

**Demolition of Bungalow, Construction of
Residential Development, Landscaping, Parking
and Associated Works at Land to North of
Crabtree Walk and to West of Sweetwater Park,
Trefechan, Merthyr Tydfil
(P/20/0121)**

Written Scheme of Investigation

**Prepared
for**

Environmental Dimension Partnership Ltd

On behalf of

WDL Homes Ltd

By



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

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Summary

Comisiynwyd Archeoleg Mynydd Du Cyf gan Environmental Dimension Partnership (EDP) Cyf ar ran WDL Homes Cyf i baratoi Cynllun Ymchwilio Ysgrifenedig (CYY) cyn datblygiad arfaethedig ar tir i'r gogledd o Crabtree Walk ac i'r gorllewin o Sweetwater Park, Trefechan, Merthyr Tudful (P/20/0121). Bydd y datblygiad arfaethedig yn cynnwys y dymchweliad o byngalo a'r adeiladwaith datblygiad preswyl, gan gynnwys tirlunio, parcio a'r holl waith cysylltiedig arall.

Yn flaenorol, lluniwyd Asesiad Effaith Archeolegol a Threftadaeth gan EDP Cyf, a nododd bresenoldeb waliau cerrig sych Ôl-ganoloesol ac adeiladau amaethyddol posibl a nodwyd ar fapio hanesyddol. Nododd arolwg cerdded a gynhaliwyd gan Archeoleg Mynydd Du Cyf y bresenoldeb tri strwythur Ôl-ganoloesol posibl mewn dau leoliad arwahanol a briododd yn dda â'r adeiladau a nodwyd ar fapio hanesyddol (Strwythurau 1,2 a 3).

Argymhellodd cynghorwyr archeolegol yr ACLI (GGAT) "...an appropriate programme of historic building recording and analysis [should be] secured and implemented in accordance with a written scheme of investigation, which should also detail the recording of sections and foundations/buried elements of the walling that will be removed."

Mae'r adroddiad presennol yn nodi'r gofynion ar gyfer arolwg tirwedd hanesyddol, cofnod adeiladu hanesyddol a briff gwylio archeolegol (yn ystod gwaith daear) ar yr olion o'r maeswedd amaethyddol a'r adeiladau a nodwyd ar fapio hanesyddol, a oedd yn gyfateb sy'n cyfateb i weddillion gwrthglawdd yr adeilad a nodwyd yn ystod yr arolwg cerdded drosodd. Bydd yr arolwg tirwedd hanesyddol yn cael ei gynnal i safon Lefel II i Deall Archeoleg Tirweddau Canllaw i Arfer Cofnodi Da gan Lloegr Hanesyddol (Cyhoeddwyd 2017a). Bydd y cofnod adeiladu hanesyddol yn cael ei gynnal i Safon Lefel II yn unol â Deall Adeiladau Hanesyddol: Canllaw i Arfer Cofnodi Da gan Lloegr Hanesyddol (2016) ynghyd â chadw at safonau'r Safon a Chanllawiau ar gyfer 'Ymchwilio Archeolegol a Chofnodi Adeiladau neu Strwythurau Sefydlog' gan y Sefydliad Siartredig Archeolegwyr (cyhoeddwyd 2014, diwygwyd 2020). Bydd arolwg o'r awyr (drôn), cipio data a phrosesu ffotogrammetrig yn cael ei gynnal yn unol â'r rheolau a'r rheoliadau sydd wedi'u cynnwys yn Gorchymyn Llywio Awyr 2016 a'i ddiwygiadau 2018 a 2019 a Ceisiadau Ffotogrammetrig am Canllawiau Treftadaeth Ddiwylliannol ar gyfer Arfer Da gan Lloegr Hanesyddol (Cyhoeddwyd 2017b). Bydd y briff gwylio archeolegol yn cael ei gynnal i safonau proffesiynol Safon a Chanllawiau ar gyfer Briff Gwylio Archeolegol gan y Sefydliad Siartredig Archeolegwyr (cyhoeddwyd 2014, diwygwyd 2020).

Black Mountains Archaeology Ltd/Archeoleg Mynydd Du Cyf have been commissioned by Environmental Dimension Partnership (EDP) Ltd on behalf of WDL Homes Ltd to prepare a Written Scheme of Investigation (WSI) in advance of a proposed development at an area of land to the north of Crabtree Walk and to the west of Sweetwater Park, Trefechan, Merthyr Tydfil (P/20/0121). The proposed development will consist of the demolition of a bungalow and the construction of a residential development, including landscaping, parking and all other associated works.

An Archaeological and Heritage Impact Assessment was previously compiled by EDP Ltd, which identified the presence of Post-medieval drystone walling and potential agricultural

buildings noted on historic mapping. A walkover survey conducted by Black Mountains Archaeology Ltd identified the presence of three possible Post-medieval structures in two discrete locations that married well with the buildings noted on historic mapping (Structures 1, 2 and 3).

The archaeological advisers to the LPA (GGAT) recommended “...an appropriate programme of historic building recording and analysis [should be] secured and implemented in accordance with a written scheme of investigation, which should also detail the recording of sections and foundations/buried elements of the walling that will be removed [during the course of the proposed development].”

The present report sets out the requirements for an historic landscape survey, historic building record and archaeological watching brief (during ground works) on the remains of the agricultural fieldscape and the buildings noted on historic mapping, which correspond to the building earthwork remains identified during the walk over survey.

The landscape survey will be conducted to Level II standard to Historic England’s Understanding the Archaeology of Landscapes A Guide to Good Recording Practice (Published 2017a). The historic building recording will be carried out to a Level II standard in accordance with Historic England’s ‘Understanding Historic Buildings: A Guide to Good Recording Practice (2016) together with adhering to the standards of the Chartered Institute for Archaeologists Standard and Guidance for the ‘Archaeological Investigation and Recording of Standing Buildings or Structures’ (2014, updated 2020). Aerial (drone) survey, data capture and photogrammetric processing will be undertaken in accordance with the rules and regulations contained within Air Navigation Order 2016 and its 2018 and 2019 amendments and Historic England’s Photogrammetric Applications for Cultural Heritage Guidance for Good Practice (Published 2017b). The archaeological watching brief will be carried out to the professional standards of the Chartered Institute for Archaeologists’ Standard and Guidance for an Archaeological Watching Brief (published 2014, revised 2020).

