

Proposed Hydro-Electric Schemes, Bryn Coed Ifor, Rhydymain, Dolgellau, Meirionnydd. September 2018 V 1.0





Archaeological Assessment Project Code: A0179.1 Report no. 0180



Proposed Hydro-Electric Schemes, Bryn Coed Ifor, Rhydymain, Dolgellau, Meirionnydd. September 2018 V 1.0

Report no. 0180

Archaeological Assessment

Aeon Archaeology 25, Mold Road Broughton Chester CH4 OPQ

Written by: Richard Cooke BA MA MCIfA

Checked by: Josh Dean BA ACIfA



Project Code: A0179.1 Date: 11/09/2018

Client: Dolhendre Hydro Ltd info@aeonarchaeology.co.uk

Figures

- Figure 01: Location of proposed hydro schemes at Bryn Coed Ifor, Rhydymain, Gwynedd. Scale 1:20,000 at A4.
- Figure 02: Location of proposed hydro schemes at Bryn Coed Ifor, Rhydymain, Gwynedd. Scale 1:5,000 at A4.
- **Figure 03:** Location of non-designated monument points from the Gwynedd Historic Environment Record. Scale 1:15,000 at A4.
- Figure 04: Location of non-designated monument points from the National Monument Record. Scale 1:15,000 at A4.
- Figure 05: Location of Listed Buildings. Scale 1:15,000 at A4.
- Figure 06: Location of hydro scheme 1 and hydro scheme 2 on the historic aerial photograph of 1946.
- Figure 07: Location of hydro scheme 1 and hydro scheme 2 on the historic aerial photograph of 1962.
- Figure 08: Location of hydro scheme 1 and hydro scheme 2 on the historic aerial photograph of 1972.
- Figure 09: Approximate Llcation of proposed hydro schemes on the map of the parish of Dolgelley in the County of Merioneth, 1842.
- **Figure 10:** Location of proposed hydro schemes at Bryn Coed Ifor, Rhydymain, Gwynedd on the six inch County Series Ordnance Survey map of 1888.
- **Figure 11:** Location of proposed hydro schemes at Bryn Coed Ifor, Rhydymain, Gwynedd on the six inch County Series Ordnance Survey map of 1901.
- **Figure 12:** Location of proposed hydro schemes at Bryn Coed Ifor, Rhydymain, Gwynedd on the six inch County Series Ordnance Survey map of 1954.
- Figure 13: Location of archaeological features in proximity of Hydro 1, and location of photographic plates. Scale 1:10,000 at A4.
- Figure 14: Location of archaeological features in proximity of Hydro 2, and location of photographic plates. Scale 1:10,000 at A4.

Plates

- Plate 01: Proposed hydro 1 intake weir location, from the northwest.
- Plate 02: Field boundary wall feature 1, from the southwest. Scale 1.0m.
- Plate 03: Field boundary wall feature 2, from the southwest. Scale 1.0m.
- Plate 04: Field boundary wall feature 3, from the northwest. Scale 1.0m.
- Plate 05: Field clearance cairn feature 4, from the south. Scale 1.0m.
- Plate 06: Field clearance cairn feature 5, from the south. Scale 1.0m.
- Plate 07: Field boundary wall feature 6, from the northwest. Scale 1.0m.
- **Plate 08:** Field boundary wall feature 7, from the southwest. Scale 1.0m.
- Plate 09: Roman Road from Caer Gai to Brithdir feature 8, from the southwest. Scale 1.0m.
- Plate 10: Trackway feature 9, from the southeast. Scale 1.0m.
- Plate 11: Former field boundary feature 10, from the northwest. Scale 1.0m.
- Plate 12: Proposed hydro 1 cable route, from the southwest. Scale 1.0m.
- Plate 13: Field boundary wall feature 11, from the northwest. Scale 1.0m.
- Plate 14: Field boundary wall feature 12, from the west. Scale 1.0m.
- Plate 15: Field boundary wall feature 13, from the west. Scale 1.0m.
- Plate 16: Field boundary wall feature 14, from the west. Scale 1.0m.
- Plate 17: Proposed turbine house location, from the northwest. Scale 1.0m.
- Plate 18: Field boundary wall feature 15, from the west. Scale 1.0m.
- Plate 19: Hydro 2 intake location, from the south.
- Plate 20: Pont y Sel feature 16, from the south.
- Plate 21: Weir feature 17, from the south.
- Plate 22: Hydro 2 turbine house location, from the south.

1.0 NON-TECHNICAL SUMMARY	1
2.0 INTRODUCTION, AIMS AND PROJECT DESIGN	
3.0 METHODS AND TECHNIQUES	
3.1 Archival research	
3.2 Site walkover	
3.3 Assessment report	
3.4 Project archive	
4.0 POLICY CONTEXT	
5.0 ARCHAEOLOGICAL AND TOPOGRAPHICAL BACKGROUND	
5.1 Topographic Description	
5.2 Statutory and non-statutory designations	
5.2.1 Non-designated monument points from the Gwynedd Historic Environment	
(figure 3)	
5.2.2 National Monuments Record (figure 4)	
5.2.3 Listed Buildings (figure 5)	
5.2.4 Scheduled Ancient Monuments	
5.2.5 Historic Landscape Character Areas (HLCAs)	
5.2.6 Historic Parks and Gardens	
5.2.7 The Inventory of Historic Battlefields in Wales	
5.2.8 World Heritage Sites	
5.2.9 Events	
5.2.10 Lidar	
5.2.11 Historic Aerial Photographs	
6.0 THE HISTORICAL CONTEXT	12
6.1 Prehistoric and Roman Period	
5.2 Early Medieval, Medieval and Post-Medieval Periods	
7.0 ASSESSMENT OF HISTORICAL ASSETS	
7.1 Definitions	
8.0 SITE GAZETTEER – PHYSICAL IMPACTS	
8.1 HYDRO SCHEME 1 GAZETTEER	
8.2 HYDRO SCHEME 2 GAZETTEER	
9.0 IMPACT AND RECOMMENDATIONS	
9.1 Direct physical impact	
9.2 Indirect physical and non-physical (visual) impact	38
9.3 Site Specific Recommendations	38
9.4 General recommendations	
10.0 SOURCES	
APPENDIX I: SCHEDULED AND NON-SCHEDULED SITES WITHIN 1.0KM	
ATTEMPER I. SCHEDULED AND HON-SCHEDULED SHES WITHIN LUKIVI	∓∠

1.0 NON-TECHNICAL SUMMARY

Aeon Archaeology was commissioned by Dolhendre Hydro Ltd to carry out an archaeological assessment and field visit of two proposed 100kw hydro-electric schemes with turbine house, buried penstock (pipeline), and electrical cable connections at Bryn Coed Ifor, Rhydymain, Gwynedd.

The proposed scheme will directly and adversely impact upon twelve archaeological features, all of which are post-medieval field boundaries. These features are all considered to be of negligible/local importance and due to the low level of direct adverse physical impact combined with impact being confined to the construction phase, the overall significance of effect is neutral / slight. As such no further assessment or mitigatory measures are proposed for these features.

The proposed scheme will also need to cross the regionally important route of the Roman Road between Caer Gai and Brithdir (feature 8). The Client has confirmed that this crossing can be done via directional drill in order to avoid any damage to the road, however as the line of the road could deviate from that of the course and dimensions of the existing trackway it is recommended that a watching brief be maintained during the excavation of launch and reception pits for the directional drill to avoid any accidental damage to the road.

The archaeological assessment did not identify any sites considered to be above local importance within the 50.0m wide assessment corridor with the exception of the route of the Roman Road between Caer Gai and Brithdir. Moreover, the majority of the archaeological features recorded within the localised landscape on the regional Historic Environment Record and National Monuments Record are agricultural features of post-medieval date.

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 archaeological potential for buried preserved remains of all periods is suspected to be low across the entirety of both proposed schemes. This affirmation is based partly on the lack of known sites within close proximity of the proposed schemes as well as the very low anticipated level of ground disturbance associated with the works

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 two new micro hydro schemes at Bryn Coed Ifor, Rhydymain. 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.

2.0 INTRODUCTION, AIMS AND PROJECT DESIGN

Aeon Archaeology was commissioned by Dolhendre Hydro Ltd, hereafter the Client, to carry out an archaeological assessment and field visit of two proposed 100kw hydro-electric schemes with turbine house, buried penstock (pipeline), and electrical cable connections.

The first proposed scheme (hydro 1) intake is to be located on the northern bank of the Afon Celynog (at NGR SH 80247 20191), a tributary of the Afon Wnion. A buried penstock measuring 450mm in external diameter will then be buried in a 750mm wide by 750-1050mm deep trench which will run west-northwest for 860.0m to a new turbine house (at NGR SH 79525 20446), also located on the northern bank of the Afon Celynog, and to the immediate east of Pont y Sel, where the scheme will discharge immediately back into the river. Temporary construction access for the scheme will be created at the intake from an existing trackway in the north, and at the turbine house from Pont y Sel. Additional excavations will include a 45.0m long trench running from north to south to connect an underground cable from an existing H-pole located to the west of Gelli-grafog.

The second proposed scheme (hydro 2) intake is to be located on the southern bank of the Afon Celynog (at NGR SH 79464 20448), a tributary of the Afon Wnion. A buried penstock measuring 560mm in external diameter will then be buried in a 860mm wide by 750-1050mm deep trench which will then run northwest for 380.0m to a new turbine house (at NGR SH 79201 20670), also located on the northern bank of the Afon Celynog, and to the immediate east of the confluence of the Afon Celynog and Afon Wnion, where the scheme will discharge immediately back into the river. Construction access will be by an existing trackway running the length of the scheme on the southern bank of the river.

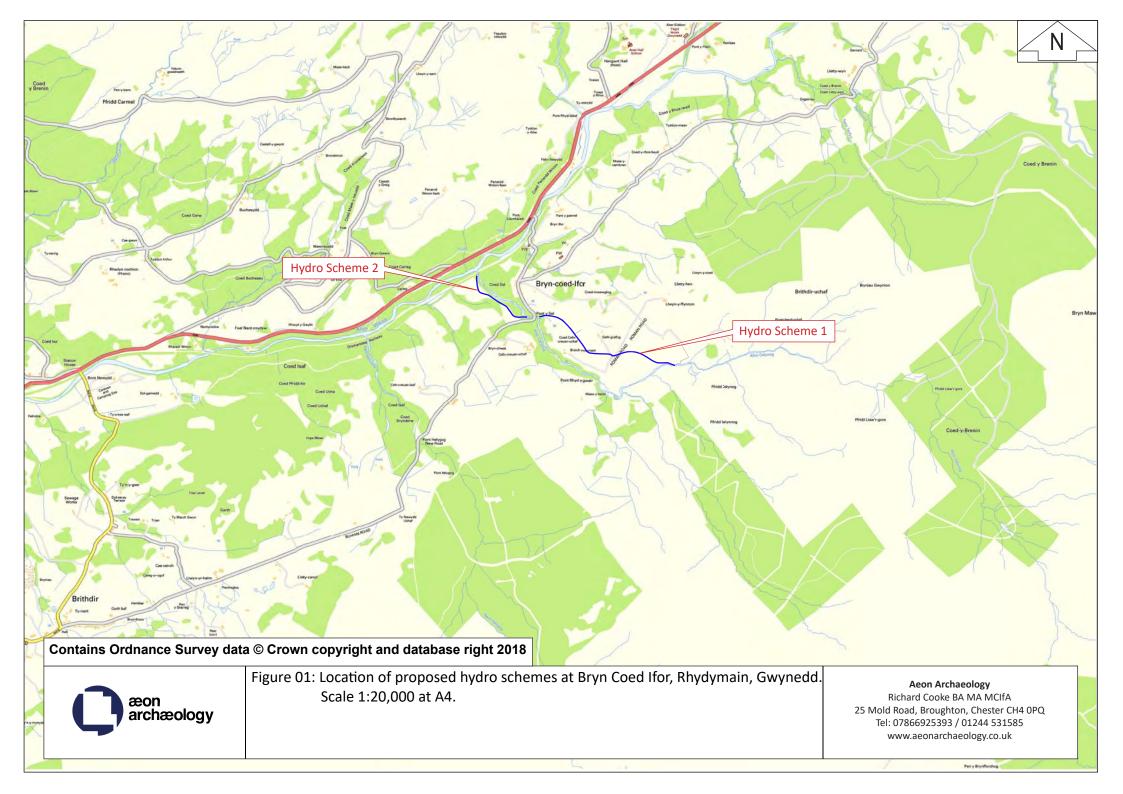
The schemes lie approximately 1.85km southwest of Rhydymain at Bryn-Coed-Ifor, within the historical county of Meirionnydd and unitary authority of Gwynedd. The proposed scheme also lies entirely within the Snowdonia National Park Authority (SNPA) (figures 1 and 2).

