



aeon archaeology

**Proposed Hydro-Electric Scheme,
Nant Bod-y-Fuddau,
Trawsfynydd, Meirionnydd.
August 2018
V 2.0**



Archaeological Assessment
Project Code: A0172.1
Report no. 0177



aeon archaeology

**Proposed Hydro-Electric Scheme,
Nant Bod-y-Fuddau,
Trawsfynydd, Meirionnydd.
August 2018
V 2.0**

Report no. 0177

Archaeological Assessment

Aeon Archaeology
25, Mold Road
Broughton
Chester
CH4 0PQ

Written by: Richard Cooke BA MA MCIfA

Checked by: Josh Dean BA ACIfA



Project Code: A0172.1
Date: 17/08/2018
Client: G.H and A.W. James
info@aeonarchaeology.co.uk

Figures

Figure 01: Location of proposed hydro scheme at Bodyfuddau, Trawsfynydd. Scale 1:20,000 at A4.

Figure 02: Location of proposed hydro scheme at Bodyfuddau, Trawsfynydd. Scale 1:5,000 at A4.

Figure 03: Location of non-designated monument points from the Gwynedd Historic Environment Record. Scale 1:10,000 at A4.

Figure 04: Location of non-designated monument points from the National Monument Record. Scale 1:5,000 at A4.

Figure 05: Location of Listed Buildings and Scheduled Ancient Monuments. Scale 1:15,000 at A4.

Figure 06: Location of Historic Landscape Character Areas. 1:10,000 at A4.

Figure 07: Location of the proposed hydro scheme on the map of Trawsfynydd parish in the County of Merioneth 1840.

Figure 08: Location of the proposed hydro scheme on the six inch Ordnance Survey map of 1888.

Figure 09: Location of the proposed hydro scheme on the six inch Ordnance Survey map of 1901.

Figure 10: Location of the proposed hydro scheme on the six inch Ordnance Survey map of 1953.

Figure 11: Location of the proposed hydro scheme on the RAF aerial photograph of 1945.

Figure 12: Location of the proposed hydro scheme on the RAF aerial photograph of 1964.

Figure 13: Location of archaeological features identified during the archaeological assessment at Bodyfuddau, Trawsfynydd. Scale 1:5,000 at A4.

Figure 14: Location and orientation of photographic plates taken during the archaeological assessment at Bodyfuddau, Trawsfynydd. Scale 1:5,000 at A4.

Figure 15: Location of area requiring monitoring by watching brief. Scale 1:5,000 at A4.

Plates

Plate 01: Proposed hydro intake weir location, from the northwest. Scale 1.0m.

Plate 02: Proposed hydro penstock route within grassed area, from the northwest. Scale 1.0m.

Plate 03: Proposed turbine house location, from the southeast. Scale 1.0m.

Plate 04: Proposed cable trench location to existing H-pole, from the southeast. Scale 1.0m.

Plate 05: Fridd Ddu, field boundary VI (feature 1, PRN: 74684), from the north. Scale 1.0m.

Plate 06: Fridd Ddu, field boundary XIV (feature 2, PRN: 74685), from the west. Scale 1.0m.

Plate 07: Fridd Ddu, field boundary XV (feature 3, PRN: 74686), from the southeast. Scale 1.0m.

Plate 08: Trackway (feature 4, PRN: 74687), from the northwest. Scale 1.0m.

Plate 09: Enclosure south of Swn y Nant (feature 5, PRN: 57672), from the northwest. Scale 1.0m.

Plate 10: House platform (feature 6, PRN: 74688), from the north. Scale 1.0m.

Plate 11: House platform (feature 6, PRN: 74688), from the west. Scale 1.0m.

Plate 12: Possible sluice (feature 7, PRN: 74689), from the northwest. Scale 1.0m.

Plate 13: Field boundary wall (feature 8, PRN: 74690), from the northeast. Scale 1.0m.

Plate 14: Field boundary wall (feature 9, PRN: 74691), from the southeast. Scale 1.0m.

1.0 NON-TECHNICAL SUMMARY	1
2.0 INTRODUCTION, AIMS AND PROJECT DESIGN	2
3.0 METHODS AND TECHNIQUES	3
3.1 Archival research	3
3.2 Desk-top study report.....	3
3.3 Project archive	3
4.0 POLICY CONTEXT	4
5.0 ARCHAEOLOGICAL AND TOPOGRAPHICAL BACKGROUND	6
5.1 Topographic Description	6
5.2 Statutory and non-statutory designations.....	7
5.2.1 Non-designated monument points from the Gwynedd Historic Environment Record (figure 3).....	7
5.2.2 National Monuments Record (figure 4)	7
5.2.3 Listed Buildings (figure 5)	8
5.2.4 Scheduled Ancient Monuments (figure 5)	8
5.2.5 Historic Landscape Character Areas (HLCAs) (figure 7).....	9
5.2.6 Historic Parks and Gardens	9
5.2.7 The Inventory of Historic Battlefields in Wales	10
5.2.8 World Heritage Sites.....	10
5.2.9 Events	10
5.2.10 Lidar.....	10
5.2.11 Historic Aerial Photographs.....	11
6.0 THE HISTORICAL CONTEXT	12
6.1 Prehistoric and Roman Period	12
6.2 Early Medieval, Medieval and Post-Medieval Periods.....	14
7.0 DESK-TOP STUDY OF HISTORICAL ASSETS	16
7.1 Definitions	16
8.0 SITE GAZETTEER – PHYSICAL IMPACTS	19
9.0 IMPACT AND RECOMMENDATIONS.....	31
9.1 Direct physical impact	31
9.2 Indirect physical and non-physical (visual) impact	31
9.3 Site Specific Recommendations	31
9.4 General recommendations	31
10.0 SOURCES	33
APPENDIX 1: SCHEDULED AND NON-SCHEDULED SITES WITHIN 1.0KM.....	34

1.0 NON-TECHNICAL SUMMARY

Aeon Archaeology was commissioned by G.H & A.W James to carry out an archaeological assessment of a proposed 30kw hydro-electric scheme with turbine house, buried penstock (pipeline), and electrical cable connection. The proposed scheme intake is to be located on the western bank of the Nant Bod-y-Fuddau, a tributary of the Afon Prysor. The scheme lies approximately 2.2km east of Trawsfynydd, within the historical county of Meirionnydd and within the Snowdonia National Park Authority.

The assessment identified ten archaeological features within the 50.0m wide assessment corridor centred on the penstock trench. Of these it is expected that the scheme will impact upon a trackway and field wall of negligible importance, and a relict field wall of unknown but suspected local importance.

In addition a post-medieval and potentially medieval enclosure, sluice and possible mill have been identified located within 5.0m of the scheme. As such, and due to the potential for associated preserved remains, it has been recommended that a watching brief be maintained during the excavation of the penstock trench, outfall trench, turbine house, and cable trench within proximity of these features.

2.0 INTRODUCTION, AIMS AND PROJECT DESIGN

Aeon Archaeology was commissioned by G.H & A.W James, hereafter the Client, to carry out an archaeological desk-top study of a proposed 30kw hydro-electric scheme with turbine house, buried penstock (pipeline), and electrical cable connection. The proposed scheme intake is to be located on the western bank of the Nant Bod-y-Fuddau, a tributary of the Afon Prysor. The scheme lies approximately 2.2km east of Trawsfynydd, within the historical county of Meirionnydd and within the Snowdonia National Park Authority (SNPA) (figures 1 and 2).

The proposed scheme will consist of an intake weir located at **NGR SH 73268 34638** and a c.650.0m long 315mm external diameter buried penstock running southeast to northwest to a new turbine house located at **NGR SH 72973 35139** and which will be installed on the western bank of the Nant Bod-y-Fuddau. A new cable connection will then run northwest for c.60.0m to an existing electrical H-pole. The existing farm yard at Bod-y-Fuddau will be used for the laydown of materials and a low-impact tracked excavator will be used to excavate the penstock and cable trenches without the requirement for a stripped easement. The initial 120.0m of the penstock will be buried within grassland after which it will be buried within an existing trackway until it reaches the turbine house. The outfall and cable route will be buried within grassland.

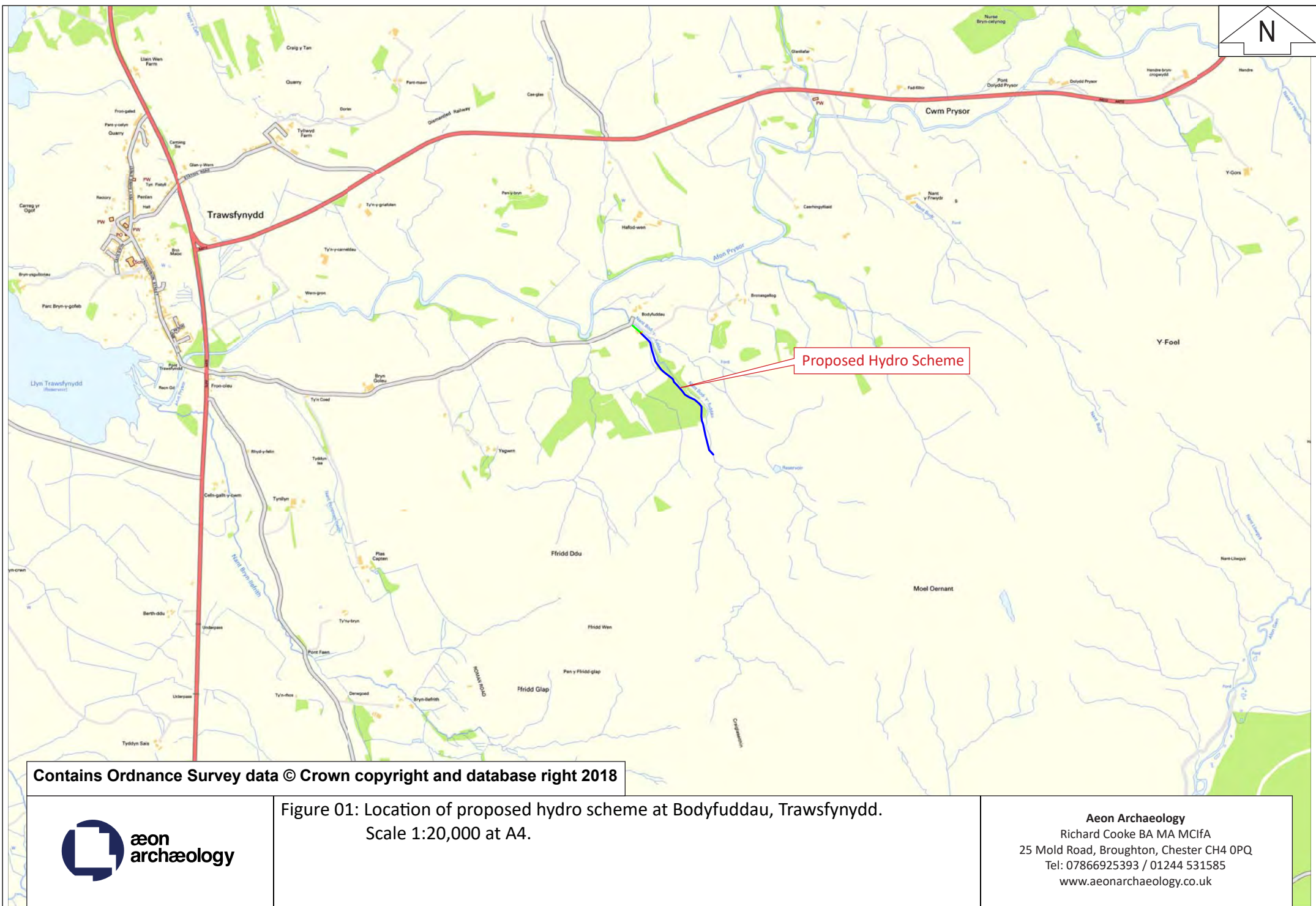
The archaeological assessment has been carried out in advance of planning application in response to feedback given to pre-application **NP5/78/537**. An initial consultation letter with the Principle Planning Officer, Mr Richard Thomas stated:

Given the proximity of this proposal to known archaeological remains a walk over or desk top archaeological survey and report should be carried out by a suitably qualified and experienced professional and submitted as part of any planning application.

This archaeological assessment is for the proposed development area, which includes the water intake point, the penstock route, the turbine house, the water outflow, and a 50.0m wide assessment corridor centred on the proposed pipeline route.

As part of the archaeological desk-top study a 1.0km search area centred on the proposed route was utilised for a search of the Gwynedd Historic Environment Record (HER). This provided a background historical narrative of the area and included source material from the Gwynedd Archives and Record Office, Dolgellau. Information on Scheduled Ancient Monuments and Listed Buildings was obtained from Cadw. In addition a 1.0km search area centred on the proposed route was utilised for a search of the Royal Commission on the Ancient and Historic Monuments in Wales' (RCAHMW) National Monuments Record (NMR) and historic aerial photographs were obtained from the Aerial Photographs Officer at the Welsh Government, Cardiff.

The following report conforms to the guidelines specified in *Standard and Guidance for Archaeological Desk-based Assessment* (Chartered Institute for Archaeologists, 2014).



