountain sheepwalk, little above ground industrial exploitation” (Roberts 2003, 155). The area today remains an open upland common and has changed little in millennia. The area is characterised by statutory designated (six round barrow cairns SAMGm222) and non-designated Bronze Age barrows and represents the significant survival of a preserved prehistoric landscape. Later medieval pillow mounds (GGAT01361m) were built amongst the cairns representing dynamic agricultural exploitation of the area in addition to sheep husbandry, which dominated the uplands of the south Wales valleys at this time.

8.4.31 HLCA 079 A470(T) Road

Evaluation of the Relative Importance of the HLCA						
Criteria ↓	Value →	V High/V Good	High/Good	Mod/Med	Low	V Low/Poor
(a) HLCAs which may be directly or indirectly, wholly or partially, affected by the proposed development in relation to the whole of the Historic Landscape Character Area						
Rarity						
Representativeness						
Documentation						
Group value						
Survival						
Condition						
Coherence						
Integrity						
Potential						
Amenity						
Associations						
(b) HLCAs which may be directly or indirectly, wholly or partially, affected by the proposed development in relation to the whole of the Historic Landscape on the Register						
Rarity				✓		
Representativeness				✓		
Documentation				✓		
Group value			✓			
Survival					✓	
Condition					✓	
Coherence				✓		
Integrity					✓	
Potential				✓		
Amenity				✓		
Associations				✓		
(c) HLCAs which may be directly or indirectly, wholly or partially, affected by the proposed development in relation to the relative importance of the HLCA(s) concerned within the national context						
Rarity					✓	
Representativeness				✓		
Documentation					✓	
Group value					✓	
Survival					✓	
Condition					✓	
Coherence					✓	
Integrity					✓	
Potential				✓		
Amenity					✓	

Associations				✓	
Overall Evaluation Scores					
(a)	(b)	(c)	Equation Score	Overall Score 0 – 100	
	(1 x High @ 4) + (7 x Med @ 3) + (3 x Low @ 2) = 31 x 55 ÷ 100 = 17.05	(2 x Med @ 3) + (9 x Low @ 2) = 24 x 55 ÷ 100 = 13.2	$(17.05 + 13.2) \div 2 = \mathbf{15.125}$	15 – Low	

8.4.32 The historic landscape has been characterised as “North-south road transport corridor, late 20th century; former railway corridor (second half of 19th century); former industrial extractive landscape associated with the steam coal trade” (Roberts 2003, 157). Important 20th century communication (road and rail) corridor replacing 18th and 19th century road and rail (and tramroad) lines that interconnected the various industrial processing and extractive works including Gethin No.2 Pits (GGAT02191m) and associated incline, engine houses, ponds etc located just outside the study area.

Table 7. Summary of the overall averaged historic landscape in relation to the development.

Overall Evaluation Scores for Historic Landscape Character Areas Affected by the Development	
HLCA	Overall Value
HLCA 072 Waunwylt, Pen-y-lan and Graig Gethin	18 – Low
HLCA 014 River Taff Canal and Railway Corridor	15 – Low
HLCA 019 Penydarrren Tramroad Corridor	24 – Moderate
HLCA 020 Pentrebach	10 – Low
HLCA 022 Clyn-Mil, Pencoedcae and Trebeddau	11 – Low
HLCA 023 Clyn-Mil Workings	15 – Low
HLCA 024 Graweth and Pen-y-Lan	14 – Low
HLCA 025 Nantyroddyn and Bwllfa Workings	15 – Low
HLCA 026 Cilfach-yr-Encil	15 – Low
HLCA 031 Merthyr Common Central	22 – Moderate
HLCA 039 Ffos-y-fran	22 – Moderate
HLCA 077 Merthyr Common	20 – Moderate
HLCA 079 A470(T) Road	15 – Low
Average Evaluated Landscape Value in Relation to the Development	
Overall Total Value	Grade
$216 \div 13 = 16.61$	17 - Low

8.5 Stage 5: Assessment of Overall Significance of Impact

8.5.1 The following stage combines the results of Stages 2 to 4 to produce an ‘assessment of the overall significance of the impact of development and the effect that altering the Historic Character Area(s) concerned has on the whole of the historic landscape area on the Register’ (CADW 2007, 28). The effect of the development on each historic landscape character area is scored and the value assessed in relation to the likely loss and consequent reduction in value of the HLCA on the Register. The results are set out in the following table:

Table 8. Overall Significance of the Impact of Development on Landscapes of Historic Interest

Summary of the Overall Significance of the Impact of Development on Landscapes of Historic Interest				
HLCA	Value of Historic Character Area (based on stage 4 results)	Impact of Development (based on stages 2 & 3 results)	Reduction of Value of the Historic Landscape Area on Register	Overall significance of impact
HLCA 072 Waunwylt, Pen-y-lan and Graig Gethin	Low Key elements of low to moderate importance and/or condition and/or group value, and/or of generally low significance in this or other historic landscape areas on the Register. SCORE: 3	Low Slight land loss and consequent fragmentation and/or visual intrusion causing limited numbers of key elements to be removed or changed so that group value and/or coherence and/or integrity are slightly diminished, and/or amenity value slightly reduced. SCORE: 3	Low Development impact on key elements is such that there is slight reduction in the overall value of the historic landscape area on the Register. SCORE: 3	9 – Slight
HLCA 014 River Taff Canal and Railway Corridor	Low Key elements of low to moderate importance and/or condition and/or group value, and/or of generally low significance in this or other historic landscape areas on the Register. SCORE: 2	Very Low Marginal land loss and consequent fragmentation and/or visual intrusion causing negligible changes to elements and their values. SCORE: 1	Very Low Development impact on key elements is such that the value of the historic landscape area on the Register remains essentially unchanged. SCORE: 1	4 – Slight
HLCA 019 Penydarrren Tramroad Corridor	Medium Key elements of varying intrinsic importance and/or condition and/or group value, and /or generally typical of this or other historic landscape areas on the Register.	Low Slight land loss and consequent fragmentation and/or visual intrusion causing limited numbers of key elements to be removed or changed so that group value and/or coherence and/or integrity are slightly diminished, and/or amenity value slightly reduced.	Very Low Development impact on key elements is such that the value of the historic landscape area on the Register remains essentially unchanged.	8 – Slight

