



aeon archaeology

**Proposed Hydro-Electric Scheme,
Afon Cwm Hafod Oer, Gwerngraig,
Dolgellau, Meirionnydd.
March 2018
V 1.0**



Archaeological Assessment
Project Code: A0156.1
Report no. 0162



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Archaeological Assessment

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Project Code: A0156.1
Date: 29/03/2018
Client: Richard Price
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1.0 NON-TECHNICAL SUMMARY

Aeon Archaeology was commissioned by Mr Richard Price (landowner) to carry out an archaeological assessment and field visit of a proposed 29kw hydro-electric scheme with turbine house, buried penstock (pipeline), and electrical cable connection. The proposed scheme intake is to be located on the northern bank of the confluence of the Afon Cwm Hafod Oer and an unnamed stream, both tributaries of the Afon Clywedog which is itself a tributary of the Afon Wnion. The scheme lies approximately 4.1km southeast of Dolgellau, within the historical county of Meirionnydd and on land within the ownership of the farm of Gwerngraig. The proposed scheme also lies entirely within the Snowdonia National Park Authority (SNPA).

The archaeological assessment identified seven archaeological sites within the 50.0m wide assessment corridor centred on the penstock and cable route. The proposed scheme will directly and adversely impact upon all seven archaeological features, three field boundary walls (features 1, 4 and 7), two relict field boundaries (features 2 and 6), a trackway (feature 3), and a hedgerow field boundary (feature 5).

Features 1, 3-5, and 7 are 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.

Features 2 and 6 are considered to be of local importance and the proposed scheme is expected to have a slight adverse significance of effect during the construction phase. As such, and due to the postulated medieval origin of both features, it has been recommended that an archaeological watching brief be maintained during the breaching of both relict boundary walls. This will provide the opportunity to record the boundaries in cross-section as well as for the recovery of archaeological artefacts that may help date the features.

The archaeological potential for buried preserved remains of all periods has been identified as low in the southern (penstock) part of the scheme and unknown, but of an increased potential, in the northern (cable) part. This is however based upon the available information, rather than an absolute value derived from adequate data, and stems from an increased potential for preserved palaeo-environmental remains within the underlying peat deposits which appear to be isolated towards the northern part of the scheme. The current proposals however are to use a low-impact tracked excavator across the entirety of the project and for the new cable to be buried within a trench measuring 200mm in width by 600mm in depth. As such the anticipated opportunity to identify buried and preserved archaeological and palaeo-environmental remains within the cable trench is considered to be low and there would appear to be little credibility in maintaining a watching brief during these works. Moreover, the location of the penstock trench is within an area that has seen little to no disturbance and it seems likely that any archaeological features of all dates would present some form of upstanding remains. As no such remains were identified, aside from the aforementioned features, there are no further recommendations for general assessment or mitigatory measures.

2.0 INTRODUCTION, AIMS AND PROJECT DESIGN

Aeon Archaeology was commissioned by Mr Richard Price, hereafter the Client, to carry out an archaeological assessment and field visit of a proposed 29kw hydro-electric scheme with turbine house, buried penstock (pipeline), and electrical cable connection. The proposed scheme intake is to be located on the northern bank of the confluence of the Afon Cwm Hafod Oer and an unnamed stream, both tributaries of the Afon Clywedog which is itself a tributary of the Afon Wnion. The scheme lies approximately 4.1km southeast of Dolgellau, within the historical county of Meirionnydd and on land within the ownership of the farm of Gwerngraig. The proposed scheme also lies entirely within the Snowdonia National Park Authority (SNPA) (figures 1 and 2).

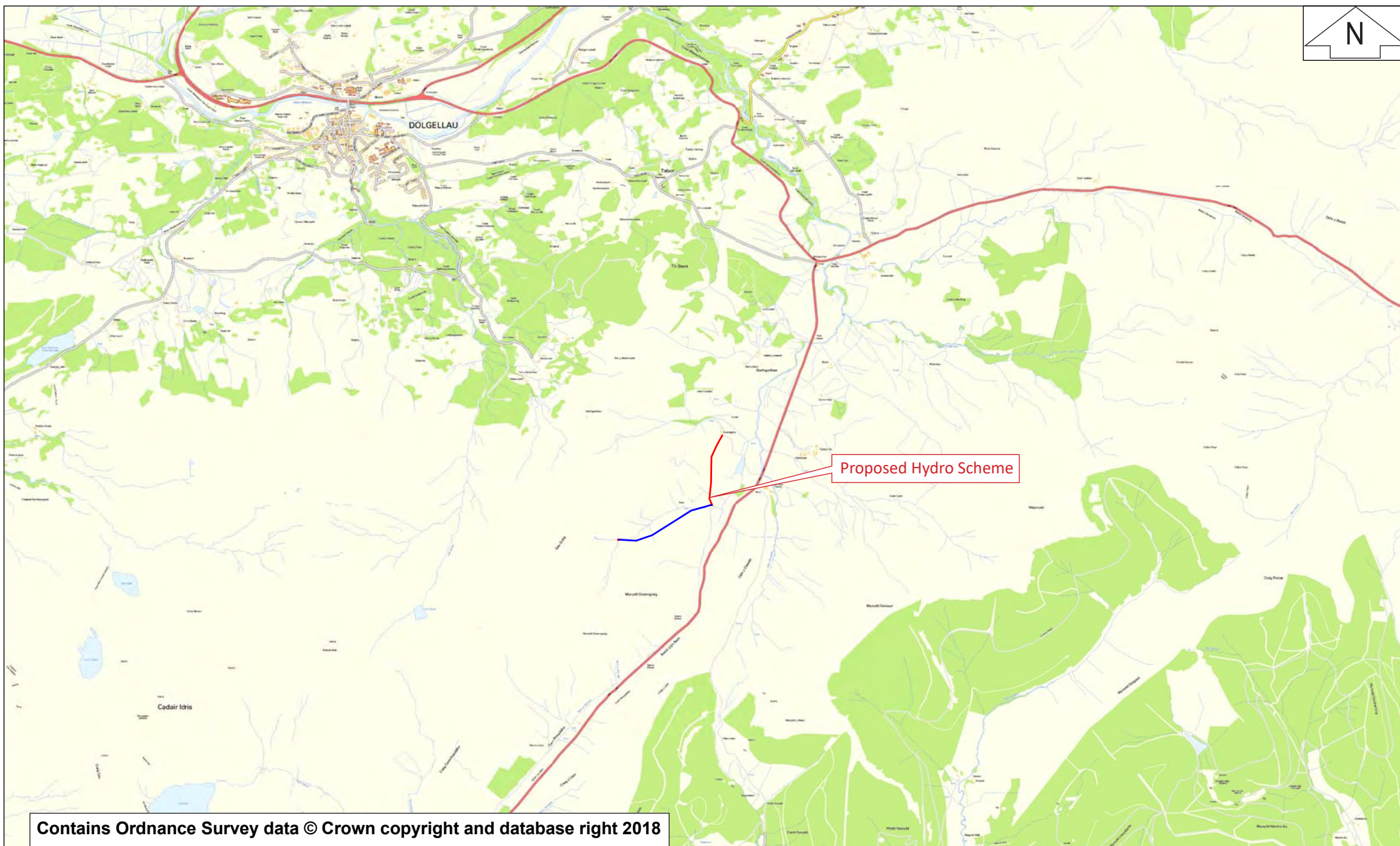
The proposed scheme will consist of an intake weir located at **NGR SH 75046 14483** and a c.820.0m long buried penstock running northeast to a new turbine house located at **NGR SH 75800 14757** and which will be installed on the northern bank of the tributary of the Afon Clywedog. In addition a new buried power cable will run north from the turbine house for approximately 590.0m to an existing transformer at the property of Gwerngraig. 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 assessment has been carried out in advance of planning application. A mitigation brief for this scheme was not prepared by the SNPA Archaeologist, however an initial consultation letter with the Principle Planning Officer, Mr Richard Thomas (letter dated 14th December 2016 (NP5/54/458), requested that in order for the application to be pursued an archaeological assessment of the proposed scheme would be required.

This archaeological assessment is for the proposed development area, which includes the water intake point, the penstock route, the turbine house, the water outflow, the power cable route, 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).



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Figure 01: Location of proposed hydro scheme at Afon Cwm Hafod Oer, Dolgellau.
Scale 1:40,000 at A4.

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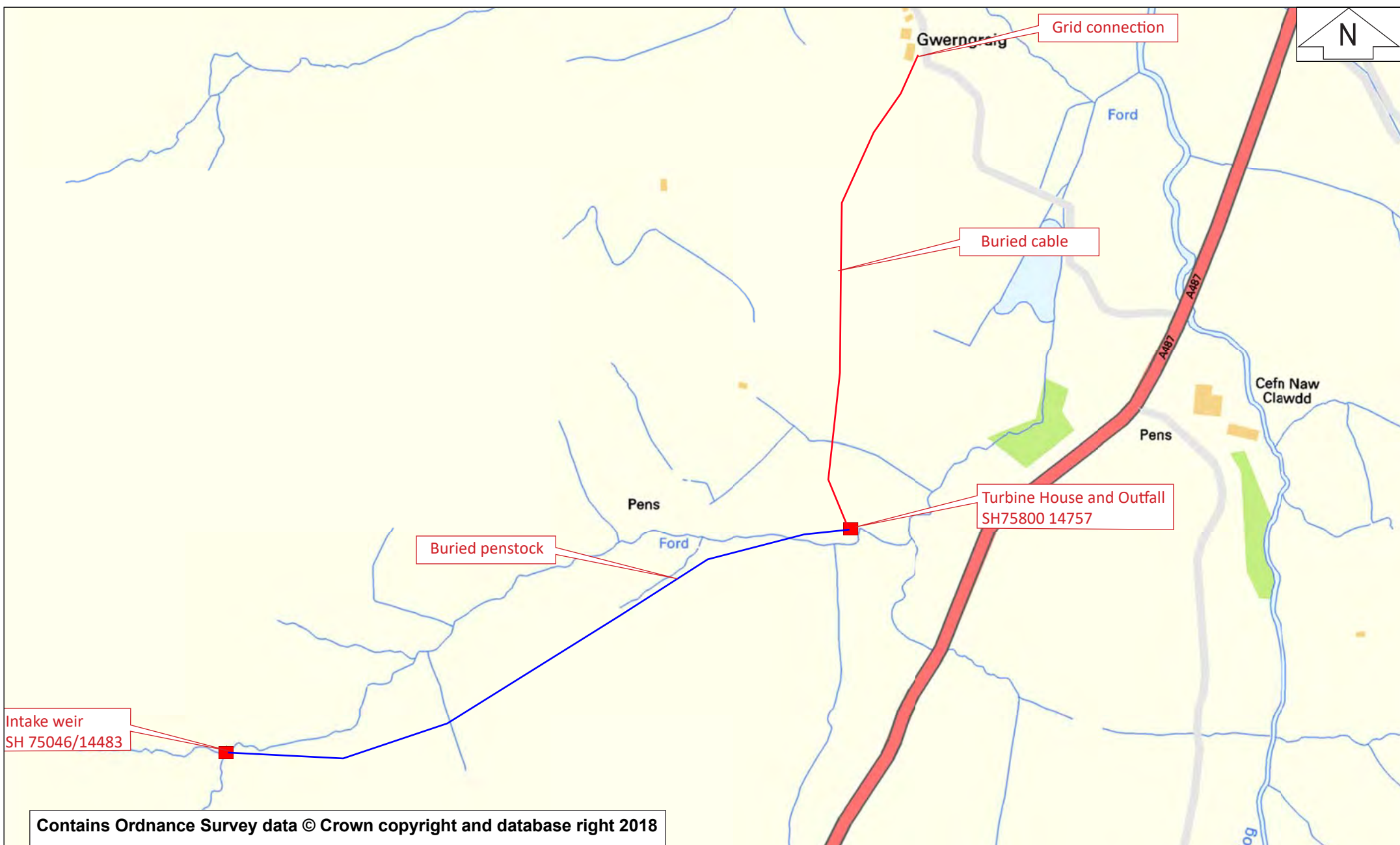


Figure 02: Location of proposed hydro scheme at Afon Cwm Hafod Oer, Dolgellau.
Scale 1:6,000 at A4.



