aeon archaeology

Nant Helyg Hydro-Electric Scheme, Abergeriw, Dolgellau Meirionnydd LL23 7TE.

February 2019
for fieldwork undertaken 18th-23rd October 2018

Archaeological Watching Brief
Project Code: A0084.2
Report no. 0194 V1.0
Event PRN: 45404

REGISTERED CIfA ORGANISATION

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Archaeological Watching Brief

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Checked by: Josh Dean BA ACIfA

REGISTERED ORGANISATION CIfA

Project Code: A0084.2
Date: 27/02/2019
Client: North Wales Hydro
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1.0 NON-TECHNICAL SUMMARY

Aeon Archaeology was commissioned by North Wales Hydro Ltd on behalf of Mr Llion Williams to carry out an archaeological watching brief as part of a new micro hydro-electric scheme with turbine house, buried penstock (pipeline), and electrical cable connection at Nant Helyg, Abergeriw, Dolgellau, North Wales.

The archaeological watching brief maintained during the excavation of the penstock trench for the new micro hydro scheme uncovered the remains of a former probable blanket bog measuring approximately 30.0-40.0m in width and located on a level plateau at c.338m OD. This feature consisted of two peat horizons separated by a thin band of redeposited clay, which has been surmised may have been laid down during peat extraction works in the medieval period.

The peat deposits could only be bulk sampled due to the tight confines of the trench making monolith samples impossible, however advice obtained from Oxford Archaeology has shown that these bulk samples are of limited potential and as such recommendations are made that the area could be sampled using a Russian auger as part of a future research project separate from the development led archaeological response presented in this report.

The archaeological watching brief also provided the opportunity for a cross-sectional record to be taken of a suspected post-medieval field boundary (feature 8; PRN 61639).

No other archaeological remains or artefacts were encountered during the project.

2.0 INTRODUCTION

Aeon Archaeology was commissioned by North Wales Hydro Ltd on behalf of Mr Llion Williams, hereafter the Client, to carry out an archaeological watching brief as part of a new micro hydro-electric scheme with turbine house, buried penstock (pipeline), and electrical cable connection. The scheme intake was located on the western bank of the Nant yr Helyg, a tributary of the Afon Mawddach and approximately 7.8km northeast of the village of Ganllwyd, Gwynedd and within the Snowdonia National Park Authority (SNPA) (figures 01 and 02).

The scheme consisted of an intake weir located at **NGR SH 79791 27815** and a c.1.0km long buried penstock running northwest to a new turbine house located at **NGR SH 79494 28768** and which was installed on the southern bank of the Afon Mawddach. In addition a buried new power cable ran northwest from the turbine house for approximately 80.0m and within the existing bridleway, to an existing transformer at **NGR SH 79435 28812**. The bridleway was used to transport materials to site (turbine house and outfall) and construction access between the intake site and turbine house was along the penstock route.

The following was made a condition of full planning permission (**NP54/54/450A**):

Condition 6.

No development shall take place (including any ground disturbing works or site clearance) pursuant to this permission until the applicant/developer has submitted to and received written approval from the Local Planning Authority for an archaeological specification for a programme of works which must meet all relevant archaeological standards. The development shall thereafter be carried out in strict accordance with the archaeological specification programme of works as approved by this condition.

Condition 7.

The applicant/developer shall produce a detailed report on the archaeological work, as required by condition 6 which shall be submitted to and approved in writing by the Local Planning Authority within six months of completion of the development hereby approved whichever is the sooner.

An archaeological assessment was undertaken by Aeon Archaeology in May 2016 (**A0084.2 report no. 0088**) that identified nine archaeological sites within the 40.0m wide assessment corridor centred on the pipe route, all of which were suspected to be either medieval or post-medieval in date (figure 03).

In addition the assessment highlighted the increased potential for the location of prehistoric burnt mounds in proximity to Nant Helyg, as well as the potential for preserved palaeo-environmental remains within the suspected underlying peat deposits. As such it was recommended that an archaeological watching brief be maintained intermittently between the hydro scheme intake and fallout as shown on figure 04.

A written scheme of investigation (WSI) which detailed the aims, objectives and methodology to be employed for the archaeological watching brief was produced by Aeon Archaeology in July 2018 (appendix I). This addressed condition 6 of the planning permission and was subsequently approved in writing by the Development Control Archaeologist at the Gwynedd Archaeological Planning Service (GAPS) on behalf of the SNPA.

The archaeological watching brief was undertaken as event **PRN 45404**.

The work undertaken adhered to the guidelines specified in *Standard and Guidance for Archaeological Watching Brief* (Chartered Institute for Archaeologists, 2014).

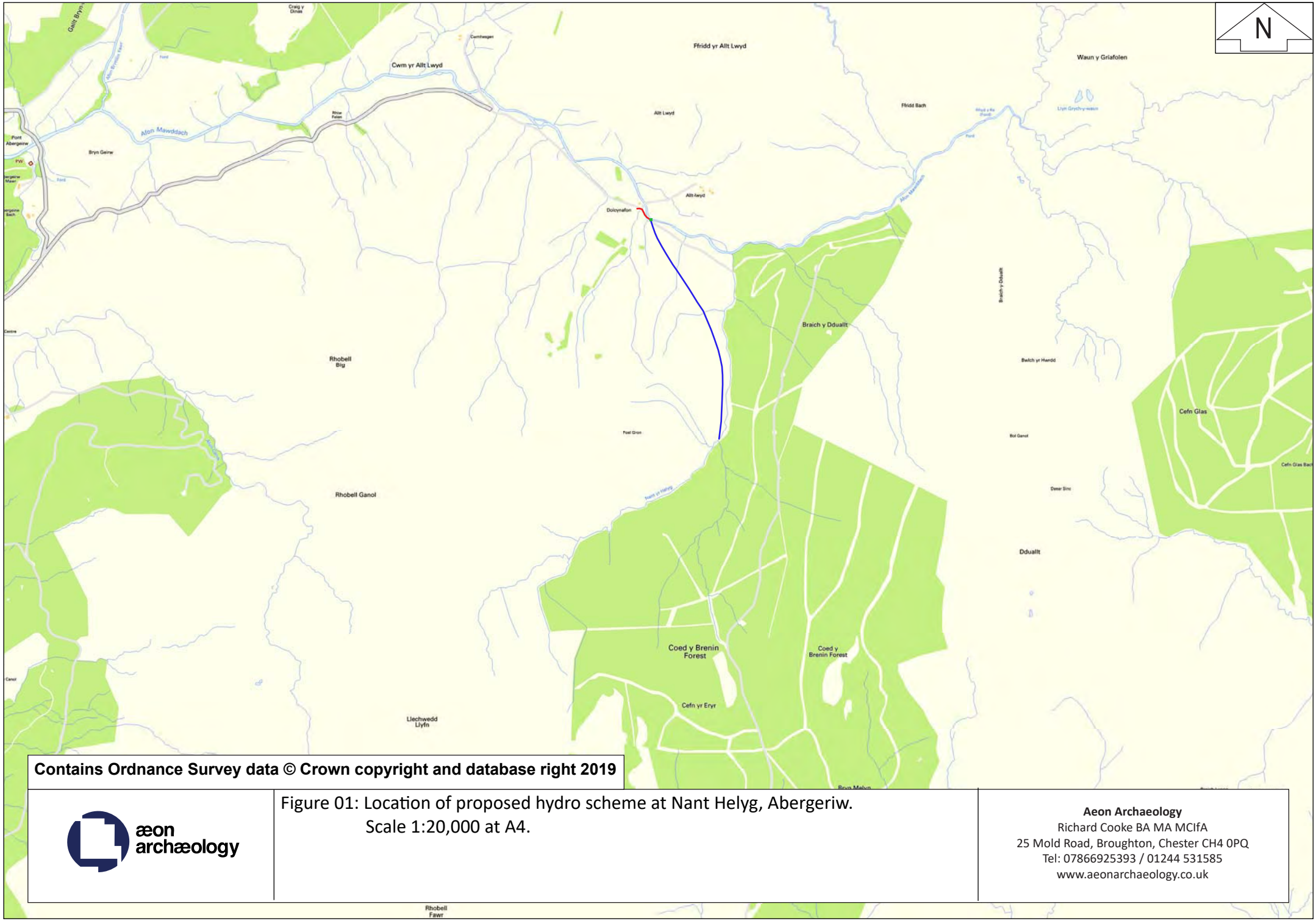

Figure 01: Location of proposed hydro scheme at Nant Helyg, Abergeriw.
Scale 1:20,000 at A4.

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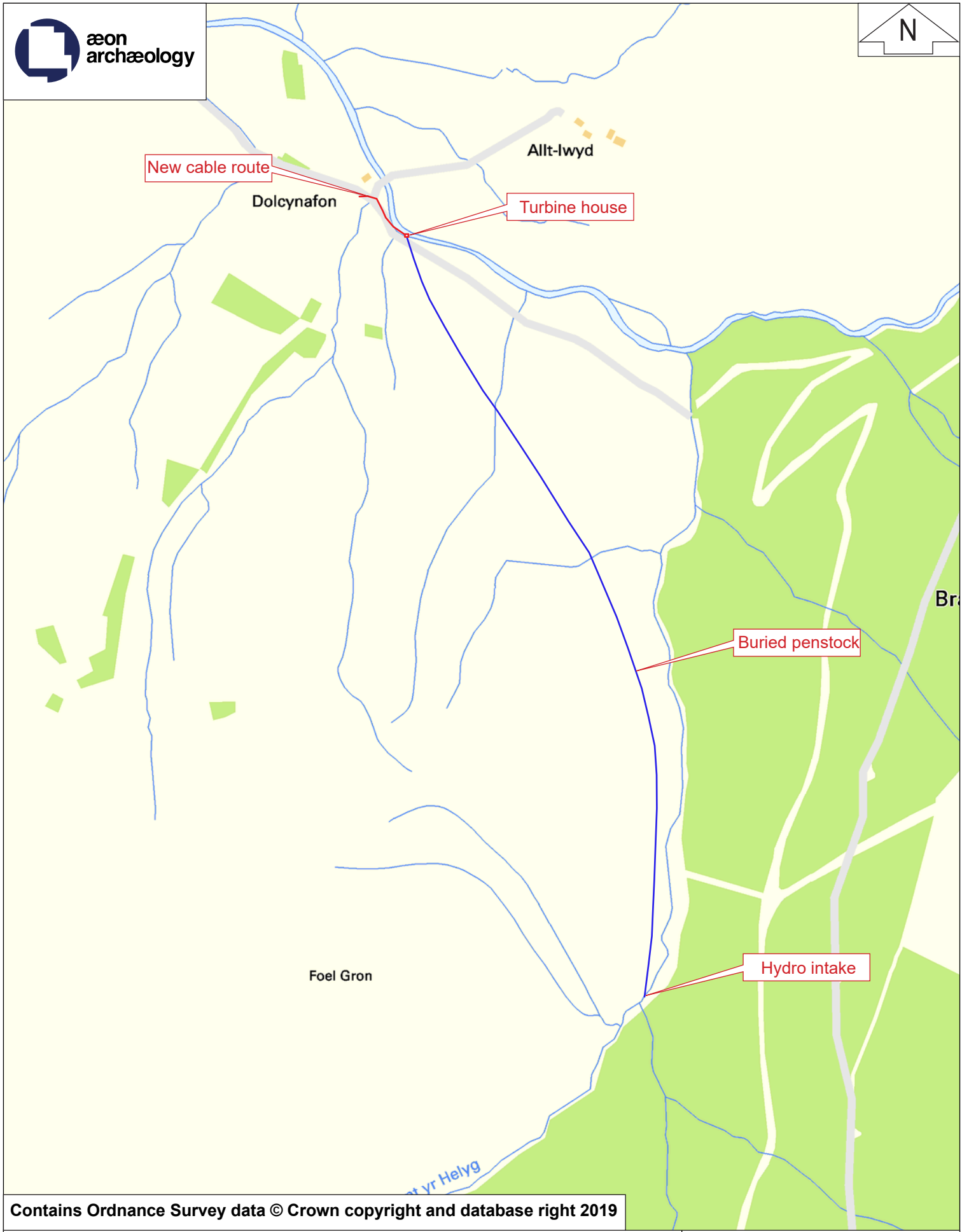

Figure 02: Location of proposed hydro scheme at Nant Helyg, Abergeriw.
Scale 1:6,000 at A4.

