

# Proposed Hydro-Electric Scheme, Pont Cyfyng, Capel Curig, Conwy. January 2019 V 1.0



Archaeological Assessment
Project Code: A0194.1

Report no. 0187

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Aeon Archaeology 25, Mold Road Broughton Chester CH4 OPQ

Written by: Richard Cooke BA MA MCIfA

Checked by: Josh Dean BA ACIfA



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Client: Baileys and Partners info@aeonarchaeology.co.uk

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#### 1.0 NON-TECHNICAL SUMMARY

Comisiynwyd Aeon Archeology gan Baileys and Partners Ltd ar ran Rhos Quarries Holdings LLP, i gynnal asesiad archeolegol er mwyn cyd-fynd â chais cynllunio ar gyfer adeiladu tŷ tyrbin gyda newidydd lefel daear, ciwbicl gyda newidydd bach wedi'i osod ar un polyn, tren pibell yn cynnwys drilio twnnel hir 100m (diamedr 2m), drilio dwythell 20m lle ar gyfer bocs sgrin fel rhan o gynllun cynhyrchu pŵer hydroelectrig micro ar Afon Llygwy ym Mhont Cyfyng, Capel Curig, Conwy ac o fewn i Awdurdod Parc Cenedlaethol Eryri (SNPA).

Nododd y asesiad un ar ddeg nodweddion archeolegol o fewn i corridor asesu 50m eang a oedd yn canolbwyntio ar y ffos pibell, o'r rhain disgwylir y bydd y gwaith arfaethedig yn cael effaith ar bedair nodwedd.

Mae argymhellion penodol i safle wedi eu gwneud i gynnal briff gwylio archaeolegol wrth symud malurion mewnlenwi o fewn y gafn mawr (nodwedd archeolegol 1) fel y gellir cadw cofnod o'r strwythur a ddatgelwyd.

Yn ogystal, gwnaed argymhellion ar gyfer arolwg strwythurol o fur gorllewinol cyfyng Mill (nodwedd archeolegol 4) i ganfod pa fesurau, os o gwbl, sy'n ofynnol er mwyn diogelu mur y felin rhag cwympo pan fydd y llwybr mynediad newydd arfaethedig o dan adeiladu ac yn cael eu defnyddio.

Mae'r asesiad hefyd wedi dod i'r casgliad y dylid osgoi nodweddion 2-8 sy'n gysylltiedig â Melin Lechi'r Cyfyng canol 19ed ganrif yn ystod y gwaith arfaethedig.

Y prif ddiddordeb archeolegol y safle yw'r Felin llechi Cyfyng ôl-ganoloesol - sy'n cynnwys cyfres o nodweddion cysylltiedig, gan gynnwys gafn cymeriant, rhan o waliau, pwll olwynion y felin, Melin wisgo llechi, tip llechi, adeileddau, terfynfa inclein, cafn/draen, a llwybr. Yn y cyd-destun ehangach, gellir ystyried bod y gymhleth yn rhan o dirlun chwareli llechi mwy o faint yn yr 19ed ganrif ac o werth grŵp lleol/rhanbarthol o leiaf.

Mae tystiolaeth map hanesyddol yn awgrymu y gallai strwythurau llai sy'n gysylltiedig â'r felin fod yn bresennol ar y safle. Fel y cyfryw, ac yn ychwanegol at yr argymhellion saflebenodol a grybwyllir uchod, argymhellir hefyd bod briff gwylio archaeolegol yn cael ei gynnal yn ystod y gwaith cloddio gysylltiedig â'r llwybr mynediad newydd yn agos at Melin Cyfyng, fel y gall unrhyw olion ar y lefel sylfaen gladdedig gael eu hosgoi gan y gwaith neu eu cadw drwy gofnod.

Aeon Archaeology was commissioned by Baileys and Partners Ltd on behalf of Rhos Quarries Holdings LLP, to carry out an archaeological assessment in order to accompany a planning application for the construction of a turbine house with ground level transformer, metering cubicle with single pole mounted small transformer, penstock involving drilling a 100m long tunnel (2m diameter), drilling a 20m duct for the cable and construction of a screen box intake as part of a micro hydroelectric power generation scheme on the Afon Llygwy at Pont Cyfyng, Capel Curig, Conwy and within the Snowdonia National Park Authority

The assessment identified eleven archaeological features within the 50.0m wide assessment corridor centred on the penstock trench, of these it is expected that the proposed works will have an impact upon four features.

Site specific recommendations have been made for an archaeological watching brief to be maintained during the removal of infill debris within leat (feature 1) so that a record of the revealed structure can be undertaken.

In addition recommendations have been made for a structural survey of the western wall of Cyfyng Mill (feature 4) to ascertain what measures, if any, are required in order to protect the mill wall from collapse when the proposed new access trackway is under construction and in use.

The assessment has also concluded that features 2-8, associated with the mid-19<sup>th</sup> century Cyfyng slate mill, should be avoided during the proposed works.

The principle archaeological interest at the Site is that of the post-medieval Cyfyng slate mill complex that involves a suite of associated features including intake leat, section of walling, mill wheel pit, slate dressing mill, slate tip, structures, incline terminus, leat/drain, and trackway. In the wider context the mill complex can be seen as being part of a larger 19<sup>th</sup> century slate quarrying landscape and of at least local/regional group value.

The historic map evidence suggests that smaller ancillary structures associated with the mill complex could be present at the site. As such, and in addition to the site specific recommendations mentioned above, it is also recommended that an archaeological watching brief be maintained during the excavation works associated with the new access trackway in proximity of Cyfyng Mill, so that any remains at buried foundation level can be avoided by the works or preserved via record.

#### 2.0 INTRODUCTION, AIMS AND PROJECT DESIGN

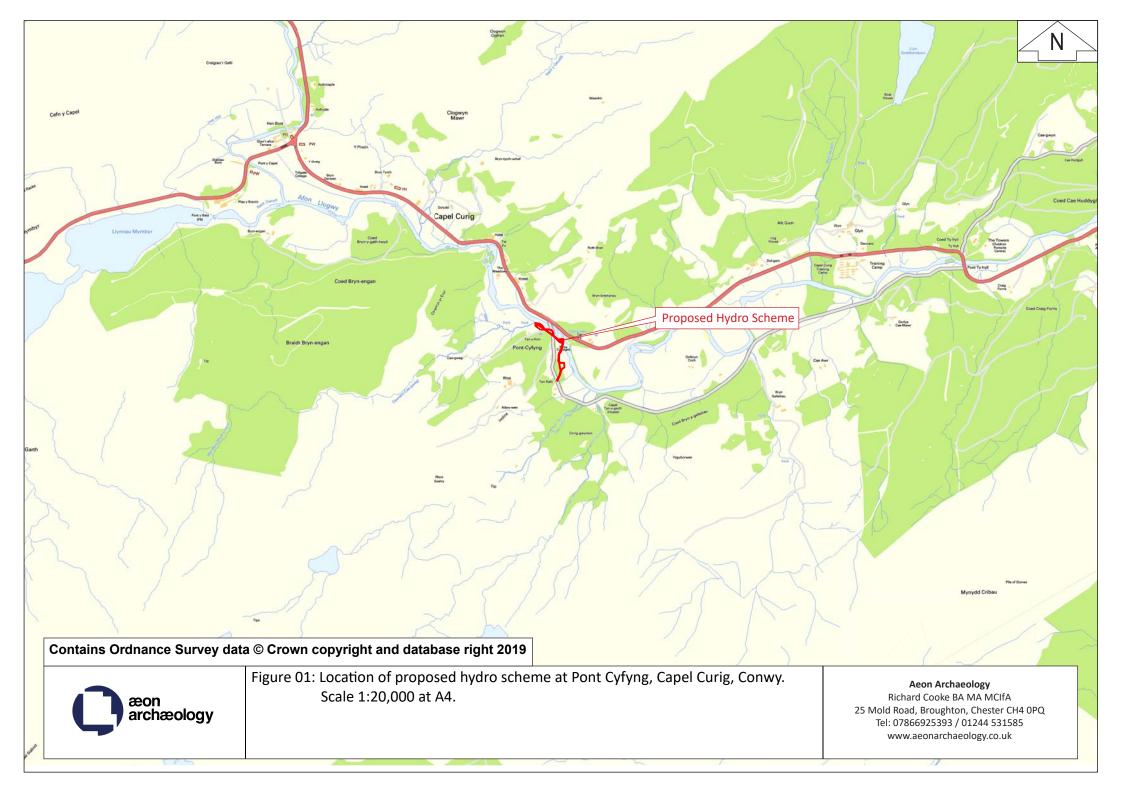
Aeon Archaeology was commissioned by Baileys and Partners Ltd on behalf of Rhos Quarries Holdings LLP, hereafter the Client, to carry out an archaeological assessment in order to accompany a planning application for the construction of a turbine house with ground level transformer, metering cubicle with single pole mounted small transformer, penstock involving drilling a 100m long tunnel (2m diameter), drilling a 20m duct for the cable and construction of a screen box intake as part of a micro hydroelectric power generation scheme on the Afon Llygwy at Pont Cyfyng, Capel Curig, Conwy and within the Snowdonia National Park Authority (SNPA) (figures 1 and 2) (SH 73364 57174 to SH 73493 57079).

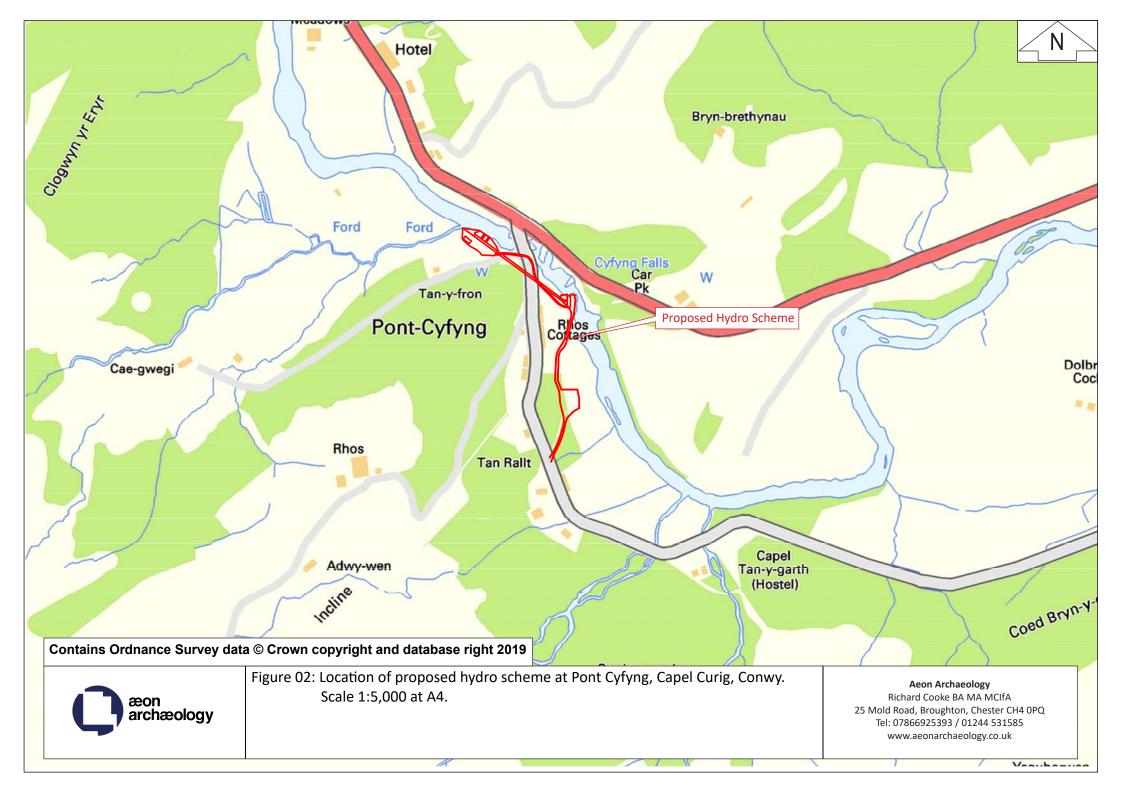
The archaeological assessment has been carried out in advance of planning application but in response to feedback given by the Development Control Archaeologist at the Gwynedd Archaeological Planning Service (GAPS).

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

As part of the archaeological 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 Conwy Archives and Record Office, and Caernarfon Archives and Record Office. Information on Scheduled Ancient Monuments and Listed Buildings was obtained from Cadw. In addition a 1.0km search area centred on the proposed route was utilised for a search of the Royal Commission on the Ancient and Historic Monuments in Wales' (RCAHMW) National Monuments Record (NMR) and historic aerial photographs were obtained from the Aerial Photographs Officer at the Welsh Government, Cardiff.

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





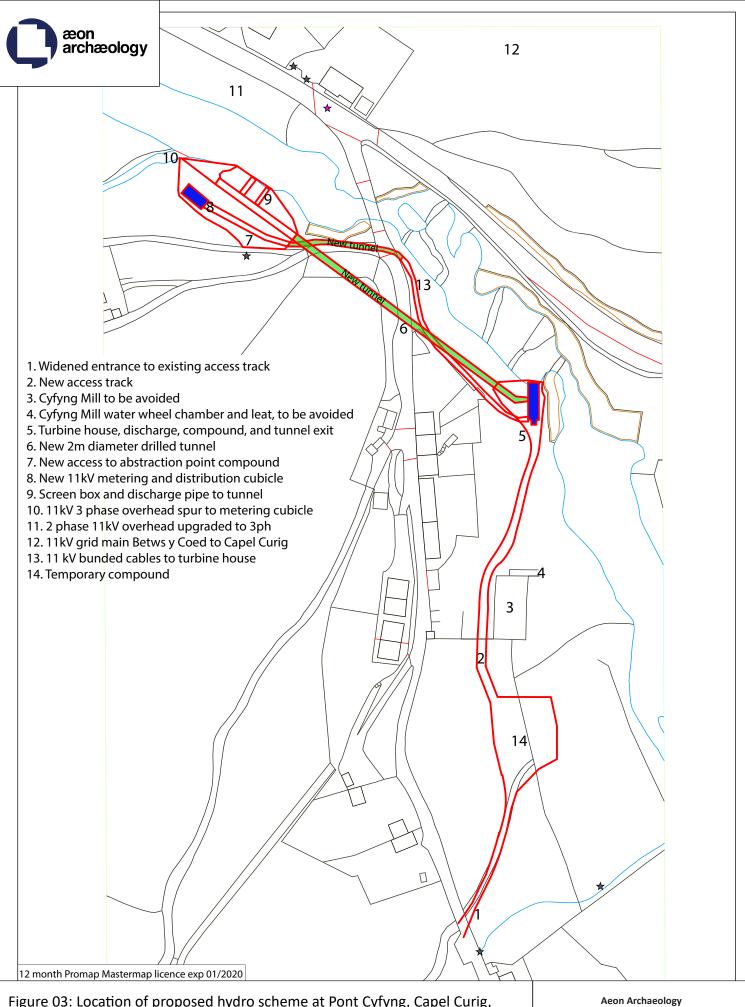


Figure 03: Location of proposed hydro scheme at Pont Cyfyng, Capel Curig, Conwy. Scale 1:1,500 at A4.