	SCORE: 5	SCORE: 2	SCORE: 1	
HLCA 020 Pentrebach	Low Key elements of low to moderate importance and/or condition and/or group value, and/or of generally low significance in this or other historic landscape areas on the Register.	Very Low Marginal land loss and consequent fragmentation and/or visual intrusion causing negligible changes to elements and their values.	Very Low Development impact on key elements is such that the value of the historic landscape area on the Register remains essentially unchanged.	4 – Slight
HLCA 022 Clyn-Mil, Pencoedcae and Trebeddau	Low Key elements of low to moderate importance and/or condition and/or group value, and/or of generally low significance in this or other historic landscape areas on the Register.	Very Low Marginal land loss and consequent fragmentation and/or visual intrusion causing negligible changes to elements and their values.	Very Low Development impact on key elements is such that the value of the historic landscape area on the Register remains essentially unchanged.	4 – Slight
HLCA 023 Clyn-Mil Workings	Low Key elements of low to moderate importance and/or condition and/or group value, and/or of generally low significance in this or other historic landscape areas on the Register.	Very Low Marginal land loss and consequent fragmentation and/or visual intrusion causing negligible changes to elements and their values.	Very Low Development impact on key elements is such that the value of the historic landscape area on the Register remains essentially unchanged.	5 – Slight
HLCA 024 Graweth and Pen-y-Lan	Low Key elements of low to moderate importance and/or condition	Very Low Marginal land loss and consequent fragmentation and/or visual	Very Low Development impact on key elements is such that the value of	5 – Slight

	and/or group value, and/or of generally low significance in this or other historic landscape areas on the Register. SCORE: 3	intrusion causing negligible changes to elements and their values. SCORE: 1	the historic landscape area on the Register remains essentially unchanged. SCORE: 1	
HLCA 025 Nanttyrodyn and Bwlfa Workings	Low Key elements of low to moderate importance and/or condition and/or group value, and/or of generally low significance in this or other historic landscape areas on the Register. SCORE: 3	Very Low Marginal land loss and consequent fragmentation and/or visual intrusion causing negligible changes to elements and their values. SCORE: 1	Very Low Development impact on key elements is such that the value of the historic landscape area on the Register remains essentially unchanged. SCORE: 1	5 – Slight
HLCA 026 Cilfach-yr-Encil	Low Key elements of low to moderate importance and/or condition and/or group value, and/or of generally low significance in this or other historic landscape areas on the Register. SCORE: 3	Very Low Marginal land loss and consequent fragmentation and/or visual intrusion causing negligible changes to elements and their values. SCORE: 1	Very Low Development impact on key elements is such that the value of the historic landscape area on the Register remains essentially unchanged. SCORE: 1	5 – Slight
HLCA 031 Merthyr Common Central	Medium Key elements of varying intrinsic importance and/or condition and/or group value, and /or generally typical of this or other historic landscape areas on the Register. SCORE: 6	Very Low Marginal land loss and consequent fragmentation and/or visual intrusion causing negligible changes to elements and their values. SCORE: 1	Very Low Development impact on key elements is such that the value of the historic landscape area on the Register remains essentially unchanged. SCORE: 1	8 – Slight

HLCA 039 Ffos-y-fran	Medium Key elements of varying intrinsic importance and/or condition and/or group value, and /or generally typical of this or other historic landscape areas on the Register. SCORE: 6	Very Low Marginal land loss and consequent fragmentation and/or visual intrusion causing negligible changes to elements and their values. SCORE: 1	Very Low Development impact on key elements is such that the value of the historic landscape area on the Register remains essentially unchanged. SCORE: 1	8 – Slight
HLCA 077 Merthyr Common	Medium Key elements of varying intrinsic importance and/or condition and/or group value, and /or generally typical of this or other historic landscape areas on the Register. SCORE: 6	Very Low Marginal land loss and consequent fragmentation and/or visual intrusion causing negligible changes to elements and their values. SCORE: 1	Very Low Development impact on key elements is such that the value of the historic landscape area on the Register remains essentially unchanged. SCORE: 1	8 – Slight
HLCA 079 A470(T) Road	Low Key elements of low to moderate importance and/or condition and/or group value, and/or of generally low significance in this or other historic landscape areas on the Register. SCORE: 2	Very Low Marginal land loss and consequent fragmentation and/or visual intrusion causing negligible changes to elements and their values. SCORE: 1	Very Low Development impact on key elements is such that the value of the historic landscape area on the Register remains essentially unchanged. SCORE: 1	4 – Slight

4.1.1 As noted in the methodology (CADW 2007, 30) scores have not been combined and averaged out for the Historic Landscape Character Areas to allow the end user to note whether there is any reduction in values to the Register and constituent parts. Nevertheless, the results indicated in the table above would suggest that the summary of overall significance of the impact of development on the historic landscape is **Slight**.

4.2 ASIDOHL2 Concluding Statement

- 4.2.1 The proposed development consists of construction of 36 camping pods and five chalets, erection of shower/toilet block and creation of play and picnic area. construction of new parking area (141 spaces) with overflow carpark (85 spaces), together with a trail maintenance yard, new highway access routes, ground profile works, drainage, infrastructure and landscape works at Bike Park Wales, Gethin Woodland Centre. The proposed development area was formerly the Gethin Woodland car park and is currently a world class mountain biking centre.
- 4.2.2 The development area is located within the CADW/ICOMOS Landscape of Outstanding Historic Interest of Merthyr Tydfil (HLW(MGI)2). Designated in 2001, Merthyr Tydfil occupies a natural basin at the head of the Taff Valley and is celebrated as “probably the largest iron-making town in the world in the early to mid-19th Century...(that) rapidly transformed from a modest village in the 1750s to the largest town in Wales by 1801” (CADW 1998, 47). The Merthyr Tydfil landscape contains a significant number of relics of this industrial past including remains of a number of “large ironworks, features relating to coal mining, waterpower leats, an early iron bridge, power and transportation systems including early tram roads, terraced industrial housing and Cyfarthfa Castle and Park”. The development area is located wholly within Historic Landscape Character Area (HLCA) 072 Waunwyllt, Pen-y-lan and Graig Gethin agricultural landscape.
- 4.2.3 The ASIDOHL2 process considered the potential effect to all landscapes on the Register resulting in the identification of just a single landscape being affected, Merthyr Tydfil (HLW(MGI)2) Landscape of Outstanding Historic Interest. The remaining landscapes on the Register were discounted as having no effect. The closest landscape being *Gelligaer Common HLW (MGI) 4*, 2.5km east; *East Fforest Fawr and Mynydd-y-Glog HLW (MGI) 3*, 14.1km northeast; *The Rhondda HLW (MGI) 5*, 6.5km southwest and the *Blaenavon World Heritage Site HLW (Gt) 1*, 12km northeast.
- 4.2.4 The ASIDOHL2 process has identified a single direct physical impact upon the historic landscape, in the Historic Landscape Character Area (HLCA) of 072 Waunwyllt, Pen-y-lan and Graig Gethin agricultural landscape. The direct physical impact has been assessed as **Slight** with the maximum area of the historic landscape character area that could be directly affected by the proposed development representing 2.34%, which is 0.07% of the total Registered historic landscape area. The proposed development impacting a slight land loss and consequent fragmentation and/or visual intrusion causing limited numbers of key elements to be removed or changed so that group value and/or coherence and/or integrity are slightly diminished, and/or amenity value slightly reduced with a slight reduction in the overall value of the historic landscape area on the Register.

