



**Afon Craig Las Hydro, Nantlle,
Gwynedd.
March 2015
V 1.0**

aeon archaeology



Archaeological Assessment
Project Code: A0056.1
Report no. 0059



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Afon Craig Las Hydro, Nantlle, Gwynedd. March 2015

Report no. 0059 v1.0

Archaeological Assessment

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Project Code: A0056.1

Date: 26/03/2015

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1.0 NON-TECHNICAL SUMMARY

Aeon Archaeology was asked by Greenerth Hydro Ltd to carry out an archaeological assessment and field visit of a proposed hydro-electric scheme with turbine house, buried penstock (pipeline), and electrical cable connection. The proposed scheme intake is to be located on the western bank of the Afon Craig Las, approximately 1.2km south of the village of Dyffryn Nantlle, Gwynedd and within the Snowdonia National Park Authority.

The archaeological assessment identified twenty-two archaeological sites within the 40.0m wide assessment corridor centred on the pipe route, including a potential Roman or medieval settlement site of national importance. The proposed scheme will directly impact upon eight archaeological features and site specific recommendations have been made to mitigate these effects.

Moreover, the identification of a nationally important settlement site incorporating round huts and rectangular structures as well as paddocks delineated by relict field walls has necessitated the recommendation of relocating the penstock route further to the west in order to avoid this rather extensive site. To further mitigate any potential impacts upon below ground remains it has also been recommended that a watching brief be maintained during all groundworks within the grazing field demarcated by the forested slopes to the north and the field wall to the south.

2.0 INTRODUCTION, AIMS AND PROJECT DESIGN

Aeon Archaeology was asked by Greenerth Hydro Ltd to carry out an archaeological assessment and field visit of a proposed hydro-electric scheme with turbine house, buried penstock (pipeline), and electrical cable connection. The proposed scheme intake is to be located on the western bank of the Afon Craig Las, approximately 1.2km south of the village of Dyffryn Nantlle, Gwynedd and within the Snowdonia National Park Authority (SNPA) (figure 1).

The proposed scheme will consist of an intake weir located at **NGR SH 52086 51865** and a c.1.0km long buried penstock running north to a turbine house located at **NGR SH 52204 52750** and which will be installed on the western bank of the Afon Craig Las. In addition a buried new power cable will run west from the turbine house for approximately 1.13km to an existing transformer at **NGR SH 51067 52722**. An existing trackway will be used to transport materials to and from the site.

A mitigation brief was not prepared for this scheme by the SNPA Archaeologist but the following statement was made a condition of full planning permission:

Prior to any work commencing (including any ground disturbance works or site clearance) pursuant to this permission the applicant/developer shall submit to and receive written approval from the Local Planning Authority for an archaeological specification for a programme of works which must meet all relevant archaeological standards.

The reason for this condition is:

To ensure the implementation of an appropriate programme of archaeological mitigation in accordance with the requirements of Planning Policy Wales 2010 and Welsh Office Circular 60/96 Planning and the Historic Environment: Archaeology (Condition 6 of Planning Reference NP3/22/89).

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 40.0m 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, Caernarfon. Information on Scheduled Ancient Monuments and Listed Buildings was obtained from Cadw.

The following report conforms to the guidelines specified in *Standard and Guidance for Archaeological Desk-based Assessment* (Chartered Institute for Archaeologists, 1994, rev. 2007).

The archaeological assessment considered the following:

- (i) The history of the site;
- (ii) The significance of any remains in their context both regionally and nationally;
- (iii) The potential impact of the proposed development on known sites of archaeological importance including their setting.

The archaeological assessment was undertaken in four stages:

- (i) Archival research

- (ii) Field visit/site walkover of all accessible areas
- (iii) Written report
- (iv) Project archive



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



Plate 02: Proposed turbine house location, from the north. 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 from Cadw were examined in the regional HER. 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 archives.
- Results from previous archaeological work within the area was also reviewed.

3.2 Site walkover

The site walkover was carried out on 23rd March 2015 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 550D) set to maximum resolution (72 dpi).

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 6.0. 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. The criteria used for allocating features to categories of importance are based on existing statutory designations and, for non-designated assets, the Secretary of State's non-statutory criteria for Scheduling Ancient Monuments; these are set out in National Planning Policy Framework (NPPF) and Welsh Office Circular 60/96.

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 **A0056.1** with the originals being lodged in a suitable repository to be agreed with the archaeological curator.

Any artefacts arising from future phases of fieldwork will be lodged with the Gwynedd Museum and Art Gallery, Bangor, Gwynedd.

4.0 ARCHAEOLOGICAL AND TOPOGRAPHICAL BACKGROUND

4.1 Topographic Description

The proposed hydro-electric scheme intake is located on the western bank of the Afon Craig Las, approximately 1.2km south of the village of Dyffryn Nantlle, Gwynedd and within the Snowdonia National Park Authority.

The proposed scheme will consist of an intake weir located at **NGR SH 52086 51865** and a c.1.0km long buried penstock running north to a turbine house located at **NGR SH 52204 52750** and which will be installed on the western bank of the Afon Craig Las. In addition a buried new power cable will run west from the turbine house for approximately 1.13km to an existing transformer at **NGR SH 51067 52722**. An existing trackway will be used to transport materials to and from the site.

The site lies within the parish of Llanllyfni Community, within the unitary authority of Gwynedd. Mostly given over to rough pasture, the farmland is dominated by acid grassland within which there are cushions of gorse. The site is mostly enclosed by dry-stone walls although wooden post and wire fence has also been utilised in places. 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 296m OD at the proposed hydro intake with the proposed turbine house lying at approximately 109m OD.

The bedrock geology is of the Nant Francon subgroup, a sedimentary bedrock that formed approximately 451 to 479 million years ago in the Ordovician Period within an environment previously dominated by shallow seas. The superficial deposits are of Devensian-Diamicton till, that formed up to 2 million years ago in the Quaternary Period when the local environment was dominated by Ice Age conditions (British Geological Survey).

4.2 Statutory and non-statutory designations

4.2.1 Non-designated monument points from the Gwynedd Historic Environment Record (figure 1)

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 134 non-designated monuments within 1.0km of the proposed pipeline route (see appendix I) with the following lying within the 40.0m wide assessment corridor centred on the penstock route:

- (i) The medieval *Clearance Cairns* (PRN: 22541);
- (ii) The post-medieval *Fredd Footbridge 1* (PRN: 22532);
- (iii) The post-medieval *Fredd Footbridge 2* (PRN: 22533);
- (iv) The post-medieval *Fredd Sheepfold* (PRN: 22530).

The penstock route also lies within 100.0m of the following sites:

- (i) Approximately 20.0m north of the post-medieval *Fridd Cowshed* (PRN: 22531);
- (ii) Approximately 40.0m southwest of the modern *Drainage Feature, Possible, Dyffryn Nantlle* (PRN: 33912);
- (iii) Approximately 45.0m south of the unknown *Circular Feature, East of Llyn Nantlle Uchaf* (PRN: 7319);
- (iv) Approximately 48.0m west of the unknown *Peat Cuttings, Dyffryn Nantlle* (PRN: 33918);
- (v) Approximately 65.0m east of the post-medieval *Leat, South of Llyn Nantlle Uchaf* (PRN: 22543);
- (vi) Approximately 68.0m southeast of the post-medieval *Fridd Farmstead, Nantlle* (PRN: 22529).

4.2.2 Listed Buildings (figure 2)

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 20 Listed Buildings within 1.0km of the proposed pipeline route (see appendix I) but none lie within the 40.0m assessment zone centred on the pipe or within 500.0m.

4.2.3 National Monuments Record (figure 2)

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 46 non-designated monument points within 1.0km of the pipeline route (see appendix I) with the following lying within the 40.0m wide assessment corridor centred on the penstock route:

- (i) The post-medieval *West of Afon Craig-Las Sheep fold II* (NPRN: 287278).

The penstock route also lies within 100.0m of the following sites:

- (i) Approximately 48.0m west of the post-medieval *West of Afon Craig-Las Peat Cutting* (NPRN: 287279).

4.2.4 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 2 Scheduled Ancient Monuments within 1.0km of the proposed pipeline route (see appendix I) but none lie within the 40.0m assessment zone centred on the pipe or within 500.0m.

4.2.5 Historic Landscape Character Areas (HLCAs) (figure 3)

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

- (i) The *Dyffryn Nantlle Landscape of Outstanding Historic Interest* (HLW(Gw)9).

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

- (i) The *Floor of the Nantlle Valley* Historic Landscape Character area (HLCA: 49);
- (ii) The *Nantlle Valley Lower Slopes* Historic Landscape Character area (HLCA: 37);
- (iii) The *Nantlle Valley Upper Slopes* Historic Landscape Character area (HLCA: 42).

4.2.6 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.

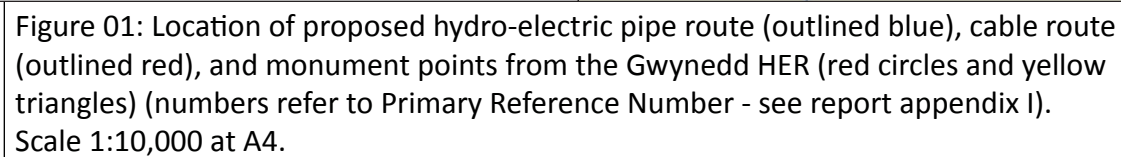
There are no historic parks and gardens within the 40.0m wide assessment corridor centred on the pipe route or within 1.0km of the proposed development area.

4.2.7 Events

The location of the proposed pipeline route is included within the Historic Landscape Characterisation of Caernarfon-Nantlle (GAT report 402) carried out in 2001 but no specific sites were identified as part of the work. Furthermore, the localised landscape of the Nantlle valley has been covered within several reports including a desk-top study of the Ty Mawr West slate quarry in 2002 by Engineering Archaeological Services Ltd, an archaeological evaluation by the Gwynedd Archaeological Trust in 1992, and an assessment of the Nantlle slate quarrying complex by Govannon Consultancy in 2002. However, all of these study areas lay outside of the proposed pipeline route and no relevant information concerning the study area was gained.

A survey commissioned by the RCAHMS and undertaken by Oxford Archaeology North was undertaken in 2006 of the Nantlle Valley. This report covered the proposed hydro route location and identified a prehistoric round house settlement (NPRN: 287277) approximately 149.0m to the west, and a suspected medieval house platform (NPRN: 287280) approximately 123.0m to the west, of the penstock route respectively.

An archaeological assessment of a micro hydro-electric scheme was undertaken at Gelli Ffrydiau and Ty Coch to the north and south of Llyn Nantlle Uchaf respectively by Aeon Archaeology in 2013 and 2014 (Aeon Archaeology report 0004 and 0034). These reports have been utilised to provide some background historical information for this proposed scheme.