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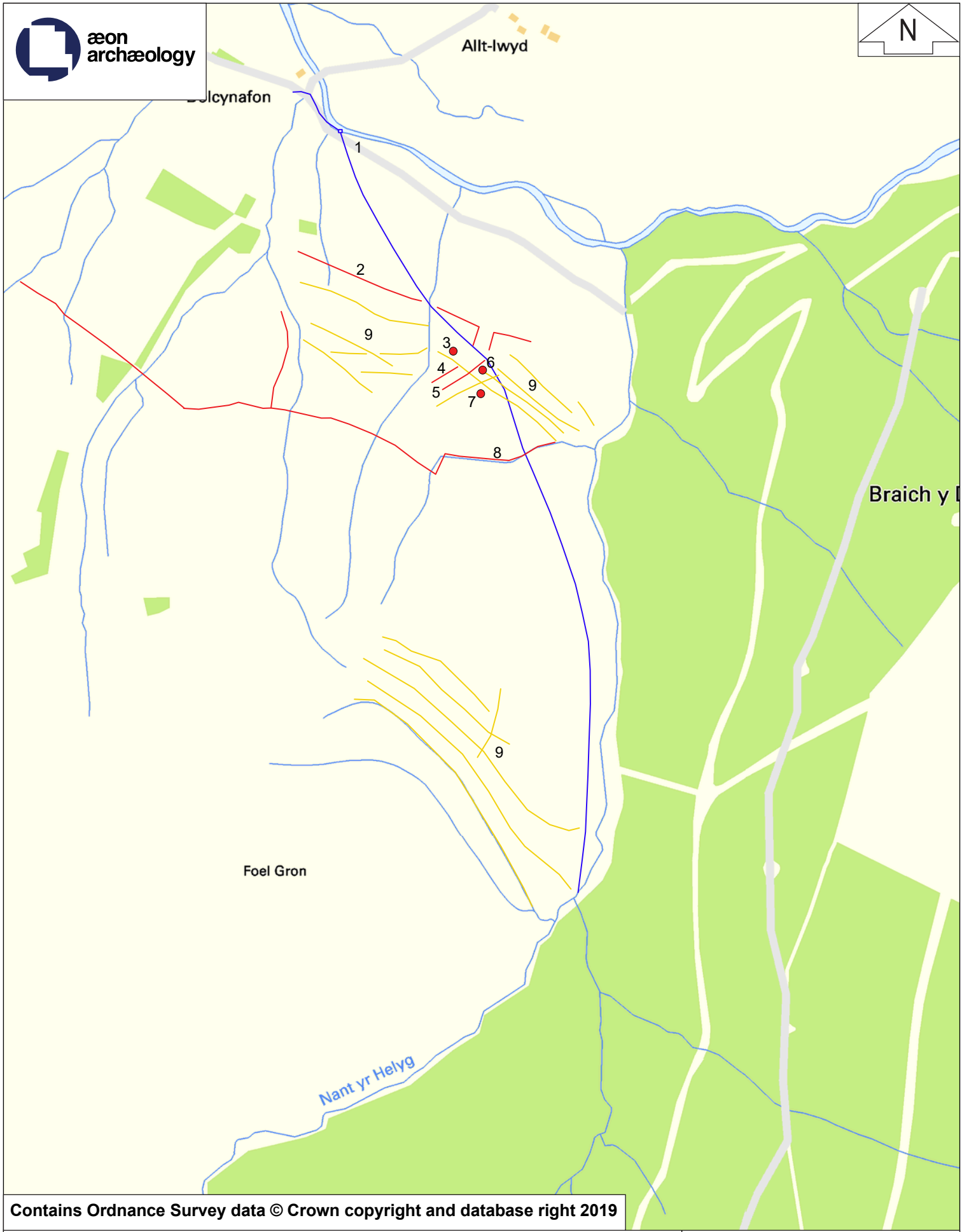

Figure 03: Location of archaeological receptors identified during the archaeological assessment (red dots and lines) and receptors identified from aerial photography (yellow lines). Scale 1:6,000 at A4.

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3.0 POLICY CONTEXT

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

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

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

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

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

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

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

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

Planning Policy Wales (edition 10, 2018) 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.

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[1] UNESCO, 1972, *Convention Concerning the Protection of the World Cultural and Natural Heritage*
[2] Council of Europe, 1992, *European Convention on the Protection of the Archaeological Heritage*
[3] Great Britain. *Planning (Conservation Areas and Listed Buildings) Act.* Elizabeth II.(1990), London: The Stationery Office

Various principles and polices related to cultural heritage and archaeology are set out in 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 6.1.5 concerns planning applications:

The planning system must take into account the Welsh Government's objectives to protect, conserve, promote and enhance the historic environment as a resource for the general well-being of present and future generations. The historic environment is a finite, non-renewable and shared resource and a vital and integral part of the historical and cultural identity of Wales. It contributes to economic vitality and culture, civic pride, local distinctiveness and the quality of Welsh life. The historic environment can only be maintained as a resource for future generations if the individual historic assets are protected and conserved. Cadw's published Conservation Principles highlights the need to base decisions on an understanding of the impact a proposal may have on the significance of an historic asset.

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

4.0 SITE LOCATION

The site lies within the parish of Brithdir and Llanfachreth Community, within the historic county of meirionnydd and unitary authority of Gwynedd. Mostly given over to rough pasture, the farmland is dominated by acid grassland within which there are cushions of gorse. The site is unenclosed mountain slope and is primarily given over to hill sheep farming, although some cattle farming also takes place within the localised landscape, generally on the lower slopes.

The assessment area slopes from approximately 435m OD at the hydro intake with the proposed turbine house lying at approximately 305m OD.

The bedrock geology is of the Dolgellau Formation, a mudstone and siltstone sedimentary bedrock that formed approximately 488 to 502 million years ago in the Cambrian Period within an environment previously dominated by open seas with pelagite deposits (British Geological Survey).

5.0 THE HISTORICAL CONTEXT

(reproduced from Aeon Archaeology report 0088)

5.1 Prehistoric and Roman Period

The prehistoric and Roman periods are poorly represented within the localised landscape and there are no known sites within 1.0km of the proposed hydro scheme.

The topography of the surrounding landscape would lend itself to early habitation, in particular upon the flat plateau of land to the immediate north of Foel Gron, although no structural remains are evident at this location. However the steeply sloping topography through which the penstock route is to be excavated would not have been conducive to early habitation.

The proximity of Nant Helyg to the east and the Afon Mawddach in the north would have made the site ideal for the location of prehistoric burnt mounds, although none are known to exist within the localised environment.

The potential for prehistoric and Roman sites to have been located along the route of the proposed hydro scheme as such is expected to be low, with the exception of prehistoric burnt mound sites which may exist beneath the turf in proximity to the stream.

5.2 Early Medieval, Medieval and Post-Medieval Periods

The Early Medieval period is also 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.

Approximately 590.0m to the northeast of the proposed pipeline route a rectangular sheepfold built on top of an earlier medieval platformed longhouse (PRN: 523893) and is cut perpendicularly into the hillslope. The platform measures approximately 15.0m in length by 6.0m in width and is up to 0.7m high on the east side. The walls of the fold survive up to 0.7m wide by 0.5m high. There is a hood wall located on the west side but no internal divisions are evident in the longhouse. At the same location are the foundations of a sub-square ancillary structure (PRN: 523894) The structure measures approximately 9.0m square with a wall surviving up to 1.2m high on the southeast side. It is platformed internally and was built cut parallel to the slope and crossed by a later enclosure boundary wall with a drove wall on the east side.

The proposed development site is relatively marshy and has been partially drained via the excavation of parallel drainage gullies, suggesting that there are underlying peat deposits. It is probable that the land had been utilised for the extraction of peat for burning as fuel since medieval times. The extraction of peat leaves little trace except for rectangular depressions where the peat was cut from, as well as occasionally peat drying platforms.

The proposed route of the hydro-electric scheme is first depicted on the Llanfachreth tithe map of 1846 which depicts the site much as it exists today, albeit in very little detail. The area is shown as

being bordered to the east by the Nant yr Helyg and by the existing field boundary to the south and west. The existing bridleway is depicted as running from southeast to northwest across the site and the turbine house and grid connection are shown as being within a smaller enclosed field.

No further structures or features of note are depicted on the tithe map and the proposed development area is labelled as plots 29 and 30.The Llanfachreth tithe apportionment lists the following information for the field plots:

Plot	**Landowner**	**Occupier**	**Field Name**	**A/R/P**
29	R.H. Bart' Vaughan	Jane Jones	Cadwgan	36/0/0
30	R.H. Bart' Vaughan	David Jones	Cyplau	53/0/34

The field names listed in the apportionment relate to the names of the two farms rather than the field plot names and as such give no indication of the historic use of the proposed development area.

The site is depicted in detail on the first, second and fourth edition 6" county series Ordnance Survey maps of 1891, 1901 and 1949 respectively. All three maps depict the area much as it exists today, with the Nant yr Helyg shown as bordering the site to the east and the Afon Mawddach to the north. The bridleway is again shown snaking its way from southeast to northwest across the site and a minor trackway is depicted taking a more direct route northwest across the hill slope. A field boundary is depicted running from east to west and separating the proposed development area into two equally sized enclosed fields and the property of Dol-y-Cynafon is shown to the immediate north of the proposed grid connection. In addition the second and fourth edition maps depict a second field boundary running from east to west and located further to the north, dividing the northern field into two roughly equally sized enclosed plots.

6.0 PROJECT AIMS

The archaeological watching brief included:

a) Intensive monitoring during the excavation of the penstock trench from the hydro intake (where it is not rock-cut) for c.100-200m. If no archaeological remains are encountered or the potential is deemed to be less than originally considered then the watching brief shall be further maintained on an intermittent basis to the trackway in the north;

(b) A record in cross-section of the known linear features to be crossed by the route (relict field boundary feature 8), in order to supplement the basic record in the desk-based assessment and improve understanding of these features; and

c) A record in section of any peat deposits encountered along the route, to aid deposit modelling to inform future management of this landscape.

The CIfA maintains a standard for archaeological watching brief which states that:

An archaeological watching brief will record the archaeological resource during development within a specified area using appropriate methods and practices. These will satisfy the stated aims of the project, and comply with the Code of conduct and other relevant by-laws of CIfA.

An archaeological watching brief is defined by the CIfA as a formal programme of observation and investigation conducted during any operation carried out for non-archaeological reasons (CIfA 2014). The watching brief will take place within a specified area within the Site where there is a possibility that archaeological deposits may be disturbed or destroyed.

The CIfA further identifies the purpose of a watching brief as allowing, within the resources available, the preservation by record of archaeological deposits, the presence and nature of which could not be established in advance of development or other potentially disruptive works.

It is also important to note that a watching brief provides an opportunity, if needed, for a signal to be made to all interested parties, before the destruction of the archaeological materials, that an archaeological find has been made for which the resources allocated to the watching brief itself are not sufficient to support treatment to a satisfactory and proper standard.

A watching brief is, therefore, not intended to reduce the requirement for excavation or preservation of known or inferred deposits, and it is intended to guide, not replace, any requirement for contingent excavation or preservation of possible deposits.

The aims of the watching brief were:

- To allow, within the resources available, the opportunity to gain information about and record the presence/absence, nature and date of archaeological remains on the Site affected by excavations and groundworks, the presence and nature of which could not be established with sufficient confidence in advance of works which may disturb them.

- To provide the facility to signal to the relevant authorities, before irreversible impact to remains that an archaeological and/or historic find has been made for which the resources

allocated to the watching brief itself are inadequate to support their treatment to an adequate and satisfactory standard.

The specific objectives of the watching brief were:

- To observe and recover any artefacts of archaeological significance.
- To record the location, dimensions and nature of any deposits, features, structures or artefacts of archaeological significance.
- To recover samples of any deposits considered to have potential for analysis for palaeoenvironmental data should the opportunity arise.

7.0 METHODOLOGY – ARCHAEOLOGICAL WATCHING BRIEF

7.1 Watching Brief

The Chartered Institute for Archaeologists (CIfA) defines an archaeological watching brief as:

'A formal programme of observation and investigation conducted during any operation carried out for non-archaeological reasons. This will be within a specified area or site on land, inter-tidal zone or underwater, where there is a possibility that archaeological deposits may be disturbed or destroyed.' (CIfA 2014).

All soil removal was undertaken using a mechanical excavator fitted with a toothless ditching bucket except for where a large quantity of stone required removal whereby a toothed bucket was used. A photographic record was maintained throughout, using a digital SLR camera (Canon 550D) set to maximum resolution and any subsurface remains were to be recorded photographically, with detailed notations and measured drawings being undertaken if required.

In the event of archaeological discovery features were to be excavated by hand and fully recorded using Aeon Archaeology pro-formas, digital photographs, and plan and section drawings taken at a suitable scale (usually 1:20 for plan drawings and 1:10 for section drawings).

The archive produced is held at Aeon Archaeology under the project code **A0084.2**.

7.2 Data Collection from Site Records

A database of the site photographs was produced to enable active long-term curation of the photographs and easy searching. The site records were checked and cross-referenced and photographs were cross-referenced to contexts. These records were used to write the site narrative and the field drawings and survey data were used to produce an outline plan of the site.

All paper field records were scanned to provide a backup digital copy. The photographs were organised and precisely cross-referenced to the digital photographic record so that the Gwynedd Historic Environment Record (HER) can curate them in their active digital storage facility.

7.3 Artefact Methodology

All artefacts were to be collected and processed including those found within spoil tips. They would be bagged and labelled as well any preliminary identification taking place on site. After processing, all artefacts would be cleaned and examined in-house at Aeon Archaeology. If required, artefacts would be sent to a relevant specialist for conservation and analysis.

The recovery policy for archaeological finds was kept under review throughout the archaeological watching brief. Any changes in recovery priorities would be made under guidance from an appropriate specialist and agreed with the Client and Snowdonia National Park Authority Archaeologist. There was a presumption against the disposal of archaeological finds regardless of their apparent age or condition.

7.4 Environmental Samples Methodology

The sampling strategy and requirement for bulk soil samples was related to the perceived character, interpretational importance and chronological significance of the strata under investigation. This ensured that only significant features would be sampled. The aim of the sampling strategy was to recover carbonised macroscopic plant remains, small artefacts particularly knapping debris and evidence for metalworking.

Advice and guidance regarding environmental samples and their suitability for radiocarbon dating, as well as the analysis of macrofossils (charcoal and wood), pollen, animal bones and molluscs would be obtained from Oxford Archaeology if required.

7.5 Report and dissemination

A full archive including plans, photographs, written material and any other material resulting from the project was prepared. All plans, photographs and descriptions were labelled, and cross-referenced, and will be lodged within a suitable repository to be agreed with the archaeological curator within six months of the completion of the project.