- 4.2.5 The ASIDOHL2 process initially identified a further 44 HLCAs belonging to Merthyr Tydfil (HLW(MGI)2) as being potentially effected (indirectly) by the proposed development. This number was refined down using a combination of visibility analyses utilising computer modelling of the 2m DTM and 2m DSM LiDAR datasets to generate Zones of Theoretical Visibility (ZTVs) from and to the proposed development area, several site visits, study of contour maps, aerial photographs and taking into the consideration of existing surface features such as forestry and the built environment using digital surface models (DSM) generated by LiDAR. A single registered park and garden was identified by the ZTV analysis; Cyfarthfa Castle (PGW(Gm)1(MER) is located 3.5km to the north of the proposed development area. Three SAMs were also identified by the ZTV analysis as being potentially indirectly affected; Merthyr Tramroad Tunnel (Trevithick's Tunnel) (SAMGm573) 1.3km Northeast, the Ffos-y-fran Deserted Iron Mining Village (SAMGm496) and also at Ffos-y-fran the Sarn Howell Pond and Watercourses (SAMGm494), both c2.5km to the northeast. A further SAM was identified by the ZTVs located on Merthyr Common (Mynydd Cilfach-yr-encil) 2.7km to the east (Merthyr Common Round Cairns SAMGm222).
- 4.2.6 While theoretically visible, it has been established that the views to and from Cyfarthfa Castle and Park (PGW(Gm)1(MER; HLCA 013), Merthyr Tramroad Tunnel (Trevithick's Tunnel) (SAMGm573; HLCA 019), The Ffos-y-fran Deserted Iron Mining Village (SAMGm496; HLCA 077), Sarn Howell Pond and Watercourses (SAMGm494; HLCA 031) and Merthyr Common Round Cairns (SAMGm222; HLCA 077) are not indirectly physically effected by the proposed development. Based on the present assessment it is considered that the proposed development will have no permanent indirect physical impact on any of the statutory designated landscapes, sites and monuments noted above. As a result, the first part of Stage 3a was not carried out. No physical change from an increased risk of exposure, increased management needs, the severance or fragmentation of related elements, frustration or cessation of historic land-use practices and the frustration of access leading to decreased opportunities for education and enjoyment of the amenity elements will occur.
- 4.2.7 The visibility analysis identified the potential indirect visual effect for up to 44 historic landscape character areas. Following detailed assessment and site visits, it is considered that of the 44 HLCAs initially identified by ZTVs as potentially visible only 15 HLCAs (see Stage 3b assessment) had the potential for indirect (non-physical) visual impacts. The remainder disregarded because of a lack of visibility due to the inter-visibility of HLCAs and the proposed development area being obscured by the built environment, trees and vegetation and topography. The magnitude of indirect visual effects has been assessed as **Very Slight**.
- 4.2.8 A total of 13 HLCAs were considered for the relative importance of parts or elements of HLCAs which may be directly or indirectly, wholly or partially, affected by the proposed development. The effect to three HLCA's (HLCA 021, 037 and 048) was assessed as so imperceptible that it was considered that they will not add to the relative importance evaluation in relation to the nature and extent of the proposed development. The remaining overall (combined) averaged landscape value was assessed as **Low**.

- 4.2.9 The final ASIDOHL2 assessment process identified the assessment of the overall significance of the impact of development and the effect that altering the Historic Character Area(s) concerned has on the whole of the historic landscape area on the Register (CADW 2007, 28). The effect of the development on each historic landscape character area was scored and the value assessed in relation to the likely loss and consequent reduction in value of the HLCA on the Register. The results indicated that the summary of overall significance of the impact of development on the historic landscape is **Slight**. The development impact on key elements is such that the value of the historic landscape area on the Register remains essentially unchanged.