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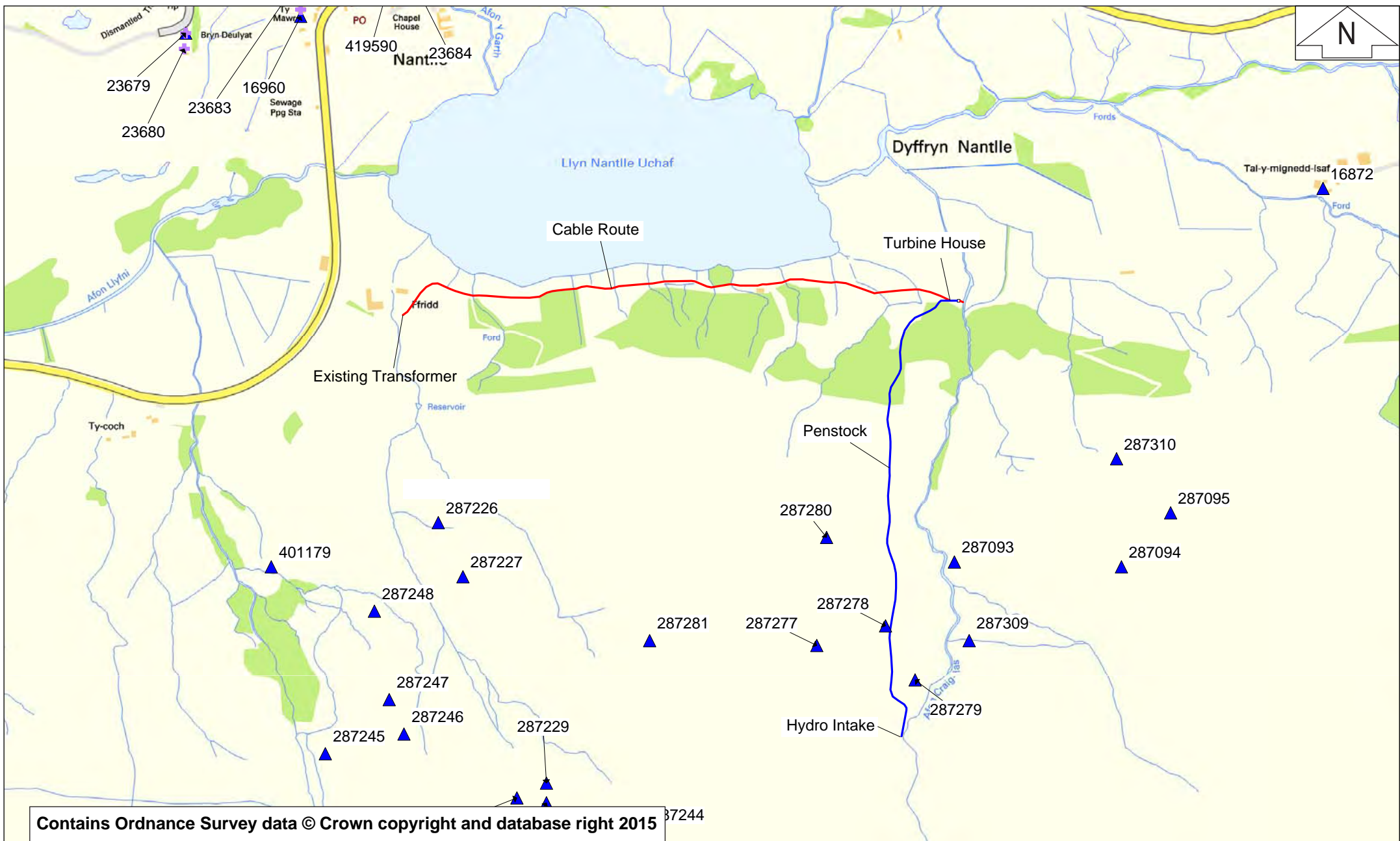
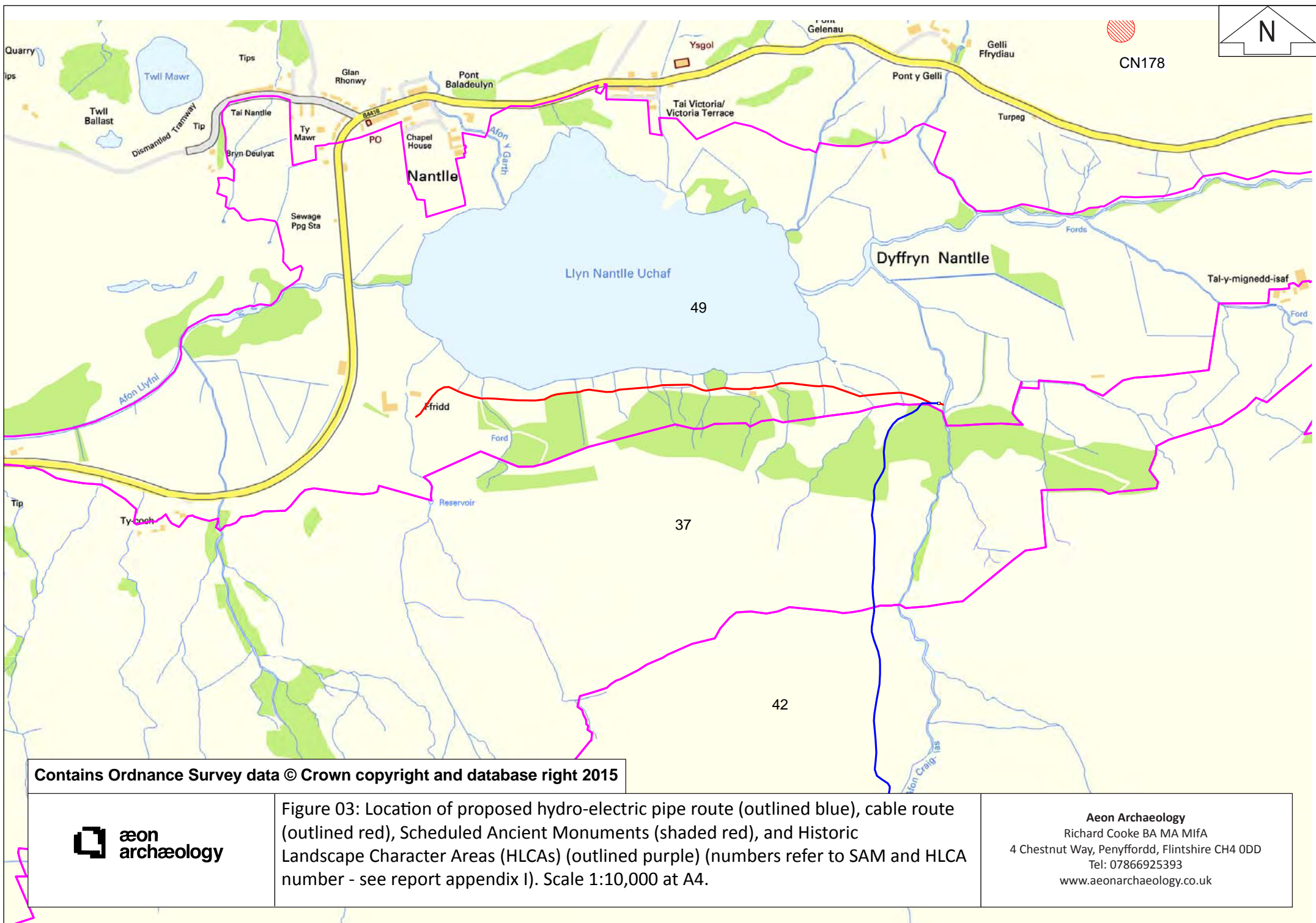


Figure 02: Location of proposed hydro-electric pipe route (outlined blue), cable route (outlined red), monument points from the National Monuments Record (blue triangles), and Listed Buildings (purple crosses) (numbers refer to ID number - see report appendix I). Scale 1:10,000 at A4.

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5.0 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

5.1 Prehistoric and Roman Period

The site is located within the Dyffryn Nantlle Registered Landscape of Outstanding Historic Interest (HLW (Gw) 9), designated primarily for the range and quality of its extensive relict archaeological remains, mainly dating from the prehistoric, Roman, and medieval periods. In addition, there are extensive post-medieval slate quarries and associated spoil tips.

There is evidence of human occupation within the Nantlle valley since the Bronze Age, and it is likely that the copper deposits at Drws y Coed, approximately 2.3km to the east of the proposed development area, acted as a catalyst for that occupation. Evidence from the Bronze Age is however mostly limited to a scatter of burial cairns (PRN 599, 138, 2780, 1429, 3345, 1829, and 600) and burnt mounds (PRN 1388, 126, and 1389) across the northern slopes of the Nantlle valley.

Physical evidence becomes more frequent in the Iron Age and Romano periods. Approximately 149.0m to the west of the penstock route is a hut circle settlement (NPRN: 287277) situated on a steep northeast facing slope above the Nantlle valley. At the centre of the settlement is a hut circle measuring 7.5m in diameter. The hut circle has dry-stone walls that comprise of medium to large sized unworked stones that have been built into irregular courses that measure 1.20m wide and 0.30m high. In addition there is a small sub-ovoid structure that lies to the northeast measuring 5.0m long by 4.0m wide with walls 0.60m wide and 0.40m high. The field walls of the settlement join each structure and form a partially enclosed field-system of over 90.0m square that is partially shown on the RCAHMW Aerial Photographic Interpretation (Schofield, P.J. 2006).

Further physical evidence of the prehistoric period has been identified approximately 161.0m west and 196.0m southwest of the penstock route respectively, where prehistoric round huts (PRN: 6288 and 6313) are recorded on the Gwynedd Historic Environment Record.

In the wider landscape and approximately 900.0m north of the proposed turbine house location a defended enclosure that is likely to be a prehistoric hill fort (PRN: 2781) has been identified as occupying a rocky knoll at the west end of a small ridge. The enclosure measures approximately 27.0m in diameter and has wall measuring approximately 2.7m in width and constructed from large flat slabs with marked batters on each face (GAT report 580).

Additional physical evidence of the prehistoric period has been found in the form of a stone mould for casting thin metal oval plates (PRN: 2782) found approximately 430.0m north of the proposed cable route, and an axe hammer with hour glass perforation (PRN: 2783) found approximately 740.0m to the northeast.

Numerous hut circle sites are found clinging to the northern and southern upland valley slopes between the slate quarry of Pen yr Orsedd in the west and Fron quarry in the east. A large area of the south-western slopes of Mynydd Mawr is included within the Scheduled Ancient Monument of *Hut Circles and field systems north east of Gelli Ffrydiau* (CN 179), and incorporates several clusters of hut circles with associated relict field walls enclosing paddocks. These sites constitute part of a wider relict historic landscape, in which evidence of various periods of settlement and land-use can be recognised. The group value of these early settlements is of particular importance and can be seen as being of national, if not international importance.

The extensive remains of Roman settlement within the Nantlle valley strongly suggest that the area was being exploited at this time for its resources. This would almost certainly have included the quarrying of slate and most likely the mining of copper ore. Undoubtedly food production both on the valley bottom and slopes would also have taken place, and would likely have played an important role in supplying the Roman fort of Segontium at Caernarfon.

Physical remains of the Roman period can be seen 1.0km to the north of the proposed scheme in the *Hut Circles and field systems north east of Gelli Ffrydiau* (CN 179). This scheduled area comprises a land take of approximately 0.53km² and includes the remains of at least twelve separate hut circle settlements belonging primarily to the Roman period.

5.2 Early Medieval, Medieval and Post-Medieval Periods

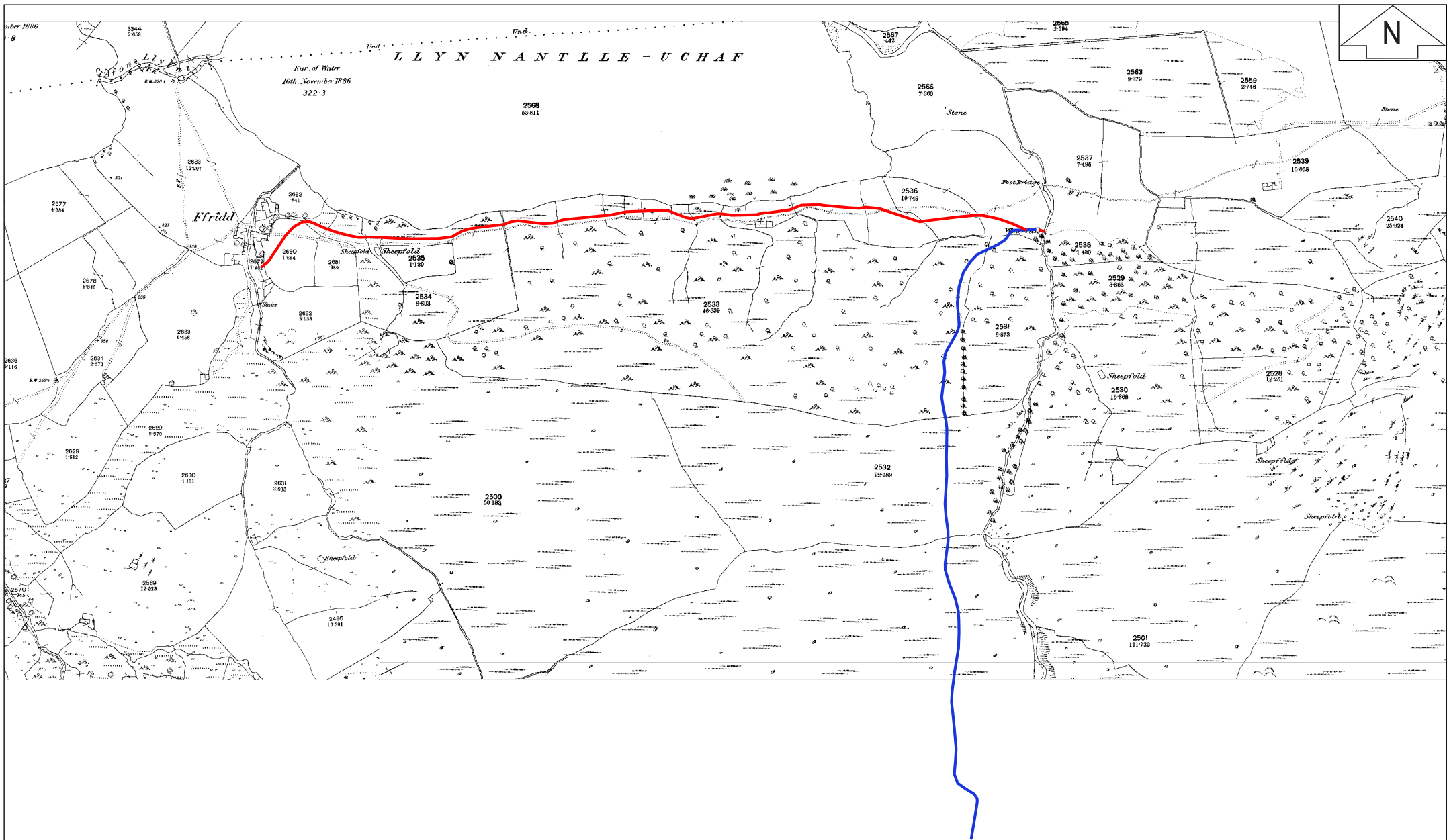
The Early Medieval period is poorly represented within this part of northwest Wales and there are no known sites within 1.0km of the proposed pipeline. By the 12th and 13th centuries the kingdom of Gwynedd was divided into administrative *commotes*, administered through a network of local centres governed by a royal court or *Llys*. The township of a commote associated with a *llys* was known as the *maerdref*, in which the Prince's agent would reside.