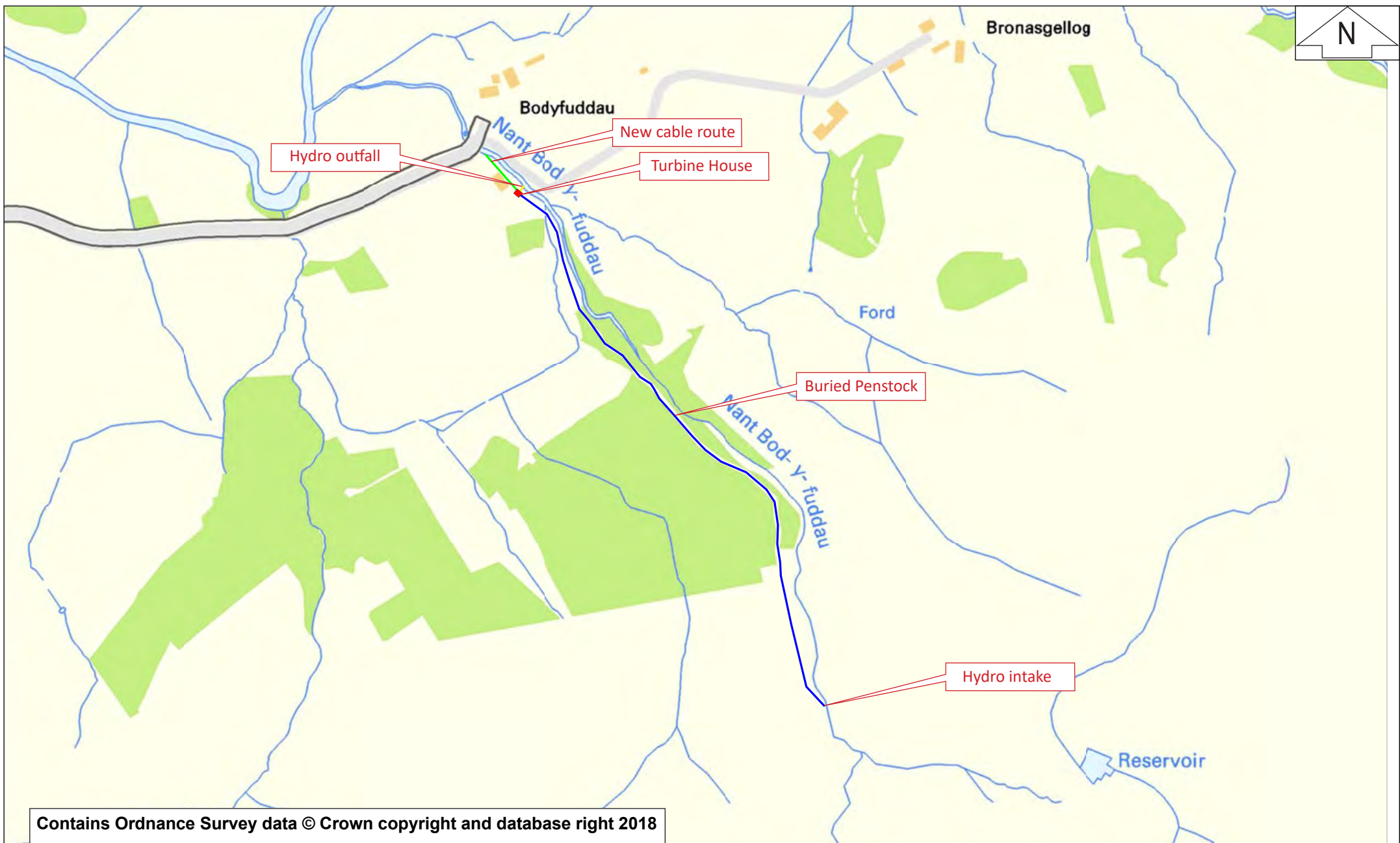


Figure 02: Location of proposed hydro scheme at Bodyfuddau, Trawsfynydd.
Scale 1:5,000 at A4.



Plate 01: Proposed hydro intake weir location, from the northwest. Scale 1.0m.



Plate 02: Proposed hydro penstock route within grassed area, from the northwest. Scale 1.0m.



Plate 03: Proposed turbine house location, from the southeast. Scale 1.0m.



Plate 04: Proposed cable trench location to existing H-pole, from the southeast. Scale 1.0m.

3.0 METHODS AND TECHNIQUES

3.1 Archival research

The archaeological desk-top study involved the study of the following records:

- The regional Historic Environment Record (Gwynedd Archaeological Trust, Craig Beuno, Garth Road, Bangor, LL57 2RT) was examined for information concerning the study area. This included an examination of the core HER, and secondary information held within the record which included unpublished reports, the 1:2500 County Series Ordnance Survey maps, and the National Archaeological Record index cards and aerial photography.
- The National Monuments Record (NMR RCAHMW, National Monuments Record of Wales, Plas Crug, Aberystwyth, SY23 1NJ) was checked for sites additional to the HER.
- Information about Listed Buildings and Scheduled Ancient Monuments were obtained from Cadw. The Register of Outstanding and Special Historic Landscapes and the Register of Parks and Gardens was checked, and also the location of World Heritage Sites.
- Secondary sources were examined, including the Inventories of the Royal Commission on Ancient and Historical Monuments for Wales, and works held within the regional libraries and the Gwynedd Archives and Record Office, Dolgellau.
- Results from previous archaeological work within the area was also reviewed.
- Historic aerial photographs were obtained from the Aerial Photographs Officer at the Welsh Government, Cardiff.

3.2 Desk-top study report

All features identified from the archival research were assessed and allocated to categories of international, national, regional/county, local and none/unknown importance as listed in section 8.0. These are intended to place the archaeological feature within a geographical context of importance and thus help inform the most suitable level of mitigatory response.

3.3 Project archive

A full archive including plans, photographs and written material was prepared. All plans, photographs and written descriptions were labelled and cross-referenced using Aeon Archaeology pro-formas. A draft copy of the report was sent to the client and upon written approval from them paper and digital copies of the report will be sent to the regional HER (Gwynedd Archaeological Trust, Craig Beuno, Garth Road, Bangor, LL57 2RT), the Snowdonia National Park Authority (SNPA) Archaeologist, and the Royal Commission on the Ancient and Historic Monuments in Wales (RCAHMW). Copies of all notes, plans, and photographs from the desk-top study are stored at Aeon Archaeology under the project code **A0172.1** with the originals being lodged in a suitable repository to be agreed with the archaeological curator.

4.0 POLICY CONTEXT

At an international level there are two principal agreements concerning the protection of the cultural heritage and archaeological resource – the UNESCO *Convention Concerning the Protection of World Cultural and Natural Heritage*¹ and the *European Convention on the Protection of the Archaeological Heritage*², commonly known as the Valetta Convention. The latter was agreed by the Member States of the Council of Europe in 1992, and also became law in 1992. It has been ratified by the UK, and responsibility for its implementation rests with Department for Culture Media and Sport.

The management and protection of the historic environment in Wales is set out within the following legislation:

- The Planning (Listed Buildings and Conservation Areas) Act 1990 (As amended)
- The Historic Environment (Wales) Act 2016
- The Town and Country Planning Act 1990
- The Ancient Monuments and Archaeological Areas Act 1979
- The Town and Country Planning (General Permitted Development Order) 1995 (As amended)

The Historic Environment (Wales) Act is the most recent legislation for the management of the Historic Environment and amends two pieces of UK legislation — the Ancient Monuments and Archaeological Areas Act 1979 and the Planning (Listed Buildings and Conservation Areas) Act 1990. The new Act has three main aims:

- to give more effective protection to listed buildings and scheduled monuments;
- to improve the sustainable management of the historic environment; and
- to introduce greater transparency and accountability into decisions taken on the historic environment.

With respect to the cultural heritage of the built environment the *Planning (Conservation Areas and Listed Buildings) Act*³ 1990 applies. The Act sets out the legislative framework within which works and development affecting listed buildings and conservation areas must be considered. This states that:-

“In considering whether to grant planning permission for development which affects a listed building or its setting, the local planning authority or, as the case may be, the Secretary of State shall have special regard to the desirability of preserving the building or its setting or any features of special architectural or historic interest which it possesses” (s66(1))

Other known sites of cultural heritage/archaeological significance can be entered onto county-based Historic Environment Records under the *Town and Country Planning 1995*.

Planning Policy Wales sets out the land use planning policies of the Welsh Government. Chapter 6 covers the historic environment and emphasises that the positive management of change in the historic environment is based on a full understanding of the nature and significance of historic assets and the recognition of the benefits that they can deliver in a vibrant culture and economy.

¹ UNESCO, 1972, *Convention Concerning the Protection of the World Cultural and Natural Heritage*

² Council of Europe, 1992, *European Convention on the Protection of the Archaeological Heritage*

³ Great Britain. *Planning (Conservation Areas and Listed Buildings) Act*. Elizabeth II.(1990), London: The Stationery Office

Various principles and policies related to cultural heritage and archaeology are set out in the Planning Policy Wales which guide local planning authorities with respect to the wider historic environment.

The following paragraphs from Planning Policy Wales are particularly relevant and are quoted in full:

Paragraph 6.5.5 concerns planning applications:

The conservation of archaeological remains is a material consideration in determining a planning application, whether those remains are a scheduled monument or not. Where nationally important archaeological remains, whether scheduled or not, and their settings are likely to be affected by proposed development, there should be a presumption in favour of their physical protection in situ. It will only be in exceptional circumstances that planning permission will be granted if development would result in an adverse impact on a scheduled monument (or an archaeological site shown to be of national importance) or has a significantly damaging effect upon its setting. In cases involving less significant archaeological remains, local planning authorities will need to weigh the relative importance of the archaeological remains and their settings against other factors, including the need for the proposed development.

Planning Policy Wales is supplemented by a series of Technical Advice Notes (TAN). Technical Advice Note 24: The Historic Environment contains detailed guidance on how the planning system considers the historic environment during development plan, preparation and decision making on planning and listed building consent applications. TAN 24 replaces the following Welsh Office Circulars:

- 60/96 Planning and the Historic Environment: Archaeology
- 61/96 Planning and the Historic Environment: Historic Buildings and Conservation Areas
- 1/98 Planning and the Historic Environment: Directions by the Secretary of State for Wales

5.0 ARCHAEOLOGICAL AND TOPOGRAPHICAL BACKGROUND

5.1 Topographic Description

The proposed scheme intake is to be located on the western bank of the Nant Bod-y-Fuddau, a tributary of the Afon Prysor. The scheme lies approximately 2.2km east of Trawsfynydd, within the historical county of Meirionnydd and within the Snowdonia National Park Authority (SNPA).

The proposed scheme will consist of an intake weir located at NGR SH 73268 34638 and a c.650.0m long 315mm external diameter penstock buried within a 600mm wide by 800mm deep trench will run northwest to a new turbine house located at NGR SH 72973 35139 and which will be installed on the western bank of the Nant Bod-y-Fuddau. The existing farm yard will be used for the laydown of materials and a low-impact tracked excavator will be used to excavate the penstock and cable trenches without the requirement for a stripped easement.

The site lies within the parish of Trawsfynydd Community, within the historic county of Meirionnydd and unitary authority of Gwynedd. Mostly given over to rough pasture, the farmland is dominated by acid grassland within which there are large areas of underlying peat. The penstock route is located within the intermediary mountain slopes with the peaks of Ffridd Ddu and Moel Oernant lying c800.0m to the south. The land is primarily given over to hill sheep farming, although some cattle farming also takes place within the localised landscape, generally on the lower slopes.

For the majority of the proposed scheme the penstock will be buried within an existing trackway with woodland either side, although the initial 120.0m of the penstock route, the turbine house, outfall and cable route will all be buried within grassland. Although the initial 120.0m of the penstock route includes areas of *juncus*, it is relatively sparse and does not suggest the presence of significant underlying peat deposits.

The assessment area slopes from approximately 717m OD at the proposed hydro intake with the proposed turbine house lying at approximately 618m OD.

The bedrock geology is of the Ceiswyn Formation, a mudstone and siltstone sedimentary bedrock that formed approximately 453 to 458 million years ago in the Ordovician Period within an environment previously dominated by shallow seas. The superficial deposits are unrecorded (British Geological Survey).

5.2 Statutory and non-statutory designations

5.2.1 Non-designated monument points from the Gwynedd Historic Environment Record (figure 3)

The Gwynedd Historic Environment Record (HER) maintains a register of non-designated archaeological sites represented as single point data or as polygons. These are identified through their Primary Reference Number (PRN). These include sites which are of archaeological/historical interest, artefact find spots, documentary evidence, and locations of past events such as archaeological projects.

There are 39 non-designated monuments within 1.0km of the proposed scheme (see appendix I) and the following lie within the 50.0m wide assessment corridor centred on the penstock route:

- (i) The post-medieval *Sluice, Bod y Fuddau, Trawsfynydd* (PRN: 36,889) lies approximately 11.0m north of the proposed cable route location.

In addition the proposed scheme lies within 100.0m of the following non-designated sites:

- (i) Approximately 36.0m northeast of the post-medieval *Gold Trial, Bod y Fuddai* (PRN: 20,947);

- (ii) Approximately 46.5m northeast of the post-medieval *Enclosure, S of Swn Y Nant* (PRN: 57,672).

5.2.2 National Monuments Record (figure 4)

The Royal Commission on the Ancient and Historic Monuments in Wales (RCAHMW) maintains the National Monuments Record (NMR) for Wales. This is a register of non-designated archaeological sites represented as single point data or as polygons. These are identified through their National Primary Reference Number (NPRN) and include sites which are of archaeological/historical interest, artefact find spots, documentary evidence, and locations of past events such as archaeological projects that are not statutorily protected.

There are 8 non-designated monuments within 1.0km of the proposed scheme (see appendix I) and the following lie within the 50.0m wide assessment corridor centred on the penstock route:

- (i) The post-medieval *Ffridd Ddu, field boundary XIV* (NPRN: 531,317) lies approximately 7.7m east of the proposed penstock route location;

- (ii) The post-medieval *Ffridd Ddu, field boundary VI* (NPRN: 531,227) lies approximately 12.5m west of the proposed penstock route location;

- (iii) The post-medieval *Ffridd Ddu, field boundary XV* (NPRN: 531,318) lies approximately 24.9m west of the proposed penstock route location;

In addition the proposed scheme lies within 100.0m of the following non-designated sites:

- (i) Approximately 82.0m east of the post-medieval *Ffridd Ddu, field boundary XIII* (NPRN: 531,316).

5.2.3 Listed Buildings (figure 5)

The Secretary of State for Culture, Media and Sport holds a List of Buildings of Special Architectural or Historic Interest, considered to be of national importance. Compiled under the Planning (Listed Buildings and Conservation Areas) Act 1990, the List includes structures from boundary walls and telephone boxes to cathedrals. Listing gives statutory protection and restrictions apply. Consent may be required for works to, or that affect the setting of, a Listed Building and the Local Planning Authority conservation officer should be consulted if in doubt.

There is 1 Listed Building within 1.0km of the proposed scheme (see appendix I) but it does not lie within the 50.0m wide assessment corridor centred on the penstock route or within 500.0m.

5.2.4 Scheduled Ancient Monuments (figure 5)

Scheduled monuments are those considered to be monuments of national importance. The Ancient Monuments and Archaeological Areas Act 1979 supports a formal system of Scheduled Monument Consent (SMC) for any work to a designated monument. Any works within a Scheduled area will require SMC; this includes non-invasive techniques such as geophysics or field-walking.

There are 2 Scheduled Ancient Monuments within 1.0km of the proposed scheme (see appendix I) but neither lie within the 50.0m wide assessment corridor centred on the penstock route.

The proposed scheme lies within 500.0m of the following Scheduled Ancient Monuments:

- (i) Approximately 320.0m north of the prehistoric *Enclosed Hut Circle Settlement at Fridd Bodyfyddau* (Me168).