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



**Plate 01:** Proposed hydro intake location, from the southeast.





Plate 02: Proposed new meter cubicle location, from the northwest. Scale 1.0m.





Plate 03: Proposed buried cable route, from the northwest. Scale 1.0m.





Plate 04: Proposed location of new penstock and cable tunnels with Pont Cyfyng in the background, from the northwest.





**Plate 05:** Proposed location of new penstock and cable tunnels terminus, from the southeast.





Plate 06: Proposed turbine house location, from the south. Scale 1.0m.





Plate 07: Proposed access track route to west of Cyfyng Mill (feature 4), from the northeast. Scale 1.0m.





Plate 08: Proposed access track route to west of Cyfyng Mill (feature 4), from the south. Scale 1.0m.





Plate 09: Proposed compound location, from the east. Scale 1.0m.





Plate 10: Proposed new access track location, from the south. Scale 1.0m.



#### 3.0 METHODS AND TECHNIQUES

#### 3.1 Archival research

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

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

#### 3.2 Assessment report

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

#### 3.3 Project archive

A full archive including plans, photographs and written material was prepared. All plans, photographs and written descriptions were labelled and cross-referenced using Aeon Archaeology pro-formas. A draft copy of the report was sent to the client and upon written approval from them paper and digital copies of the report will be sent to the regional HER (Gwynedd Archaeological Trust, Craig Beuno, Garth Road, Bangor, LL57 2RT), the GAPS Development Control Archaeologist, and the Royal Commission on the Ancient and Historic Monuments in Wales (RCAHMW). Copies of all notes, plans, and photographs from the assessment are stored at Aeon Archaeology under the project code A0194.1 with the originals being lodged in a suitable repository to be agreed with the archaeological curator.

#### 4.0 POLICY CONTEXT

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

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

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

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

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

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

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

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

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

<sup>&</sup>lt;sup>1</sup> UNESCO, 1972, Convention Concerning the Protection of the World Cultural and Natural Heritage

<sup>&</sup>lt;sup>2</sup> Council of Europe, 1992, European Convention on the Protection of the Archaeological Heritage

<sup>&</sup>lt;sup>3</sup> Great Britain. Planning (Conservation Areas and Listed Buildings) Act. Elizabeth II.(1990), London: The Stationery Office

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

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

#### Paragraph 6.5.5 concerns planning applications:

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

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

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

#### 5.0 TECHNICAL DESCRIPTION

This is a new hydropower scheme to generate electricity for export to the National Grid using water flowing along the Afon Llygwy.

The proposal is for a new single abstraction structure that will supply water to the new proposed hydro installation. The pipe will carry the available water to the new turbine house and discharge back into the Afon Llygwy. The total installed capacity of the scheme will be around 420kW.

The new intake structure will be a screen box installed at the start of an existing leat structure. Any flow above the Hands Off Flow will be divided between the hydro intake and depleted reach by active control of the turbine flow.

The scope of works for the project includes;

- Installation of a new screen box and a large debris screen. The screen box would include a fish and Eel bywash routes.
- Installation of a new tunnelled pipeline 2m diameter to convey water from the abstraction point to the turbine house.
- Installation of a new turbine house containing a Francis turbine generating and control equipment.
- The turbine house includes the discharge structure.
- A new 3 phase grid connection to include a ground mounted metering cubicle.

New intake structure and abstraction control

The abstraction point is at location SH 73364 57174. The abstracted water will first pass through a Large Debris Screen (LDS) prefabricate from Corten steel with 150mm gaps and a low velocity having a waterline length of 12- 15m dependant on water level. The screen will stand 2m above and one meter below normal water level to avoid flood water overlapping the LDS. A walkway will run along the downstream side at 1.5 m above normal water level to allow access for removing logs etc from the LDS.

A small pound follows in which is located the river level sensor for calculation of river water flow and turbine output control. Water from the pool passes into a prefabricated Corten steel rectangular channel which is fitted with a flood sluice gate for isolation. This gate is automatically operated by a pneumatic drive cylinder.

This is followed by the screen box section made up of 3 parallel chambers each with its own pneumatically operated sluice gate. Each chamber has its own submerged inclined screen with a 9mm gap and 3mm diameter stainless steel weld wire. The end of each screen at the upper level is at a horizontal dividing plate. The clean turbine water passes under the dividing plate to enter a combining chamber and into the penstock.

#### Pipeline

The pipeline tunnel will be 2m diameter and will run from the intake location to the turbine house and be 100m long.

The installation of the pipeline will involve boring a tunnel through the rock underneath the public road and avoiding Pont Cyfyng bridge.

The pipeline will use the existing leat from the abstraction point and then will pass through the tunnel where it will return to the surface to run briefly over ground to the turbine house.

#### *Turbine and Generator*

The turbine house will be a prefabricated steel structure with smooth outer sheeting, 100mm of Rockwool sound insulation and perforated galvanised inner sheeting to minimise noise emissions. The roof will be Kingspan double skinned with corrugated outer sheet, 100mm insulation and corrugated inner sheet. The outer wall surfaces will be clad in ship lap timber. The roof will be over fitted with a baton and grey slated roof. Doors will be steel frames double grey skinned and sound insulated with 50mm of insulation. The house will be ventilated by a forced draught fan drawing cool air from outside through an acoustic tunnel to prevent egress of fan noise. The outlet duct is also through an acoustic tunnel to prevent the egress of generator noise. The house is mounted on a concrete raft foundation with the house seated on rubber strips to avoid vibration into the ground. Refer to the noise emission abatement data.

The northern end of the turbine house is on 2 floors (ground floor and basement) to house the draft tube which turns down to towards a pool of water as a submerged discharge to eliminate turbine noise egress. The discharge will include a screen of 20mm gaps to prevent fish from accessing the turbine.

The turbine will be a Variable speed Francis horizontal shaft water turbine complete with variable inlet guide vanes and outlet draught tube.

The turbine will drive an increasing speed double helical gearbox and coupled 4 pole 400V 3 phase induction generator all with an output of about 420 Kw.

#### Discharge

The discharge pipe will be within the turbine house leading vertically downward at 2m diameter and submerged into a pool to produce a partial vacuum and prevent the egress of turbine noise.

The outfall water will flow over rock to the upper part of the lower section of the Cyfyng waterfall.

During construction the outfall location is normally dry and will be isolated from the flow channel to allow safe construction and to avoid any environmental contamination.

#### Metering Cubicle

The metering building will be a standard 3m cube fibreglass electrical metering type cubicle coloured dark green. This will be mounted on a steel ring beam and 4 short piles so that the floor area is open for cables then filled with sand and pavers.

#### Access

Access to the site for construction and for future maintenance of both parts of the site will be achieved through a combination of pedestrian and vehicular access for each location.

Access to the development area will be through existing gates/tracks.

A new permanent access track will be established to the immediate west of Cyfyng slate mill but will avoid any built structural remains.

#### 6.0 ARCHAEOLOGICAL AND TOPOGRAPHICAL BACKGROUND

#### 6.1 Topographic Description

The proposal subject to this application is located on land at Pont Cyfyng. The land is part of a holding called Rhos Farm.

The land use includes agriculture and open countryside. It sits within Snowdonia National Park.

The proposed abstraction point is from the Afon Llygwy. The route of the proposed pipeline extends through an existing leat it would then go through a tunnel (to avoid Pont Cyfyng) and emerge downstream. The length of the penstock tunnel is 100 metres. The discharge point is part way down the waterfall which is downstream of Pont Cyfyng.

The site extends to 0.77 ha and is clearly identified on the location plans figures 1-3.

The site lies within the township of Gwydyr in the parish of Llanrwst, and within the historic county of Caernarfonshire but now within the unitary authority of Conwy County Borough.

The bedrock geology is of the Cwm Eigiau Formation, a mudstone and siltstone sedimentary bedrock that formed approximately 453 to 455 million years ago in the Ordovician Period within an environment previously dominated by shallow seas. The superficial deposits are unrecorded (British Geological Survey).

#### 6.2 Statutory and non-statutory designations

## **6.2.1** Non-designated monument points from the Gwynedd Historic Environment Record (figure 4)

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 76 non-designated monuments within 1.0km of the proposed scheme (see appendix I) but none lie within the site boundary. The proposed scheme does however lie within 100.0m of the following non-designated sites:

- (i) Approximately 5.0m east of the post-medieval *Cyfyng Slate Mill, Capel Curig* (PRN: 56,494);
- (ii) Approximately 1.0m north of the Roman Segontium to Caer Llugwy (PRN 17605) Roman Road;
- (iii) Approximately 19.0m northeast of the post-medieval *Turnpike/coach road Capel Curig to Pont Ty-hyll* (PRN: 58,549);
- (iv) Approximately 31.0m south of the Roman Caer Llugwy to Bangor (PRN 17819) Roman Road
- (v) Approximately 53.0m east of the post-medieval Footbridge, Pont Cyfyng (PRN: 19,955).

#### **6.2.2** National Monuments Record (figure 5)

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 48 non-designated monuments within 1.0km of the proposed scheme (see appendix I) but none lie within the site boundary. The proposed scheme does however lie within 100.0m of the following non-designated sites:

- (i) Approximately 5.0m east of the post-medieval *Pont Cyfyng Slate Mill, Capel Curig* (NPRN: 420,117).
- (ii) Approximately 58.0m north of the post-medieval *St John the Baptist Mission Church, Capel Curig* (NPRN: 43,754).

#### **6.2.3** Listed Buildings (figure 6)

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 2 Listed Building within 1.0km of the proposed scheme (see appendix I) but neither lie within the proposed development area or within 500.0m.

#### **6.2.4** Scheduled Ancient Monuments (figure 6)

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

There are 2 Scheduled Ancient Monuments within 1.0km of the proposed scheme (see appendix I) but neither lie within the proposed development area or within 500.0m.

#### **6.2.5** Historic Landscape Character Areas (HLCAs) (figure 7)

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

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

The proposed development site does not lie within a registered historic landscape.

#### 6.2.6 Historic Parks and Gardens

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

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

#### **6.2.7** The Inventory of Historic Battlefields in Wales

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

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

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

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

#### **6.2.8 World Heritage Sites**

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

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

#### **6.2.9** Events

The area of the proposed scheme was included within the Glastir Private Woodland Management Polygonisation project in 2014 by the Gwynedd Archaeological Trust. The sites identified through this survey are recorded on the Gwynedd HER (PRN: 56,494).

In addition the Rhos Quarry was included within the Medieval and Post-Medieval Mills Scheduling Enhancement programme in 2011-12 by the Gwynedd Archaeological Trust on behalf of Cadw (report 1042).

Further to the south of the proposed development site the Foel Quarry has been the subject of numerous reports including the Gwynedd Quarrying Landscapes: Slate Quarries assessment by the Gwynedd Archaeological Trust on behalf of Cadw in 1994 (report 129); and the Gwynedd Slate Quarries: An Archaeological Survey also by the Gwynedd Archaeological Trust on behalf of Cadw in 1995 (report 154).

In 2011 Foel Quarry was included within The Uplands Archaeology Initiative: Moel-Siabod (North) by North Pennines Archaeology for the RCAHMW (report 949/09).

The site is flanked by the proposed route of the Caer Llugwy to Bangor (PRN 17819) Roman Road in the north along the line of the current A5 road; and by the proposed route of the Segontium to Caer Llugwy (PRN 17605) Roman Road in the south crossing at Pont Cyfyng. Both of these roads are reported and described in the Roman Roads in North-West Wales (report 668. rev 4) report produced by the Gwynedd Archaeological Trust in 2007.

