Archaeology Wales

Afon Croesor, Brondanw Estate Gwynedd

Archaeological Watching Brief

By
Kate Pitt ACIfA
Phil Wilson

Report No. 1818

Archaeology Wales Limited
The Reading Room, Town Hall, Llanidloes, SY18 6BN
Tel: +44 (0) 1686 440371
Email: admin@arch-wales.co.uk
Web: arch-wales.co.uk

Archaeology Wales

Afon Croesor, Brondanw Estate Gwynedd

Archaeological Watching Brief

Prepared For: Renewables First

Edited by: Irene Garcia Rovira	Authorised by: Irene Garcia Rovira
Signed:	Signed:
Position: Project Manager	Position: Project Manager
Date: 19/07/2019	Date: 19/07/2019

By
Kate Pitt ACIfA and Phil Wilson

Report No. 1818

July 2019

Archaeology Wales Limited
The Reading Room, Town Hall, Llanidloes, SY18 6BN
Tel: +44 (0) 1686 440371
Email: admin@arch-wales.co.uk
Web: arch-wales.co.uk

CONTENTS

Non-Technical Summary

Between the 17th June and the 4th of July 2019 Archaeology Wales Ltd (AW) carried out an archaeological watching brief, on behalf of Renewables First, at the construction of an intake weir and turbine house and the burying of a pipeline and export cable on land at Afon Croesor, Brondanw Estate, Croesor, Gwynedd. The development site is located between SH 62621 44266 and SH 62043 43744. The associated Planning Application No. is NP5/68/221B. The local planning authority is Gwynedd Archaeological Planning Service (GAPS), who recommended the works.

Topsoil stripping along the route of the pipeline only yielded natural horizons of topsoil and drift geological formations. A series of dry-stone walls were discovered during this investigation and are without doubt interpreted as field boundaries. A rectangular structure bonded to one of the dry-stone walls in the northern part of the works is a stock pen or sheep fold. It is a new site not known in the HER when the DBA was undertaken in 2018. It is a post-medieval pastoral building of local significance, associated with a system of enclosed fields to the immediate west of Garth-y-foel. The structure itself was not impacted by the groundworks.

All work conformed to Standard and Guidance for Archaeological Watching Brief (CIfA 2014) and Standards and Guidance for Archaeological Artefact and Environmental Collection, Documentation Conservation and Research (CIfA 2014).

Crynodeb Annhechnegol

Rhwng 17eg Mehefin a 4ydd Gorffennaf 2019, cynhaliodd Archaeology Cymru Cyf friff gwylio archeolegol, ar ran Renewables First, ar y gwaith o adeiladu cored fewnlif a thŷ tyrbin a chladdu pibell a chebl allforio ar dir yn Afon Croesor, Ystâd Brondanw, Croesor, Gwynedd. Mae'r safle datblygu wedi'i leoli rhwng SH 62621 44266 ac SH 62043 43744. Rhif y Cais Cynllunio cysylltiedig yw NP5/68/221B. Yr awdurdod cynllunio lleol yw Gwasanaeth Cynllunio Archeolegol Gwynedd, a argymhellodd y gwaith hwn.

Datgelodd y gwaith o godi'r pridd uchaf ar hyd llwybr y bibell haenau naturiol o bridd uchaf a ffurfiannau daearegol treigl yn unig. Canfuwyd cyfres o waliau cerrig sychion yn ystod yr archwiliad hwn ac maent yn cael eu dehongli, heb amheuaeth, fel ffiniau cae. Mae'r strwythur petryal sy'n sownd wrth un o'r waliau cerrig sychion yn rhan ogleddol y gwaith yn gorlan stoc neu ddefaid. Mae'n safle newydd nad oedd yn wybyddus yn y Cofnodion Amgylcheddol Hanesyddol pan gynhaliwyd yr Asesiad Desg yn 2018. Mae'n adeilad bugeiliol ôl-ganoloesol ac arwyddocâd lleol, sy'n gysylltiedig â system o gaeau caeedig yn union i'r gorllewin o Garth-y-foel. Nid effeithiwyd ar y strwythur eu hunain gan y gwaith tir.

Roedd yr holl waith yn cydymffurfio â'r Safon a'r Canllawiau ar gyfer Briffiau Gwylio Archeolegol (Sefydliad Siartredig yr Archeolegwyr 2014) a'r Safonau a'r Canllawiau ar gyfer Casglu Arteffactau Archeolegol ac Amgylcheddol, Gwarchod Dogfennau ac Ymchwil (Sefydliad Siartredig yr Archeolegwyr 2014).

1 Introduction

1.1 Location and Scope of Work

Between the 17th June and the 4th of July 2019 Archaeology Wales Ltd (AW) carried out an archaeological watching brief, on behalf of Renewables First, at the construction of an intake weir and turbine house and the burying of a pipeline and export cable on land at Afon Croesor, Brondanw Estate, Croesor, Gwynedd. The development site is located between SH 62621 44266 and SH 62043 43744. The associated Planning Application No. is NP5/68/221B. The local planning authority is Gwynedd Archaeological Planning Service (GAPS).

GAPS (Gwynedd Archaeological Planning Service) recommended that an archaeological watching brief was undertaken during ground works to mitigate the impact of the proposed development on any surviving buried archaeological resource within the bounds of the site.

The purpose of the archaeological mitigation (watching brief) is to provide the local planning authority with sufficient information regarding the nature of archaeological remains on the site of the development, the requirements for which are set out in Planning Policy (revised edition 10, 2018), Section 6.5 and Technical Advice Note (TAN) 24: The Historic Environment (2017). The work is to ensure that all buried artefacts and deposits are fully investigated and recorded if they are disturbed or revealed as a result of activities associated with the development.

The following report provides details of the results of the work undertaken. The project was managed by Dr Irene Garcia Rovira MCIfA and undertaken by Phil Wilson. The AW Project Number is 2679 and the Site Code BEHC/18/WB.

All work was undertaken to the standards and guidance set by the Chartered Institute for Archaeologists (2014). AW is a Registered Organisation with the CIfA.

1.2 Geology and Topography

The development site is located on Afon Croesor, just to the south-west of the settlement of Croesor. The development consists of the construction of an intake weir at SH 62621 44266, which will be connected to a turbine house, located at SH 62043 43744, by a buried pipe. The pipeline runs north-east to south-west for approximately 760m, across a lightly wooded area and open hillside (Figure 1). The intake weir sits at approximately 134m AOD with the land dropping away to 75m AOD at the turbine/outfall site.

The site overlies the Nant Ffrancon Subgroup, which is a sedimentary bedrock formed of siltstone. An unnamed igneous intrusion, formed of silica rich magma, cuts across the route

towards its south-western end. The intrusion is thought to have formed approximately 444 to 485 million years ago. The superficial geology recorded along the line of the Afon Croesor is Devensian till, which formed up to 2 million years ago (BGS, 2018).