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



Plate 02: Proposed turbine house location, from the northwest. Scale 1.0m.

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 12th March 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 (x1) (Gwynedd Archaeological Trust, Craig Beuno, Garth Road, Bangor, LL57 2RT), the Snowdonia National Park Authority (SNPA) Archaeologist (x3), and the Royal Commission on the Ancient and Historic Monuments in Wales (RCAHMW) (x1). Copies of all notes, plans, and photographs from the assessment are stored at Aeon Archaeology under the project code **A0156.1** 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 northern bank of the confluence of the Afon Cwm Hafod Oer and an unnamed stream, both tributaries of the Afon Clywedog which is itself a tributary of the Afon Wnion. The scheme lies approximately 4.1km southeast of Dolgellau on land within the ownership of the farm of Gwerngraig. The proposed scheme also lies entirely within the Snowdonia National Park Authority (SNPA).

The proposed scheme will consist of an intake weir located at NGR SH 75046 14483 and a c.820.0m long 250mm diameter penstock buried within a 600mm wide by 800mm deep trench will run northeast to a new turbine house located at NGR SH 75800 14757 and which will be installed on the northern bank of the tributary of the Afon Clywedog. In addition a new power cable buried within a 200mm wide by 800mm deep trench will run north from the turbine house for approximately 590.0m to an existing transformer at the property of Gwerngraig. 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 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 penstock route is located within unenclosed mountain slope in the southwest, and the cable route lies within an area of enclosed marshy land with underlying peat deposits. 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 assessment area slopes from approximately 339m OD at the proposed hydro intake with the proposed turbine house lying at approximately 240m OD.

The bedrock geology is of the Pen-y-Gadair Volcanic Formation, a tuff and lava igneous bedrock that formed approximately 449 to 458 million years ago in the Ordovician Period within an environment previously dominated by explosive eruptions of 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 37 non-designated monuments within 1.0km of the proposed scheme (see appendix I) but none lie within the 50.0m wide assessment zone or within 100.0m.

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 19 non-designated monument points within 1.0km of the proposed scheme (see appendix I) but none lie within the 50.0m wide assessment zone 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 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 zone or within 500.0m.

5.2.4 Scheduled Ancient Monuments (figure 6)

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) (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 *Dolgellau Landscape of Outstanding Historic Interest* (HLW(Gw)13).

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 cable route lies within the following Historic Landscape Character Areas (HLCAs):

- (i) The *fields and foods around Tir Stent* Historic Landscape Character area (HLCA: 16).

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 an archaeological assessment by RSK Group PLC in 2010 for the gas pipeline replacement from Llanwrin to Dolgellau (Ref. P41926), however no archaeological sites were identified within the 50.0m wide assessment corridor.

The area c. 810.0m to the northwest of the proposed scheme was included within an upland survey of the Cadair Idris SSSI in 1995/6 (Jones and Thompson). In addition the proposed scheme location and surrounding area was included within a survey of medieval and post-medieval agricultural features in 2014 (Kenney) by the Gwynedd Archaeological Trust. These reports have been utilised to provide background historical information of the localised area but did not identify any features directly relevant to the proposed scheme.

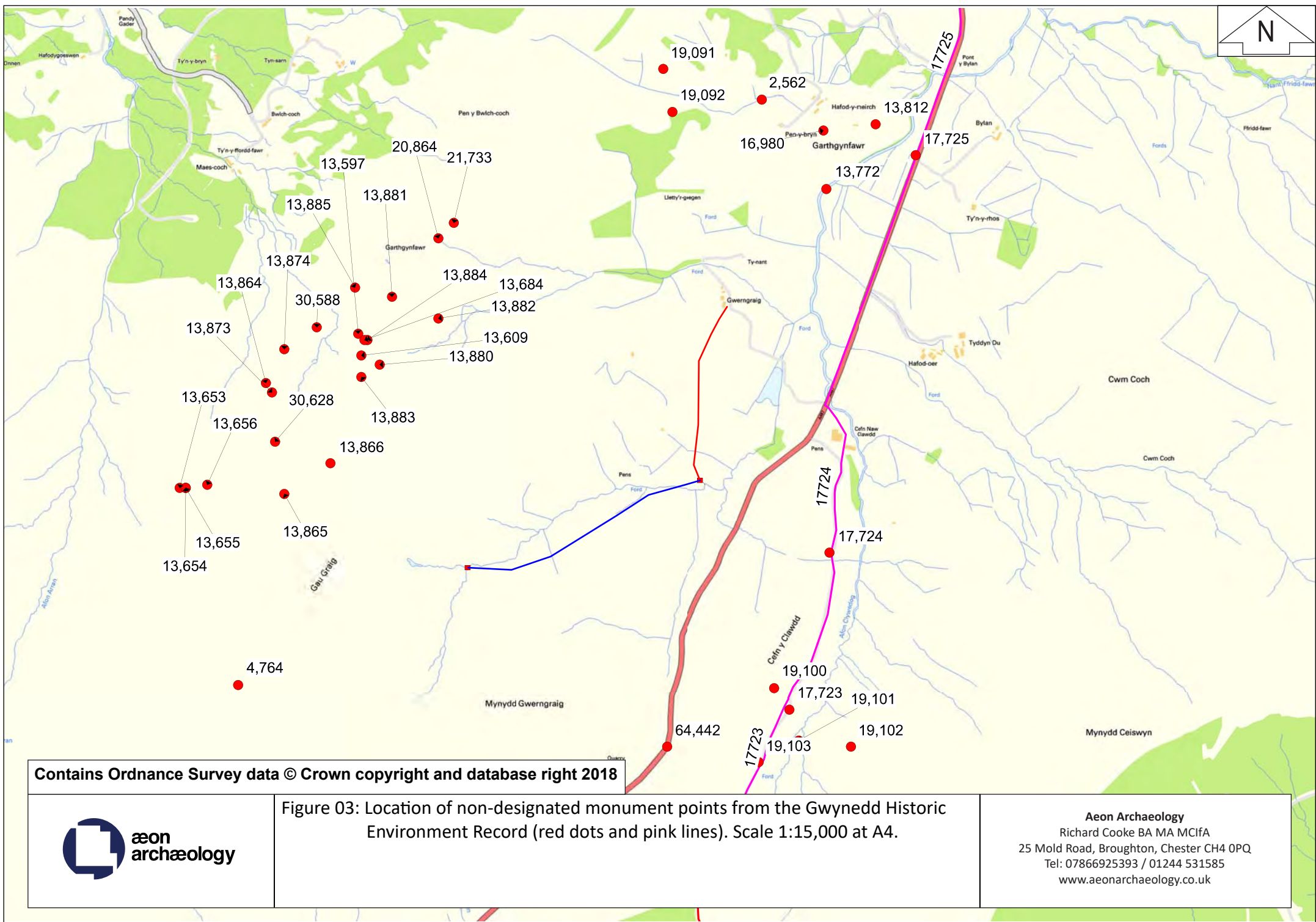
5.2.10 Lidar

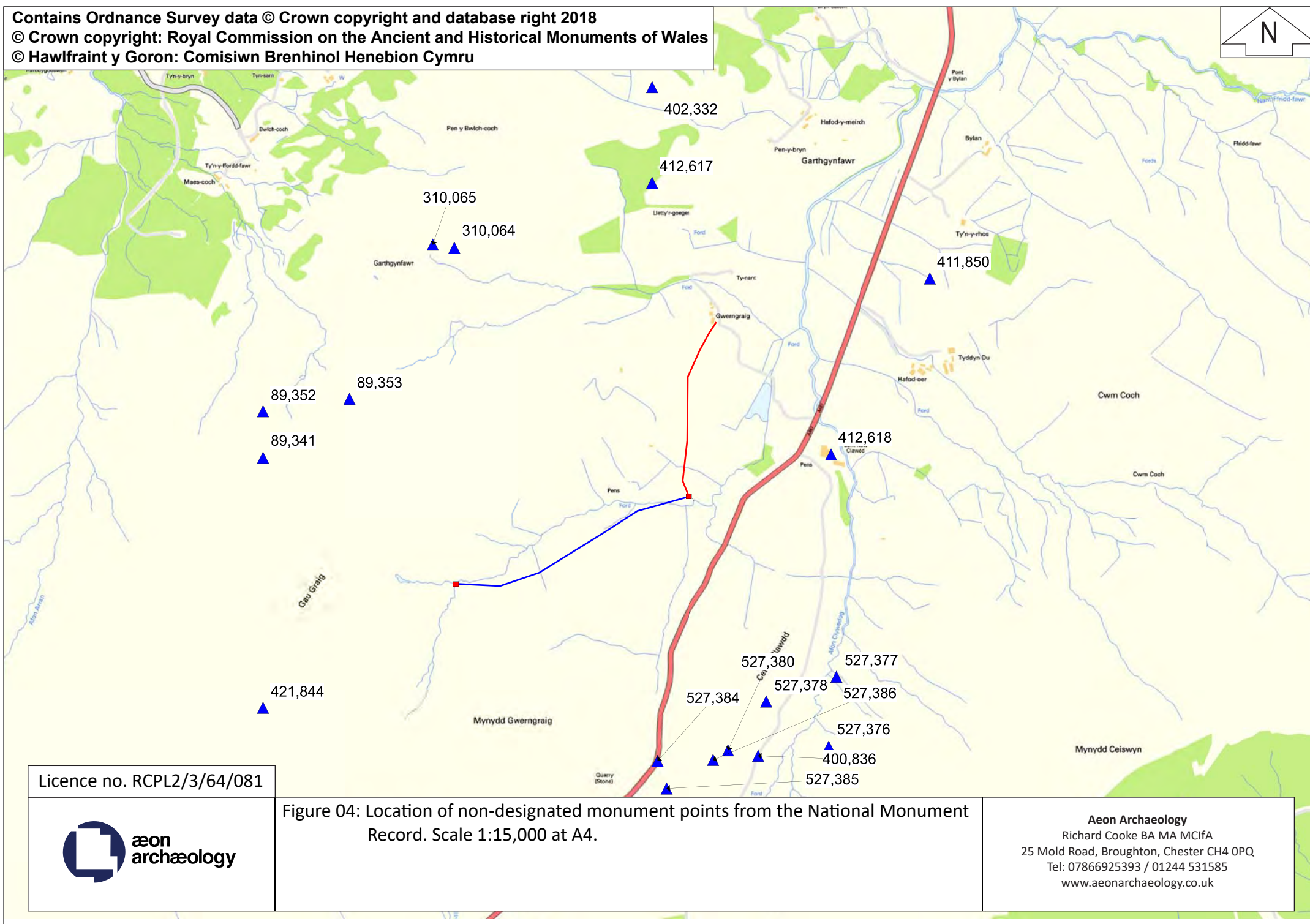
Light Detection and Ranging (LIDAR) is an airborne mapping technique, which uses a laser to measure the distance between the aircraft and the ground. Up to 100,000 measurements per second are made of the ground, allowing highly detailed surface and terrain models to be generated at different spatial 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 route. The Lidar coverage however was limited to the very northern part of the cable route and the transformer connection location. This imagery did show several linear striations orientated southwest to northeast within the northernmost field, however these correspond with post-medieval/modern field drainage ditches and are of negligible importance.