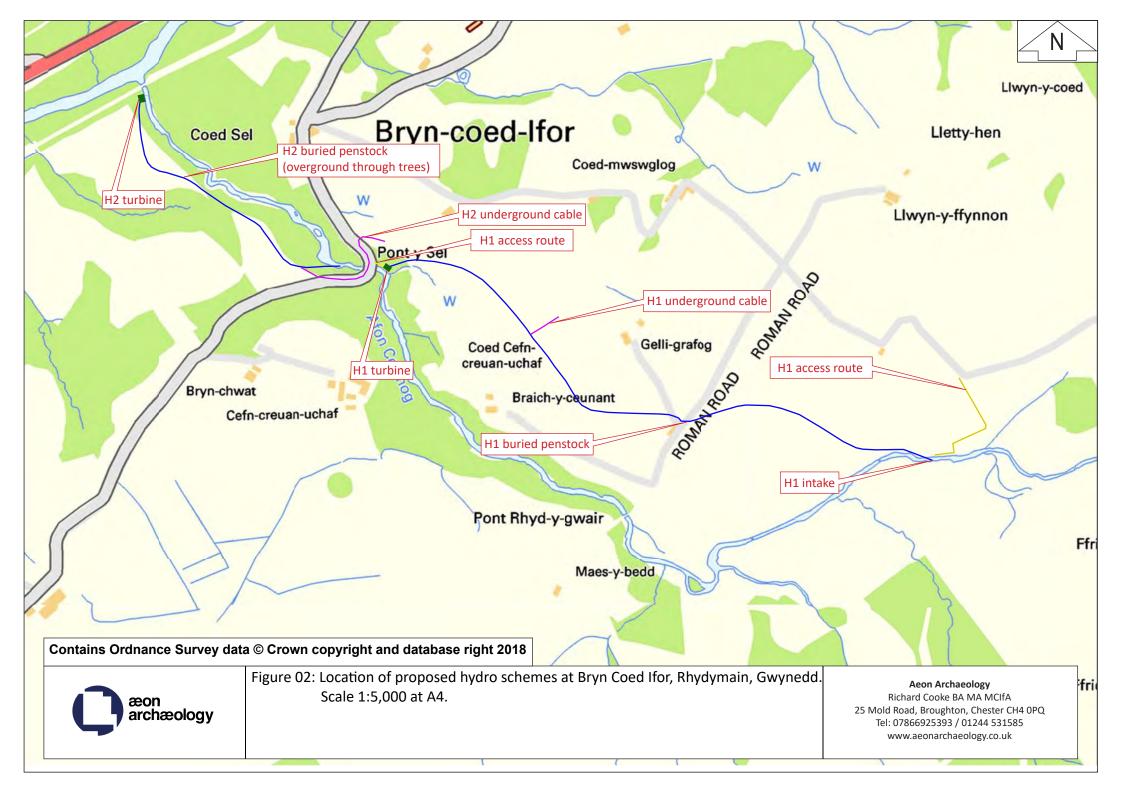
The assessment has been carried out in advance of planning application.

This archaeological assessment is for the proposed development area, which includes the water intake points, the penstock routes, the turbine houses, the water outflows, the power cable routes, the access routes, and a 50.0m wide assessment corridor centred on the proposed pipeline route.

As part of the archaeological assessment 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).





3.0 METHODS AND TECHNIQUES

3.1 Archival research

The archaeological assessment 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 Site walkover

The site walkover was carried out on 10th September 2018 by Richard Cooke BA MA MCIfA, archaeological contractor and consultant at Aeon Archaeology. The weather conditions were ideal for the field search being both bright and clear. All archaeological sites and view points were photographed using a digital SLR (Canon 600D) set to maximum resolution.

3.3 Assessment report

All features identified from the archival research and site walkover 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.

3.4 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 assessment are stored at Aeon Archaeology under the project code A0179.1 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 Heritage¹ and the European Convention on the Protection of the Archaeological Heritage², 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 County 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 polices 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 first proposed scheme (hydro 1) intake is to be located on the northern bank of the Afon Celynog (at NGR SH 80247 20191), a tributary of the Afon Wnion. A buried penstock measuring 450mm in external diameter will then run west-northwest for 860.0m to a new turbine house (at NGR SH 79525 20446), also located on the northern bank of the Afon Celynog, and to the immediate east of Pont y Sel, where the scheme will discharge immediately back into the river. Temporary construction access for the scheme will be created at the intake from an existing trackway in the north, and at the turbine house from Pont y Sel. Additional excavations will include a 45.0m long trench running from north to south to connect an underground cable from an existing H-pole located to the west of Gelli-grafog.

The second proposed scheme (hydro 2) intake is to be located on the southern bank of the Afon Celynog (at NGR SH 79464 20448), a tributary of the Afon Wnion. A buried penstock measuring 560mm in external diameter will then run northwest for 380.0m to a new turbine house (at NGR SH 79201 20670), also located on the northern bank of the Afon Celynog, and to the immediate east of the confluence of the Afon Celynog and Afon Wnion, where the scheme will discharge immediately back into the river. Construction access will be by an existing trackway running the length of the scheme on the southern bank of the river.

The schemes lie within the parish of Dolgellau 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 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.

The bedrock geology is of the Ordovician - Microgabbro Formation, an igneous bedrock that formed approximately 444 to 485 million years ago in the Ordovician Period within an environment previously dominated by silica-poor magma. The superficial deposits are of Devensian-Diamicton till, a sedimentary deposit that formed up to 2 million years ago in the Quaternary Period within an environment previously dominated by Ice Age conditions (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 43 non-designated monuments within 1.0km of the proposed schemes (see appendix I) and the following lie within the 50.0m wide assessment corridor centred on the penstock routes:

- (i) The proposed route of hydro 1 is bisected by the part of the *Roman Road from Caer Gai to Brithdir* at NGR SH 79921 20242 (PRN: 17,631);
- (ii) Approximately 16.0m north of the post-medieval Sheepfold, Afon Celynog (PRN: 19,337).

The proposed scheme also lies within 100.0m of the following:

- (i) Approximately 85.0m south of the post-medieval *Beudy, Coed Mwsoglog* (PRN: 19,335);
- (ii) Approximately 86.0m north of the post-medieval *Pentagonal Enclosure*, *NW of Braich-y-ceunant* (PRN: 57,795).

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 17 non-designated monument points within 1.0km of the proposed schemes (see appendix I) but none lie within the 50.0m wide assessment corridor centred on the penstock routes or within 100.0m.

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 are 8 Listed Building within 1.0km of the proposed schemes (see appendix I) but none lie within the 50.0m wide assessment corridor centred on the penstock routes. The following Listed Buildings lies within 500.0m of the proposed schemes:

- (i) Approximately 190.0m north of the grade II Former Farmhouse at Cefn-Creuan-Uchaf Listed Building (ref: 16,038);
- (ii) Approximately 320.0m south of the grade II *St Paul's Church* Listed Building (ref: 16,037);
- (iii) Approximately 320.0m south of the grade II* Lychgate at St Paul's Chruch Listed Building (ref: 4,713);
- (iv) Approximately 360.0m east of the grade II Carleg Listed Building (ref: 16,033);
- (v) Approximately 360.0m east of the grade II Carleg Listed Building (ref: 16,034).

5.2.4 Scheduled Ancient Monuments

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 no Scheduled Ancient Monuments within 1.0km of the proposed scheme.

5.2.5 Historic Landscape Character Areas (HLCAs)

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 does not lie within a registered historic landscape.

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 schemes was included within an archaeological assessment by Engineering Archaeological Services Ltd as part of the Forest Enterprise Welsh Historic Assets Project (PRN: 41075), however no archaeological sites were identified within the 50.0m wide assessment corridor.

The location of both proposed hydro schemes were included within the Cadw funded Scheduling enhancement study of Medieval and Post-Medieval Agricultural Features in North-West Wales by the Gwynedd Archaeological Trust in 2014 (PRN: 44846). The results of this report have been utilised as part of the identification of archaeological receptors within proximity of the proposed schemes.