1.3 Archaeological and Historical Background

The site is located just to the south-west of the village of Croesor, which is within Snowdonia National Park. A previous Desk Based Assessment (DBA) conducted by AW (Nikolic and Garcia Rovira, 2018) for the development showed that the site lies just outside the boundary of the Registered Park and Garden of Parc (GD35), however, it is within the essential setting of the park. Parc was the ancient seat of the Anwyls, one of the most notable families of the Meirionedd area in the Tudor and Stuart periods. Parc has exceptional stone-built garden terraces of probable 17th century date, associated with a group of buildings and historical features set within a contemporary small, walled park which includes a gatehouse and viewpoint. The Registered Park and Garden also includes remains that date to the post-medieval period. The growth of industry at this time changed the character of the area, with a slab quarry, part of the now dismantled Croesor tramway and two inclines within the Parc estate. The village of Croesor itself developed in the 19th century as a slate quarry village, with the growth of the village being assisted by the Croesor tramway.

The growth of industry in the post-medieval period is evident across the wider landscape surrounding the development site. Most of the undesignated archaeological assets of this date are connected to industry, with large scale water management having been undertaken in this period. An aqueduct is located near Penrallt (PRN30788), approximately 650m east of the site. This is close to Rhaiadar Copper mine (PRN21893) and Parc slab slate quarry (PRN20264). There are a number of water mills within the landscape, including a three-storey water mill with remains of a sluice (PRN36689), approximately 500m down stream of location of the turbine house.

The DBA noted a three Scheduled Ancient Monuments within a 1km radius of the site. Two of these relate to the remains of hut circles settlements, the closest being Garth-y-Foel (ME170). The SAM polygon is located c. 5m north of the pipeline route close to the intake weir. The second hut circle settlement, Bryn Derw (ME178), is located nearly 1km south from the turbine house. The final SAM is the deserted medieval settlement Pont Maesgwm (ME193), which is 960m east-south-east of the intake weir. A total of seventeen Listed Buildings were also identified, with most relating to buildings within the Parc estate.

2 Aims and Objectives

The aims of an archaeological watching brief, as defined by the Chartered Institute for Archaeologists (CIfA, 2014) are:

- 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;
- To establish and make available information about the archaeological resource existing on the site.

3 Methodology

3.1 Fieldwork

The work was undertaken meeting the standard required by The Chartered Institute for Archaeologist's Standard and Guidance for Watching Briefs (2014) and the watching brief conducted by a suitably qualified archaeologist on all groundworks. The on-site work was undertaken by Phil Wilson. The overall management of the project was undertaken by Dr Irene Garcia Rovira.

Mechanical excavation was undertaken by a tracked 360-degree excavator using a toothless ditching bucket wherever possible and groundworks only began after the scheduled area was satisfactorily marked out and protected from any potential damage caused by groundworks.

As a minimum small discrete features were fully excavated whilst larger discrete features were half-sectioned (50% excavated) and long linear features sampled along their length to 20% of total- with investigative excavations distributed along the exposed length of any such feature and to investigate terminals, junctions and relationships with other features.

Recording was carried out using AW recording systems (pro-forma context sheets etc) using a continuous number sequence for all contexts. Plans and sections were drawn to a scale of 1:50, 1:20 and 1:10 as required and related to Ordnance Survey datum and published boundaries where appropriate. All features identified were tied into the OS

survey grid and fixed to local topographical boundaries. Photographs were taken in digital format with an appropriate scale, using a 12MP camera with photographs stored in Tiff format.

3.2 Finds

No archaeological finds were encountered during the fieldwork.

3.3 Palaeo-environmental Evidence

No deposits suitable for sampling were encountered during the fieldwork.

4 Results of the Watching Brief

4.1 Description (Figure 2; Plates 1-28)

Area 1

Area 1 was positioned to the north of the access road and extended for some 290m (Figure 2). The initial 25m was tripped of topsoil comprising dark brown organic loam (101) revealing a deposit of orange sand and gravel (102); a deposition of erratic rocks (103) was also located within the dark brown loam (101) (Plate 1). At the 20m point, the position of a denuded dry-stone wall (104) was encountered orientated in an east-west direction (Plate 2). A second dry-stone wall (105) was located some 5.0m north of wall (104) and was partially demolished during this investigation (Plate 3). The wall (105) comprised six courses of limestone blocks. A rectangular dry-stone structure (106) was bonded to the eastern part of wall (105) and measured some 10.0m long and 5.0m wide; it did not support a roof (Plates 4, 5 and 6). No archaeological finds or features were encountered in this area.

The following 50.0m of Area 1 revealed only deposits of orange sand and gravel (102) positioned beneath the dark brown organic loam (101) following machine stripping, though some rocky outcrops were found (Plates 7, 8 and 9). At this point the dark brown loam (101) reached a depth of 0.10m and the sand and gravel (102) 0.30m. A continuation of the dark brown loam (101) and the orange sand and gravel (102) extended to the 140.0m point, though in some areas residual dark brown loam (101) remained covering the sand and gravel (102) (Plate 10). A further dry-stone wall (109) was observed in this area comprising two rows of facing blocks and a rubble core (Plate 11). No archaeological finds or features were in this area.

At 160.0m north of the access road, the topography in Area 1 dipped for 70.0m. Several features were encountered ‘cut’ into the sand and gravel (102) in this area. The exploration of a c 10.0m long linear feature [107] demonstrated that it was only 0.01m deep containing a fill of dark brown loam (101) (Plates 12 and 13) and probably the result of the deep rooting prevalent in this zone (Plate 14). The remaining 130.0m of Area 1 comprised clean

orange sand and gravel (102) located beneath dark brown loam (101), save for the final 20.0m which comprised sterile light brown sand attaining a depth of 0.50m (108) (Plate 15). This area remained archaeologically sterile.

Area 2

Area 2 was located to the south of the access road and extended for some 500m (Figure 2). Stripping of the initial 35.0m of this zone yielded a 0.30m deep horizon of dark brown loam (201) containing abundant rock fragments (Plates 16 and 17). At this point, the topography dropped steeply for a further 25.0m and at the base of the slope stripping revealed a 0.30m deep deposit of colluvial dark brown loam (201) (Plate 18). Between 60.0m to 100.0m south of the access road, the topography elevated steeply and the removal of the dark brown loam (201) again yielded a deposit of orange sand and gravel (202) resting beneath it (Plate 19). From the 100m point to the 175m point excavation yielded deposits of dark brown loam (201) only, mixed with abundant fragments of rock (201) (Plate 20). No archaeological finds or features were encountered in this area.

Orange sand and gravels (201) dominated the area between 175m and 200m south of the access road at which point a dry-stone wall (203) was encountered and was orientated in an east-west direction. The wall (203) comprised two rows of facing blocks containing a rubble core (Plate 21). Some 30.0m beyond wall (203) a second dry-stone wall (204) was found; again, it comprised two rows of facing blocks surrounding a rubble core (Plate 22). Orange sand and gravel (202) rested in the area between the two walls (203 and 204). This area was devoid of archaeological finds or features (Plate 23).