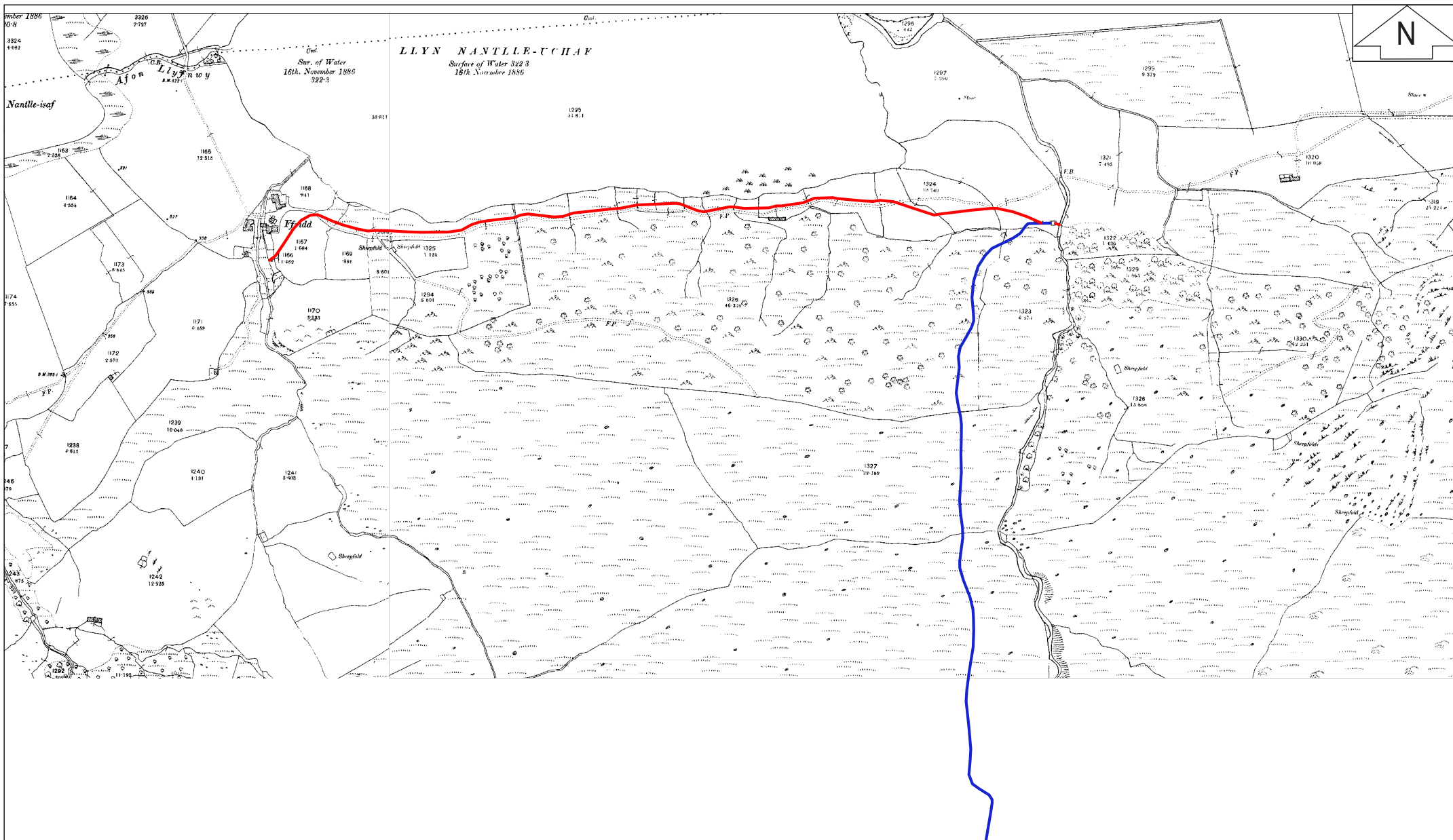
The component parts of a *llys* included the royal hall and other buildings associated with the residence, as well as the royal demesne worked by bond tenants, and the settlements of these tenants which constituted small hamlets. One such *llys* was located at Baladeulyn in Nantlle, although the precise location of the *llys* is not known. The *llys* and royal lands became the property of the English King upon the conclusion of the conquest of Wales (Aeon Archaeology report 0004).

Several suspected medieval long-huts have been identified within the localised landscape lying approximately 1.14km to the east (PRN: 58568 and 58570); approximately 490.0m to

the west (NPRN: 287281); and approximately 120.0m to the west (NPRN: 287280) of the proposed penstock route. The latter of these is a sub-rectangular house platform that measures 7.0m in length by 4.0m in width. The site is practically indiscernible amongst long reeds but may be a longhouse and has dry-stone walls of large unworked stones that have been built into irregular courses that measure 0.50m wide and 0.50m high (Schofield, P.J. 2006).

The proposed route of the hydro-electric scheme is depicted in detail on the first, second and third edition 25" county series Ordnance Survey maps of 1889, 1900 and 1916 respectively (figures 4, 5, and 6) with the exception of the initial 100.0m from the hydro intake which is not shown. All three maps depict the area much as it exists today, with the exception that the B4418 road had not been constructed by this point in time. The farms of Fridd and Ty Coch are shown on all three maps, and the existing field boundaries are all shown.





6.0 ASSESSMENT OF HISTORICAL ASSETS

6.1 Definitions

Definitions of importance, impact, and significance of effect as used in the gazetteer (section 6.2) are listed below. Definitions of assessment and mitigation techniques as used in the gazetteer are listed in appendix II.

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			

7.0 SITE GAZETTEER

The field walkover discovered 21 sites of archaeological and historic interest within the 40.0m wide assessment corridor, as listed below. Analysis of aerial photography discovered a series of features which have been included within the gazetteer as site 22.

In accordance with Paragraph 128 of the National Planning Policy Framework and Welsh Office Circular 60/96 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 if possible. 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 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. All archaeological/historical sites identified are depicted on figure 7.

1. Sheepfold	PRN: 22530
Figure: 7	Plate: 3
NGR: SH 51241 52745	Period: Post-medieval
<p>Description</p> <p>A large sub-rectangular sheepfold enclosure measuring approximately 122.0m in length by 47.0m in width is located to the immediate south of the farm trackway. The walls measure 1.3m in height by 0.5m in width and are constructed from dry-stone, single-skin medium sized sub-rounded cobbles.</p> <p>The sheepfold is depicted on the first, second and third edition Ordnance Survey 25" County Series maps of 1889, 1900 and 1916 respectively (figures 4, 5 and 6) and is likely to be post-medieval in date and is considered to be of local importance. The sheepfold lies approximately 6.0m south of the proposed cable trench route and as such will not be impacted upon by the proposed works and as such no further assessment or mitigatory measures are proposed.</p>	
Category of importance: Local	
Level of impact: None	
Significance of effect: Neutral	
Recommendations for further assessment: None	
Recommendations for further mitigatory measures: None	



Plate 03: Sheepfold (feature 1), from the southeast. Scale 1.0m.

2. Trackway	PRN: 60155
Figure: 7	Plate: 4
NGR: SH 51098 52793 – SH 51931 52789	Period: Post-medieval
<p>Description</p> <p>A trackway measuring 2.0m in width runs from Fridd Farm in the west along the southern bank of Llyn Nantlle to the enclosed grazing fields in the east. The trackway is made up of deposited stone rubble and is depicted on the first, second and third edition Ordnance Survey 25" County Series maps of 1889, 1900 and 1916 respectively (figures 4, 5 and 6).</p> <p>The trackway is most likely post-medieval although an earlier date is also possible, and it is considered to be of local importance. The new electrical cable will be trenched into the trackway for approximately 1.0km and as such will have a medium adverse direct physical impact upon the feature resulting in a slight adverse significance of effect during the construction phase. There will not be any further impact upon completion of the works.</p> <p>It is proposed that a basic record of the trackway be taken prior to the commencement of works, however the record presented in this report should be seen as being commensurate with a basic record level and as such no further assessment or mitigatory measures are proposed.</p>	
Category of importance: Local	
Level of impact: Medium adverse direct physical (during construction phase)	
Significance of effect: Slight adverse (during construction phase)	
Recommendations for further assessment: None	
Recommendations for further mitigatory measures: Basic record – completed as part of the assessment	



Plate 02: Trackway (feature 2), from the west. Scale 1.0m.

3. Ruined Farmstead	PRN: 22531
Figure: 7	Plate: 5
NGR: SH 51799 52772	Period: Post-medieval
<p>Description</p> <p>A cow shelter is recorded on the Gwynedd HER at this point, however the structure is in fact a ruined farmstead. The structure measures approximately 24.0m in length by 8.0m in width orientated east to west. The walls are constructed from dry-stone single-skin medium sized sub-rounded cobbles surviving generally to 2.0m in height, with the exception of the western gable which stands 3.5m to the eaves. The western half of the structure is occupied by the former dwelling, with the eastern half given over to an animal barn. The structure is roofless and becoming overgrown.</p> <p>The farmstead is depicted on the first, second and third edition Ordnance Survey 25" County Series maps of 1889, 1900 and 1916 respectively (figures 4, 5 and 6) and is of post-medieval date. The structure will not be impacted upon by the proposed works and as such there are no further recommendations for assessment or mitigatory measures.</p>	
Category of importance: Local	
Level of impact: None	
Significance of effect: Neutral	
Recommendations for further assessment: None	
Recommendations for further mitigatory measures: None	



Plate 05: Ruined cottage (feature 3), from the northeast. Scale 1.0m.

4. Fridd Footbridge 1	PRN: 22532
Figure: 7	Plate: 6
NGR: SH 51946 52789	Period: Post-medieval
Description A footbridge constructed from dry-stone medium sized sub-rounded cobbles and measuring 3.0m spans the stream at this point. The bridge is shown on the first, second and third edition Ordnance Survey 25" County Series maps of 1889, 1900 and 1916 respectively (figures 4, 5 and 6) and is almost certainly post-medieval in date. The new cable route will be trenched alongside the bridge and as such it will not be impacted upon by the proposed scheme. 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 06: Footbridge (feature 4), from the west. Scale 1.0m.

5. Fridd Footbridge 2	PRN: 22533
Figure: 7	Plate: 7
NGR: SH 51989 52794	Period: Post-medieval
<p>Description A footbridge constructed from dry-stone medium sized sub-rounded cobbles and measuring 3.0m spans the stream at this point. The bridge is shown on the first, second and third edition Ordnance Survey 25" County Series maps of 1889, 1900 and 1916 respectively (figures 4, 5 and 6) and is almost certainly post-medieval in date.</p> <p>The new cable route will be trenched approximately 13.0m south of the bridge and as such it will not be impacted upon by the proposed scheme. No further assessment or mitigatory measures are proposed.</p>	
Category of importance: Local	
Level of impact: None	
Significance of effect: Neutral	
Recommendations for further assessment: None	
Recommendations for further mitigatory measures: None	



Plate 07: Footbridge (feature 5), from the southwest. Scale 1.0m.