Acknowledgements and Copyright

The project is managed by Richard Lewis BA MCIfA. The report was prepared by Richard Lewis and Dr Rhys Morgan PhD. The site visit and Welsh summary translation was undertaken by Dr Rhys Morgan. The copyright of this report is held by Black Mountains Archaeology Ltd, who have granted an exclusive licence to WDL Homes Ltd and their agents enabling them to use and reproduce the material it contains. Ordnance Survey maps are reproduced under licence 100058761. Black Mountains Archaeology Ltd retains copyright of any annotations.

Written Scheme of Investigation

1. Introduction

- 1.1.1. Black Mountains Archaeology Ltd/*Archeoleg Mynydd Du Cyf* have been commissioned by Environmental Dimension Partnership (EDP) Ltd on behalf of WDL Homes Ltd to prepare a Written Scheme of Investigation (WSI) in advance of a proposed development at an area of land to the north of Crabtree Walk and to the west of Sweetwater Park, Trefechan, Merthyr Tydfil (P/20/0121). The proposed development will consist of the demolition of a bungalow and the construction of a residential development, including landscaping, parking and all other associated works.
- 1.1.2. An Archaeological and Heritage Impact Assessment was previously compiled by EDP Ltd (Sharp and Pearson 2019), which identified the presence of Post-medieval drystone walling, potential agricultural buildings noted on historic mapping and three mounds of potential archaeological interest within the proposed development area. The three mounds were subjected to an archaeological field evaluation (Burton 2020), during which it was determined that these mounds comprised clearance cairns accumulated during Post-medieval wall construction or repair. These mounds required no further archaeological mitigation.
- 1.1.3. The archaeological advisers to the LPA (GGAT) noted (letter reference MTY0259/RD) that the Post-medieval drystone walling and potential agricultural buildings observed on historic mapping within the proposed development area required further archaeological mitigation, they stated:
- 1.1.4. *"...elements of the drystone walling and the agricultural buildings themselves will be adversely affected by the proposals. As such it is our recommendation that they be recorded prior to the commencement of the development. Where parts of the drystone walls are removed, a record should also be made of the section and any foundations or buried elements."*
- 1.1.5. The archaeological advisers to the LPA (GGAT) also recommended that the following condition be attached to the planning consent:
 - *No works to which this consent relates shall commence until an appropriate programme of historic building recording and analysis has been secured and implemented in accordance with a written scheme of investigation which has been submitted to and approved in writing by the local planning authority.*
 - *Reason: As the building is of architectural and cultural significance the specified records are required to mitigate impact.*
- 1.1.6. The archaeological advisers to the LPA (GGAT) further noted (letter reference MTY0259/RD) that *"...the requisite written scheme of investigation should also detail the recording of sections and foundations/buried elements of the walling that will be removed [during the course of the proposed development]."*
- 1.1.7. A walkover survey conducted by Black Mountains Archaeology Ltd on the 22nd June 2021 determined the presence of three possible Post-medieval structures in two discrete locations within the proposed development area, which have been described below as Structures 1, 2 and 3 (Figure 1).

- 1.1.8. The present report sets out the requirements for an historic landscape survey, historic building record and archaeological watching brief (during ground works) on the remains of the agricultural fieldscape and the buildings noted on historic mapping, which correspond to the building earthwork remains identified during the walk over survey.
- 1.1.9. The landscape survey will be conducted to Level II standard to Historic England's *Understanding the Archaeology of Landscapes A Guide to Good Recording Practice* (Published 2017a). The historic building recording will be carried out to a Level II standard in accordance with *Historic England's 'Understanding Historic Buildings: A Guide to Good Recording Practice* (2016) together with adhering to the standards of the *Chartered Institute for Archaeologists Standard and Guidance for the 'Archaeological Investigation and Recording of Standing Buildings or Structures'* (2014, updated 2020). Aerial (drone) survey, data capture and photogrammetric processing will be undertaken in accordance with the rules and regulations contained within *Air Navigation Order 2016* and its 2018 and 2019 amendments and *Historic England's Photogrammetric Applications for Cultural Heritage Guidance for Good Practice* (Published 2017b). The archaeological watching brief will be carried out to the professional standards of the Chartered Institute for Archaeologists' *Standard and Guidance for an Archaeological Watching Brief* (published 2014, revised 2020).

2. Background

2.1. Archaeological, Historical and Recent Work

- 2.1.1. The Archaeological and Heritage assessment prepared by EDP Ltd (Sharp and Pearson 2019) noted a low potential for prehistoric, Roman and medieval remains to be encountered within the proposed development area (Figure 1). The assessment did, however, record the presence of Post-medieval drystone walled fieldscape and agricultural buildings noted on historic mapping, and three stone mounds of potential archaeological interest. The three mounds were determined to be clearance cairns of Post-medieval date (Burton 2020). The Post-medieval drystone walled fieldscape includes the presence of at least three buildings in two discrete locations (Figure 1).
- 2.1.2. The cartographic evidence relating to the Post-medieval drystone walled fieldscape has already been comprehensively discussed by Sharp and Pearson (2019). Within their assessment they note that on the 1841 Tithe Map of the local area (*Plan of the Parish of Vaynor in the County of Brecon*), the development area comprised six separate fields whose boundaries marry well with those that define the area today. They also note that during this time the development area was occupied by two buildings, situated on the southern end of the development area. According to the apportionment attached to the Tithe Map the first building occupied the southern edge of Land Parcel 323, which at this time was being used as a meadow belonging to a farm named Tir Jenkin Soch and was owned by Mrs Mary Rees and occupied by William Crawshay Esq. According to the same apportionment, the second building was situated in Land Parcel 322, which comprised a meadow known simply as Field and Road, owned by Mrs Mary Rees and occupied by William Crawshay Esq. This building also belonged to the farm named Tir Jenkin Soch. However, the 1841 Tithe Map also shows a third building, small in size and square in form, situated on the

northern edge of Land Parcel 341, which comprised a meadow named Cae Carnau occupied again by William Crawshay Esq. It is noted by Sharp and Pearson (2019) that minimal changes affected the current development area until 1904, during which time a field boundary running through the centre of the site has been removed. They also note that in 1964 two new buildings were constructed within the present development area in concurrence with the founding of two new land parcels.