Beyond wall (204) deposits of peat (205) were revealed beneath the upper horizon of dark brown loam (201) (Plates 24 and 25). The peat (205) extended for some 30.0m after which orange sand and gravels (202) containing rock fragments were revealed until the 300m point south of the access road (Plates 26 and 27). Revealed in the final 200m of Area 1 were deposits of dark brown loam (201) overlying colluvial mid brown silty loam subsoils (206) containing rock fragments. Occasional patches of orange sand and gravel (202) were revealed beneath the loam and rocks (206) (Plate 28). No archaeological finds or features were in this part of Area 2.

5 Interpretation and Conclusion

The archaeological watching brief conducted on the Brondanw Estate, Croesor revealed little in the way of significant archaeological information. Topsoil stripping along the route of the pipeline only yielded natural horizons of topsoil and drift geological formations. A series of dry-stone walls were discovered during this investigation and are without doubt interpreted as field boundaries. A rectangular structure bonded to one of the dry-stone walls in the northern part of the study however is a stock pen or sheep fold. The position of a

negative linear feature located in the northern part of the study area was also evaluated, and is thought to be the product of root action and therefore non-archaeological in character.

The stone structure (106) is a new site not known in the HER when the DBA was undertaken in 2018. It is a post-medieval pastoral building of local significance, associated with a system of enclosed fields to the immediate west of Garth-y-foel. The structure itself was not impacted by the groundworks.

Storage and Curation

The project archive will be prepared in accordance with: Standard and Guidance for the Creation, Compilation, Transfer and Deposition of Archaeological Archives (CIfA, 2014), the requirements of the National Monuments Record (Wales) and the Management of Research Projects in the Historic Environment, MoRPHE (Historic England, 2006).

6 Bibliography and References

Chartered Institute for Archaeologists. 2014, Standards and Guidance for a Watching Brief.

British Geological Survey 2019,
http://www.bgs.ac.ukldiscoveringGeology/geologyOfBritain/viewer.html

Nikolic, L. and Garcia Rovira, I. 2016. *Afon Croesor, Brondanw Estate, Croesor, Gwynedd: Desk Based Assessment and Heritage Impact Assessment*. Unpublished Report: Archaeology Wales No. 1675.