5.2.5 Historic Landscape Character Areas (HLCAs) (figure 7)

Cadw, National Resource Wales (formerly the Countryside Council for Wales), and the International Council of Monuments and Sites (ICOMOS UK) compiled the two volume Register of Landscapes of Historic Interest in Wales. This includes 58 landscapes of outstanding or special historic interest, which are considered to be the best examples of different types of historic landscapes in Wales. The Register provides information to decision makers and landscape managers, to help ensure that the historic character of the landscape is sustained, and that where change is contemplated, it is well-informed.

Historic Landscape Characterisation takes a closer look at the historic landscape by showing the processes that have shaped the landscape over centuries of human activity, contributing to its present character. Detailed characterisation studies have been compiled by the four Welsh Archaeological Trusts for all 58 areas on the Register. They are used by local government and developers to help assess the impact of development proposals on the historic landscape.

The proposed development site lies within the following Historic Landscape Area (HLA):

- (i) The *Trawsfynydd Basin and Cwm Prysor Landscape of Historic Interest* (HLW(Gw)11).

Historic Landscape Characterisation takes a closer look at the historic landscape by showing the processes that have shaped the landscape over centuries of human activity, contributing to its present character. Detailed characterisation studies have been compiled by the four Welsh Archaeological Trusts for all 58 areas on the Register. They are used by local government and developers to help assess the impact of development proposals on the historic landscape.

The proposed hydro scheme lies within the following Historic Landscape Character Areas (HLCAs):

- (i) The *Intermediary slopes, Ffridd Wen* Historic Landscape Character area (HLCA: 11);

Key historic characteristics

Large enclosures, stone walls

- (ii) The *Cwm Prysir - valley bottom* Historic Landscape Character area (HLCA: 12).

Key historic characteristics

Farmsteads, pasture fields, roads, railway

5.2.6 Historic Parks and Gardens

Cadw holds a Register of Historic Parks and Gardens of Special Historic Interest. These Registered landscapes are graded I, II* or II, and include private gardens, public parks and other green spaces. They are valued for their design, diversity and historical importance. Inclusion on the Register brings no additional statutory controls, but there is a presumption in favour of conservation of the designated site. Local authorities are required to consult Cadw on applications affecting sites Registered as grade I or II* and the Garden History Society on sites of all grades.

There are no historic parks and gardens within 1.0km of the proposed scheme.

5.2.7 The Inventory of Historic Battlefields in Wales

Wales lacks the traditional large-scale battlefields that are characteristic of those on the registers and inventories of other UK home nations. If Wales were to adopt the same definition of a battlefield site used by these other countries, it is unlikely that many Welsh sites could be included on the Inventory. Consequently, the inventory adopted the following much broader and wide-ranging definition:

An area or location, terrestrial or marine, where a conflict occurred, involving military forces. All aspects of Wales's past should be considered for the identification of historic battlefield sites, which may include traditional battles, sieges, invasions, skirmishes, ambushes, massacres and sites of civil unrest.

This wider definition is compatible with the text of Section 35 of the Historic Environment (Wales) Act 2016 which uses a similarly wide-ranging definition of a conflict site: 'a battlefield or a site on which some other conflict involving military forces took place'.

There are no historic battlefields within 1.0km of the proposed scheme.

5.2.8 World Heritage Sites

World Heritage Sites are places that the World Heritage Committee of UNESCO has inscribed on a list of international sites because of their outstanding universal value, the importance of which is so great as to transcend national boundaries. Countries with world heritage sites are required to afford the highest level of protection to these places, which means not only looking after the sites themselves but also their setting. This inevitably results in some constraints upon development within or adjacent to world heritage sites.

There are no World Heritage Sites within 1.0km of the proposed scheme.

5.2.9 Events

The area of the proposed scheme was included within the Glastir Private Woodland Management Polygonisation project in 2014 by the Gwynedd Archaeological Trust. The sites identified through this survey are recorded on the Gwynedd HER (PRN: 44558).

In addition an archaeological survey was undertaken at Cwm Prysor between May and October 2012 by ArchHeritage, on behalf of the RCAHMW (ArchHeritage report 2013/8), as part of the Uplands Survey Initiative. This survey included the southern 170.0m of the proposed scheme and identified in total 1540 sites ranging from the prehistoric to modern periods.

Both of these reports have been utilised to contribute to the historical narrative of the assessment area.

5.2.10 Lidar

Light Detection and Ranging (LIDAR) is an airborne mapping technique, which uses a laser to measure the distance between the aircraft and the ground. Up to 100,000 measurements per second are made of the ground, allowing highly detailed surface and terrain models to be generated at different spatial resolutions.

The Lidar coverage of the proposed scheme was examined for sites additional to those found during the archaeological assessment within a 50.0m wide desk-top study corridor centred on

the proposed route. The Lidar coverage however was limited to the very northern part of the penstock route including the turbine house location and outfall. There were no sites or features of note observed.

5.2.11 Historic Aerial Photographs

Aerial photographs taken by the Royal Air Force in 1945 and 1964 were obtained from the Aerial Photographs Officer at the Welsh Government and examined for sites additional to those found during the desk-top study and site visit. Although the image quality was good there were no sites found that had not already been identified (figures 11 and 12).

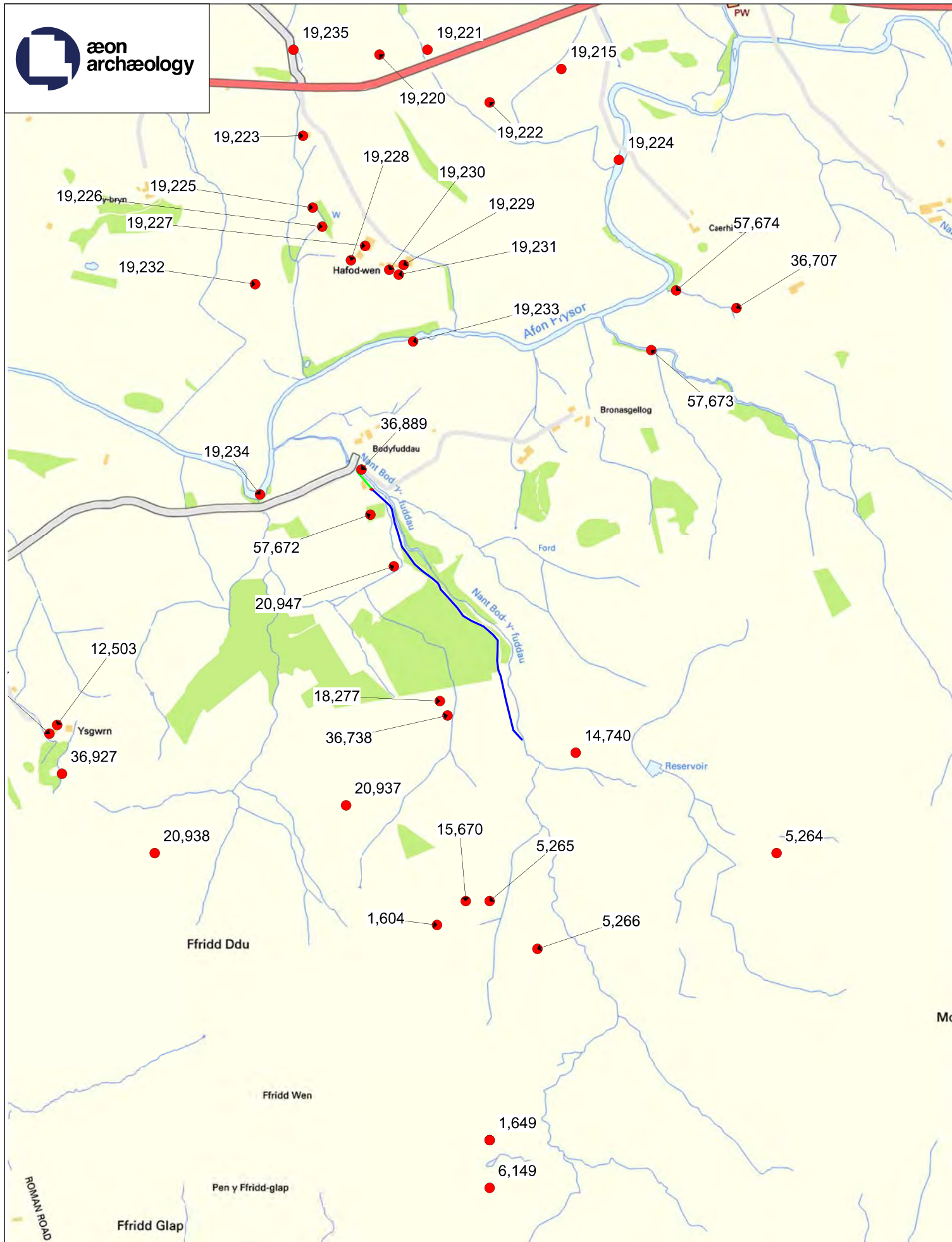
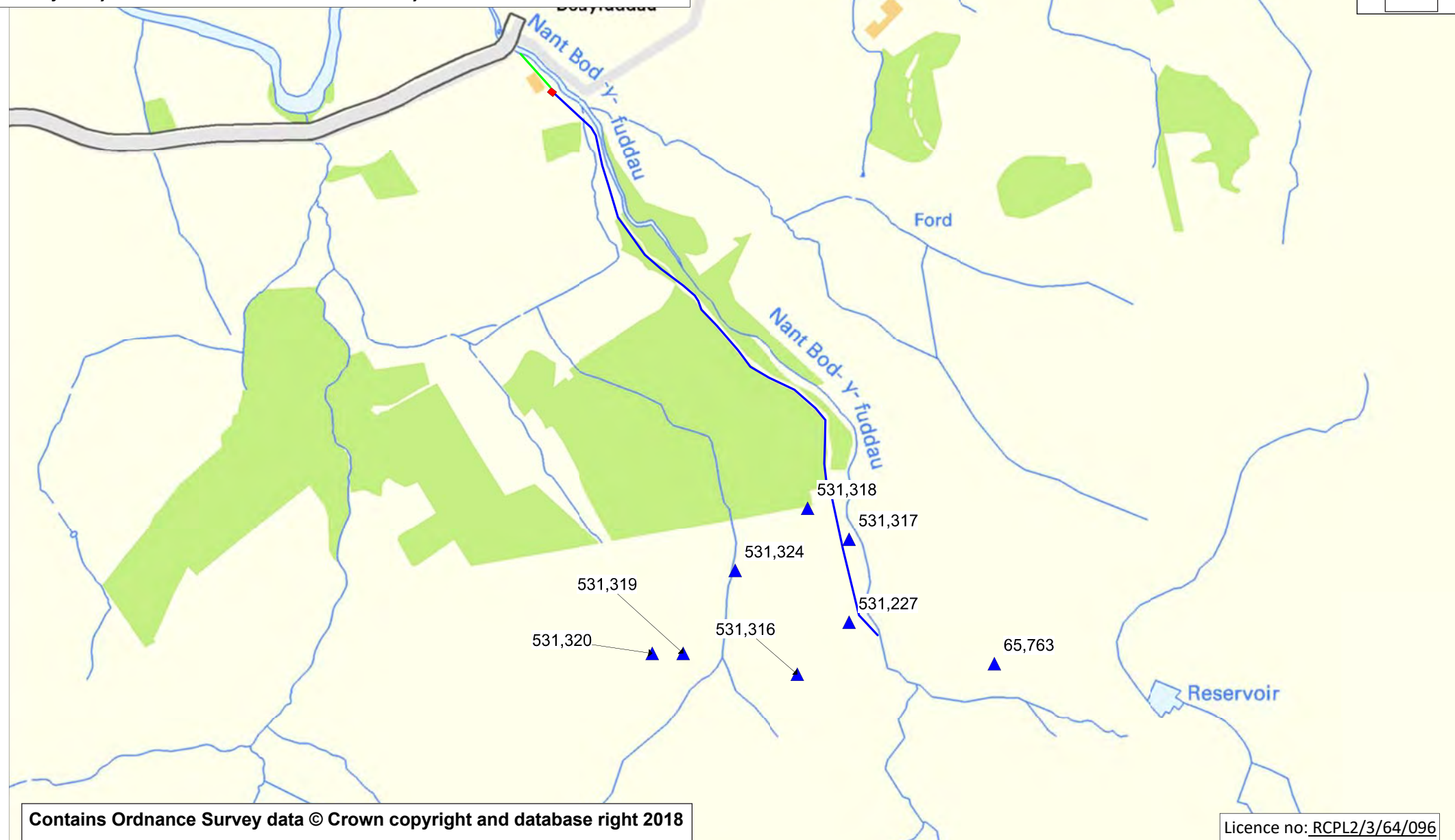


Figure 03: Location of non-designated monument points from the Gwynedd Historic Environment Record. Scale 1:10,000 at A4.