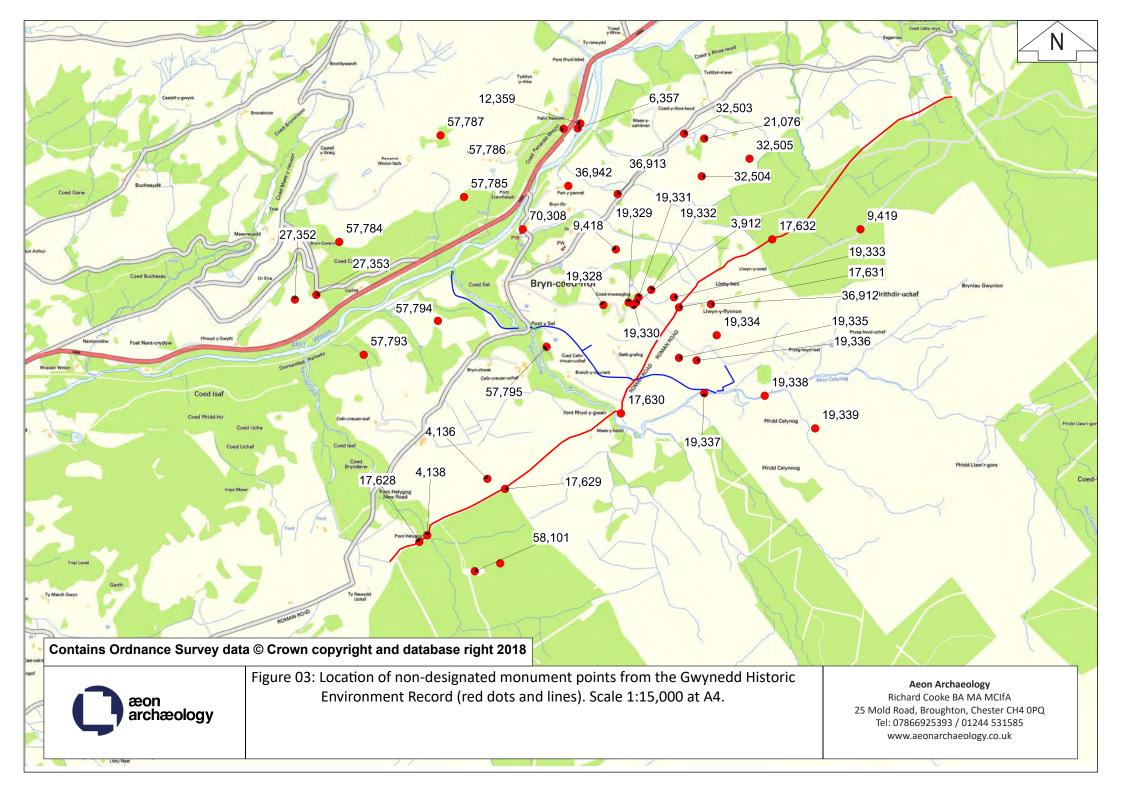
5.2.10 Lidar

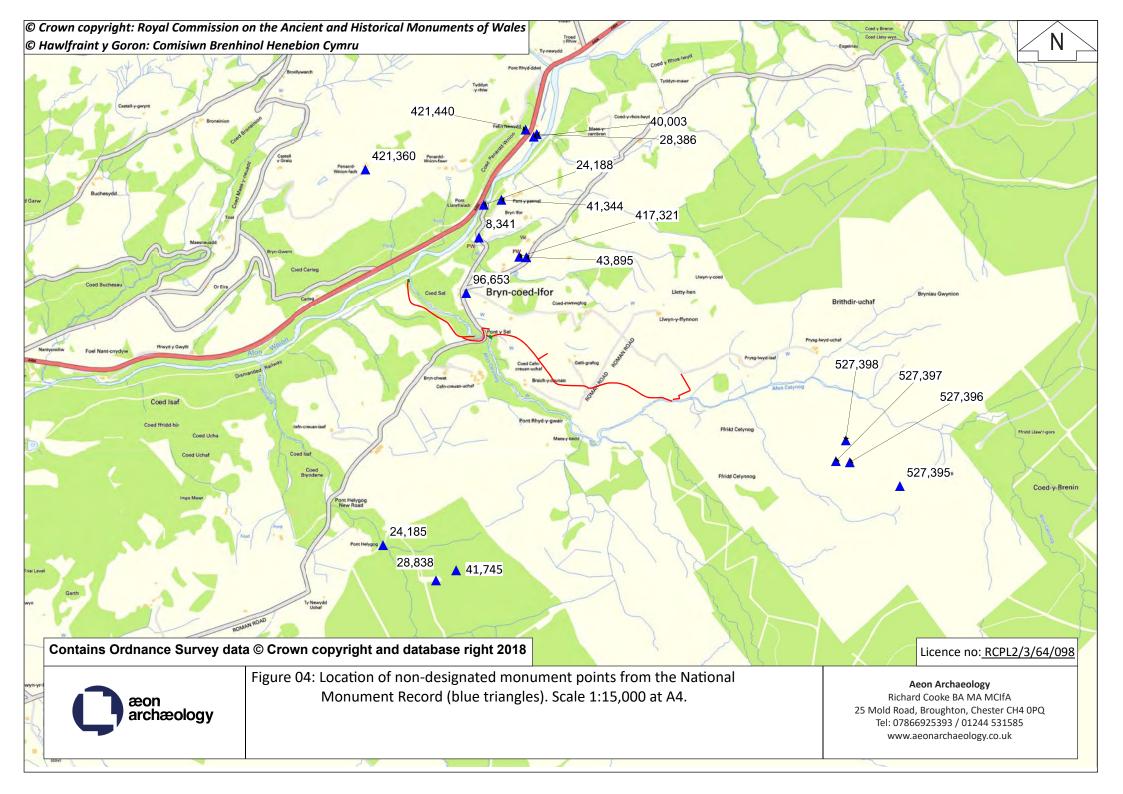
Light Detection and Ranging (LIDAR) is an airborne mapping technique, which uses a laser to measure the distance between the aircraft and the ground. Up to 100,000 measurements per second are made of the ground, allowing highly detailed surface and terrain models to be generated at different spatial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

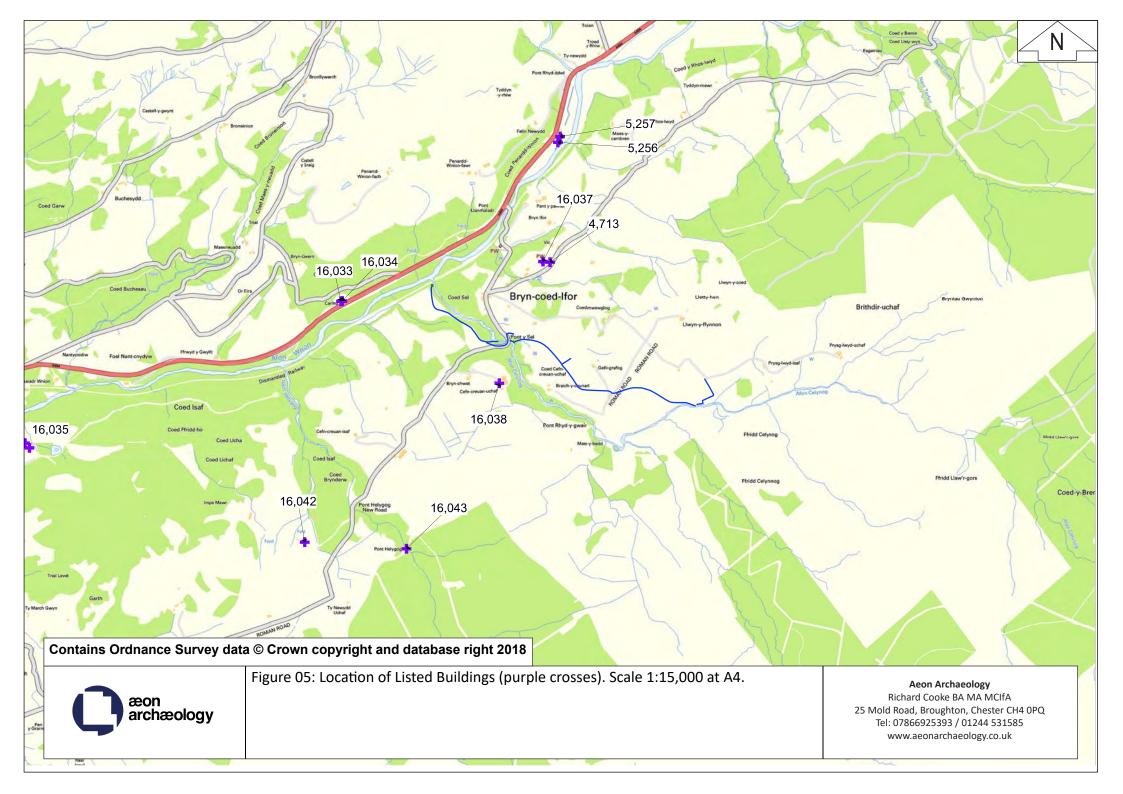
The Lidar coverage of the proposed scheme was examined for sites additional to those found during the desk-top study and field visit within a 50.0m wide assessment corridor centred on the proposed hydro routes. There were however no additional sites observed.

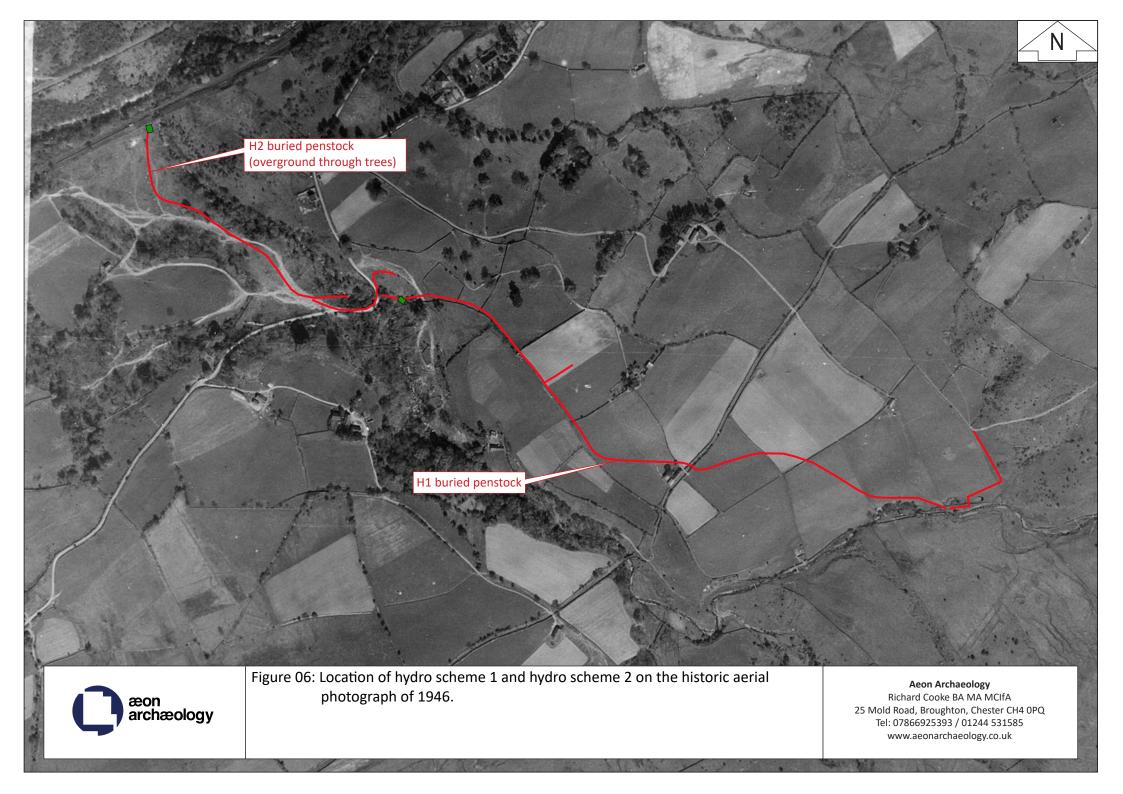
5.2.11 Historic Aerial Photographs

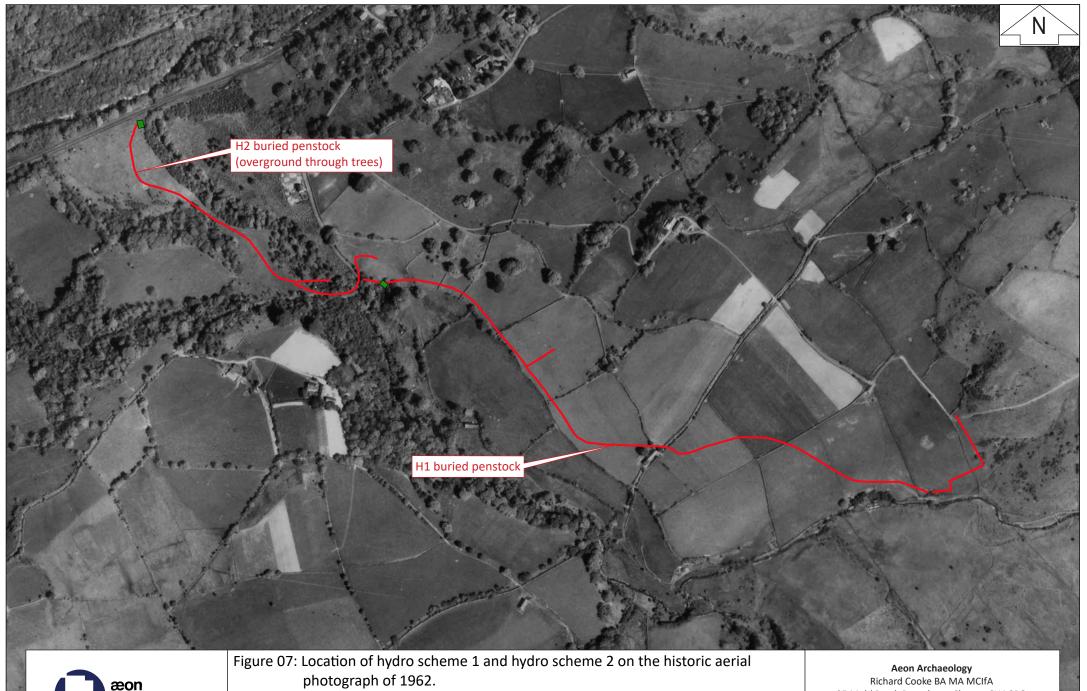
Aerial photographs taken by the Royal Air Force in 1946, 1962, and 1972 (figures 6-8) were obtained from the Aerial Photographs Officer at the Welsh Government and examined for sites additional to those found during the desk-top study and field visit. Although the image quality was good there were no sites found that had not already been identified.