Archaeology Wales

APPENDIX I:
Figures

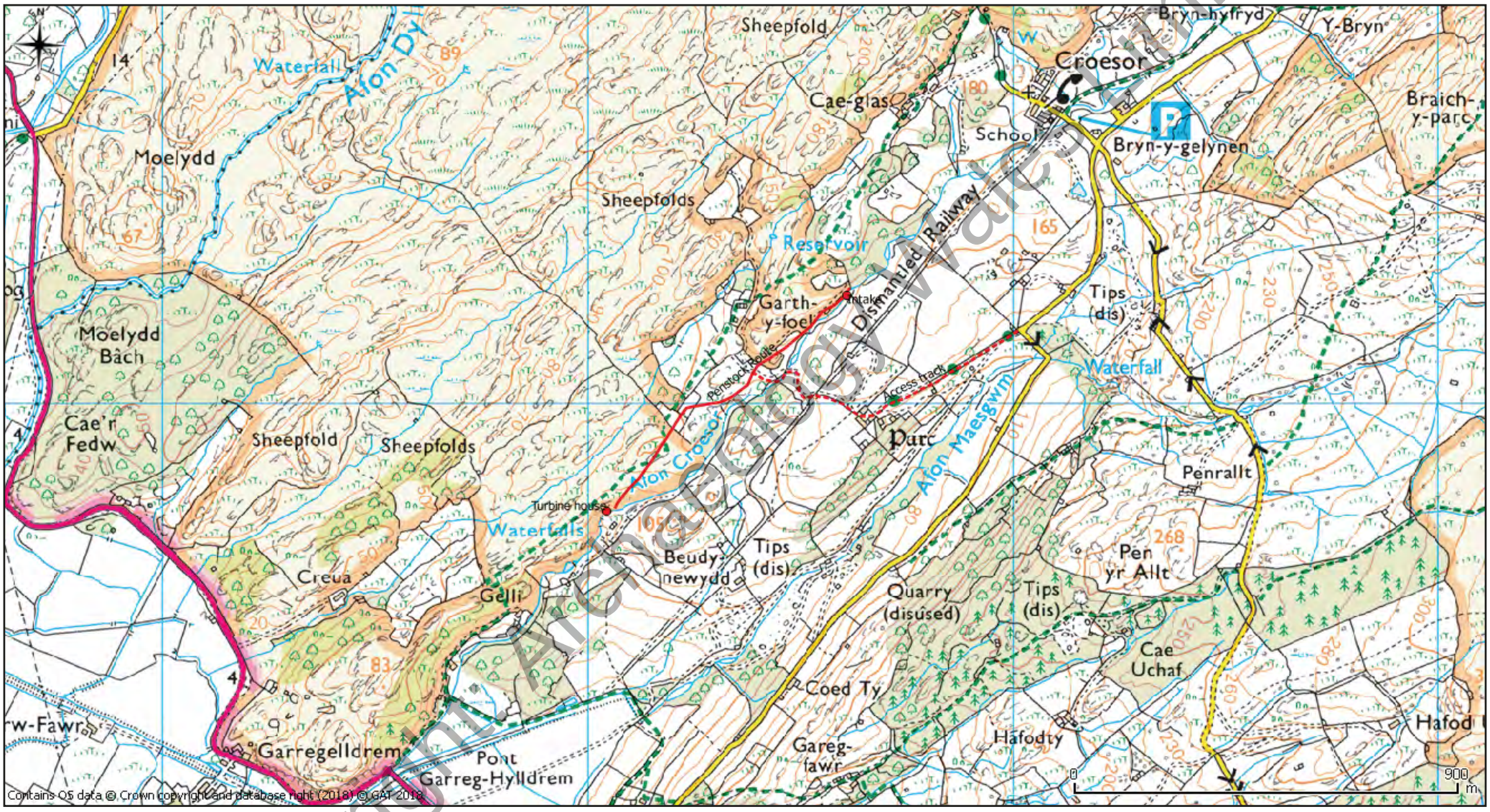

Figure 1: Location map

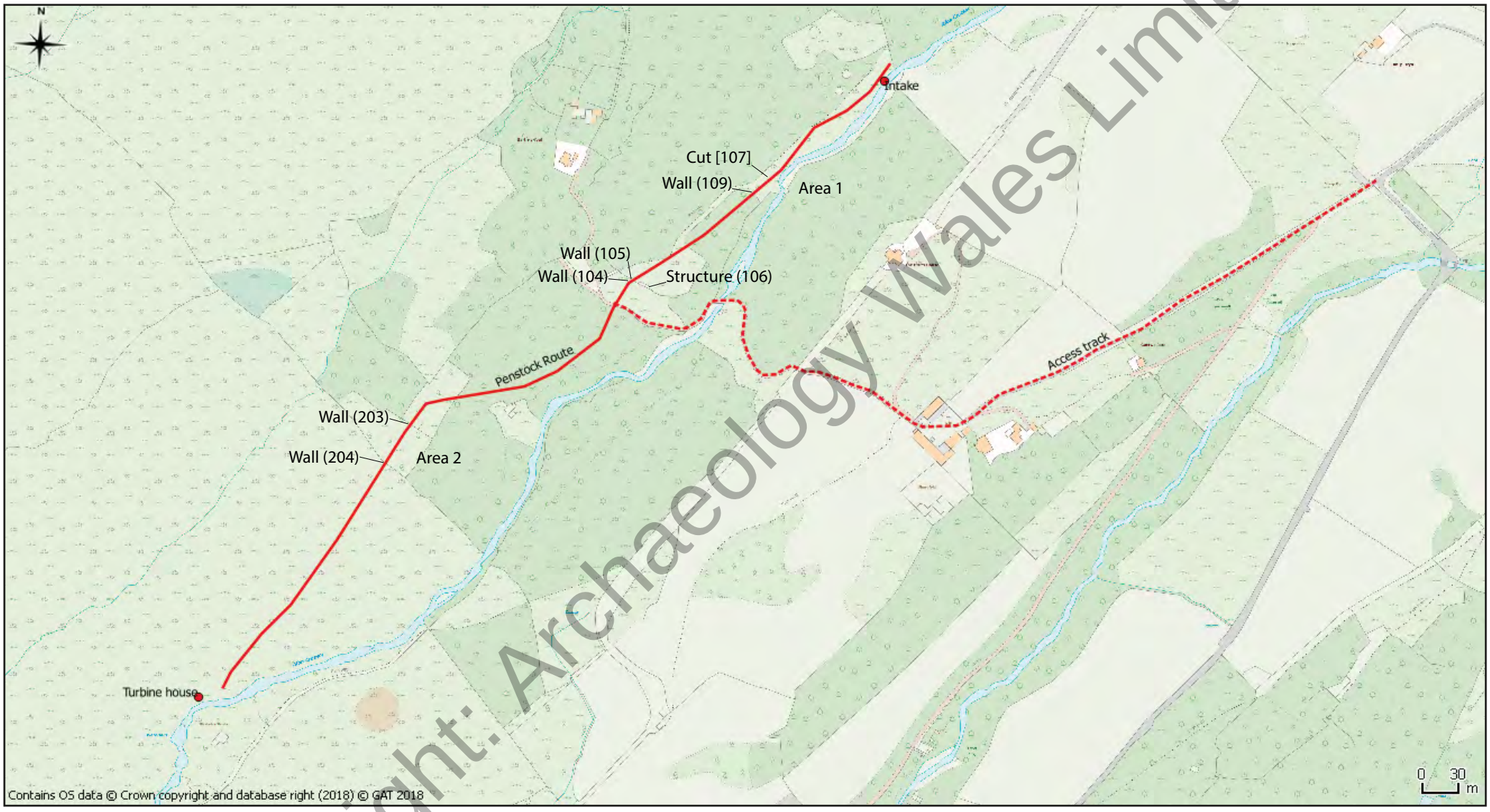

Figure 2: Location plan of Watching Brief results

Archaeology Wales

APPENDIX II:
Plates

Plate 1. Topsoil (101) mixed with orange sand and gravel (102) and rocks (103). View north. 1m scale.

Plate 2. Denuded dry-stone wall (104). View west. 1m scale

Plate 3. Dry-stone wall (103). View north. 1m scale

Plate 4. Rectangular stone structure (106). View east. 1m scale

Plate 5. Rectangular stone structure (106). View west. 1m scale

Plate 6. Rectangular stone structure (106). View south. 1m scale

Plate 7. Orange sand and gravel (102). View north. 1m scale

Plate 8. East facing section, central part of Area 1. Topsoil (101) with sand and gravel (102) resting beneath. 1m scale

Plate 9. Rock outcrop. View north. 1m scale

Plate 10. Residual topsoil (101) over sand and gravel (102). View north. 1m scale

Plate 11. East-west orientated stone wall (109). View west. 1m scale

Plate 12. Dip in northern part of Area 1 showing linear feature [107]. View north. 1m scale.

Plate 13. North facing section through cut [107]. 0.5m scale

Plate 14. East facing section in northern part of Area 1 showing deep and extensive rooting. View west. 0.5m scale

Plate 15. East facing section in the northern part of Area 1 showing the sterile sand (108) predominating there. 0.5m scale.

Plate 16. Dark brown loam (201) containing rocks at the northern end of Area 2. View south. 1m scale.

Plate 17. East facing section illustrating rocks positioned in the loam (201). 0.5m scale

Plate 18. Colluvial dark brown loam (201). View south. 1m scale

Plate 19. Orange sand and gravel (201) resting beneath topsoil (201). View south. 1m scale

Plate 20. Dark brown loam (201) containing rock fragments. View south. 1m scale

Plate 21. Dry-stone wall (203). View east. 1m scale

Plate 22. Dry-stone wall (204). View east. 1m scale

Plate 23. Orange sand and gravel (202) resting beneath walls (203) and (204). View north. 1m scale.

Plate 24. Peat deposits (205) south of wall (204). View south. 1m scale

Plate 25. West facing section of peat deposit (205). 0.5m scale

Plate 26. East facing section of orange sand and gravel (202) located to the south of the peat deposits (205). 0.5m scale

Plate 27. Sand and gravel (201) to the south of peat deposit (205). 1m scale

Plate 28. Silty loam (206) containing rocks at the southern termination of Area 2. View south. 1m scale

Archaeology Wales

APPENDIX III:
Written Scheme of Investigation

ARCHAEOLOGY WALES
Revealing the past, informing the future

Archaeology Wales Ltd
The Reading Room, Town Hall, Llanidloes SY18 6BN
T: 01686 440371
E: info@arch-wales.co.uk
www.arch-wales.co.uk

WRITTEN SCHEME OF INVESTIGATION

FOR AN ARCHAEOLOGICAL WATCHING BRIEF

AT BRONDANW ESTATE, GWYNEDD

Prepared for:

Renewables First

Planning Application Number: NP5/68/221B

Project No: 2679

December 2018

Archaeology Wales Limited
The Reading Room, Town Hall, Great Oak Street
Llanidloes, Powys SY18 6BN
Tel: +44 (0) 1686 440371
Email: admin@arch-wales.co.uk

Contents **Page**

Summary

This Written Scheme of Investigation details a programme of archaeological mitigation to be undertaken by Archaeology Wales at the request of Renewables First.

The archaeological mitigation will consist of a watching brief and will be undertaken during ground works associated with construction of an intake weir and turbine house and the burying of a pipeline and export cable on land at Afon Croesor, Brondanw Estate, Croesor, Gwynedd. The development site is located between SH 62621 44266 and SH 62043 43744. The associated Planning Application No. is NP5/68/221B.