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6 Appendices

6.1 Appendix I Figures

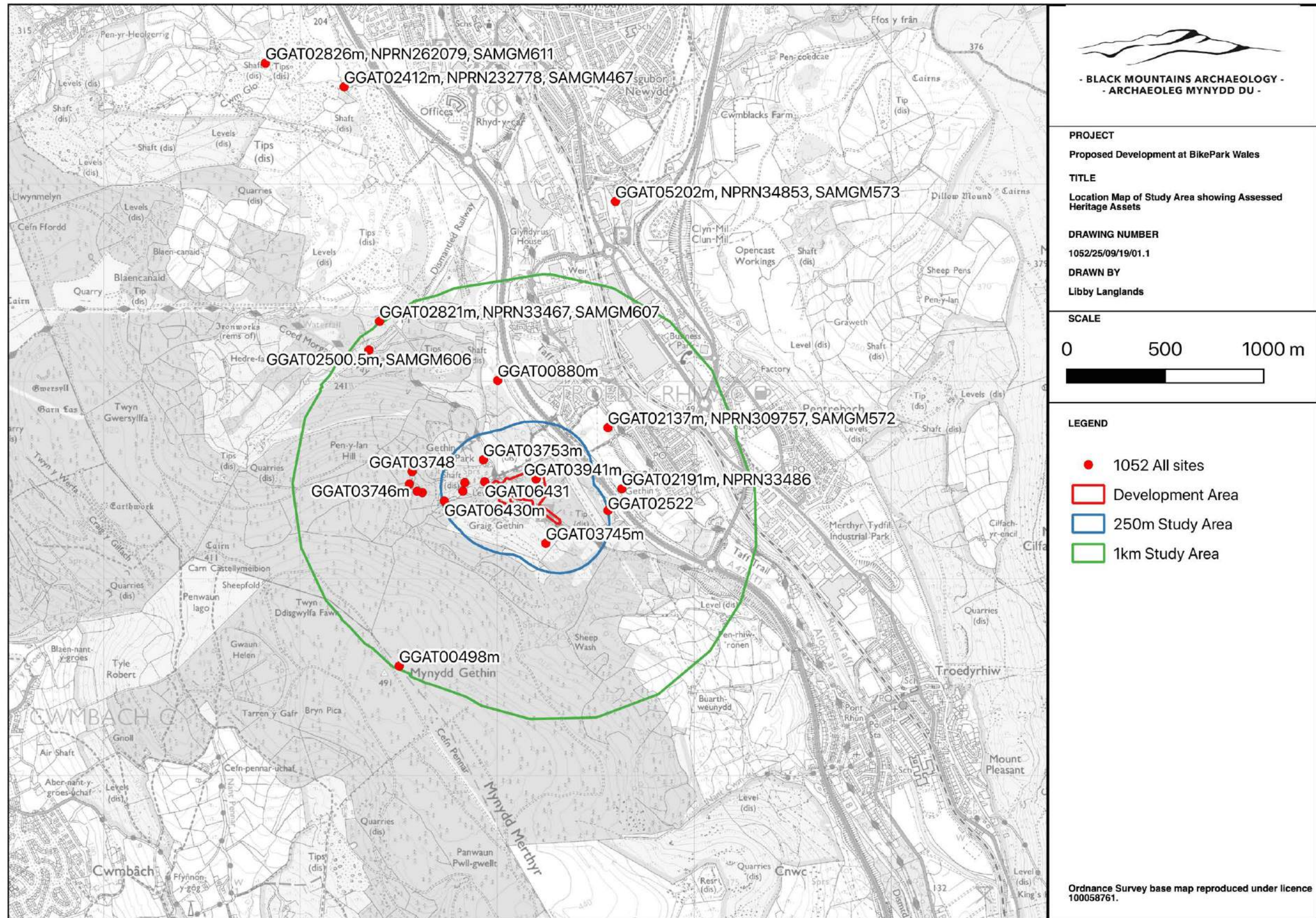


Figure 1.1

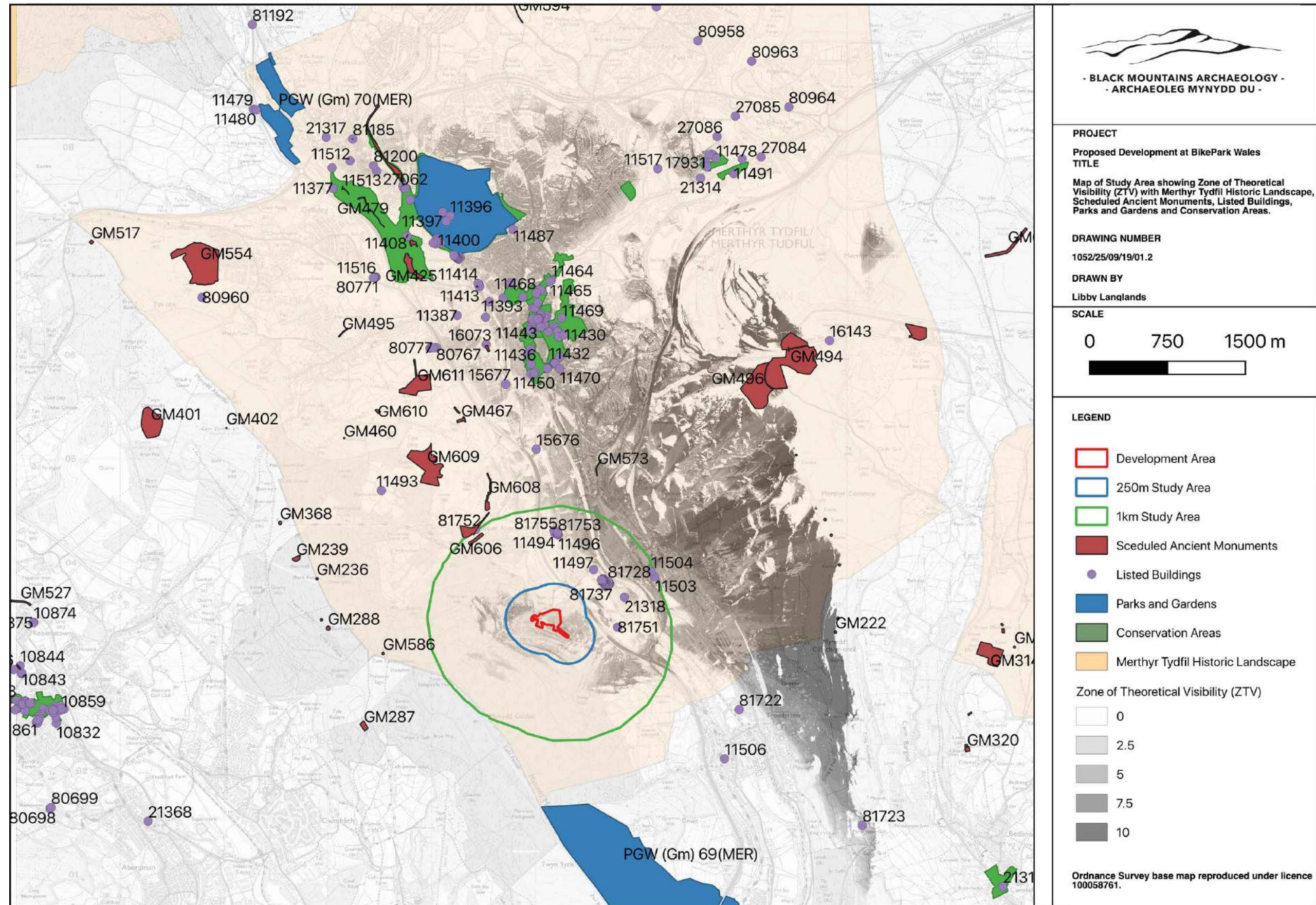


Figure 1.2

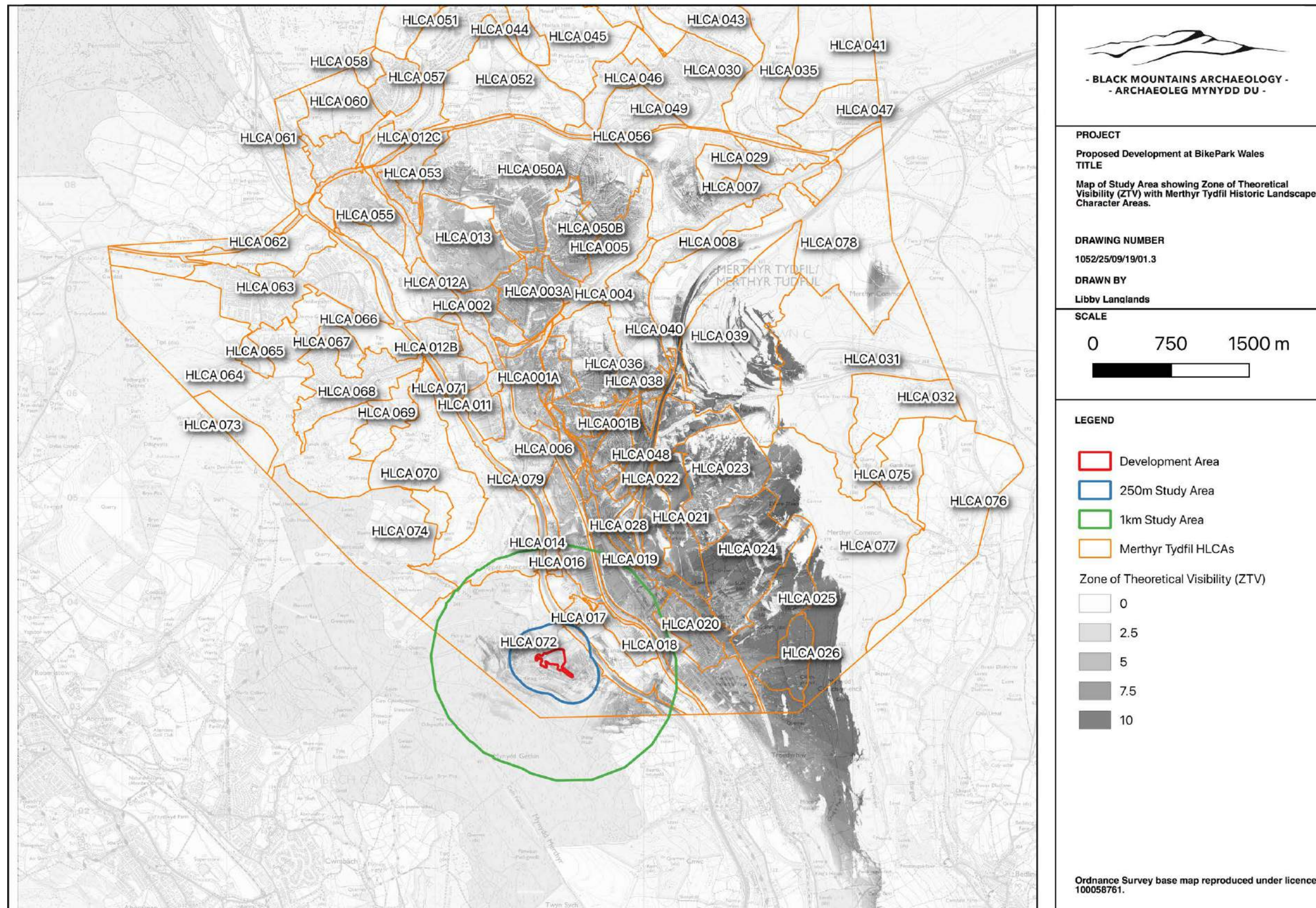


Figure 1.3

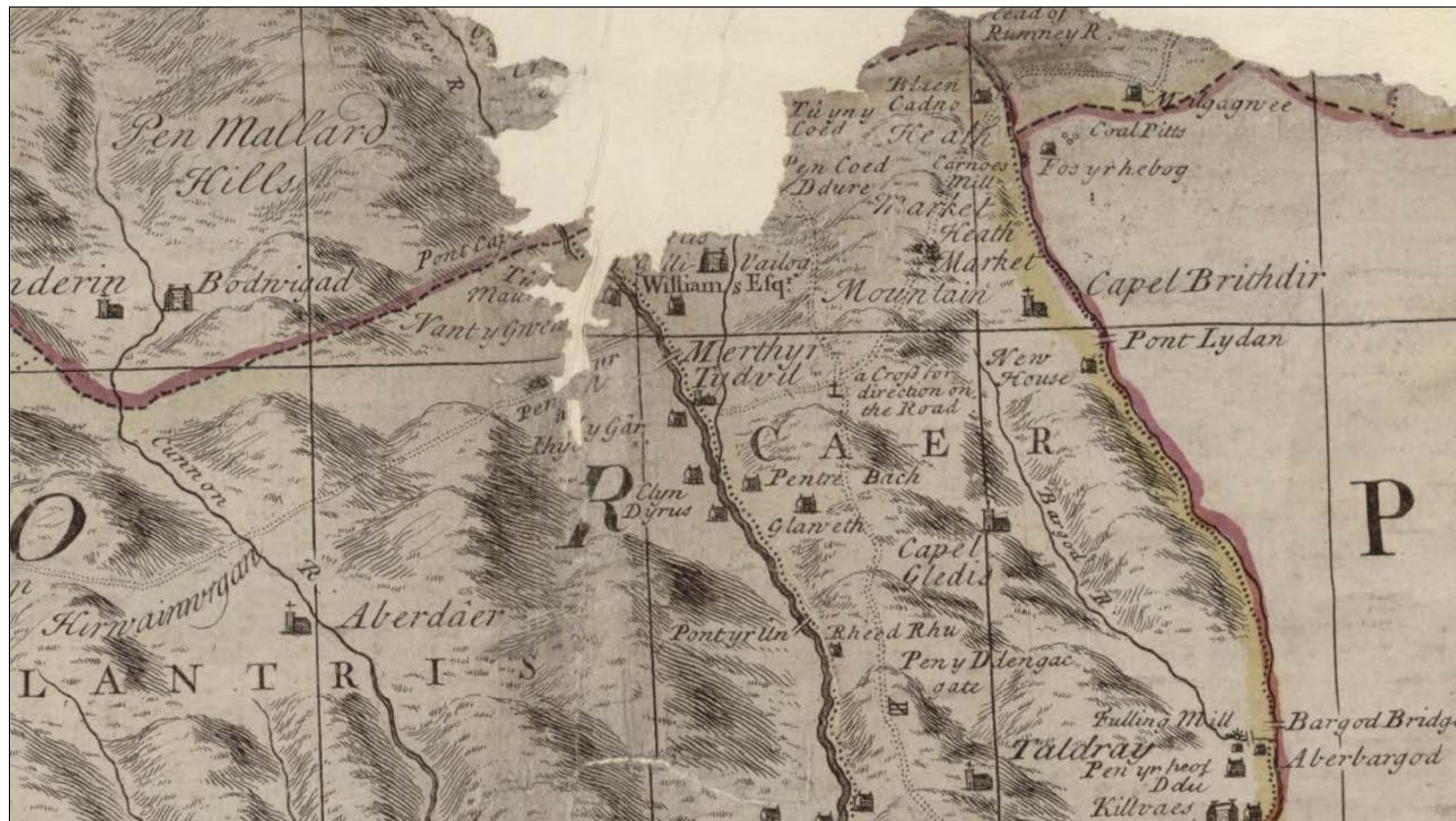
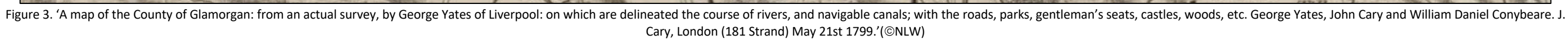


Figure 2. Detail of 'A New and Accurate Map of South Wales containing the counties of Pembroke, Glamorgan, Carmarthen, Brecknock, Cardigan and Radnor wherein are exactly laid down and delineated from an actual survey and admeasurement all the towns, villages, churches, chaples, gentlemen's seats'. Emanuel Bowen, 1729. Published by Owen and Bowen, London.' (©NLW)