- 2.1.3. In addition to the findings outlined by Sharp and Pearson (2019), a walkover survey was conducted by Black Mountains Archaeology Ltd on the 21st June 2021, during which the presence of three possible Post-medieval structures (Structures 1, 2 and 3) were identified in the proposed development (Figure 1). These structures married well with the buildings depicted on historic mapping. Structures 1 and 3 were situated towards the southern edge of the development area and Structure 2 to the northeast. Structures 1 and 3 represent the remains of Tir Jenkin Soch farm depicted on both the 1841 Tithe Map and shown as ruins on the 1884 Ordnance Survey (OS) historic map of the area (*Brecknockshire XLV.SE*). The farm appears to have developed organically on a linear plan with Structures 1 and 3 most likely forming part of the house and attached farm buildings and boundary walls. The visible remains standing to around 0.5m in height. Due to the presence of a significant volume of vegetation it was not possible to measure the area of the structure in detail.
- 2.1.4. Structure 2 (Figure 1) was situated on the northern edge of the development area and comprised the remains of a possible rectangular (threshing) barn separated by at least three internal bays. The 1841 Tithe Map depicts a smaller rectangular building at this location in Land Parcel 341. The farm noted as Lan Ucha and field name Cae Carnau owned by Jenkin Jenkins and occupied by William Crawshay. By the publication of the 1884 Ordnance Survey (OS) historic map (*Brecknockshire XLV.SE*) the building is shown as a ruin but appears much enlarged and rectangular in form, which marries well with the visible remains standing to around 0.5m in height. Two walls were noted standing to at least 1m in height. Due to the presence of a significant volume of vegetation it was not possible to measure the area of the structure in detail.

3. Location, Topography and Geology

- 3.1.1. The proposed development area is centred on NGR (SO) 303423, 209069 and comprises an irregularly shaped parcel of land, measuring approximately 250m x 200m, on the western edge of Trefechan, Merthyr Tydfil. Trefechan comprises of small residential area situated approximately 1km northeast of Cefn-coed-y-cymmer and around 0.9km south of Vaynor Quarry. Present-day Trefechan was founded during the 20th century.
- 3.1.2. The superficial geology within the proposed development area comprises Devensian till deposits in the form of diamicton. These deposits formed up to 2 million years ago during the Quaternary period in a local environment dominated by ice age conditions. The underlying bedrock is composed of limestone deposits belonging to the Dowlais Limestone Formation, which formed approximately 337–43 million years ago during the Carboniferous period in a local environment dominated by shallow carbonate seas.

4. Objectives

- 4.1.1. The definition of a **Landscape Survey** as set out by Historic England is a formal programme of work that provides a descriptive and interpretive record of an archaeological monument or landscape as a result of field investigation. A landscape survey is intended to accurately depict the real landscape context of the archaeological features that define the monument or landscape.
- 4.1.2. The purpose of a **Landscape Survey** is to “...record the lives of past generations, both rural and urban, as revealed through their effects of the landscape, which come in the form of, for example, route ways, buildings, boundaries and earthworks.” A landscape survey is often undertaken in response to one or more of the following aims (Historic England 2017, 1):
- *Promote the understanding and appreciation of archaeological sites and landscapes.*
 - *Inform academic research across a range of disciplines.*
 - *Establish proper curatorial concern for what are often fragile remains.*
 - *Generate appropriate processes of conservation and management through improved analysis and understanding.*
 - *Assess rates of attrition and threats to the historic environment.*
 - *Assess significance and provide a basis for strategic heritage management.*
 - *Provide a firm foundation for thematic, topographic or period-specific works of synthesis.*
 - *Deposit a permanent record in an established archive.*
- 4.1.3. *(Historic England’s Understanding the Archaeology of Landscapes: A Guide to Good Recording Practice, published 2017)*
- 4.1.4. The definition of an archaeological **Building Investigation and Recording** as set out by the *Chartered Institute for Archaeologists* (CIfA) is a programme of work intended to establish the character, history, dating, form and archaeological development of a specified building, structures, heritage assets or complexes and its setting, including buried components, on land, inter-tidal zone or underwater.
- 4.1.5. The purpose of an archaeological **Building Investigation and Recording** is to examine a specified building, structures, heritage assets or complexes, and its setting, in order to inform:
- the formulation of a strategy for the conservation, alteration, demolition, repair or management of a building, or structure, or complex and its setting.
 - or
 - to seek a better understanding, compile a lasting record, analyse the findings/record, and then disseminate the result.
- 4.1.6. *(Chartered Institute for Archaeologists Standard and guidance for the archaeological investigation and recording of standing buildings or structures. Published 2014, revised 2020)*
- 4.1.7. The **archaeological building survey** work would also be undertaken to Historic England’s *Understanding Historic Buildings: A Guide to Good Recording Practice* (2016), the only nationally (UK) recognised building recording standard. The historic building record, from the most basic Level I record to the most comprehensive Level

III or IV record, is intended to allow clarification of the heritage asset's history and also "*draw on the full range of available resources and discuss the heritage asset's significance in terms of structural, architectural, social, regional and or economic history*". The presentation of these observations in a written report, taking account of related documentary and historical evidence. The preparation of an archive of digital data recovered and records made as a result of the project, and the deposition of this archive in a suitable receiving museum or similar institution.