The proposed development is located within the Brondanw Estate, which is within Snowdonia National Park. A Desk Based Assessment conducted to assess the impact of the development concluded that the potential to disturb buried archaeological remains was moderate. Based on the recommendations of the report Snowdonia National Park Authority have stipulated that an archaeological watching brief is undertaken during ground works to mitigate the impact of the development on any surviving buried archaeological resource.

All work will be undertaken in accordance with the standards and guidelines of the Chartered Institute for Archaeologists (2014).

1. Introduction and planning background

This Written Scheme of Investigation (WSI) details the methodology for a programme of archaeological mitigation (watching brief) to be undertaken in association with the construction of an intake weir and turbine house and the burying of a pipeline and export cable on land at Afon Croesor, Brondanw Estate, Croesor, Gwynedd. The development site is located between SH 62621 44266 and SH 62043 43744. The associated Planning Application No. is NP5/68/221B. The local planning authority is Gwynedd Archaeological Planning Service (GAPS). This WSI has been prepared by Dr Siân Thomas, Archaeology Wales Ltd (henceforth - AW).

The proposed development is located within the Brondanw Estate, which is within Snowdonia National Park. The proposed scheme is located on Afon Croesor, just to the south-west of the settlement of Croesor.

The methodology set out in this WSI has been agreed with GAPS its capacity as archaeological advisors to the local planning authority. GAPS recommended that an archaeological watching brief be undertaken during ground works to mitigate the impact of the proposed development on any surviving buried archaeological resource within the bounds of the site.

The purpose of the archaeological mitigation (watching brief) is to provide the local planning authority with sufficient information regarding the nature of archaeological remains on the site of the development, the requirements for which are set out in Planning Policy (revised edition 9, 2016), Section 6.5 and Technical Advice Note (TAN) 24: The Historic Environment (2017). The work is to ensure that all buried artefacts and deposits are

fully investigated and recorded if they are disturbed or revealed as a result of activities associated with the development.

All work will be undertaken to the standards and guidance set by the Chartered Institute for Archaeologists (2014). AW is a Registered Organisation with the CIfA.

2. Site Description

The development site is located on Afon Croesor, just to the south-west of the settlement of Croesor. The development consists of the construction of an intake weir at SH 62621 44266, which will be connected to a turbine house, located at SH 62043 43744, by a buried pipe. The pipeline runs north-east to south-west for approximately 760m, across a lightly wooded area and open hillside (Figure 1). The intake weir sits at approximately 134m AOD with the land dropping away to 75m AOD at the turbine/outfall site.

The site overlies the Nant Ffrancon Subgroup, which is a sedimentary bedrock formed of siltstone. An unnamed igneous intrusion, formed of silica rich magma, cuts across the route towards its south-western end. The intrusion is thought to have formed approximately 444 to 485 million years ago. The superficial geology recorded along the line of the Afon Croesor is Devensian till, which formed up to 2 million years ago (BGS, 2018).

3. Archaeological Background

The site is located just to the south-west of the village of Croesor, which is within Snowdonia National Park. A previous Desk Based Assessment (DBA) conducted by AW (Nikolic and Garcia Rovira, 2018) for the development showed that the site lies just outside the boundary of the Registered Park and Garden of Parc (GD35), however, it is within the essential setting of the park. Parc was the ancient seat of the Anwyls, one of the most notable families of the Meirionedd area in the Tudor and Stuart periods. Parc has exceptional stone-built garden terraces of probable 17th century date, associated with a group of buildings and historical features set within a contemporary small, walled park which includes a gatehouse and viewpoint. The Registered Park and Garden also includes remains that date to the post-medieval period. The growth of industry at this time changed the character of the area, with a slab quarry, part of the now dismantled Croesor tramway and two inclines within the Parc estate. The village of Croesor itself developed in the 19th century as a slate quarry village, with the growth of the village being assisted by the Croesor tramway.

The growth of industry in the post-medieval period is evident across the wider landscape surrounding the development site. Most of the undesignated archaeological assets of this date are connected to industry, with large scale water management having been undertaken in this period. An aqueduct is located near Penrallt (PRN30788), approximately 650m east of the site. This is close to Rhaiadar Copper mine (PRN21893) and Parc slab slate quarry (PRN20264). There are a number of water mills within the landscape, including a three-storey water mill with remains of a sluice (PRN36689), approximately 500m down stream of location of the turbine house.

The DBA noted a three Scheduled Ancient Monuments within a 1km radius of the site. Two of these relate to the remains of hut circles settlements, the closest being Garth-y-Foel (ME170). The SAM polygon is located c. 5m north of the pipeline route close to the intake weir. The second hut circle settlement, Bryn Derw (ME178), is located nearly 1km south from the turbine house. The final SAM is the deserted medieval settlement Pont Maesgwm (ME193), which is 960m east-south-east of the intake weir. A total of seventeen Listed Buildings were also identified, with most relating to buildings within the Parc estate.

4. Objectives

This WSI sets out a program of works to ensure that the mitigation (watching brief) will meet the standard required by The Chartered Institute for Archaeologist's *Standard and Guidance for Archaeological Watching Briefs (2014)*.

The objective of the watching brief will be:

- to allow a rapid investigation and recording of any archaeological features that are uncovered during the proposed groundworks within the application area.
- to provide the 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 are not sufficient to support the treatment to a satisfactory or proper standard.

A written report will be compiled following the fieldwork. Sufficient desk-top research will be undertaken to ensure that the results of this work are properly understood, interpreted and reported.

The report will include a comprehensive assessment of the historic context within which the archaeological evidence rests and will aim to highlight any relevant research issues within regional, national and, if relevant, international research frameworks.

5. Timetable of works

5.1. Fieldwork

The programme of mitigation will be undertaken during ground works associated with the proposed development. Groundworks will commence on May 2019, and will last a maximum of six months. Archaeology Wales will update GAPS with the exact date.

5.2. Report delivery

The report will be submitted to the client and to GAPS for approval within two months of the completion of the fieldwork. Following approval, a copy of the report will be submitted to GAPS. A copy of the report will also be sent to the regional Historic Environment Record.

6. Fieldwork

6.1. Detail

The work will be undertaken to meet the standard required by The Chartered Institute for *Archaeologist's Standard and Guidance for Watching Briefs* (2014).

The Watching Brief will be carried out by a suitably qualified archaeologist on all groundworks. The mechanical excavation will be undertaken by a tracked 360-degree excavator using a toothless ditching bucket wherever possible. Groundworks will only start once the monitoring archaeologists has concluded that:

1. The extent of the scheduled area has been satisfactorily marked out and protected from any damage that may be caused by groundworks;

2. All contractors have been briefed on the methodology to be followed to avoid impacting the archaeological resource.

3. A temporary track exists throughout the extent of the penstock route to allow the movement of vehicles, therefore, limiting the rick of erosion of potential archaeological deposits.

The site archaeologist undertaking the watching brief will be afforded the required access by the main contractor in order to observe and where necessary to record any archaeological remains revealed. Groundwork will not be undertaken without the presence of the site archaeologist. The site archaeologist will record finds and less significant archaeological deposits and features without significant delay to the work program.