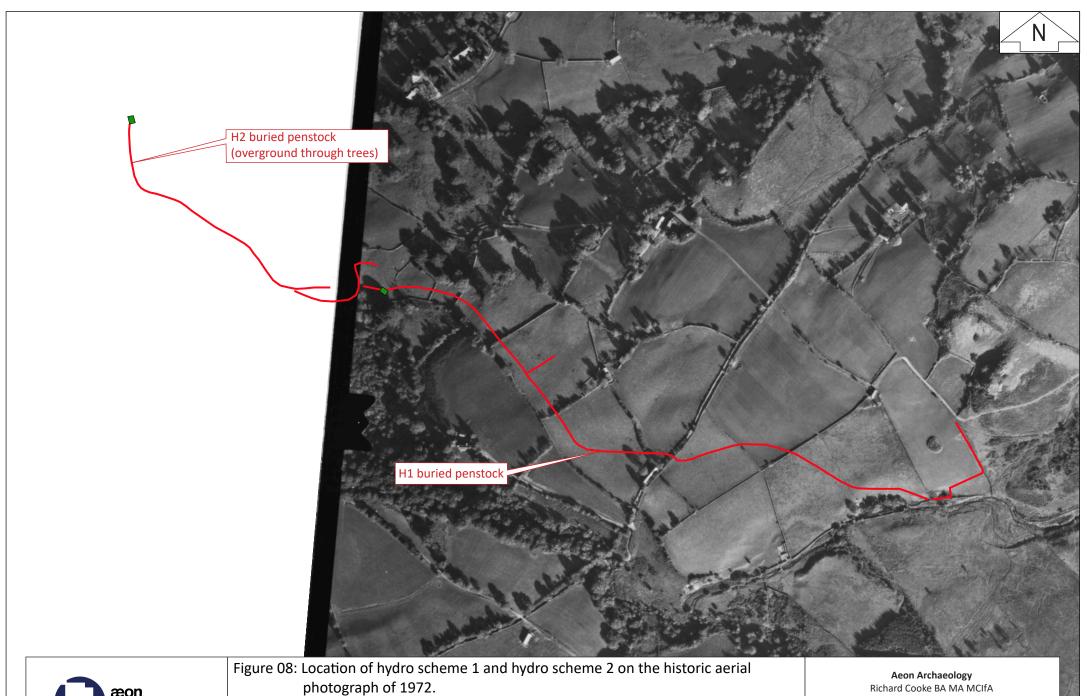














6.0 THE HISTORICAL CONTEXT

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 there 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

Tuble 1. Historie perious			
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 prehistoric period is poorly represented within the localised environment and there is only one known site within 1.0km of the proposed schemes. Approximately 250.0m to the north of hydro 1 a Bronze Age spear head was found within a stone cist at Coed-mwswglog (PRN: 3912), which is now retained in the National Museum Wales, Cardiff.

The landscape around Dolgellau has few identified prehistoric sites but perhaps the most notable of them are the two stone-built hillforts of *Moel Offrwm* Scheduled Ancient Monuments (Me 021; Me 035) located approximately 4.3km to the west.

The Roman period is represented by the route of the Roman Road between Caer Gai – Brithdir (PRN: 17,631) which crosses the proposed route of hydro 1 at approximately NGR SH 79921 20242, to the south of Gelli-grafog. In addition a quern stone of probable Roman date was found approximately 114.0m to the north of hydro 1, near Coed Mwsoglog (PRN: 19,336).

The low-lying topography immediately adjacent to the Afon Celynog would have formed part of the floodplain in antiquity and as such it is likely that where the proposed hydro schemes run close to the river the land would have been waterlogged and not conducive to early habitation.

The proposed penstock route would have been much drier on the higher slopes and as such would have been suitable for early habitation. It is however likely that field clearance would

have removed any upstanding remains of these features, although buried remains could persist at foundation level.

The proximity of the Afon Celynog to the entirety of the two schemes would have made the surrounding landscape ideal for the location of prehistoric burnt mounds, although none are known to exist within the localised environment.

On the balance of evidence the lack of known prehistoric sites and chance finds within 1.0km of both proposed schemes would suggest that the potential for preserved buried remains of the prehistoric period is unknown, but suspected to be low but with an increased potential upon higher ground.

The potential for preserved buried remains of the Roman period is considered to be high in proximity of the Caer Gai – Brithdir Roman road, but otherwise of unknown, but suspected low, potential.

5.2 Early Medieval, Medieval and Post-Medieval Periods

The early medieval period is poorly represented within this part of northwest Wales and there is only one known site within 1.0km of the proposed hydro schemes. This was the chance find of an inscribed stone (PRN: 4,136) found among a pile of walling rubble on top of an 800ft hill at SH 79341985 which bears part of an inscription consisting of the letters *MEDI*... which breaks off at a fracture on the right hand side of the stone. The fragmentary nature of the inscription makes it impossible to decide definitely as to its date or purpose, but the letterforms could be fifth or early sixth century; particularly the classical form of the *M* which resembles those found on a number of stones of this period (Jones, 1958).

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 is only one known medieval site within 1.0km of the proposed hydro schemes and that is recorded on the RCAHMW NMR. This is the site of the medieval Afon Celynog long-hut (NPRN: 527397) located approximately 690.0m west of the intake for hydro 1.

The proposed route of the hydro-electric schemes is first depicted on the map of the Parish of Dolgelley in the County of Merioneth, 1842 (figure 9). The map shows the surrounding area as quite different to how it exists today, with the road and Pont y Sel not having been constructed by this point in time, and the area accessed via the Roman Road. Moreover, the field patterns appear to have altered considerably with the tithe map showing the area dominated by long and thin plots following the contour of the floodplain break of slope. The boundaries shown almost certainly relate to that of the land tenanted by a certain farmstead rather than individual field enclosures. So different is the tithe map to that of the modern landscape that the route of the hydro schemes could only be tentatively plotted and appear to pass through the following plots:

Plot	Landowner	Tenant	Field Name
13	Captain William Griffith	Lewis Evans	Coedmwsyngrog
14	Mr William Pugh	Griffith	Llwynyffinion
		Jones	
16	Hugh Jones Esquire	Mrs Ellen	Gelligravog
		Pugh	
17	Richard Richards Esquire MP	Richard	Braichy cennant
	_	Williams	

18

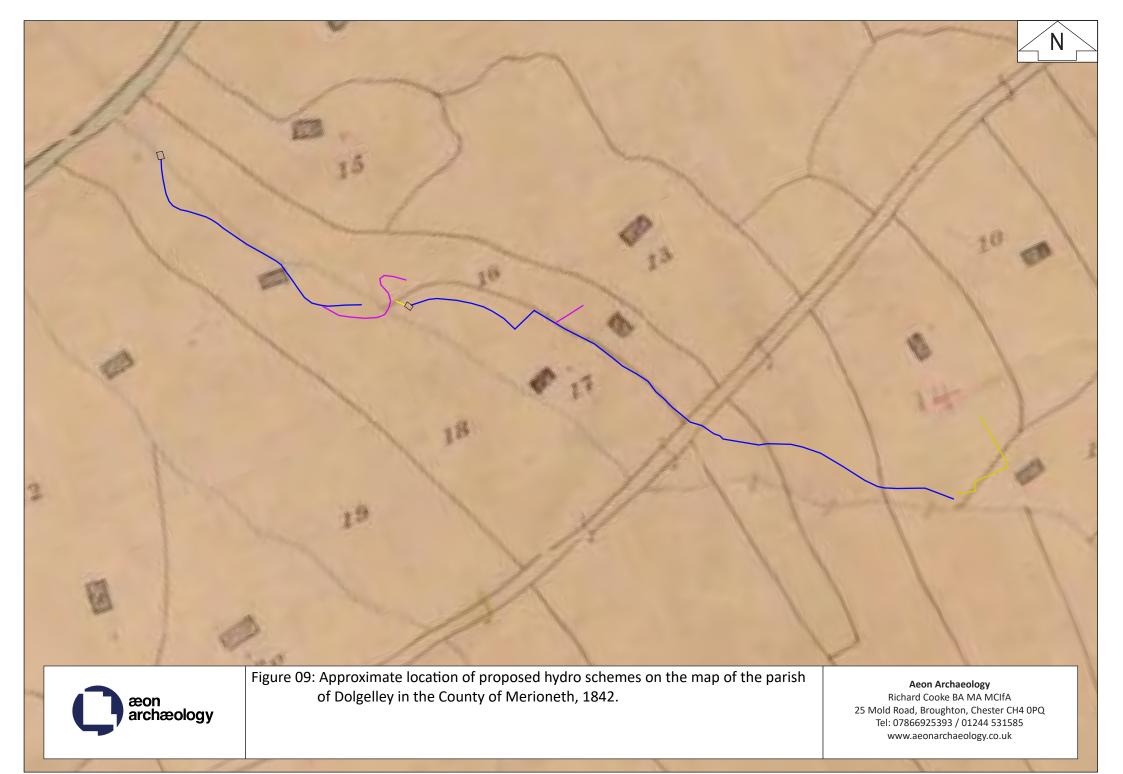
As can be seen from the tithe apportionment the plots were given the name of the farm working the land. Plots 17 and 18 are recorded as having been owned by Richard Richards (22 September 1787 - 27 November 1860) who was the Member of Parliament for the constituency of Merioneth from 1836 to 1852 (Burke, Bernard. 1871).

The buildings depicted on the tithe map are almost certainly the farmsteads that are in existence today, as alluded to by the plot names. Due to the inaccuracy of the tithe map certain structures appear closer to the proposed hydro routes than in actuality.

The site is depicted in detail on the first, second and third edition 6" county series Ordnance Survey maps of 1888, 1901 and 1954 respectively (figures 10-12). All three maps depict the area much as it exists today, with the existing farmsteads all shown as well as the field pattern seen today. By the production of the 1888 map the north-south road from Rhydymain had been constructed, as had Pont y Sel over the Afon Celynog, replacing the Roman Road as the main route from north to south.

On the balance of evidence, considering the lack of known early medieval and medieval sites within 1.0km of the proposed schemes the potential for such sites to be encountered during the works is considered to be low.

There are no known post-medieval sites along the route of the proposed hydro schemes aside from post-medieval field boundaries and trackways. Where possible the schemes will utilise existing gateways through field boundaries however where boundaries are required to be breached mitigatory measures are proposed in section 8.0 below.