Aeon Archaeology
Richard Cooke BA MA MCIfA
25 Mold Road, Broughton, Chester CH4 0PQ
Tel: 07866925393 / 01244 531585
www.aeonarchaeology.co.uk



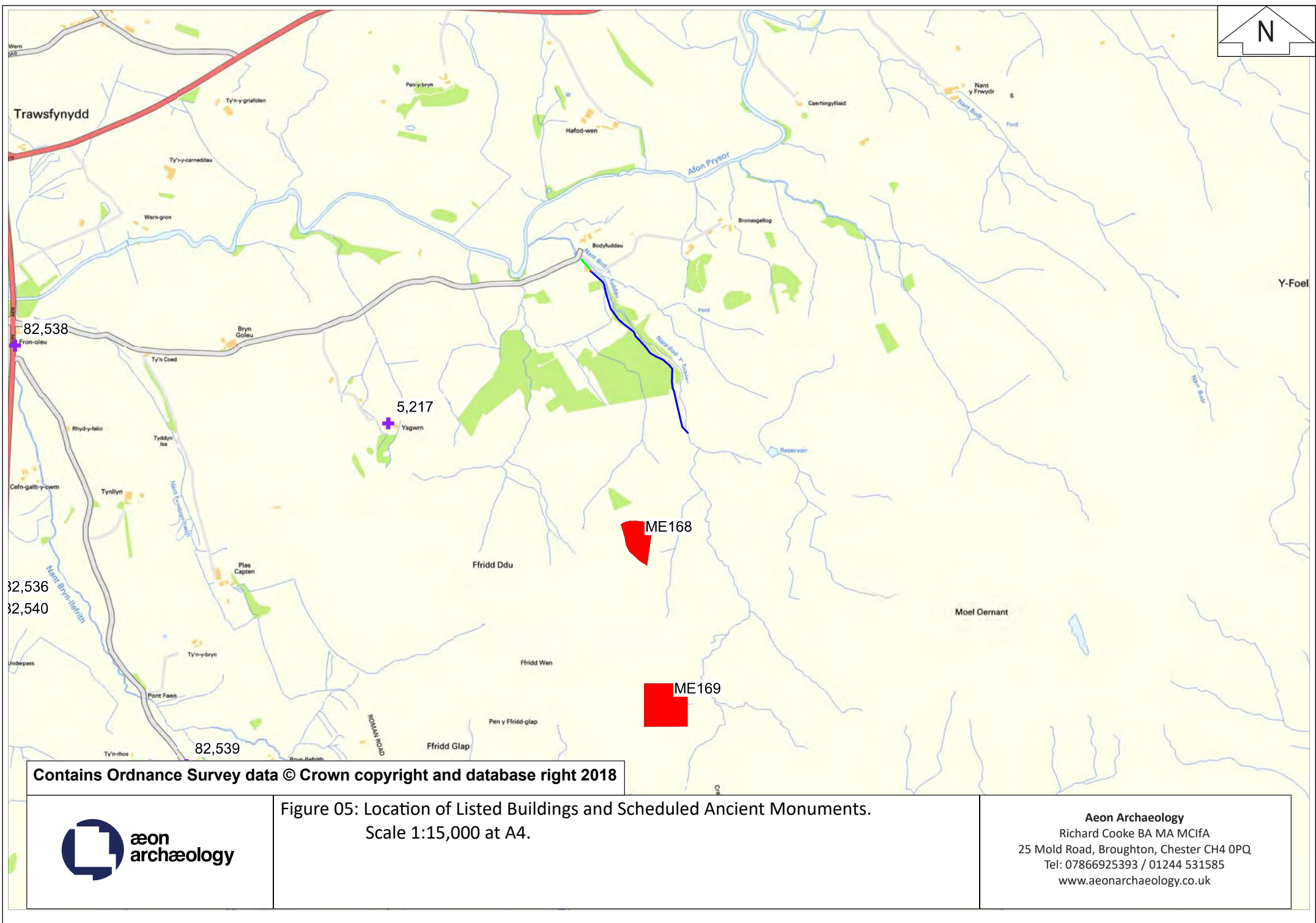
Contains Ordnance Survey data © Crown copyright and database right 2018

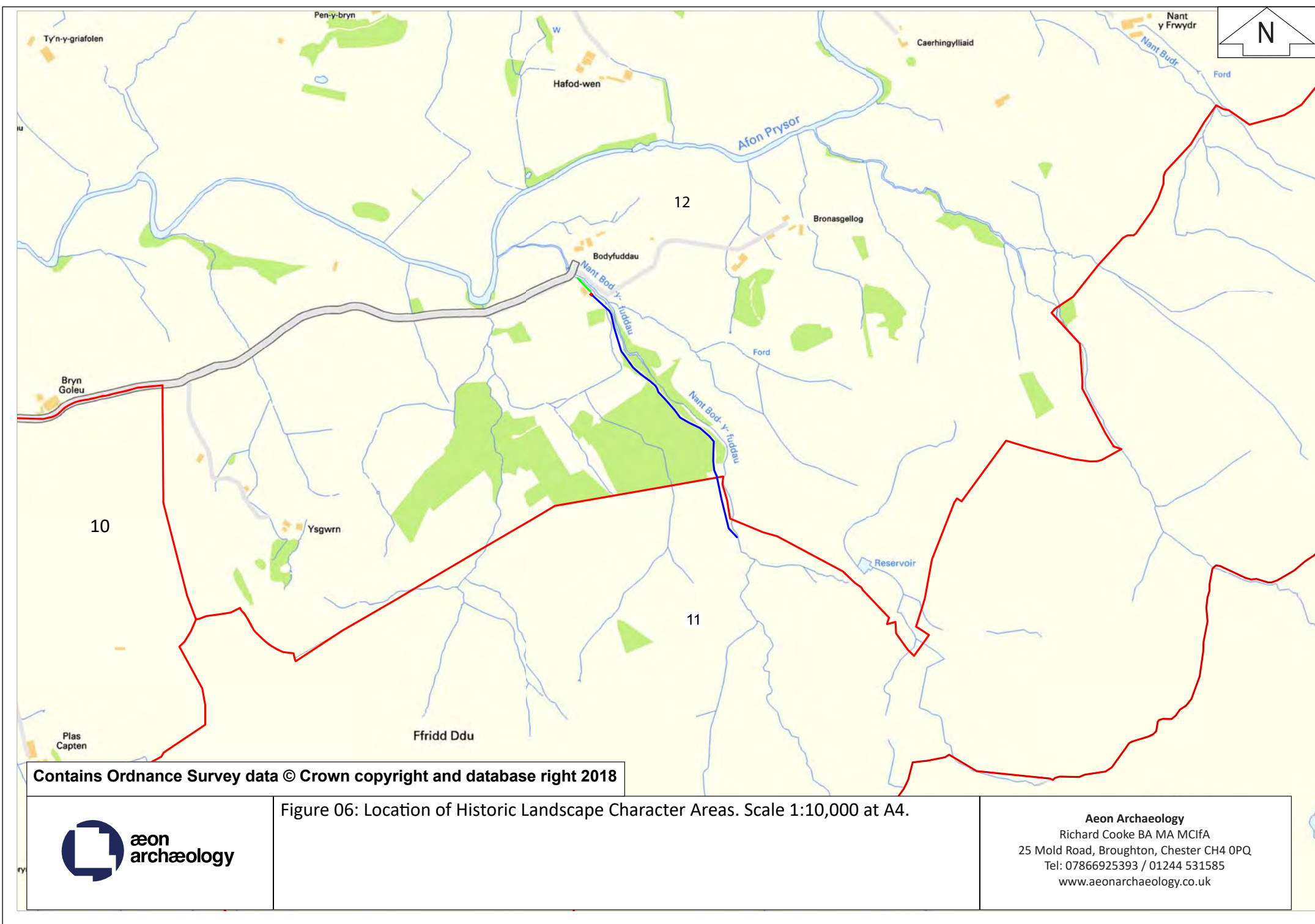
Licence no: RCPL2/3/64/096



Figure 04: Location of non-designated monument points from the National Monument Record. Scale 1:5,000 at A4.

Aeon Archaeology
Richard Cooke BA MA MCifA
25 Mold Road, Broughton, Chester CH4 0PQ
Tel: 07866925393 / 01244 531585
www.aeonarchaeology.co.uk





6.0 THE HISTORICAL CONTEXT

The following sections describe the known archaeological record within the general area of the proposed development. Sites are identified by their Primary Reference Number (PRN) which is the number by which they are identified in the Gwynedd Historic Environment Record (HER), or by their Scheduled Ancient Monument reference, Listed Building reference and/or their National Primary Reference Number (NPRN) if applicable. The intention of this section is to provide a historic and archaeological context to the site. This aids in establishing the relative importance of an archaeological feature within its landscape, as well as assessing the potential for unknown buried archaeological remains on the proposed development site.

The beginning and end of certain periods is a contentious issue. In the Gwynedd Historic Environment Record (HER) the following dates are used. This is a standard convention across all of the Welsh HERs.

Table 1. Historic periods

Palaeolithic (prehistoric)	500,000 BC – 10,001 BC
Mesolithic (prehistoric)	10,000 BC – 4,001 BC
Neolithic (prehistoric)	4,000 BC – 2,351 BC
Bronze Age (prehistoric)	2,350 BC – 801 BC
Iron Age (prehistoric)	800 BC – 47 AD
Romano-British	48 AD – 409 AD
Post-Roman (Early Medieval)	410 AD – 1065 AD
Medieval	1066 AD – 1539 AD
Post-Medieval	1540 AD – 1900 AD
Modern	1901 AD – 2050 AD

6.1 Prehistoric and Roman Period

There are four recorded prehistoric sites on the Gwynedd HER within 1.0km of the proposed scheme. The closest is that of the *Enclosed Settlement* (PRN: 1604) / *Moel Oernant Enclosed Hut Circle Settlement at Fridd Bodyfyddau* Scheduled Ancient Monument (Me168) located 320.0m to the south of the hydro intake point. The Cadw monuments report describes the settlement as follows:

The monument comprises the remains of a complex, well preserved and impressively complete nucleated settlement of multiple hut circles, which probably dates from the first millennium BC. The site comprises five round huts, some of which have internal features, and central yard grouped within a small enclosure which is in turn set inside an irregularly shaped rectilinear earthwork and stone outer enclosure. The settlement has an elaborated entrance displaying antennae-like banks. The importance of the site is enhanced by the presence of a series of narrow cultivation ridges to the north of the settlement which demonstrate the continued use of the site for arable farming into later, probably medieval periods. The monument is of national importance for its potential to enhance our knowledge of prehistoric settlement practices. It is an important relic of the prehistoric landscape and retains significant archaeological potential. There is a strong probability of the presence of environmental and structural evidence, including preserved internal and external floor levels (Cadw. Me168).

To the immediate east of the SAM and approximately 350.0m south of the proposed intake lies the *Cultivation Ridges, Ffridd Ddu* (PRN: 5265) which although associated with the prehistoric settlement lie outside of the scheduled area.

Further to the south and approximately 440.0m from the intake point is the well preserved remains of a prehistoric long-hut (PRN: 5266).

Further to the south again and approximately 830.0m south of the hydro intake is the prehistoric unenclosed *Hut Circle and Field System at Craiglaseithin* Scheduled Ancient Monument (Me169). The Cadw monuments report describes the settlement as follows:

The monument comprises the well preserved remains of an isolated hut circle with a least four associated fields/paddocks, all probably dating to the Iron Age or Romano-British period (c. 800 BC - AD 400). The associated fields/paddocks extend over an unusually large area. Also present is a small rectangular hut probably of early medieval date, suggesting long continuity or re-use of the site. The settlement is located next to a bog or former lake. The monument is of national importance for its potential to enhance our knowledge of later prehistoric domestic construction practices. The monument retains significant archaeological potential and there is a strong probability that structural evidence has survived, together with internal and external floor surfaces. Its location next to a bog or former lake could provide associated environmental evidence and possibly organic remains (Cadw. Me169).

Within this area a Roman waxed writing-tablet (PRN: 19611) (*tabula cerata*) intended for inscribing with a stylus, a needle-pointed metal pen was found. It is unique in being the first such tablet to be found in Wales, and in content it is unique in Roman Britain; in fact for parallels we must look to Egypt. It is the first page of a formal Roman will, a *testamentum per aes et libram* (Tomlin. 2001).

Further Roman settlement activity can be seen approximately 590.0m to the southeast of the scheme where the hut enclosure at Nant Oernant (PRN: 5264) is situated.

The topography within the initial 120.0m of the hydro intake is relatively flat and would have been conducive to early habitation, although no sites are known within the immediate location and none were observed during the site visit. As the proposed hydro route runs northwest the scheme follows the existing trackway on a moderate downward incline parallel with Nant Bod-y-Fuddau. The trackway is mostly of loose angular cobbles interspersed with areas of exposed bedrock. Where the underlying soil is still present this is of light/mid red-brown glacial clay, suggesting that any formerly accumulated soil deposits above the glacial material had been removed by the trackway, thus reducing the potential for preserved buried remains.

The proximity of the Nant-y-Fuddau to the entirety of the scheme would have made the surrounding landscape ideal for the location of prehistoric burnt mounds, although none are known to exist within the localised environment. Moreover, the floodplain would have provided fertile hunting grounds throughout antiquity, although this is likely to have taken the form of temporary hunting camps. Given the fact that none have been found within 1.0km of the scheme the likelihood of encountering either of these features within the narrow confines of the penstock trench and turbine house footprint must be seen as low.

Therefore the potential for preserved buried remains of the prehistoric and Roman periods is expected to be low.

6.2 Early Medieval, Medieval and Post-Medieval Periods

The early medieval period is poorly represented within this part of northwest Wales and there are no known sites within 1.0km of the proposed pipeline. Sites from this era are particularly rare in north Wales, although they must have existed, and it is likely that sites were reused and built upon thus accounting for the lack of surviving physical remains.

There are three medieval sites recorded on the Gwynedd HER and RCAHMW NMR within 1.0km of the proposed scheme. The nearest to the scheme is that of the deserted rural settlement Ffridd Ddu (PRN: 15670) alluding to a continuation of use at *Moel Oernant Enclosed Hut Circle Settlement at Fridd Bodyfyddau* Scheduled Ancient Monument (Me168), some 360.0m to the south of the hydro intake.

Further evidence of medieval occupation can be seen at the deserted rural settlement Hafod Wen (PRN: 19222) and medieval footpath (PRN: 19215) located approximately 820.0m to the northeast of the hydro outfall point.

It is possible that some of the existing field boundaries are also of medieval origin although it is not possible to ascertain this from visual inspection alone, and the cartographic sources are of insufficient age in order to confirm or deny this.

The Uplands Survey Initiative carried out by ArcHeritage in 2012 identified a large number of field boundary walls, cultivation ridges, and banks believed to be associated with the deserted rural settlement of Ffridd Ddu, some of which lie within 100.0m proximity of the proposed hydro intake and initial 170.0m penstock route (NPRNs: 531316-531320, 531324, 531327). These features are recorded as post-medieval in origin by the RCAHMW, however by association they could have medieval origins.

The proposed route of the hydro-electric scheme is first depicted on the map of the Parish of Trawsfynydd in the County of Merioneth, 1840 (figure 7) which depicts the site much as it exists today, albeit in very little detail. The farmstead of Bodyfuddau is depicted, as is the *Enclosure, S of Swn Y Nant* (PRN: 57672). The latter is depicted as a polygonal enclosure with what appears to be an internal rectangular structure at the northern end, orientated northwest-southeast. The identity of this structure is unclear, however a thin linear feature appears to be shown running southeast from the structure, and parallel with the Nant Bod-y-Fuddau, and is possibly a sluice suggesting that the enclosure is that of a former mill.

The site visit confirmed the presence of both the enclosure and a house platform at the location of that shown on the tithe map. Moreover, a possibly artificial stream cut was found running southeast from the house platform that may be the possible sluice shown on the map. There was no evidence of a wheel pit or any other associated features.

Intriguingly a sluice and possible pond is recorded as a non-designated monument point on the Gwynedd HER (PRN: 36889) lying approximately 74.0m to the north of the turbine house and 87.0m north of the house platform. The site was identified in 2013 as part of the Medieval and Post-Medieval Mills Scheduling Enhancement programme undertaken by the Gwynedd Archaeological Trust on behalf of Cadw, however a site visit found no physical evidence to suggest the presence of a mill at that location.

The tithe apportionment for the enclosure plot records it as *Hen Ysgubor* 'old barn' (plot 1206). This would suggest at the very least that the structure had an agricultural function and the use of *hen* may suggest that the building has medieval origins.