5.2.11 Historic Aerial Photographs

Aerial photographs taken by the Royal Air Force in 1946, 1964, and 1969 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.



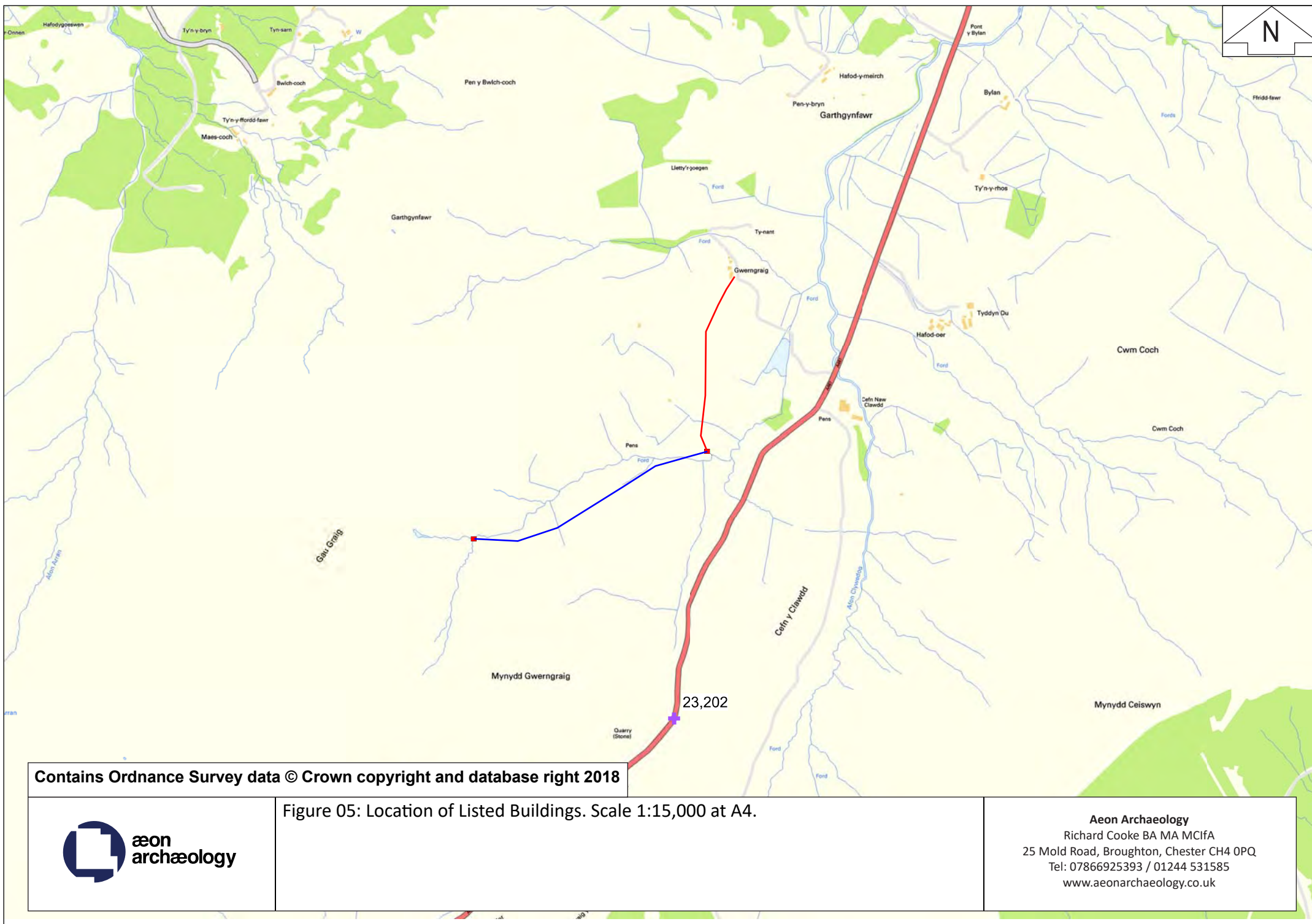


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Figure 04: Location of non-designated monument points from the National Monument Record. Scale 1:15,000 at A4.

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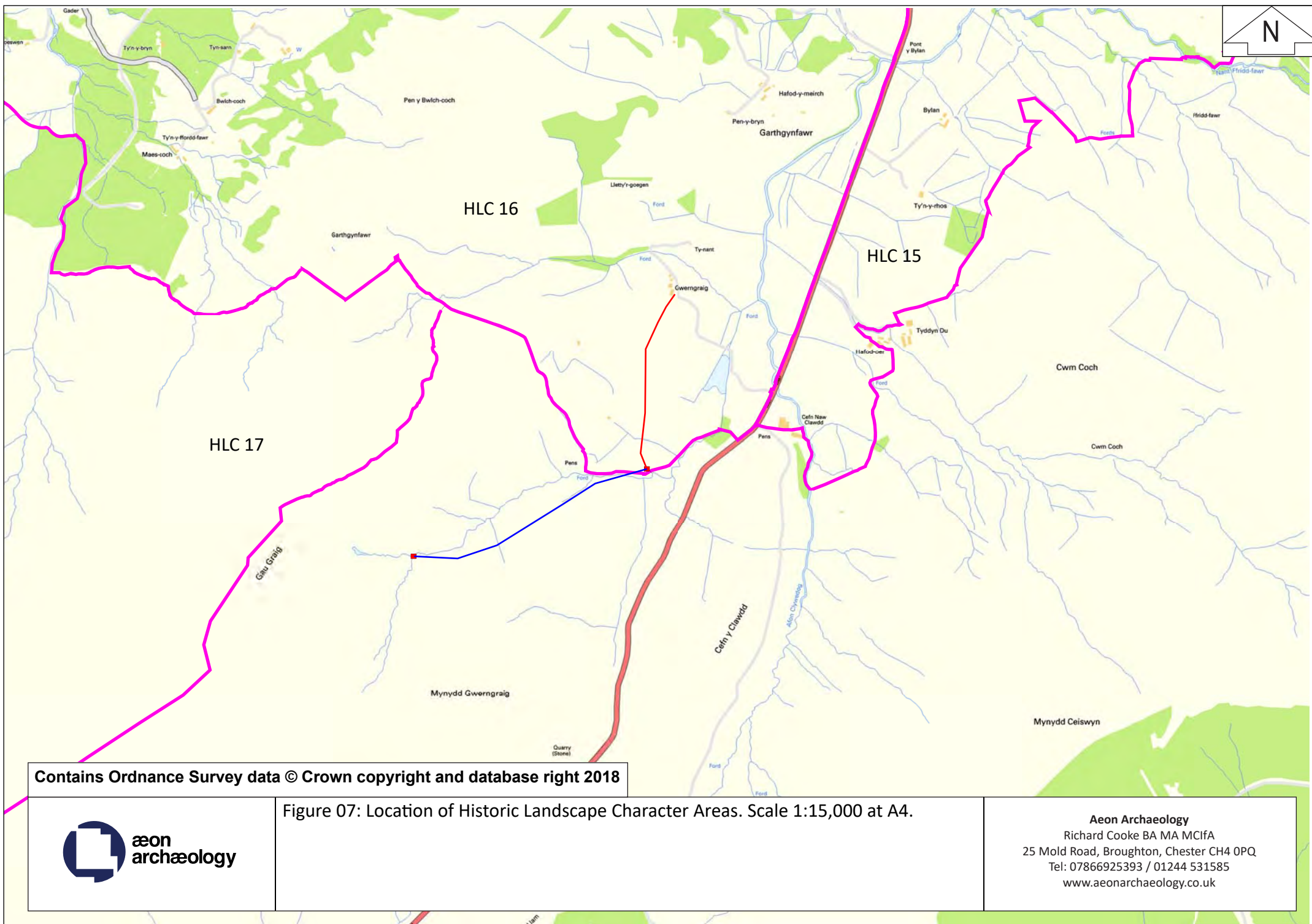


Figure 07: Location of Historic Landscape Character Areas. Scale 1:15,000 at A4.



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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 surprisingly few known prehistoric sites within the localised environment and only three possible sites of prehistoric origin are recorded within 1.0km of the proposed scheme on the Gwynedd HER and RCAHMW NMR. Two of these are suspected prehistoric burial cairns (PRNs: 13864 and 13881) located approximately 910.0m to the northwest on the north facing slope of Cadair Idris. The third site is a possible prehistoric roundhouse (PRN: 13812) located 780.0m to the north-northeast of the cable terminus location, but which may be of natural origin.

Located approximately 1.1km to the northwest of the proposed scheme is the *Maes Coch Hut Circles* Scheduled Ancient Monument (Me 195). The site sits on the north face of Cadair Idris and may date to the Early Bronze Age (2000-1500 BC) or to the Iron Age (c. 700 BC-AD 43).

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 5.5km to the north.

The Roman period is similarly poorly represented within this part of northwest Wales and there are only three known Roman sites recorded on the Gwynedd HER and RCAHMW NMR within 1.0km of the proposed scheme. All three of these sites are parts of the Roman Road linking the fort at Brithdir in the north with that of Cefn Caer at Pennal, in the south. The route of the road follows the current route of the A487 from north to south to

approximately 410.0m east of the proposed scheme. After which it deviates southeast before turning south and following the road at Cefn y Clawdd.

The topography of the northern part of the scheme from the proposed turbine house to transformer would have almost certainly been waterlogged in the prehistoric and Roman periods. As such this location is unlikely to have been conducive to early habitation. The area does however have underlying peat deposits and therefore there is the potential for preserved palaeo-environmental remains along the length of the proposed cable route.

The proposed penstock route would have been much drier on the higher slopes and as such would have been suitable for early habitation, however there has been little to no disturbance on these lower mountain slopes and as such any settlement sites are likely to still be visible as above ground remains. The only upstanding remains identified during the site visit was that of relict field boundaries although these are likely to be medieval in date.