A draft copy of the report has been 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. Copies of all notes, plans, and photographs arising from the watching brief will be stored at Aeon Archaeology under the project code **A0084.2** with the originals being lodged in a suitable repository to be agreed with the archaeological curator.

Any artefacts arising from the fieldwork were to be lodged with the Gwynedd Museum and Art Gallery, Bangor, Gwynedd or returned to the landowner.

8.0 QUANTIFICATION OF RESULTS

8.1 The Documentary Archive

The following documentary records were created during the archaeological watching brief:

Watching brief day sheets:	2
Digital photographs:	42
Context Sheets:	6
Drawings:	2 on 2 sheets

8.2 Environmental Samples

Two environmental samples were taken during the archaeological watching brief, one from peat deposit (1004) and one from peat deposit (1006). Neither of these samples have been processed as part of the post-fieldwork programme although the potential to use these samples remain as a possibility for future research.

8.3 Artefacts

No archaeological artefacts were recovered during the archaeological watching brief.

9.0 RESULTS OF THE ARCHAEOLOGICAL WATCHING BRIEF

18th October 2018

The archaeological watching brief was maintained during the excavation of the penstock trench from where it left the rock-cut section closest to the hydro intake weir (SH 79794 27844) (chainage 30m) for approximately 310.0m (SH 79798 28151) (chainage 340m).

The trench measured 0.5m in width by 0.7m in depth and cut through a mid/dark black-brown peatey topsoil (101) directly on to a light yellow-brown natural glacial clay substrata with occasional small boulder inclusions. The topsoil horizon varied in depth from 0.05-0.25m most likely due to changes in alluvial deposition on various parts of the slope.

No archaeological deposits, structures or features were identified during the watching brief and no artefacts were recovered.

23rd October 2018

The archaeological watching brief was maintained during the excavation of the penstock trench from immediately south of relict field boundary feature 8 (PRN 61639) (SH 79725 28361) (chainage 560m) to immediately south of the bridleway (SH 79500 28745) (chainage 1,000m).

Relict field boundary feature 8 (PRN 61639) (SH 79724.88 / 28362.29) measured 3.0m in width by 0.55m in height and was made up of a single deposit of dark brown-grey silt-clay (102) that appeared to follow an undulation in the natural glacial clay substrata (103). The bank had no apparent stone content and the location of a shallow channel on the south side of the bank suggested that the boundary had been created via the deposition of upcast material during the excavation of a drainage channel. The feature was recorded in section (figure 06, plates 8-9).

To the immediate north of relict field boundary feature 8 (SH 79724 28362 to SH 79665 28455) (chainage 560-670) the penstock trench measured 0.5m in width by 1.0m in depth and cut through a 0.1m deep dark black-brown peatey topsoil (101) directly on to a light orange-brown sand-clay with frequent outcrops of shale bedrock.

As the penstock progressed northward the depth of topsoil gradually increased until a flat plateau of land immediately south of the steep slope to the bridleway was encountered (SH 79564 28611 – SH 79548 28638) (chainage 670-860). At this point, and focused around a 30.0-40.0m wide area, a deposit of dark black-brown peat (104) was uncovered directly beneath the topsoil horizon (101). This deposit measured 0.5m in depth, beneath which was a 0.1-0.2m deep light yellow-grey clay deposit (105), which in turn lay above a >0.3m deep deposit of dark black-brown peat (106) which continued beyond the limits of excavation.

Bulk environmental samples were taken from the upper and lower peat deposits (104 and 106) as due to the narrow confines of the penstock trench it was impossible to obtain a monolith sample. Advice regarding these samples was obtained from Oxford Archaeology who confirmed that the palaeo-environmental information that could be gained from processing the bulk samples would be limited. As such recommendations were made for samples to be taken from this area using a Russian auger, however after discussions with the Development Control Archaeologist at GAPS it was considered

that this work fell outside of the remit of the project and as such would remain a potential future research opportunity.

The presence of the peat deposits in this location is likely indicative of a former upland blanket bog which has since dried up, most likely through increased drainage on the upland slopes. The presence of the clay horizon separating the two peat deposits is indicative of a phase of activity that included the deposition of thin band of material across the area. It is not clear what this phase of activity was, however if it can be surmised that peat forms at a rate of approximately 1mm per year then the deposition of clay occurred approximately 500 years ago and as such may have been related to medieval peat cutting in this area.

The watching brief was maintained as the penstock trench was excavated northward and down slope to the existing bridleway where it cut through a 0.1m deep dark black-brown peatey topsoil (101) directly on to a light orange-brown sand-clay (103).

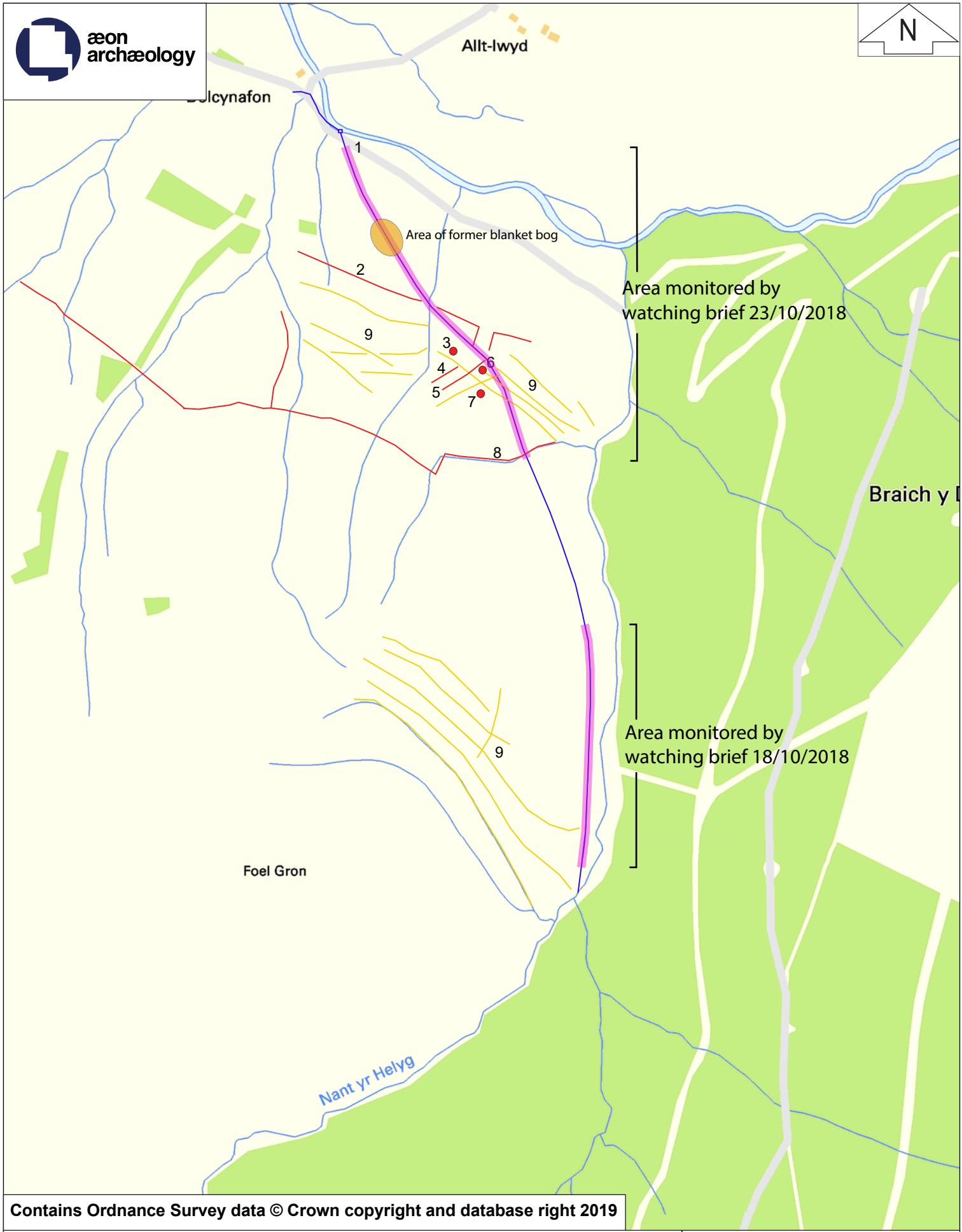

Figure 04: Location of areas monitored by archaeological watching brief.
Scale 1:6,000 at A4.

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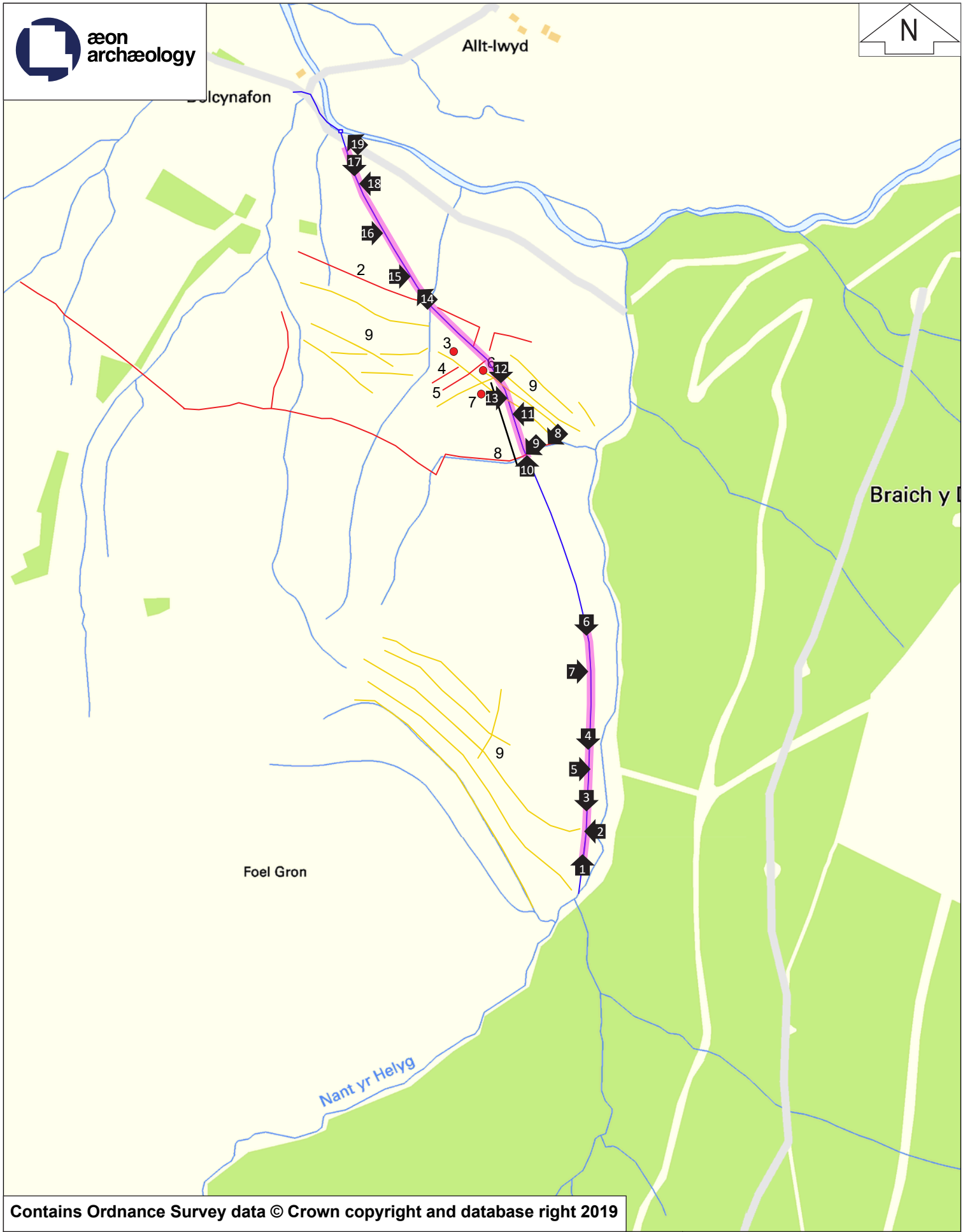

Figure 05: Location and orientation of photographic plates. Scale 1:6,000 at A4.

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01 368.55m
101 Dark red-brown silt-clay topsoil
102 Dark brown-grey silt-clay
103 Light yellow-brown clay natural

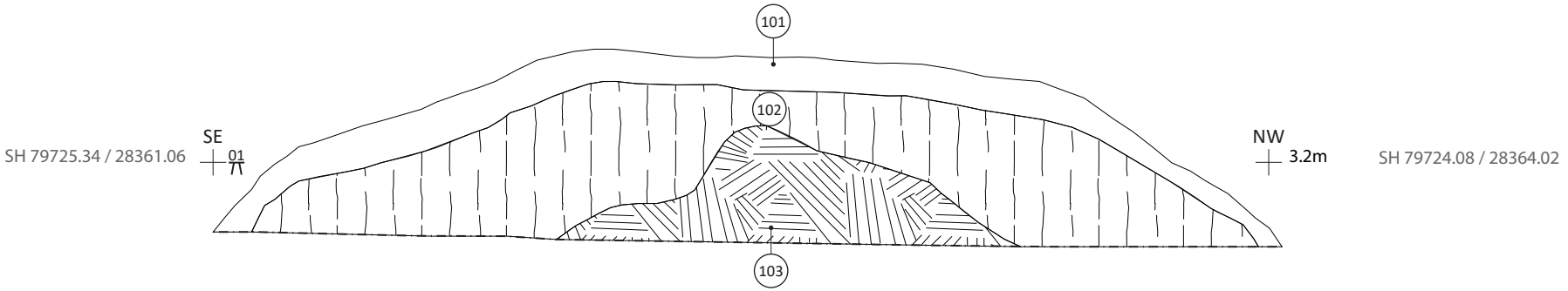

Figure 06: Southwest facing section across relict field boundary feature 8 (PRN 61639).
Scale 1:20 at A4.