- 4.1.8. The definition of an archaeological **Watching Brief** as set out by the *Chartered Institute for Archaeologists* (CIfA) is a formal programme of observation and investigation conducted during any operation carried out for non-archaeological reasons. This will be within a specified area or site on land, inter-tidal zone or underwater, where there is a possibility that archaeological deposits may be disturbed or destroyed. The programme will result in the preparation of a report and ordered archive.
- 4.1.9. The purpose of an archaeological **Watching Brief** (as defined CIfA 2014, revised 2020) is:
- to allow, within the resources available, the preservation by record of archaeological deposits, the presence and nature of which could not be established (or established with sufficient accuracy) in advance of development or other potentially disruptive works.
 - to provide an opportunity, if needed, for the watching archaeologist to signal to all interested parties, before the destruction of the material in question, that an archaeological find has been made for which the resources allocated to the watching brief itself are not sufficient to support treatment to a satisfactory and proper standard.
- 4.1.10. A watching brief is not intended to reduce the requirement for excavation or preservation of known or inferred deposits, and it is intended to guide, not replace, any requirement for contingent excavation or preservation of possible deposits.
- 4.1.11. The objective of a watching brief is to establish and make available information about the archaeological resource existing on a site.
- 4.1.12. (*Chartered Institute for Archaeologists Standard and guidance for an Archaeological Watching Brief, published 2014, revised 2020*)
- 4.1.13. The archaeological survey work (where appropriate) would also be undertaken to Historic England's *Photogrammetric Applications for Cultural Heritage Guidance for Good Practice* (Published 2017b), the only nationally (UK) recognised photogrammetry standard for the historic environment.
- 4.1.14. The main objectives of our photogrammetric surveys are to produce metrically accurate rendered photorealistic 3D modelling of the survey area, buildings and general scenes georeferenced with high accuracy. Modelling utilises Structure from Motion (SfM) photogrammetric techniques obtained through camera capable SUA (drone) to produce measurable 3D models of the photographed scene. The term photogrammetry was first coined by a Prussian architect Albrecht Meydenbauer in an 1867 article called 'Die Photometrographie' and Dominique Arago, a French surveyor, was using photographs to create topographic maps as early as 1840. Modern photogrammetric methods used flat lensed cameras to create

photogrammetric montages of buildings or other methods such as stereoscopy using multiple aerial images to create the illusion of depth (3D) from 2D images. Present day photogrammetry uses sophisticated algorithms and workflows to digitally stitch each pixel together to create real world measured 3D representations of the photographed scene with outputs including dense point clouds (LAS), triangular meshes (OBJ) and orthophotography (plans and elevations – georeferenced TIFF). The accuracy or more appropriately the margin of error is calculated using the ground sampling distance (GSD), which is the distance between two adjacent pixel centres normalised to real world dimensions. Centimetre accuracy of photogrammetric outputs is reached by using Real Time Kinematic (RTK) GPS (satellite navigation systems) survey methods of control points within the surveyed area.

- 4.1.15. The *Research Framework for Wales* sets out the knowledge base of past research and sets out a rationale for future studies (<https://www.archaeoleg.org.uk/index.html>). The present investigations will be undertaken considering the key themes and where there are limitations in current knowledge, particularly where the present investigations can enhance our understanding of some of these key areas. For example, current important Post-medieval themes for consideration are the development of religion following Dissolution and associated historic buildings developed in the Anglicisation of Wales and early Protestant nonconformity, the rapid change from rural to industrial in areas of rapid population growth and the effect on settlement patterns and land-use in the rural landscape. The impact of the gentrified landed estates on the landscape, the establishment of formal Parks and Gardens and the development of the picturesque movement. Other important themes in the period include climate change and threats to the historic environment, the change from castles into dwellings and Civil War sites, the rural economy, and the industrialisation of agriculture.
- 4.1.16. A Research Framework for the Archaeology of the Wales: Medieval 2017 <https://www.archaeoleg.org.uk/pdf/review2017/postmedreview2017.pdf>.

5. Legislative Framework

- 5.1.1. Planning legislation is set out in the *Town and Country Planning Act 1990*. *Planning Policy Wales (PPW 11th 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 planning system must take into account the Welsh Government's objectives to protect, conserve, promote and enhance the historic environment as a resource for the general well-being of present and future generations. The historic environment is a finite, non-renewable and shared resource and a vital and integral part of the historical and cultural identity of Wales. It contributes to economic vitality and culture, civic pride, local distinctiveness and the quality of Welsh life. The historic environment can only be maintained as a resource for future generations if the individual historic assets are protected and conserved. Cadw's published Conservation Principles highlights the need to base decisions on an understanding of the impact a proposal may have on the significance of an historic asset.*" (PPW 2021, 126).

- 5.1.2. 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(l)* 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.
- 5.1.3. 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.
- 5.1.4. Any works affecting an ancient monument and its setting are protected through implementation of the *Ancient Monument and Archaeological Areas Act 1979*. In Wales the 1979 Act has been strengthened by *The Historic Environment (Wales) Act 2016*. The 2016 Act makes important improvements for the protection and management of the Welsh historic environment. It also stands at the centre of an integrated package of secondary legislation (Annexes 1-6), new and updated planning policy and advice, and best-practice guidance on a wide range of topics (*TAN 24 Historic Environment*). Taken together, these support and promote the careful management of change in the historic environment in accordance with current conservation philosophy and practice.
- 5.1.5. 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.
- 5.1.6. The *Civil Aviation Authority* (CAA) is the airspace controlling body for the United Kingdom (UK). The UK is divided into three Flight Information Regions (FIRs), Shanwick Oceanic (Atlantic), London (England and Wales) and Scottish (Scotland) FIRs. In the UK there are currently five classes of airspace; A,C,D,E and G. The classification of the airspace within a FIR determines the flight rules which apply and the minimum air traffic services which are to be provided.
- 5.1.7. The rules and regulations for the use of SUAs (drones) in UK airspace is set out in the *Air Navigation Order 2016* and its 2018 and 2019 (ANO) amendments. The CAA publishes the ANO within CAP393 (Civil Aviation Publication). CAP382 details the safety occurrence reporting scheme for aircraft. CAP722 Unmanned Aircraft System Operations in UK Airspace – Guidance and Policy, is compiled by the Civil Aviation Authority's Unmanned Aircraft Systems Unit (UAS Unit). All UAS flights are operated in accordance with CAP722 and within the limitations and conditions of the company Operational Authorisation (OA), Operations Manual and the applicable articles of the ANO. The European UAS Regulatory Package was implemented on the 31st December 2020. *Air Navigation (Amendment) Order 2020* introduces some changes, with guidance provided in CAP2013. Full details of the UAS Regulatory Package and its implementation are published in CAP722 Edition 8. Three new operational

categories have been introduced: Open (geared to hobbyists/some commercial users), Specific (mainly enterprise drone pilots), Certified (very high-risk operations).