The proximity of the unnamed tributary of the Afon Clywedog 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.

Therefore the potential for preserved buried remains of the prehistoric and Roman periods is expected to be low throughout the penstock part of the scheme, and of an increased but unknown potential for preserved buried remains within the proposed cable route.

5.2 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 six medieval sites recorded on the Gwynedd HER and RCAHMW NMR within 1.0km of the proposed scheme, with an additional four sites that are of unknown origin but possibly of medieval date. The most notable of these is the Gau Craig summit enclosure (NPRN: 421844) located approximately 750.0m southwest of the proposed hydro intake weir location. This site includes an elongated oval stone enclosure, measuring 36.0m by 16.0m and aligned northwest to southeast and sited on the northeast summit of Cadair Idris. The walls enclose a small cairn or outcropping rock suggesting a prehistoric date would not be unlikely (RCAHMW. NMR).

To the north of the scheme and located 650.0m from the proposed cable terminus the site of a fulling mill is recorded on the Gwynedd HER (PRN: 2562). However despite the location of a watercourse there is no other evidence that a fulling mill ever occupied the site (Evans and Burnett, 2013).

On the north facing slope of Cadair Idris a medieval long-hut (PRN: 13883) was identified during the upland survey in 1995/6 (Jones and Thompson) approximately 710.0m west of the proposed scheme. The site is however also described as a sheepfold and it is not clear whether it has medieval origins.

Similarly three sheepfolds (PRNs: 19100, 19101, 19102) were identified as being of medieval date during the survey of medieval and post-medieval agricultural features in 2014 (Kenney), and located approximately 910.0m to the southeast of the penstock route.

The northern part of the proposed development site is relatively marshy suggesting that there are underlying peat deposits. It is probable that the land had been utilised for the extraction of

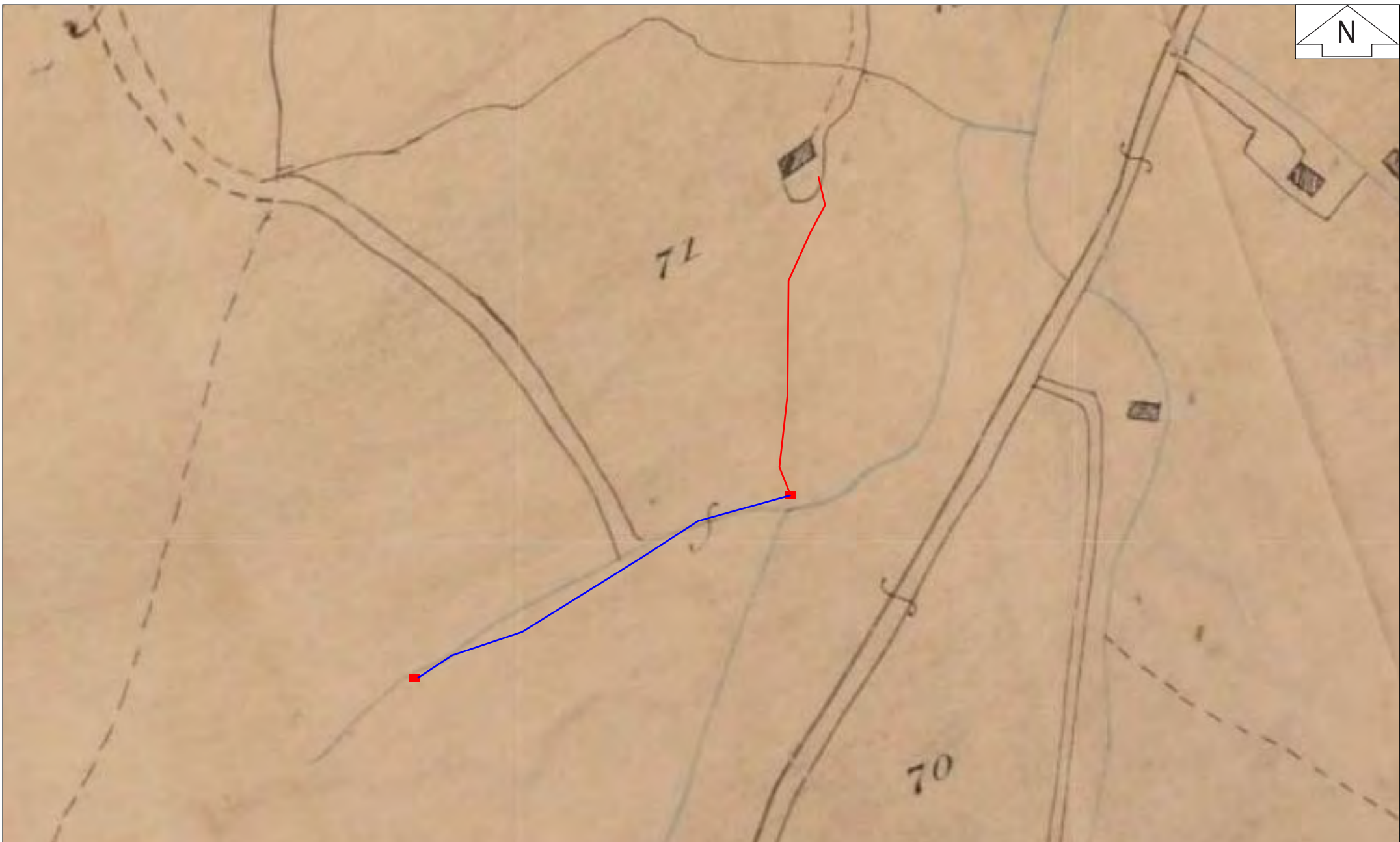
peat for burning as fuel since medieval times and possible peat stacks are recorded on the Gwynedd HER approximately 650.0m to the northwest (PRNs: 13597, 13609, 13880, 13884) The extraction of peat leaves little trace except for rectangular depressions where the peat was cut from, as well as occasionally peat drying platforms.

The proposed route of the hydro-electric scheme is first depicted on the map of the Parish of Dolgelley in the County of Merioneth, 1842 (figure 8) which depicts the site much as it exists today, albeit in very little detail. The A487 road is depicted to the east as is the farm of Gwerngraig at the transformer location. The trackway connecting the sheepfold in the southeast with the upland slopes in the northwest is shown to the northwest of the proposed scheme but otherwise there are no features of note depicted on the map. The individual field boundaries are not shown but the wider farmstead boundaries are depicted with the proposed scheme lying solely within plot 71.

Plot	Landowner	Tenant	Field Name
71	Honourable Edward Mostyn, Lloyd Mostyn, Sir William Wynne Knight, The Honourable Edward John Stanley (Trustees under the will of John Nanney Clerk)	John Jones	Gwen Graig

As can be seen from the tithe apportionment the plot was given the name of the farm working the land and was tenanted by John Jones. The land is recorded as having belonged to the Reverend John Nanney Clerk of Belmont, Denbighshire who died in 1838 and named the Honourable Edward Mostyn, Lloyd Mostyn, Sir William Wynne Knight, and the Honourable Edward John Stanley as trustees of the estate within his will.

The site is depicted in detail on the first, second and third edition 6" county series Ordnance Survey maps of 1888, 1901 and 1948 respectively (figures 9-14). All three maps depict the area much as it exists today, with the farm of Gwerngraig shown at the northern end of the proposed cable route and the A487 road depicted to the east. The sheepfold and stone-built barn are shown to the north of the penstock route, as is the trackway connecting the sheepfold with the upper mountain slopes in the northwest. The maps depict field boundaries and drainage ditches but otherwise there are no features of note depicted along the proposed route.