6. Fridd Footbridge 3	PRN: 60156
Figure: 7	Plate: 8
NGR: SH 52034 52769	Period: Post-medieval
Description A footbridge constructed from dry-stone medium sized sub-rounded cobbles and measuring 3.0m spans the stream at this point. The bridge is shown on the first, second and third edition Ordnance Survey 25" County Series maps of 1889, 1900 and 1916 respectively (figures 4, 5 and 6) and is almost certainly post-medieval in date. The new cable route will be trenched alongside the bridge and as such it will not be impacted upon by the proposed scheme. 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 08: Footbridge (feature 6), from the west. Scale 1.0m.

7. Stream Revetment Wall	PRN: 60157
Figure: 7	Plate: 9
NGR: SH 52208 52748	Period: Post-medieval
<p>Description</p> <p>A stock-proof dry-stone revetment wall is located on the western bank of the Afon Craig Las to the immediate east of the turbine house location. The wall measures approximately 1.0m in height on the stream side and has upstanding remains approximately 0.5m in height on the field side. It is constructed from medium sized sub-angular cobbles and has been reinforced by a modern wooden post and wire fence.</p> <p>The wall is not depicted on the first, second and third edition Ordnance Survey 25" County Series maps of 1889, 1900 and 1916 respectively (figures 4, 5 and 6) but is likely to have been in existence at the time, forming a continuation of the eastern field boundary. The wall is almost certainly post-medieval in date and considered to be of local importance.</p> <p>The fallout pipe from the new turbine house will be required to be trenched through the revetment wall and thus it is expected that there will be a medium adverse direct physical impact resulting in a slight adverse significance of effect during the construction phase. As such it is recommended that a photographic record of the breached wall section be taken during the works and that the wall be reinstated upon completion.</p>	
Category of importance: Local	
Level of impact: Medium adverse direct physical (during construction phase)	
Significance of effect: Slight adverse (during construction phase)	
Recommendations for further assessment: None	
Recommendations for further mitigatory measures: Photographic record during breach and reinstatement upon completion of works	



Plate 09: Stream revetment wall (feature 7), from the west. Scale 1.0m.

8. Field Boundary Wall	PRN: 60158
Figure: 7	Plate: 10
NGR: SH 52203 52734 – SH 52132 52747	Period: Post-medieval
<p>Description</p> <p>The remains of a dry-stone field boundary wall measuring approximately 0.5m in height and running from east to west marks the southern boundary of the enclosed grazing field at this point. The wall is constructed from medium and occasionally large sized sub-rounded cobbles and has become overgrown with turf. The wall has fallen out of use and been replaced with a modern wooden post and wire fence.</p> <p>The wall is depicted on the first, second and third edition Ordnance Survey 25" County Series maps of 1889, 1900 and 1916 respectively (figures 4, 5 and 6) and is likely to have been established as part of land improvements during the 18th-19th Centuries resulting in the reclamation of the immediate land surrounding Llyn Nantlle. As such the wall is considered to be of local importance.</p> <p>The hydro pipe will be required to be trenched through the boundary wall and thus it is expected that there will be a low adverse direct physical impact resulting in a neutral or slight adverse significance of effect during the construction phase. As such it is recommended that a photographic record of the breached wall section be taken during the works and that the wall be reinstated upon completion.</p>	
Category of importance: Local	
Level of impact: Low adverse direct physical (during construction phase)	
Significance of effect: Neutral or slight adverse (during construction phase)	
Recommendations for further assessment: None	
Recommendations for further mitigatory measures: Photographic record during breach and reinstatement upon completion of works	



Plate 10: Field wall (feature 8), from the north. Scale 1.0m.

9. Former Field Wall	PRN: 60159
Figure: 7	Plate: 11
NGR: SH 52132 52747 – SH 52070 52654	Period: Post-medieval
<p>Description</p> <p>The remains of a dry-stone field boundary wall measuring approximately 0.5m in height and running from north to south meanders up the steep wooded slope at this point. The wall is constructed from medium and occasionally large sized sub-rounded cobbles and has become overgrown with turf and moss. The wall has fallen out of use and has become ruinous and diffuse in places.</p> <p>The wall is depicted on the first, second and third edition Ordnance Survey 25" County Series maps of 1889, 1900 and 1916 respectively (figures 4, 5 and 6) and originally formed the western boundary of a large grazing field.</p> <p>The hydro pipe will be required to be trenched through the boundary wall and thus it is expected that there will be a low adverse direct physical impact resulting in a neutral or slight adverse significance of effect during the construction phase. As such it is recommended that a photographic record of the breached wall section be taken during the works and that the wall be reinstated upon completion.</p>	
Category of importance: Local	
Level of impact: Low adverse direct physical (during construction phase)	
Significance of effect: Neutral or slight adverse (during construction phase)	
Recommendations for further assessment: None	
Recommendations for further mitigatory measures: Photographic record during breach and reinstatement upon completion of works	



Plate 11: Ruined field wall (feature 9), from the north. Scale 1.0m.

10. Relict Field Wall	PRN: 60160
Figure: 7	Plate: 12
NGR: SH 52191 52555 – SH 51920 52560	Period: Unknown (Roman/medieval)
<p>Description</p> <p>The remains of a dry-stone field boundary wall measuring approximately 1.0m in height, 1.0m in width and running from east to west is located at this point. The wall is constructed from medium sized sub-rounded cobbles and has become very overgrown with turf and bracken. The wall has fallen out of use and has become ruinous and diffuse in places.</p> <p>The wall is depicted on the first, second and third edition Ordnance Survey 25" County Series maps of 1889, 1900 and 1916 respectively (figures 4, 5 and 6) and originally formed the northern boundary of a large grazing field.</p> <p>The wall appears to run parallel with a series of features identified from aerial photographs that are believed to be Roman or possibly medieval paddocks (see feature 22) and as such this wall may have such origins.</p> <p>The hydro pipe will be required to be trenched through the boundary wall and thus it is expected that there will be a low adverse direct physical impact resulting in a neutral or slight adverse significance of effect during the construction phase. As the wall is potentially of regional importance it is recommended that a watching brief be maintained during the works and that a photographic record of the revealed wall section be taken.</p>	
Category of importance: Unknown (regional)	
Level of impact: Low adverse direct physical (during construction phase)	
Significance of effect: Slight adverse (during construction phase)	
Recommendations for further assessment: None	
Recommendations for further mitigatory measures: Watching brief during wall breach; photographic record of revealed section and reinstatement upon completion of works.	



Plate 12: Ruined field wall (feature 10), from the north. Scale 1.0m.

11. Rectangular Hut	PRN: 60161
Figure: 7	Plate: 13
NGR: SH 52043 52439	Period: Unknown (Roman/medieval)
<p>Description</p> <p>The remains of a rectangular hut measuring approximately 3.0m in width by 4.0m in length and orientated east to west is located at this point. The upstanding wall remains measure on average 0.25m in height by 0.5m in width and appear to be partly formed from in-situ glacial boulders. A relict wall of possible Roman or medieval date lies approximately 11.0m to the south and is likely to be associated with the rectangular hut.</p> <p>The hut is not depicted on the first, second and third edition Ordnance Survey 25" County Series maps of 1889, 1900 and 1916 respectively (figures 4, 5 and 6) however the rectangular form and dimensions of the structure would suggest a Roman or medieval origin.</p> <p>The structure lies approximately 16.0m to the west of the proposed hydro pipe route and as such will not be impacted by it. No further assessment or mitigatory measures are proposed aside from avoidance.</p>	
Category of importance: Unknown (regional/national)	
Level of impact: None	
Significance of effect: Neutral	
Recommendations for further assessment: None	
Recommendations for further mitigatory measures: Avoidance	



Plate 13: Possible rectangular hut (feature 11), from the west. Scale 1.0m.

12. Relict Field Wall	PRN: 60162
Figure: 7	Plate: 14
NGR: SH 52053 52435 - SH 52076 52432	Period: Unknown (Roman/medieval)
<p>Description</p> <p>A relict field wall measuring 0.5m in height by 0.5m in width runs from east to west across the grazing field. The western end of the wall appears to terminate close to a rectangular hut of possible Roman or medieval date and it is likely that this field wall was contemporary with it. The wall is constructed from medium sized sub-angular glacial boulders to one course high and of single-skin construction. Parts of the wall have become overgrown with long grass and have become difficult to see on the ground.</p> <p>The wall is not depicted on the first, second and third edition Ordnance Survey 25" County Series maps of 1889, 1900 and 1916 respectively (figures 4, 5 and 6) however it does run parallel with relict wall (feature 17) to the south, as well as with field walls identified from aerial photographs to the north (feature 22). It is therefore likely that this wall forms part of a series of paddocks across this part of the site which may well be of Roman or medieval date and considered to be of regional or even national importance.</p> <p>The wall crosses the proposed penstock route and as such it is expected that there will be a low to medium adverse direct physical impact upon the wall, resulting in a moderate adverse significance of effect during the construction phase. It is therefore recommended that the penstock route be moved towards the west to avoid breaching this feature. If this is not possible then a programme of archaeological excavation across the point where the penstock breaches the wall will be required in advance of the associated works so that the form and structure of the wall can be fully recorded thus ensuring its preservation by record. Every attempt should also be made to reinstate the wall at this point.</p>	
Category of importance: Unknown (regional/national)	
Level of impact: Low to medium adverse direct physical (during construction phase)	
Significance of effect: Moderate adverse (during construction phase)	
Recommendations for further assessment: None	
Recommendations for further mitigatory measures: 1. Avoidance by rerouting the penstock route to the west <u>or</u> 2. Archaeological excavation across wall in advance of works and reinstatement upon completion.	



Plate 14: Relict wall (feature 12), from the west. Scale 1.0m.

13. Stone Clearance Cairn	PRN: 60163
Figure: 7	Plate: 15
NGR: SH 52068 52412	Period: Medieval
<p>Description</p> <p>A stone clearance cairn measuring 1.5m square and made up from medium and large sub-rounded cobbles is located at this point. The cairn has no apparent structural element and is partly overgrown with mosses and long grass suggesting a probable medieval date.</p> <p>The cairn is not depicted on the first, second and third edition Ordnance Survey 25" County Series maps of 1889, 1900 and 1916 respectively (figures 4, 5 and 6) although it would have certainly been too ephemeral a feature to have been depicted.</p> <p>The cairn lies approximately 9.0m east of the proposed penstock route and as such will not be impacted upon by the proposed works. No further assessment or mitigatory measures are therefore proposed aside from avoidance.</p>	
Category of importance: Local	
Level of impact: None	
Significance of effect: Neutral	
Recommendations for further assessment: None	
Recommendations for further mitigatory measures: None/avoidance	



Plate 15: Stone clearance cairn (feature 13), from the northeast. Scale 1.0m.

14. Possible Round Hut	PRN: 60164
Figure: 7	Plate: 16
NGR: SH 52045 52410	Period: Prehistoric/Roman
<p>Description</p> <p>A possible round hut measuring 5.0m external diameter is located at this point. The walls of the hut are barely visible as medium sized sub-rounded cobbles projecting from the turf as well as some larger glacial boulders that have been incorporated into the structure. The hut lies within an area of long-grass although the grass has not encroached into the structure whose buried remains must create conditions unsuitable for its growth.</p> <p>The round hut is not depicted on the first, second and third edition Ordnance Survey 25" County Series maps of 1889, 1900 and 1916 respectively (figures 4, 5 and 6) although it would have certainly been too ephemeral a feature to have been depicted. The round hut is either prehistoric or Roman in date and is considered to be of national importance.</p> <p>The hut lies approximately 12.0m west of the proposed penstock route and as such will not be impacted upon by the proposed works. No further assessment or mitigatory measures are therefore proposed aside from avoidance.</p>	
Category of importance: National	
Level of impact: None	
Significance of effect: Neutral	
Recommendations for further assessment: None	
Recommendations for further mitigatory measures: None/avoidance	



Plate 16: Possible round hut (feature 14), from the northeast. Scale 1.0m.

15. Large Rectangular Hut	PRN: 60165
Figure: 7	Plate: 17 and 18
NGR: SH 52032 52364	Period: Roman/medieval
<p>Description</p> <p>A large rectangular hut measuring 12.0m in length by 5.0m in width and orientated north to south is located at this point. The walls of the structure measure 1.0m in width and stand to an average of 0.3m in height with a double-skin of facing stones between which is a rubble wall core. The internal area of the structure is recessed to approximately 0.5m beneath ground level. There is no visible entrance into the structure.</p> <p>The rectangular hut is not depicted on the first, second and third edition Ordnance Survey 25" County Series maps of 1889, 1900 and 1916 respectively (figures 4, 5 and 6) although the well-constructed walls and rectangular shape in plan would suggest either a Roman or medieval structure and as such is considered to be of national importance.</p> <p>The hut lies approximately 15.0m west of the proposed penstock route and as such will not be impacted upon by the proposed works. No further assessment or mitigatory measures are therefore proposed aside from avoidance.</p>	
Category of importance: National	
Level of impact: None	
Significance of effect: Neutral	
Recommendations for further assessment: None	
Recommendations for further mitigatory measures: None/avoidance	



Plate 17: Large rectangular hut (feature 15), from the south. Scale 1.0m.