The tithe map does not depict the trackway (feature 4) however it is almost certain that it was in existence at the time but was likely too ephemeral a feature to show. The map does however depict the field boundaries and their associated plot numbers:

Plot	Landowner	Tenant	Field Name
1207	Anne Jones	William Davies	Slang
1219	Anne Jones	William Davies	Ffridd y Fawnog
1220	Anne Jones	William Davies	Ffridd Ganol

As can be seen from the tithe apportionment the proposed hydro scheme passes through three historic land plots, all of which were owned by Anne Jones and tenanted by William Davies. All of the plot names relate to the topography of the plots and do not allude to any other use for which there may be associated archaeological remains.

The site is depicted in detail on the first, second and third edition 6" county series Ordnance Survey maps of 1888, 1901 and 1953 respectively (figures 8-10). All three maps depict the area much as it exists today, with the farm of Bodyfuddau shown at the northern end of the proposed scheme, as well as the *Enclosure, S of Swn Y Nant* (PRN: 57672). As with the tithe map this is depicted as a polygonal enclosure with a rectangular structure at the northern end. A linear feature is shown on all three maps as running southeast before turning southwest and running across the field before turning southeast again and connecting with a pond labelled as 'mill pond' on all three maps, supporting the theory that it was indeed a mill.

A second rectangular structure or possibly an internal enclosure appears to be depicted on the tithe map and Ordnance Survey maps within the southern part of the *Enclosure, S of Swn Y Nant*, and may represent an associated building or paddock.

In addition all three maps depict the location of a former mine shaft on the eastern bank of the Nant-y-Fuddau. No other features of note are shown.



Figure 07: Location of the proposed hydro scheme on the map of Trawsfynydd parish in the County of Merioneth 1840.

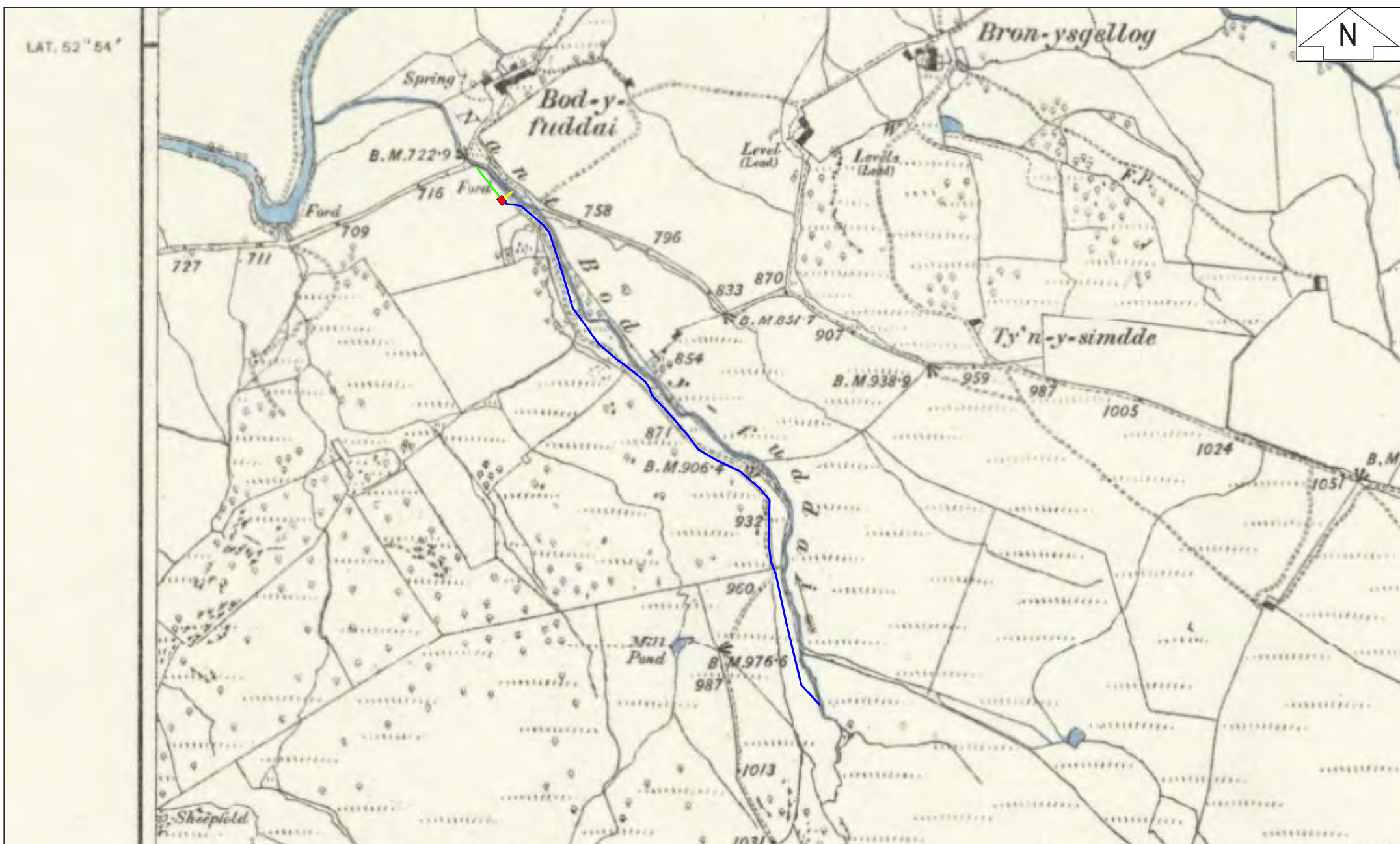


Figure 08: Location of the proposed hydro scheme on the six inch Ordnance Survey map of 1888.

LAT. 52° 54'

N

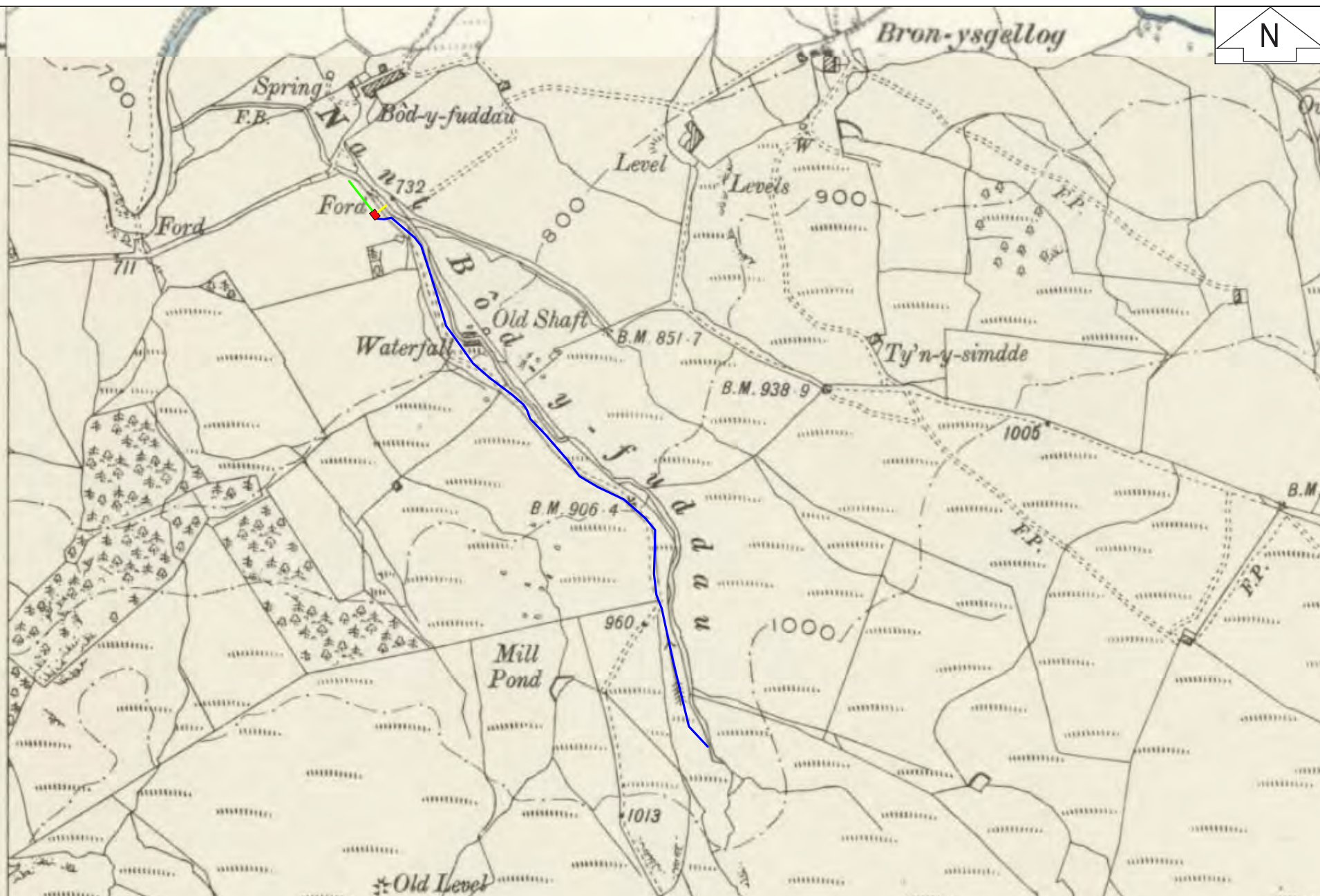


Figure 09: Location of the proposed hydro scheme on the six inch Ordnance Survey map of 1901.

Aeon Archaeology
Richard Cooke BA MA MCIFA
25 Mold Road, Broughton, Chester CH4 0PQ
Tel: 07866925393 / 01244 531585
www.aeonarchaeology.co.uk

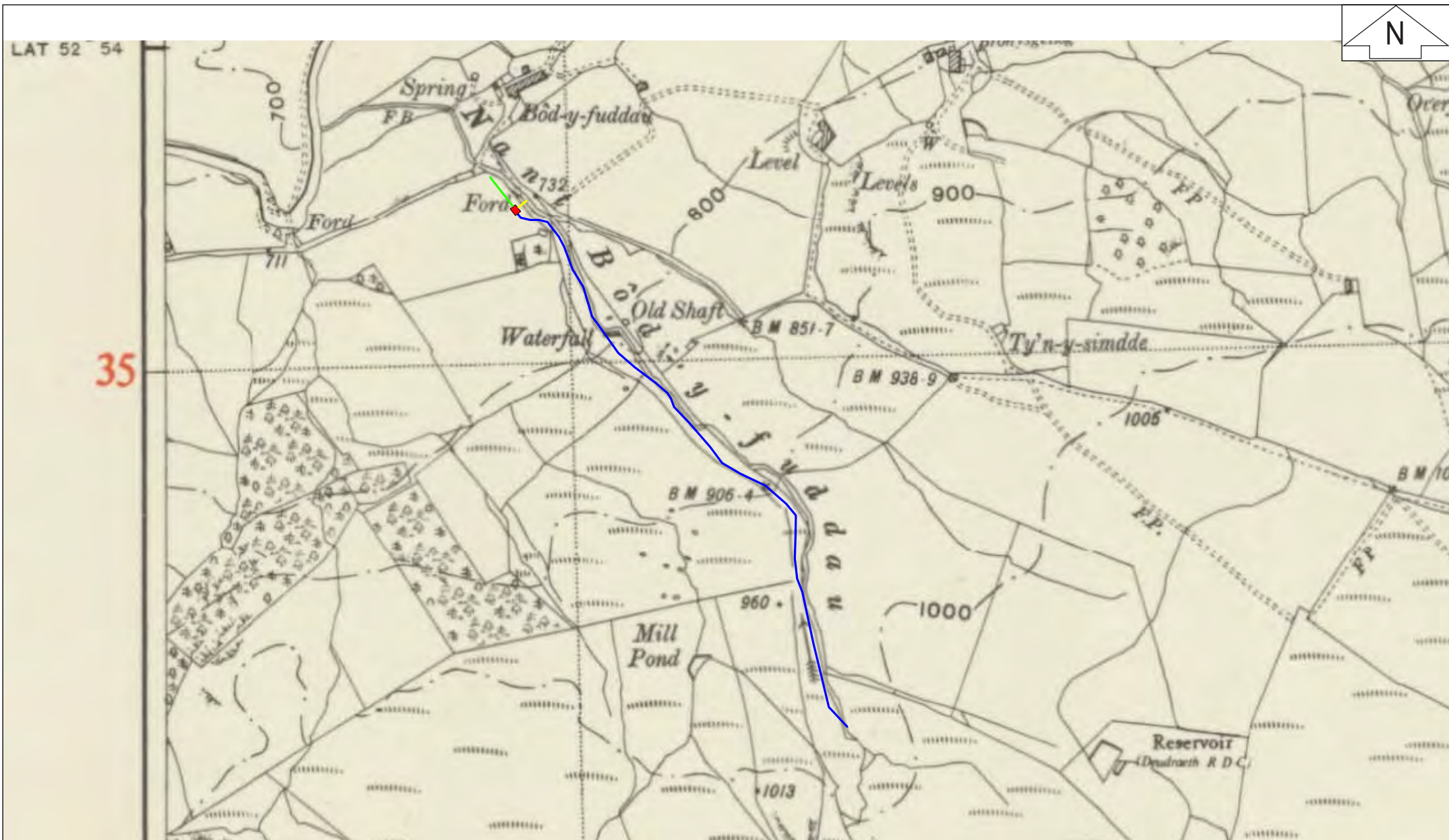


Figure 10: Location of the proposed hydro scheme on the six inch Ordnance Survey map of 1953.



Figure 11: Location of the proposed hydro scheme on the RAF aerial photograph of 1945.



Figure 12: Location of the proposed hydro scheme on the RAF aerial photograph of 1964.

7.0 DESK-TOP STUDY OF HISTORICAL ASSETS

7.1 Definitions

Definitions of importance, impact, and significance of effect as used in the gazetteer (section 8.0) are listed below.

1. Definition of Categories of importance

The following categories were used to define the importance of the archaeological resource.

Significance	Description
International (Very High)	Archaeological sites or monuments of international importance, including World Heritage Sites. Structures and buildings inscribed as of universal importance as World Heritage Sites. Other buildings or structures of recognised international importance.
National (High)	Ancient monuments scheduled under the Ancient Monuments and Archaeological Areas Act 1979, or archaeological sites and remains of comparable quality, assessed with reference to the Secretary of State's non-statutory criteria. Listed Buildings. Undesignated structures of national importance.
Regional/ County (Medium)	Conservation Areas Archaeological sites and remains which, while not of national importance, score well against most of the Secretary of State's criteria.
Local (Low)	Archaeological sites that score less well against the Secretary of State's criteria. Historic buildings on a 'local list'.
Negligible/None	Areas in which investigative techniques have produced no or only minimal evidence for archaeological remains, or where previous large-scale disturbance or removal of deposits can be demonstrated.
Unknown	Archaeological sites whose importance cannot be determined with the information currently at hand. This can include sites where the extent of buried remains is unknown.