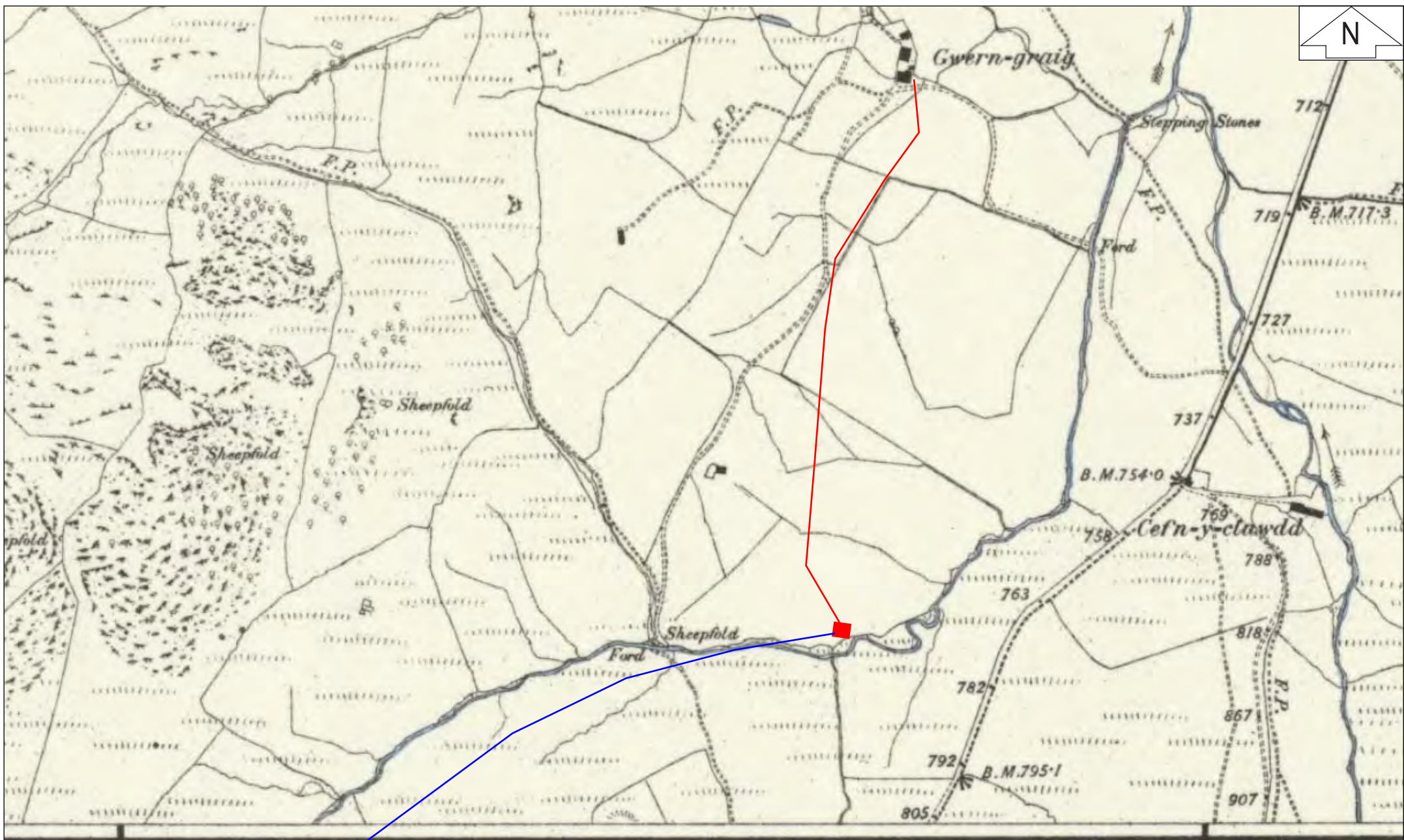
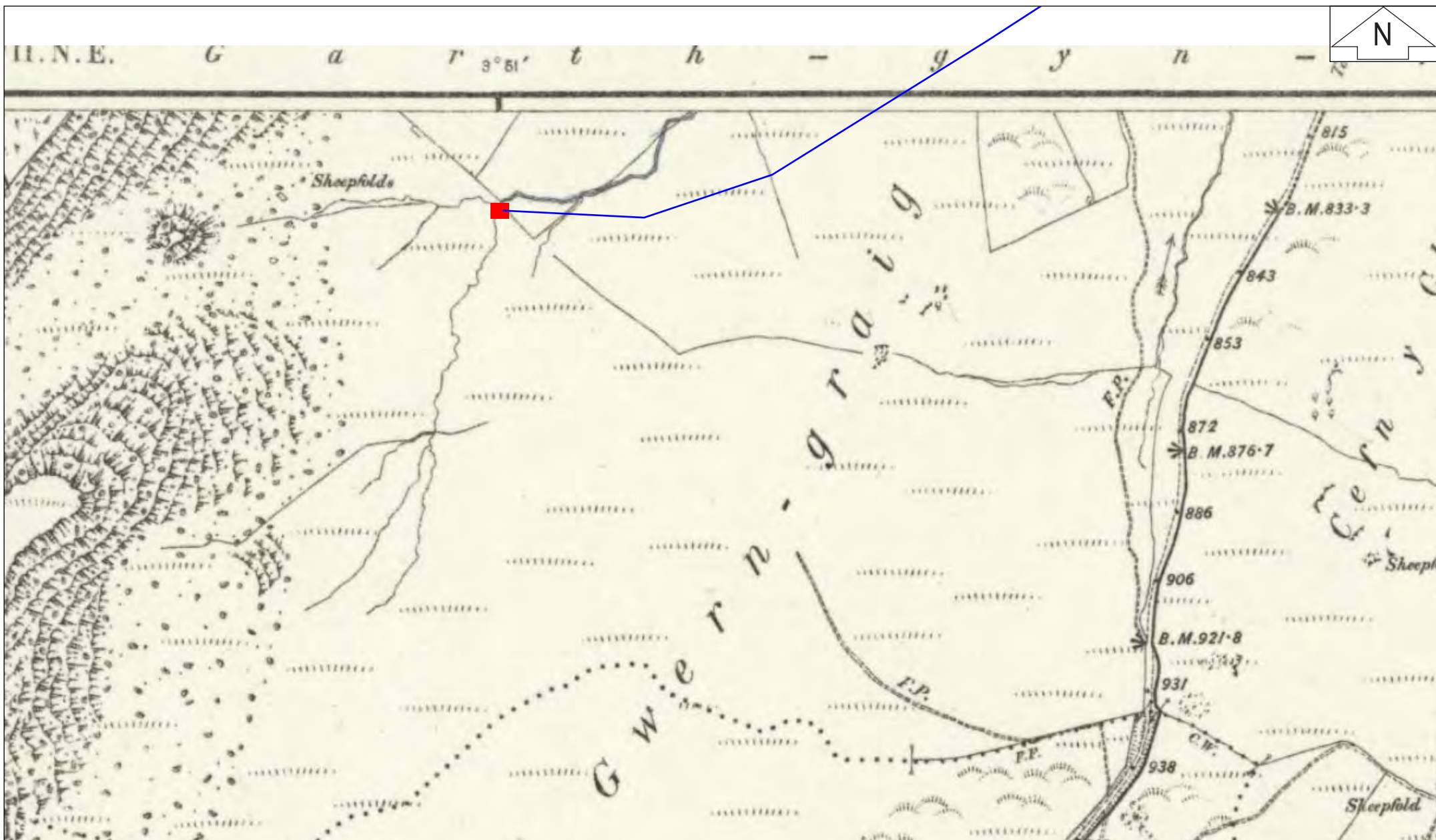


Figure 09: Location of the proposed hydro scheme (north) on the first edition six inch Ordnance Survey map of 1888 (sheet XXXVII.NE).



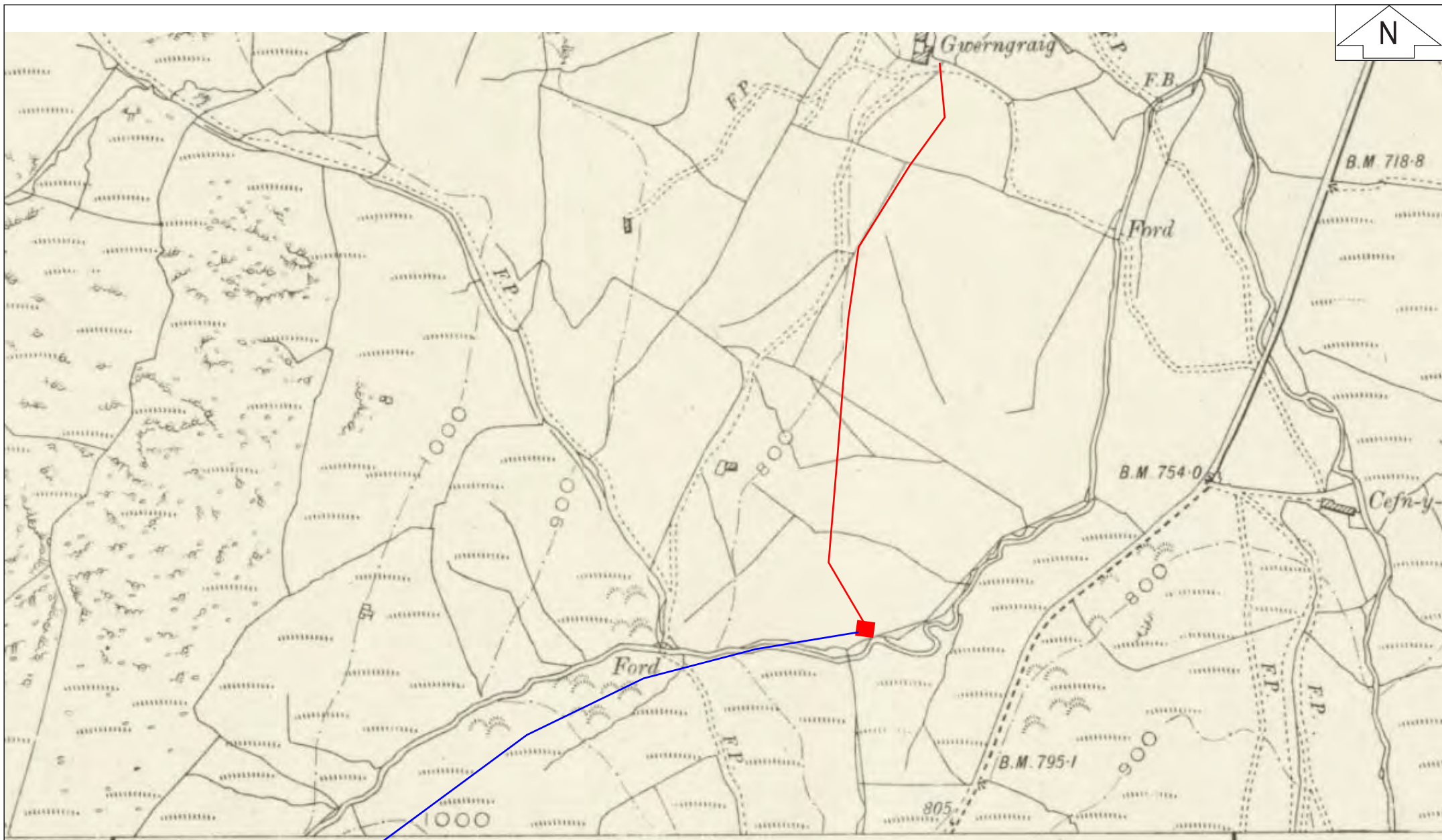


Figure 11: Location of the proposed hydro scheme (north) on the second edition six inch Ordnance Survey map of 1901 (sheet XXXVII.NE).

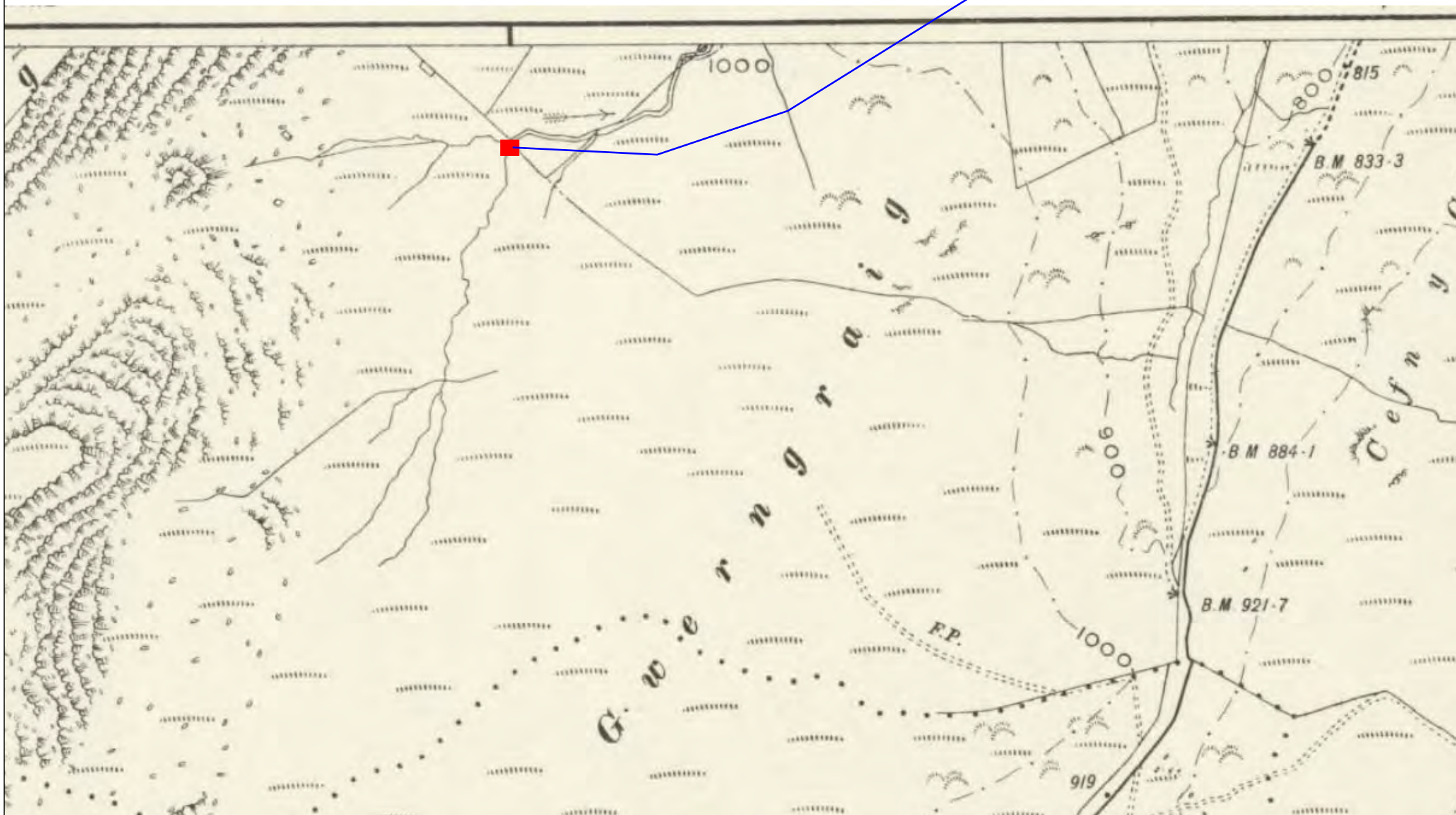


Figure 12: Location of the proposed hydro scheme (south) on the second edition six inch Ordnance Survey map of 1901 (sheet XXXVII.SE).