6. Scope

- 6.1.1. The proposed works will consist of an historic landscape survey, historic building record and archaeological watching brief on the remains of the agricultural drystone walled fieldscape and the buildings noted on historic mapping, which correspond to Structures 1-3 identified during the walk over survey. The proposed archaeological mitigation works will comprise historic landscape and building recording by aerial and terrestrial survey and 3D photogrammetric modelling methods complimented with a sample photographic record of the drystone walled fieldscape. The sample photographic record will include a selection of photographs at regular intervals along the length of each field boundary and descriptive record. An archaeological watching brief will be implemented during groundworks, specifically during the removal of drystone walling and Structures 1-3 to obtain a record of the section and any foundations or buried elements. The proposed blend of RTK GPS measured survey, photogrammetry (3D modelling) derived from both aerial (drone) and terrestrial cameras, descriptive account and archaeological watching brief during groundworks will provide a comprehensive record of the historic agricultural landscape and associated features.

6.2. Historic Landscape Survey

- 6.2.1. The landscape survey would be conducted to Level II standard to *Historic England's Understanding the Archaeology of Landscapes A Guide to Good Recording Practice* (Published 2017), a nationally (UK) recognised landscape recording standard, prior to the commencement of any on-site works. A Level II landscape survey is a basic descriptive and interpretive record of an archaeological monument or landscape, as a result of field investigation. The survey is intended to be metrically accurate depicting the real landscape context of the archaeological features. The archaeological landscape monument survey will have considered the development and use of the site and the record will include the conclusions reached but may not discuss in detail the evidence on which this analysis is based. The presentation of these observations in a written report, taking account of related documentary and historical evidence. The preparation of an archive of digital data recovered and records made as a result of the project, and the deposition of this archive in a suitable receiving museum or similar institution.
- 6.2.2. The 3D photogrammetric modelling will follow Historic England's *Photogrammetric Applications for Cultural Heritage Guidance for Good Practice* (Published 2017).

6.3. Historic Building Record

- 6.3.1. The programme of building recording will be implemented to Level II standard to Historic England's *'Understanding Historic Buildings: A Guide to Good Recording Practice* (2016), prior to the commencement of any on-site works. A Level II building record is a descriptive record with the structures seen, described and photographed. The examination of the structures will produce an analysis of its development and use and the record will include the conclusions reached, but it will not discuss in detail the evidence on which this analysis is based. A plan and sometimes other drawings may be made included but the drawn record will normally not be

comprehensive and may be tailored to the scope of a wider project. The presentation of these observations in a written report, taking account of related documentary and historical evidence. The preparation of an archive of digital data recovered and records made as a result of the project, and the deposition of this archive in a suitable receiving museum or similar institution.

- 6.3.2. The contractors on site will need to allow the site archaeologist conducting the historic landscape survey and building recording reasonable access to their works for the purpose of recording the building. **No demolition or ground works should be undertaken until the programme of landscape and building recording has been implemented.** The two areas where historic agricultural building remains have been noted will require vegetation removal (see Figure 1) prior to the commencement of the landscape survey.
- 6.3.3. The Chartered Institute for Archaeologists produce a detailed *Standard and Guidance for the 'Archaeological Investigation and Recording of Standing Buildings or Structures'* (2014), and together with Historic England's *'Understanding Historic Buildings: A Guide to Good Recording Practice'* (2016), the only nationally (UK) recognised building recording standard, and Historic England's *Photogrammetric Applications for Cultural Heritage Guidance for Good Practice* (Published 2017), these will be followed by any archaeologist undertaking the work.

6.4. Archaeological Watching Brief

- 6.4.1. The **archaeological watching brief** will be applied to all ground penetrating works for the proposed development in the two areas identified with potential for the remains of buildings noted on historic mapping, which correspond to Structures 1-3 identified during the walk over survey (Figure 1). This includes *but is not limited to* vegetation clearance, top and subsoil excavations, excavation for foundations, and excavation for drainage and services. Subject to the limitations placed on the watching brief by safe working practice. The watching brief will also be applied to the removal of the drystone walls in the wider development area to record sections through each length of wall in accordance with the advice with the archaeological advisors to the LPA.
- 6.4.2. The watching brief will meet the standards of the Chartered Institute for Archaeologists' *Standard and Guidance for Archaeological Watching Briefs* (2014) and shall be undertaken on the specified works likely to expose archaeological features, deposits and structures.
- 6.4.3. A watching brief involves an archaeologist(s) observing demolition and ground penetrating works for the development. This can take the form of any demolition work, ground penetration or earth moving work such as structural demolition, topsoil stripping, the excavation for foundations, test-pitting and service trenches. In some cases the watching brief may need to observe vegetation clearance.
- 6.4.4. The watching brief process is a staged approach:
- a) If archaeological features or deposits are revealed, then the archaeologist(s) will quickly record these with minimum interruption to the construction programme.
 - b) Should the discovery be more complex and require more time and resources then a programme that allows the archaeological discovery to

be recorded/mitigated can be agreed on-site with the developer and archaeologist(s).

- c) Should the archaeological discovery be of such importance, scale or complexity, or result in significant difficulties to the construction programme, then a meeting would have to be convened with the client, the Archaeological Advisor to the LPA, Cadw (if appropriate) and site archaeologist(s) to agree an appropriate way forward for the watching brief and the construction programme. This may include contingency arrangements for additional staff to be deployed.

6.4.5. Contingency costs are beyond the scope of this specification and would need to be agreed in advance before any extension to the programme commences.

6.4.6. The contractors on site will need to allow the site archaeologist(s) conducting the watching brief reasonable access to their works for the purpose of recording archaeological remains. No demolition or ground works should be undertaken without the site archaeologist(s).