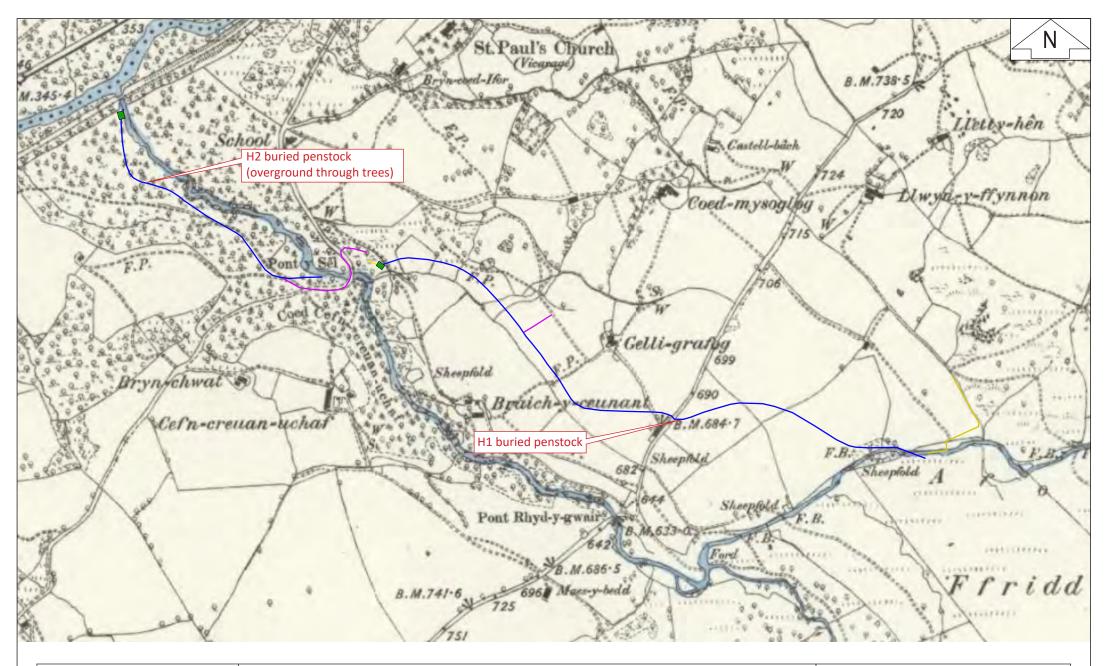
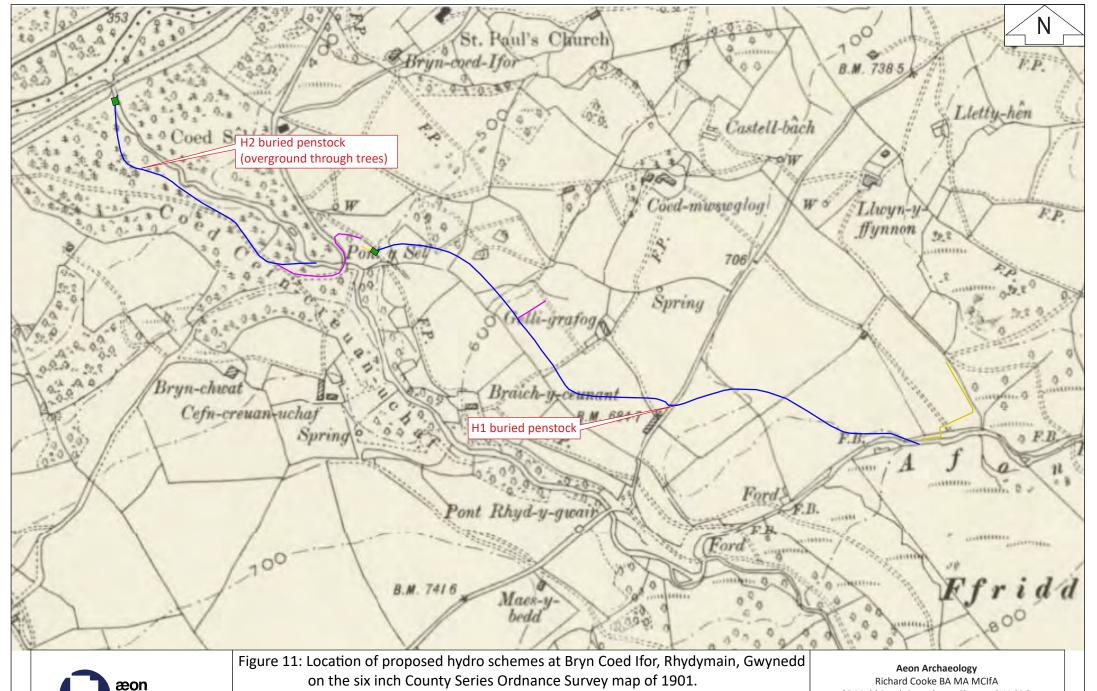




Figure 10: Location of proposed hydro schemes at Bryn Coed Ifor, Rhydymain, Gwynedd on the six inch County Series Ordnance Survey map of 1888.

Aeon Archaeology





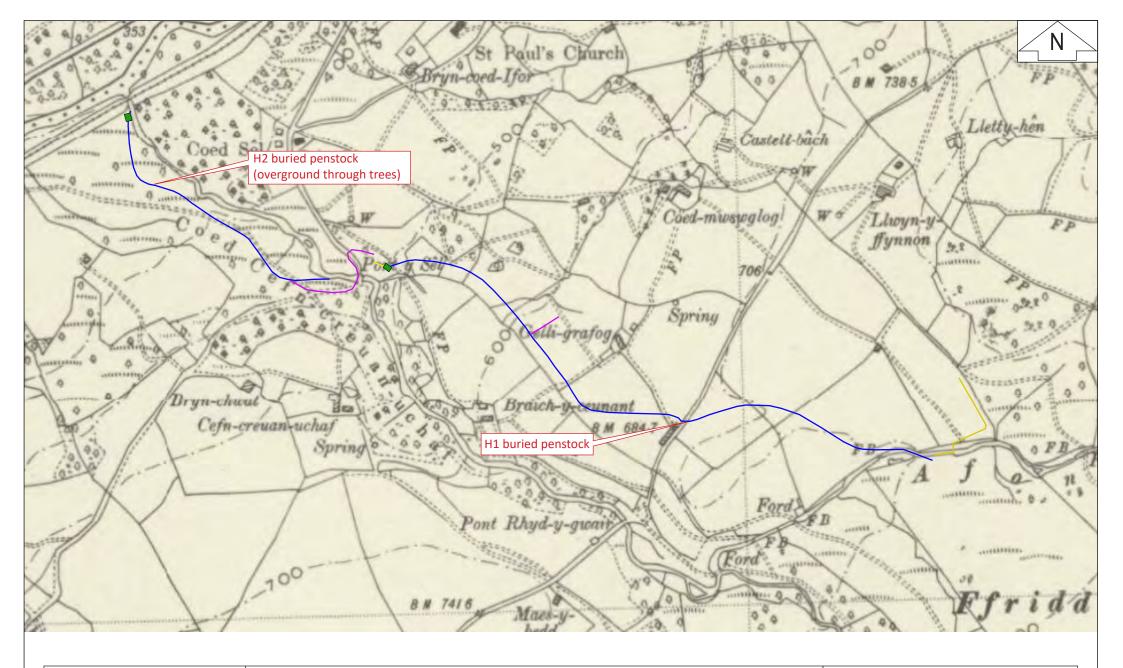




Figure 12: Location of proposed hydro schemes at Bryn Coed Ifor, Rhydymain, Gwynedd on the six inch County Series Ordnance Survey map of 1954.

Aeon Archaeology

7.0 ASSESSMENT 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		
(Tingin)	comparable quality, assessed with reference to the Secretary of State's non-statutory criteria.		
	Listed Buildings.		
	Undesignated structures of national importance.		
Regional/	Conservation Areas		
County	Archaeological sites and remains which, while not of national importance,		
(Medium)	score well against most of the Secretary of State's criteria.		
Local	Archaeological sites that score less well against the Secretary of State's		
(Low)	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	Radical transformation of the setting of
8	archaeological site.	an archaeological monument. A
	Complete destruction of a	fundamental change in the setting of a
	designated building or structure.	building.
Medium Adverse	Removal of a major part of an	Partial transformation of the setting of an
	archaeological site and loss of	archaeological site (e.g. the introduction
	research potential.	of significant noise or vibration levels to
	1	an archaeological monument leading to
	Extensive alteration (but not	changes to amenity use, accessibility or
	demolition) of a historic building or	appreciation of an archaeological site).
	feature, resulting in an appreciable	Partial adverse transformation of the
	adverse change.	setting of a designated building.
Low Adverse	Removal of an archaeological site	Minor change to the setting of an
	where a minor part of its total area	archaeological monument or historic
	is removed but the site retains a	building.
	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.	
Negligible/	No impact from changes in use,	No perceptible change in the setting of a
Neutral	amenity or access.	building or feature.
	No change in the ability to	
	understand and appreciate the	
	resource and its historical context	
	and setting.	
Low Beneficial	Land use change resulting in	Decrease in visual or noise intrusion on
	improved conditions for the	the setting of a building, archaeological
	protection of archaeological	site or monument.
	remains or understanding/	Improvement of the wider landscape
	appreciation of a historic building	setting of a building, archaeological site
	or place	or monument.
Medium	Land use change resulting in	Significant reduction or removal of
Beneficial	improved conditions for the	visual or noise intrusion on the setting of
Belieffeldi	protection of archaeological	a building, archaeological site or
	remains, or understanding/	monument; and
	appreciation of a historic building	Improvement of the wider landscape
	or place, including through	setting of a building, archaeological site
	interpretation measures (heritage	or monument
	trails, etc).	Improvement of the cultural heritage
	Removal of harmful alterations to	amenity, access or use of a building,
	better reveal the significance of a	archaeological site or monument.
	building or structure, with no loss	and the same of monoment.
	of significant fabric.	
High	Arrest of physical damage or decay	Exceptional enhancement of a building
Beneficial	to a building or structure;	or archaeological site, its cultural
	3	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

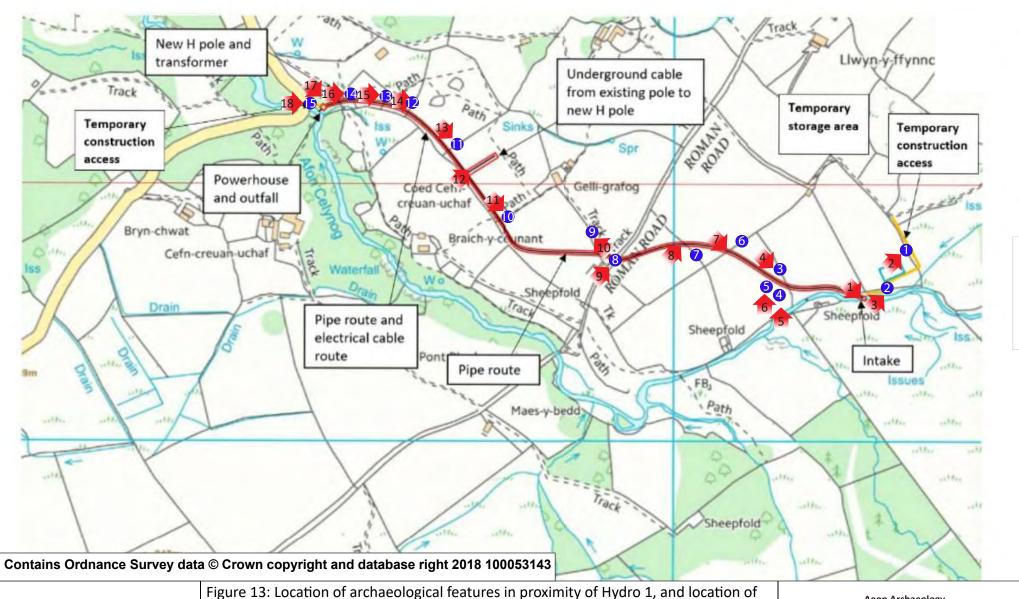
	International	Neutral	Moderate or Large	Large or	Very Large
Archaeological Value		reduur	Moderate of Earge	Very Large	very Large
	National	Neutral	Moderate or Slight	Moderate or Large	Large or Very Large
	Regional	Neutral	Slight	Moderate	Moderate or Large
	Local	Neutral	Neutral or Slight	Slight	Moderate or Slight
Archaeo	Negligible	Neutral	Neutral or Slight	Neutral or Slight	Slight
1	•	None	Low	Medium	High
	Magnitude of impact				

8.0 SITE GAZETTEER – PHYSICAL IMPACTS

The field walkover discovered 21 sites of archaeological and historic interest within the 50.0m wide assessment corridor, as listed below.