As a minimum small discrete features will be fully excavated, larger discrete features will be half-sectioned (50% excavated) and long linear features will be sample excavated along their length to 20% of total- with investigative excavations distributed along the exposed length of any such feature and to investigate terminals, junctions and relationships with other features. Should this percentage excavation not yield sufficient information to allow the form and function of archaeological features/deposits to be determined full excavation of such features/deposits will be required.

Where significant or complex archaeological deposits or features are encountered there will be a requirement for those areas to be fenced off and highlighted to all contractors employed on the site. Machines or contractors shall not enter this area until archaeological recording has been completed. If significant archaeological features are revealed during the work a meeting between the client, GAPS and AW will be called at the earliest convenience.

To comply with professional guidelines, a contingency for a further limited period uninterrupted access to each such area and for a suitably-sized team of further archaeologists to be employed should be provided. Contingency costs will be agreed in advance before any extension to the programme commences and will follow a site meeting between Archaeology Wales, the client and GAPS.

6.2. Recording

Recording will be carried out using AW recording systems (pro-forma context sheets etc) using a continuous number sequence for all contexts.

Plans and sections will be drawn to a scale of 1:50, 1:20 and 1:10 as required and related to Ordnance Survey datum and published boundaries where appropriate.

All features identified will be tied in to the OS survey grid and fixed to local topographical boundaries.

Photographs will be taken in digital format with an appropriate scale, using a 12MP camera with photographs stored in Tiff format.

The archaeologist undertaking the watching brief will have access to the AW metal detector and be trained in its use.

6.3. Finds

The professional standards set in the Chartered Institute for Archaeologists' *Standard and guidance for the collection, documentation, conservation and research of archaeological (2014)* will form the basis of finds collection, processing and recording.

All manner of finds regardless of category and date will be retained.

Finds recovered that are regarded as Treasure under *The Treasure Act 1996* will be reported to HM Coroner for the local area.

Any finds which are considered to be in need of immediate conservation will be referred to a UKIC qualified conservator (normally Phil Parkes at Cardiff University).

6.4. Environmental sampling strategy

Deposits with a significant potential for the preservation of palaeoenvironmental material will be sampled, by means of the most appropriate method (bulk, column etc). Where sampling will provide a significant contribution to the understanding of the site AW will draw up a site-specific sampling strategy alongside a specialist environmental archaeologist. All environmental sampling and recording and will follow English Heritage's *Guidelines for Environmental Archaeology* (2011).

6.5. Human remains

In the event that human remains are encountered, their nature and extent will be established and the coroner informed. All human remains will be left *in situ* and protected during backfilling. Where preservation *in situ* is not possible the human remains will be fully recorded and removed under conditions that comply with all current legislation and include acquisition of licenses and provision for reburial following all analytical work. Human remains will be excavated in accordance with the Chartered Institute for Archaeologist's *Updated Guidelines to the Standards for Recording Human Remains* (2017).

A meeting with GAPS, the client and AW will be called if the human remains uncovered are of such complexity or significance that the contingency arrangement (6.1 above) would not be of sufficient scope.

6.6. Specialist advisers

In the event of certain finds, features or sites being discovered, AW will seek specialist opinion and advice. A list of specialists is given in the table below although this list is not exhaustive.

Artefact type	Specialist
Flint	Kate Pitt (Archaeology Wales)
Animal bone	Richard Madgwick (Cardiff University)
CBM, heat affected clay, Daub etc.	Rachael Hall (APS)
Clay pipe	Hilary Major (Freelance)
Glass	Rowena Hart (Archaeology Wales)
Cremated and non-cremated human bone	Malin Holst (University of York)/Richard Madgwick (Cardiff University)
Metalwork	Kevin Leahy (University of Leicester)/ Quita Mold (Freelance)
Metal work and metallurgical residues	Dr Tim Young (GeoArch)
Neo/BA pottery	Dr Alex Gibson (Bradford University)
IA/Roman pottery	Jane Timby (Freelance)
Roman Pottery	Rowena Hart (Archaeology Wales)/ Peter Webster (Freelance)
Post Roman pottery	Stephen Clarke (Monmouthshire Archaeology)
Charcoal (wood ID)	John Carrot (Freelance)
Waterlogged wood	Nigel Nayling (University of Wales – Lampeter)
Molluscs and pollen	Dr James Rackham
Charred and waterlogged plant remains	Wendy Carruthers (Freelance)

6.6.1. Specialist reports

Specialist finds and palaeoenvironmental reports will be written by AW specialists, or sub-contracted to external specialists when required.

7. Monitoring

GAPS will be contacted approximately two weeks prior to the commencement of archaeological site works, and subsequently once the work is underway.

Any changes to the WSI that AW may wish to make after approval will be communicated to GAPS for approval on behalf of Planning Authority.

GAPS will be given access to the site so that they may monitor the progress of the field evaluation. No area will be back-filled until GAPS has had the opportunity to inspect it unless permission has been given in advance. GAPS will be kept regularly informed about developments, both during the site works and subsequently during post-excavation.

8. Post-fieldwork programme

8.1. Archive assessment

8.1.1. Site archive

An ordered and integrated site archive will be prepared in accordance with *The National Standard and Guidance to Best Practice for Collecting and Depositing Archaeological Archives in Wales 2017* (National Panel for Archaeological Archives in Wales) and the guidelines of the Chartered Institute for Archaeologists upon completion of the project.

The site archive (including artefacts and samples) will be prepared in accordance with the National Monuments Record (Wales) agreed structure and deposited with an appropriate receiving organisation, in compliance with CIfA Guidelines (*Standard and guidance for the creation, compilation, transfer and deposition of archaeological archives'*, 2014). The legal landowners' consent will be gained for deposition of finds.

8.1.2. Analysis

Following a rapid review of the potential of the site archive, a programme of analysis and reporting will be undertaken. This will result in the following inclusions in the final report:

- Non-technical summary
- Location plan showing the area/s covered by the watching brief, all artefacts, structures and features found
- Plan and section drawings (if features are encountered) with ground level, ordnance datum and vertical and horizontal scales.

- Written description and interpretation of all deposits identified, including their character, function, potential dating and relationship to adjacent features. Specialist descriptions and illustrations of all artefacts and soil samples will be included as appropriate.
- An indication of the potential of archaeological deposits which have not been disturbed by the development
- A discussion of the local, regional and national context of the remains by means of reviewing published reports, unpublished reports, historical maps, documents from local archives and the regional HER as appropriate.
- A detailed archive list at the rear listing all contexts recorded, all samples finds and find types, drawings and photographs taken. This will include a statement of the intent to deposit, and location of deposition, of the archive.

8.2. Reports and archive deposition

8.2.1. Report to client

Copies of all reports associated with the mitigation (watching brief), together with inclusion of supporting evidence in appendices as appropriate, including photographs and illustrations, will be submitted to the client and GAPS upon completion.