7. Programme

7.1. Notification

7.1.1. Notification will be provided to the LPA and their advisors for the start date of the archaeological mitigation works. Black Mountains Archaeology Ltd is happy for its work to be monitored at any time during the programme of works by:

- The client and/or their representatives,
- CADW and/or their representatives,
- The LPA and/or their representatives,
- The *Chartered Institute for Archaeologists* (CIfA) and/or their representatives,
- *Provided that:*
 - Advance notice is provided for the monitoring visit,
 - Attendees fully observes site and Health & Safety rules,
 - Attendees cause no undue delay to the programme of works,
 - Attendees do not provide any instruction to vary the agreed works without prior consultation and agreement with all relevant parties,
 - Attendees have the appropriate academic and professional qualifications and relevant experience to comment on the archaeological works being undertaken, or in lieu of are attended by an appropriate specialist.
 - Attendees provide a written monitoring report in line with CIfA guidance, particularly Para 1.69.3, *Chartered Institute for Archaeologists (CIfA) Standard and guidance for archaeological advice by historic environment services* (Published December 2014, updated June 2020). Monitoring reports should be provided within one week of the visit or in line with the organisation's monitoring policy.

7.2. Human Remains

7.2.1. Should human remains be encountered, the nature and extent of those remains will be established and recorded, and the coroner, police, client, Archaeological Advisor to the LPA, Cadw (if appropriate) and LPA informed. Following consultation with the Archaeological Advisor to the LPA, and if appropriate, an exhumation programme

would be agreed. In such cases, contingency arrangements would need to be agreed prior to the commencement of the exhumation.

- 7.2.2. The human remains would be archaeologically recorded and removed under current professional guidelines and legislation, including the provision of exhumation licences and for eventual reburial following appropriate analysis. All human remains would be excavated by hand in accordance with the Chartered Institute for Archaeologist's *Professional Practice Paper No 7 Guidelines to the Standards for Recording Human Remains* (2004) and *Excavation and Post-Excavation Treatment of Cremated and Inhumed Human Remains: Technical Paper Number 13* (1993).

7.3. Fieldwork

- 7.3.1. The historic building record, archaeological landscape survey and watching brief will be conducted in accordance with the construction programme. The total requirement of these programmes of work is entirely dependent upon the construction programme, however, where areas have been proved devoid or mitigated (recorded) of archaeological deposits and features then with LPA approval the programmes will no longer apply to these areas.

7.4. Reporting

- 7.4.1. Following completion of the fieldwork, an assessment of the archive will be prepared within six weeks of the cessation of fieldwork activities in line with current professional guidelines.

8. Fieldwork methodology

8.1. Method of recording

- 8.1.1. The archaeological recording techniques will confirm to the best industry standard. All significant archaeological deposits and architectural features in the survey area will be recorded with a single continuous context numbering system pro forma. All significant archaeological deposits (contexts) and architectural features in the survey area will be recorded and if required drawn at a suitable scale in plan and in section usually, but not always, 1:50, 1:20, and 1:10 in plan and section. Digital recording techniques will be employed and will include GPS total station survey, photogrammetry and photography and hand drawn sketch elevations and plans if necessary. All significant features/contexts will be photographed in digital at 18mp and the images archived in TIFF and JPEG format. All surveys will be located and benchmarked to the Ordnance Survey.
- 8.1.2. The photogrammetric survey will be carried out by both terrestrial digital (DSLR) camera (18mp) and UAV (drone) equipped with a Hasselblad 35mm equivalent 20mp, 1" sensor, 4k UHD camera. The ground investigations and aerial survey will be tied into the Ordnance Survey National Grid and Datum using an EMLID Reach GN55/ Glonass (GPS) Receiver and data logger with a 10mm tolerance. All 3D models will be produced using proprietary photogrammetry software and aligned using known ground control points (GCPs). Dimensional control will then be applied to each model and then reprocessed using the new parameters and optimised cameras to create dense point clouds and high face count meshes exported to OBJ format. All high resolution orthographic renders (orthoplanes and orthomosaics) will be exported and scaled in georeferenced raster (TIFF and JPEG) format.

8.1. Artefact recovery and recording

- 8.1.1. All items that may be subject to *The Treasure Act 1996* (2003 as amended) will be reported to the HM Coroner for the local area and the Scheme Archaeological Curator (SAC).
- 8.1.2. All classes of finds will be retained (cleaned and catalogued) in appropriate conditions until arrangements for final deposition have been agreed, in line with the requirements of the Chartered Institute for Archaeologists' *Standard and Guidance for the collection, documentation, conservation and research of archaeological materials* (2014). Ownership will be transferred to the institution receiving the archive unless other arrangements are agreed with the Scheme Archaeological Curator (SAC).
- 8.1.3. If substantial quantities of undiagnostic, residual or modern material are recovered, an on-site recording and discard policy for these classes of find will be employed. However, sufficient material will be retained to understand the nature, date and function of the deposit from which it was recovered.
- 8.1.4. Specialist contingency artefact advice, analysis or conservation may be necessary during the course of the fieldwork or in post-excavation. The scope for such work would need to be agreed in advance with the Scheme Archaeological Curator (SAC).

8.2. Sampling

- 8.2.1. Environmental recording and sampling will follow the principles of Historic England's *Guidelines for Environmental Archaeology* (2011). All deposits will be assessed for high potential for the preservation of palaeoenvironmental material. Sampling of such deposits would be carried out by column, bulk etc, for subsequent analysis. In accordance with professional guidelines sampling and recording will be the responsibility of an identified member of the field team with relevant experience. As a minimum, discrete negative features (pits and postholes) will be sampled at 50% and linear features at 25%. It is accepted that some linear features may only warrant a 10% sample. Any such sampling strategy would be agreed with the archaeological advisor to the LPA in advance.

9. Reporting

9.1. Assessment and archive preparation

- 9.1.1. Following completion of the fieldwork programme all artefacts, ecofacts and samples will be processed, assessed and packaged in accordance with Chartered Institute for Archaeologists' *Standards and Guidance for the Collection, Documentation, Conservation and Research of Archaeological Materials* (published 2014, updated 2020), and *Museums and Galleries Commission Standards in the Museum Care of Archaeological Collections* (1994). The archive of archaeological records and artefacts will be prepared to the guidelines set out in Historic England's *Management of Archaeological Projects* (1991) Appendix 3, the *National Standard and Guidance to Best Practice for Collecting and Depositing Archaeological Archives in Wales* (published 2017, but see also 2019 supplement) and if appropriate for the project the *Management of Research Projects in the Historic Environment MoRPHE* (2015). A report on the landscape survey, building recording and watching brief will be produced incorporating the survey and watching brief data, a site narrative with supporting information, including finished drawings and photographs.