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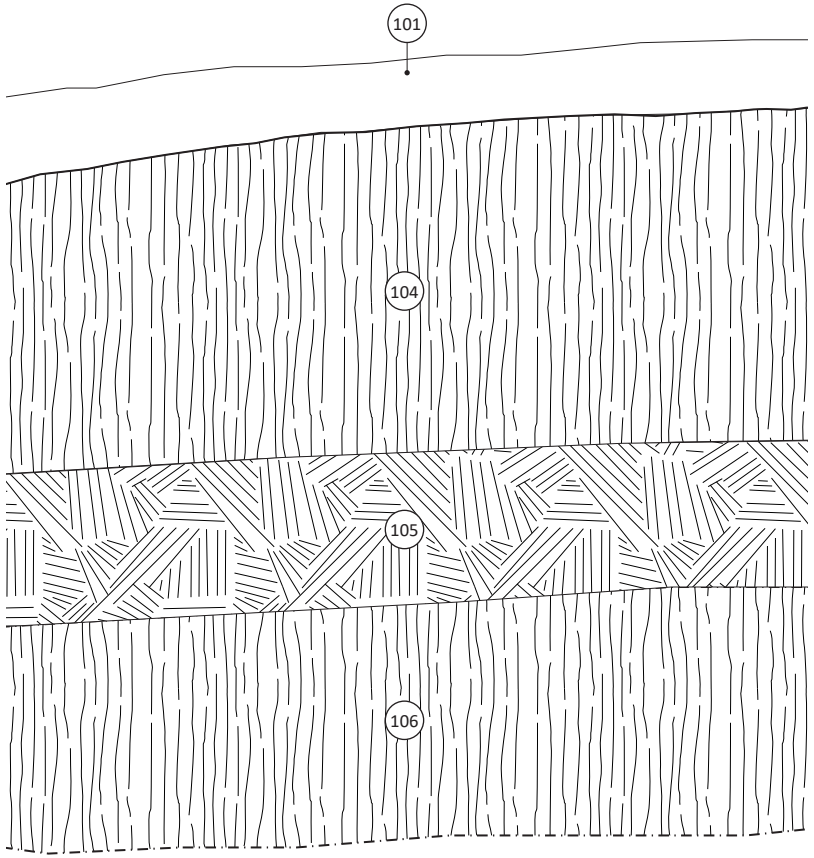
01 338.50m
101 Dark red-brown silt-clay topsoil
104 Dark black-brown peat
105 Light yellow-grey clay
106 Dark black-brown peat

NW
SH 79559.54 / 28619.83 01



SE
1.6m
SH 79560.33 / 28618.46

Figure 07: Southwest facing section of penstock trench showing peat deposits.
Scale 1:10 at A4.

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Plate 01: Hydro penstock trench from intake weir where it leaves the rock-cut section (ch30) to ch130, from the south. Scale 0.5m.

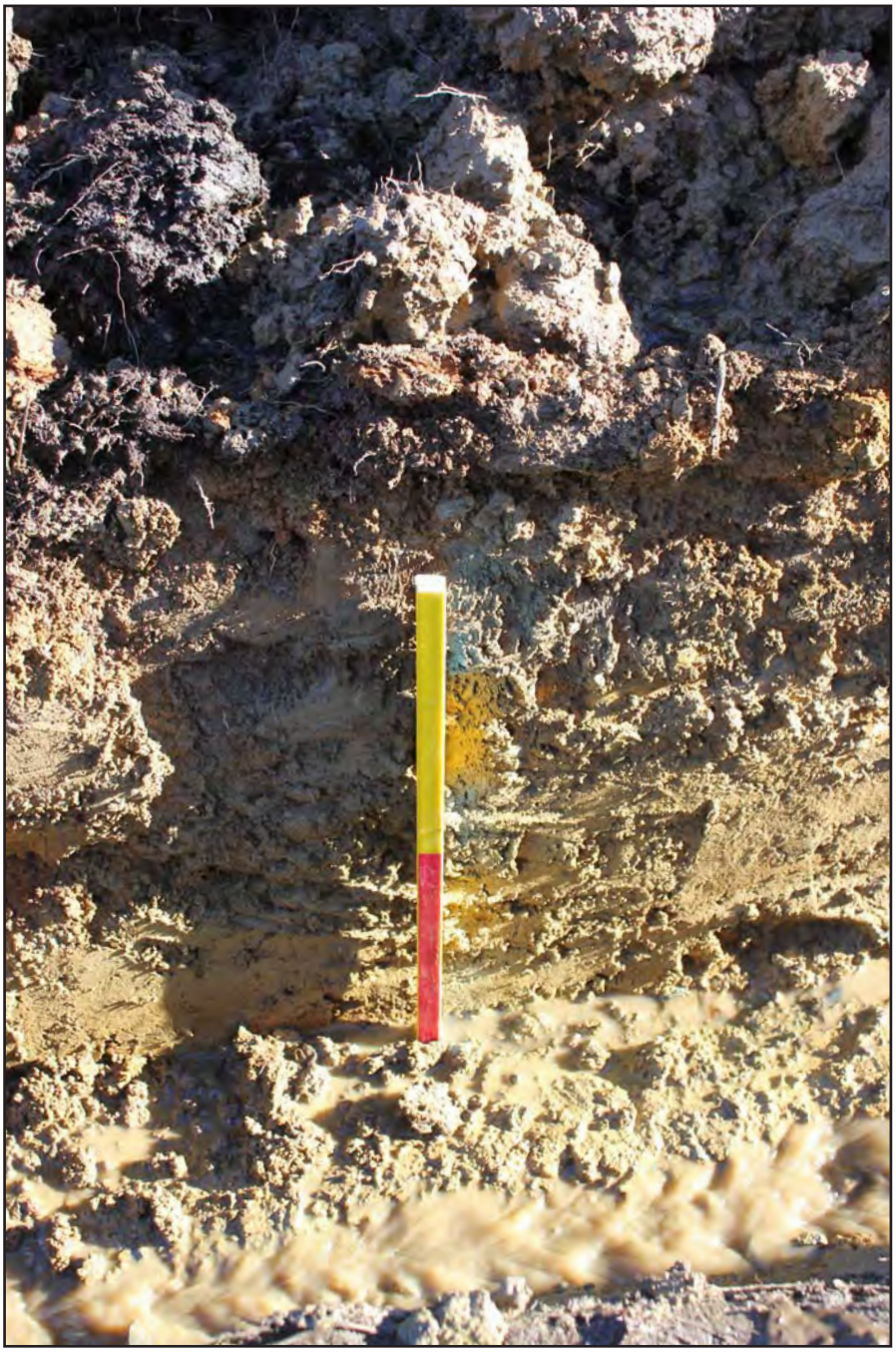

Plate 02: Hydro penstock trench from intake weir where it leaves the rock-cut section (ch30) to ch130 east facing section, from the east. Scale 0.5m.

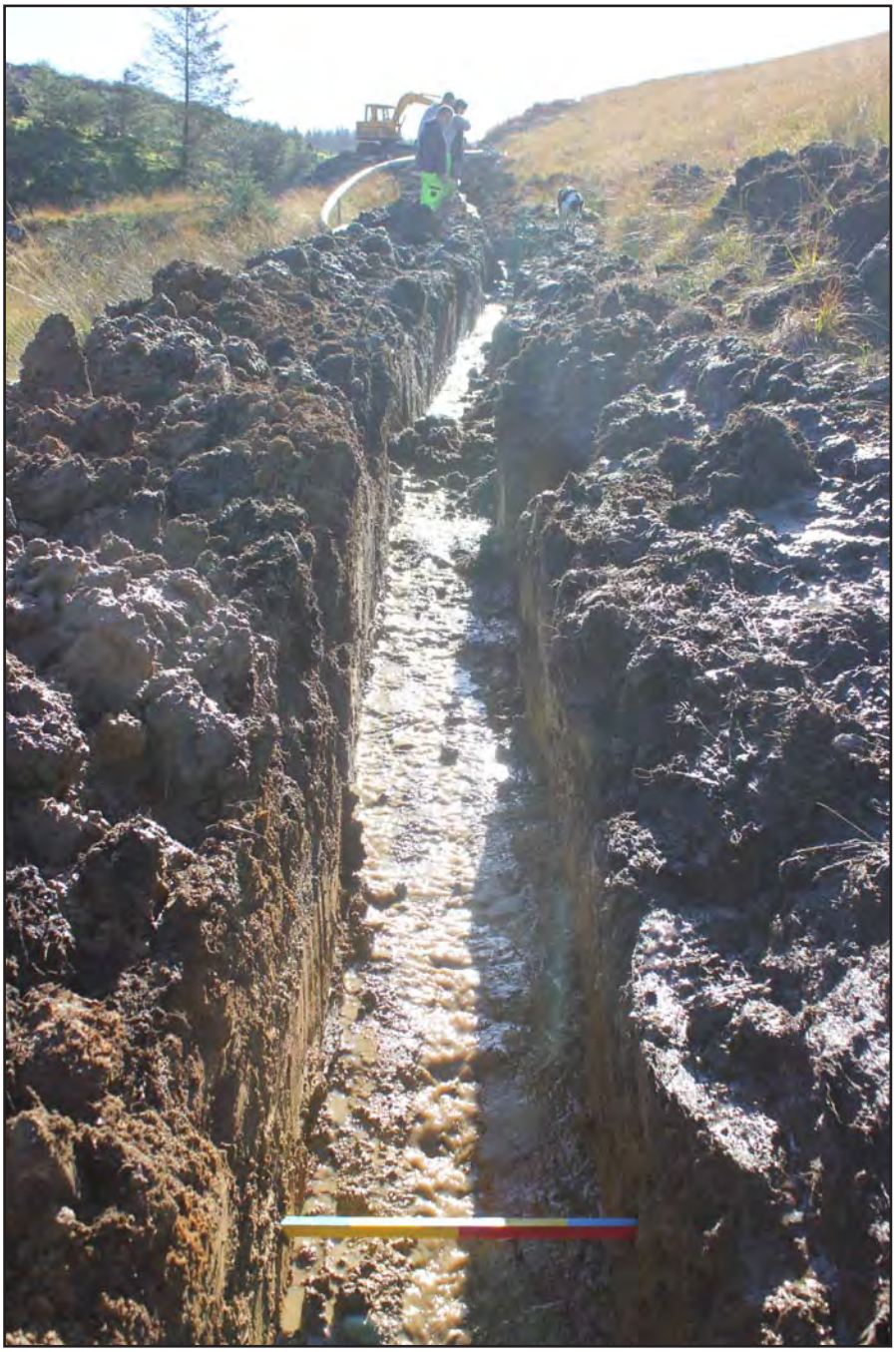

Plate 03: Hydro penstock trench from intake weir where it leaves the rock-cut section (ch30) to ch130, from the north. Scale 0.5m.

Plate 04: Hydro penstock trench ch130 to ch180, from the north. Scale 0.5m.

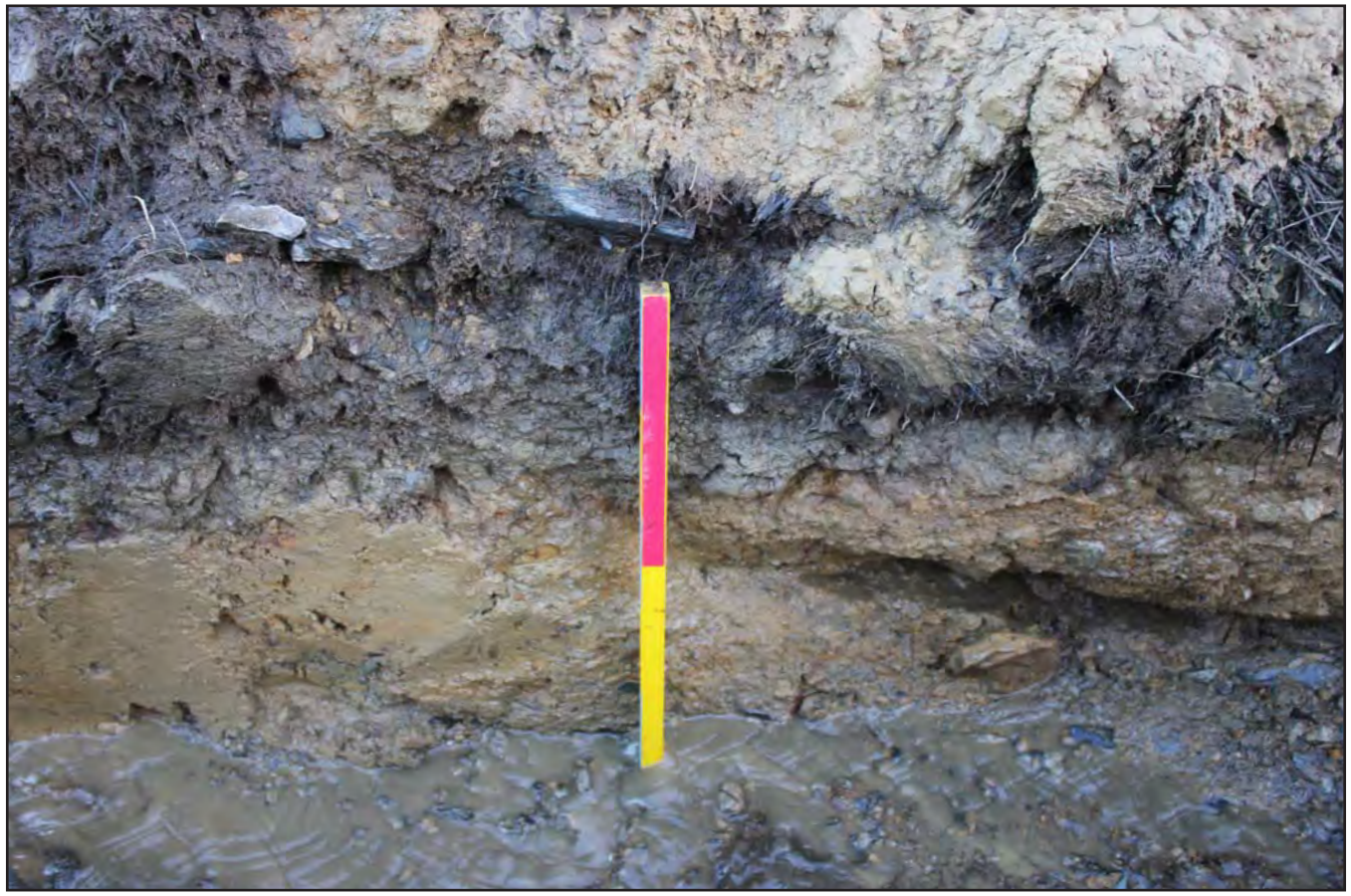

Plate 05: Hydro penstock trench ch130 to ch180 west facing section, from the west. Scale 0.5m.