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

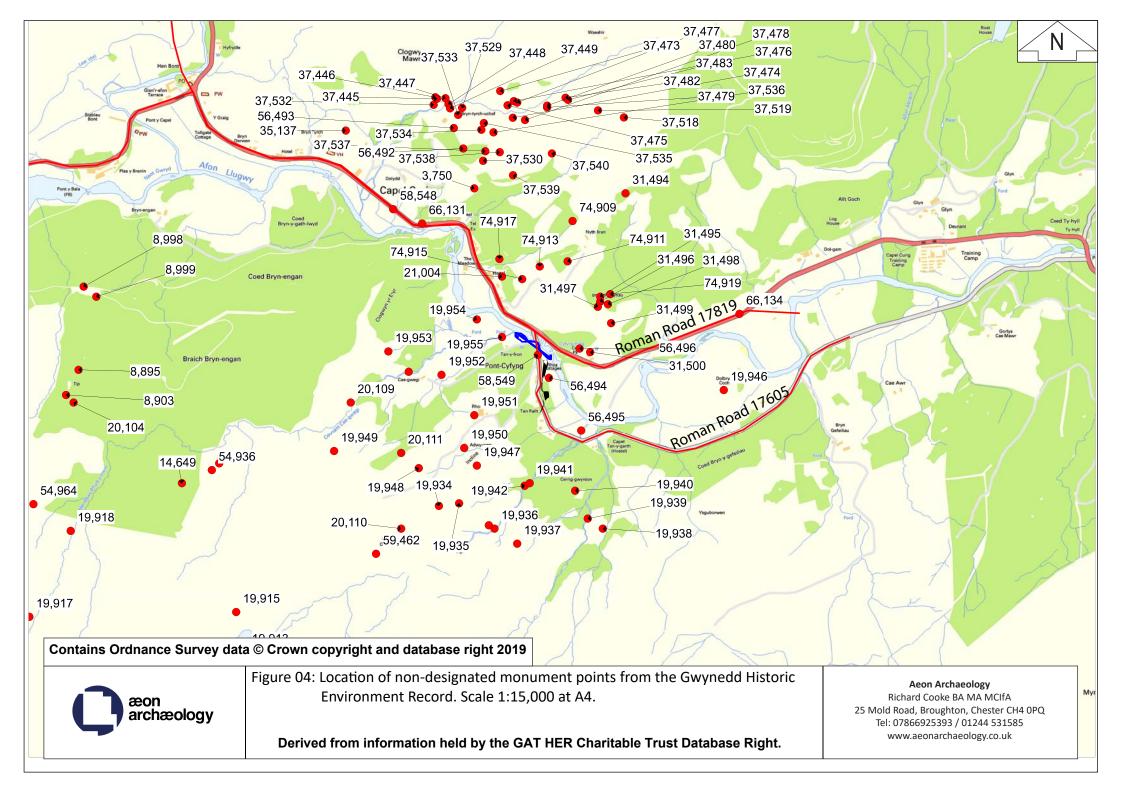
#### 6.2.10 Lidar

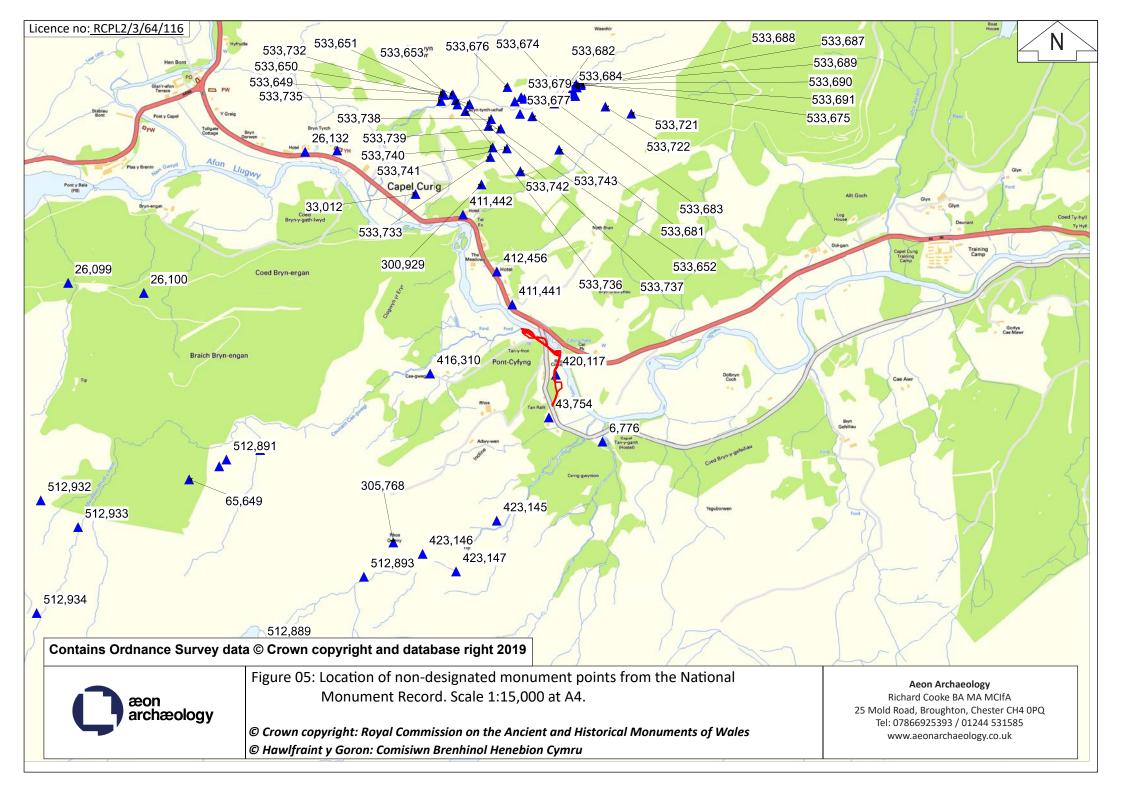
Light Detection and Ranging (LIDAR) is an airborne mapping technique, which uses a laser to measure the distance between the aircraft and the ground. Up to 100,000 measurements per second are made of the ground, allowing highly detailed surface and terrain models to be generated at different spatial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

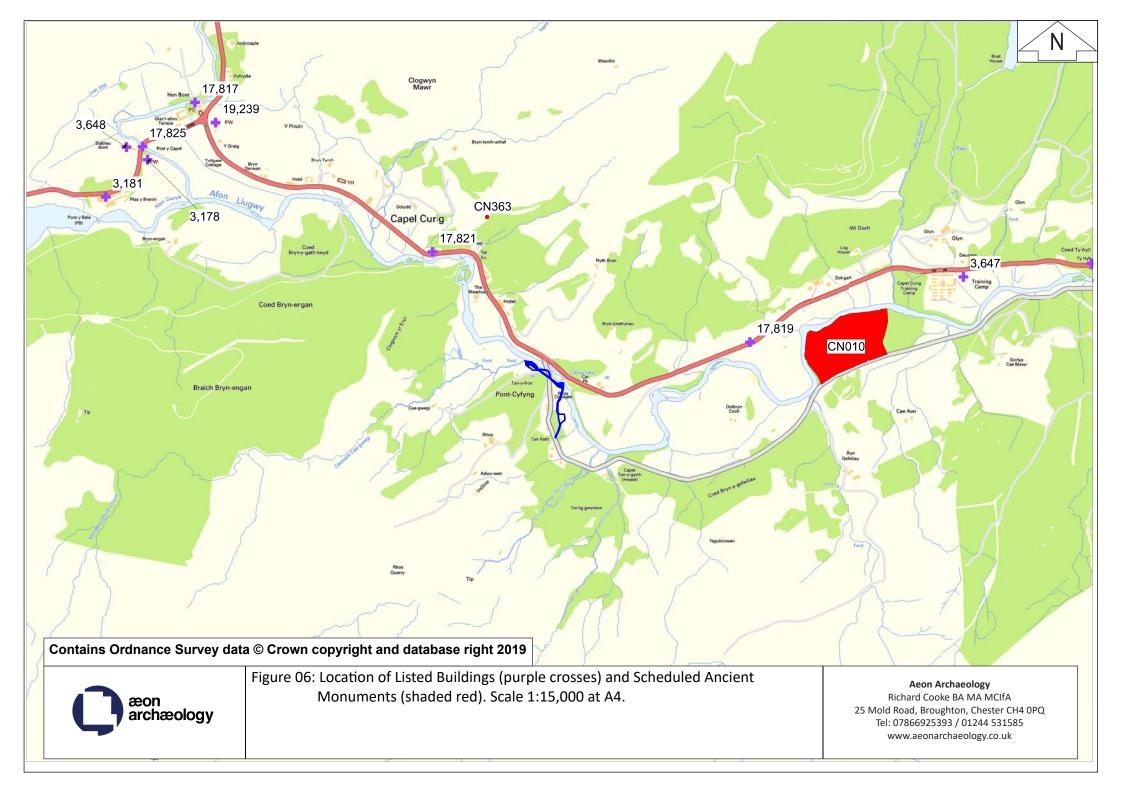
The Lidar coverage of the proposed scheme was examined for sites additional to those found during the archaeological assessment within the proposed development site. Resolution coverage was limited to 1m and 2m however Cyfyng Mill, the associated wheel pit and outfall, incline, and structures were observed but no sites additional to those found during the site visit.

#### **6.2.11 Historic Aerial Photographs**

Aerial photographs taken by the Royal Air Force in 1947 and by the Ordnance Survey in 1973 were obtained from the Aerial Photographs Officer at the Welsh Government and examined for sites additional to those found during the desk-top study and site visit. Although the image quality was good there were no sites found that had not already been identified (figures 11 and 12).







#### 7.0 THE HISTORICAL CONTEXT

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

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

Table 1. Historic periods

Tuble 1. Historic perious		
Palaeolithic (prehistoric)	500,000 BC – 10,001 BC	
Mesolithic (prehistoric)	10,000 BC – 4,001 BC	
Neolithic (prehistoric)	4,000 BC – 2,351 BC	
Bronze Age (prehistoric)	2,350 BC – 801 BC	
Iron Age (prehistoric)	800 BC – 47 AD	
Romano-British	48 AD – 409 AD	
Post-Roman (Early Medieval)	410 AD – 1065 AD	
Medieval	1066 AD – 1539 AD	
Post-Medieval	1540 AD – 1900 AD	
Modern	1901 AD – 2050 AD	

#### 7.1 Prehistoric and Roman Period

There are two recorded prehistoric sites on the Gwynedd HER within 1.0km of the proposed scheme. The closest is that of the Scheduled Ancient Monument *Capel Curig Cairn* (PRN: 3750; NPRN: 300929; SAM: CN363) which lies 600.0m to the north of the hydro intake point. This monument comprises the remains of a burial cairn, probably dating to the Bronze Age (c. 2300 BC - 800 BC) and situated within enclosed pasture on the lower SW-facing slopes above Afon Llugwy (GAT report 449).

Further to the north and approximately 990.0m from the proposed hydro intake lies another possible prehistoric cairn recorded as *Cairn, Possible, N of Bryn Tyrch Uchaf* (PRN 37447; NPRN: 533651)) on the Gwynedd HER, although it is possible that this feature is of natural origin (GAT report 1161).

The site is flanked by the proposed route of the Caer Llugwy to Bangor (PRN 17819) Roman Road in the north along the line of the current A5 road; and by the proposed route of the Segontium to Caer Llugwy (PRN 17605) Roman Road in the south following the Capel Curig to Pont Ty-hyll turnpike road and crossing at Pont Cyfyng.

The former was proposed by Waddelove (1999, 77-101) as a route from Caer Llugwy to a hypothetical camp at Penrhyn, Bangor following the line of the old coach road, the turnpike through Nant y Benglog and Lord Penhryn's road along the west side of the Nant Ffrancon.

The latter is proposed as a route running along the southern bank of the Afon Llugwy before following the route of the current A4086 and continuing through the Llanberis pass.

The projected line of both roads run to the immediate north and south respectively of the Caer Llugwy Bryn-y-Gefeiliau Roman Site Scheduled Ancient Monument (CN010) which lies approximately 980.0m east of the proposed scheme. The fort stands on level ground within a bend of the Afon Llugwy on the line of the road between Caerhun and Tomen-y-Mur. Antiquarian accounts identify a fort and extra-mural buildings along with a road running into the hills to the south. Reports of the discovery of metal working debris, along with the place name which means 'hill of the smiths' suggest that metal working had taken place in the vicinity.

The fort was partially excavated by Hall, Hemp and Higson in 1920-22 and was found to be roughly square, enclosing an area of 1.57 hectares (Hall, 1923). An annex on the west side contained the foundations of stone buildings and these were thought to represent a later phase of activity. The interpretation of these buildings is a little problematic but Jarrett suggests that they are the remains of a mansion. The excavation evidence pointed to occupation in the 1<sup>st</sup> to 2<sup>nd</sup> centuries AD (Jarrett, 1969).

The initial 55.0m of the proposed penstock route runs within a former leat related to the Cyfyng Mill site and as such there is no potential for prehistoric or Roman remains to be encountered during this part of the works. There is however a potential for impact upon buried remains during site clearance associated with the construction of the access track and metering cubicle to the north of Pont Cyfyng. However this part of the scheme occupies the sloping southern bank of the Afon Llugwy and although it is possible that prehistoric or Roman remains could be present the potential is deemed to be unlikely.

The location of the proposed turbine house, southern access track, and remains associated with the Cyfyng Mill site lie on the relatively flat floodplain of the Afon Llugwy. This area would have been an attractive site for prehistoric hunting grounds and temporary camps however it is almost certain that any remains would have been destroyed in the post-medieval period during the construction of Cyfyng Mill and its associated structures. Moreover, the line of the Segontium to Caer Llugwy (PRN 17605) Roman Road occupies the higher ground to the south and west and it is therefore considered that there is a low potential for encountering buried remains of the prehistoric and/or Roman periods during the proposed works.

### 7.2 Early Medieval, Medieval and Post-Medieval Periods

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

The Norman invasion of Wales was undertaken in a piecemeal fashion, mainly along more open valleys. William I placed a strategic centre at Chester, as the Romans had done previously. The northern border was entrusted to Hugh of Auranches (Earl of Chester in 1070) who opened a way into North Wales.

The second half of the 12th century was a period of monastic revival in Wales. In 1186 a colony of Cistercian monks made its way to Gwynedd and settled in Caernarvon before moving to Aberconwy. In 1200 when Llywelyn ab Iorwerth became lord of the greater part of Gwynedd, he took the Abbey of Aberconwy under his protection and granted it a Charter, in which all the monastic lands were confirmed, and new lands added (Colin & Gresham 1939, 123).

Rural settlement in the uplands is believed to have predominantly consisted of dispersed farmsteads and seasonally-occupied dairy houses (*hafodai*) in pastoral areas. The hafod or 'summer dwelling place' is first documented in the 13<sup>th</sup> century and is generally accepted to have been a rectangular building, usually identified in the archaeological literature as either a platform house or long hut. A platform house is a rectangular structure (of wood or stone), which was laid out perpendicular to the contours of a hill slope to form a terrace, sometimes with stone foundations and/or a drain hood visible on the upslope side. The structures are usually twice as long as they are wide (Longley 2006, 62).

A number of possible dwellings have been recorded within the survey area, some of which may be related to the medieval use of upland pastures for grazing cattle. The nearest is that of *the Dwelling, East of, Rhos Quarry* (PRN: 19937) located 540.0m to the south. Further to the west and lying 550.0m from the southern tip of the scheme is the *deserted medieval settlement of Adwy-wen* (PRN: 19,948).

The proposed route of the hydro-electric scheme is first depicted on the plan of the Township of Gwydyr in the Parish of Llanrwst, Carnarvonshire 1840 (figure 7). The map depicts the Afon Llugwy as well as Pont Cyfyng and the Capel Curig to Pont Ty-hyll turnpike road. The proposed development site is otherwise shown as being featureless and there are no features of note shown in close proximity to suggest that they run into the assessment site.

The tithe map shows the development area as being located within the following two field plots:

Plot	Landowner	Tenant	Field Name
64	The Rt. Honble Lord Peter Robert Drummond	Hugh	Rhos y
	Willoughby De Eresby	Hughes,	Golcerth
		William	
		Owens,	
		Griffith	
		Roberts	
65	The Rt. Honble Lord Peter Robert Drummond	Hugh	Caegwegi
	Willoughby De Eresby	Hughes	

The majority of the proposed scheme is located within plot 64 whose field name Rhos y Golcerth means *bonfire marsh / heath*. It is not clear whether this field name relates to a

particular event when the field caught fire or indeed was often used for bonfires, most likely to dispose of humic material.

The north-western part of the scheme including the hydro intake lies within plot 65 whose field name is Caegwegi. In Welsh Cae means *field* however it is not clear whether gwegi is a mutation of gwarg (*empty*) or gwegian (*totter*, *stagger*). The former is easily interpreted as a field plot that is not utilised for any purpose; the latter however may refer to a field with an uneven surface, possibly because of underlying stones.

The tithe apportionment lists the landowner as The Rt. Honble Lord Peter Robert Drummond Willoughby De Eresby who was 2nd Baron Gwydyr and 22nd Baron Willoughby de Eresby (19 March 1782 – 22 February 1865). From 1812 until 1820 he was Member of Parliament for Boston in Lincolnshire. He was a Whig up until the 1832 Reform Act but by 1841 had changed his allegiance to the Tories. On 29 June 1820, he succeeded his father as 2nd Baron Gwydyr, 3rd Baronet Burell of Knipp and Deputy Lord Great Chamberlain. On 29 December 1828 he succeeded his mother as  $22^{nd}$  Baron Willoughby de Eresby and joint hereditary Lord Great Chamberlain (Olney, 1973).

The site is depicted in detail on the first edition six inch county series Ordnance Survey map of 1888 (figure 8) which clearly shows the Afon Llugwy, Pont Cyfyng, Telford's A5 road to the north of the site, and the Capel Curig to Pont Ty-hyll turnpike road to the south. The area of the northern part of the scheme including the hydro intake is shown as occupying the southern bank of the Afon Llugwy but is otherwise featureless aside from a minor trackway to the immediate south connecting the turnpike road with the fields in the west.