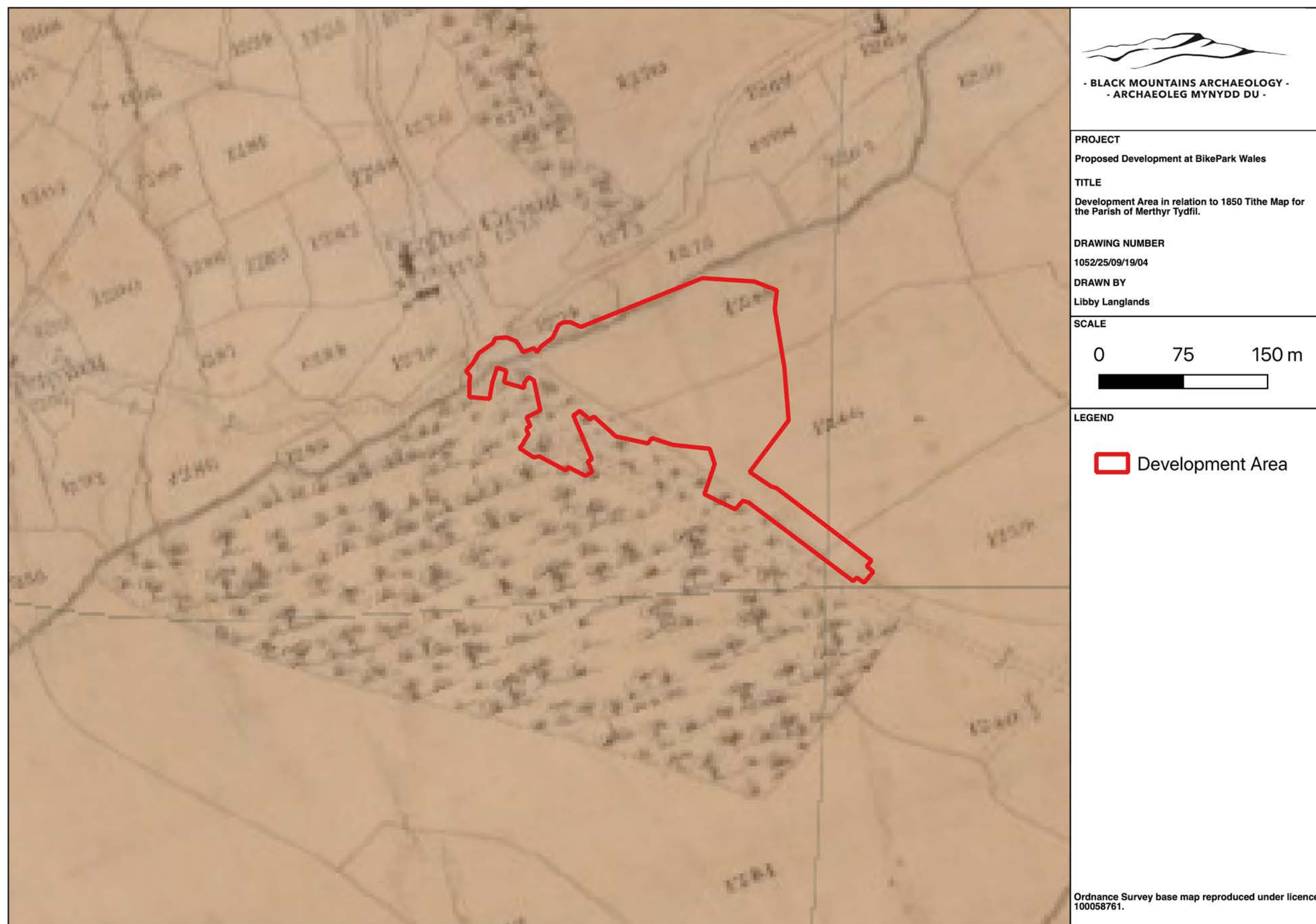


Figure 4

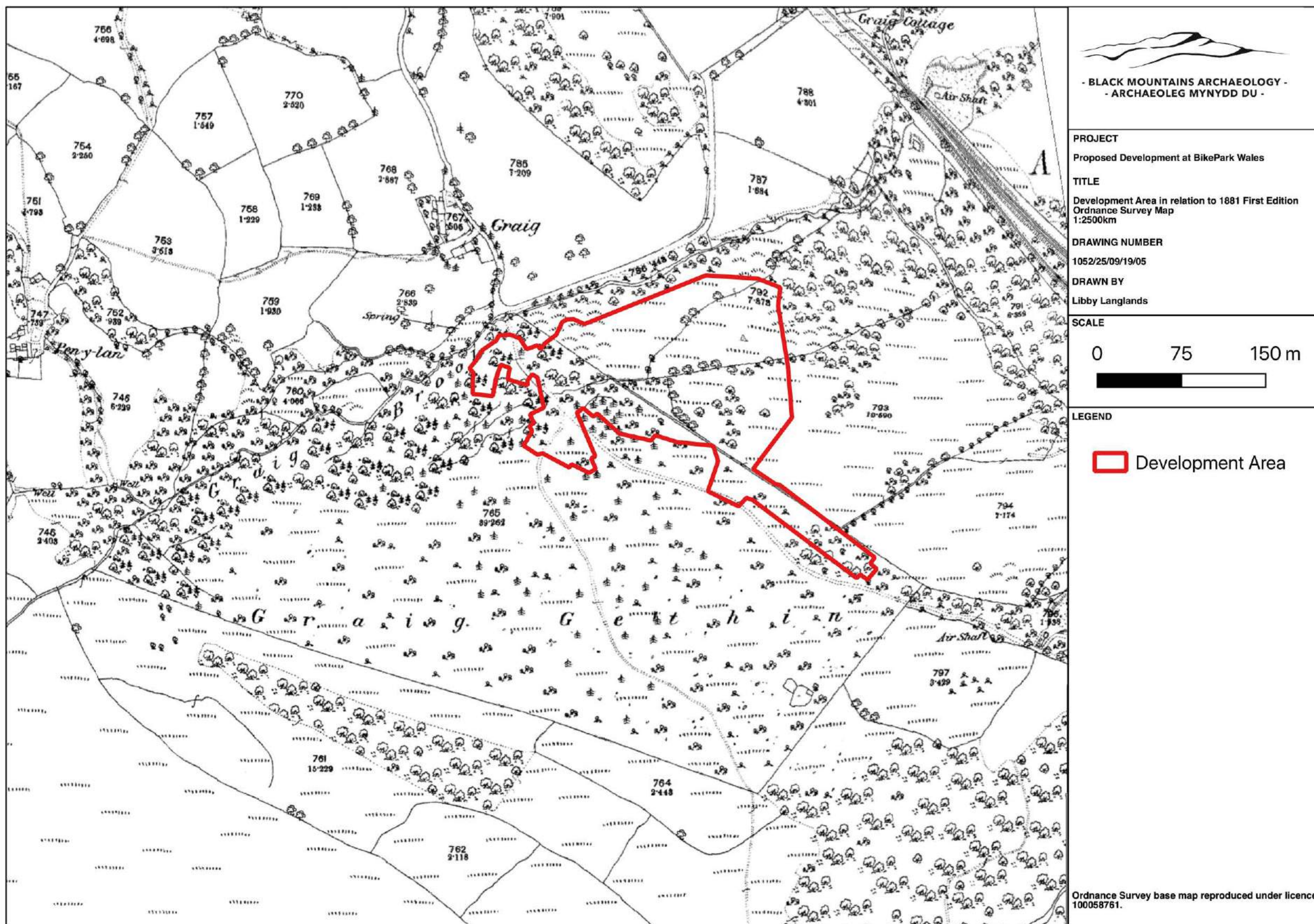


Figure 5

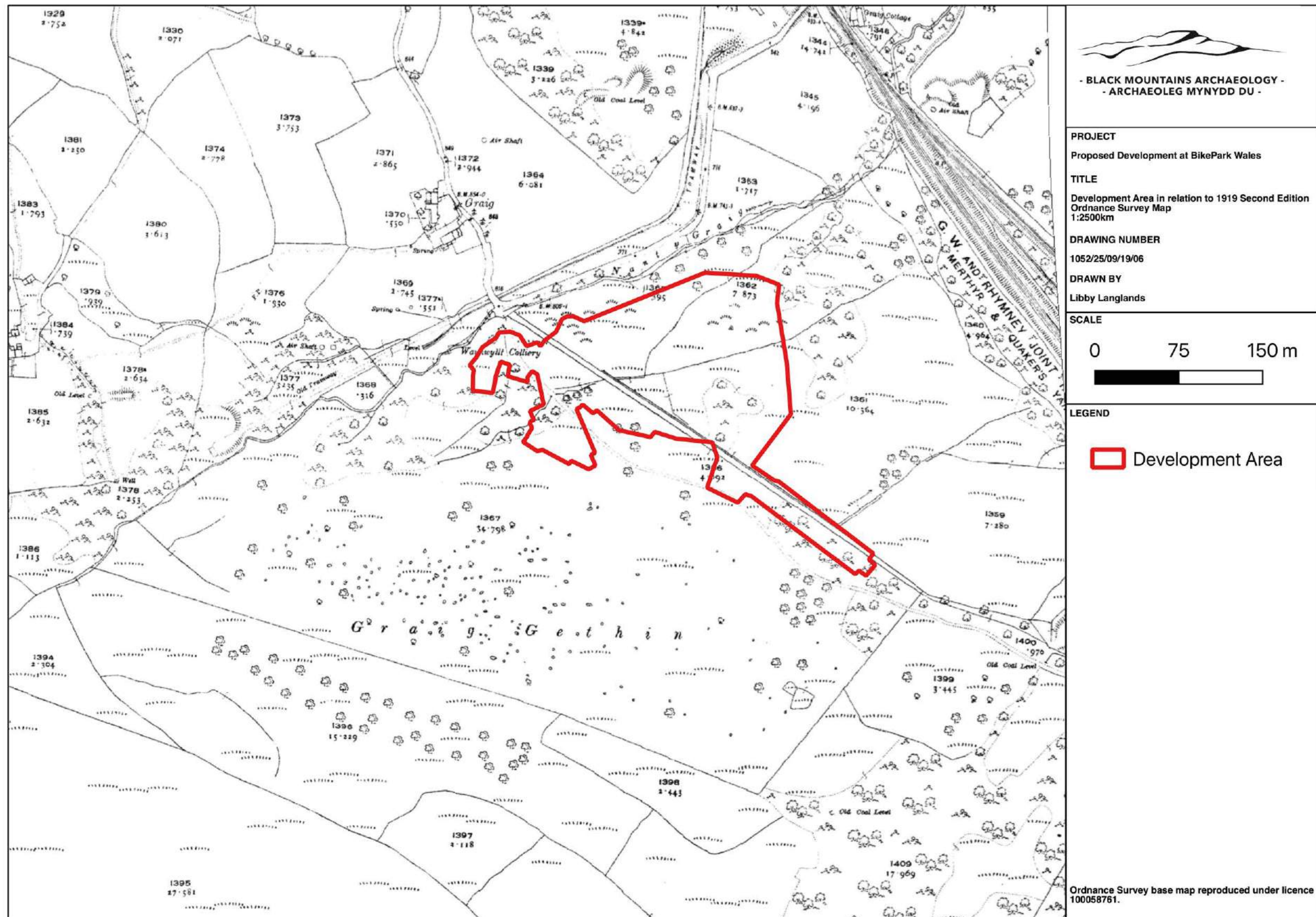


Figure 6

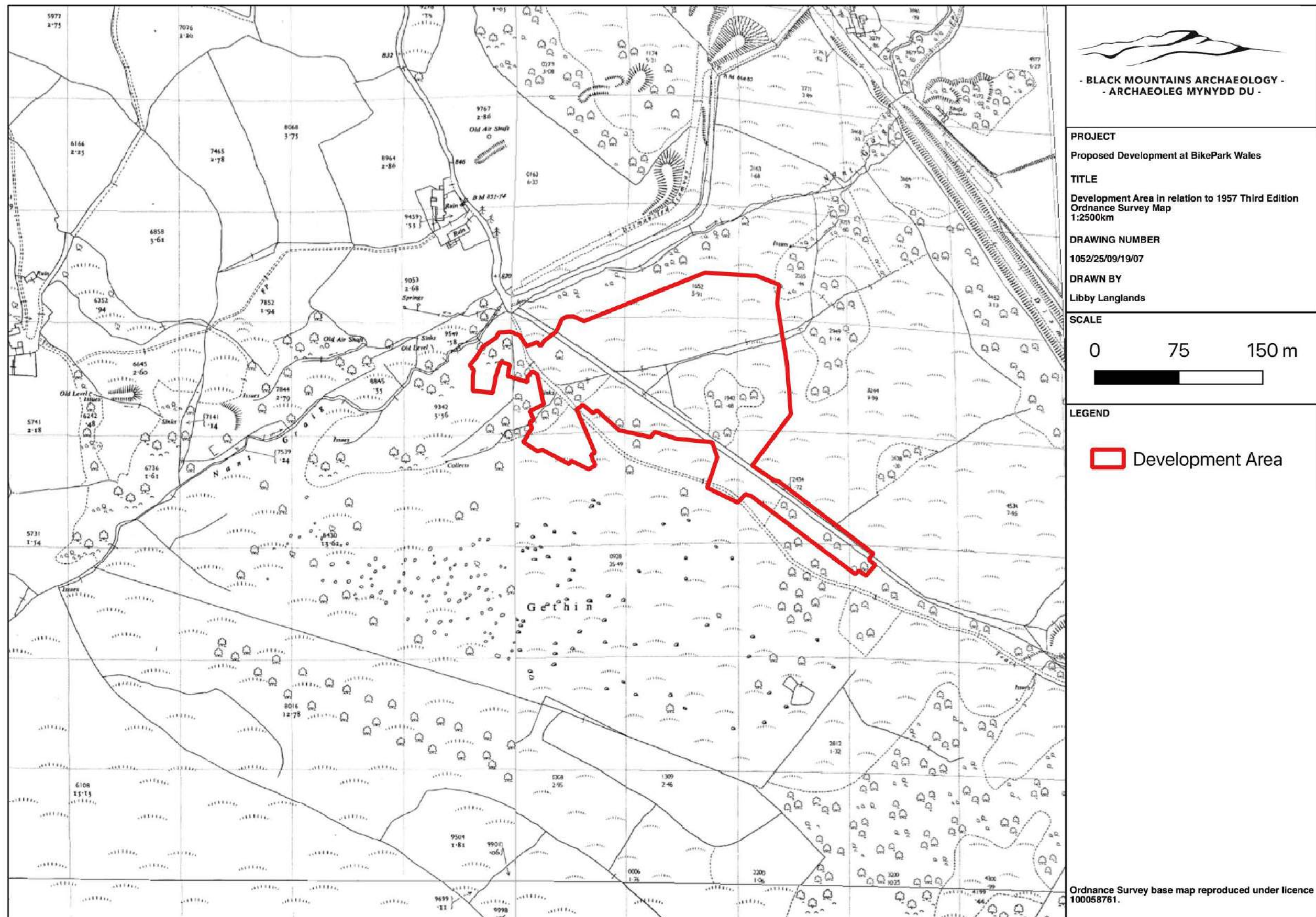


Figure 7

6.2 Appendix II Aerial Photographs

6.2.1 The following is a list of the aerial photographs with coverage of the Study Area held by the Central Registry of Air Photography for Wales (CRAPW). The images largely followed the chronology of historic maps. No new heritage assets were identified.