Plate 18: Walls of large rectangular hut (feature 15), from the north. Scale 1.0m.

16. Possible Long Hut	PRN: 60166
Figure: 7	Plate: 19
NGR: SH 52078 52376	Period: Medieval
<p>Description</p> <p>A rectangular hut measuring approximately 6.0m in length by 3.5m in width and orientated north to south is located at this point. The walls of the structure measure approximately 0.75m in width and stand to an average of 0.2m in height, although the actual structural form of the walls could not be ascertained due to a poor level of preservation.</p> <p>The rectangular hut is not depicted on the first, second and third edition Ordnance Survey 25" County Series maps of 1889, 1900 and 1916 respectively (figures 4, 5 and 6) although the form and dimensions of the hut would suggest that it is a medieval long-hut and as such of national importance. The hut lies in the north-eastern corner of an enclosed area and probably formed part of a small settlement.</p> <p>The hut lies approximately 19.0m east of the proposed penstock route and as such will not be impacted upon by the proposed works. No further assessment or mitigatory measures are therefore proposed aside from avoidance.</p>	
Category of importance: National	
Level of impact: None	
Significance of effect: Neutral	
Recommendations for further assessment: None	
Recommendations for further mitigatory measures: None/avoidance	



Plate 19: Possible long hut (feature 16), from the north. Scale 1.0m.

17. Relict Enclosure Wall	PRN: 60167
Figure: 7	Plate: 20
NGR: SH 52079 52379 – SH 52045 52382 – SH 52044 52363 – SH 52071 52359	Period: Unknown (Roman/medieval)
<p>Description</p> <p>A relict wall measuring 1.0m in width by 0.5m in height and constructed from medium and large sized sub-rounded glacial boulders encloses an area of approximately 620 square metres. The wall is overgrown with long grass in places and towards its north-eastern edge appears to become a revetment wall, perhaps reinforcing an existing scarp in the landscape at this point. The relict wall encloses a possible medieval long-hut (feature 16) in the northeast corner, and a square structure of unknown date towards the southwest. The enclosure is of unknown date but is suspected to be from the Roman or medieval periods.</p> <p>The enclosure is not depicted on the first, second and third edition Ordnance Survey 25" County Series maps of 1889, 1900 and 1916 respectively (figures 4, 5 and 6) and it is likely that it had long fallen out of use by this point in time. The enclosure runs parallel with another relict field wall to the north (feature 12) as well as with enclosure walls identified on aerial photographs (feature 22) suggesting part of a larger settlement site.</p> <p>The wall crosses the proposed penstock route and as such it is expected that there will be a medium adverse direct physical impact upon the wall as it is breached on the north and south returns, resulting in a moderate or large adverse significance of effect during the construction phase. It is therefore recommended that the penstock route be moved towards the west to avoid breaching this feature. If this is not possible then a programme of archaeological excavation across the point where the penstock breaches the wall will be required in advance of the associated works so that the form and structure of the wall can be fully recorded thus ensuring its preservation by record. A watching brief would also be required during the excavation of the pipe trench within the enclosure. Every attempt should also be made to reinstate the wall at this point.</p>	
Category of importance: National	
Level of impact: Medium adverse direct physical (during construction phase)	
Significance of effect: Moderate or Large adverse (during construction phase)	
Recommendations for further assessment: None	
Recommendations for further mitigatory measures: 1. Avoidance by rerouting the penstock route to the west or 2. Archaeological excavation across wall in advance of works, watching brief during trenching within enclosure, and reinstatement upon completion.	



Plate 20: Relict enclosure wall (feature 17), from the east. Scale 1.0m.

18. Square Structure	PRN: 60168
Figure: 7	Plate: 21 and 22
NGR: SH 52052 52369	Period: Unknown (Prehistoric/Roman/medieval)
<p>Description</p> <p>A square structure measuring 4.0m square and with walls surviving to 0.6m is located at this point. The structure is made from dry-stone medium sized sub-angular cobbles of double-skin construction and measuring 1.0m in width. The structure is surrounded by a gap devoid of stone or possibly a ditch measuring 1.0m in width before being encircled by the remains of a roughly circular wall measuring 1.0m in width and enclosing an area approximately 9.0 to 10.0m in diameter.</p> <p>The structure is not depicted on the first, second and third edition Ordnance Survey 25" County Series maps of 1889, 1900 and 1916 respectively (figures 4, 5 and 6) and it is likely that it had long fallen out of use by this point in time. The structure lies within an enclosure suspected to be of Roman or medieval date (feature 17) along with a possible medieval long-hut (feature 16).</p> <p>It appears likely that this feature was originally a round hut of prehistoric or Roman date that was later modified, perhaps in the medieval or post-medieval periods, to become a sheepfold or shepherd's hut structure.</p> <p>The hut lies approximately 4.0m west of the proposed penstock route and as such will not be impacted upon by the proposed works. No further assessment or mitigatory measures are therefore proposed aside from avoidance.</p>	
Category of importance: National	
Level of impact: None	
Significance of effect: Neutral	
Recommendations for further assessment: None	
Recommendations for further mitigatory measures: None/avoidance	



Plate 21: Square structure (feature 18), from the south. Scale 1.0m.



Plate 22: Square structure (feature 18), from the west. Scale 1.0m.

19. Field Wall	PRN: 60169
Figure: 7	Plate: 23
NGR: SH 52061 52309	Period: Post-medieval
<p>Description</p> <p>A stock-proof field wall measuring 1.3m in height by 0.5m in width and constructed from medium sized sub-angular cobbles runs from east to west forming the southern boundary of the enclosed grazing field. The wall has clearly been rebuilt in modern times and is reinforced by a wooden post and wire fence.</p> <p>The wall is depicted on the first, second and third edition Ordnance Survey 25" County Series maps of 1889, 1900 and 1916 respectively (figures 4, 5 and 6) and it is likely to be of post-medieval date.</p> <p>The field wall will require breaching by the proposed scheme and as such there will be a low adverse direct physical impact resulting in a neutral or slight adverse significance of effect. It is recommended that a photographic record of the revealed wall section is taken during the works and that the wall is reinstated upon completion.</p>	
Category of importance: Local	
Level of impact: Low adverse direct physical (during construction phase)	
Significance of effect: Neutral or slight adverse (during construction phase)	
Recommendations for further assessment: None	
Recommendations for further mitigatory measures: Photographic record of wall section during breach.	



Plate 23: Field wall (feature 19), from the south. Scale 1.0m.

20. Ruined Sheepfold	PRN: 60170
Figure: 7	Plate: 24
NGR: SH 52079 52191	Period: Post-medieval
<p>Description</p> <p>The northeast corner of a rectangular ruined sheepfold is located at this point. The surviving wall remains consist of a single-skin dry-stone construction utilising medium and small sized sub-angular cobbles and measuring 0.5m in height by 0.5m in width. The structure would have measured approximately 4.0m in length by 3.0m in width.</p> <p>The sheepfold is not depicted on the first, second and third edition Ordnance Survey 25" County Series maps of 1889, 1900 and 1916 respectively (figures 4, 5 and 6) although it is likely that it was too ephemeral to depict.</p> <p>The sheepfold lies approximately 7.0m east of the proposed penstock route and as such will not be impacted upon by the proposed works. No further assessment or mitigatory measures are proposed.</p>	
Category of importance: Local	
Level of impact: None	
Significance of effect: Neutral	
Recommendations for further assessment: None	
Recommendations for further mitigatory measures: None	



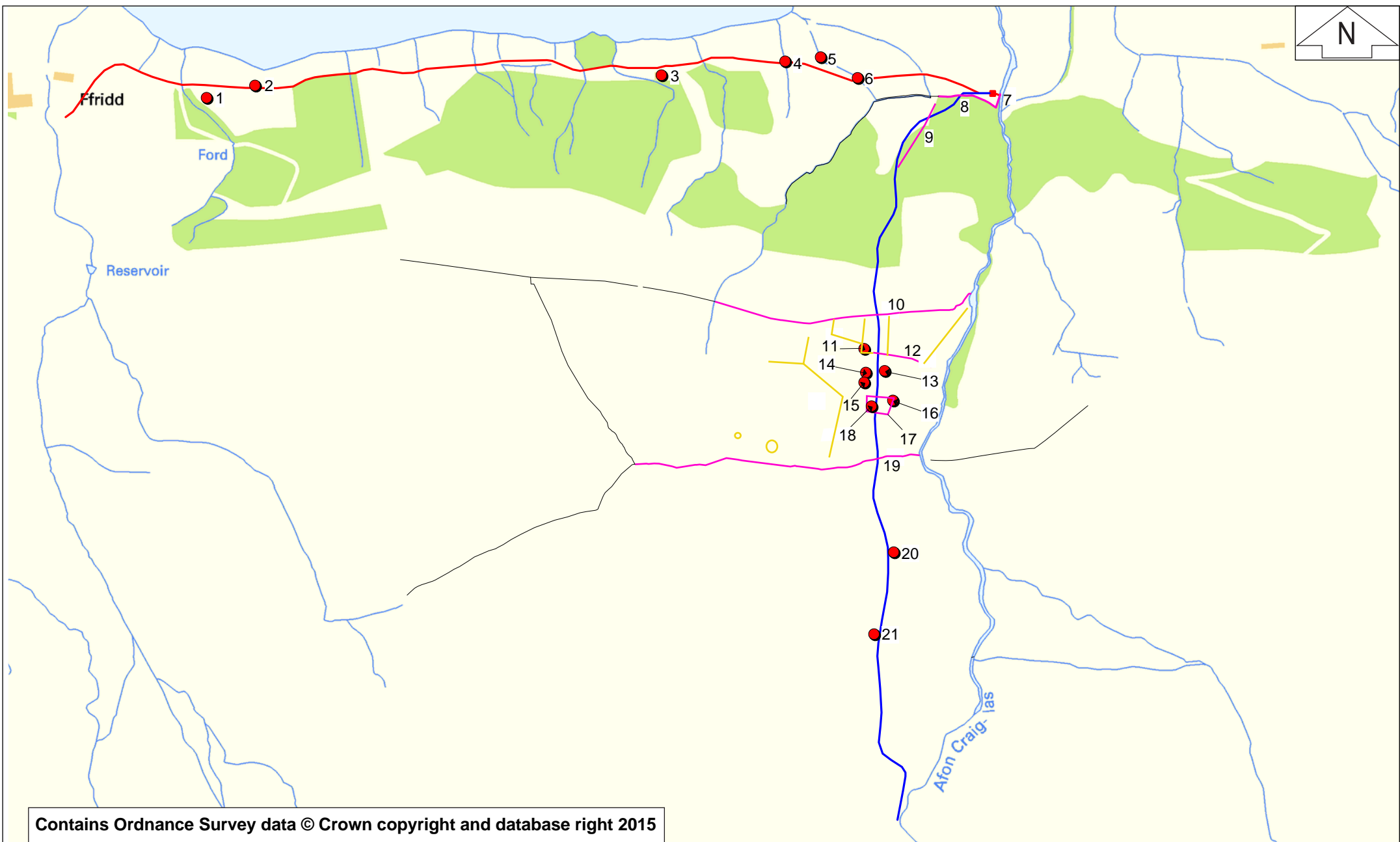
Plate 24: Ruined sheepfold (feature 20), from the northeast. Scale 1.0m.

21. Ruined Sheepfold	PRN: 287278
Figure: 7	Plate: 25
NGR: SH 52055 52091	Period: Post-medieval
<p>Description</p> <p>The remains of a ruined sheepfold is located at this point. The surviving wall remains consist of a single-skin dry-stone construction utilising medium and small sized sub-angular cobbles and measuring 0.5m in height by 0.5m in width. The structure would have measured approximately 4.0m in length by 3.0m in width orientated east to west.</p> <p>The sheepfold is not depicted on the first, second and third edition Ordnance Survey 25" County Series maps of 1889, 1900 and 1916 respectively (figures 4, 5 and 6) although it is likely that it was too ephemeral to depict.</p> <p>The sheepfold lies approximately 6.0m west of the proposed penstock route and as such will not be impacted upon by the proposed works. No further assessment or mitigatory measures are proposed.</p>	
Category of importance: Local	
Level of impact: None	
Significance of effect: Neutral	
Recommendations for further assessment: None	
Recommendations for further mitigatory measures: None	



Plate 25: Ruined sheepfold (feature 21), from the east. Scale 1.0m.