Plate 06: Hydro penstock trench ch180 to ch340, from the north. Scale 0.5m.

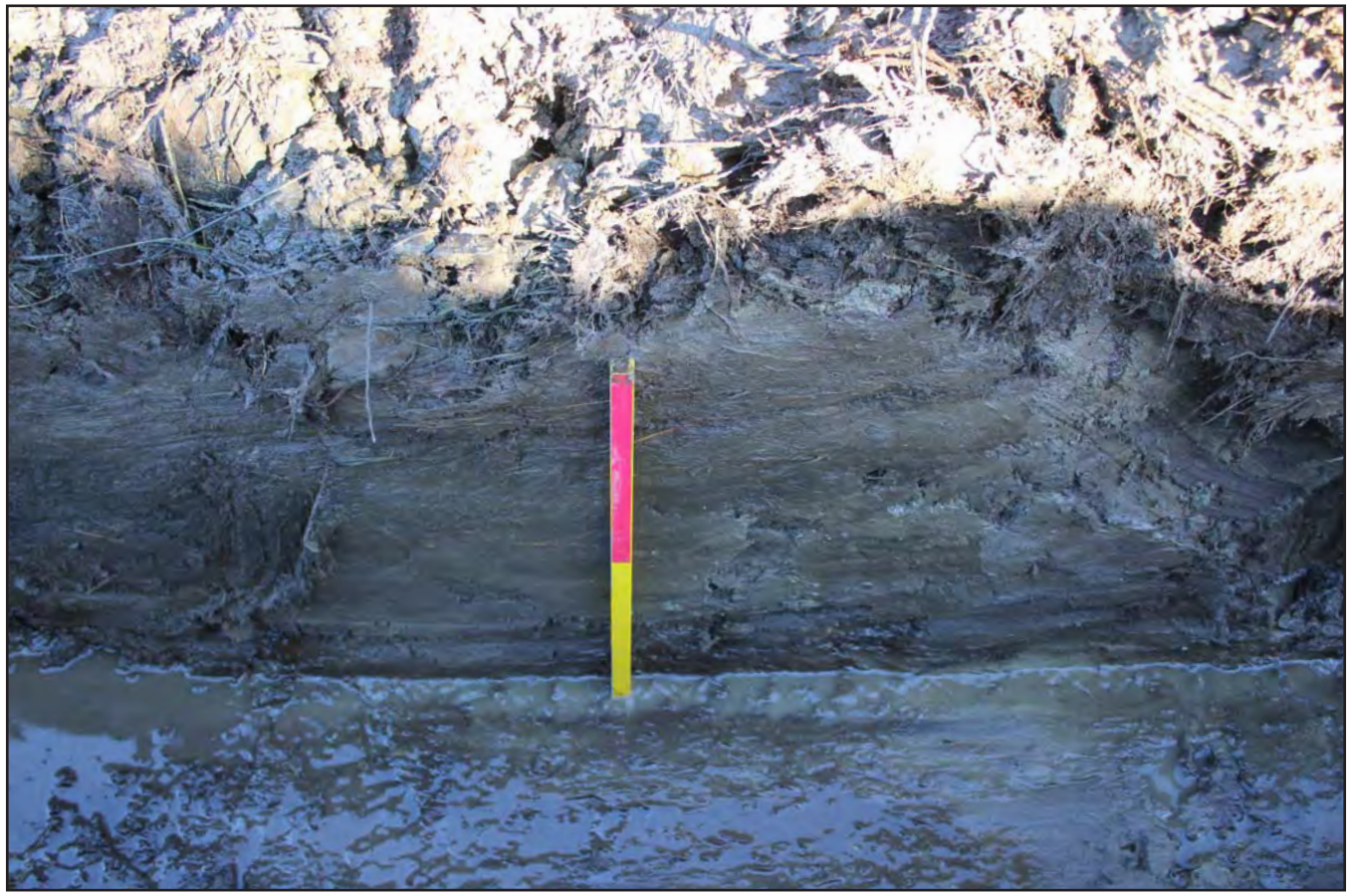

Plate 07: Hydro penstock trench ch180 to ch340 west facing section, from the west. Scale 0.5m.

Plate 08: Hydro penstock trench across relict field boundary feature 8 (PRN 61639) northeast facing section, from the northeast. Scale 0.5m.

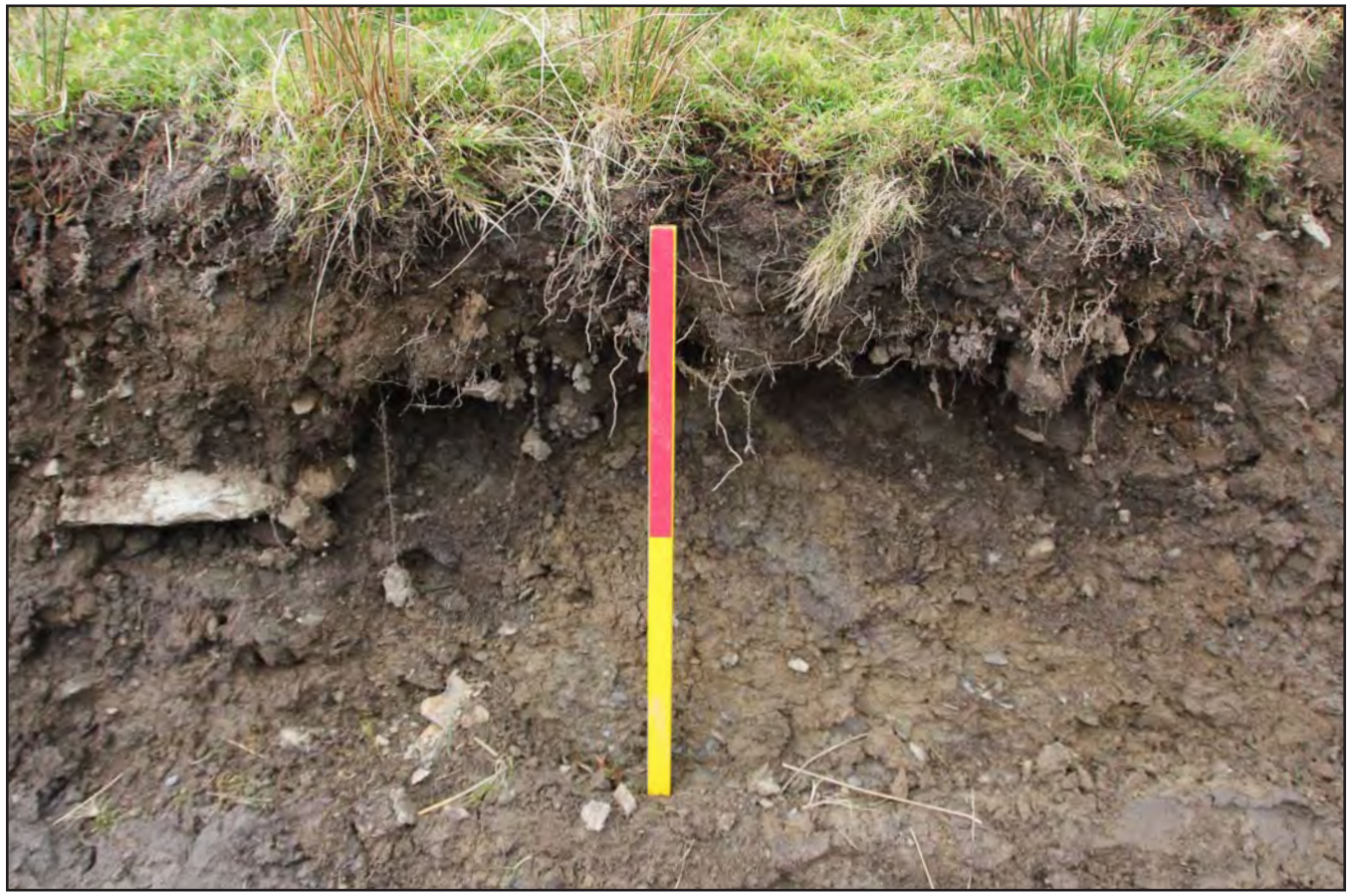

Plate 09: Hydro penstock trench across relict field boundary feature 8 (PRN 61639) northeast facing section, from the northeast. Scale 0.5m.

Plate 10: Hydro penstock trench ch560 to ch670, from the south. Scale 0.5m.

Plate 11: Hydro penstock trench ch560 to ch670 east facing section, from the east. Scale 0.5m.

Plate 12: Hydro penstock trench ch560 to ch670, from the north. Scale 0.5m.

Plate 13: Hydro penstock trench ch560 to ch670 west facing section, from the west. Scale 0.5m.

Plate 14: Hydro penstock trench ch670 to ch860, from the south. Scale 0.5m.

Plate 15: Hydro penstock trench ch670 to ch860 west facing section, from the west. Scale 0.5m.

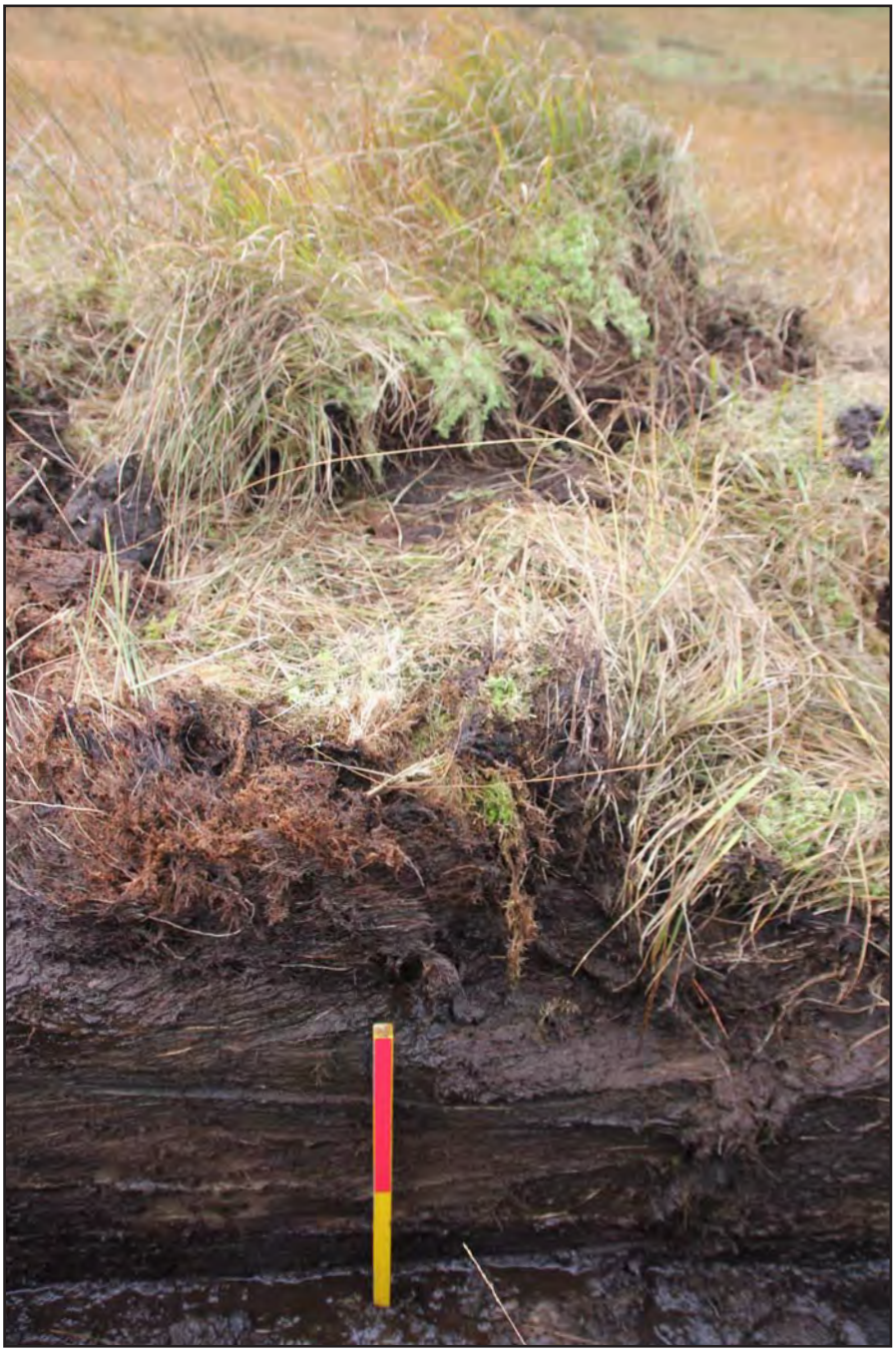

Plate 16: Hydro penstock trench ch670 to ch860 west facing section, from the west. Scale 0.5m.