Table 9. Aerial photographic search results

WO no	Sortie No	Date	Ph type
5086	3G/TUD/T19 PART II	03/8/45	B&W
196	C.P.E/UK/2326 PART II	26/9/47	B&W
198	C.P.E/UK/2326 PART II	26/9/47	B&W
3408	58/676	12/05/51	B&W
0189	F21.58.RAF.1110	05/05/53	B&W
Unmarked photo			B&W
V	OS/63/74	31/05/63	B&W
7167175	71/67	23/07/67	B&W
Unmarked photo			B&W
75 037	WILD 687	24/04/75	B&W
1741	No 667	19/05/77	B&W
201	196	10/06/84	B&W
202	54	10/6/84	B&W
86188	WILD 13095	09/09/86	B&W
0196	900424	24/04/90	B&W
Unmarked photo			Colour
Unmarked photo			Colour
Unmarked photo			Colour
Unmarked photo			Colour

6.3 Appendix III Tithe Apportionment

Table 10. Apportionments relating to the Tithe Map of the Parish of Merthyr Tydfil, Glamorgan 1850.

Parcel Number	Landowners	Occupiers	Name and Description of Lands and Premises	State of Cultivation	Quantities in Statute Measure			Amount of Rent- charge apportioned upon the several Lands, and to whom payable					
					A.	P.	R.	Payable to Vicar			Payable to Appropriator		
								£	S	P	£	S	P
1244	Dynevor Lord and the Representatives of the late Richard John Matthews	Dynevor Lord and the Representatives of the late Richard John Matthews	Farm Name Abernant Gething Field Name Fur Plantation	Fur Plantation	-	-	-	-	-	-	-	-	-
1245	Dynevor Lord and the Representatives of the late Richard John Matthews	John Ward	Abernant Gething Coed Llwyn Crwn	Pasture, Wood	7	1	33	-	-	-	-	-	-
1246	Dynevor Lord and the Representatives of the late Richard John Matthews	John Ward	Abernant Gething Waun Griffith	Meadow	10	2	10	-	-	-	-	-	-

Note. Quantities and Measures are listed in Acres, Roods and Perches (A.R.P.). An acre is 4,840 square yards. A rood is a rectangular Area one furlong (10 chains or 40 rods/perches) long by one rod wide. There are 40 perches to a rood, and 160 perches to an acre. The amount (£) due is listed in Pounds, Shillings and Pence (£sd).

Plan of the Parish of Merthyr Tydfil in the County of Glamorgan , 1850. Michael Nunan and John Williams of Hendrescythan. National Library of Wales [99355055502419](#)

6.4 Gazetteer of New Heritage Assets

ID: BPW01 **Enw:** tramffordd

NGR: SO0482303438 **Math:** tramffordd **Statws:** Dim **Cyfnod:** Ôl-ganoloesol

Disgrifiad:

Wedi'i farcio fel 'Hen Tramffordd' ar yr 1919 2^{ll} argraffiad o'r Map OS 1:2500. Yn gysylltiedig â 'Siafft Aer' (GGAT06429m), 'Lefel' (GGAT06431m) a 'Strwythur' (GGAT06430m) ynghyd â ffurfio 'Glofa Newydd Waunwyllt'. Cafodd Glofa Newydd Waunwyllt ei agor yn 1909 gan Cwmni Glofa Thomas Merthur ac yn 1918 cyflogedwyd 117 o ddynion dan ddaear a 20 ar yr arwyneb cyn gauodd ar y 13^{eg} Iau 1920 (Welshcoalmines.co.uk cyrchwyd 18/09/19).

Tramffordd wedi goroesi yn ysbeidiol fel sarn/pant bas yn rhedeg de-orllewin/gogledd-ddwyrain o Strwythur (GGAT06430m) (a allai fod yn dŷ troellog posibl), cyn rhedeg in cyfochrog gyda (ac i'r gogledd o) 'Lefel' (GGAT06431m) tuag at Fferm Graig lle mae'r map OS yn dangos ei fod yn plygu i'r gogledd-ddwyrain tuag at domenni ger Pwll Graig. Lle mae'n croesi Nant Graig, cafodd dau drac rheilffordd eu hailddefnyddio a gosod yn fertigol i'r ddaear, o bosibl fel rhan o strwythur pont.

Yn cynrychioli enghraifft o nodweddion echdynnol a nodwedddwyd yn HLCA072 Waunwyllt, Pen-y-lan a Graig Gethin.

Wedi'i leoli'n fras ar linell y cyfuchliniau 300m ar top o'r llethr a 250m ar waelod lle mae'n uno â'r ffordd fynediad i Fferm Gethin.

ID: BPW01 **Name:** Tramway

NGR: SO0482303438 **Type:** Tramway **Status:** None **Period:** Post-medieval

Description:

Marked as 'Old Tramway' on 1919 2nd Edition OS 1:2500 Map. Associated with 'Airshaft' (GGAT06429m), 'Level' (GGAT06431m) and 'Structure' (GGAT06430m) together forming 'New Waunwyllt Colliery'.

Welshcoalmines.co.uk reports that "New Waunwyllt Colliery was opened in 1909 by Thomas Merthyr Colliery Company and in 1918 employed 117 men underground and 20 on the surface before being closed on 13th July 1920" (Accessed 18/09/19).

Tramway survives intermittently as a causeway/ shallow holloway running southwest/northeast from Structure (GGAT06430m), (which may be a possible winding house), before running parallel with '(and to the north of) Level (GGAT06431m) towards Graig Farm where the OS map shows that it dog-legs northeastwards towards tips near Graig Pit. Where it crosses Nant Graig, two reused railway tracks have been set vertically into the ground, possibly as part of a bridge structure.

Represents example of extractive features characterised within HLCA072 Waunwyllt, Pen-y-lan and Graig Gethin.

ID: BPW02 **Enw:** Lefel

NGR: SO0461703431 **Math:** Lefel **Statws:** Dim **Cyfnod:** Ôl-ganoloesol

Disgrifiad:

Hen Lefel c.200m i'r gorllewin o'r Glofa Newydd Waunwyllt 'Lefel' (GGAT06431m). O bosib rhan o'r un cymhleth. Wedi'i dorri'n wastad i gyfeiriad y gorllewin, roedd rhywfaint o waith maen yn weladwy yn awgrymu bwa gwaith maen.

Mae'r Lefel wedi'i lleoli ar waelod ffin cae hynafol yn arwain i fynny 'Fferm Pen-y-Lan' (GGAT03746m) gerllaw. Hefyd yn agos i 'Tŷ Bach Carreg Sych' (GGAT 03747m) sy'n fwy tebygol o fod yn tŷ powdr yn gysylltiedig â'r gwaith echdynnu cyfagos.

Yn cynrychioli enghraifft o nodweddion echdynnol a nodwedddwyd yn HLCA072 Waunwyllt, Pen-y-lan a Graig Gethin.

Wedi'i leoli'n fras ar linell cyfuchlin 340m.

ID: BPW02 **Name:**

NGR: SO0461703431 **Type:** Level **Status:** None **Period:** Post-medieval

Description: Old Level c.200m to the west of New Waunwyllt Colliery 'Level' (GGAT06431m). Possibly part of the same complex. Level cut in a westerly direction, some faced masonry was noted suggestive of a masonry archway.

The Level is located at base of ancient field boundary leading up to nearby 'Pen-y-lan Farm' (GGAT03746m). Also in close proximity to 'Drystone Toilet' (GGAT 03747m) which is more likely to be a Powder House related to the nearby extractive workings.

Represents example of extractive features characterised within HLCA072 Waunwyllt, Pen-y-lan and Graig Gethin.