The area of the southern part of the scheme however is shown as being occupied by the Cyfyng Slate Mill (PRN: 56494; NPRN: 420117) and associated structures including wheel pit, an incline to the west and minor structures. Cyfyng Mill itself is shown as a rectangular building orientated north to south and lying to the immediate east of the proposed hydro access trackway. The wheel pit and outflow are shown at the northern end of the mill building however the intake feed for the wheel is not depicted. A small rectangular structure is also shown against the southern mill wall. The site is shown as being accessed via a trackway at the southern end of the proposed development site and which is to be improved as part of the proposed scheme.

A short incline is shown to the west of the slate mill and is depicted as running across the proposed access track location. A minor trackway is also shown running northwest from the mill to an enclosed rectangular area which was most likely a storage yard or roadside wharf for finished slate prior to being transported.

The site is again shown on the second edition six inch county series Ordnance Survey map of 1901 (figure 9) although no additional features are shown.

The site is shown in greater detail on the third edition twenty-five inch county series Ordnance Survey map of 1913 (figure 10). This map again shows the mill building, wheel pit and outfall, as well as the incline to the west, although the latter appears to be shown terminating prior to the mill building and as such not continuing across the location of the proposed new access track. The greater level of detail also shows what appears to be a small rectangular structure to the immediate west of the mill building and lying within the route, or possibly just to the east, of the proposed new access trackway.

All three maps depict the row of quarry cottages on the eastern side of the turnpike road, and further to the east the main incline to the Rhos and Foel quarries.

Foel quarry (Moel Siabod, Trewydir, or Bryn Cyple) is located on the northern side of Moel Siabod and approximately 2.4km southwest of the proposed development site. It lay on the farm of Rhos y Goelcerth which was acquired by the Gwydyr estate from the Mostyns in 1812. It operated as an open pit with six working floors and accessed via two adits. The first trials were made in 1836/37 and it was worked for three years before being abandoned. It was intermittently worked in 1844-5 and again in 1845-53, but was only seriously worked when it was leased by J.C. Fourdrinier in 1858, who was joined by Joseph Jennings. In 1861-3 two sand-saw mills were established, the first was located within the quarry itself with the second being located at Pont Cyfyng. At the same time the steep quarry road was replaced with a new tramway which traversed gradients of up to 1 in 9 on the stretches between its six inclines.

After the financial crash of 1865 Fourdrinier pulled out but Jennings persevered with the quarry, abandoning Cyfyng Mill in favour of a new miniature one in the quarry itself. Work continued at the quarry until a rock-fall in 1885, and aside from small-scale workings in 1904 and 1907 the quarry has remained unworked since.

Upon the cessation of works at Foel the nearby Rhos quarry made use of the rail outlet, the investment appears however to have been in vain as production output at Foel never rose above 423 tons a year (Williams and Lewis, 1989).

The NMR retained by the RCAHMW records Cyfyng mill as 'an example of a 'remote mill' situated some distance from the slate working area. Material was carried to the mill by a series of inclines, at one time passing beneath the road, to the mill. The mill is not portrayed as such on early Ordnance Survey mapping, and it may only have had a short life during the 1860s when it had sandsaws, possibly later replaced by circular saws. The mill is now a ruin, though outlined on modern large-scale mapping. There are (in 1991) massive slate bases for what appear to be reciprocating saws, and a pit for a breast shot wheel' (NPRN: 420117).

The short timespan that Cyfyng Mill was utilised (1861-3 to 1865) would suggest that it was a spectacular failure. The reasons for this are not clear, although the use of a breast-shot wheel would suggest that flow rates from the Afon Llugwy were perhaps unpredictable. It is possible that the location of the mill some 2.4km from the quarry played some part in its failure, although this is unlikely as remote mills are seen at Hen Felin, Ynys y Pandy, Rhyd y Sarn, Pant yr Ynn, and Pentrefelin (Gwyn, 2015). Moreover, the investment in the tramway and inclines would have easily supplied the mill with the required amount of slate. Perhaps the mill was merely too ambitious for the quantity and quality of slate quarried, and a smaller replacement mill within the quarry was more economical than persisting with the investment at Pont Cyfyng.

The surviving mill remains consist of a rectangular structure measuring approximately 25.0m in length by 13.0m in width, orientated north to south. The mill walls are all constructed from medium to large sized sub-rounded rubble stone, seemingly of dry-stone construction. The eastern and southern walls measure 0.5m in height by 1.0m in width. The western elevation is a retaining wall benched into the natural slope and measuring 1.3m in height by 0.5m in width. The northern elevation measures 1.7m in height by 0.5m in width.

At the eastern side of the mill floor and butting up against the elevation are four large slate bases for reciprocating saws, measuring 3.0m in length by 1.5m in width by 0.7m in height, and constructed from dressed stone slabs bonded by mortar.

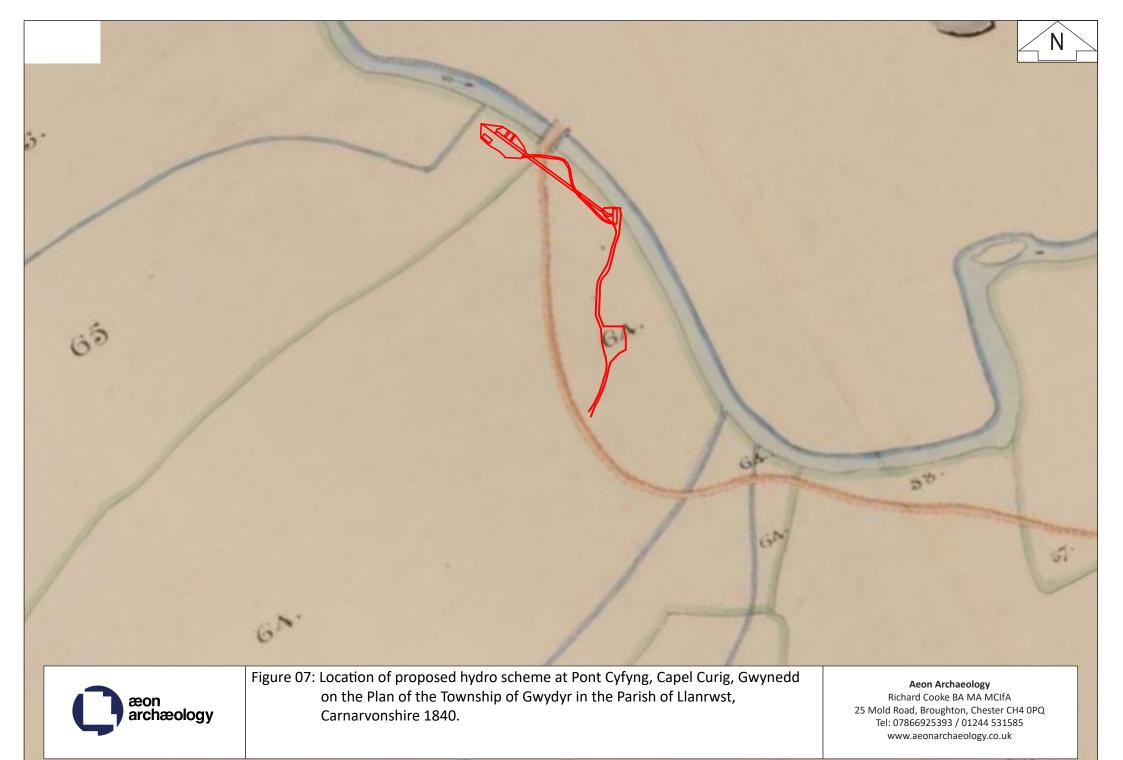
To the immediate north of the mill lies the wheel pit, constructed from large sub-rounded cobbles and seemingly of dry-stone construction, although this may be due to a depreciation of the soft lime mortar rather than absence, and measuring 1.5m in width by approximately 3.0m in depth (the exact depth is uncertain due to natural infilling). The wheel pit walls measure approximately 1.0m in width.

A ditch running east from the wheel pit to the Afon Llugwy marks the line of the outfall, however the intake is not so easily identifiable. A rubble stone platform to the immediate west of the wheel pit would suggest that it was a breast over-shot wheel however no leat is visible connecting to the wheel pit either on the ground or on the available historic maps. A leat is however visible, although not depicted on the available maps, to the northwest of Pont Cyfyng (feature 1) which picks up a feed at the confluence of the Ceunant Cae-gwegi and the Afon Llugwy and then runs southeast to Pont Cyfyng where it peters out. Several iron braces can be seen attached to the rock face immediately northwest of Pont Cyfyng and it appears probable that these once carried a wooden launder that continued beneath the bridge and then south-eastward connecting with the western end of the wheel pit at a right angle. A similar right angle feed can be seen at the dressing mill at Rhos quarry. If this wooden launder did exist then no trace of it now survives and no launder pillars are visible. Another possibility is that a wooden launder carried the feed beneath Pont Cyfyng but then returned to a leat that has since become infilled.

To the immediate east of the mill building an area of woodland marks a limited slate tip (feature 5) between the mill and the Afon Llugwy, measuring approximately 25.0m in diameter.

To the west of the mill building and lying approximately 5.0m to the west of the proposed development access track are the stone-built remains of an incline terminus (feature 7). This is constructed from dry-stone medium and large sized angular cobbles measuring 0.6m in height by 4.5m in width. The incline appears to have carried slate down to the mill from the main incline track to the west of the turnpike road. The incline structure clearly terminates rather than having been excavated away or collapsed, suggesting that slate was taken northward from the terminus to either the mill or road wharf.

To the immediate north of the incline is a rectangular structure (feature 6) measuring approximately 7.0m in length by 3.4m in width by 1.5m in height orientated north to south, and constructed from dry-stone, sub-angular slate blocks. The structure is sub-divided into three separate room spaces measuring approximately 3.0m in length by 1.0m in width. The structure walls slope downwards from west to east showing that they had a mono-pitch roof. It is not clear what function these rooms fulfilled. It was usual for a slate mill to have an associated smithy, joiner shop, and fitting shop however these room spaces appear to be on the small side to fulfil such a role. It is therefore possible that they fulfilled a storage role.



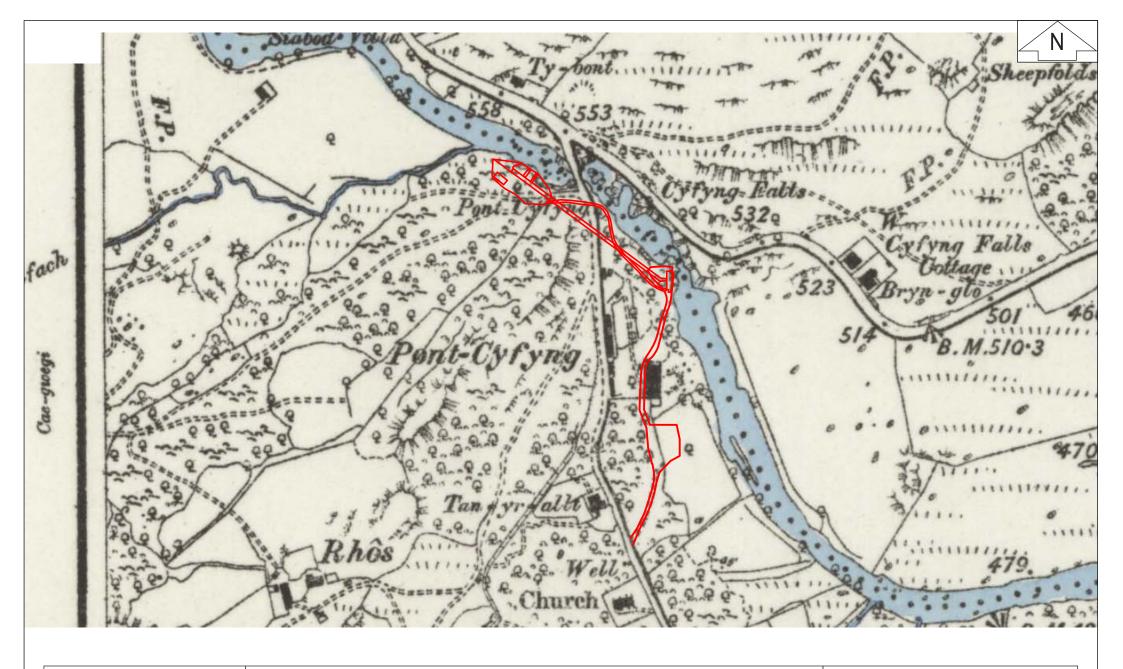




Figure 08: Location of proposed hydro scheme at Pont Cyfyng, Capel Curig, Conwy on the six inch county series Ordnance Survey map of 1888.



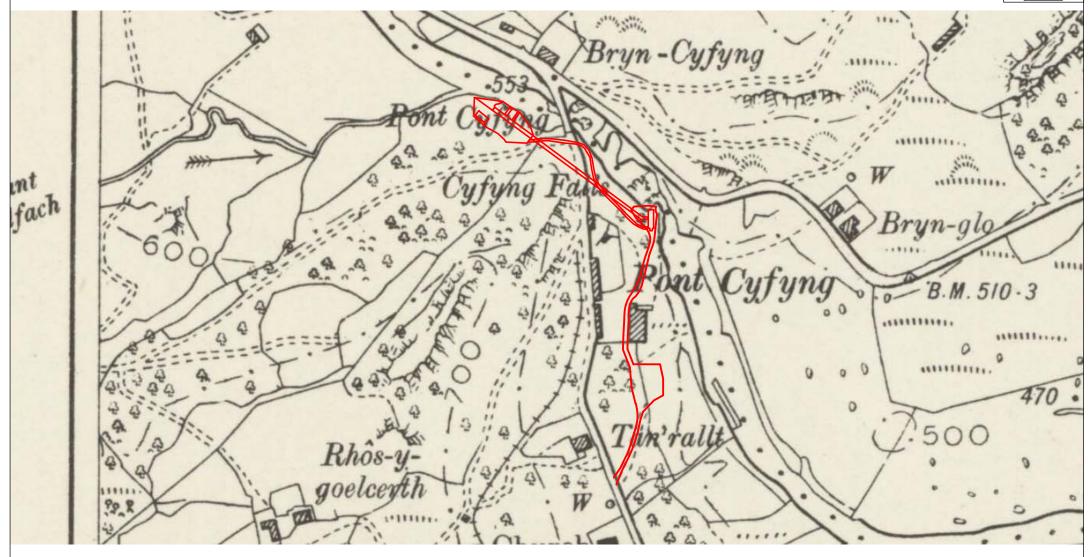




Figure 09: Location of proposed hydro scheme at Pont Cyfyng, Capel Curig, Conwy on the six inch county series Ordnance Survey map of 1901.