2. Definition of Impact

The direct impact of the proposed development on each site was estimated. The impact is defined as follows:

Magnitude	Direct Impacts	Indirect Impacts
High Adverse	Complete removal of an archaeological site. Complete destruction of a designated building or structure.	Radical transformation of the setting of an archaeological monument. A fundamental change in the setting of a building.
Medium Adverse	Removal of a major part of an archaeological site and loss of research potential. Extensive alteration (but not demolition) of a historic building or feature, resulting in an appreciable adverse change.	Partial transformation of the setting of an archaeological site (e.g. the introduction of significant noise or vibration levels to an archaeological monument leading to changes to amenity use, accessibility or appreciation of an archaeological site). Partial adverse transformation of the setting of a designated building.
Low Adverse	Removal of an archaeological site where a minor part of its total area is removed but the site retains a significant future research potential. Change to a historic building or feature resulting in a small change in the resource and its historical context and setting.	Minor change to the setting of an archaeological monument or historic building.
Negligible/ Neutral	No impact from changes in use, amenity or access. No change in the ability to understand and appreciate the resource and its historical context and setting.	No perceptible change in the setting of a building or feature.
Low Beneficial	Land use change resulting in improved conditions for the protection of archaeological remains or understanding/ appreciation of a historic building or place	Decrease in visual or noise intrusion on the setting of a building, archaeological site or monument. Improvement of the wider landscape setting of a building, archaeological site or monument.
Medium Beneficial	Land use change resulting in improved conditions for the protection of archaeological remains, or understanding/ appreciation of a historic building or place, including through interpretation measures (heritage trails, etc). Removal of harmful alterations to better reveal the significance of a building or structure, with no loss of significant fabric.	Significant reduction or removal of visual or noise intrusion on the setting of a building, archaeological site or monument; and Improvement of the wider landscape setting of a building, archaeological site or monument Improvement of the cultural heritage amenity, access or use of a building, archaeological site or monument.
High Beneficial	Arrest of physical damage or decay to a building or structure;	Exceptional enhancement of a building or archaeological site, its cultural heritage amenity and access or use

3. The significance of effect

The significance of effect is derived from the importance of the resource and the magnitude of the impact upon it.

Very large - A serious impact on a site of international or national importance with little or no scope for mitigation. These effects represent key factors in the decision making process.

Large - Lesser impacts on sites of national importance and serious impacts on sites of regional importance, with some scope for mitigation. These factors should be seen as being very important considerations in the decision making process.

Moderate - Moderate or minor impacts on sites of regional importance and minor to major impacts on sites of local or minor importance. A range of mitigatory measures should be available.

Slight - Negligible impacts on sites of regional, local or minor importance and minor and moderate impacts on minor or damaged sites. A range of basic mitigatory measures should be available.

Neutral - No perceptible effect or change to sites of all categories.

The significance of effect will be determined using the table below, a basic matrix combining archaeological value and magnitude of impact.

Determination of Significance of Effect

Archaeological Value	International	Neutral	Moderate or Large	Large or Very Large	Very Large
	National	Neutral	Moderate or Slight	Moderate or Large	Large or Very Large
	Regional	Neutral	Slight	Moderate	Moderate or Large
	Local	Neutral	Neutral or Slight	Slight	Moderate or Slight
	Negligible	Neutral	Neutral or Slight	Neutral or Slight	Slight
		None	Low	Medium	High
		Magnitude of impact			

8.0 SITE GAZETTEER – PHYSICAL IMPACTS

The archaeological assessment identified 10 features of historical and archaeological importance within 50.0m of the penstock route.

In accordance with Planning Policy Wales TAN24, and the Historic Environment Act (Wales) 2015 each heritage asset has been assigned a level of importance ranked from International through to National, Regional/County, Local, and None. If it is not possible to assess the importance of the site from the visible remains, then it is ranked Unknown with the suspected importance level placed in brackets. Identified sites were also assigned a level of impact ranked from High through to Medium, and Low. Levels of impact can be considered as both adverse or beneficial, and can be direct (physically impacting upon a site) or indirect (indirectly physically or non-physically impacting upon a site). The significance of effect is determined from the importance level of the resource and the magnitude of the impact upon it. Where it is expected that a site will be impacted upon by the proposed works then mitigation/desk-top study recommendations are provided. The location of sites are shown on figure 13 with the location and orientation of photographic plates shown on figure 14.

1. Fridd Ddu, field boundary VI	PRN: 74684 NPRN: 531,227
Figure: 7-14	Plate: 5
NGR: SH 73240 34650	Period: Post-medieval
<p>Description</p> <p>The Uplands Survey Initiative carried out by ArcHeritage in 2012 identified a field boundary wall at this location believed to be associated with the deserted medieval rural settlement of Ffridd Ddu. The boundary was however categorised as being of post-medieval origin.</p> <p>The boundary is first depicted on the tithe map of 1840 but is also shown on the Ordnance Survey maps of 1888, 1901 and 1953 as running from south to north, and then turning east and terminating at Nant Bod-y-Fuddau.</p> <p>The boundary wall exists today as a 1.0m wide by 0.25m high dry-stone wall constructed from medium sized sub-angular cobbles. It is located approximately 12.5m west of the proposed hydro intake and penstock route, and is approximately 300.0m in length. The boundary has fallen into disuse and peters out further to the south of where it is shown on the historical mapping.</p> <p>The proposed hydro scheme will not impact upon the upstanding remains of the boundary wall however the penstock route crosses part of its former route when running east-west. This part of the wall however appears to follow the line of the trackway which almost certainly will have removed any preserved remains at foundation level. As such the preservation of the wall at this point is considered to be low and as such no further assessment or mitigatory measures are proposed.</p>	
Category of importance: Local	
Level of impact: None	
Significance of effect: Neutral	
Recommendations for further desk-top study: None	
Recommendations for further mitigatory measures: None	



Plate 05: Fridd Ddu, field boundary VI (feature 1, PRN: 74684), from the north. Scale 1.0m.

2. Fridd Ddu, field boundary XIV	PRN: 74685 NPRN: 531,317
Figure: 7-14	Plate: 6
NGR: SH 73240 34730	Period: Post-medieval
<p>Description</p> <p>The Uplands Survey Initiative carried out by ArcHeritage in 2012 identified a field boundary wall at this location believed to be associated with the deserted medieval rural settlement of Ffridd Ddu. The boundary was however categorised as being of post-medieval origin.</p> <p>The boundary is first depicted on the tithe map of 1840 but is also shown on the Ordnance Survey maps of 1888, 1901 and 1953 as running from north to south along the western edge of Nant Bod-y-Fuddau, and then turning southeast and continuing.</p> <p>The boundary wall exists today as a 0.5m wide by 1.2m high dry-stone wall constructed from medium sized sub-angular cobbles with stock-proof upright stones set along the apex. It is located approximately 7.7m east of the proposed hydro intake and penstock route.</p> <p>The proposed hydro scheme will not impact upon the boundary wall and as such no further assessment or mitigatory measures are proposed.</p>	
Category of importance: Local	
Level of impact: None	
Significance of effect: Neutral	
Recommendations for further desk-top study: None	
Recommendations for further mitigatory measures: None	



Plate 06: Fridd Ddu, field boundary XIV (feature 2, PRN: 74685), from the west. Scale 1.0m.

3. Fridd Ddu, field boundary XV	PRN: 74686 NPRN: 531,318
Figure: 7-14	Plate: 7
NGR: SH 73221 34768	Period: Post-medieval
<p>Description</p> <p>The Uplands Survey Initiative carried out by ArcHeritage in 2012 identified a field boundary wall at this location believed to be associated with the deserted medieval rural settlement of Ffridd Ddu. The boundary was however categorised as being of post-medieval origin.</p> <p>The boundary is first depicted on the tithe map of 1840 but is also shown on the Ordnance Survey maps of 1888, 1901 and 1953 as running from west-southwest to east-northeast and then terminating at Nant Bod-y-Fuddau.</p> <p>The boundary wall exists today as a 0.5m wide by 1.2m high dry-stone wall constructed from medium sized sub-angular cobbles with stock-proof upright stones set along the apex.</p> <p>The proposed hydro scheme will pass through the existing opening in the field wall and as such there will not be any physical impact upon it. Therefore no further assessment or mitigatory measures are proposed.</p>	
Category of importance: Local	
Level of impact: None	
Significance of effect: Neutral	
Recommendations for further desk-top study: None	
Recommendations for further mitigatory measures: None	



Plate 07: Fridd Ddu, field boundary XV (feature 3, PRN: 74686), from the southeast. Scale 1.0m.

4. Trackway	PRN: 74687
Figure: 7-14	Plate: 8
NGR: SH 73222 34763 – SH 72970 35146	Period: Post-medieval
<p>Description</p> <p>A trackway measuring approximately 2.5m in width runs from Swn y Nant in the northwest to the enclosed upland slopes in the southeast.</p> <p>The trackway is not shown on the tithe map of 1840 but was most likely in existence and was too ephemeral to depict. It is however shown on the Ordnance Survey maps of 1888, 1901 and 1953.</p> <p>The trackway does not appear to have any purposefully laid surface and exists as loose angular cobbles interspersed with areas of exposed bedrock. At the highest point of the trackway, as it emerges from the woodland, the underlying soil is still present and is of light/mid red-brown glacial clay, suggesting that any formerly accumulated soil deposits above the glacial material had been removed by the trackway, thus reducing the potential for preserved buried remains.</p> <p>Approximately 480.0m of the penstock route will be buried within the trackway however due to the apparent lack of laid surface and the presence of natural outcrops the trackway is deemed to be of negligible importance. As such no further assessment or mitigatory measures are proposed.</p>	
Category of importance: Negligible	
Level of impact: Low adverse direct physical (construction phase)	
Significance of effect: Neutral or Slight adverse	
Recommendations for further desk-top study: None	
Recommendations for further mitigatory measures: None	



Plate 08: Trackway (feature 4, PRN: 74687), from the northwest. Scale 1.0m.

5. Enclosure, S of Swn Y Nant	PRN: 57672
Figure: 7-14	Plate: 9
NGR: SH 72951 35108	Period: Post-medieval, medieval?
<p>Description</p> <p>A post-medieval enclosure is recorded as a non-designated monument point on the Gwynedd HER lying approximately 46.5m to the west of the penstock route however its walls continue to within 5.0m of the penstock route. The site was identified using historic Ordnance Survey maps in 2014 as part of the Glastir Private Woodland Management Polygonisation project.</p> <p>The feature is shown on the Trawsfynydd tithe map of 1840, as well as on the Ordnance Survey maps of 1888, 1901 and 1953 as a polygonal enclosure with a rectangular structure at its northern end and possible second rectangular structure within its southern limit (see features 6 and 7).</p> <p>The 1840 tithe map apportionment records the plot as <i>Hen Ysgubor</i> 'Old Barn' which suggests that the enclosure was of some age in the mid-19th century and it is possible that it has medieval origins. It was almost certainly a paddock for the related rectangular structure (feature 6) which it has been surmised may have been a mill. The feature is therefore of unknown importance but suspected to be of local/regional importance.</p> <p>The enclosure exists as a dry-stone wall of medium sized sub-rounded cobbles standing 1.0m in height by 0.5m in width, and enclosing an area measuring approximately 37.0m in length by 31.0m in width orientated northeast-southwest.</p> <p>The site will not be impacted upon directly by the proposed development however due to the close proximity of the penstock route and turbine house there is a potential for associated buried features to be impacted upon. As such it is recommended that an archaeological watching brief be maintained during the excavation of the penstock trench and turbine house within this area.</p>	
Category of importance: Unknown (Local / Regional)	
Level of impact: None - however associated buried remains may be present	
Significance of effect: Unknown	
Recommendations for further desk-top study: None	
Recommendations for further mitigatory measures: Archaeological watching brief in proximity of the enclosure.	



Plate 09: Enclosure south of Swn y Nant (feature 5, PRN: 57672), from the northwest. Scale 1.0m.

6. House Platform, S of Swn Y Nant	PRN: 74688
Figure: 7-14	Plate: 10 and 11
NGR: SH 72978 35128	Period: Post-medieval, medieval?
<p>Description</p> <p>A rectangular structure is shown on the Trawsfynydd tithe map of 1840, as well as on the Ordnance Survey maps of 1888, 1901 and 1953 within the northern part of a polygonal enclosure (see features 5 and 7).</p> <p>The 1840 tithe map apportionment records the plot as <i>Hen Ysgubor</i> ‘Old Barn’ which suggests that the enclosure was of some age in the mid-19th century and it is possible that it has medieval origins.</p> <p>The historical map regression has shown the suggestion of a sluice (feature 7) running from a mill pond in the southeast, to the northern end of this rectangular structure and as such it is suspected to be a former mill.</p> <p>The house platform exists today as a bank of low walls constructed from drystone medium sized sub-rounded cobbles, covering an area measuring approximately 6.0m by 4.0m orientated northwest – southeast. The walls measure on average 1.0m in width by 0.3m in height.</p> <p>The site will not be impacted upon directly by the proposed development however due to the close proximity of the penstock route and turbine house there is a potential for associated buried features to be impacted upon. As such it is recommended that an archaeological watching brief be maintained during the excavation of the penstock trench and turbine house within this area.</p>	
Category of importance: Unknown (Local / Regional)	
Level of impact: None - however associated buried remains may be present	
Significance of effect: Unknown	
Recommendations for further desk-top study: None	
Recommendations for further mitigatory measures: Archaeological watching brief in proximity of the house platform.	



Plate 10: House platform (feature 6, PRN: 74688), from the north. Scale 1.0m.



Plate 11: House platform (feature 6, PRN: 74688), from the west. Scale 1.0m.