8.2.2. Summary reports for publication

Short archaeological reports will be submitted for publication in relevant journals; as a minimum, a report will be submitted to the annual publication of the regional CBA group or equivalent journal.

8.2.3. Notification of important remains

Where it is considered that remains have been revealed that may satisfy the criteria for statutory protection, AW will submit preliminary notification of the remains to Cadw.

8.2.4. Archive deposition

The final archive (site and research) will, whenever appropriate, be deposited with a suitable receiving institution. If artefacts are recovered, and dependent on the size of the final archive, the preferred receiving institution would be a suitable local institution. If the archive is not acceptable the archive will be deposited with Amgueddfa Cymru – National Museum Wales, Cardiff. If no artefacts are recovered then the archive will be deposited with the *National Monuments Record*, RCAHMW, Aberystwyth. Arrangements will be made with the receiving institution before work starts.

Although there may be a period during which client confidentiality will need to be maintained, copies of all reports and the final archive will be deposited no later than six months after completion of the work.

Copies of all reports, the digital archive and an archive index will be deposited with the *National Monuments Record*, RCAHMW, Aberystwyth.

Wherever the archive is deposited, this information will be relayed to the HER. A summary of the contents of the archive will be supplied to GAPS.

8.2.5. Finds deposition

The finds, including artefacts and ecofacts, excepting those which may be subject to the Treasure Act, will be deposited with the same institution, subject to the agreement of the legal land owners.

9. Staff

The project will be managed by Dr Irene Garcia Rovira MCIfA (Project Manager) and the fieldwork undertaken by suitable qualified and experienced AW archaeologists. Any alteration to staffing before or during the work will be brought to the attention of GAPS and the client.

Additional Considerations

10. Health and Safety

10.1. Risk assessment

Prior to the commencement of work AW will carry out and produce a formal Health and Safety Risk Assessment in accordance with *The Management of Health and Safety Regulations* 1992. A copy of the risk assessment will be kept on site and be available for inspection on request. A copy will be sent to the client (or their agent as necessary) for their information. All members of AW staff will adhere to the content of this document.

10.2. Other guidelines

AW will adhere to best practice with regard to Health and Safety in Archaeology as set out in the FAME (Federation of Archaeological Managers and Employers) health and safety manual *Health and Safety in Field Archaeology (2002)*.

11. Community Engagement and Outreach

Wherever possible, AW will ensure suitable measures are in place to inform the local community and any interested parties of the results of the site investigation work. This may occur during the site investigation work or following completion of the work. The form of any potential outreach activities may include lectures and talks to local groups, interested parties and persons, information boards, flyers and other forms of communication (social media and websites), and press releases to local and national media.

The form of any outreach will respect client confidentiality or contractual agreements. As a rule, outreach will be proportional to the size of the project.

Where outreach activities have a cost implication these will need to be negotiated in advance and in accordance with the nature of the desired response and learning outcomes.

12. Insurance

AW is fully insured for this type of work and holds Insurance with Aviva Insurance Ltd and Hiscox Insurance Company Limited through Towergate Insurance. Full details of these and other relevant policies can be supplied on request.

13. Quality Control

13.1. Professional standards

AW works to the standards and guidance provided by the *Chartered Institute for Archaeologists*. AW fully recognise and endorse the Chartered Institute for Archaeologists' *Code of Conduct*, *Code of Approved Practice for the Regulation of Contractual Arrangements in Field Archaeology* and the *Standard and Guidance for archaeological watching briefs* currently in force. All employees of AW, whether corporate members of the Chartered Institute for Archaeologists or not, are expected to adhere to these Codes and Standards during their employment.

13.2. Project tracking

The designated AW manager will monitor all projects in order to ensure that agreed targets are met without reduction in quality of service.

14. Arbitration

Disputes or differences arising 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 Institute for Archaeologists* applying at the date of the agreement.

15. References

British Geological Survey. 2018. British Geological Survey Maps. Accessed at www.bgs.ac.uk.

Chartered Institute for Archaeologists. 2014. Standards and guidance for the collection, compilation, transfer and deposition of archaeological archives.

Chartered Institute for Archaeologists. 2014. Standards and guidance for the collection, documentation, conservation and research of archaeological materials.

Chartered Institute for Archaeologists. 2015. Standard and Guidance for Archaeological Watching Briefs. Unpublished Guidance accessible at www.archaeologists.net.

English Heritage, 2011. Guidelines for Environmental Archaeology.

English Heritage, 2006. Management of Research Projects in the Historic Environment (MORPHE).

Mitchell, P.D. and Brickley, M. eds. 2017. Updated Guidelines to the Standards for Recording Human Remains. Chartered Institute for Archaeologists.

Nikolic, L. and Garcia Rovira, I. 2016. *Afon Croesor, Brondanw Estate, Croesor, Gwynedd: Desk Based Assessment and Heritage Impact Assessment.* Unpublished Report: Archaeology Wales No. 1675.