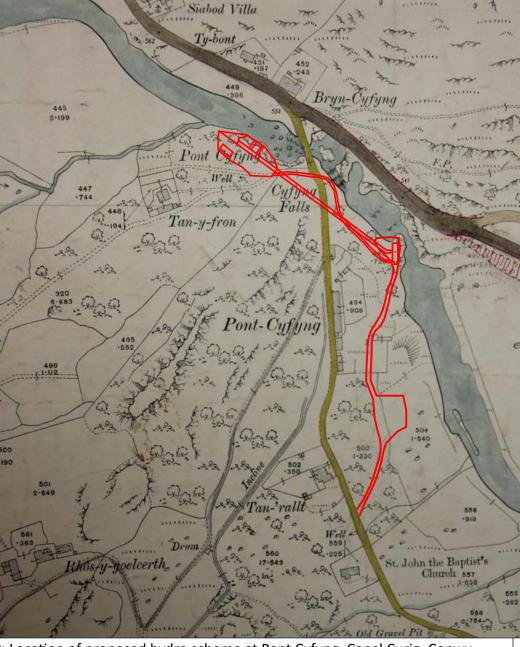




Figure 10: Location of proposed hydro scheme at Pont Cyfyng, Capel Curig, Conwy on the 25 inch county series Ordnance Survey map of 1913.

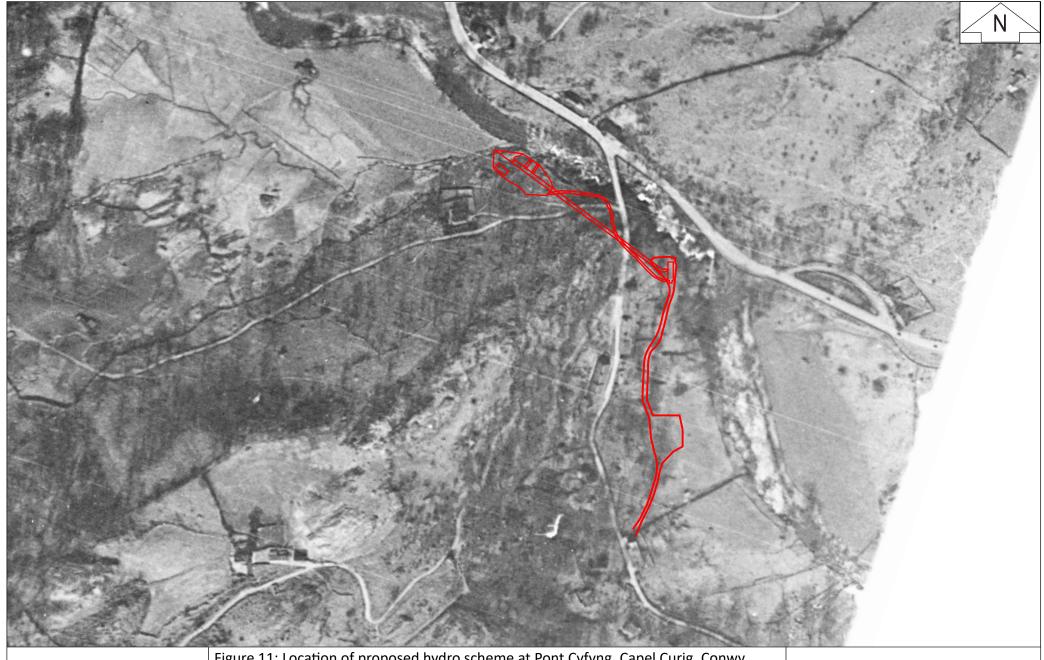




Figure 11: Location of proposed hydro scheme at Pont Cyfyng, Capel Curig, Conwy on the RAF aerial photograph of 1947.





Figure 12: Location of proposed hydro scheme at Pont Cyfyng, Capel Curig, Conwy on the OS aerial photograph of 1973.

# 8.0 DESK-TOP STUDY OF HISTORICAL ASSETS

# **8.1 Definitions**

Definitions of importance, impact, and significance of effect as used in the gazetteer (section 9.0) are listed below.

# 1. Definition of Categories of importance

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

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

# 2. Definition of Impact

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

Magnitude	Direct Impacts	Indirect Impacts
High Adverse	Complete removal of an	Radical transformation of the setting of
	archaeological site.	an archaeological monument. A
	Complete destruction of a	fundamental change in the setting of a
	designated building or structure.	building.
Medium Adverse	Removal of a major part of an	Partial transformation of the setting of an
	archaeological site and loss of	archaeological site (e.g. the introduction
	research potential.	of significant noise or vibration levels to
		an archaeological monument leading to
	Extensive alteration (but not	changes to amenity use, accessibility or
	demolition) of a historic building or	appreciation of an archaeological site).
	feature, resulting in an appreciable	Partial adverse transformation of the
	adverse change.	setting of a designated building.
Low Adverse	Removal of an archaeological site	Minor change to the setting of an
	where a minor part of its total area	archaeological monument or historic
	is removed but the site retains a	building.
	significant future research potential.	
	Change to a historic building or	
	feature resulting in a small change in the resource and its historical	
	context and setting.	
Negligible/	No impact from changes in use,	No perceptible change in the setting of a
Neutral	amenity or access.	building or feature.
redual	No change in the ability to	building of reature.
	understand and appreciate the	
	resource and its historical context	
	and setting.	
Low Beneficial	Land use change resulting in	Decrease in visual or noise intrusion on
	improved conditions for the	the setting of a building, archaeological
	protection of archaeological	site or monument.
	remains or understanding/	Improvement of the wider landscape
	appreciation of a historic building	setting of a building, archaeological site
	or place	or monument.
76.1		
Medium	Land use change resulting in	Significant reduction or removal of
Beneficial	improved conditions for the	visual or noise intrusion on the setting of
	protection of archaeological	a building, archaeological site or
	remains, or understanding/	monument; and
	appreciation of a historic building	Improvement of the wider landscape
	or place, including through interpretation measures (heritage	setting of a building, archaeological site or monument
	trails, etc).	Improvement of the cultural heritage
	Removal of harmful alterations to	amenity, access or use of a building,
	better reveal the significance of a	archaeological site or monument.
	building or structure, with no loss	are moor of the or monument.
	of significant fabric.	
High	Arrest of physical damage or decay	Exceptional enhancement of a building
Beneficial	to a building or structure;	or archaeological site, its cultural
	5	heritage amenity and access or use
l	1	

### 3. The significance of effect

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

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

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

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

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

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

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

**Determination of Significance of Effect** 

	International	Neutral	Moderate or Large	Large or	Very Large
Archaeological Value				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			

#### 9.0 SITE GAZETTEER – PHYSICAL IMPACTS

The archaeological assessment identified 11 features of historical and archaeological importance within 50.0m of the site boundary.

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

1. Leat	<b>PRN:</b> 74935
Figure: 13	<b>Plate:</b> 11-16
NGR: SH 73355 57150 – SH 73402 57175	Period: Post-medieval

Mae cafn wedi ei lleoli ar lan ddeheuol yr afon yn rhedeg o drysor y Ceunant Cae-gwegi ac Afon Llugwy i gyfeiriad y de-ddwyrain cyn diflannu agos i'r Pont Cyfyng. Yr cafn yn ar gyfartaledd 1.0m - 1.5m o led trwy 1.0m mewn dyfnder. Ar gyfer y 10.0m cychwynnol yn y pen gogledd-orllewin, adeiladwyd y gafn o goblau canolig is-gylch, ar ôl hynny mae'r cafn yn mynd yn gwbl doriad carreg. Mae gan y cafn alllif yn ôl i afon Llugwy yn y pen gogleddol yn ogystal â dau lechfeini cerrig wedi eu gosod ar ei draws i ffurfio pompren.

A leat situated on the southern bank of the river runs from the confluence of the Ceunant Caegwegi and the Afon Llugwy southeast before petering out near Pont Cyfyng. The leat averages 1.0m – 1.5m in width by 1.0m in depth. For the initial 10.0m at the northwest end the leat is constructed from dry-stone medium sized sub-rounded cobbles, after which the leat becomes entirely rock-cut. The leat has an outflow leat back to the Afon Llugwy at the northwest end as well as two stone slabs laid across it to form a footbridge.

The leat is not depicted on any of the historical maps but appears to be a feed-in leat for the water wheel at Cyfyng Mill located to the southeast of Pont Cyfyng. Several iron braces can be seen attached to the rock face immediately northwest of Pont Cyfyng and it appears probable that these once carried a wooden launder that continued beneath the bridge and then south-eastward connecting with the western end of the wheel pit at a right angle.

The association with Cyfyng Mill would suggest that the leat was utilised between 1861-3 to 1865.

The leat, although not of high importance as a single feature, should be viewed as part of a suite of features including section of walling (PRN: 74936), Cyfyng mill (PRN: 56494), the mill wheel pit (PRN: 74937), slate tip (PRN: 74938), structures (PRN: 74939), incline (PRN: 74940, leat/drain (PRN: 74941), and trackway (PRN: 74942). Moreover, these features also have a group value with Foel Quarry and its associated features located to the southwest. As such the leat forms part of a 19<sup>th</sup> century slate quarrying landscape and is therefore considered to be of local/regional importance.

The proposed scheme will involve the clearing out of debris and infilled soil within the leat after which the penstock route will be laid in the base and covered over with soil. The works will enable the recording of the leat as well as the opportunity to gain knowledge as to its construction. Although the leat will be partially infilled it will only be to an amount to sufficiently protect the penstock and as such the historic function of the leat will still be interpretable. It is therefore considered that the proposed scheme will have a low impact upon the feature resulting in a neutral to slight adverse significance of effect.

Category of importance: Local / regional

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

**Significance of effect:** Neutral to slight adverse

**Recommendations for further assessment:** None



Plate 11: Proposed hydro intake into leat (feature 1), from the northwest. Scale 1.0m.





Plate 12: Proposed hydro intake into leat (feature 1), from the southeast. Scale 1.0m.





Plate 13: Leat (feature 1) showing footbridge, from the southeast. Scale 1.0m.





Plate 14: Leat (feature 1) showing outflow leat, from the southwest. Scale 1.0m.





Plate 15: Leat (feature 1), from the northwest. Scale 1.0m.





Plate 16: Leat (feature 1), from the southeast. Scale 1.0m.



2. Section of Walling	<b>PRN:</b> 74936
Figure: 13	Plate: 17
NGB 611 72400 57022 GH 72401 57020	D. I.D.
NGR: SH 73480 57022 – SH 73481 57028	Period: Post-medieval

Mae rhan o furiau sy'n mesur tua 5.5m o hyd erbyn 0.4m o led gan 0.5m o uchder ac yn rhedeg i'r gogledd-gogledd-ddwyrain i'r de-de-orllewin wedi ei lleoli tua 15.0m i'r gogledd o Felin Lechi Cyfyng.

A section of walling measuring approximately 5.5m in length by 0.4m in width by 0.5m in height and orientated north-northeast to south-southwest is located approximately 15.0m to the north of Cyfyng slate mill.

The wall is not depicted on any of the historical maps but was almost certainly associated with the mill site and was likely part of a retaining wall, possibly for the trackway between the mill and roadside wharf.

The section of walling, although not of high importance as a single feature, should be viewed as part of a suite of features including section of leat (PRN: 74935), Cyfyng mill (PRN: 56494), the mill wheel pit (PRN: 74937), slate tip (PRN: 74938), structures (PRN: 74939), incline (PRN: 74940, leat/drain (PRN: 74941), and trackway (PRN: 74942). Moreover, these features also have a group value with Foel Quarry and its associated features located to the southwest. As such the leat forms part of a 19th century slate quarrying landscape and is therefore considered to be of local/regional importance.

The proposed scheme will not impact upon the section of walling as the new access trackway will run to the immediate east of the feature. It is however proposed that measures are taken to ensure that the wall is not impacted upon by the ingress and egress of plant machinery within close proximity.

Category of importance: Local / regional

Level of impact: None

**Significance of effect:** Neutral

**Recommendations for further assessment:** None

Recommendations for further mitigatory measures: Avoidance



Plate 17: Section of walling (feature 2), from the south. Scale 1.0m.



3. Cyfyng Mill wheel pit	<b>PRN:</b> 74937
Figure: 13	Plate: 18
NGR: SH 73485 57011	Period: Post-medieval

I'r gogledd o'r felin mae'r pwll olwynion, wedi'i adeiladu o goblau mawr yn yr is-rownd ac mae'n debyg ei fod wedi'i adeiladu o gerrig sych, er y gall hyn fod o ganlyniad i golli'r morter calch meddal yn hytrach nag absenoldeb. Mae'r pwll olwynion yn mesur 1.5m o led gan tua 3.0m mewn dyfnder (yr union ddyfnder yn ansicr oherwydd croniad malurion naturiol). Mae muriau'r pwll olwynion yn mesur tua 1.0m o led.

To the immediate north of the mill lies the wheel pit, constructed from large sub-rounded cobbles and seemingly of dry-stone construction, although this may be due to a depreciation of the soft lime mortar rather than absence, and measuring 1.5m in width by approximately 3.0m in depth (the exact depth is uncertain due to natural infilling). The wheel pit walls measure approximately 1.0m in width.

A ditch running east from the wheel pit to the Afon Llugwy marks the line of the outfall, however the intake is not so easily identifiable. A rubble stone platform to the immediate west of the wheel pit would suggest that it was a breast over-shot wheel however no leat is visible connecting to the wheel pit either on the ground or on the available historic maps. A leat is however visible, although not depicted on the available maps, to the northwest of Pont Cyfyng (feature 1) which picks up a feed at the confluence of the Ceunant Cae-gwegi and the Afon Llugwy and then runs southeast to Pont Cyfyng where it peters out. Several iron braces can be seen attached to the rock face immediately northwest of Pont Cyfyng and it appears probable that these once carried a wooden launder that continued beneath the bridge and then south-eastward connecting with the western end of the wheel pit at a right angle. A similar right angle feed can be seen at the dressing mill at Rhos quarry. If this wooden launder did exist then no trace of it now survives and no launder pillars are visible. Another possibility is that a wooden launder carried the feed beneath Pont Cyfyng but then returned to a leat that has since become infilled.

The wheel pit, although not of high importance as a single feature, should be viewed as part of a suite of features including the leat (PRN: 74935), section of walling (PRN: 74936), Cyfyng mill (PRN: 56494), slate tip (PRN: 74938), structures (PRN: 74939), incline (PRN: 74940, leat/drain (PRN: 74941), and trackway (PRN: 74942). Moreover, these features also have a group value with Foel Quarry and its associated features located to the southwest. As such the leat forms part of a 19<sup>th</sup> century slate quarrying landscape and is therefore considered to be of local/regional importance.

The proposed scheme will not impact upon the mill wheel pit as the new access trackway will run to the immediate east of the feature. It is however proposed that measures are taken to ensure that the wheel pit is not impacted upon by the ingress and egress of plant machinery within close proximity.

Category of importance: Local / regional

Level of impact: None

Significance of effect: Neutral

Recommendations for further assessment: None

Recommendations for further mitigatory measures: Avoidance



Plate 18: Mill wheel pit (feature 3), from the west. Scale 1.0m.