Plate 17: Hydro penstock trench ch860 to ch1,000, from the north. Scale 0.5m.

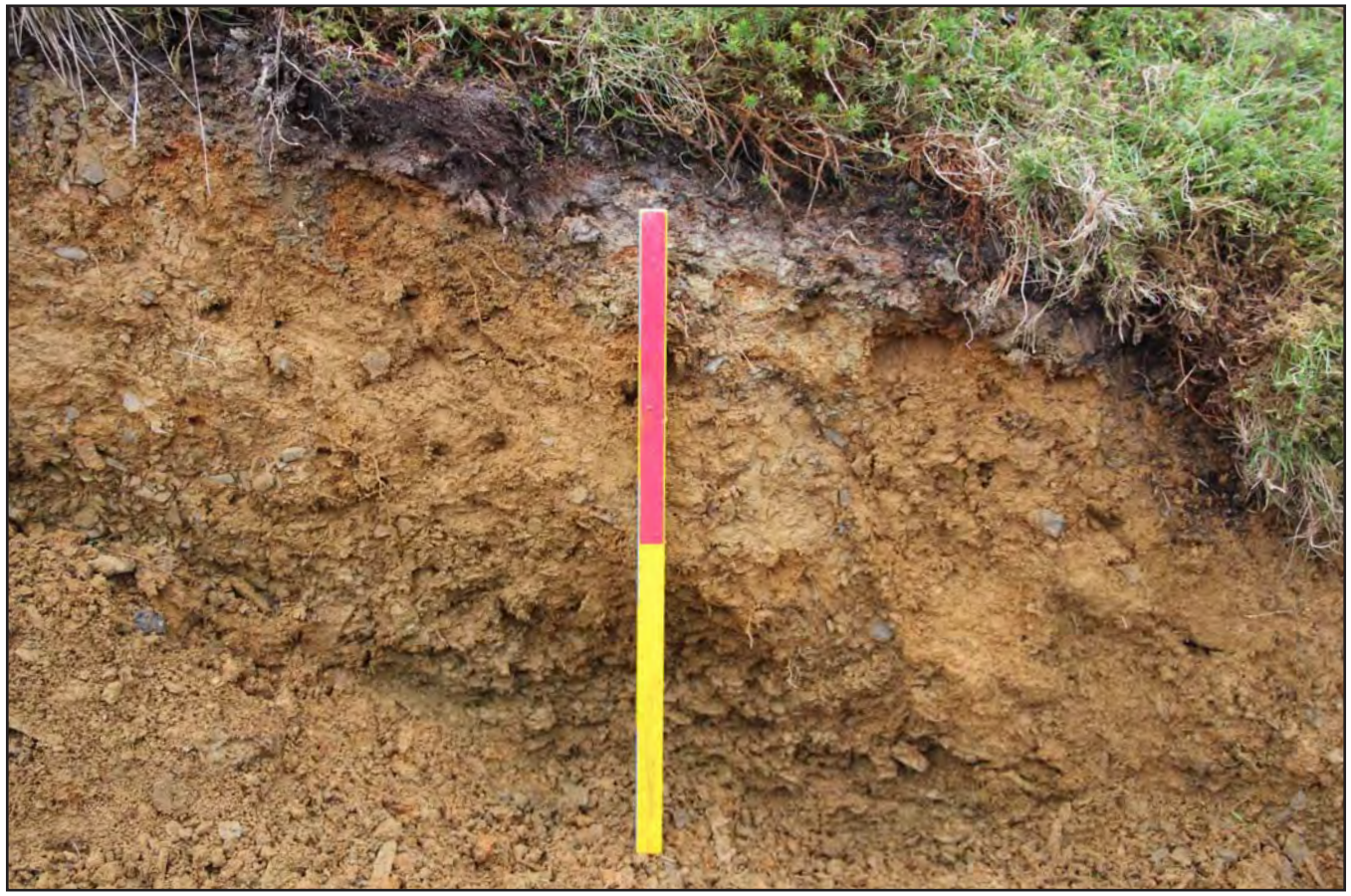

Plate 18: Hydro penstock trench ch860 to ch1,000 east facing section, from the east. Scale 0.5m.

Plate 19: Hydro turbine house under construction, from the southeast.

10.0 CONCLUSION AND RECOMMENDATIONS

The archaeological watching brief maintained during the excavation of the penstock trench for the new micro hydro scheme at Nant Helyg, Abergeriw, Dolgellau uncovered the remains of a former probable blanket bog measuring approximately 30.0-40.0m in width and located on a level plateau at c.338m OD. This feature consisted of two peat horizons separated by a thin band of redeposited clay, which has been surmised may have been laid down during peat extraction works in the medieval period.

The peat deposits could only be bulk sampled due to the tight confines of the trench making monolith samples impossible, however advice obtained from Oxford Archaeology has shown that these bulk samples are of limited potential and as such recommendations are made that the area could be sampled using a Russian auger as part of a future research project separate from the development led archaeological response presented in this report.

The archaeological watching brief also provided the opportunity for a cross-sectional record to be taken of a suspected post-medieval field boundary (feature 8; PRN 61639).

No other archaeological remains or artefacts were encountered during the project.

11.0 SOURCES

OS Maps

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

Sources

Aeon Archaeology Repot 0088. *Nant Helyg Hydro, Abergeriw, Dolgellau: Archaeological Assessment. 2016*

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

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

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

English Heritage, 2011. The Settings of Heritage Assets

Gwynedd Historic Environment Record (HER)

The Chartered Institute for Archaeologists, (2014) *Standard and Guidance for* Archaeological Watching Brief

APPENDIX I; WRITTEN SCHEME OF INVESTIGATION FOR ARCHAEOLOGICAL WATCHING BRIEF

aeon archaeology

Nant Helyg Hydro Scheme, Abergeriw, Dolgellau, LL23 7TE. V 3.0

Written Scheme of Investigation for Archaeological Watching Brief.

July 2018

Project Code: A0084.2
Planning Ref: NP54/54/450A

1.0 INTRODUCTION

Aeon Archaeology has been commissioned by North Wales Hydro Ltd on behalf of Mr Llion Williams, hereafter the Client, to provide a Written Scheme of Investigation (WSI) for carrying out an archaeological watching brief as part of a proposed hydro-electric scheme with turbine house, buried penstock (pipeline), and electrical cable connection. The proposed scheme intake is to be located on the western bank of the Nant yr Helyg, a tributary of the Afon Mawddach and approximately 7.8km northeast of the village of Ganllwyd, Gwynedd and within the Snowdonia National Park Authority (SNPA) (figures 01 and 02).

The proposed scheme will consist of an intake weir located at **NGR SH 79791 27815** and a c.1.0km long buried penstock running northwest to a new turbine house located at **NGR SH 79494 28768** and which will be installed on the southern bank of the Afon Mawddach. In addition a buried new power cable will run northwest from the turbine house for approximately 80.0m and within the existing bridleway, to an existing transformer at **NGR SH 79435 28812**. The bridleway will be used to transport materials to site (turbine house and outfall) and construction access between the intake site and turbine house will be along the penstock route.

A mitigation brief was not prepared for this scheme by the SNPA Archaeologist or the Gwynedd Archaeological Planning Service (GAPS) Development Control Archaeologist but the following was made a condition of full planning permission (**NP54/54/450A**):

6. No development shall take place (including any ground disturbing works or site clearance) pursuant to this permission until the applicant/developer has submitted to and received written approval from the Local Planning Authority for an archaeological specification for a programme of works which must meet all relevant archaeological standards. The development shall thereafter be carried out in strict accordance with the archaeological specification programme of works as approved by this condition.

7. The applicant/developer shall produce a detailed report on the archaeological work, as required by condition 6 which shall be submitted to and approved in writing by the Local Planning Authority within six months of completion of the development hereby approved whichever is the sooner.

An archaeological assessment was undertaken by Aeon Archaeology in May 2016 (A0084.2 report no. 0088) that identified nine archaeological sites within the 40.0m wide assessment corridor centred on the pipe route, all of which were either medieval or post-medieval in date.

In addition the assessment highlighted the increased potential for the location of prehistoric burnt mounds in proximity to Nant Helyg, as well as the potential for preserved palaeo-environmental remains within the suspected underlying peat deposits. As such it was recommended that an archaeological watching brief be maintained intermittently between the hydro scheme intake and fallout as shown on figure 03.

The work will adhere to the guidelines specified in Standard and Guidance for Archaeological Watching Brief (Chartered Institute for Archaeologists, 2014).

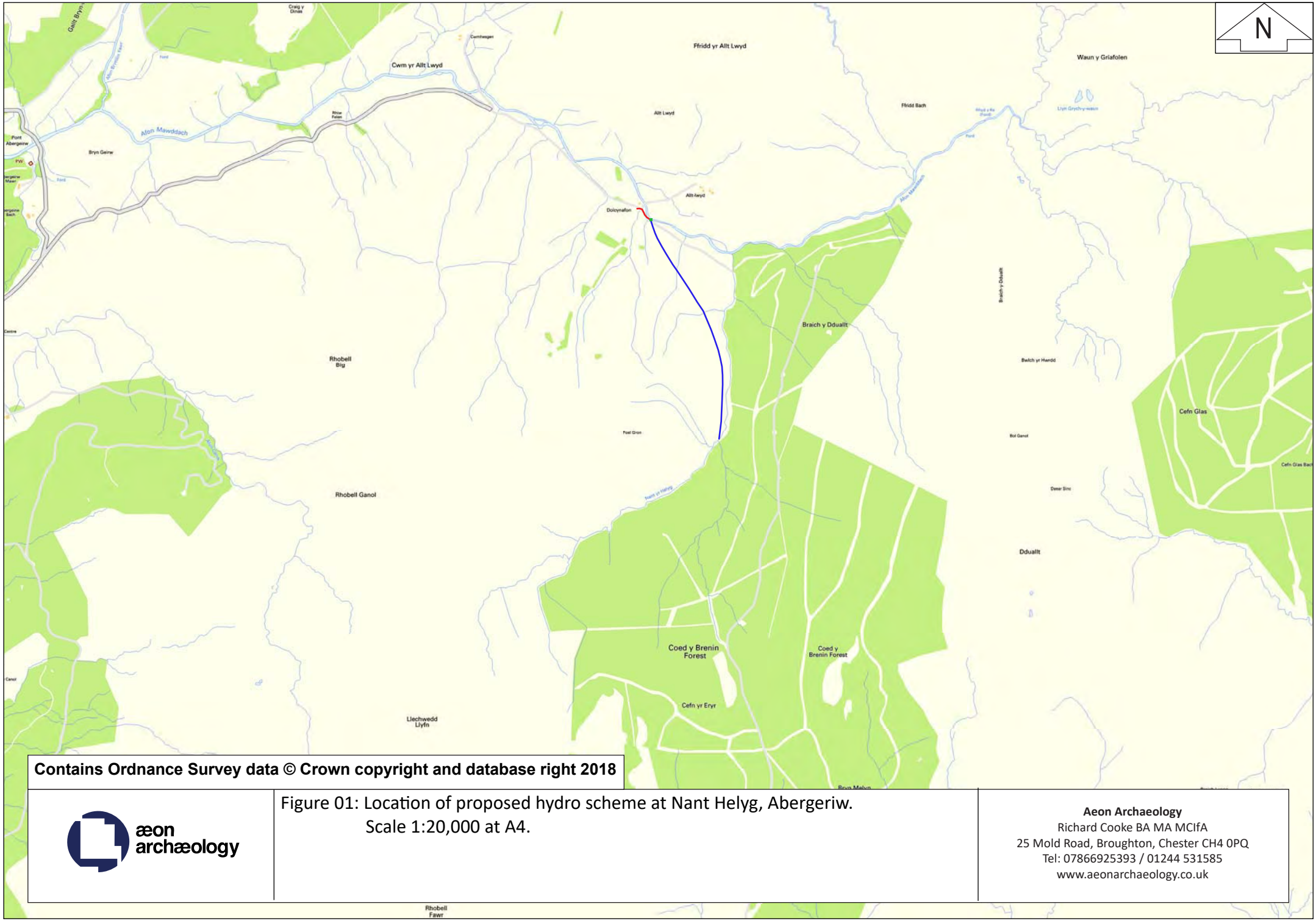

Figure 01: Location of proposed hydro scheme at Nant Helyg, Abergeriw.
Scale 1:20,000 at A4.