- 9.1.2. Subject to the landowner's permission the site archive, including all artefacts, ecofacts, samples and records will be deposited whole with a receiving institution (excepting any that may be subject to the Treasure Act 1996) in accordance with ClfA Guidelines (*Archaeological Archives: a guide to best practice in creation, compilation, transfer and curation* (2011)). The final archive of records relating to the preparation of the reports will be prepared to Historic England's guidelines set out in the *Management of Archaeological Projects* (1991), Appendix 6, the *National Standard and Guidance to Best Practice for Collecting and Depositing Archaeological Archives in Wales 2017* and if appropriate for the project the *Management of Research Projects in the Historic Environment MoRPHE* (2015).
- 9.1.3. A final report detailing the results of the landscape survey, building record and watching brief will be submitted when reporting process has been completed. The report will conform to the professional standards as set out in section 6.4 of the *Chartered Institute for Archaeologists Standard and guidance for the archaeological investigation and recording of standing buildings or structures*, as well as the *Guidance for the Submission of Data to the Welsh Historic Environmental Records (HERs)* (published 2018). Following formal approval, a digital copy of the report and archive summary will be supplied to the client, Cadw, regional HER and the Royal Commission on the Ancient and Historical Monuments of Wales. Submission of photogrammetric images acquired by drone to the RCAHMW will follow *RCAHMW Unmanned Aerial Vehicle (UAV) Policy*. All data will be digitally stored in appropriate formats (SHP, DXF, TIFF, RAW, JPEG, PDF etc) with the archive destination in mind. All data will be submitted to the relevant archives in accordance with the RCAHMW's *Guidelines for Digital Archaeological Archives* (2015). Paper copies can be provided on request at a small cost.

9.2. Publication

- 9.2.1. As a minimum, and if appropriate, short summaries of the report should be submitted to the local CBA Journal or regional equivalent. Larger journal contributions should be set according to the agreed post-excavation project design for more significant archaeological projects.

9.3. Notification of important remains

- 9.3.1. Where it is considered that remains that may satisfy the criteria for statutory protection have been identified, the archaeologist will inform the national archaeological agency with statutory responsibility (Cadw).

9.4. Archive deposition

- 9.4.1. With the permission of the landowner, the report and archive will be deposited with Cyfarthfa Museum and Art Gallery or National Museum Wales. An accession number will be generated on completion of the project. The digital report and archive will be deposited the *Royal Commission on the Ancient and Historical Monuments of Wales* (RCAHMW). Submission of photogrammetric images acquired by drone to the RCAHMW will follow *RCAHMW Unmanned Aerial Vehicle (UAV) Policy*. A digital copy of the archive will also be offered to the regional HER (GGAT).

10. Project

- 10.1.1. The project will be managed by Richard Lewis, who is a full *Member of the Chartered Institute for Archaeologists* (MCIfA) and implemented by a suitably qualified

members of our team. All work will be carried out to the Codes of Conduct, Bylaws and Guidelines of the *Chartered Institute for Archaeologists*, irrespective of the status of individual's membership of the Chartered Institute.

10.2. Staff Structure

- Richard Lewis MCIfA, Managing Director/Chief UAV Pilot: responsible for project management, fieldwork, survey and post-excavation operations. Civil Aviation Authority Operational Authorisation (OA) Number – **10885**.
- Elizabeth Langlands MA, Senior Archaeologist/UAV Pilot: responsible for project management, fieldwork, survey and post-excavation operations. Civil Aviation Authority Remote Pilot Certificate of Competence (A2) Number – **832124**.
- Dr Rhys Morgan, Archaeologist: responsible for community engagement, fieldwork and post-excavation finds analysis
- Abbi Brooks, Archaeologist: responsible for community engagement, fieldwork and post-excavation finds analysis.

10.3. Specialists

- 10.3.1. Black Mountains Archaeology Ltd have an established network of specialist advisors. Should specialist expertise be required then these will be sought as required from our network of suitably qualified institutions and individuals.

11. Community Archaeology

- 11.1.1. Community archaeology is a strong focus for the company and we have successfully delivered several major community projects in south Wales. Our experience and energy make our community projects both rewarding and fun whilst delivering important academic results. Our volunteers gain many transferable skills into the workplace and we routinely host work experience placements. Where possible and practicable from a health and safety/contractual perspective we aim to have some community benefit from all of our investigations. Whether by publication of archaeological findings, local talks, information panels or a more 'hands on' experience 'digging' and 'surveying' we are keen to involve the local community in our projects. However, we do have limitations placed on us from an insurance and safety standpoint and it is not always possible to engage with the local community where sites are deemed inappropriate and/or unsafe.

12. Variations to the specification or contract

- 12.1.1. The archaeological resource is unpredictable, and the encountering of unexpected archaeological deposits or structures on the site cannot be ruled out. Where the examination of such archaeological deposits or structures is required but exceeds the scope of this specification a variation to the contract may be required and this specification updated. Such variations will be agreed in advance with the Client and notified to, and wherever possible or appropriate, agreed in advance with the archaeological advisors to the LPA.

13. Reinstatement

- 13.1.1. The reinstatement of any part of the archaeological work outlined in this document are beyond the scope of this specification and if required must be agreed by separate negotiation.

14. Insurance

- 14.1.1. Black Mountains Archaeology Ltd is fully insured to undertake the work and full details of our policies can be supplied on request.
- 14.1.2. Black Mountains Archaeology Ltd will not be liable to indemnify the client against any compensation or damages in discharging the responsibilities set out in this document, including satisfying professional and statutory/legislative obligations.