4. Cyfyng Mill	<b>PRN:</b> 56494
Figure: 13	<b>Plate:</b> 19-25
NGR: SH 73486 56998	Period: Post-medieval

Mae'r adeilad felin sydd wedi goroesi yn cynnwys strwythur hirsgwar mesur tua 25.0m o hyd gan 13.0m o led, ac yn gogwyddo o'r gogledd i'r de. Mae muriau'r felin i gyd wedi'u hadeiladu o gerrig rwbel is-rownd o ganolig i fawr, mae'n debyg ei fod wedi'i adeiladu o gerrig sych. Mae'r muriau dwyreiniol a deheuol yn mesur 0.5m mewn uchder gan 1.0m o led. Mae'r drychiad gorllewinol mewn gwirionedd yn wal gynnal, wedi ei thorri i mewn i'r llethr naturiol ac yn mesur 1.3m mewn uchder gan 0.5m mewn lled. Mae'r drychiad gogleddol yn mesur 1.7m mewn uchder gan 0.5m o led.

The surviving mill remains consist of a rectangular structure measuring approximately 25.0m in length by 13.0m in width, orientated north to south. The mill walls are all constructed from medium to large sized sub-rounded rubble stone, seemingly of dry-stone construction. The eastern and southern walls measure 0.5m in height by 1.0m in width. The western elevation is a retaining wall benched into the natural slope and measuring 1.3m in height by 0.5m in width. The northern elevation measures 1.7m in height by 0.5m in width.

At the eastern side of the mill floor and butting up against the elevation are four large slate bases for reciprocating saws, measuring 3.0m in length by 1.5m in width by 0.7m in height, and constructed from dressed stone slabs bonded by mortar.

The mill should be viewed as part of a suite of features including the leat (PRN: 74935), section of walling (PRN: 74936), the mill wheel pit (PRN: 74937), slate tip (PRN: 74938), structures (PRN: 74939), incline (PRN: 74940, leat/drain (PRN: 74941), and trackway (PRN: 74942). Moreover, these features also have a group value with Foel Quarry and its associated features located to the southwest. As such the leat forms part of a 19<sup>th</sup> century slate quarrying landscape and is therefore considered to be of local/regional importance.

The proposed scheme will not impact upon the slate mill directly as the new access trackway will run to the immediate east of the feature. It is however proposed that measures are taken to ensure that the mill is not impacted upon by the ingress and egress of plant machinery within close proximity. It is therefore recommended that a structural survey of the western mill wall is undertaken prior to the commencement of works to ascertain what measures, if any, are required in order to protect the mill wall from collapse when the trackway is under construction and in use.

Category of importance: Local / regional

**Level of impact:** Unknown indirect physical adverse (construction phase and completion phase)

Significance of effect: Unknown

**Recommendations for further assessment:** None

**Recommendations for further mitigatory measures:** Avoidance and structural survey of western mill wall to ascertain what measures, if any, are required in order to protect the mill wall from collapse when the trackway is under construction and in use.



Plate 19: Cyfyng Mill (feature 4), from the northwest. Scale 1.0m.





Plate 20: Cyfyng Mill (feature 4), from the southwest. Scale 1.0m.





Plate 21: Cyfyng Mill (feature 4) showing machine bases, from the south. Scale 1.0m.





Plate 22: Cyfyng Mill (feature 4) showing machine bases, from the north. Scale 1.0m.



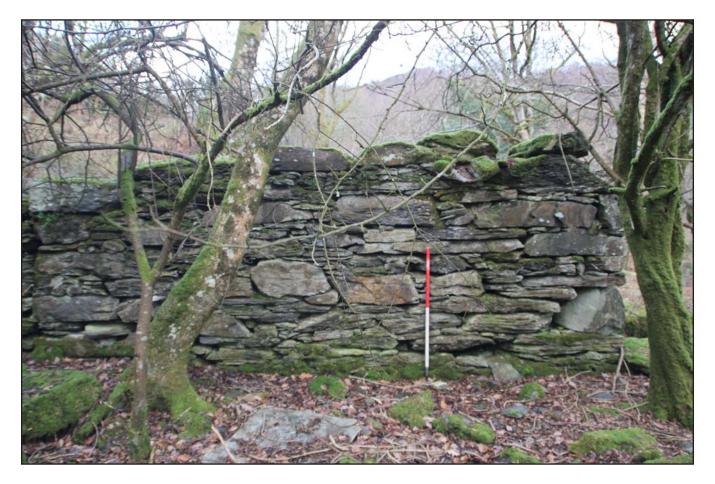


Plate 23: Cyfyng Mill (feature 4) showing northern wall, from the south. Scale 1.0m.



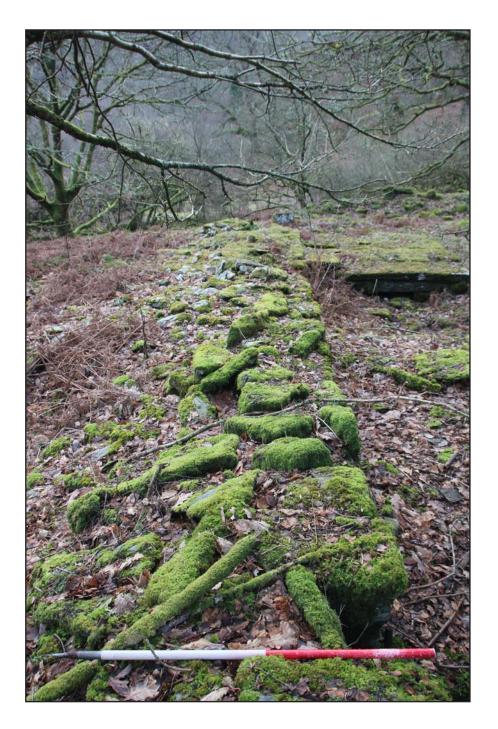


Plate 24: Cyfyng Mill (feature 4) showing eastern wall, from the north. Scale 1.0m.





Plate 25: Cyfyng Mill (feature 4) showing western wall, from the southeast. Scale 1.0m.



5. Slate tip	<b>PRN:</b> 74938
Figure: 13	Plate: 26
NGR: SH 73495 56997	Period: Post-medieval

I'r dwyrain agos o'r felin, mae ardal o goetir yn nodi tomen lechi fechan (nodwedd 5) rhwng y felin ac Afon Llugwy, gan fesur tua 25.0m mewn diamedr.

To the immediate east of the mill building an area of woodland marks a limited slate tip (feature 5) between the mill and the Afon Llugwy, measuring approximately 25.0m in diameter.

The slate tip should be viewed as part of a suite of features including the leat (PRN: 74935), section of walling (PRN: 74936), the mill wheel pit (PRN: 74937), Cyfyng Mill (PRN: 56494), structures (PRN: 74939), incline (PRN: 74940, leat/drain (PRN: 74941), and trackway (PRN: 74942). Moreover, these features also have a group value with Foel Quarry and its associated features located to the southwest. As such the leat forms part of a 19<sup>th</sup> century slate quarrying landscape and is therefore considered to be of local/regional importance.

The proposed scheme will not impact upon the slate tip and as such no further assessment or mitigatory measures are proposed aside from avoidance.

Category of importance: Local / regional

Level of impact: None

**Significance of effect:** Neutral

**Recommendations for further assessment:** None



Plate 26: Cyfyng Mill slate tip (feature 5), from the northwest. Scale 1.0m.



6. Structures	<b>PRN:</b> 74939
Figure: 13	Plate: 27
NGR: SH 73453 56999	Period: Post-medieval

I'r gogledd union o'r inclein (PRN: 74940), mae'n adeiledd hirsgwar sy'n mesur tua 7.0m o hyd gan 3.4m yn ei led gan 1.5m mewn uchder sy'n rhedeg o'r gogledd i'r de. ac wedi'u hadeiladu o wal gerrig sych a blociau llechi is-onglog. Rhennir y strwythur yn dair ystafell ar wahân sy'n mesur tua 3.0m o hyd gan 1.0m o led. Mae'r muriau strwythur yn goleddfu tua i lawr o'r gorllewin i'r dwyrain gan ddangos bod ganddynt do un llain. Nid yw'n glir pa swyddogaeth yr oedd yr ystafelloedd hyn yn ei chyflawni. Yr oedd yn arferol i felin lechi gael Gefail gysylltiedig, siop saernïaeth ac siop ffitio fodd bynnag, ymddengys fod yr ystafelloedd hyn yn rhy fach i gyflawni rôl o'r fath. Mae'n bosibl felly eu bod yn ystafelloedd storio.

To the immediate north of the incline (PRN: 74940) is a rectangular structure measuring approximately 7.0m in length by 3.4m in width by 1.5m in height orientated north to south, and constructed from dry-stone, sub-angular slate blocks. The structure is sub-divided into three separate room spaces measuring approximately 3.0m in length by 1.0m in width. The structure walls slope downwards from west to east showing that they had a mono-pitch roof. It is not clear what function these rooms fulfilled. It was usual for a slate mill to have an associated smithy, joiner shop, and fitting shop however these room spaces appear to be on the small side to fulfil such a role. It is therefore possible that they fulfilled a storage role.

The structure should be viewed as part of a suite of features including the leat (PRN: 74935), section of walling (PRN: 74936), the mill wheel pit (PRN: 74937), Cyfyng Mill (PRN: 56494), slate tip (PRN: 74938), incline (PRN: 74940, leat/drain (PRN: 74941), and trackway (PRN: 74942). Moreover, these features also have a group value with Foel Quarry and its associated features located to the southwest. As such the leat forms part of a 19<sup>th</sup> century slate quarrying landscape and is therefore considered to be of local/regional importance.

The proposed scheme will not impact upon the structures and as such no further assessment or mitigatory measures are proposed aside from avoidance.

Category of importance: Local / regional

**Level of impact:** None

Significance of effect: Neutral

**Recommendations for further assessment:** None



Plate 27: Structures (feature 6), from the northeast. Scale 1.0m.



7. Incline terminus	<b>PRN:</b> 74940
Figure: 13	Plate: 28
riguic. 13	1 iatt. 20
NGR: SH 73453 56993	Period: Post-medieval

I'r gorllewin o adeilad y felin a leolir tua 5.0m i'r gorllewin o'r llwybr mynediad datblygu arfaethedig, mae olion wedi eu hadeiladu o gerrig o derfynell inclein.

To the west of the mill building and lying approximately 5.0m to the west of the proposed development access track are the stone-built remains of an incline terminus.

This is constructed from dry-stone medium and large sized angular cobbles measuring 0.6m in height by 4.5m in width. The incline appears to have carried slate down to the mill from the main incline track to the west of the turnpike road. The incline structure clearly terminates rather than having been excavated away or collapsed, suggesting that slate was taken northward from the terminus to either the mill or road wharf.

The incline should be viewed as part of a suite of features including the leat (PRN: 74935), section of walling (PRN: 74936), the mill wheel pit (PRN: 74937), Cyfyng Mill (PRN: 56494), slate tip (PRN: 74938), structures (PRN: 74939, leat/drain (PRN: 74941), and trackway (PRN: 74942). Moreover, these features also have a group value with Foel Quarry and its associated features located to the southwest. As such the leat forms part of a 19<sup>th</sup> century slate quarrying landscape and is therefore considered to be of local/regional importance.

The proposed scheme will not impact upon the incline and as such no further assessment or mitigatory measures are proposed aside from avoidance.

Category of importance: Local / regional

**Level of impact:** None

Significance of effect: Neutral

**Recommendations for further assessment:** None



Plate 28: Incline terminus (feature 7), from the southeast. Scale 1.0m.



8. Leat / drain	<b>PRN:</b> 74941
Figure 12	Plate: 29
Figure: 13	Plate: 29
NGR: SH 73484 56969 – SH 73529 56991	Period: Post-medieval
110K. 511 75404 50707 - 511 75327 50771	1 criou. 1 ost-inedievar

I'r de o Melin Cyfyng (PRN: 56494) Cafn all-lif neu ffos ddraenio bosibl yn rhedeg o'r deorllewin i'r gogledd-ddwyrain.

To the south of Cyfyng Mill (PRN: 56494) an outfall leat or possibly drainage ditch runs from southwest to northeast.

The leat / ditch measures approximately 50.0m in length by 1.2m in width by 0.4m in depth, and has medium sized sub-rounded cobbles along its edges although these appear to be upcast material rather than an attempt at a structural form. The feature is shown on the 1888, 1901 and 1913 Ordnance Survey maps and was almost certainly associated with Cyfyng mill.

The leat / drain should be viewed as part of a suite of features including the leat (PRN: 74935), section of walling (PRN: 74936), the mill wheel pit (PRN: 74937), Cyfyng Mill (PRN: 56494), slate tip (PRN: 74938), structures (PRN: 74939, incline (PRN: 74940), and trackway (PRN: 74942). Moreover, these features also have a group value with Foel Quarry and its associated features located to the southwest. As such the leat forms part of a 19<sup>th</sup> century slate quarrying landscape and is therefore considered to be of local/regional importance.

The proposed scheme will not impact upon the leat / drain and as such no further assessment or mitigatory measures are proposed aside from avoidance.

Category of importance: Local / regional

**Level of impact:** None

Significance of effect: Neutral

**Recommendations for further assessment:** None



Plate 29: Drain / leat (feature 8), from the east. Scale 1.0m.



9. Trackway	<b>PRN:</b> 74942
Figure: 13	Plate: 30
NGR: SH 73464 56874 – SH 73492 56935	Period: Post-medieval

I'r de o Melin Cyfyng (PRN: 56494) Mae llwybr yn rhedeg o'r de-orllewin i'r gogledd-ddwyrain gan gysylltu'r ffordd dyrpeg â safle'r felin.

To the south of Cyfyng Mill (PRN: 56494) a trackway runs from southwest to northeast connecting the turnpike road with the mill site.

The trackway measures approximately 67.0m in length by 3.0m in width but does not appear to have any laid surface, rather having been terraced into the natural slope. The feature is shown on the 1888, 1901 and 1913 Ordnance Survey maps and was likely associated with Cyfyng mill.

The trackway should be viewed as part of a suite of features including the leat (PRN: 74935), section of walling (PRN: 74936), the mill wheel pit (PRN: 74937), Cyfyng Mill (PRN: 56494), slate tip (PRN: 74938), structures (PRN: 74939, incline (PRN: 74940), and leat/drain (PRN: 74941). Moreover, these features also have a group value with Foel Quarry and its associated features located to the southwest. As such the leat forms part of a 19<sup>th</sup> century slate quarrying landscape and is therefore considered to be of local/regional importance.

The trackway will require improving as part of the proposed scheme involving the removal of any overburden and the consolidation of the trackway with a stone hardcore. As such a basic record should be taken prior to the commencement of works. The photographic and descriptive record presented here however should be seen as being commensurate with a basic record and as such no further assessment or mitigatory measures are proposed.

Category of importance: Local / regional

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

Significance of effect: Neutral or slight adverse

**Recommendations for further assessment:** None

**Recommendations for further mitigatory measures:** Basic record (complete)



Plate 30: Trackway (feature 9), from the southwest. Scale 1.0m.