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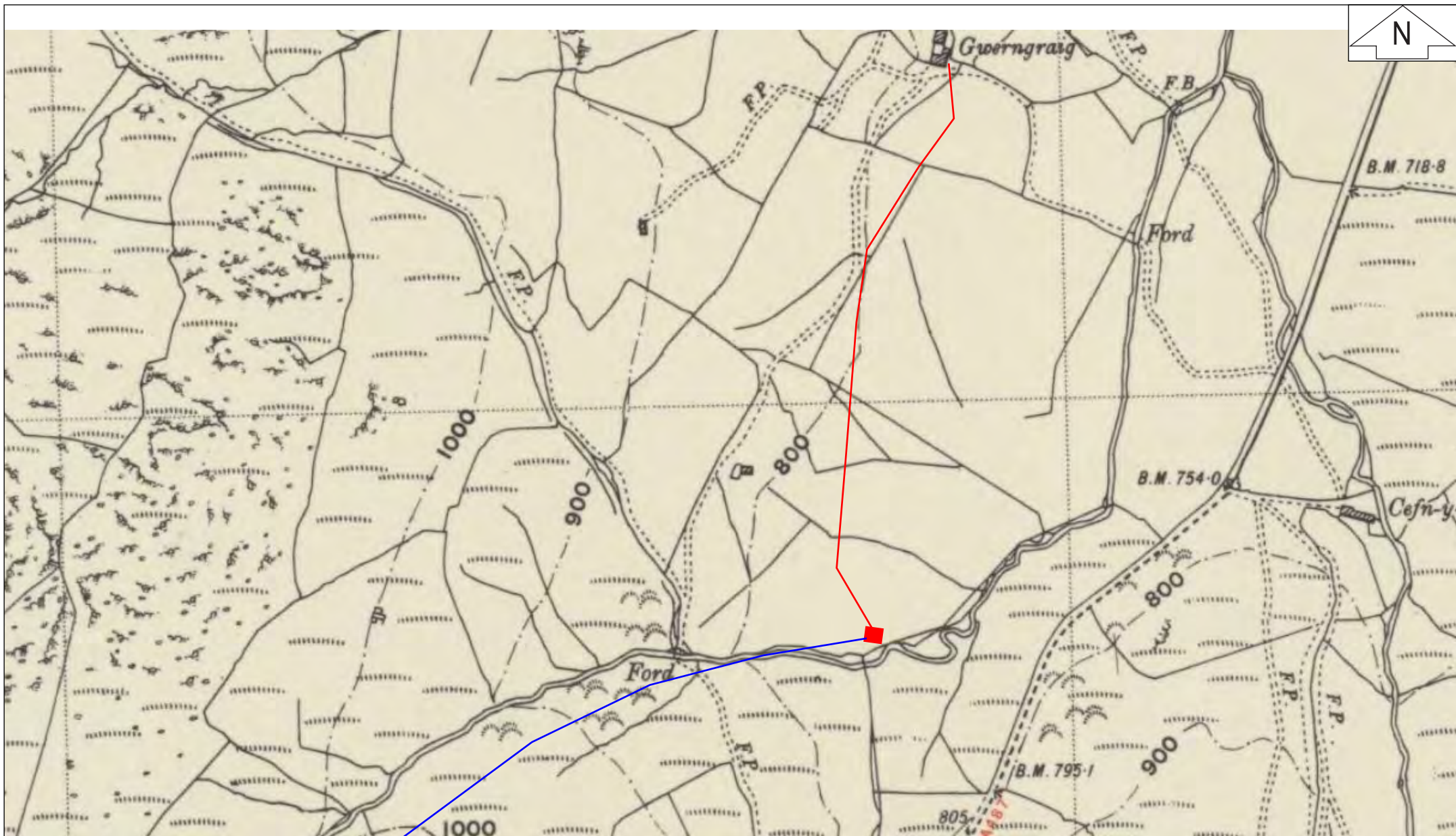


Figure 13: Location of the proposed hydro scheme (north) on the third edition six inch Ordnance Survey map of 1948 (sheet XXXVII.NE).

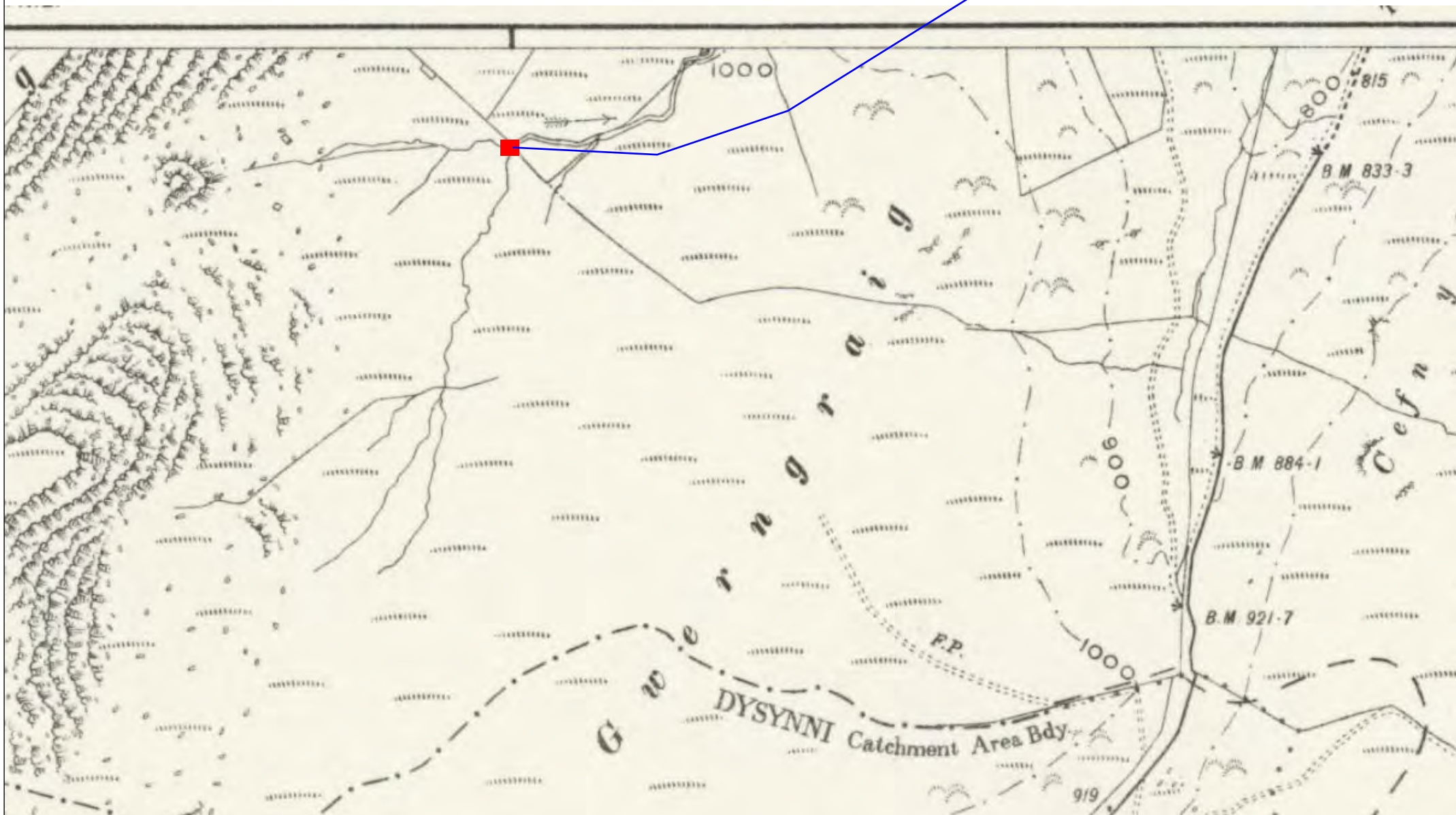


Figure 14: Location of the proposed hydro scheme (south) on the third edition six inch Ordnance Survey map of 1948 (sheet XXXVII.SE).

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 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.