15. Health and Safety

- 15.1.1. Black Mountains Archaeology Ltd takes health and safety issues seriously and is committed to protecting the health and safety of its staff and all those affected by its business activities and attending its premises or places of work (site). We have prepared a Health and Safety Policy (2021) in accordance with current legislation, including *The Health and Safety at Work etc Act 1974*, *The Management of Health and Safety Regulations 1999* and current Coronavirus legislation and regulation. At the design stage of any project a Health and Safety Risk Assessment will be undertaken and continuously updated as risks are identified/mitigated. A copy of these documents is both available on request, and will be displayed in any site office, and will be supplied to any other contractors working on site.
- 15.1.2. Archaeological work is not covered under the *Construction Design and Management Regulations 2015*; however, archaeological work may be undertaken where CDM regulations are applied. In such cases we will prepare any documentation required.

16. Professional standards

- 16.1.1. Irrespective of corporate membership all employees are expected to adhere to the *Codes of Conduct, Bylaws and Guidelines* of the *Chartered Institute for Archaeologists* as a condition of employment. All work is overseen by a full *Member* of the *Chartered Institute for Archaeologists*.

17. Copyright and Arbitration

- 17.1.1. Black Mountains Archaeology Ltd/*Archaeoleg Mynydd Du Cyf* shall retain full copyright of any commissioned reports, tender documents or other project documents, under the *Copyright, Designs and Patents Act 1988* (chapter IV) with all rights reserved; excepting that it hereby provides an exclusive licence to the client for the use of such documents by the client in all matters directly relating to the project.
- 17.1.2. Any dispute or difference arising out of a contract in relation to this work shall be referred for a decision in accordance with the Rules of the Chartered Institute of Arbitrators' *Arbitration Scheme for the Chartered Institute for Archaeologists* applying at the date of the agreement.

18. Bibliography

Cadw, 2011, *Conservation Principles for the sustainable management of the historic environment in Wales*, Cardiff.

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Burton, J, 2020, *Trefechan, Merthyr Tydfil: Archaeological Evaluation*, GGAT Report **2020/015**.

Sharp, H and Pearson, A, 2019, *Trefechan, Merthyr Tydfil: Archaeological and Heritage Assessment*, EDP Report **edp5809_r001b**.

Other Sources

BGS <http://mapapps.bgs.ac.uk/geologyofbritain/home.html> accessed 15/02/2021.

19. Appendix I – Figures

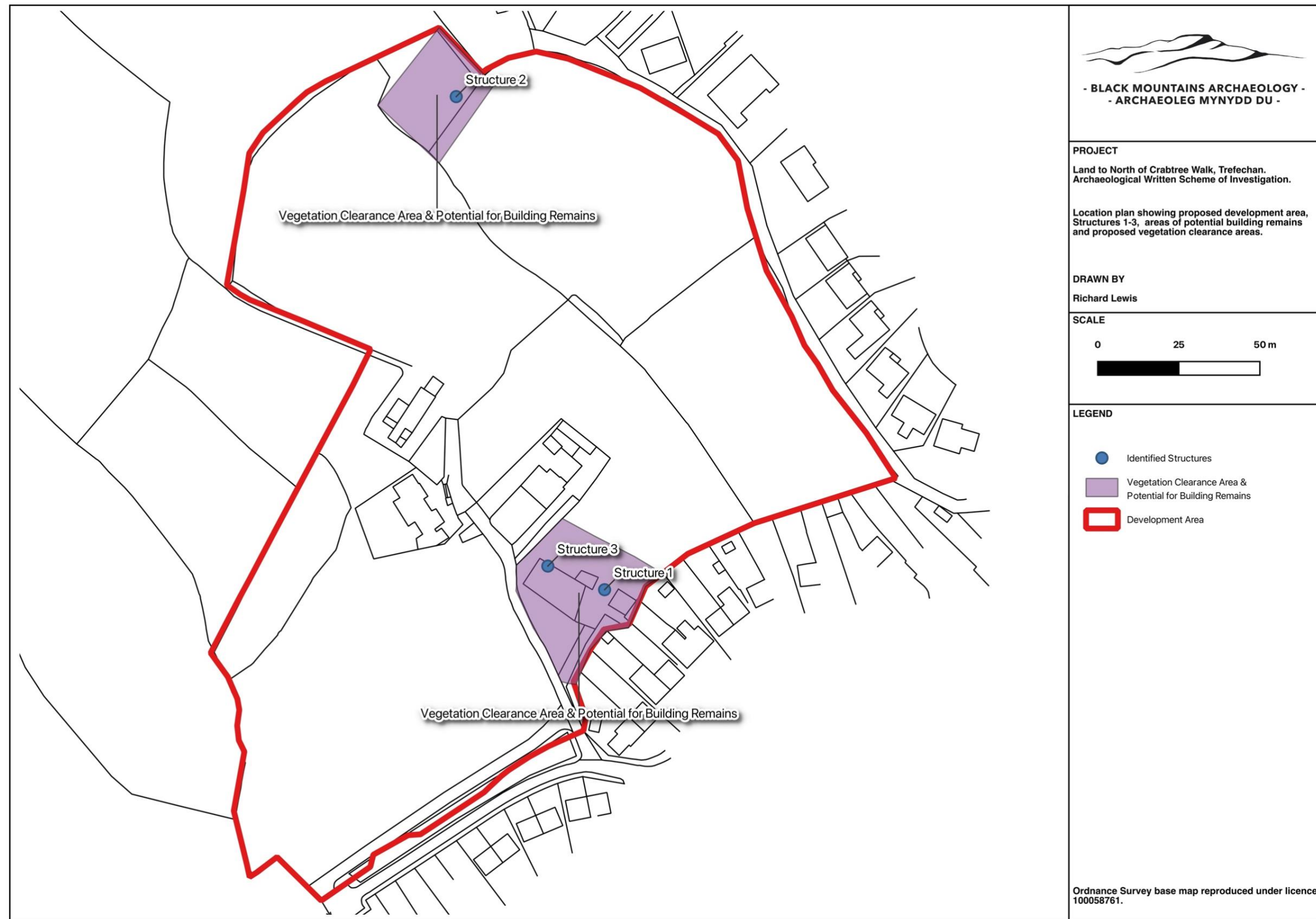


Figure 1. Location plan showing proposed development area, Structures 1-3, areas of potential building remains and proposed vegetation clearance areas.



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

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

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

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