10. Fieldwall	<b>PRN:</b> 74943
Figure: 13	Plate: 31
NGR: SH 73464 56873	Period: Post-medieval

Mae Mur maes yn rhedeg o'r Gogledd i'r De ac mae'n nodi ochr ddwyreiniol y ffordd dyrpeg (PRN: 58549). Darlunir y ffordd am y tro cyntaf ar fap y degwm o 1840 ac fe'i dangosir hefyd ar fapiau'r Arolwg Ordnans o 1888, 1901 a 1913 yn y drefn honno. Felli mae'r ffin yn fwyaf tebygol o gael ei dyddio.

A field wall runs from north to south and marks the eastern side of the turnpike road (PRN: 58549). The road is first depicted on the tithe map of 1840 and is also shown on the Ordnance Survey maps of 1888, 1901 and 1913 respectively. The boundary is therefore most likely of contemporary date.

The field wall will require truncating slightly in order for plant to fit through the existing gateway. This will result in a negligible adverse direct physical impact and negligible / slight significance of effect.

Category of importance: Negligible / local

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

Significance of effect: Neutral or slight adverse

**Recommendations for further assessment:** None



Plate 31: Field wall (feature 10), from the northeast. Scale 1.0m.



11. Pont Cyfyng	<b>PRN:</b> 74944
Figure: 13	<b>Plate:</b> 32 and 33
NGR: SH 73431 57156	Period: Post-medieval

Mae Pont Cyfyng yn bont gerrig un arch sy'n rhychwantu Afon Llugwy i'r de-ddwyrain o Gapel Curig. Dyma oedd ateb yr Arglwydd Penrhyn i gario'r ffordd coet 1805 drwy ran gulaf yr eithin. Fodd bynnag, nid oedd y bont na'r ffordd yn ddigon llydan i ganiatáu i ddau coetsys fynd heibio'n ddiogel. Roedd gwelliannau Thomas Telford i'r ffordd o Lundain i Gaergybi tua 1819 yn cynnwys adeiladu arglawdd mwy ar ochr ogleddol y Rhaeadr.

Pont Cyfyng is a single arch stone bridge spanning the Afon Llugwy southeast of Capel Curig. It was Lord Penrhyn's solution to carry the 1805 coach road through the narrowest part of the gorge. However the bridge and road beyond was not wide enough to allow two coaches to pass safely. Telford's improvements to the London to Holyhead road around 1819 involved the construction of an even more massive embankment on the north side of the falls.

The bridge lies outside of the development area however the proposed works will have an indirect non-physical (visual) impact upon the bridge when viewing northwest and southeast along the Afon Llugwy. Photographic plates taken from the bridge viewing in these directions suggest that this visual impact will be limited due to the covering of the penstock with soil, and the relatively thick woodland restricting views towards the intake weir, turbine house, outfall, compound, and access trackway. It is therefore considered that the indirect nonphysical impact will be negligible to low adverse resulting in a slight adverse significance of effect.

Category of importance: Regional

Level of impact: Negligible / Low adverse indirect non-physical (visual) (construction phase and completion phase)

Significance of effect: Slight adverse

**Recommendations for further assessment:** None

Recommendations for further mitigatory measures: None

Category of importance: Negligible

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

Significance of effect: Neutral or slight adverse

Recommendations for further desk-top study: None



Plate 32: View from Pont Cyfyng (feature 11) towards the proposed penstock route, from the east.





Plate 33: View from Pont Cyfyng (feature 11) towards the proposed turbine house, from the northwest.



	Table 2: Summary of archaeological features.  GREEN = <u>no</u> action required; RED= Action required.							
Nu mb er	Name	Importance	Impact	Significance of effect	Further Desk-top study	Mitigation Recommendations		
PHY	YSICAL DIRECT AND INDIRECT IMPACTS							
1	Leat	Local / regional	Low adverse direct physical (construction phase)	Neutral or Slight adverse	None	Watching brief during the removal of infill debris and record of revealed structure		
2	Section of Walling	Local / regional	None	Neutral	None	Avoidance		
3	Cyfyng Mill Wheel Pit	Local / regional	None	Neutral	None	Avoidance		
4	Cyfyng Mill	Local / regional	Unknown adverse indirect physical (construction phase and completion phase)	Unknown	None	Avoidance and structural survey of western mill wall to ascertain what measures, if any, are required in order to protect the mill wall from collapse when the trackway is under construction and in use		
5	Slate Tip	Local / regional	None	Neutral	None	Avoidance		
6	Structures	Local / regional	None	Neutral	None	Avoidance		
7	Incline Terminus	Local / regional	None	Neutral	None	Avoidance		
8	Leat / drain	Local / regional	None	Neutral	None	Avoidance		
9	Trackway	Local / regional	Low adverse direct physical (construction phase)	Neutral or Slight adverse	None	Basic record (complete)		
10	Fieldwall	Negligible /	Low adverse direct physical	Neutral or Slight adverse	None	None		

		local	(construction phase)			
11	Pont Cyfyng	Regional	Negligible / low adverse	Slight adverse	None	None
			indirect non-physical			
		(visual) (construction phase				
			and completion phase)			

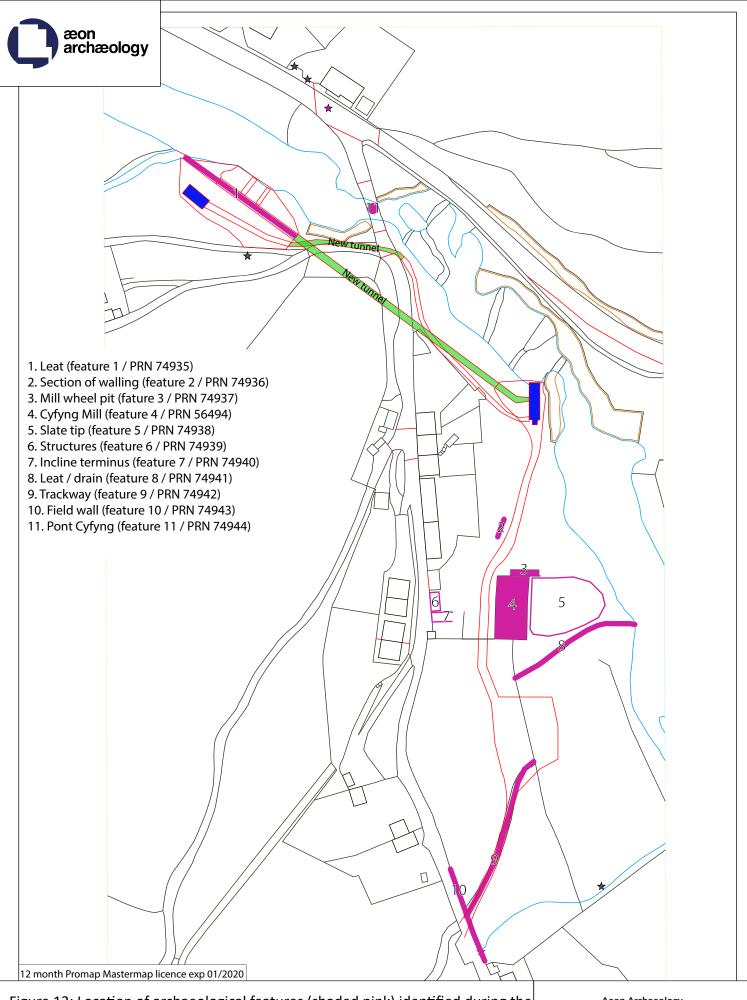


Figure 13: Location of archaeological features (shaded pink) identified during the archaeological assessment at Pont Cyfyng, Capel Curig, Conwy.

Scale 1:1,500 at A4.

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

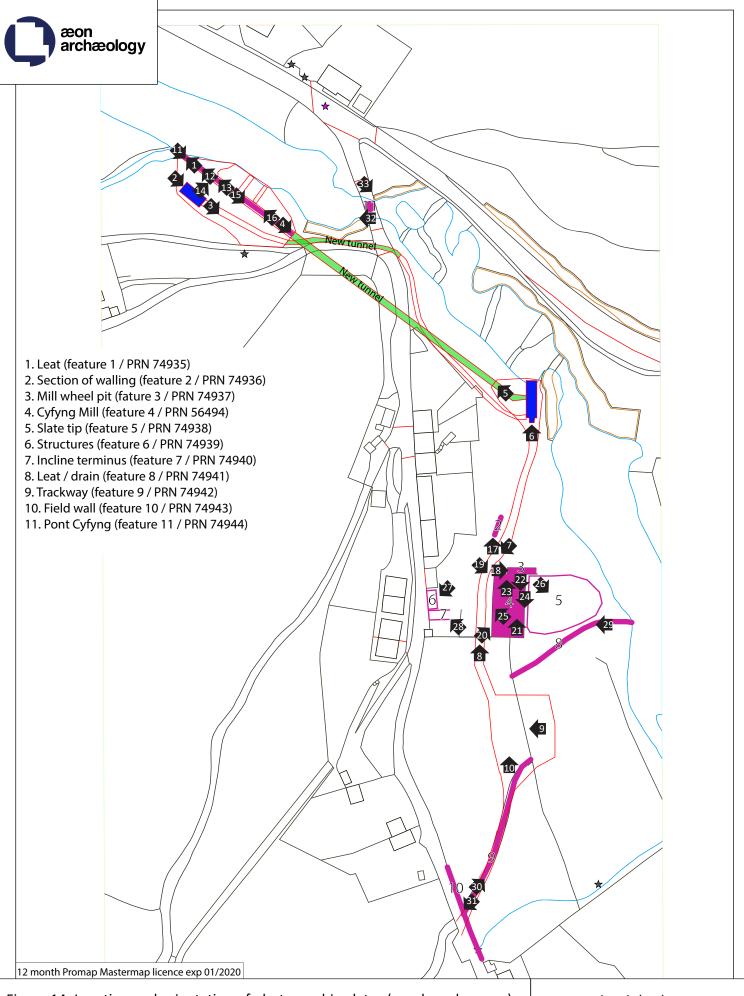


Figure 14: Location and orientation of photographic plates (numbered arrows) taken during the archaeological assessment at Pont Cyfyng, Capel Curig, Conwy. Scale 1:1,500 at A4.

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

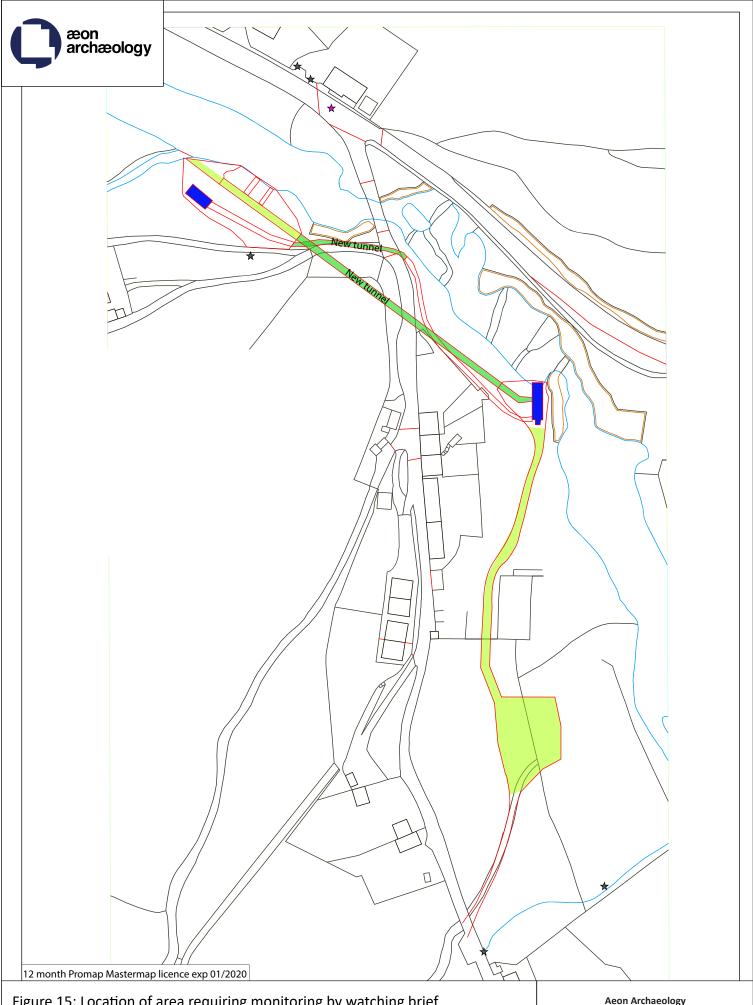


Figure 15: Location of area requiring monitoring by watching brief (shaded yellow). Scale 1:5,000 at A4.

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

#### 10.0 IMPACT AND RECOMMENDATIONS

#### 10.1 Direct physical impact

#### Construction phase

The proposed development scheme is expected to have a *low adverse direct physical impact* upon three features during the construction phase. Two of these features (features 1 and 9) are associated with the Cyfyng slate mill complex and as such are of local/regional importance due to their group value, resulting in a *neutral or slight adverse significance of effect*.

The third feature is a field wall (feature 10) of negligible / local importance resulting in a neutral or slight adverse significance of effect.

#### Completion phase

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

#### 10.2 Indirect physical and non-physical (visual) impact

#### Construction phase

The proposed development scheme is expected to have an *unknown adverse indirect physical* impact upon Cyfyng Mill (feature 4) during the construction phase. This is due to insufficient information regarding the potential impact of erosion to the monument's western wall via vehicle ingress and egress.

There will also be a *negligible / low adverse indirect non-physical (visual)* impact upon Pont Cyfyng (feature 11) during the construction phase resulting in a *slight adverse significance of effect*.

#### Completion phase

The proposed development scheme is expected to have an *unknown adverse indirect physical* impact upon Cyfyng Mill (feature 4) during the completion phase. This is due to insufficient information regarding the potential impact of erosion to the monument's western wall via vehicle ingress and egress.

There will also be a *negligible / low adverse indirect non-physical (visual)* impact upon Pont Cyfyng (feature 11) during the completion phase resulting in a *slight adverse significance of effect*.

#### **10.3 Site Specific Recommendations**

Site specific recommendations have been made for an archaeological watching brief to be maintained during the removal of infill debris within leat (feature 1) so that a record of the revealed structure can be undertaken.

In addition recommendations have been made for a structural survey of the western wall of Cyfyng Mill (feature 4) to ascertain what measures, if any, are required in order to protect the mill wall from collapse when the proposed new access trackway is under construction and in use.

The assessment has also concluded that features 2-8 should be avoided during the proposed works.

#### 10.4 General recommendations

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

The initial 55.0m of the proposed penstock route runs within a former leat related to the Cyfyng Mill site and as such there is no potential for prehistoric or Roman remains to be encountered during this part of the works. There is however a potential for impact upon buried remains during site clearance associated with the construction of the access track and metering cubicle to the north of Pont Cyfyng. However this part of the scheme occupies the sloping southern bank of the Afon Llugwy and although it is possible that prehistoric or Roman remains could be present the potential is deemed to be unlikely.