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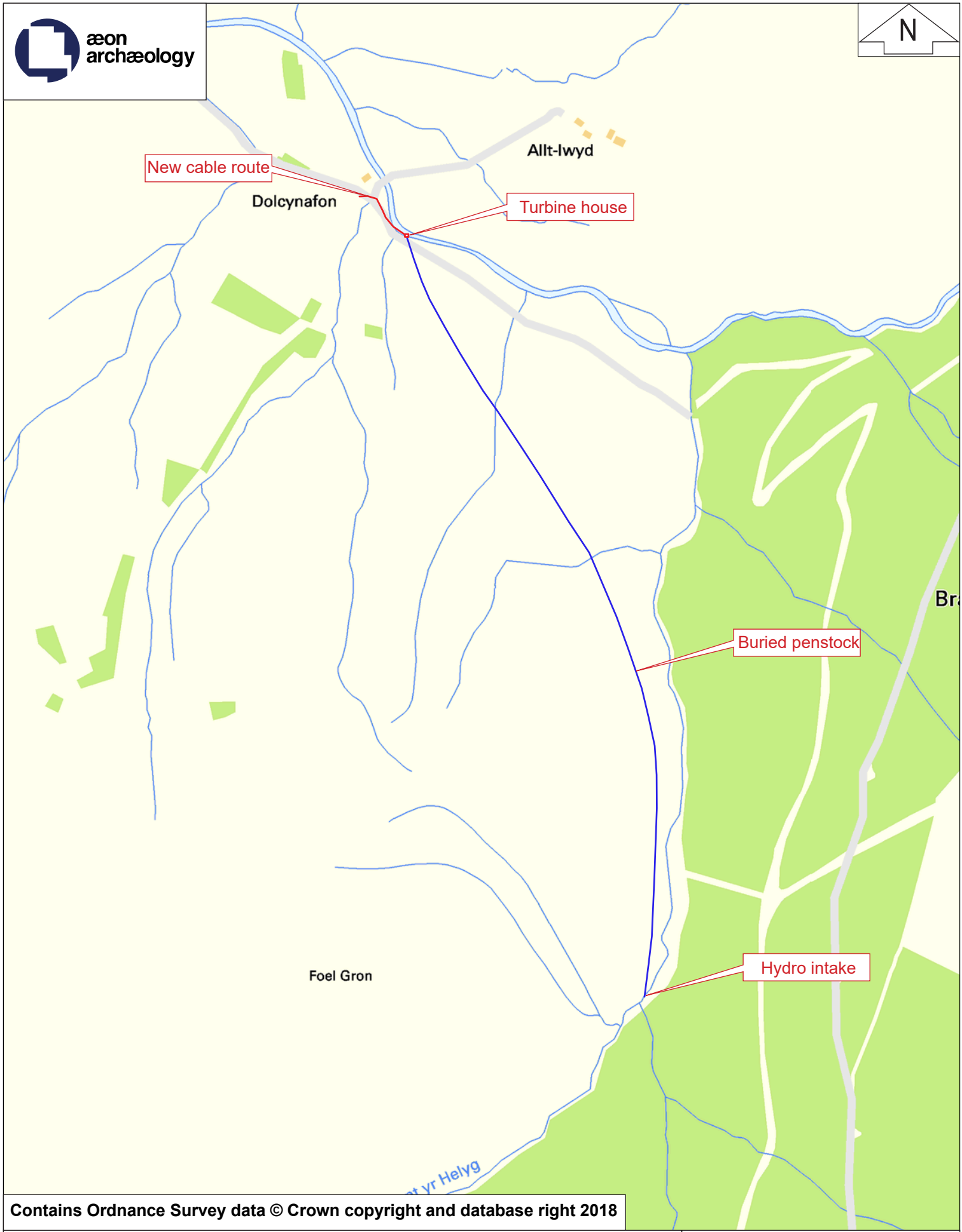

Figure 02: Location of proposed hydro scheme at Nant Helyg, Abergeriw.
Scale 1:6,000 at A4.

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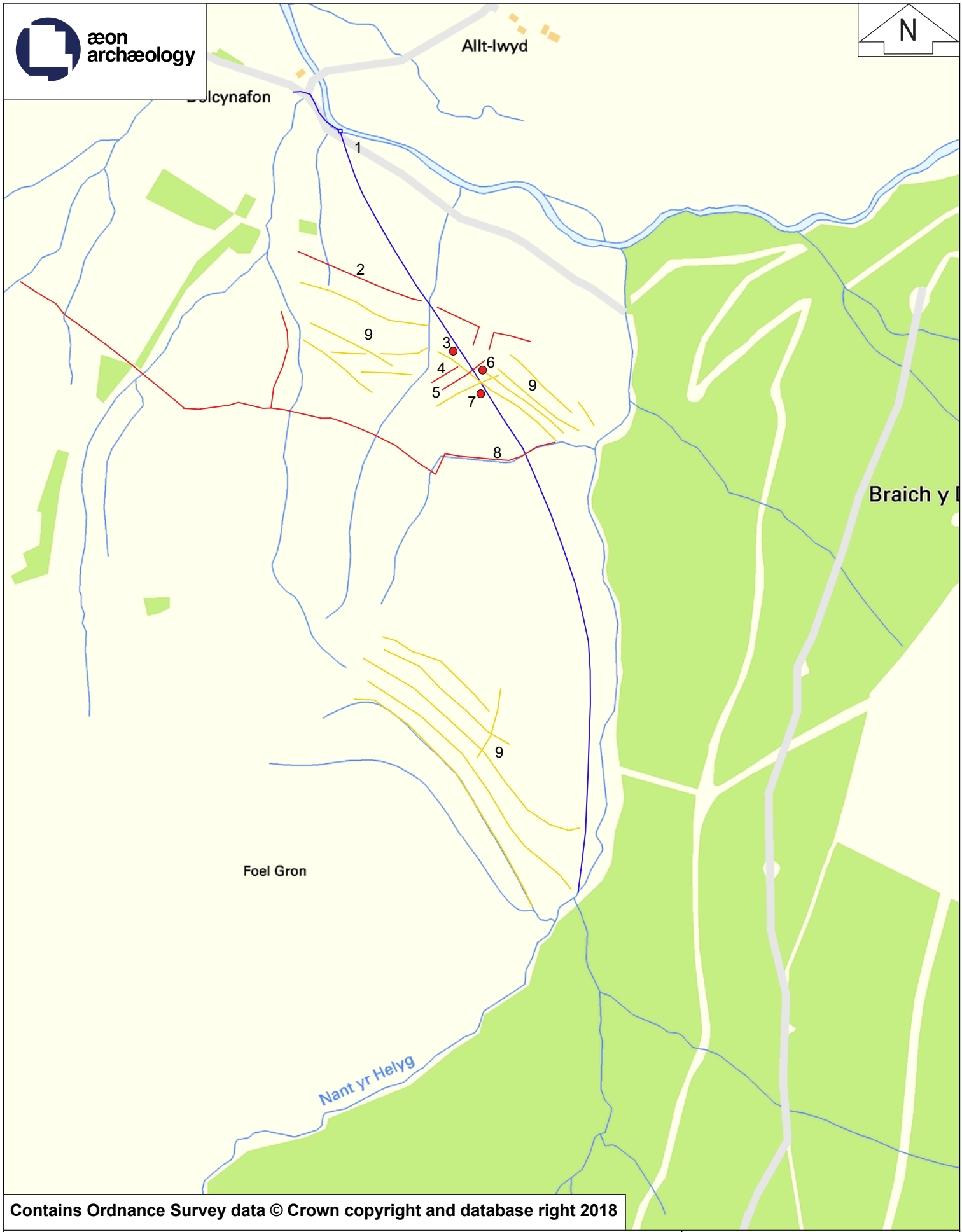

Figure 03: Location of archaeological receptors identified during the site visit (red dots and lines), receptors identified from aerial photography (yellow lines), and area of watching brief. Scale 1:6,000 at A4.

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2.0 POLICY CONTEXT

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

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

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

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

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

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

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

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

Planning Policy Wales sets out the land use planning policies of the Welsh Government. Chapter 6 covers the historic environment and emphasises that the positive management of change in the

[1] UNESCO, 1972, *Convention Concerning the Protection of the World Cultural and Natural Heritage*
[2] Council of Europe, 1992, *European Convention on the Protection of the Archaeological Heritage*
[3] Great Britain. *Planning (Conservation Areas and Listed Buildings) Act.* Elizabeth II.(1990), London: The Stationery Office

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.

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

3.0 SITE LOCATION

The proposed hydro-electric scheme intake is located on the western bank of the Nant yr Helyg, a tributary of the Afon Mawddach and approximately 7.8km northeast of the village of Ganllwyd, Gwynedd and within the Snowdonia National Park Authority.

The proposed scheme will consist of an intake weir located at NGR SH 79791 27815 and a c.1.0km long buried penstock running northwest to a new turbine house located at NGR SH 79494 28768 and which will be installed on the southern bank of the Afon Mawddach. In addition a buried new power cable will run northwest from the turbine house for approximately 80.0m to an existing transformer at NGR SH 79435 28812. An existing trackway will be used to transport materials to site (turbine house and outfall) and construction access between the intake site and turbine house will be along the penstock route.

The site lies within the parish of Brithdir and Llanfachreth Community, within the historic county of meirionnydd and unitary authority of Gwynedd. Mostly given over to rough pasture, the farmland is dominated by acid grassland within which there are cushions of gorse. The site is unenclosed mountain slope and is primarily given over to hill sheep farming, although some cattle farming also takes place within the localised landscape, generally on the lower slopes.

The assessment area slopes from approximately 435m OD at the proposed hydro intake with the proposed turbine house lying at approximately 305m OD.

The bedrock geology is of the Dolgellau Formation, a mudstone and siltstone sedimentary bedrock that formed approximately 488 to 502 million years ago in the Cambrian Period within an environment previously dominated by open seas with pelagite deposits (British Geological Survey).

4.0 WATCHING BRIEF - ARCHAEOLOGICAL AIMS

The archaeological watching brief shall include:

a) intensive monitoring during the excavation of the penstock trench from the hydro intake (where it is not rock-cut) for c.100-200m. If no archaeological remains are encountered or the potential is deemed to be less than originally considered then the watching brief shall be further maintained on an intermittent basis to the trackway in the north;

(b) a record in cross-section of the known linear features to be crossed by the route (relict field boundary feature 8), in order to supplement the basic record in the desk-based assessment and improve understanding of these features; and

c) a record in section of any peat deposits encountered along the route, to aid deposit modelling to inform future management of this landscape.

The CIfA maintains a standard for archaeological watching brief which states that:

An archaeological watching brief will record the archaeological resource during development within a specified area using appropriate methods and practices. These will satisfy the stated aims of the project, and comply with the Code of conduct and other relevant by-laws of CIfA.

An archaeological watching brief is defined by the CIfA as a formal programme of observation and investigation conducted during any operation carried out for non-archaeological reasons (CIfA 2014). The watching brief will take place within a specified area within the Site where there is a possibility that archaeological deposits may be disturbed or destroyed.

The CIfA further identifies the purpose of a watching brief as allowing, within the resources available, the preservation by record of archaeological deposits, the presence and nature of which could not be established in advance of development or other potentially disruptive works.

It is also important to note that a watching brief provides an opportunity, if needed, for a signal to be made to all interested parties, before the destruction of the archaeological materials, that an archaeological find has been made for which the resources allocated to the watching brief itself are not sufficient to support treatment to a satisfactory and proper standard.

A watching brief is, therefore, not intended to reduce the requirement for excavation or preservation of known or inferred deposits, and it is intended to guide, not replace, any requirement for contingent excavation or preservation of possible deposits.

The aims of the watching brief are:

- To allow, within the resources available, the opportunity to gain information about and record the presence/absence, nature and date of archaeological remains on the Site affected by excavations and groundworks, the presence and nature of which could not be established with sufficient confidence in advance of works which may disturb them.

- To provide the facility to signal to the relevant authorities, before irreversible impact to remains that an archaeological and/or historic find has been made for which the resources allocated to the watching brief itself are inadequate to support their treatment to an adequate and satisfactory standard.

The specific objectives of the watching brief are:

- To observe and recover any artefacts of archaeological significance.
- To record the location, dimensions and nature of any deposits, features, structures or artefacts of archaeological significance.
- To recover samples of any deposits considered to have potential for analysis for palaeoenvironmental data should the opportunity arise.

5.0 METHODOLOGY

5.1 Archaeological Watching Brief

The methodology for the watching brief has been prepared with reference to the CIfA's document Standards and Guidance for Archaeological Watching Brief (2014) and will be kept under constant review during the project, in order to see how far it is meeting the terms of the aims and objectives, and in order to adopt any new questions which may arise.

Curatorial monitoring of the archaeological work on behalf of the Council will be carried out by the GAPS Development Control Archaeologist (Jenny Emmett). To facilitate the curatorial monitoring, the officer shall be provided with a minimum of two weeks' notice of the start of the archaeological work.

A suitably qualified and experienced archaeologist(s) from Aeon Archaeology will be commissioned for the maintenance of the watching brief. On arrival on site, the archaeologist(s) will report to the site manager and conform to the arrangements for notification of entering and leaving site. The archaeologist(s) will keep a record of the date, time and duration of all attendances at site, the names and numbers of archaeologists deployed and any actions taken. The archaeologist will be provided with a Health & Safety Induction by the construction contractor and wear a safety helmet, safety footwear and high visibility jacket/vest at all times.

If deposits and or artefacts are exposed during excavations for the development which require recording and recovery, it may be necessary to delay works whilst the proper investigation and recording takes place. Watching brief recording can often be undertaken without delay to groundworks, depending upon the specific circumstances and flexibility of all the staff on site.

Within the constraints of the terms of the watching brief work, the archaeologist will not cause unreasonable disruption to the maintenance of the work schedules of other contractors on site. In the event of archaeological discoveries the treatment of which (either arising from the volume/quantity of material and/or the complexity/importance of the material) is beyond the resources deployed the Client will be notified and a site meeting/telephone consultation arranged with the GAPS Archaeologist. The aim of the meeting will be to confirm that an archaeological find has been made for which the resources allocated to the watching brief itself are not sufficient to support treatment to a satisfactory and proper standard and identify measures which would be sufficient to support treatment to a satisfactory and proper standard prior to destruction of the material in question.