22. Features identified from aerial photographs	PRN: N.A.
Figure: 7, 8 and 9	Plate: N.A.
NGR: N.A.	Period: Prehistoric/Roman/medieval
<p>Description</p> <p>Several features have been identified from aerial photographs including a series of paddocks enclosed by relict walls to the immediate south of the forested area. These appear to be a continuation of relict field walls to the immediate south and may well indicate a settlement of possible Roman or medieval date. These relict walls lie within vicinity of the proposed penstock route and as such alternative pipe routes have been proposed to avoid these features in figure 9.</p> <p>Two further circular features identified to the west may represent prehistoric round huts although these lie well out of the development corridor.</p>	
Category of importance: National	
Level of impact: None	
Significance of effect: Neutral	
Recommendations for further assessment: None	
Recommendations for further mitigatory measures: Alternative penstock routes proposed in figure 9.	

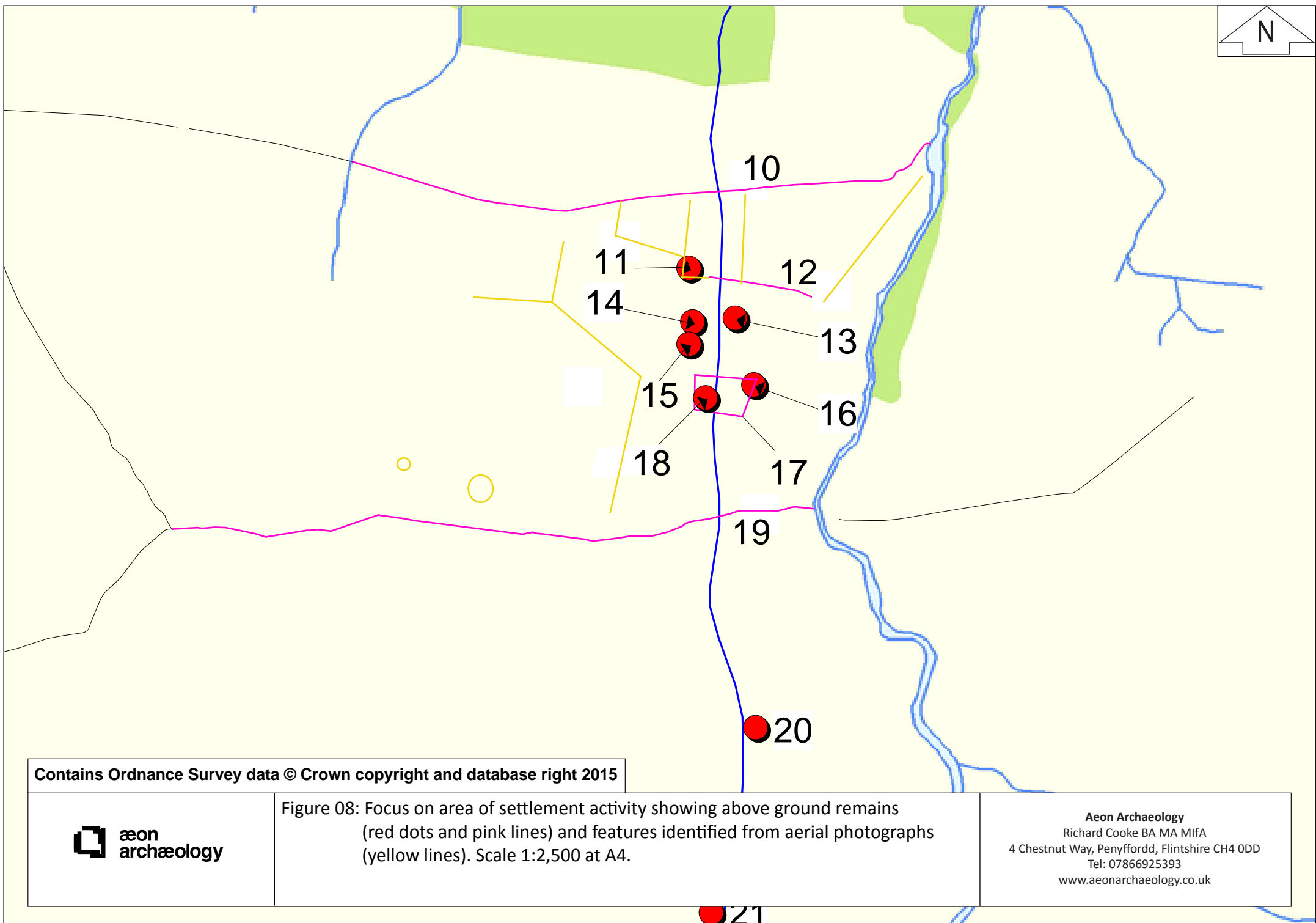


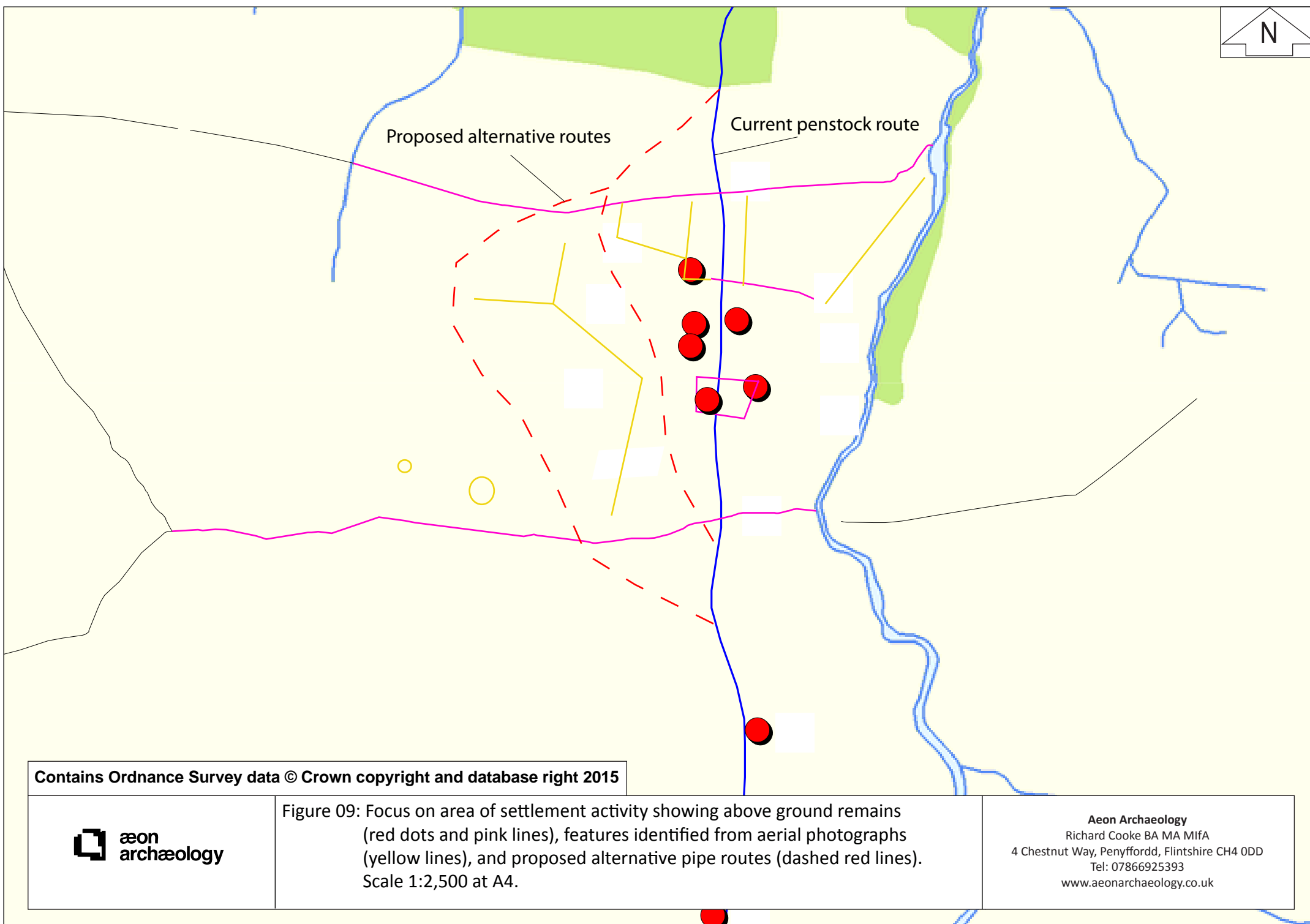
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Figure 07: Location of archaeological sites identified during the site visit (red circles and purple lines) (yellow lines denote features identified from aerial photographs). Scale 1:6,000 at A4.

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Figure 09: Focus on area of settlement activity showing above ground remains (red dots and pink lines), features identified from aerial photographs (yellow lines), and proposed alternative pipe routes (dashed red lines). Scale 1:2,500 at A4.

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Table 2: Summary of archaeological features. GREEN = no action required; RED= Action required						
Number	Name	Importance	Impact	Significance of effect	Further Assessment	Mitigation Recommendations
PHYSICAL DIRECT AND INDIRECT IMPACTS						
1	Sheepfold	Local	None	Neutral	None	None
2	Trackway	Local	Medium adverse direct physical (construction)	Slight adverse (construction)	None	Basic record - complete
3	Ruined Farmstead	Local	None	Neutral	None	None
4	Fridd Footbridge 1	Local	None	Neutral	None	None
5	Fridd Footbridge 2	Local	None	Neutral	None	None
6	Fridd Footbridge 3	Local	None	Neutral	None	None
7	Stream Revetment Wall	Local	Medium adverse direct physical (construction)	Slight adverse (construction)	None	Photographic record during breach; reinstatement
8	Field Boundary Wall	Local	Low adverse direct physical (construction)	Neutral or Slight adverse (construction)	None	Photographic record during breach; reinstatement
9	Former Field Wall	Local	Low adverse direct physical (construction)	Neutral or Slight adverse (construction)	None	Photographic record during breach; reinstatement
10	Relict Field Wall	Unknown (regional)	Low adverse direct physical (construction)	Slight adverse (construction)	None	Watching brief; photographic record during breach; reinstatement
11	Rectangular Hut	Unknown (regional/national)	None	Neutral	None	Avoidance
12	Relict Field Wall	Unknown (regional/national)	Low to medium adverse direct physical (construction)	Moderate adverse (construction)	None	1. Avoidance by rerouting penstock <u>or</u> 2. Archaeological excavation and reinstatement
13	Stone Clearance Cairn	Local	None	Neutral	None	None/avoidance
14	Possible Round Hut	National	None	Neutral	None	None/avoidance

15	Large Rectangular Hut	National	None	Neutral	None	None/avoidance
16	Possible Long Hut	National	None	Neutral	None	None/avoidance
17	Relict Enclosure Wall	National	Medium adverse direct physical (construction)	Moderate or Large adverse (construction)	None	1. Avoidance by rerouting penstock <u>or</u> 2. Archaeological excavation; watching brief and reinstatement
18	Square Structure	National	None	Neutral	None	None/avoidance
19	Field Wall	Local	Low adverse direct physical (construction)	Neutral or Slight adverse (construction)	None	Photographic record during breach; reinstatement
20	Ruined Sheepfold	Local	None	Neutral	None	None
21	Ruined Sheepfold	Local	None	Neutral	None	None
22	Features identified from aerial photographs	National	None	Neutral	None	Alternative penstock route proposed

8.0 IMPACT AND RECOMMENDATIONS

8.1 Direct physical impact

Construction phase

The proposed development scheme is expected to have a *low adverse direct physical* impact upon four sites of archaeological importance (features 8-10 and 19) during the construction phase. Three of these sites (features 8, 9 and 19) are post-medieval field boundary walls considered to be of *local* importance resulting in a *neutral or slight adverse* significance of effect. The fourth site (feature 10) is of *unknown (regional)* importance resulting in a *slight adverse* significance of effect.

In addition there will be a *low to medium adverse direct physical* impact upon one site (feature 12) which is a relict field wall of *unknown (regional/national)* importance resulting in a *moderate adverse* significance of effect during the construction phase.