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/assessment recommendations are provided. The location of sites and the location and orientation of photographs are shown on figures 13 and 14.







photographic plates. Scale 1:10,000 at A4.

Aeon Archaeology

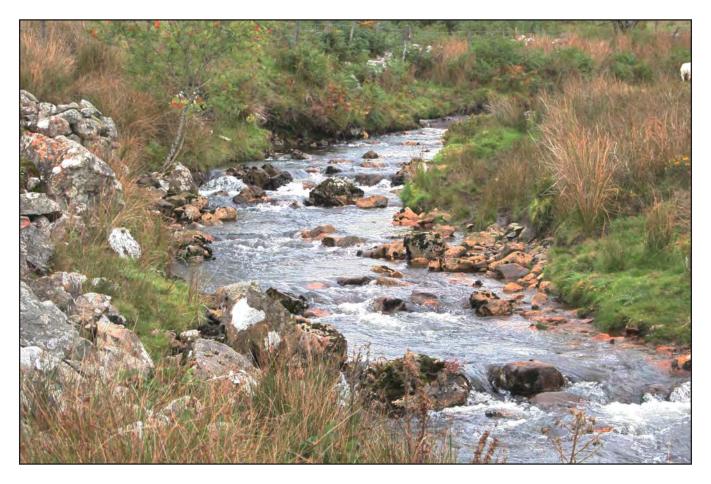


Plate 01: Proposed hydro 1 intake weir location, from the northwest.



8.1 HYDRO SCHEME 1 GAZETTEER

1. Field Boundary Wall	PRN: Unassigned
Figure: 6-13	Plate: 2
NGR: SH 80314 20268	Period: Post-medieval

Description

A field boundary wall measuring approximately 1.1m in height by 0.5m in width runs from southeast to northwest dividing two enclosed fields. The wall is of single-skin dry-stone construction using medium sized sub-rounded and sub-angular cobbles.

The wall appears to be depicted on the Dolgellau tithe map of 1842 (figure 9) and is also shown on the first, second and third edition 6" Ordnance Survey maps of 1888, 1901 and 1954 respectively (figures 10-12).

The boundary wall is likely of post-medieval date and is considered to be of negligible/local importance. The wall will require breaching by the proposed temporary access route resulting in a low adverse direct physical impact during the construction phase and an overall negligible/slight adverse significance of effect. There will be no impact during the completion phase.

As the magnitude of impact and the significance of effect are low there are no recommendations for further assessment or mitigatory measures.

Category of importance: Negligible / Local

Level of impact: Low adverse direct physical (construction phase)

Significance of effect: Neutral / Slight adverse (construction phase)

Recommendations for further assessment: None



Plate 02: Field boundary wall feature 1, from the southwest. Scale 1.0m.



2. Field Boundary Wall	PRN: Unassigned
Figure: 6-13	Plate: 3
NGR: SH 80301 20211	Period: Post-medieval

A field boundary wall measuring approximately 1.1m in height by 0.5m in width runs from east to west dividing the enclosed field in the north from the Afon Celynog. The wall is of single-skin dry-stone construction using medium sized sub-rounded and sub-angular cobbles.

The wall does not appear to be depicted on the Dolgellau tithe map of 1842 (figure 9) although it was likely in existence, but is shown on the first, second and third edition 6" Ordnance Survey maps of 1888, 1901 and 1954 respectively (figures 10-12).

The boundary wall is likely of post-medieval date and is considered to be of negligible/local importance. The wall will require breaching by the proposed scheme resulting in a low adverse direct physical impact during the construction phase and an overall negligible/slight adverse significance of effect. There will be no impact during the completion phase.

As the magnitude of impact and the significance of effect are low there are no recommendations for further assessment or mitigatory measures.

Category of importance: Negligible / Local

Level of impact: Low adverse direct physical (construction phase)

Significance of effect: Neutral / Slight adverse (construction phase)

Recommendations for further assessment: None



Plate 03: Field boundary wall feature 2, from the southwest. Scale 1.0m.



3. Field Boundary Wall	PRN: Unassigned
Figure: 6-13	Plate: 4
NGR: SH 80249 20215	Period: Post-medieval

A field boundary wall measuring approximately 1.2m in height by 0.5m in width runs from southeast to northwest dividing two enclosed fields. The wall is of single-skin dry-stone construction using medium and large sized sub-angular cobbles.

The wall does not appear to be depicted on the Dolgellau tithe map of 1842 (figure 9) although it was likely in existence, but is shown on the first, second and third edition 6" Ordnance Survey maps of 1888, 1901 and 1954 respectively (figures 10-12).

The boundary wall is likely of post-medieval date and is considered to be of negligible/local importance. The wall will require breaching by the proposed scheme resulting in a low adverse direct physical impact during the construction phase and an overall negligible/slight adverse significance of effect. There will be no impact during the completion phase.

As the magnitude of impact and the significance of effect are low there are no recommendations for further assessment or mitigatory measures.

Category of importance: Negligible / Local

Level of impact: Low adverse direct physical (construction phase)

Significance of effect: Neutral / Slight adverse (construction phase)

Recommendations for further assessment: None



Plate 04: Field boundary wall feature 3, from the northwest. Scale 1.0m.



4. Field Clearance Cairn	PRN: Unassigned
Figure: 13	Plate: 5
NGR: SH 80216 20244	Period: Post-medieval

An assortment of medium sized angular boulders and medium sized sub-rounded cobbles forms a mound at this location measuring approximately 2.0m in length by 1.5m in width by 0.6m in height.

The feature is not shown on any of the historic maps but is almost certainly a post-medieval field clearance cairn around a glacial erratic boulder.

The proposed scheme will pass to the north of this feature and as such it will not be impacted upon by the works.

Category of importance: Negligible / Local

Level of impact: None

Significance of effect: Neutral

Recommendations for further assessment: None



Plate 05: Field clearance cairn feature 4, from the south. Scale 1.0m.



5. Field Clearance Cairn	PRN: Unassigned
Figure: 13	Plate: 6
NGR: SH 80213 20249	Period: Post-medieval

An assortment of medium sized sub-rounded cobbles forms a mound at this location measuring approximately 2.5m in length by 2.0m in width by 0.5m in height.

The feature is not shown on any of the historic maps but is almost certainly a post-medieval field clearance cairn.

The proposed scheme will pass to the north of this feature and as such it will not be impacted upon by the works.

Category of importance: Negligible / Local

Level of impact: None

Significance of effect: Neutral

Recommendations for further assessment: None



Plate 06: Field clearance cairn feature 5, from the south. Scale 1.0m.



6. Field Boundary Wall	PRN: Unassigned
Figure: 6-13	Plate: 7
NGR: SH 80113 20285	Period: Post-medieval

A field boundary wall measuring approximately 1.2m in height by 0.5m in width runs from northeast to southwest dividing two enclosed fields. The wall is of single-skin dry-stone construction using medium and large sized sub-angular and angular cobbles.

The wall does not appear to be depicted on the Dolgellau tithe map of 1842 (figure 9) although it was likely in existence, but is shown on the first, second and third edition 6" Ordnance Survey maps of 1888, 1901 and 1954 respectively (figures 10-12).

The boundary wall is likely of post-medieval date and is considered to be of negligible/local importance. The existing gate will be utilised for the penstock route however some widening of the gateway may result in breaching by the proposed scheme, resulting in a low adverse direct physical impact during the construction phase and an overall negligible/slight adverse significance of effect. There will be no impact during the completion phase.

As the magnitude of impact and the significance of effect are low there are no recommendations for further assessment or mitigatory measures.

Category of importance: Negligible / Local

Level of impact: Low adverse direct physical (construction phase)

Significance of effect: Neutral / Slight adverse (construction phase)

Recommendations for further assessment: None



Plate 07: Field boundary wall feature 6, from the northwest. Scale 1.0m.



7. Field Boundary Wall	PRN: Unassigned
Figure: 6-13	Plate: 8
NGR: SH 80019 20261	Period: Post-medieval

A field boundary wall measuring approximately 1.4m in height by 0.5m in width runs from southeast to northwest dividing two enclosed fields. The wall is of single-skin dry-stone construction using medium sized sub-rounded cobbles.

The wall appears to be depicted on the Dolgellau tithe map of 1842 (figure 9) and is also shown on the first, second and third edition 6" Ordnance Survey maps of 1888, 1901 and 1954 respectively (figures 10-12).

The boundary wall is likely of post-medieval date and is considered to be of negligible/local importance. The wall will require breaching by the proposed scheme resulting in a low adverse direct physical impact during the construction phase and an overall negligible/slight adverse significance of effect. There will be no impact during the completion phase.

As the magnitude of impact and the significance of effect are low there are no recommendations for further assessment or mitigatory measures.

Category of importance: Negligible / Local

Level of impact: Low adverse direct physical (construction phase)

Significance of effect: Neutral / Slight adverse (construction phase)

Recommendations for further assessment: None



Plate 08: Field boundary wall feature 7, from the southwest. Scale 1.0m.



8. Roman Road from Caer Gai to	PRN: 17631
Brithdir	
Figure: 6-13	Plate: 9
NGR: SH 79911 20235	Period: Roman

The route of the Roman Road between Caer Gai and Brithdir runs from northeast to southwest across the assessment area and the route of the proposed penstock. The existing trackway following the route of the Roman Road measures approximately 5.0m in width and is of a metalled surface.

The condition of the Roman Road at this point is unknown and preserved remains could persist beneath the existing trackway.

The proposed hydro penstock will be directional drilled beneath the Roman Road to avoid any disturbance. As the limits of the Roman Road could exceed the limits of the existing trackway it is recommended that a watching brief be maintained during the excavation of launch and reception pits so that if any remains are identified they can be recorded in-situ.

Category of importance: Regional

Level of impact: None

Significance of effect: Neutral

Recommendations for further assessment: None

Recommendations for further mitigatory measures: Watching brief during excavation of directional drill launch and reception pits



Plate 09: Roman Road from Caer Gai to Brithdir feature 8, from the southwest. Scale 1.0m.



9. Trackway	PRN: Unassigned
Figure: 6-13	Plate: 10
NGR: SH 79910 20233	Period: Post-medieval

A trackway measuring approximately 2.0m in width connects the farm of Gelli-grafog in the northwest with the fields in the southeast. The feature exists mostly as an area of sparse grass with some underlying loose stone.

The track is not depicted on the Dolgellau tithe map of 1842 (figure 9), however the farm was in existence at this time so it is likely that the trackway was also. It is however shown on the first, second and third edition 6" Ordnance Survey maps of 1888, 1901 and 1954 respectively (figures 10-12).

The trackway is likely of post-medieval date and is considered to be of negligible/local importance. The track will require breaching by the proposed scheme resulting in a low adverse direct physical impact during the construction phase and an overall negligible/slight adverse significance of effect. There will be no impact during the completion phase.

As the magnitude of impact and the significance of effect are low there are no recommendations for further assessment or mitigatory measures.

Category of importance: Negligible / Local

Level of impact: Low adverse direct physical (construction phase)

Significance of effect: Neutral / Slight adverse (construction phase)

Recommendations for further assessment: None



Plate 10: Trackway feature 9, from the southeast. Scale 1.0m.



10. Former Field Boundary	PRN: Unassigned
Figure: 6-13	Plate: 11
NGR: SH 79761 20301	Period: Post-medieval

A former field boundary runs from northeast to southwest dividing two enclosed fields. The boundary is demarcated by a line of mature trees but there was no evidence of stone walling.