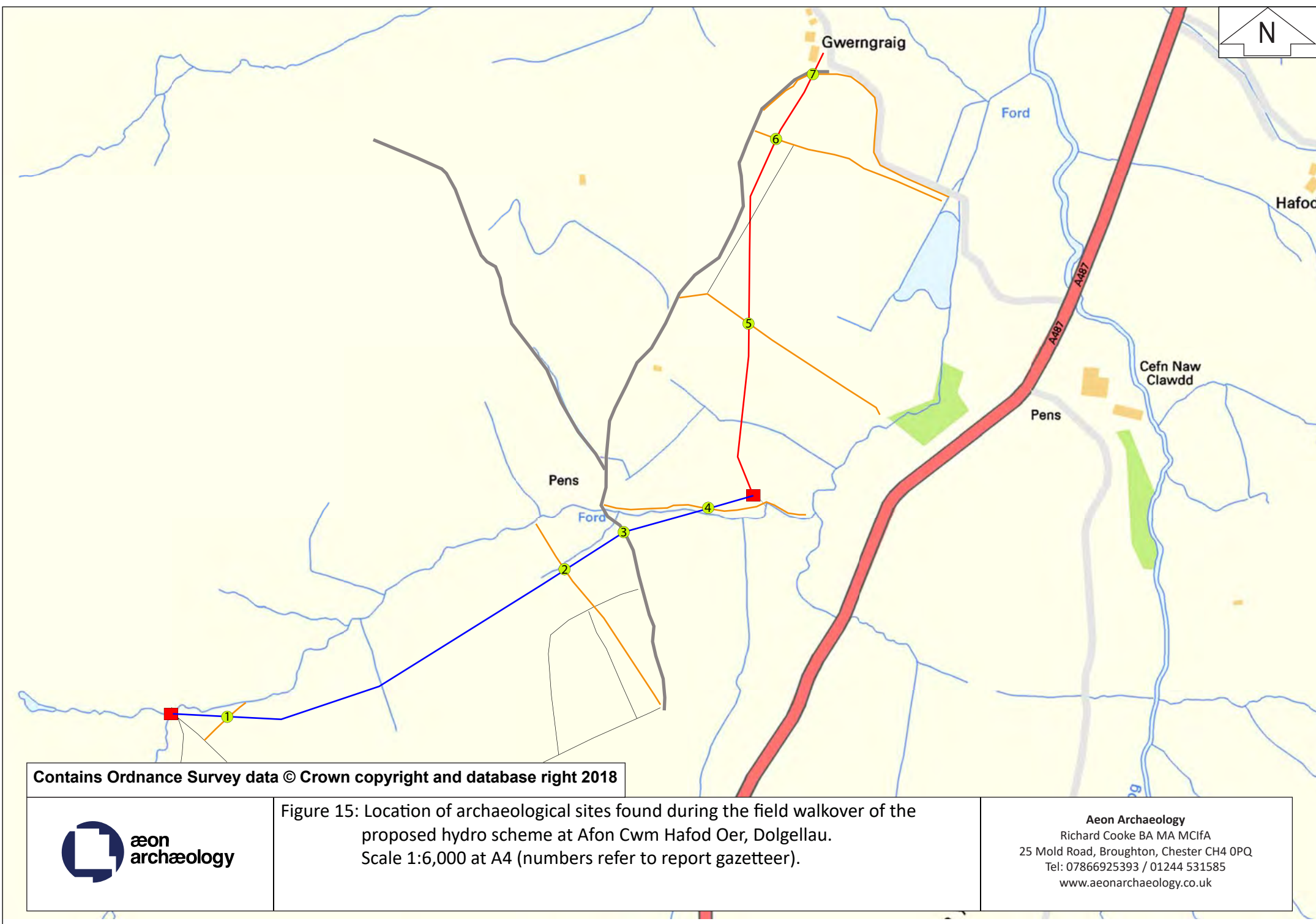
Determination of Significance of Effect

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 field walkover discovered 7 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 are shown on figure 15 with the location and orientation of photographs shown on figure 16.



1. Field Boundary Wall	PRN: Unassigned
Figure: 9-16	Plate: 3
NGR: SH 75113 14475	Period: Post-medieval
<p>Description</p> <p>A field boundary wall measuring approximately 0.8m in height by 0.5m in width runs from southwest to northeast where it terminates at the Afon Cwm Hafod Oer. The wall is of single-skin dry-stone construction using medium sized sub-angular cobbles.</p> <p>The wall is not depicted on the Dolgellau tithe map of 1842 (figure 8) 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 1948 respectively (figures 9-14).</p> <p>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.</p> <p>As the magnitude of impact and the significance of effect are low there are no recommendations for further assessment or mitigatory measures.</p>	
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	
Recommendations for further mitigatory measures: None	



Plate 03: Field boundary wall (feature 1), from the east. Scale 1.0m.

2. Relict Field Boundary	PRN: Unassigned
Figure: 15-16	Plate: 4
NGR: SH 75551 14673	Period: Unknown (medieval)
<p>Description</p> <p>A relict field boundary measuring approximately 0.2m in height by 1.5m in width runs from south-southeast to north-northwest where it terminates at the Afon Cwm Hafod Oer. The boundary is mostly defined by a linear strip of long grass interspaced with occasional medium and large sized sub-rounded cobbles.</p> <p>The boundary is not depicted on the Dolgellau tithe map of 1842 (figure 8) or on the first, second and third edition 6" Ordnance Survey maps of 1888, 1901 and 1948 respectively (figures 9-14).</p> <p>The boundary appears to be of substantial age and a medieval date is postulated for this feature, although an earlier Roman or prehistoric date is also a possibility and is therefore considered to be of 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 slight adverse significance of effect. There will be no impact during the completion phase.</p> <p>As the origin of the wall is currently unknown it is recommended that a watching brief be maintained during the breach of this feature so that a cross-section record can be taken and any potential dating evidence retrieved.</p>	
Category of importance: Local	
Level of impact: Low adverse direct physical (construction phase)	
Significance of effect: Slight adverse (construction phase)	
Recommendations for further assessment: None	
Recommendations for further mitigatory measures: Watching brief during breach.	



Plate 04: Relict field boundary (feature 2), from the northwest. Scale 1.0m.

3. Trackway	PRN: Unassigned
Figure: 8-16	Plate: 5
NGR: SH 75642 14711	Period: Post-medieval
<p>Description</p> <p>A trackway measuring approximately 1.4m in width runs from south to north connecting the fields and sheepfolds with Gwerngraig farm. The trackway also forks and runs from southeast to northwest connecting the sheepfolds with the upper mountain slopes. The feature exists mostly as a linear strip devoid of vegetation but occasionally appears to have a rudimentary metallated stone construction.</p> <p>The trackway is depicted on the Dolgellau tithe map of 1842 (figure 8) and on the first, second and third edition 6" Ordnance Survey maps of 1888, 1901 and 1948 respectively (figures 9-14).</p> <p>The feature is likely to be contemporary with Gwerngraig farm, post-medieval date and therefore negligible/local importance. The trackway 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.</p> <p>As the magnitude of impact and the significance of effect are low there are no recommendations for further assessment or mitigatory measures.</p>	
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	
Recommendations for further mitigatory measures: None	



Plate 05: Trackway (feature 3), from the southeast. Scale 1.0m.

4. Field Boundary Wall	PRN: Unassigned
Figure: 9-16	Plate: 6
NGR: SH 75775 14750	Period: Post-medieval
<p>Description</p> <p>A field boundary wall measuring approximately 0.6m in height by 0.5m in width runs from east to west along the northern bank of the Afon Cwm Hafod Oer. The wall is of single-skin dry-stone construction using medium sized sub-angular cobbles and in places has collapsed.</p> <p>The wall is not depicted on the Dolgellau tithe map of 1842 (figure 8) 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 1948 respectively (figures 9-14).</p> <p>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.</p> <p>As the magnitude of impact and the significance of effect are low there are no recommendations for further assessment or mitigatory measures.</p>	
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	
Recommendations for further mitigatory measures: None	



Plate 06: Field boundary wall (feature 4), from the south. Scale 1.0m.

5. Hedgerow Field Boundary	PRN: Unassigned
Figure: 9-16	Plate: 7
NGR: SH 75815 15224	Period: Post-medieval
<p>Description</p> <p>A hedgerow field boundary measuring approximately 4.0m in height by 1.0m in width runs from southeast to northwest dividing two enclosed fields. The hedgerow is almost solely of blackthorn.</p> <p>The hedgerow is not depicted on the Dolgellau tithe map of 1842 (figure 8) 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 1948 respectively (figures 9-14).</p> <p>The hedgerow 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.</p> <p>As the magnitude of impact and the significance of effect are low there are no recommendations for further assessment or mitigatory measures.</p>	
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	
Recommendations for further mitigatory measures: None	



Plate 07: Hedgerow field boundary (feature 5), from the southwest. Scale 1.0m.

6. Relict Field Boundary Wall	PRN: Unassigned
Figure: 9-16	Plate: 7
NGR: SH 75815 15224	Period: Unknown (medieval)
<p>Description</p> <p>A relict field boundary wall measuring approximately 0.3m in height by 1.0m in width runs from east-southeast to west-northwest. The boundary is mostly defined by a linear strip of long grass interspaced with occasional medium and large sized sub-rounded cobbles.</p> <p>The boundary is not depicted on the Dolgellau tithe map of 1842 (figure 8) but is shown on the first, second and third edition 6" Ordnance Survey maps of 1888, 1901 and 1948 respectively (figures 9-14).</p> <p>The boundary appears to be of substantial age and a medieval date is postulated for this feature, although an earlier Roman or prehistoric date is also a possibility and is therefore considered to be of 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 slight adverse significance of effect. There will be no impact during the completion phase.</p> <p>As the origin of the wall is currently unknown it is recommended that a watching brief be maintained during the breach of this feature so that a cross-section record can be taken and any potential dating evidence retrieved.</p>	
Category of importance: Local	
Level of impact: Low adverse direct physical (construction phase)	
Significance of effect: Slight adverse (construction phase)	
Recommendations for further assessment: None	
Recommendations for further mitigatory measures: Watching brief during breach.	



Plate 08: Relict field boundary wall (feature 6), from the west. Scale 1.0m.

7. Field Boundary Wall	PRN: Unassigned
Figure: 9-16	Plate: 9
NGR: SH 75891 15323	Period: Post-medieval
<p>Description</p> <p>A field boundary wall measuring approximately 0.5m in height by 1.0m in width runs from south to north before turning west and then again turning south, marking the southern limit of the trackway feature 3. The wall is of single-skin dry-stone construction using medium sized sub-angular cobbles and has entirely collapsed and been reinforced with a modern wooden post and wire fence.</p> <p>The wall is not depicted on the Dolgellau tithe map of 1842 (figure 8) but was likely in existence at the time and contemporary with the farm of Gwerngraig and the trackway. It is shown on the first, second and third edition 6" Ordnance Survey maps of 1888, 1901 and 1948 respectively (figures 9-14).</p> <p>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.</p> <p>As the magnitude of impact and the significance of effect are low there are no recommendations for further assessment or mitigatory measures.</p>	
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	
Recommendations for further mitigatory measures: None	



Plate 09: Field boundary wall (feature 7), from the southeast. Scale 1.0m.