It is also expected that there will be a *medium adverse direct physical* impact upon three sites (features 2, 7 and 17). Features 2 and 7 are a post-medieval trackway and stream revetment wall respectively and considered to be of *local* importance resulting in a *slight adverse* significance of effect. Feature 17 is a relict enclosure wall of *national* importance resulting in a *moderate or large* 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.

8.2 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.

8.3 Historic Landscapes

The proposed development site currently lies within the *Floor of the Nantlle Valley* Historic Landscape Character area (HLCA: 49), the *Nantlle Valley Lower Slopes* Historic Landscape Character area (HLCA: 37), and the *Nantlle Valley Upper Slopes* Historic Landscape Character area (HLCA: 42). Due to the proposal to bury the hydro penstock it is not expected that there will be a loss or alteration to any of the historic landscape character areas.

8.4 Site Specific Recommendations

The proposed scheme will directly physically impact upon eight archaeological sites (features 2, 7-10, 12, 17 and 19). Site specific recommendations have been made in the site gazetteer (section 7.0) but include a photographic record and reinstatement of field walls (features 7-10,

and 19) as well as avoidance of features 12 and 17 through the rerouting of the penstock route to the west as shown in figure 9. If this is not possible then a programme of archaeological excavation will be required at sites 12 and 17 prior to the commencement of the scheme so that all archaeological remains can be excavated and recorded thus ensuring their preservation by record.

8.5 General recommendations

The archaeological assessment identified a settlement site of probable Roman or medieval date. The settlement appears to incorporate at least four structures as well as a network of paddocks delineated via relict field walls in various states of preservation. A large amount of these settlement remains have been removed into clearance cairns in the past few years and it is strongly advised that this practice ceases so that these remains can be preserved in-situ. The site has not been identified in the past and is therefore new to the archaeological record. It is considered nationally important and is arguably of schedulable status and as such any potential impacts upon it should be mitigated as though the site were a Scheduled Ancient Monument.

It is therefore recommended that the penstock route be moved westward away from the settlement site and features identified from aerial photographs as shown in figure 9. It is also recommended that a watching brief be maintained during all trenching work within the enclosed grazing field delineated by the forested slope to the north and the field wall (feature 19) in the south.

9.0 SOURCES

OS Maps

1st edition 25 inch Ordnance Survey Map of 1889.

2nd edition 25 inch Ordnance Survey Map of 1900.

3rd edition 25 inch Ordnance Survey Map of 1916.

OS 1:10 000 Series sheet SH 55NE, SH 55SE, SH 55SW, and SH 55NW.

Aerial Photographs

OS Aerial Photographs

2006, 2009, 2010, 2013 Google mapping

Sources

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RCAHMW - coflein

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

Undesignated monuments within 1.0km of the proposed development area as listed on the Gwynedd HER (figure 1)

PRN	Name	Type	Broadclass	Period
902	Baladeulyn Llys, Site of, Nantlle	Place name	Unassigned	Unknown
1982	Small Ruined House, Llanllyfni	House	Domestic	Post-medieval
2781	Hill Fort, Near Nantlle	Hillfort	Defence	Prehistoric
2782	Stone Mould - Findspot, Nantlle	Findspot	Object	Prehistoric
2783	Axe Hammer - Findspot, Tal-y-mignedd, Dyffryn Nantlle	Findspot	Object	Prehistoric
2784	U-Grooved Stone - Findspot, Nantlle	Findspot	Object	Unknown
2785	Urn and Cairn, Nantlle	Findspot	Object	Prehistoric
2786	Rotary Quern - Findspot, Nr Nantlle	Findspot	Object	Unknown
2790	Hut Group and Mining Adit, N of Gelli Ffrydiau	Hut circle settlement	Domestic	Roman
5349	Ty Mawr, Llandwrog	House	Domestic	Post-medieval
6132	Boundary Dyke Section, Mynydd Tal y Mignedd	Wall	Unassigned	Medieval
6287	Enclosure, Y Ffridd	Enclosure	Agriculture and subsistence	Unknown
6288	Hut Circle, W of Afon Craig Las	Hut circle	Domestic	Prehistoric
6313	Hut Circle, E of Afon Craig Las	Hut circle	Domestic	Prehistoric
6471	Area of Ridge and Furrow, Y Ffridd	Ridge and furrow	Agriculture and subsistence	Unknown
6800	Circular Feature, Afon Craig Las	Feature	Unassigned	Unknown
6837	Rectangular Structure, Cwm Tal y Mignedd	Structure	Unassigned	Unknown
6844	Cairn, Possible, Cwm Tal y Mignedd	Cairn	Unassigned	Unknown
7142	Enclosures, Cwm Tal y Mignedd	Enclosure	Agriculture and subsistence	Post-medieval
7319	?Circular Feature, E of Llyn Nantlle Uchaf	Feature	Unassigned	Unknown
7323	Baladeulyn Medieval Township	Township	Domestic	Medieval
8463	Boundary Bank, Mynydd Tal Y Mignedd	Bank (earthwork)	Agriculture and subsistence	Unknown
8464	Enclosure, Afon Craig Las	Enclosure	Agriculture and subsistence	Unknown
8465	Cultivation Ridges, E of Afon Cwm Las	Ridge and furrow	Agriculture and subsistence	Unknown
8466	Relict Wall, SW of Llyn Nantlle	Wall	Agriculture and subsistence	Unknown

8467	Sheepfold, SE of Llyn Nantlle	Sheep fold	Agriculture and subsistence	Post-medieval
8468	Sheepfold, SE of Llyn Nantlle	Sheep fold	Agriculture and subsistence	Post-medieval
8469	Area of Cultivation Ridges, E of Llyn Nantlle	Ridge and furrow	Agriculture and subsistence	Modern
8470	Cottage and Barn, W of Tal Y Mignedd	Cottage	Domestic	Post-medieval
15712	Nantlle Village - Landscape	Landscape	Unassigned	Multi-period
15736	Nantlle Valley Lower Slopes - Landscape	Landscape	Unassigned	Multi-period
15741	Nantlle Valley Upper Slopes - Landscape	Landscape	Unassigned	Multi-period
20035	Gwernor Slate Quarry, Nantlle	Slate quarry	Industrial	Post-medieval
20038	Slate Quarry, Wern Ifan	Slate quarry	Industrial	Post-medieval
20537	Trial, Afon Drws Y Coed	Trial mine	Industrial	Post-medieval
20541	Copper Mine, Ty Mawr, Nantlle	Copper mine	Industrial	Post-medieval
21586	Cwm Silyn Mine	Manganese mine	Industrial	Post-medieval
21620	Gwernor Mine	Copper mine	Industrial	Post-medieval
21948	Quarrymen's Cottages, Ty Mawr, Nantlle	Cottage	Domestic	Post-medieval
22529	Ffridd Farmstead, Nantlle	Farmstead	Agriculture and subsistence	Post-medieval
22534	Building, Remains of, SW of Ffridd	Building	Unassigned	Post-medieval
22537	Field Boundary, SW of Ffridd	Field boundary	Agriculture and subsistence	Medieval
22545	Boundary Stone, Possible, S of Ffridd	Standing stone;rubbing stone;boundary stone	Religious, ritual and funerary;agriculture and subsistence;civil	Prehistoric;unknown;post-medieval
22546	Sheepfold and Enclosure, S of Ffridd	Sheep fold	Agriculture and subsistence	Post-medieval
22549	Sheep Shelter, N of Cwm Silin	Sheep shelter	Agriculture and subsistence	Post-medieval
22550	Sheepfold, N of Llyn Cwm Silin	Sheep fold	Agriculture and subsistence	Post-medieval
22551	Structure, W Bank of Afon Craig-las	Structure	Unassigned	Post-medieval
33912	Drainage Feature, Possible, Dyffryn Nantlle	Ditch	Water supply and drainage	Modern
33913	Footbridge, Dyffryn Nantlle	Footbridge	Transport	Modern
33914	Field Walls, Dyffryn Nantlle	Field boundary	Agriculture and subsistence	Post-medieval
33915	Trackway, Dyffryn Nantlle	Trackway	Transport	Post-medieval
33916	Field Wall, Dyffryn Nantlle	Field boundary	Agriculture and subsistence	Post-medieval
33917	Field Wall, Dyffryn Nantlle	Field boundary	Agriculture and subsistence	Post-medieval
33918	Peat Cuttings, Dyffryn Nantlle	Peat cutting	Industrial	Unknown

34849	Shaft Head, Pen yr Orsedd Quarry	Shaft	Industrial	Post-medieval
34850	Shaft Head, Pen yr Orsedd Quarry	Shaft	Industrial	Post-medieval
34851	Marshalling Yard, Pen yr Orsedd Quarry	Marshalling yard	Industrial	Post-medieval
34852	Structure, Pen yr Orsedd Quarry	Structure	Industrial	Post-medieval
34853	Stables, Pen yr Orsedd Quarry	Stable	Industrial	Post-medieval
34854	Incline and Drumhouse, Pen yr Orsedd Quarry	Winder house	Industrial	Post-medieval
34855	Locomotive Shed, Pen yr Orsedd Quarry	Engine shed	Industrial	Post-medieval
34856	Structure, Former Site of, Pen yr Orsedd Quarry	Structure	Industrial	Post-medieval
34857	Weighbridge House, Pen yr Orsedd Quarry	Weighbridge	Industrial	Post-medieval
34858	Slate Mill, Pen yr Orsedd Quarry	Slate mill	Industrial	Post-medieval
34859	Slate Mill, Pen yr Orsedd Quarry	Slate mill	Industrial	Post-medieval
34865	Winding House, Pen yr Orsedd Quarry	Winder house	Industrial	Post-medieval
34885	Workshops, Pen yr Orsedd Quarry	Workshop	Industrial	Post-medieval
34886	Quarry Hospital, Pen yr Orsedd Quarry	Hospital	Civil	Post-medieval
34888	Office, Pen yr Orsedd Quarry	Office	Industrial	Post-medieval
34889	Barracks, Pen yr Orsedd Quarry	Barracks	Domestic	Post-medieval
34890	Marshalling Yard, Pen yr Orsedd Quarry	Marshalling yard	Industrial	Post-medieval
34891	Coal Yard, Pen yr Orsedd Quarry	Coal yard	Industrial	Post-medieval
34892	Incline and Drumhouse, Pen yr Orsedd Quarry	Winder house	Industrial	Post-medieval
34893	Locomotive Shed, Pen yr Orsedd Quarry	Engine shed	Industrial	Post-medieval
34894	Caban, Pen yr Orsedd Quarry	Caban	Industrial	Post-medieval
36395	Wall and Trackway, Gelli Ffridiau	Trackway	Transport	Roman
36396	Field Boundary, Gelli Ffridiau	Field boundary	Agriculture and subsistence	Roman
36397	Quarry, Gelli Ffridiau	Quarry	Industrial	Post-medieval
36398	Weir, Gelli Ffridiau	Weir	Water supply and drainage	Post-medieval
36399	Field Boundary, Remains of, Gelli Ffridiau	Field boundary	Agriculture and subsistence	Post-medieval
36400	Enclosure, Gelli Ffridiau	Enclosure	Unassigned	Unknown
57232	Building, N of Plas Baladeulyn	Building	Unassigned	Post-medieval
57236	Enclosure, SW of Tal-y-mignedd-isaf	Enclosure	Unassigned	Post-medieval
58558	Revetment Wall, E of Ty Coch	Revetment	Agriculture and subsistence	Prehistoric
58559	Trackway, E of Ty Coch	Trackway	Transport	Post-medieval

58560	Clearance Cairn, SE of Ty Coch	Clearance cairn	Agriculture and subsistence	Post-medieval
58561	Revetment Wall, SE of Ty Coch	Revetment	Agriculture and subsistence	Prehistoric
58562	Field Boundary, SE of Ty Coch	Field boundary	Agriculture and subsistence	Prehistoric
58563	Field Boundary, SE of Ty Coch	Field boundary	Agriculture and subsistence	Post-medieval
58564	Bank and Ditch, SE of Ty Coch	Bank and ditch	Unassigned	Unknown
58565	Field Wall, SE of Ty Coch	Field boundary	Agriculture and subsistence	Post-medieval
58566	Field Boundary, SE of Ty Coch	Field boundary	Agriculture and subsistence	Post-medieval
58567	Field Wall, SE of Ty Coch	Field boundary	Agriculture and subsistence	Post-medieval
58568	Long Hut, Possible, SE of Ty Coch	Long hut	Domestic	Medieval
58569	Hut Circle, Possible, SE of Ty Coch	Hut circle	Domestic	Roman
58570	Long Hut, Possible, SE of Ty Coch	Long hut	Domestic	Medieval
58572	Wall, Remains of, SE of Ty Coch	Wall	Unassigned	Unknown
58573	Stone Spread, SE of Ty Coch	Stone spread	Unassigned	Unknown
58574	Ditch, SE of Ty Coch	Ditch	Unassigned	Unknown
58575	Terraced Ground, SE of Ty Coch	Terraced ground	Agriculture and subsistence	Roman
58576	Terraced Ground, SE of Ty Coch	Terraced ground	Agriculture and subsistence	Roman
58577	Terraced Ground, SE of Ty Coch	Terraced ground	Agriculture and subsistence	Roman