7. Possible Sluice, S of Swn Y Nant	PRN: 74689
Figure: 7-14	Plate: 12
NGR: SH 72986 35124	Period: Post-medieval, medieval?
<p>Description</p> <p>A linear feature is shown on the Trawsfynydd tithe map of 1840, as well as on the Ordnance Survey maps of 1888, 1901 and 1953 running southeast from the house platform and enclosure (features 5 and 6) then turning southwest and running across the enclosed field before turning southeast again. The Ordnance Survey maps all show it then connecting to a pond labelled 'mill pond' fed by two streams from the east and south respectively.</p> <p>The linear feature exists today as a drainage ditch or stream that runs downhill on the south-western side of trackway feature 4 to the northern end of house platform feature 6, before continuing into the Nant Bod-y-Fuddau. It is a shallow cut measuring on average 1.0m in width by 0.4m in depth with no apparent structure.</p> <p>The depiction of the mill pond on the Ordnance Survey maps as well as the identification of a rectangular structure to the immediate south of the feature suggests that it is a sluice powering a former mill represented by house platform feature 6.</p> <p>The possible sluice crosses the trackway (feature 4) and will therefore be cut through by the penstock trench at this location. It is also possible that further associated buried remains are present and as such it is recommended that an archaeological watching brief be maintained during the excavation of the penstock trench at this location.</p>	
Category of importance: Unknown (Local / Regional)	
Level of impact: None - however associated buried remains may be present	
Significance of effect: Unknown	
Recommendations for further desk-top study: None	
Recommendations for further mitigatory measures: Archaeological watching brief in proximity of the sluice.	



Plate 12: Possible sluice (feature 7, PRN: 74689), from the northwest. Scale 1.0m.

8. Field wall	PRN: 74690
Figure: 7-14	Plate: 13
NGR: SH 72976 35146	Period: Post-medieval, medieval?
<p>Description</p> <p>A relict field wall measuring 0.5m in width by 0.3m in height runs from southeast to northwest, parallel with the Nant Bod-y-Fuddau. The wall is constructed from drystone medium sized angular and sub-angular cobbles to one course in height and has been replaced by a modern wooden post and wire fence that follows the same alignment.</p> <p>The boundary is depicted on the 1840 tithe map as well as on the Ordnance Survey maps of 1888, 1901 and 1953 and is therefore of at least post-medieval date. The boundary however continues directly from the northernmost wall of the <i>enclosure south of Swn y Nant</i> (feature 5) and is therefore likely related to it and of contemporary age, making it of possible medieval origin.</p> <p>As the exact age of the boundary is unknown it is considered to be of unknown but suspected local importance.</p> <p>This wall will require breaching by the outfall pipe from the turbine house and as such there will be a low adverse direct physical impact during the construction phase resulting in an unknown but suspected slight adverse significance of effect. It is therefore recommended that an archaeological watching brief be maintained during the wall breach and excavation of the outfall pipe trench. The wall should be reinstated upon completion of the works.</p>	
Category of importance: Unknown (Local)	
Level of impact: Low adverse direct physical (construction phase)	
Significance of effect: Unknown (slight adverse)	
Recommendations for further desk-top study: None	
Recommendations for further mitigatory measures: Archaeological watching brief during wall breach and excavation of outfall pipe trench.	



Plate 13: Field boundary wall (feature 8, PRN: 74690), from the northeast. Scale 1.0m.

9. Field wall	PRN: 74691
Figure: 7-14	Plate: 14
NGR: SH 72955 35155	Period: Modern
<p>Description</p> <p>A field wall measuring 0.5m in width by 0.6m in height runs from northeast to southwest, enclosing the property of Swn y Nant. The wall is constructed from drystone medium sized angular and sub-angular cobbles and reinforced by a wooden fence.</p> <p>The boundary is not depicted on the 1840 tithe map or on the Ordnance Survey maps of 1888, 1901 and 1953 and therefore appears to have been constructed to enclose the property of Swn y Nant. It is therefore of modern date and considered to be of negligible importance.</p> <p>The wall will require breaching by the cable trench from the turbine house and as such there will be a low adverse direct physical impact during the construction phase resulting in a neutral or slight adverse significance of effect. As such no further assessment or mitigatory measures are proposed.</p>	
Category of importance: Negligible	
Level of impact: Low adverse direct physical (construction phase)	
Significance of effect: Neutral or slight adverse	
Recommendations for further desk-top study: None	
Recommendations for further mitigatory measures: None	



Plate 14: Field boundary wall (feature 9, PRN: 74691), from the southeast. Scale 1.0m.

10. Sluice, Bod y Fuddau, Trawsfynydd	PRN: 36889
Figure: 3, 7-12	Plate: N.A.
NGR: SH 72932 35202	Period: Post-medieval
<p>Description</p> <p>A sluice and possible pond is recorded as a non-designated monument point on the Gwynedd HER lying approximately 18.0m to the north of the cable trench. The site was identified in 2013 as part of the Medieval and Post-Medieval Mills Scheduling Enhancement programme undertaken by the Gwynedd Archaeological Trust on behalf of Cadw.</p> <p>There was no further physical evidence found to suggest the location of a mill at the site.</p> <p>The site of the sluice will not be impacted upon by the proposed development however if a medieval / post-medieval mill was present at the site buried foundation remains may persist within the proposed cable trench location. As such it is recommended that a watching brief be maintained during the excavation of the cable trench.</p>	
Category of importance: Unknown	
Level of impact: Unknown	
Significance of effect: Unknown	
Recommendations for further desk-top study: None	
Recommendations for further mitigatory measures: Watching brief during the excavation of the cable trench.	

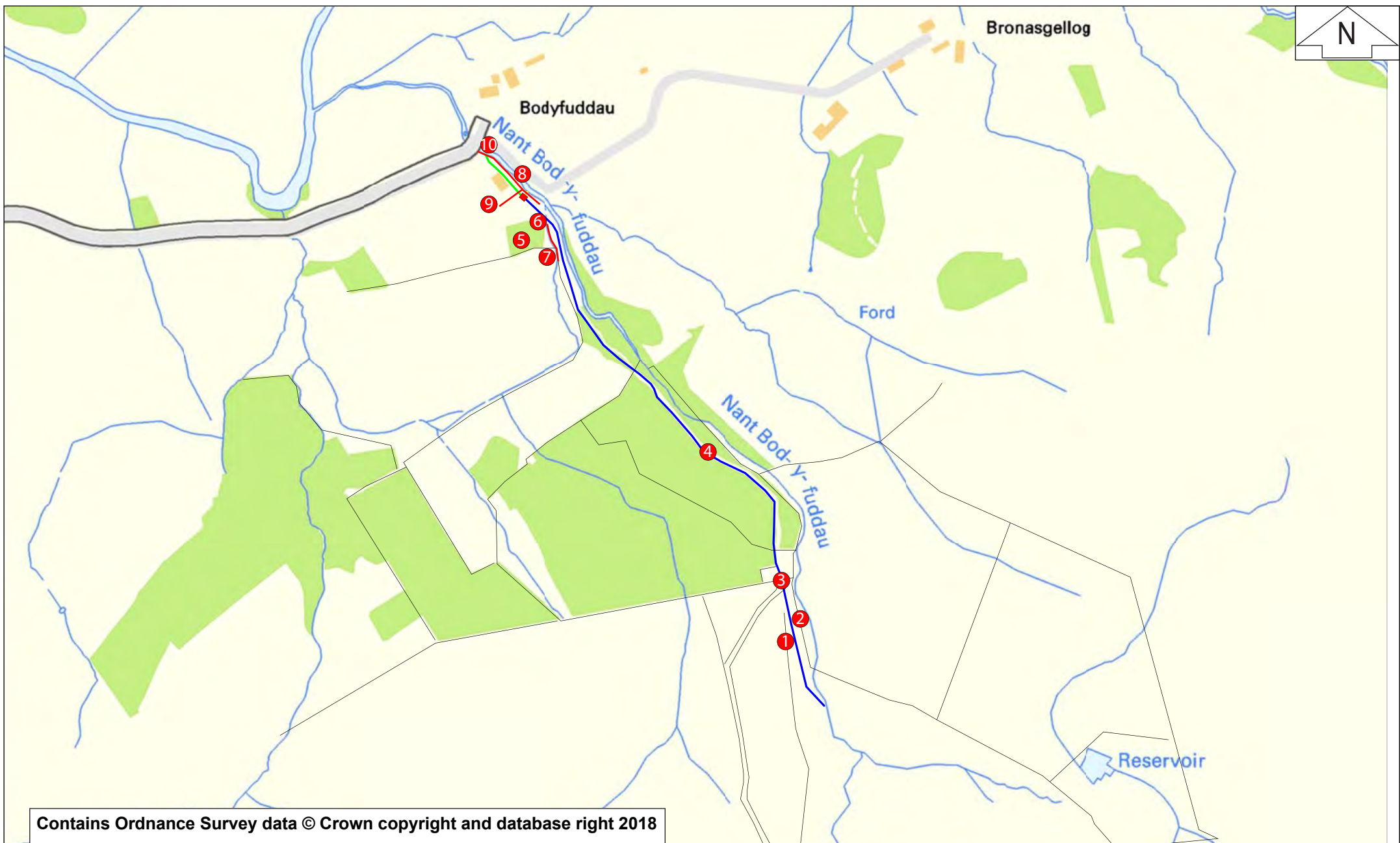


Figure 13: Location of archaeological features identified during the archaeological assessment at Bodyfuddau, Trawsfynydd. Scale 1:5,000 at A4.

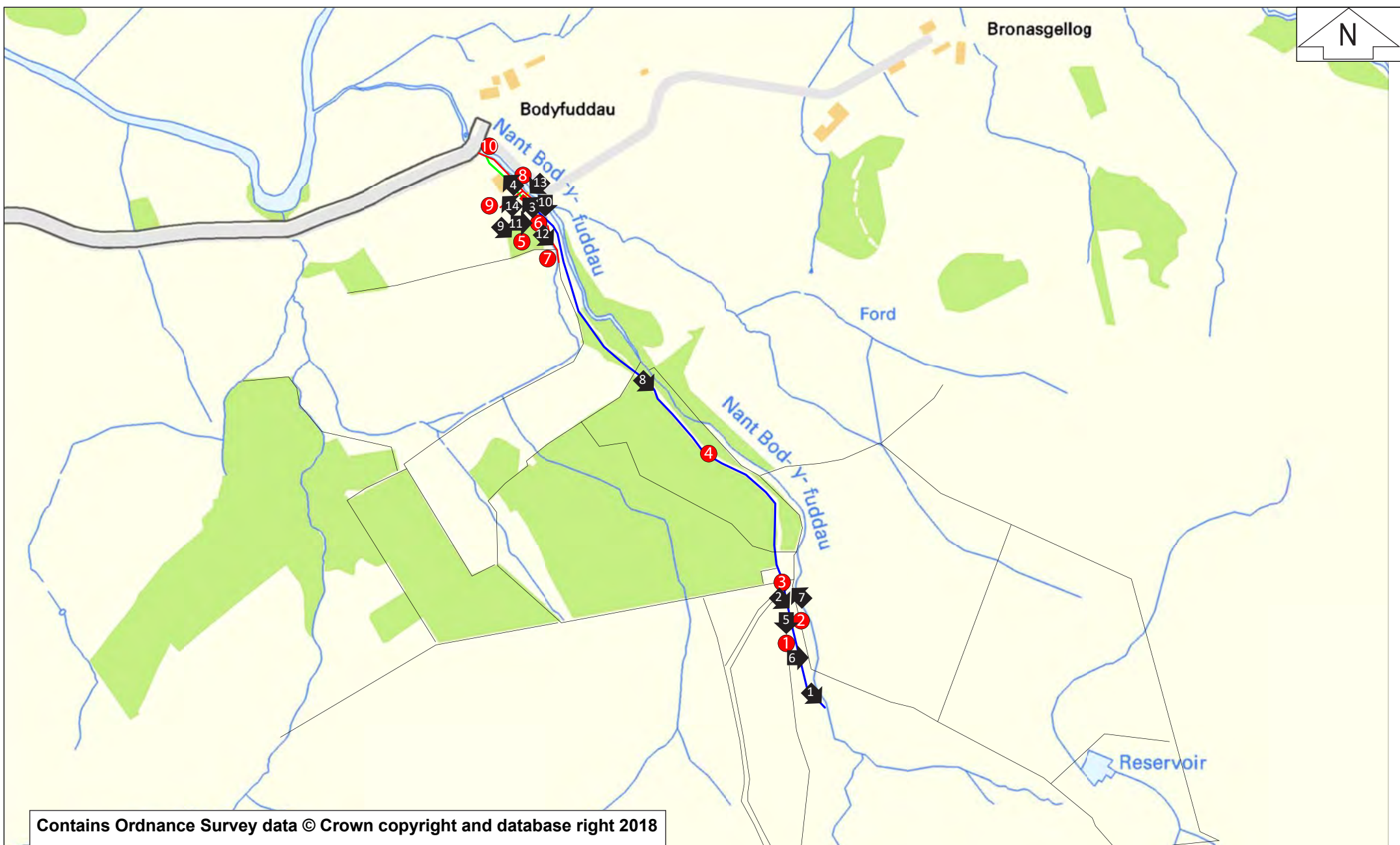


Figure 14: Location and orientation of photographic plates taken during the archaeological assessment at Bodyfuddau, Trawsfynydd. Scale 1:5,000 at A4.

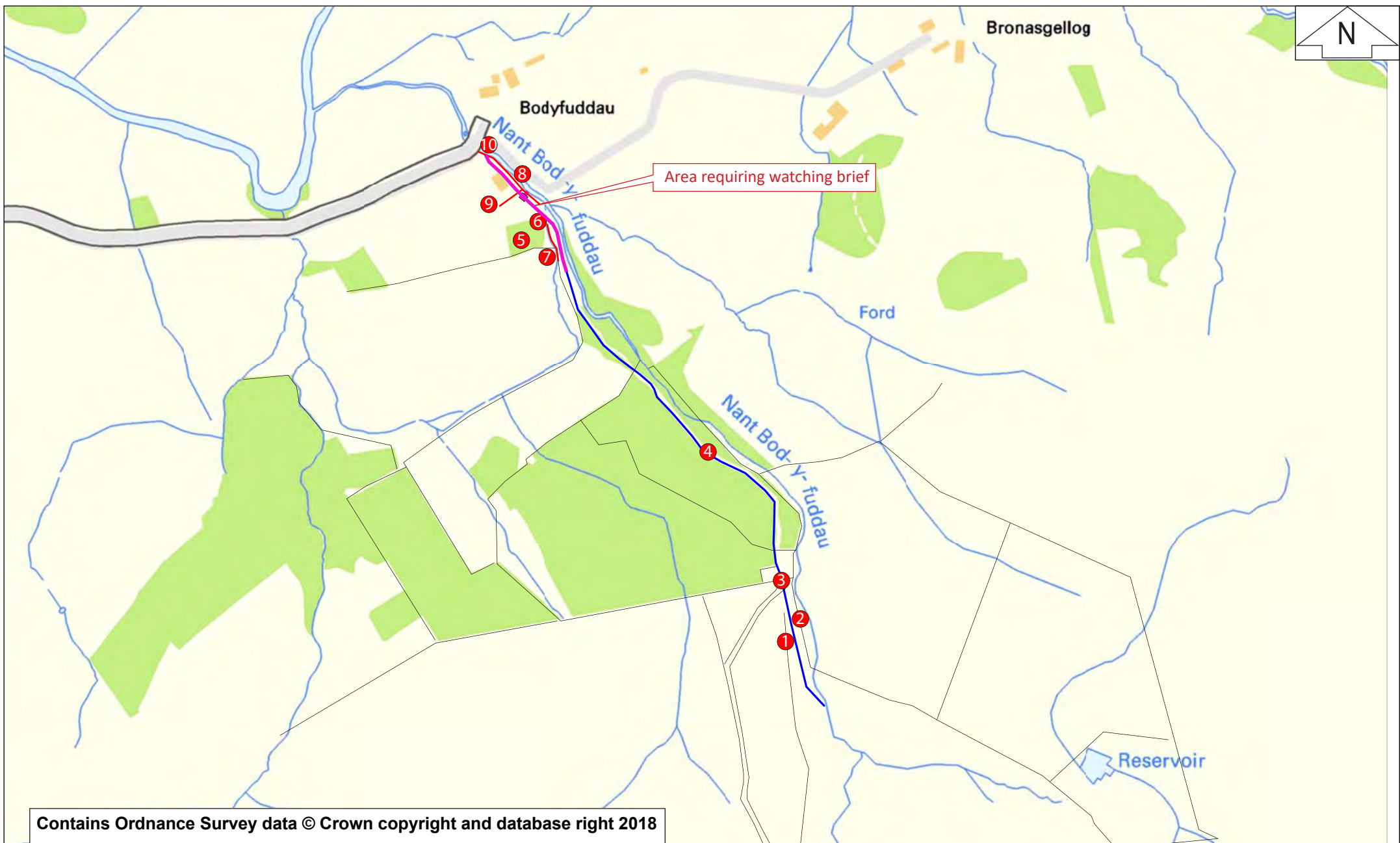


Figure 15: Location of area requiring monitoring by watching brief (shaded pink).
Scale 1:5,000 at A4.