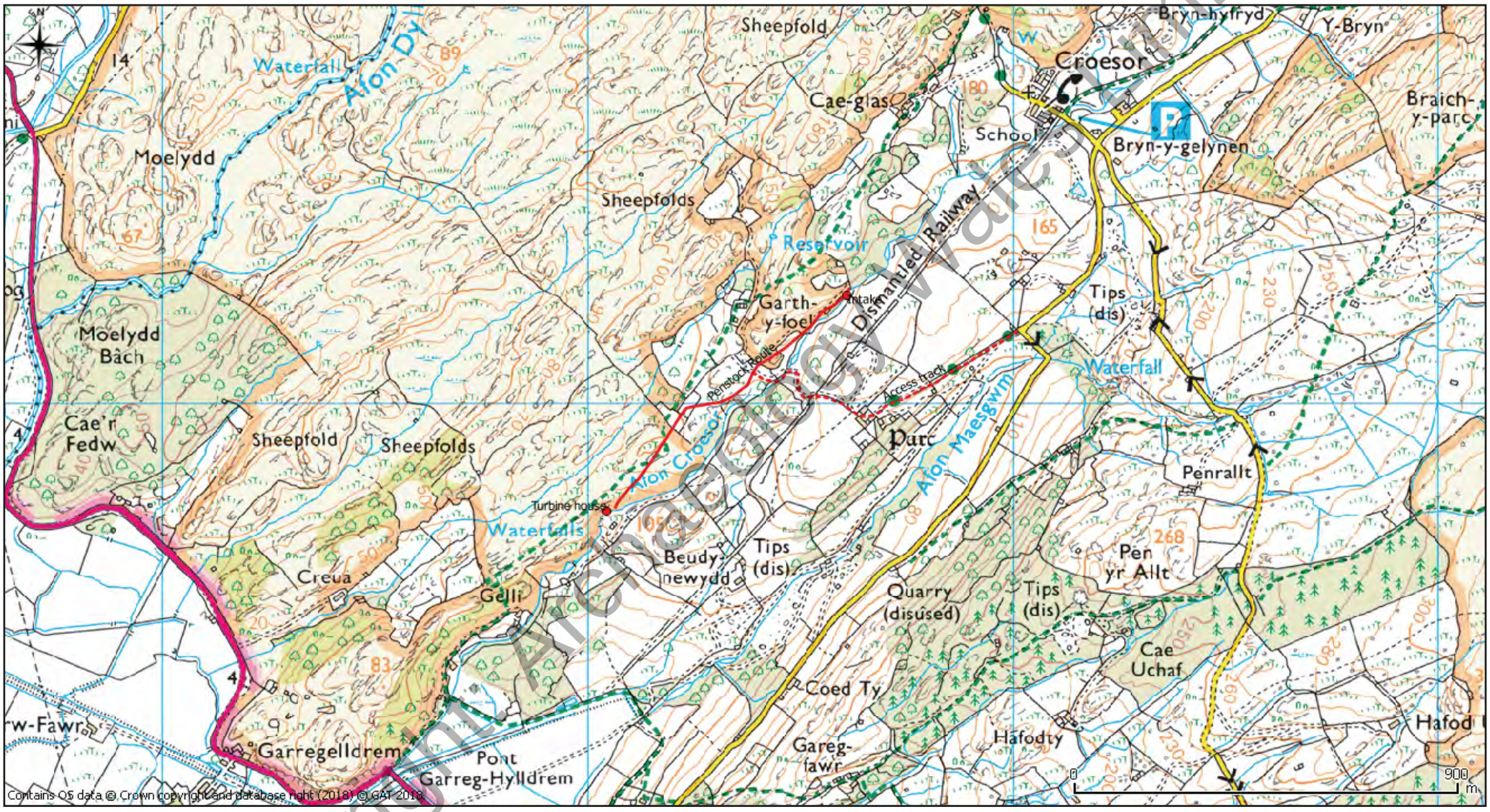

Figure 1: Location map

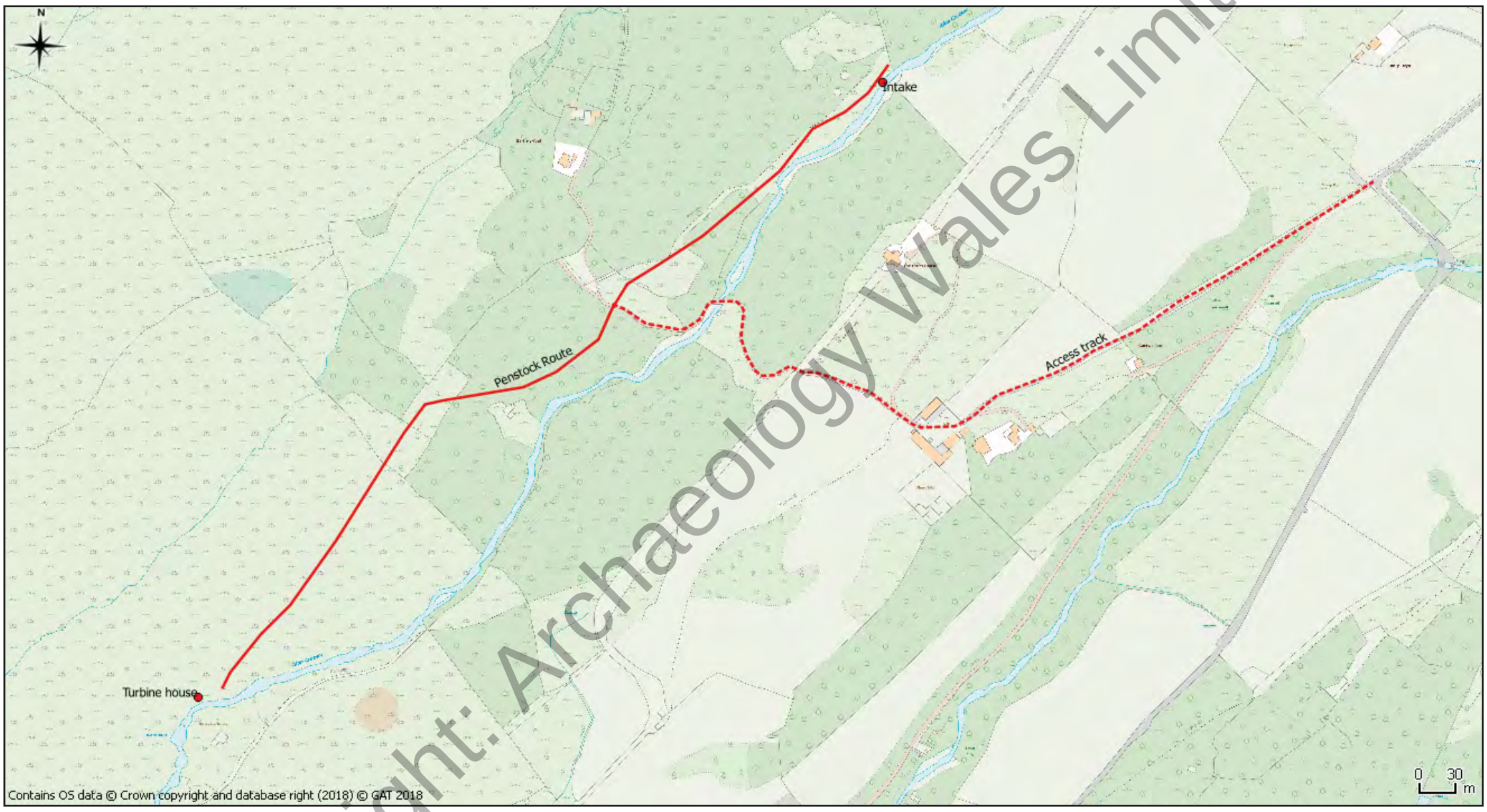

Figure 2: Development outline

Archaeology Wales

APPENDIX III:
Archive Cover Sheet

ARCHIVE COVER SHEET

Afon Croesor, Brondanw Estate, Croesor, Gwynedd

Site Name:	Afon Croesor, Brondanw Estate
Site Code:	BEHC/18/WB
PRN:	-
NPRN:	-
SAM:	-
LB:	-
NGR:	Between SH 62621 44266 and SH 62043 43744
Site Type:	Greenfield
Project Type:	Watching brief
Project Manager:	Irene Garcia Rovira
Project Dates:	June-July 2019
Categories Present:	-
Location of Original Archive:	AW
Location of Duplicate Archives:	RCAHMW
Number of Finds Boxes:	-
Location of Finds:	N/A
Museum Reference:	N/A
Copyright:	AW
Restrictions to Access:	None

Archaeology Wales

Archaeology Wales Limited
The Reading Room, Town Hall, Llanidloes, SY18 6BN
Tel: +44 (0) 1686 440371

Email: admin@arch-wales.co.uk
Company Directors: Mark Houliston MCIfA & Jill Houliston
Company Registered No. 7440770 (England & Wales)
Registered Office: Morgan Griffiths LLP, Cross Chambers
9 High Street, Newtown, Powys, SY16 2NY