New Undesignated monuments within 1.0km of the proposed development area as listed on the Gwynedd HER (figure 1)

PRN	Name	Type	Period
15990	Platform/terrace, N. of Gelli Ffrydiau	Terrace	Prehistoric/Romano British
15991	Lynchets/field boundaries, NW of Gelli Ffrydiau	Lynchet	Prehistoric/Romano British
15994	Rectangular structure, E of Gelli Ffrydiau	Long hut?, Building	Undetermined
15995	Cairn? E of Gelli Ffrydiau	Cairn	Undetermined
15996	Relict field boundaries, E of Gelli Ffrydiau	Field system	Undetermined
15997	?Trial, Pont y Gelli	Trial?	Post Medieval
15998	Field Barn/Beudy, SW of Gelli Ffrydiau	Barn	Post Medieval
15999	Field Barn, S of Gelli Ffrydiau	Barn	Post Medieval/Modern
22529	Ffridd	Farmstead	Post Medieval
22530	Ffridd sheepfold	Sheepfold	Post Medieval
22531	Ffridd cowshed	Cowshed	Post Medieval
22532	Ffridd footbridge 1	Footbridge	Post Medieval
22533	Ffridd footbridge 2	Footbridge	Post Medieval
22534	Building SW of Ffridd farmstead	Building	Post Medieval
22535	Ffridd field barn	Field barn	Post Medieval
22536	Ffridd reservoir	Reservoir	Post Medieval
22536	Field boundary S of Ffridd farmstead	Field wall	Prehistoric?
22537	Field wall SW of Ffridd farmstead	Field wall	Medieval?
22538	Rectangular enclosure S of Ffridd farmstead	Enclosure	Post Medieval
22539	Sheepfold S of Ffridd farmstead I	Sheepfold	Medieval
22540	Field barn SW of Ffridd farmstead	Field barn	Post Medieval
22541	Group of clearance cairns E of Afon Craig-las	Clearance cairns	Medieval
22542	Trackway S of Ffridd farmstead	Trackway	Post Medieval
22543	Leat S of Llyn Nantlle-Uchaf	Leat	Post Medieval
22544	Sheepfold S of Ffridd farmstead II	Sheepfold	Medieval

22545	Stone, S of Ffridd farmstead	Standing stone / rubbing	Medieval
22546	Sheepfold and enclosure S of Ffridd farmstead	Sheepfold and enclosure	Medieval
22547	Sheepfold S of Ffridd farmstead III	Sheepfold	Medieval
22548	Leat N of Cwm Silin	Leat	Post Medieval
22549	Shelter N of Cwm Silin	Shelter	Post Medieval
22550	Sheepfold N of Cwm Silin	Sheepfold	Post Medieval
22551	Structure on west bank of Afon Craig-las	Sheepfold?	Post Medieval

Listed Buildings within 1.0km of the proposed development area (figure 2).

Number	Name	Locality	Grade
22899	Ty Mawr	Nantlle	II*
23679	Bryn Deulyn	Nantlle	II
23680	Coach house/wash house and stables at Bryn Deulyn	Nantlle	II
23682	Former Dairy to north-west of Ty Mawr	Nantlle	II
23683	Former Quarrymen's Barracks to north-west of Ty Mawr (east range)	Nantlle	II
23684	No 1 Tai Baladeulyn	Nantlle	II
23685	Milestone	Nantlle	II
23729	Workshops	Pen-yr-Orsedd	II
23731	Quarry Offices	Pen-yr-Orsedd	II
23733	Winding Drumhouse and Incline	Pen-yr-Orsedd	II
23734	Slab Mill	Pen-yr-Orsedd	II
23735	Slate Mill	Pen-yr-Orsedd	II
23736	Winding Drumhouse	Pen-yr-Orsedd	II
23737	Locomotive Shed	Pen-yr-Orsedd	II
23739	Barracks Building	Pen-yr-Orsedd	II
23748	West and south ranges of building at former quarrymen's barracks to north-west of Ty Mawr	Nantlle	II
23749	No 2 Tai Baladeulyn	Nantlle	II
23750	No 3 Tai Baladeulyn	Nantlle	II
23751	No 4 Tai Baladeulyn	Nantlle	II
23752	No 5 Tai Baladeulyn	Nantlle	II

NMR Monument Points within 1.0km of the proposed development area (figure 2)

NPRN	Name	Broadclass	Type	Period
6914	Baladeulyn welsh calvinistic methodist chapel, nantlle	Religious, ritual and funerary	Chapel	Post medieval
16872	Tal-y-mignedd isaf	Domestic	House	Post medieval?
16960	Ty mawr, nantlle	Domestic	Country house	Post medieval
40563	Pen-yr-orsedd slate quarry: workshop	Industrial	Quarry building	Post medieval
40565	Pen-yr-orsedd slate quarry, nantlle valley	Industrial	Slate quarry	Post medieval;19th century
86277	Baladeulyn, garden, nantlle	Gardens, parks and urban spaces	Garden	Post medieval?
95369	Small hillfort north east of gelli ffrydiau near nantlle	Defence	Hillfort	Iron age
287093	East of afon craig-las platform	Monument<by form>	Platform	Unknown
287094	East of afon craig-las boundary bank	Agriculture and subsistence	Boundary bank	Post medieval
287095	East of afon craig-las sheep fold i	Agriculture and subsistence	Sheep fold	Post medieval
287096	East of afon craig-las wall	Agriculture and subsistence	Wall	Post medieval
287098	East of afon craig-las longhouse	Domestic	Longhouse	Medieval
287099	East of afon craig-las sheep shelter	Agriculture and subsistence	Sheep shelter	Post medieval
287100	West of afon craig-las mine building	Industrial	Mine building	Post medieval
287226	South of fridd sheep fold i	Agriculture and subsistence	Sheep fold	Post medieval
287227	South of fridd boundary stone	Civil	Boundary stone	Post medieval?
287228	South of fridd hut circle settlement	Agriculture and subsistence	Hut circle settlement	Iron age
287229	South of fridd structure	Domestic	Structure	Iron age?
287230	South of fridd sheep shelter	Agriculture and subsistence	Sheep shelter	Post medieval
287243	West of afon craig-las cairn	Religious, ritual and funerary	Cairn	Bronze age
287244	West of afon craig-las sheep fold i	Agriculture and subsistence	Sheep fold	Post medieval
287245	South of fridd hut circle	Domestic	Hut circle	Iron age

287246	South of fridd sheep fold ii	Agriculture and subsistence	Sheep fold	Post medieval
287247	South of fridd wall	Agriculture and subsistence	Wall	Post medieval
287248	South of fridd sheep fold iii	Agriculture and subsistence	Sheep fold	Post medieval
287277	West of afon craig-las hut circle settlement	Agriculture and subsistence	Hut circle settlement	Iron age
287278	West of afon craig-las sheep fold ii	Agriculture and subsistence	Sheep fold	Post medieval
287279	West of afon craig-las peat cutting	Agriculture and subsistence	Peat cutting	Post medieval
287280	West of afon craig-las house platform	Domestic	House platform	Medieval?
287281	West of afon craig-las longhouse	Domestic	Longhouse	Medieval
287285	North east of gelli ffrydiau clearance cairn	Agriculture and subsistence	Clearance cairn	Post medieval
287286	North east of gelli ffrydiau wall	Agriculture and subsistence	Wall	Post medieval
287288	North east of gelli ffrydiau structure	Agriculture and subsistence	Structure	Post medieval?
287289	North east of gelli ffrydiau longhouse	Domestic	Longhouse	Medieval
287301	Cwm tal y mignedd sheep fold	Agriculture and subsistence	Sheep fold	Post medieval
287309	Afon craig-las enclosure	Agriculture and subsistence	Enclosure	Post medieval
287310	South east of llyn nantlle uchaf sheep fold	Agriculture and subsistence	Sheep fold	Post medieval
301501	Ty mawr dairy and stables, nantlle	Domestic	Dairy	Post medieval
302539	Gelliffrydiau, homestead	Agriculture and subsistence	Homestead	Roman
401179	Ty coch, ruins sse of	Unassigned	Building	Post medieval
403098	Former quarrymens barracks to the north west of ty mawr, nantlle	Domestic	Barracks	Post medieval
403099	West and south ranges of former quarrymens barracks to north west of ty mawr, nantlle	Agriculture and subsistence	Cow shed;outbuilding	Post medieval
415061	Ysgol baladeulyn, nantlle	Education	School	Post medieval
419590	Penyrorsedd war memorial	Commemorative	War memorial	20th century
419769	Slate mill, pen-yr-orsedd slate quarry	Industrial	Slate processing works	19th century
419902	Bryn deulyn, nantlle	Domestic	House	19th century

Scheduled Ancient Monuments (SAMs) within 1.0km of the proposed pipeline route (figure 3)

SAM no.	Name	Type	Broadclass	General
CN178	Small Fort Near Nantlle	Hillfort	Defence	Prehistoric
CN179	Huts & Field Systems NE of Nantlle	Enclosure	Monument	Prehistoric

Historic Landscape Character areas (HLCAs) within 1.0km of the proposed pipeline route (figure 3)

HLCA	HLCA name	Landscape
37	Nantlle valley lower slopes	GW9
42	Nantlle valley upper slopes	GW9
49	Floor of nantlle valley	GW9

APPENDIX 2: DEFINITIONS OF FURTHER ASSESSMENT AND MITIGATORY MEASURES

1. Definition of field evaluation techniques

Field evaluation is sometimes necessary when the importance of an identified archaeological feature cannot be ascertained via an archaeological desk based assessment alone. There are several different techniques but the three most common are geophysical survey, trial trenching, and supervised metal detector survey:

Geophysical survey

This technique is a non-intrusive form of archaeological field evaluation. It utilises a magnetometer which detects differences within the earth's magnetic field caused by the presence of iron in the soil. This iron often takes the form of magnetised iron oxides in the topsoil which have been re-deposited into lower archaeological features through cutting and backfill. A magnetometer can also detect iron artefacts within the soil and the presence of burnt stone material such as on hearths, kilns, and burnt mounds.

Trial trenching

Where a site is suspected to contain more subtle archaeological features such as pits, a geophysical survey may not be appropriate due to its lack of sensitivity in detecting these features. Indeed, trial trenching can also be utilised when anomalies have been identified during the geophysical survey and clarification is required in order to identify them. Trial trenches usually measure 20m by 2m although can vary in size if targeting geophysical anomalies. Trenches are excavated using a mechanical tracked excavator and supervised by an archaeologist. The topsoil and subsoil are removed onto buried features or if absent, on to the natural glacial substrata. Any archaeological remains found are usually evaluated and recorded prior to backfilling of the trench, so that further site specific mitigatory recommendations can be made.

Supervised Metal Detector Survey

Some types of underlying substrata and bedrock can mask the results of investigation techniques such as geophysical survey. In such instances an archaeologically supervised metal detector survey can be undertaken. This involves the supervision of metal detectorists by a suitably qualified archaeologist and the spatial mapping of artefacts as they are discovered. This technique can give a geographical spread of metal finds and thus be indicative of 'hotspot' areas which may require further investigation by trial trenching for example.

2. Definition of Mitigatory Recommendations

None:

No further action is required.

Detailed recording:

A photographic and concise descriptive record is required, along with a digital survey.

Basic recording:

A photographic and basic descriptive record is required.

Watching brief:

Monitoring is required by a suitably qualified archaeologist during the proposed development. An archaeological watching brief is divided into four categories according to the IFA, 2001.

Institute for Archaeologists 2001 Standard and Guidance for an archaeological watching brief:

- comprehensive (present during all ground disturbance)
- intensive (present during sensitive ground disturbance)
- intermittent (viewing the trenches after machining)
- partial (as and when seems appropriate).

Avoidance:

These features should be avoided by the proposed development and any ancillary works including the establishment of compound and material lay-down areas. It may be necessary to surround the feature with a barrier and/or signage to avoid accidental damage.

Reinstatement:

These features should be reinstated to their original location and condition. Supervision by an archaeologist is required.