Table 2: Summary of archaeological features. GREEN = no action required; RED= Action required						
Number	Name	Importance	Impact	Significance of effect	Further Desk-top study	Mitigation Recommendations
PHYSICAL DIRECT AND INDIRECT IMPACTS						
1	Fridd Ddu, field boundary VI	Local	None	Neutral	None	None
2	Ffridd Ddu, field boundary XIV	Local	None	Neutral	None	None
3	Ffridd Ddu, field boundary XV	Local	None	Neutral	None	None
4	Trackway	Negligible	Low adverse direct physical (construction phase)	Neutral or Slight adverse	None	None
5	Enclosure, S of Swn y Nant	Unknown (local / regional)	None – however associated remains may be present	Unknown	None	Watching brief in proximity
6	House Platform, S of Swn y Nant	Unknown (local / regional)	None – however associated remains may be present	Unknown	None	Watching brief in proximity
7	Possible Sluice, S of Swn y Nant	Unknown (local / regional)	None – however associated remains may be present	Unknown	None	Watching brief in proximity
8	Field wall	Unknown (local)	Low adverse direct physical (construction phase)	Unknown (slight adverse)	None	Watching brief during wall breach and excavation of outfall trench
9	Field wall	Negligible	Low adverse direct physical (construction phase)	Neutral or Slight adverse	None	None
10	Sluice, Bod y Fuddau, Trawsfynydd	Unknown	Unknown	Unknown	None	Watching brief during the excavation of the cable trench

9.0 IMPACT AND RECOMMENDATIONS

9.1 Direct physical impact

Construction phase

The proposed development scheme is expected to have a *low adverse direct physical impact* upon three features during the construction phase. Two of these features are of negligible importance (trackway feature 4; field wall feature 9) resulting in a *neutral or slight adverse significance of effect*. The third feature (field wall feature 8) is considered to be of unknown (local) importance resulting in an *unknown (slight adverse) significance of effect*.

Completion phase

The proposed development scheme is not expected to have any direct physical impact upon any known sites of archaeological and historical significance upon completion.

9.2 Indirect physical and non-physical (visual) impact

Construction phase

The proposed development scheme is not expected to have any indirect physical or non-physical impacts upon any known sites of archaeological and historical significance during the construction phase.

Completion phase

The proposed development scheme is not expected to have any indirect physical or non-physical impacts upon any known sites of archaeological and historical significance upon completion.

9.3 Site Specific Recommendations

Site specific recommendations have been made for an archaeological watching brief to be maintained during the excavation of the penstock route and turbine house in proximity of the *Enclosure, S of Swn y Nant* (feature 5), *House Platform, S of Swn y Nant* (feature 6), and *Sluice, S of Swn y Nant* (feature 7) due to the potential for associated buried remains.

A watching brief has also been recommended during the breach of *field boundary wall* (feature 8) and the excavation of the outfall pipe due to the potential for associated buried remains and the possibility that the field wall is of medieval origin.

A watching brief has also been recommended during the excavation of the new cable trench due to the potential for a medieval mill to be located within proximity of the works.

9.4 General recommendations

There are no registered World Heritage Sites, Archaeological Areas, Scheduled Ancient Monuments, Registered Parks and Gardens, Listed Buildings, or Welsh Battlefields wholly or partly within the assessment Site. Therefore, this assessment confirms that the Site does not contain any designated heritage assets for which there would be a presumption in favour of preservation in situ and against development.

The entirety of the scheme is located within the *Trawsfynydd Basin and Cwm Prysor Landscape of Historic Interest* (HLW(Gw)11), and in particular the *Intermediary slopes, Ffridd Wen* Historic Landscape Character area (HLCA: 11) and the *Cwm Prysir - valley bottom* Historic Landscape Character area (HLCA: 12). It is however considered that due to the limited groundworks and structures associated with the proposed scheme, as well as the largely subterranean element of the works that the overall impact upon the historic landscape character areas and historic landscape as a whole will be negligible.

The potential for any preserved buried remains of the prehistoric and Roman periods is limited to the initial 120.0m of the penstock route from where it leaves the intake weir. This area is relatively flat and would have been conducive to early habitation. However there were no suspected sites of this era identified during the site visit nor are there any known sites within immediate proximity. It is likely that if any such sites were originally located here then some form of upstanding remains would be present. The exception to this are prehistoric burnt mounds which are usually sited close to streams and of which no visible trace can usually be seen at surface level. However no prehistoric burnt mounds have been identified within 1.0km of the scheme and have seldom been uncovered during the excavation of narrow pipe trenches, as proposed by the application.

The potential for preserved prehistoric and Roman sites is deemed to be negligible once the penstock route enters the existing trackway due to disturbance of underlying deposits by utilisation of the track over time and erosion via water action.

On the balance of evidence although there exists the potential for preserved buried remains at foundation level of prehistoric and Roman remains within the initial 120.0m of the scheme, there is no evidence to suggest they are indeed present. As such no mitigatory response is proposed for this part of the scheme.

In addition, although juncus grass is visible within the initial 120.0m of the penstock route, it is sparsely distributed suggesting that there is not any substantial underlying peat deposit and as such the potential for preserved palaeo-environmental deposits is considered to be low.

The principle archaeological interest at the Site is that of the post-medieval, and potentially medieval remains of the enclosure south of Swn y Nant and associated house platform, sluice, and field boundary wall. Site specific recommendations have been made for these features but in addition a watching brief should be maintained within this area as alluded to in figure 15.

On the basis of the evidence presented in this assessment the proposed development on the Site would not be contrary to any local or national policy.

This assessment enables an informed, sustainable and responsible approach to the development of a new micro hydro scheme at Nant-y-Fuddau, Trawsfynydd. The information provided meets the expectations of TAN24 and the Historic Environment Act (2015) in that the applicant has described the significance of known archaeological assets that may be affected by proposed development. It is considered that the level of detail provided is proportionate to the assets' importance and provides sufficient information to understand the potential impact of the proposal on the significance of archaeological remains.

10.0 SOURCES

OS Maps

1st edition 6 inch Ordnance Survey Map of 1888

2nd edition 6 inch Ordnance Survey Map of 1901

3rd edition 6 inch Ordnance Survey Map of 1956

OS 1:10 000 Series sheet SH 73NE, SH 73SE, SH 73SW, and SH 73NW .

Sources

ArchHeritage report 2013/8: *Uplands Archaeology Initiative Project 2012-2013: Cwm prysor survey area*

British Geological Survey website. www.bgs.ac.uk.

Cadw. Scheduled Ancient Monument listings.

Cadw, 2017. *The Setting of Heritage Assets in Wales*

Chisholm, H. 1911. *Encyclopaedia Britannica*

Dodd, C. R. 1844. *The Peerage, Baronetage, and Knightage of Great Britain and Ireland*

English Heritage, 1991. *Management of Archaeological Projects (MAP2)*

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

Gwynedd Historic Environment Record (HER)

NMR Site Record Cards

The Chartered Institute for Archaeologists, 2014. *Standard and Guidance for Archaeological Assessment Desk-top study*

Tomlin, R.S.O. 2001. *Archaeologia Cambrensis*

APPENDIX 1: SCHEDULED AND NON-SCHEDULED SITES WITHIN 1.0KM

Non-designated monuments within 1.0km of the proposed development as listed on the Gwynedd HER (figure 3)

Prn	Name	Type	Broadclass	Period
1604	Enclosed Settlement, Moel Oernant	Enclosed settlement	Domestic	Prehistoric
1649	Craiglaseithin Settlement, Trawsfynydd			
5264	Enclosures/Hut, Nant Oernant	Enclosure	Domestic	Roman
5265	Cultivation Ridges, Ffridd Ddu	Cultivation terrace	Agriculture and Subsistence	Prehistoric
5266	Long Houses/Round Hut, Ffridd Ddu	Long hut	Domestic	Prehistoric
6149	Settlement, Craig Las Eithin	Settlement	Domestic	Prehistoric
11887	Stable or Shed, Yr Ysgwrn, Trawsfynydd	Stable	Agriculture and Subsistence	Post-medieval
12503	Yr Ysgwrn Farmhouse, Trawsfynydd			
14740	Artificial Pond, Trawsfynydd	Pond	Water Supply and Drainage	Post-medieval
15670	DRS, Ffridd Ddu	Deserted rural settlement	Domestic	Medieval
18277	Intermediary slopes, Ffridd Wen, Landscape			
19215	Footpath, Hafod Wen	Footpath	Transport	Medieval
19220	Bala and Ffestiniog Railway, Trawsfynydd	Railway	Transport	Post medieval
19221	Trawsfynydd to Cwm Prysor road, Trawsfynydd	Road	Transport	Post medieval
19222	DRS Hafod Wen, Hafod Wen	Hafod	Agriculture and Subsistence	Medieval
19223	Hafod Wen Beudy, Hafod Wen	Field barn	Agriculture and Subsistence	Post medieval
19224	Caerhingylliaid Ford, Hafod Wen	Ford	Transport	Post medieval
19225	Hafod Wen Spring, Hafod Wen	Spring	Water Supply and Drainage	Post medieval
19226	Hafod Wen Well, Hafod Wen	Well	Water Supply and Drainage	Post medieval

19227	Hafod Wen Beudy, Hafod Wen	Field barn	Agriculture and Subsistence	Post medieval
19228	Hafod Wen Well, Hafod Wen	Well	Water Supply and Drainage	Post medieval
19229	Hafod Wen Barn, Hafod Wen	Barn	Agriculture and Subsistence	Post medieval
19230	Hafod Wen Farmstead, Hafod Wen	Farmstead	Agriculture and Subsistence	Post medieval
19231	Hafod Wen Pigsty, Hafod Wen	Pigsty	Agriculture and Subsistence	Post medieval
19232	Hafod Wen Beudy, Hafod Wen	Field barn	Agriculture and Subsistence	Post medieval
19233	Hafod Wen Footbridge, Hafod Wen	Footbridge	Transport	Post medieval
19234	Hafod Wen Ford, Hafod Wen	Ford	Transport	Post medieval
19235	Hafod Wen Leat, Hafod Wen	Leat	Industrial	Post medieval
19611	Wooden Writing Tablet, Bodyfuddau	Findspot	Object	Roman
20937	Gold Mine, Ffridd Ddu (1)	Gold mine	Industrial	Post-medieval
20938	Gold Mine, Ffridd Ddu (2)	Gold mine	Industrial	Post-medieval
20947	Gold Trial, Bod y Fuddai	Trial mine	Industrial	Post-medieval
36707	Mill Pond and Mill Race, S Cae Rhingylliad, Trawsfynydd	Mill pond	Water Supply and Drainage	Post medieval
36738	Mill Pond and Sluice, Bod y Fuddau, Trawsfynydd	Sluice	Water Supply and Drainage	Post medieval
36889	Sluice, Bod y Fuddau, Trawsfynydd	Sluice	Water Supply and Drainage	Post medieval
36927	Sluice and Pond , Yr Ysgwrn, Trawsfynydd	Sluice	Water Supply and Drainage	Post

				medieval
57672	Enclosure, S of Swn Y Nant	Enclosure	Unassigned	Post-medieval
57673	Footbridge, NE of Bronasgellog	Footbridge	Transport	Post-medieval
57674	Footbridge, S of Caerhingylliaid	Footbridge	Transport	Post-medieval

NMR Monument Points within 1.0km of the proposed development (figure 4)

Nprn	Name	Broadclass	Type	Period
6008517	Artificial pond, moel bowydd	Water supply and drainage	Pond	Post medieval
6114217	Ffridd ddu, field boundary xiii	Agriculture and subsistence	Field boundary	Post medieval
6114238	Ffridd ddu, field boundary xiv	Agriculture and subsistence	Field boundary	Post medieval
6114239	Ffridd ddu, field boundary xv	Agriculture and subsistence	Field boundary	Post medieval
6114240	Ffridd ddu, cultivation ridges i	Agriculture and subsistence	Cultivation marks	Unknown
6114241	Ffridd ddu, field boundary xvi	Agriculture and subsistence	Field boundary	Post medieval
6114267	Ffridd ddu, bank ix		Bank (earthwork)	Unknown
6114642	Ffridd ddu, field boundary vi	Agriculture and subsistence	Field boundary	Post medieval

Listed Buildings within 1.0km of the proposed development (figure 5)

Number	Name	Grade
5217	Yr Ysgwrn Farmhouse, stable and cartshed	II*

Scheduled Ancient Monuments within 1.0km of the proposed development (figure 5)

Number	Name	Period	Broadclass	Type
ME168	Enclosed Hut Circle Settlement at Fridd Bodyfyddau	Prehistoric	Domestic	Enclosed hut circle
ME169	Hut Circle and Field System at Craiglaseithin	Prehistoric	Domestic	Unenclosed hut circle