Any archaeological deposits, features and structures identified which can be investigated and recorded under the terms of the watching brief will be excavated manually in a controlled and stratigraphic manner sufficient to address the aims and objectives of the project – subject to the limitations on site access.

It may not be necessary to excavate the complete stratigraphic sequence to geologically lain deposits but the inter-relationships between archaeological deposits, features and structures will be investigated sufficient to address the aims and objectives of the project and the complete stratigraphic sequence to geologically lain deposits will be investigated where practicable.

The method of recording will follow the normal principles of stratigraphic excavation and the stratigraphy will be recorded in written descriptions even where no archaeological deposits have

been identified. The archaeologist will record archaeological deposits using proformae recording forms and locate them on a large-scale site plan related to the Ordnance Survey National Grid and Datum references.

The groundworks excavations shall be undertaken using a mechanical excavator fitted with a toothless ditching bucket.

The drawn record will comprise plans at scale 1:20 and sections at scale 1:10; propriety electronic hardware and software to prepare site drawings may be used as appropriate.

The photographic record will be maintained throughout using a digital SLR camera (Canon 600D) set to maximum resolution (72 dpi) and all archaeological features will be recorded photographically with photographs taken in RAW format and later converted to TIFF format for long-term storage and JPEG format for presentation and inclusion in the archive. The standards for the digital archive will adhere to those set out in '*Guidelines for Digital Archaeological Archives'* (RCAHMW, 2015).

The archive produced will be held at Aeon Archaeology under the project code **A0084.2**.

5.2 Watching brief report

5.2.1 Post-excavation Assessment

A report on the results of the watching brief, in accordance with the recommendations in *Management of Research Projects in the Historic Environment Project Manager's Guide* (English Heritage 2006; 2015), and in the Chartered Institute for Archaeologists *Standard and Guidance for an archaeological watching brief* (2014) will be required to be produced upon conclusion of the archaeological fieldwork. The report will be completed within a maximum of two months of completion of work on site and may include examination and quantification leading to the identification of function, form, date, method of manufacture, material/fabric type, source, parallels, attributes and condition of artefacts; of the exploitation of wild or domesticated resources; the reconstruction of environments; and the nature of human populations.

Full analysis of the results of the project, including: dating and interpretation of excavated features; pottery and other finds analysis; analysis of industrial residues by an appropriate specialist or specialists; analysis of samples for environmental data (including pollen, plant macrofossils and beetles) by an appropriate specialist or specialists; radiocarbon dating; discussion of the results in their local, regional and national context, including relating the excavated features and palaeoenvironmental data to evidence from nearby sites, and discussion of the results in their local, regional and national context may be required.

The scope of post-excavation assessment will subject to a specification for approval by the GAPS Archaeologist, upon the conclusion of the fieldwork project and preliminary report.

5.2.2 Post-excavation Report

Following completion of the stages outlined above, a report will be produced that will include:

- A non-technical summary.
- A table of contents.
- An introduction with acknowledgements, including a list of all those involved in the project and the location and description of the site.
- A statement of the project aims.
- An account of the project methodology undertaken, with an assessment of the same to include a statement on preservation bias and the means of data collection and sampling strategies.
- A factual summary of the history, development and use of the site.
- A statement setting out the nature, quantity and condition of the material archive (artefacts and ecofacts) including commentary on any bias observed due to collection and sampling strategies and commentary on long-term storage requirements.
- A statement setting out the nature and quantity of the documentary archive (notes, photographs, drawings, digital data).
- A general site plan indicating the position and size of the areas subject to watching brief and the locations of archaeological deposits identified and recorded during the works.
- Plans and sections at appropriate scales, augmented with appropriate photographs. All plans and sections will be related to the Ordnance Survey datum levels and to the National Grid.
- Other maps, plans, drawings, stratigraphic matrices and photographs as appropriate.
- Summary assessment reports on the artefact, bio-archaeological, dating and other

assessments/analyses.

- A discussion of the location, extent, date, nature, condition, quality and significance of any archaeological deposits and finds identified during the project.
- A discussion of any research implications arising from the archaeological work.
- Notes on consultations with conservators and the nominated archive repository related to the immediate and long-term conservation and storage requirements for the data held in the site archive and recommendations of retention/discard of artefacts and ecofacts.
- A bibliography of sources consulted.
- Appendices to the report will include artefact catalogues, reports on assessments/analyses and an index to the project archive and a statement on its location/proposed repository.
- In addition the post-excavation report will summarise and draw together the findings of all of the phases of work.

Illustrations will include plans of the location of the study area and archaeological sites. Historical maps, when appropriate and if copyright permissions allow, will be included. Photographs of relevant sites and of the study area where appropriate will be included.

A draft copy of the report will be sent to the GAPS Archaeologist and to the client for comment and approval prior to production of the final report.

6.0 FURTHER ARCHAEOLOGICAL WORKS DESIGNS (FAWDs)

- The discovery of substantial archaeological remains and/or features during the archaeological works may result in the requirement for an extended programme of archaeological mitigation. This may require the submission of revised quotes to the client as well as a new specification which will be required to be approved by the GAPS archaeologist prior to implementation.

- This WSI does not include a methodology or cost for examination, conservation and archiving of artefacts discovered during the archaeological works, nor of any radiocarbon dates required, nor of examination of palaeoenvironmental samples. The need for these will be identified in the post-fieldwork programme (if required), and a new WSI will be issued for approval by the Client and the GAPS Archaeologist.

7.0 ENVIRONMENTAL SAMPLES

Relevant archaeological deposits will be sampled by taking bulk samples (a minimum of 10.0 litres and maximum of 30.0 litres) for flotation of charred plant remains. Bulk samples will be taken from waterlogged deposits for macroscopic plant remains. Other bulk samples, for example from middens, may be taken for small animal bones and small artefacts.

Bulk environmental samples will also be taken from any fills, deposits or structures which yield archaeological artefacts, charcoal flecks/ fragments, bone, or any other historic remains.

Advice and guidance regarding environmental samples and their suitability for radiocarbon dating, as well as the analysis of macrofossils (charcoal and wood), pollen, animal bones and molluscs will be obtained from Oxford Archaeology.

For guidance purposes the following volume criteria represent the minimum feature sampling requirements:

- 50% of each discrete feature (e.g. pits and postholes)
- 25% of the exposed areas of each liner feature and all terminals/intersections
- 50% of structural features (e.g. beamslots, ring-ditches)
- 50%-100% of domestic/industrial working features (e.g. hearths and ovens)

8.0 HUMAN REMAINS

Any finds of human remains will be left *in-situ*, covered and protected, and both the coroner and the GAPS Archaeologist informed. If removal is necessary it will take place under appropriate regulations and with due regard for health and safety issues. In order to excavate human remains, a licence is required under Section *25* of the Burials Act 1857 for the removal of any body or remains of any body from any place of burial. This will be applied for should human remains need to be investigated or moved.

9.0 ARTEFACTS

All artefacts and ecofacts will be retrieved for identification and recording and will be treated in accordance with CIfA 2008 Guidelines for the collection, documentation, conservation and research of archaeological materials (Chartered Institute for Archaeologists, 2014).

All artefacts are the property of the landowner but it is recommended that finds are deposited with the rest of the project archive within an appropriate museum. Furthermore, the client agrees to granting access to all artefacts recovered by Aeon Archaeology for analysis, study and publication as necessary. All finds would be treated according to advice provided within *First Aid for Finds* (Rescue 1999). Aeon Archaeology staff will undertake initial identification, but any additional advice would be sought from a wide range of consultants.

The recovery policy for archaeological finds will be kept under review throughout the archaeological works. Any changes in recovery priorities will be under guidance from an appropriate specialist and agreed with the GAPS Archaeologist. There will be a presumption against the disposal of archaeological finds regardless of their apparent age or condition.

All finds will be collected and processed including those found within spoil tips. Their location and height will be plotted; finds numbers attributed, bagged and labelled as well any preliminary identification taking place on site. Where specialist advice is required provision will be made to do so at the earliest possible convenience.

After processing, artefacts which are suitable will be cleaned and conserved in-house. Artefacts requiring specialist cleaning and conservation will be sent to the relevant specialist. All artefacts will then be sent to a specialist for analysis, the results of which will then be assessed to ascertain the potential of the finds assemblage to meet the research aims of the project. The value of the finds will also be assessed in terms of the wider educational and academic contributions.

Depending upon the material of the remains the following experts will be consulted regarding the conservation of waterlogged material:

- Organic material: Mr Phil Parkes, Cardiff Conservation Services (tel: +44(0)29 2087 5628)
- Non-organic material: Mr Phil Parkes, Cardiff Conservation Services (tel: +44(0)29 2087 5628)

Depending upon the material of the remains the following experts will be consulted regarding the conservation and analysis of artefacts:

- Bone: Nora Bermingham
- Glass: Hilary Cool, Barbican Research Associates.
- Metal artefacts: Phil Parkes, Cardiff Conservation Services, Cardiff.
- Slag, burnt clay, hammerscale: Dr. Tim Young, Geoarch, Cardiff.
- Stone artefacts: George Smith, Gwynedd Archaeological Trust, Bangor.
- Wood artefacts: Jane Foley, Foley Conservation, Builth Wells.
- Leather: Quita Mould, Barbican Research Associates.
- Environmental Material: Dr Mike Allen, Allen Environmental Archaeology.
- Numismatics: Peter Guest, Barbican Research Associates.
- Ceramics: Leigh Dodd

The cost for examination, conservation and archiving of artefacts discovered during the archaeological mitigation work are not included within this quote.

If well preserved materials are found it may be necessary to employ additional staff. Furthermore, it may be necessary to suspend work within a specific region of the site, or across the whole site, while conservation and excavation/recording takes place. Aeon Archaeology accepts no responsibility for any costs incurred from delays as a result of unexpected archaeological finds.

The cost for the additional staff, resources, and time required to excavate/ record unexpected archaeological finds/ features are not included within this quote and a separate specification will be submitted to the client and the GAPS archaeologist if necessary.

10.0 UNEXPECTED DISCOVERIES: TREASURE TROVE

Treasure Trove law has been amended by the Treasure Act 1996. The following are Treasure under the Act:

- *Objects other than coins* any object other than a coin provided that it contains at least 10% gold or silver and is at least 300 years old when found.

- *Coins* all coins from the same find provided they are at least 300 years old when found (if the coins contain less than 10% gold or silver there must be at least 10. Any object or coin is part of the same find as another object or coin, if it is found in the same place as, or had previously been left together with, the other object. Finds may have become scattered since they were originally deposited in the ground. Single coin finds of gold or silver are not classed as treasure under the 1996 Treasure Act.

- *Associated objects* any object whatever it is made of, that is found in the same place as, or that had previously been together with, another object that is treasure.

- *Objects that would have been treasure trove* any object that would previously have been treasure trove, but does not fall within the specific categories given above. These objects have to be made substantially of gold or silver, they have to be buried with the intention of recovery and their owner or his heirs cannot be traced.

The following types of finds are not treasure:

- Objects whose owners can be traced.

- Unworked natural objects, including human and animal remains, even if they are found in association with treasure.

- Objects from the foreshore which are not wreck.

All finds of treasure must be reported to the coroner for the district within fourteen days of discovery or identification of the items. Items declared Treasure Trove become the property of the Crown.

The British Museum will decide whether they or any other museum may wish to acquire the object. If no museum wishes to acquire the object, then the Secretary of State will be able to disclaim it.

When this happens, the coroner will notify the occupier and landowner that he intends to return the object to the finder after 28 days unless he receives no objection. If the coroner receives an objection, the find will be retained until the dispute has been settled.

11.0 ARCHIVING

A full archive including plans, photographs, written material and any other material resulting from the project will be prepared. All plans, photographs and descriptions will be labelled, and cross-referenced, and lodged with the National Monument Record, RCAHMW within six months of the completion of the project.

A draft copy of the report will be produced within six months of the completion of the fieldwork and sent to the Client and the GAPS Archaeologist for comment prior to finalisation of the report and dissemination. Bound copies of the report and an archive CD will be sent to the regional HER (Gwynedd Archaeological Trust, Craig Beuno, Garth Road, Bangor, Gwynedd LL57 2RT) (x 2#), the GAPS archaeologist (x 2#) and to National Monument Record, of the Royal Commission on the Ancient and Historic Monuments of Wales (RCAHMW) (x 1#) for long term archiving. Furthermore, a summary of the project will be sent to *Archaeology in Wales* for publication. Copies of all digital files (inc. photos, report as PDF and Word, spreadsheets, databases, survey data etc) to be presented to each of above on optical disc (ie DVD).

12.0 PERSONNEL

The work will be managed by Richard Cooke BA MA MCIfA, Archaeological Contractor and Consultant at Aeon Archaeology.

13.0 MONITORING AND LIAISON

Regular liaison and site monitoring meetings will take place during all stages of work. The GAPS Archaeologist will be informed of the start date and of discreet subsequent stages.

14.0 HEALTH AND SAFETY

Aeon Archaeology has a Health and Safety Policy Statement which can be supplied upon request. Furthermore, site-specific Risk Assessments and Method Statements are compiled and distributed to every member of staff involved with the project prior to the commencement of works.

15.0 INSURANCE

Liability Insurance – Insignia Underwriting Policy 347002

Employers' Liability: Limit of Indemnity £10m in any one occurrence
Public Liability: Limit of Indemnity £2m in any one occurrence
Legal Defence Costs (Health and Safety at Work Act): £250,000

The current period expires 07/09/18

Professional Indemnity Insurance – Insignia Underwriting Policy 347002

Limit of Indemnity £500,000 any one claim

The current period expires 07/09/18