The boundary does not appear to be depicted on the Dolgellau tithe map of 1842 (figure 9) but is shown on the first, second and third edition 6" Ordnance Survey maps of 1888, 1901 and 1954 respectively (figures 10-12).

The boundary is likely of post-medieval date and is considered to be of negligible/local importance. The boundary will require breaching by the proposed scheme resulting in a low adverse direct physical impact during the construction phase and an overall negligible/slight adverse significance of effect. There will be no impact during the completion phase.

As the magnitude of impact and the significance of effect are low there are no recommendations for further assessment or mitigatory measures.

Category of importance: Negligible / Local

Level of impact: Low adverse direct physical (construction phase)

Significance of effect: Neutral / Slight adverse (construction phase)

Recommendations for further assessment: None



Plate 11: Former field boundary feature 10, from the northwest. Scale 1.0m.





Plate 12: Proposed hydro 1 cable route, from the southwest. Scale 1.0m.



11. Field Boundary Wall	PRN: Unassigned
Figure: 6-13	Plate: 13
NGR: SH 79697 20387	Period: Post-medieval

A field boundary wall measuring approximately 1.3m in height by 0.5m in width runs from southwest to northeast dividing two enclosed fields. The wall is of single-skin dry-stone construction using medium and large sized sub-angular cobbles.

The wall does not appear to be depicted on the Dolgellau tithe map of 1842 (figure 9) but was likely in existence at the time, it is however shown on the first, second and third edition 6" Ordnance Survey maps of 1888, 1901 and 1954 respectively (figures 10-12).

The boundary wall is likely of post-medieval date and is considered to be of negligible/local importance. The wall will require breaching by the proposed scheme resulting in a low adverse direct physical impact during the construction phase and an overall negligible/slight adverse significance of effect. There will be no impact during the completion phase.

As the magnitude of impact and the significance of effect are low there are no recommendations for further assessment or mitigatory measures.

Category of importance: Negligible / Local

Level of impact: Low adverse direct physical (construction phase)

Significance of effect: Neutral / Slight adverse (construction phase)

Recommendations for further assessment: None



Plate 13: Field boundary wall feature 11, from the northwest. Scale 1.0m.



12. Field Boundary Wall	PRN: Unassigned
Figure: 6-13	Plate: 14
NGR: SH 79639 20436	Period: Post-medieval

A field boundary wall measuring approximately 1.5m in height by 0.5m in width runs from southwest to northeast dividing two enclosed fields. The wall is of single-skin dry-stone construction using medium and large sized sub-angular cobbles.

The wall does not appear to be depicted on the Dolgellau tithe map of 1842 (figure 9) but was likely in existence at the time, it is however shown on the first, second and third edition 6" Ordnance Survey maps of 1888, 1901 and 1954 respectively (figures 10-12).

The boundary wall is likely of post-medieval date and is considered to be of negligible/local importance. The wall will require breaching by the proposed scheme resulting in a low adverse direct physical impact during the construction phase and an overall negligible/slight adverse significance of effect. There will be no impact during the completion phase.

As the magnitude of impact and the significance of effect are low there are no recommendations for further assessment or mitigatory measures.

Category of importance: Negligible / Local

Level of impact: Low adverse direct physical (construction phase)

Significance of effect: Neutral / Slight adverse (construction phase)

Recommendations for further assessment: None



Plate 14: Field boundary wall feature 12, from the west. Scale 1.0m.



13. Field Boundary Wall	PRN: Unassigned
Figure: 6-13	Plate: 15
NGR: SH 79608 20457	Period: Post-medieval

A field boundary wall measuring approximately 1.2m in height by 0.5m in width runs from southwest to northeast and forms the eastern side of a pentagonal paddock. The wall is of single-skin dry-stone construction using medium sized sub-rounded cobbles.

The wall does not appear to be depicted on the Dolgellau tithe map of 1842 (figure 9) but was likely in existence at the time, it is however shown on the first, second and third edition 6" Ordnance Survey maps of 1888, 1901 and 1954 respectively (figures 10-12).

The boundary wall is likely of post-medieval date and is considered to be of negligible/local importance. The wall will require breaching by the proposed scheme resulting in a low adverse direct physical impact during the construction phase and an overall negligible/slight adverse significance of effect. There will be no impact during the completion phase.

As the magnitude of impact and the significance of effect are low there are no recommendations for further assessment or mitigatory measures.

Category of importance: Negligible / Local

Level of impact: Low adverse direct physical (construction phase)

Significance of effect: Neutral / Slight adverse (construction phase)

Recommendations for further assessment: None



Plate 15: Field boundary wall feature 13, from the west. Scale 1.0m.



14. Field Boundary Wall	PRN: Unassigned
Figure: 6-13	Plate: 16
NGR: SH 79608 20457	Period: Post-medieval

A field boundary wall measuring approximately 1.2m in height by 0.5m in width runs from southwest to northeast and forms the western side of a pentagonal paddock. The wall is of single-skin dry-stone construction using medium sized sub-rounded cobbles.

The wall does not appear to be depicted on the Dolgellau tithe map of 1842 (figure 9) but was likely in existence at the time, it is however shown on the first, second and third edition 6" Ordnance Survey maps of 1888, 1901 and 1954 respectively (figures 10-12).

The boundary wall is likely of post-medieval date and is considered to be of negligible/local importance. The wall will require breaching by the proposed scheme resulting in a low adverse direct physical impact during the construction phase and an overall negligible/slight adverse significance of effect. There will be no impact during the completion phase.

As the magnitude of impact and the significance of effect are low there are no recommendations for further assessment or mitigatory measures.

Category of importance: Negligible / Local

Level of impact: Low adverse direct physical (construction phase)

Significance of effect: Neutral / Slight adverse (construction phase)

Recommendations for further assessment: None



Plate 16: Field boundary wall feature 14, from the west. Scale 1.0m.





Plate 17: Proposed turbine house location, from the northwest. Scale 1.0m.



15. Field Boundary Wall	PRN: Unassigned
Figure: 6-13	Plate: 18
NGR: SH 79608 20457	Period: Post-medieval

A field boundary revetment wall measuring approximately 1.0m in height by 0.5m in width runs from south to north demarcating the eastern side of the road. The wall is of single-skin dry-stone construction using medium sized sub-rounded cobbles.

The wall does not appear to be depicted on the Dolgellau tithe map of 1842 (figure 9) as the road had not been constructed by this point in time. It is however shown on the first, second and third edition 6" Ordnance Survey maps of 1888, 1901 and 1954 respectively (figures 10-12).

The boundary wall is likely of post-medieval date and is considered to be of negligible/local importance. The wall will require breaching by the proposed temporary access route resulting in a low adverse direct physical impact during the construction phase and an overall negligible/slight adverse significance of effect. There will be no impact during the completion phase.

As the magnitude of impact and the significance of effect are low there are no recommendations for further assessment or mitigatory measures.

Category of importance: Negligible / Local

Level of impact: Low adverse direct physical (construction phase)

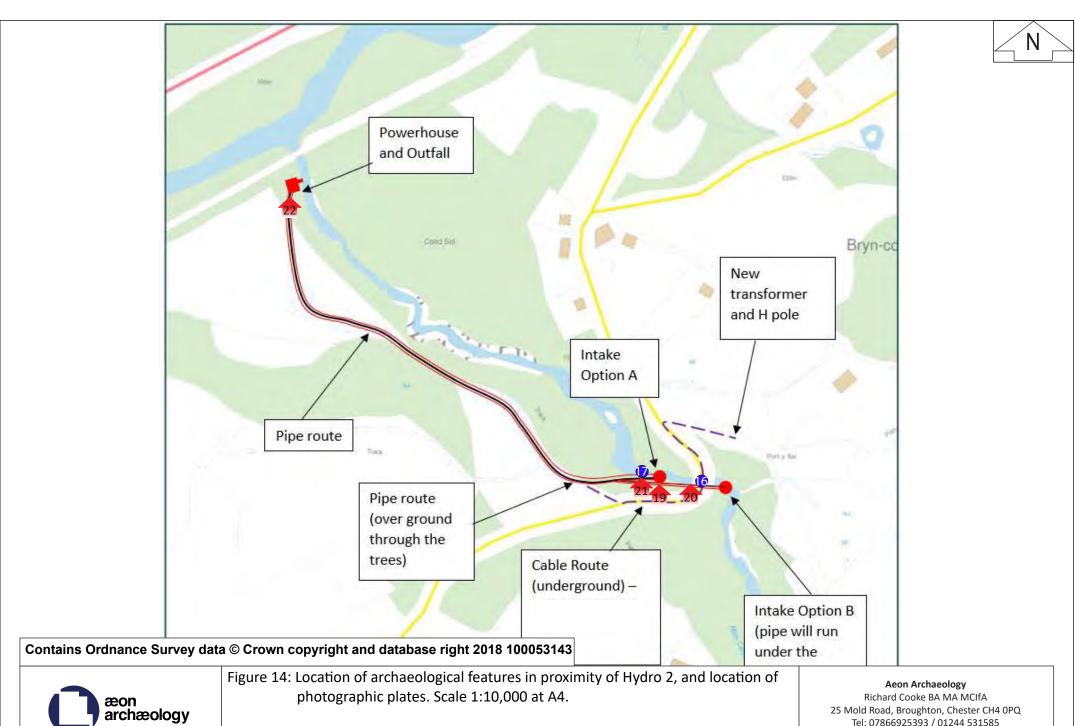
Significance of effect: Neutral / Slight adverse (construction phase)

Recommendations for further assessment: None



Plate 18: Field boundary wall feature 15, from the west. Scale 1.0m.







Tel: 07866925393 / 01244 531585 www.aeonarchaeology.co.uk



Plate 19: Hydro 2 intake location, from the south.



8.2 HYDRO SCHEME 2 GAZETTEER

16. Pont y Sel	PRN: Unassigned
Figure: 6-13	Plate: 20
NGR: SH 79501 20446	Period: Post-medieval

Description

The stone-built, single arched Pont y Sel crosses the Afon Celynog at this point. The bridge and the unnamed road it carries are not shown on the Dolgellau tithe map of 1842 (figure 9) as the road had not been constructed by this point in time. It is however shown on the first, second and third edition 6" Ordnance Survey maps of 1888, 1901 and 1954 respectively (figures 10-12), showing that the bridge had been built between 1842 and 1888.

The bridge will not be impacted upon by the proposed scheme and as such no further assessment or mitigatory measures are proposed.

Category of importance: Local

Level of impact: None

Significance of effect: Neutral

Recommendations for further assessment: None



Plate 20: Pont y Sel feature 16, from the south.



17. Weir	PRN: Unassigned
Figure: 6-13	Plate: 21
NGR: SH 79455 20452	Period: Post-medieval

Description

The stone-built weir and overflow leat on the northern bank is located at this point on the Afon Celynog. The weir is not shown on the Dolgellau tithe map of 1842 (figure 9) or on the first, second and third edition 6" Ordnance Survey maps of 1888, 1901 and 1954 respectively (figures 10-12), however its date of construction is likely to have occurred around the time of construction of Pont y Sel for reasons of access. The weir does not appear to be associated with a mill and is likely part of a salmon trap.

The weir will not be impacted upon by the proposed scheme and as such no further assessment or mitigatory measures are proposed.

Category of importance: Local

Level of impact: None

Significance of effect: Neutral

Recommendations for further assessment: None

Recommendations for further mitigatory measures: None



Plate 21: Weir feature 17, from the south.





Plate 22: Hydro 2 turbine house location, from the south.