The location of the proposed turbine house, southern access track, and remains associated with the Cyfyng Mill site lie on the relatively flat floodplain of the Afon Llugwy. This area would have been an attractive site for prehistoric hunting grounds and temporary camps however it is almost certain that any remains would have been destroyed in the post-medieval period during the construction of Cyfyng Mill and its associated structures. Moreover, the line of the Segontium to Caer Llugwy (PRN 17605) Roman Road occupies the higher ground to the south and west and it is therefore considered that there is a low potential for encountering buried remains of the prehistoric and/or Roman periods during the proposed works.

There are no known early medieval sites within 1.0km of the proposed scheme, or medieval sites within 500.0m. Moreover, there is no reason to believe that any remains from these time periods persist at buried foundation level within the development area.

The principle archaeological interest at the Site is that of the post-medieval Cyfyng slate mill complex that involves a suite of associated features including intake leat, section of walling, mill wheel pit, slate dressing mill, slate tip, structures, incline terminus, leat/drain, and trackway. In the wider context the mill complex can be seen as being part of a larger 19<sup>th</sup> century slate quarrying landscape and of at least local/regional group value.

The historic map evidence suggests that smaller ancillary structures associated with the mill complex could be present at the site. As such, and in addition to the site specific recommendations mentioned above, it is also recommended that an archaeological watching brief be maintained during the excavation works associated with the new access trackway in proximity of Cyfyng Mill, so that any remains at buried foundation level can be avoided by the works or preserved via record.

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

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

#### 11.0 SOURCES

## OS Maps

1st edition 6 inch Ordnance Survey Map of 1888

2<sup>nd</sup> edition 6 inch Ordnance Survey Map of 1901

3<sup>rd</sup> edition 6 inch Ordnance Survey Map of 1956

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

# Non-designated monuments within 1.0km of the proposed development as listed on the Gwynedd HER (figure 4)

Prn	Name	Туре	Broadclass	Period
3750	Cairn, Capel Curig			
19934	Office, Rhos Quarry	Office	Unassigned	Modern
19935	Beudy, Rhos Quarry	Cow house	Agriculture and Subsistence	Post medieval
19936	Footbridge, Rhos Quarry	Footbridge	Transport	Post medieval
19937	Dwelling, East of, Rhos Quarry	Dwelling	Domestic	Medieval
19938	Field barn, Cerrig-Gwynion	Field barn	Agriculture and Subsistence	Post medieval
19939	Footbridge, Cerrig-Gwynion	Footbridge	Transport	Post medieval
19940	Cerrig-Gwynion, Capel Curig	Farmstead	Agriculture and Subsistence	Post medieval
19941	Footbridge, Cerrig-Gwynion	Footbridge	Transport	Post medieval
19942	Dwelling, West of, Cerrig-Gwynion	Dwelling	Domestic	Post medieval
19946	Dolbryn Coch, Capel Curig	Farmstead	Agriculture and Subsistence	Post medieval
19947	Incline, Rhos Quarry	Inclined plane	Transport	Modern
19948	Settlement, Adwy-wen	Deserted settlement	Domestic	Medieval
19949	Sheepfold, Adwy-wen	Sheepfold	Agriculture and Subsistence	Post medieval
19950	Adwy-wen, Capel Curig	Dwelling	Domestic	Post medieval
19951	Rhos Farm, Capel Curig	Farmstead	Agriculture and Subsistence	Post medieval

19952	Field barn, Cae-gwegi	Field barn	Agriculture and Subsistence	Post medieval
19953	Sheepfold, Cae-gwegi	Sheepfold	Agriculture and Subsistence	Post medieval
19954	Field barn, Pont Cyfyng	Field barn	Agriculture and Subsistence	Post medieval
19955	Footbridge, Pont Cyfyng	Footbridge	Transport	Post medieval
20109	Slate Quarry, Cae Gwegi	Slate quarry	Industrial	Post medieval
20110	Rhos Slate Quarry, Capel Curig			
20111	Slate Quarry, Adwywen	Slate quarry	Industrial	Post medieval
21004	Quarry, Tyn y Coed Nr Capel Curig	Quarry	Industrial	Post medieval
31494	Enclosure, North of, Bryn-brethynau	Enclosure	Unassigned	Unknown
31495	Building, North of, Bryn-brethynau	Building	Unassigned	Unknown
31496	Bryn-brethynau, Capel Curig	Building	Unassigned	Unknown
31497	Structure, Bryn-brethynau, Capel Curig	Enclosure	Unassigned	Unknown
31498	Enclosure, East of, Bryn-brethynau	Enclosure	Agriculture and Subsistence	Unknown
31499	Sheepfold, SE of Bryn-brethynau	Sheepfold	Agriculture and Subsistence	Unknown
31500	Well, North of, Bryn-glo	Well	Water Supply and Drainage	Unknown
34568	Water Wheel, Rhos Quarry	Water wheel	Industrial	Unknown
37445	Field wall, N of Bryn Tyrch Uchaf	Wall	Agriculture and subsistence	Post medieval
37446	Wall/cairn, N of Bryn Tyrch Uchaf	Clearance cairn	Agriculture and subsistence	Post medieval
37447	Cairn, Possible, N of Bryn Tyrch Uchaf	Clearance cairn	Agriculture and subsistence	Unknown
37448	Footbridge, N of Bryn Tyrch Uchaf	Footbridge	Transport	Modern
37449	Wall and structure, N of Bryn Tyrch Uchaf	Wall	Agriculture and subsistence	Post medieval

37473	Path to Waenhir	Footpath	Transport	Post medieval
37474	Peat stack, SW of Waenhir	Peat stand	Agriculture and subsistence	Post medieval
37475	Peat stack, SW of Waenhir	Peat stand	Agriculture and subsistence	Post medieval
37476	Peat stack, SW of Waenhir	Peat stand	Agriculture and subsistence	Post medieval
37477	Peat stack, SW of Waenhir	Peat stand	Agriculture and subsistence	Post medieval
37478	Drainage channels, SW of Waenhir	Drainage channel	Water Supply and Drainage	Modern
37479	Clearance cairn, SW of Waenhir	Clearance cairn	Agriculture and subsistence	Post medieval
37480	Clearance cairn, SW of Waenhir	Clearance cairn	Agriculture and subsistence	Post medieval
37482	Clearance cairn, SW of Waenhir	Clearance cairn	Agriculture and subsistence	Post medieval
37483	Clearance cairn, SW of Waenhir	Clearance cairn	Agriculture and subsistence	Post medieval
37518	Field wall, S of Waenhir	Wall	Agriculture and subsistence	Post medieval
37519	Field wall, S of Waenhir	Wall	Agriculture and subsistence	Post medieval
37529	Field wall, NE of Bryn Tyrch Uchaf	Wall	Agriculture and subsistence	Post medieval
37530	Field wall, SE of Bryn Tyrch Uchaf	Wall	Agriculture and subsistence	Post medieval
37532	Footbridge, N of Bryn Tyrch Uchaf	Footbridge	Transport	Modern
37533	Sheepfold, NE of Bryn Tyrch Uchaf	Sheep fold	Agriculture and subsistence	Post medieval
37534	Peat stack, E of Bryn Tyrch Uchaf	Peat stand	Agriculture and subsistence	Post medieval

37535	Peat stack, E of Bryn Tyrch Uchaf	Peat stand	Agriculture and subsistence	Post medieval
37536	Peat stack, E of Bryn Tyrch Uchaf	Peat stand	Agriculture and subsistence	Post medieval
37537	Sheepfold, SE of Bryn Tyrch Uchaf	Sheep fold	Agriculture and subsistence	Post medieval
37538	Field wall, SE of Bryn Tyrch Uchaf	Wall	Agriculture and subsistence	Post medieval
37539	Concrete hut, SE of Bryn Tyrch Uchaf	Building	Unassigned	Post medieval
37540	Field wall, SE of Bryn Tyrch Uchaf	Wall	Agriculture and subsistence	Post medieval
56492	Rectangular Building, SE of Bryn-tyrch-uchaf	Building	Unassigned	Post medieval
56493	Square Building, SE of Bryn-tyrch-uchaf	Building	Unassigned	Post medieval
56494	Cyfyng Slate Mill, Capel Curig			
56495	Footbridge, NW of Tan-y-garth	Footbridge	Transport	Post medieval
56496	Building, NW of Cartref	Building	Unassigned	Post medieval
58548	Turnpike route - A5 Capel Curig	Toll road	Transport	Post medieval
58549	Turnpike/coach road Capel Curig to Pont Ty-hyll	Toll road	Transport	Post medieval
66131	Milestone	Milestone	Transport	Post medieval
66134	Milestone	Milestone	Transport	Post medieval
71150	Sheepfold, Capel Curig	Sheep fold	Agriculture and Subsistence	Post medieval
74909	Enclosure, North West of, Nyth Bran	Enclosure	Agriculture and Subsistence	Unknown

74911	Sheepfold, South West of, Nyth Bran	Sheep fold	Agriculture and Subsistence	Unknown
74913	Sheepfold, East of, Ty'n-y-coed Hotel	Sheep fold	Agriculture and Subsistence	Unknown
74915	Enclosure, East of, Ty'n-y-coed Hotel	Enclosure	Agriculture and Subsistence	Unknown
74917	Enclosures, North East of, Ty'n-y-coed Hotel	Enclosure	Agriculture and Subsistence	Unknown
74919	Enclosures, North East of, Bryn-Brethynau	Enclosure	Agriculture and Subsistence	Post
				medieval

# NMR Monument Points within 1.0km of the proposed development (figure 5)

Nprn	Name	Broadclass	Type	Period
6776	Tan-y-garth sunday school (calvinistic methodist)	Religious ritual and funerary	Chapel	Post Medieval
33012	Capel curig, caernarfonshire	Civil	Town	Multiperiod
43754	St john the baptist mission church, capel curig	Religious ritual and funerary	Mission church	19th Century
300929	Cairn, n. Of capel curig	Religious ritual and funerary	Cairn	Prehistoric
305768	Rhos quarry (slate and slab works), capel curig	Industrial	Quarry	19th Century
411441	Siabod villa	Domestic	House	Post Medieval
411442	Tan-y-bwlch; cobden's hotel	Domestic	Hotel	Post Medieval
412456	Ty'n-y-coed hotel, capel curig	Domestic	Hotel	Post Medieval
416310	Cae-gwegi	Domestic	House	Post Medieval
420117	Pont cyfyng slate mill, capel curig	Industrial	Slate processing works	19th Century
423145	Waterwheel pit, rhos slate quarry	Industrial	Wheel pit	19th Century
423146	Slate mill, rhos slate quarry	Industrial	Slate mill	19th Century
423147	Compressor wheel, rhos slate quarry	Industrial	Wheel pit	20th Century
533649	Field wall, n of bryn tyrch uchaf	Agriculture and subsistence	Wall	Post Medieval
533650	Wall/cairn, n of bryn tyrch uchaf	Agriculture and subsistence	Clearance cairn	Post Medieval
533651	Cairn?, n of bryn tyrch uchaf	Agriculture and subsistence	Clearance cairn	Unknown
533652	Footbridge, n of bryn tyrch uchaf	Transport	Footbridge	Modern
533653	Wall and structure, n of bryn tyrch uchaf	Agriculture and subsistence	Wall	Post Medieval
533674	Clearance cairn, sw of waenhir	Agriculture and subsistence	Clearance cairn	Post Medieval
533675	Clearance cairn, sw of waenhir	Agriculture and subsistence	Clearance cairn	Post Medieval
533676	Path to waenhir	Transport	Footpath	Post Medieval
533677	Peat stack, sw of waenhir	Agriculture and subsistence	Peat stand	Post Medieval
533678	Peat stack, sw of waenhir	Agriculture and subsistence	Peat stand	Post Medieval

533679	Peat stack, sw of waenhir	Agriculture and subsistence	Peat stand	Post Medieval
533680	Peat stack, sw of waenhir	Agriculture and subsistence	Peat stand	Post Medieval
533681	Drainage channels, sw of waenhir	Water supply and drainage	Drainage channel	Modern
533682	Clearance cairn, sw of waenhir	Agriculture and subsistence	Clearance cairn	Post Medieval
533683	Clearance cairn, sw of waenhir	Agriculture and subsistence	Clearance cairn	Post Medieval
533684	Clearance cairn, sw of waenhir	Agriculture and subsistence	Clearance cairn	Post Medieval
533685	Clearance cairn, sw of waenhir	Agriculture and subsistence	Clearance cairn	Post Medieval
533686	Clearance cairn, sw of waenhir	Agriculture and subsistence	Clearance cairn	Post Medieval
533687	Clearance cairn, sw of waenhir	Agriculture and subsistence	Clearance cairn	Post Medieval
533688	Clearance cairn, sw of waenhir	Agriculture and subsistence	Clearance cairn	Post Medieval
533689	Clearance cairn, sw of waenhir	Agriculture and subsistence	Clearance cairn	Post Medieval
533691	Clearance cairn, sw of waenhir	Agriculture and subsistence	Clearance cairn	Post Medieval
533721	Field wall, s of waenhir	Agriculture and subsistence	Wall	Post Medieval
533722	Field wall, s of waenhir	Agriculture and subsistence	Wall	Post Medieval
533732	Field wall, ne of bryn tyrch uchaf	Agriculture and subsistence	Wall	Post Medieval
533733	Field wall, se of bryn tyrch uchaf	Agriculture and subsistence	Wall	Post Medieval
533735	Footbridge, n of bryn tyrch uchaf	Transport	Footbridge	Modern
533736	Sheepfold, ne of bryn tyrch uchaf	Agriculture and subsistence	Sheep fold	Post Medieval
533737	Peat stack, e of bryn tyrch uchaf	Agriculture and subsistence	Peat stand	Post Medieval
533738	Peat stack, e of bryn tyrch uchaf	Agriculture and subsistence	Peat stand	Post Medieval
533739	Peat stack, e of bryn tyrch uchaf	Agriculture and subsistence	Peat stand	Post Medieval
533740	Sheepfold, se of bryn tyrch uchaf	Agriculture and subsistence	Sheep fold	Post Medieval
533741	Field wall, se of bryn tyrch uchaf	Agriculture and subsistence	Wall	Post Medieval
533742	Concrete hut, se of bryn tyrch uchaf	Unassigned	Building	Post Medieval
533743	Field wall, se of bryn tyrch uchaf	Agriculture and subsistence	Wall	Post Medieval

# Listed Buildings within 1.0km of the proposed development (figure 6)

Number	Name	Grade
17819	Milestone	II
17821	Milestone	II

# Scheduled Ancient Monuments within 1.0km of the proposed development (figure 6)

Number	Name	Period	Broadclass	Type
CN010	Bryn-y-Gefeiliau Roman Site	Roman	Defence	Fort
CN363	Capel Curig cairn	Prehistoric	Religious	Round cairn