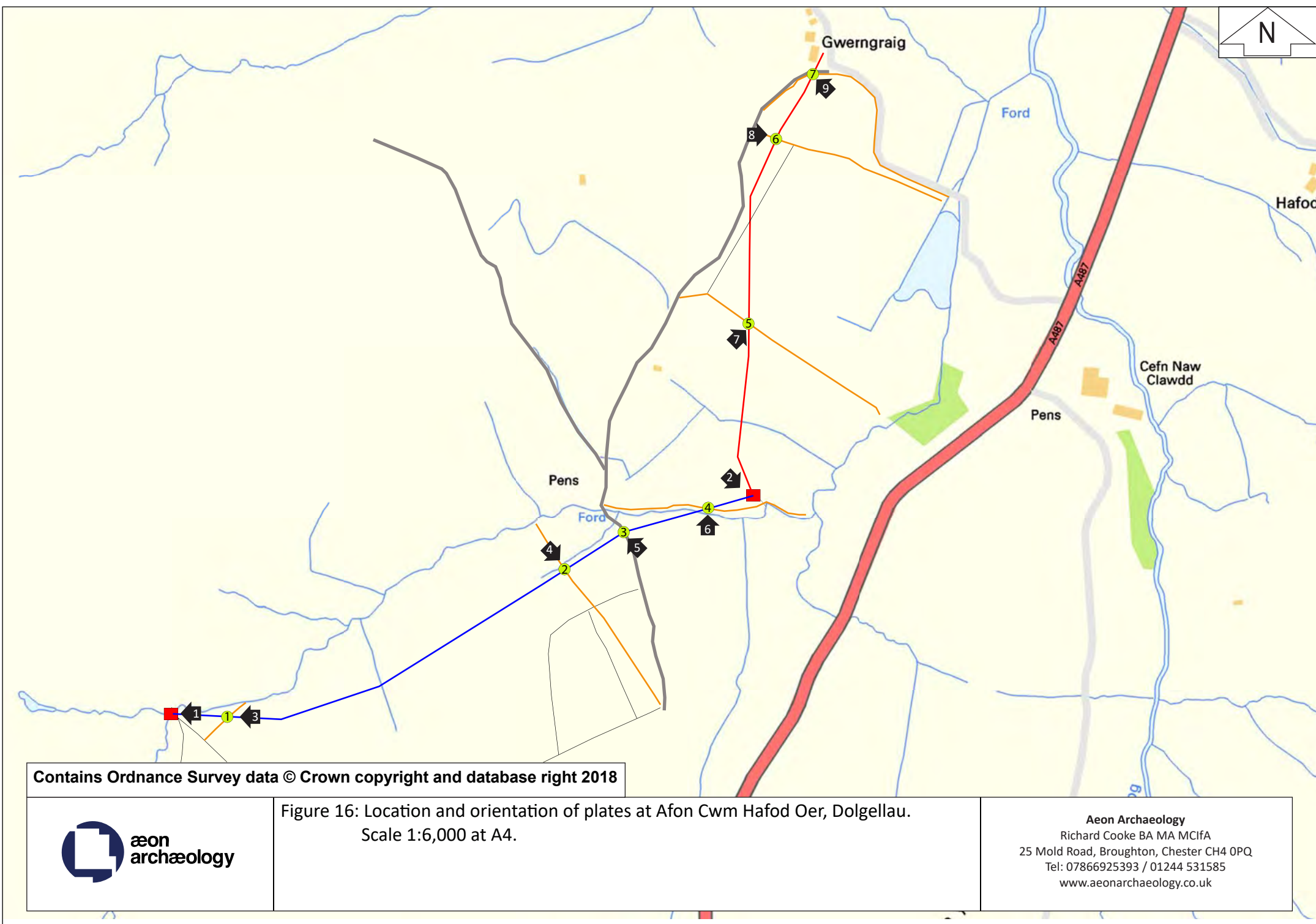


Table 2: Summary of archaeological features. GREEN = <u>no</u> action required; RED= Action required						
Number	Name	Importance	Impact	Significance of effect	Further Assessment	Mitigation Recommendations
PHYSICAL DIRECT AND INDIRECT IMPACTS						
1	Field Boundary Wall	Negligible / Local	Low adverse direct physical (construction phase)	Neutral / Slight adverse (construction phase)	None	None
2	Relict Field Boundary	Local	Low adverse direct physical (construction phase)	Slight adverse (construction phase)	None	Watching brief during breach.
3	Trackway	Negligible / Local	Low adverse direct physical (construction phase)	Neutral / Slight adverse (construction phase)	None	None
4	Field Boundary Wall	Negligible / Local	Low adverse direct physical (construction phase)	Neutral / Slight adverse (construction phase)	None	None
5	Hedgerow Field Boundary	Negligible / Local	Low adverse direct physical (construction phase)	Neutral / Slight adverse (construction phase)	None	None
6	Relict Field Boundary Wall	Local	Low adverse direct physical (construction phase)	Slight adverse (construction phase)	None	Watching brief during breach.
7	Field Boundary Wall	Negligible / Local	Low adverse direct physical (construction phase)	Neutral / Slight adverse (construction phase)	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 seven sites of archaeological importance (features 1-7) during the construction phase. Features 1, 3-5, and 7 are post-medieval in date and are considered to be of *negligible / local* importance thus resulting in a *neutral or slight adverse* significance of effect. Relict field boundary walls (features 2 and 6) are of unknown age but are suspected to be of medieval origin, and as such they are considered to be of *local* importance resulting in a *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 seven archaeological features, three field boundary walls (features 1, 4 and 7), two relict field boundaries (features 2 and 6), a trackway (feature 3), and a hedgerow field boundary (feature 5).

Features 1, 3-5, and 7 are 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.

Features 2 and 6 are considered to be of local importance and the proposed scheme is expected to have a slight adverse significance of effect during the construction phase. As such, and due to the postulated medieval origin of both features, it has been recommended that an archaeological watching brief be maintained during the breaching of both relict boundary walls. This will provide the opportunity to record the boundaries in cross-section as well as for the recovery of archaeological artefacts that may help date the features.

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. 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 has been identified as low in the southern (penstock) part of the scheme and unknown, but of an increased potential, in the northern (cable) part. This is however based upon the available information, rather than an absolute value derived from adequate data, and stems from an increased potential for preserved palaeo-environmental remains within the underlying peat deposits which appear to be isolated towards the northern part of the scheme. The current proposals however are to use a low-impact tracked excavator across the entirety of the scheme and for the new cable to be buried within a trench measuring 200mm in width by 600mm in depth. As such the anticipated opportunity to identify buried and preserved archaeological and palaeo-environmental remains within the cable trench is considered to be low and there would appear to be little credibility in maintaining a watching brief during these works. Moreover, the location of the penstock trench is within an area that has seen little to no disturbance and it seems likely that any archaeological features of all dates would present some form of upstanding remains. As no such remains were identified, aside from the aforementioned features, there are no further recommendations for general assessment or mitigatory measures.

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 Afon Cwm Hafod Oer, Gwerngraig, Dolgellau. 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 (sheets XXXVII NE and XXXVII SE).

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Gwynedd Historic Environment Record (HER)

NMR Site Record Cards

RSK Group PLC (unpublished report) 2010. *Gas Pipeline Replacement: Llanwrin to Dolgellau*

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

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
2562	Site of Fulling Mill, Garthgynfor	Fulling mill	Industrial	Medieval
4764	Circular Feature, Brithdir and Llanfachreth	Feature	Unassigned	Unknown
13597	Peat Stack, Possible, Cadair Idris	Peat stand	Agriculture and subsistence	Unknown
13609	Peat Stack, Possible, Cadair Idris	Peat stand	Agriculture and subsistence	Unknown
13653	Peat Cutting, NE of Llyn Arran Cadair Idris	Peat cutting	Industrial	Modern
13654	Shepherd Shelter or Sheepfold, NE of Llyn Arran	Shepherds hut	Agriculture and subsistence	Unknown
13655	Sheepfold, Cadair Idris	Sheep fold	Agriculture and subsistence	Unknown
13656	Peat Cutting, NE of Llyn Arran Cadair Idris	Peat cutting	Industrial	Modern
13684	Rectangular Structure, Cadair Idris	Feature	Unassigned	Unknown
13772	Shelter, Cadair Idris	Shelter	Agriculture and subsistence	Unknown
13812	Hut Circle, Possible, Cadair Idris	Hut circle	Domestic	Prehistoric
13864	Cairn, Cadair Idris	Cairn	Unassigned	Unknown
13865	Trackway, Cadair Idris	Trackway	Transport	Unknown
13866	Sheepfold, Cadair Idris	Sheep fold	Agriculture and subsistence	Unknown
13873	Sheepfold, Cadair Idris	Sheep fold	Agriculture and subsistence	Unknown
13874	Trial Mines, Cadair Idris	Trial mine	Industrial	Post-medieval
13880	Peat Stack, Cadair Idris	Peat stand	Agriculture and subsistence	Unknown
13881	Cairn, Possible, Cadair Idris	Cairn	Unassigned	Unknown
13882	Stone Pile, Cadair Idris	Stone pile	Unassigned	Post-medieval
13883	Long Hut, Possible, Cadair Idris	Long hut	Domestic	Medieval
13884	Peat Stack, Possible, Cadair Idris	Peat stand	Agriculture and subsistence	Unknown
13885	Mine, Cadair Idris	Mine	Industrial	Post-medieval
16980	Garthgynfor Medieval Township, Dolgellau	Township	Civil	Medieval

17723	Part of Roman Road, Brithdir - Cefn Caer, Pennal	Road	Transport	Roman
17724	Part of Roman Road, Brithdir - Cefn Caer, Pennal	Road	Transport	Roman
17725	Part of Roman Road, Brithdir - Cefn Caer, Pennal	Road	Transport	Roman
19091	Sheepfold, Pen Y Bwlch Coch	Sheepfold	Agriculture and subsistence	Post medieval
19092	Sheepfold, Pen Y Bwlch Coch	Sheepfold	Agriculture and subsistence	Post medieval
19100	Sheepfold, Cefn Naw Clawdd	Sheepfold	Agriculture and subsistence	Medieval
19101	Sheepfold, Cefn Naw Clawdd	Sheepfold	Agriculture and subsistence	Medieval
19102	Sheepfold, Cefn Naw Clawdd	Sheepfold	Agriculture and subsistence	Medieval
19103	Sheepfold, Cefn Naw Clawd	Sheepfold	Agriculture and subsistence	Post medieval
20864	Ironstone Mine, Cadair Idris	Ironstone mine	Industrial	Post-medieval
21733	Bwlch Coch Quarry, Dolgellau	Ironstone mine	Industrial	Post-medieval
30588	Sheepfold, Cadair Idris	Sheepfold	Agriculture and subsistence	Post medieval
30628	Sheepfold, Gau Graig	Sheepfold	Agriculture and subsistence	Post medieval
64442	Mile Marker	Milepost	Transport	Post medieval

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

Nprn	Name	Broadclass	Type	Period
89341	Gau graig n	Agriculture and subsistence	Sheep fold	Post medieval
89352	Maes coch s	Agriculture and subsistence	Sheep fold	Post medieval, medieval
89353	Maes coch s	Agriculture and subsistence	Sheep fold	Post medieval, medieval
310064	Garthgynfawr, settlement	Unassigned	Settlement	Post medieval
310065	Garthgynfawr, ironstone workings	Industrial	Ironstone quarry	Post medieval
400836	Cefn-y-clawydd, road	Transport	Road	Roman
402332	Pen-y-bwlch-coch, possible settlement features east of	Unassigned	Settlement	Unknown
411850	Hafod-oer to ty'n-y-rhos field drainage ditches	Agriculture and subsistence	Drainage system	Post medieval
412617	Lletty'r-goegen	Agriculture and subsistence	Field barn	Post medieval
412618	Cefnecla farmstead;cefn-y-clawdd	Agriculture and subsistence	Farm	Post medieval
421844	Gau craig, cadair idris, summit enclosure	Agriculture and subsistence, unassigned	Enclosure	Medieval, prehistoric
527376	Mynydd ceiswyn, long hut	Domestic	Long hut	Post medieval
527377	Mynydd ceiswyn, drainage ditches	Water supply and drainage	Drainage ditch	Modern
527378	Cefn y clawdd, sheep fold	Agriculture and subsistence	Sheep fold	Post medieval
527380	Cefn clawdd, ditch	Water supply and drainage	Ditch	Post medieval
527381	Cefn y clawdd, peat cutting i	Industrial	Peat cutting	Post medieval
527384	Bwlch llyn bach, milepost	Transport	Milepost	Modern
527385	Bwlch llyn bach, path	Transport	Path	Post medieval
527386	Bwlch llyn bach, field wall	Agriculture and subsistence	Field boundary	Post medieval

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

Number	Name	Grade
23202	Mile Marker	II