	Table 2: Summary of archaeological features. GREEN = no action required; RED = Action required					ired; RED= Action required
Nu mb er	Name	Importance	Impact	Significance of effect	Further Assessme nt	Mitigation Recommendations
	SICAL DIRECT AND INDIRECT	CT IMPACTS			·	
1	RO SCHEME 1 GAZETTEER Field boundary wall	Negligible / local	Low adverse direct physical (construction phase)	Neutral / slight adverse (construction phase)	None	None
2	Field boundary wall	Negligible / local	Low adverse direct physical (construction phase)	Neutral / slight adverse (construction phase)	None	None
3	Field boundary wall	Negligible / local	Low adverse direct physical (construction phase)	Neutral / slight adverse (construction phase)	None	None
4	Field clearance cairn	Negligible / local	None	Neutral	None	None
5	Field clearance cairn	Negligible / local	None	Neutral	None	None
6	Field boundary wall	Negligible / local	Low adverse direct physical (construction phase)	Neutral / slight adverse (construction phase)	None	None
7	Field boundary wall	Negligible / local	Low adverse direct physical (construction phase)	Neutral / slight adverse (construction phase)	None	None
8	Roman Road from Caer Gai to Brithdir	Regional	None	Neutral	None	Watching brief during excavation of directional drill launch and reception pits
9	Trackway	Negligible / local	Low adverse direct physical (construction phase)	Neutral / slight adverse (construction phase)	None	None
10	Field boundary wall	Negligible / local	Low adverse direct physical (construction phase)	Neutral / slight adverse (construction phase)	None	None
11	Field boundary wall	Negligible / local	Low adverse direct physical (construction phase)	Neutral / slight adverse (construction phase)	None	None

12	Field boundary wall	Negligible /	Low adverse direct physical	Neutral / slight adverse	None	None
		local	(construction phase)	(construction phase)		
13	Field boundary wall	Negligible /	Low adverse direct physical	Neutral / slight adverse	None	None
		local	(construction phase)	(construction phase)		
14	Field boundary wall	Negligible /	Low adverse direct physical	Neutral / slight adverse	None	None
		local	(construction phase)	(construction phase)		
15	Field boundary wall	Negligible /	Low adverse direct physical	Neutral / slight adverse	None	None
		local	(construction phase)	(construction phase)		
HYD	RO SCHEME 2 GAZETTEER					
16	Pont y Sel	Local	None	Neutral	None	None
17	Weir	Local	None	Neutral	None	None

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 twelve sites of archaeological importance (features 1-3, 6-7, 9-15) during the construction phase. All of the features are post-medieval field boundaries and are considered to be of *negligible / local* importance thus resulting in a *neutral or 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

The proposed scheme will directly and adversely impact upon twelve archaeological features, all of which are post-medieval field boundaries. These features are all considered to be of negligible/local importance and due to the low level of direct adverse physical impact combined with impact being confined to the construction phase, the overall significance of effect is neutral / slight. As such no further assessment or mitigatory measures are proposed for these features.

The proposed scheme will also need to cross the regionally important route of the Roman Road between Caer Gai and Brithdir (feature 8). The Client has confirmed that this crossing can be done via directional drill in order to avoid any damage to the road, however as the line of the road could deviate from that of the course and dimensions of the existing trackway it is recommended that a watching brief be maintained during the excavation of launch and reception pits for the directional drill to avoid any accidental damage to the road.

9.4 General recommendations

The archaeological assessment did not identify any sites considered to be above local importance within the 50.0m wide assessment corridor with the exception of the route of the Roman Road between Caer Gai and Brithdir. Moreover, the majority of the archaeological features recorded within the localised landscape on the regional Historic Environment Record and National Monuments Record are agricultural features of post-medieval date.

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 archaeological potential for buried preserved remains of all periods is suspected to be low across the entirety of both proposed schemes. This affirmation is based partly on the lack of known sites within close proximity of the proposed schemes as well as the very low anticipated level of ground disturbance associated with the works

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 two new micro hydro schemes at Bryn Coed Ifor, Rhydymain. 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 1954

OS 1:10 000 Series sheet SH 72NE, SH 72SE, SH 72SW, and SH 72NW.

Sources

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

Burke, Bernard. 1871. A Genealogical and Heraldic History of the Landed Gentry of Great Britain & Ireland

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)

English Heritage, 2011. The Settings of Heritage Assets

Gwynedd Archaeological Trust (unpublished report) Hopewell, D. 2004. Roman Roads in North-West Wales. Part 1: Text, Report No. 526

Gwynedd Archaeological Trust (unpublished report) Hopewell, D. 2005. Roman Roads in North West Wales Parts I and II, GAT Report No. 572.

Gwynedd Archaeological Trust (unpublished report) Hopewell, D. 2007. Roman Roads in North-West Wales (Revision 4) - Part 1: Text, Report No. 668

Gwynedd Archaeological Trust (unpublished report) Kenney, J. 2014. *Medieval and Post-Medieval Agricultural Features in North-West Wales. Report on Scheduling Enhancement Study. Part 1: Report and Gazetteer.*, Report No. 1162

Gwynedd Archaeological Trust (unpublished report) Hopewell, D. 2014. Roman Sites and Lidar. Part I: Survey and Excavation., GAT Report 1172

Gwynedd Historic Environment Record (HER)

Jones, G.D.B. 1958. Bulletin of the Board of Celtic Studies

NMR Site Record Cards

The Chartered Institute for Archaeologists, 2014. Standard and Guidance for Archaeological Desk-Based Assessment

APPENDIX I: 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
3912	Bronze Spearhead, Findspot, Coed Mwsyglog			
				Early
4136	Inscribed Stone, Brithdir and Llanfachreth	Inscribed stone	Religious, Ritual and Funerary	medieval
4138	Pont Helygog Bridge, Brithdir			
6357	Felin Newydd Mill, Bryn Coed Ifor			
9418	St Paul's Church Barn, Brithdir and Llanfachreth	Barn	Agriculture and Subsistence	Unknown
9419	Bryniau Gwynion Animal Pen, Brithdir and Llanfachreth			
				Post-
12359	Farmhouse, Felin Newydd	Farmhouse	Domestic	medieval
17628	Part of Roman Road, Caer Gai - Brithdir			
17629	Part of Roman Road, Caer Gai - Brithdir			
17630	Part of Roman Road, Caer Gai - Brithdir			
17631	Part of Roman Road, Caer Gai - Brithdir			
17632	Part of Roman Road, Caer Gai - Brithdir			
				Post
19328	Beudy, Bryn Coed Ifor	Field barn	Agriculture and Subsistence	medieval
				Post
19329	Cow shed, Coed Mwsoglog	Cow house	Agriculture and Subsistence	medieval
				Post
19330	Hay Barn, Coed Mwsoglog	Hay barn	Agriculture and Subsistence	medieval
				Post
19331	Pigsties, Coed Mwsoglog	Pigsty	Agriculture and Subsistence	medieval
				Post
19332	Castell Bach, Brithdir and Llanfachreth	Dwelling	Domestic	medieval
				Post
19333	Well, Coed Mwsoglog	Well	Water Supply and Drainage	medieval
19334	Beudy, Llwyn-y-ffynnon	Field barn	Agriculture and Subsistence	Post

				medieval
				Post
19335	Beudy, Coed Mwsoglog	Field barn	Agriculture and Subsistence	medieval
19336	Findspot, Coed Mwsoglog	Findspot	Unassigned	Roman
				Post
19337	Sheepfold, Afon Celynog	Sheepfold	Agriculture and Subsistence	medieval
				Post
19338	Footbridge, Afon Celynog	Footbridge	Transport	medieval
				Post
19339	Sheepfold, Ffridd Celynog	Sheepfold	Agriculture and Subsistence	medieval
				Post-
21076	Lead/gold Level, Rhos Lwyd	Level	Industrial	medieval
27352	Building II, North East of, Ffrwyd y Gwyllt	Building	Unassigned	Unknown
				Post
27353	Sheepfold, NE of Ffrwyd Y Gwyllt	Sheepfold	Agriculture and Subsistence	medieval
32503	Building SW of Coed-y-rhos-lwyd	Building	Agriculture and Subsistence	Unknown
32504	Bron-dutir, Brithdir and Llanfachreth	Building	Agriculture and Subsistence	Unknown
32505	Bryn-pannel, Brithdir and Llanfachreth	Building	Agriculture and Subsistence	Unknown
				Post
36912	Mill, Llwyn y Ffynnon, Brithdir and Llanfachreth	Mill	Industrial	medieval
				Post
36913	Sluice, E Pant y Pannel, Brithdir and Llanfachreth	Sluice	Water Supply and Drainage	medieval
				Post
36942	Sluice, Pant y Pannel, Brithdir and Llanfachreth	Sluice	Water Supply and Drainage	medieval
				Post-
57784	Sheep Folds, E of Bryn-Gwern	Sheep fold	Agriculture and Subsistence	medieval
				Post-
57785	Enclosure, SW of Penarrd-Wnion-fawr	Enclosure	Unassigned	medieval
				Post-
57786	Structure, SW of Felin Newydd	Structure	Unassigned	medieval
				Post-
57787	Enclosure Complex, NE of Penarrd-Wnion-fawr	Enclosure complex	Unassigned	medieval

				Post-
57793	Enclosures, Nof Cefn-creuan-isaf	Enclosure	Unassigned	medieval
				Post-
57794	Building, NW of Bryn-chwat	Building	Unassigned	medieval
				Post-
57795	Pentagonal Enclosure, NW of Braich-y-ceunant	Enclosure	Unassigned	medieval
	Farmhouse and Enclosures, Tynewydd Isaf (Brithgwm), SE of			Post-
58101	Pont Helygog	Farmhouse	Domestic	medieval
				Post-
58102	Field Barn, E of Tynewydd Isaf (Brithgwm)	Field barn	Agriculture and Subsistence	medieval
				Post
70308	Siloh Chapel, Bryn-Coed-Ifor	Chapel	Religious, Ritual and Funerary	medieval

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

NPRN	Name	Broadclass	Type	Period
		Religious ritual and		
8341	Siloh chapel (calvinistic methodist), bryn-coed-ifor	funerary	Chapel	Post Medieval
24185	Pont helygog	Transport	Bridge	Post Medieval
24188	Pont llanrhaiadr	Transport	Bridge	Post Medieval
28386	Felin newydd farmhouse, rhydymain	Domestic	Farmhouse	Post Medieval
28838	Tynewydd isaf	Domestic	Farmhouse	Post Medieval
40003	New mills, dolgellau	Agriculture and subsistence	Corn mill	19th Century, Post Mediev
41344	Winion halt	Transport	Railway halt	Post Medieval
41745	Tynewydd isaf - field barn	Agriculture and subsistence	Field barn	Post Medieval
		Religious ritual and		
43895	Lych gate, st paul's church, bryn-coed-ifor	funerary	Lych gate	Post Medieval
96653	Bryn-coed-ifor school	Civil	School	Post Medieval
417321	St paul's church, bryn-coed-ifor	Religious ritual and funerary	Church	Modern, Post Medieval
421360	Penawr wnion fach	Domestic	House	Post Medieval
421440	Felin newydd toll house, rhydymain	Domestic, transport	Toll house	Post Medieval
527395	Ffridd llawr gors, trial mine	Industrial	Trial mine	Post Medieval
527396	Afon celynog, sheep fold i	Agriculture and subsistence	Sheep fold	Post Medieval
527397	Afon celynog, long hut	Domestic	Long hut	Medieval
527398	Afon celynog, sheep fold ii	Agriculture and subsistence	Sheep fold	Post Medieval

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

Number	Name	Grade
4713	Lychgate at St Paul's Chruch	II*
5256	Felin Newydd	II
5257	Former Farmhouse at Felin Newydd	II
16033	Carleg	II
16034	Carleg	II
16037	St Paul's Church	II
16038	Former Farmhouse at Cefn-Creuan-Uchaf	II
16043	Pont Helygog	II

