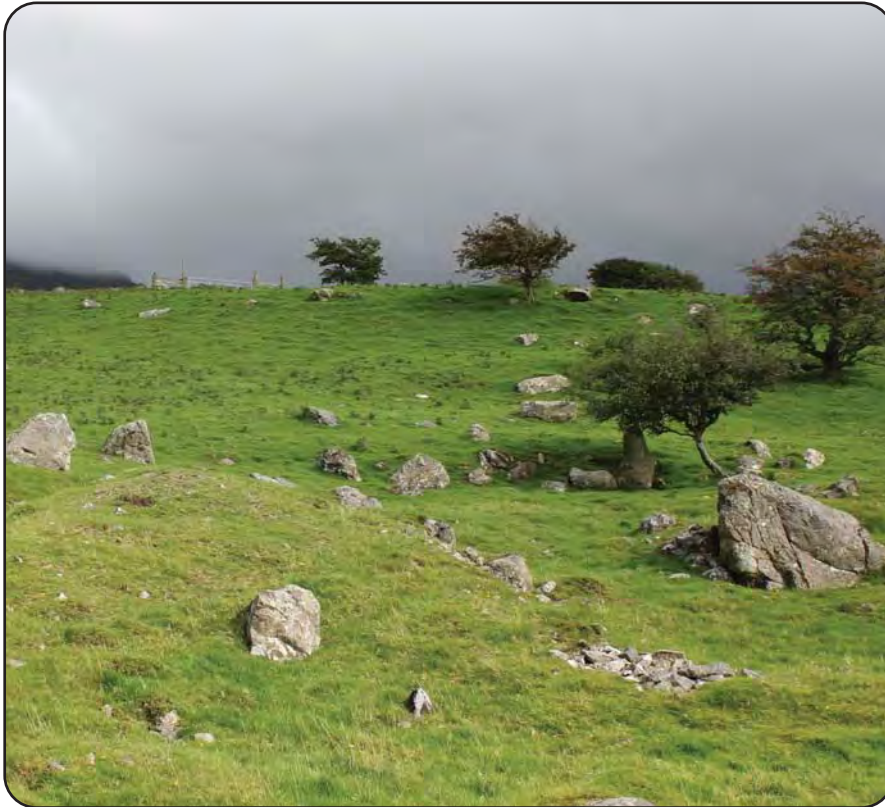




aeon archaeology

Gelli Ffrydiau Hydro-Electric Scheme 2, Nantlle, Gwynedd.

July 2017
V 1.0



Archaeological Watching Brief
Project Code: A0006.2
Report no. 0131



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Archaeological Watching Brief

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Project Code: A0006.2
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1.0 NON-TECHNICAL SUMMARY

The archaeological watching brief at Gelli Ffrydiau included the observation of the installation of a hydro-electric pipeline within the gorge of the Afon Drws-y-Coed; the excavation of the penstock trench (buried pipe) from the point at which it left the river gorge to the northern boundary of a grazing field (immediately to the north of the B4418 road) and the archaeological recording of a relict field wall that was breached by the pipeline within the river gorge.

The archaeological watching brief was also designed to observe the installation of steel gabions (to be filled with river stone) at the erosion scar to the northwest of the Geulan hut group Scheduled Ancient Monument (CN179); these works have yet to take place. In addition to these actions it was the responsibility of the archaeologist to ensure that no physical and/or non-physical impacts occurred to the Scheduled Ancient Monument (SAM) Polygon (Cn179) and archaeological resource within the immediate environs.

2.0 INTRODUCTION AND AKNOWLEDGEMENTS

Aeon Archaeology was commissioned by Greenearth Hydro Ltd to carry out an archaeological watching brief of a hydro-electric scheme with a buried penstock (pipeline) and over ground pipe lain into a river gorge northwest of Gelli Ffrydiau farm. The scheme included a power house located in a field to the southwest of the farm (NGR **SH 51942 53550**) and installation of a 185m length of pipe (over ground) from an intake weir located on a tributary of the Afon Drws-y-Coed (NGR **SH 52085 53987**) and penstock (buried pipe) located below ground for a further 315m to a field boundary immediately north of the road (**SH 52519 53535**)

The archaeological mitigation was completed as part of a planning condition (Planning Reference: **NP3/22/29D**):

Condition 10

Prior to any work commencing (including any ground disturbance works or site clearance) pursuant to this permission the applicant/developer shall submit to and receive written approval from the Local Planning Authority for an archaeological specification for a programme of works which must meet all relevant archaeological standards. The development shall subsequently be carried out in strict accordance with the approved programme of works unless otherwise agreed to in writing by the Local Planning Authority.

Condition 11

The development hereby approved shall be carried out in strict accordance with the archaeological specification for a programme of works as approved in condition 10 above unless otherwise agreed to in writing by the Local Planning Authority.

Condition 12

No development shall take place until Scheduled Ancient Monument Consent has been approved by Cadw.

Reason

To ensure no matters of archaeological interest adversely affected as a result of this development and are satisfactory recorded.

Scheduled Ancient Monument Consent was applied for and granted by Cadw on 19th October 2015 (CN179). This document reports on the results of the archaeological watching brief so that the spirit and intention of Conditions 10 and 11 can be met and ultimately discharged.

The watching brief involved the observation of the laying of a penstock within the river gorge throughout the Scheduled Ancient Monument polygon of the Hut Group, Geulan (CN179). During this exercise the relict field wall (**SH 52030 53936**), (Feature 3, see DBA; report 0005) was partially breached and subsequently recorded.

The watching brief also included the observation of an excavation for a platform (**SH 52085 53987**) which would become the intake weir for the hydro-electric scheme. This took place within the Afon Drws y Coed gorge within close proximity to two possible roundhouses (Feature 1), however the excavation area avoided this feature.

In addition the watching brief included the observation and monitoring of the excavation of a penstock trench; from the point at which when it left the river gorge (**SH 52519 53538**) to the boundary (north) of the grazing field immediately to the north of the B4118 road (**SH 52519 53535**). It was anticipated during this portion of the excavation that a field boundary (Feature 7) would be truncated by the penstock trench; this feature became ephemeral upon truncation by the penstock and appeared to be a concentration of peaty material within a marshy area (Plate 14).

Furthermore in keeping with the obligation to protect the archaeology within the SAM Polygon (CN179) and in particular the Hut Group, Geulan (NMR 301046, PRN 2789); the re-routing of the penstock around the erosion scar was also monitored. This re-routing included the running of the penstock along a horizontal timber supported by two vertical timbers driven into the river bank either side of the erosion scar; on the northern edge of the hut group (Plate 28).

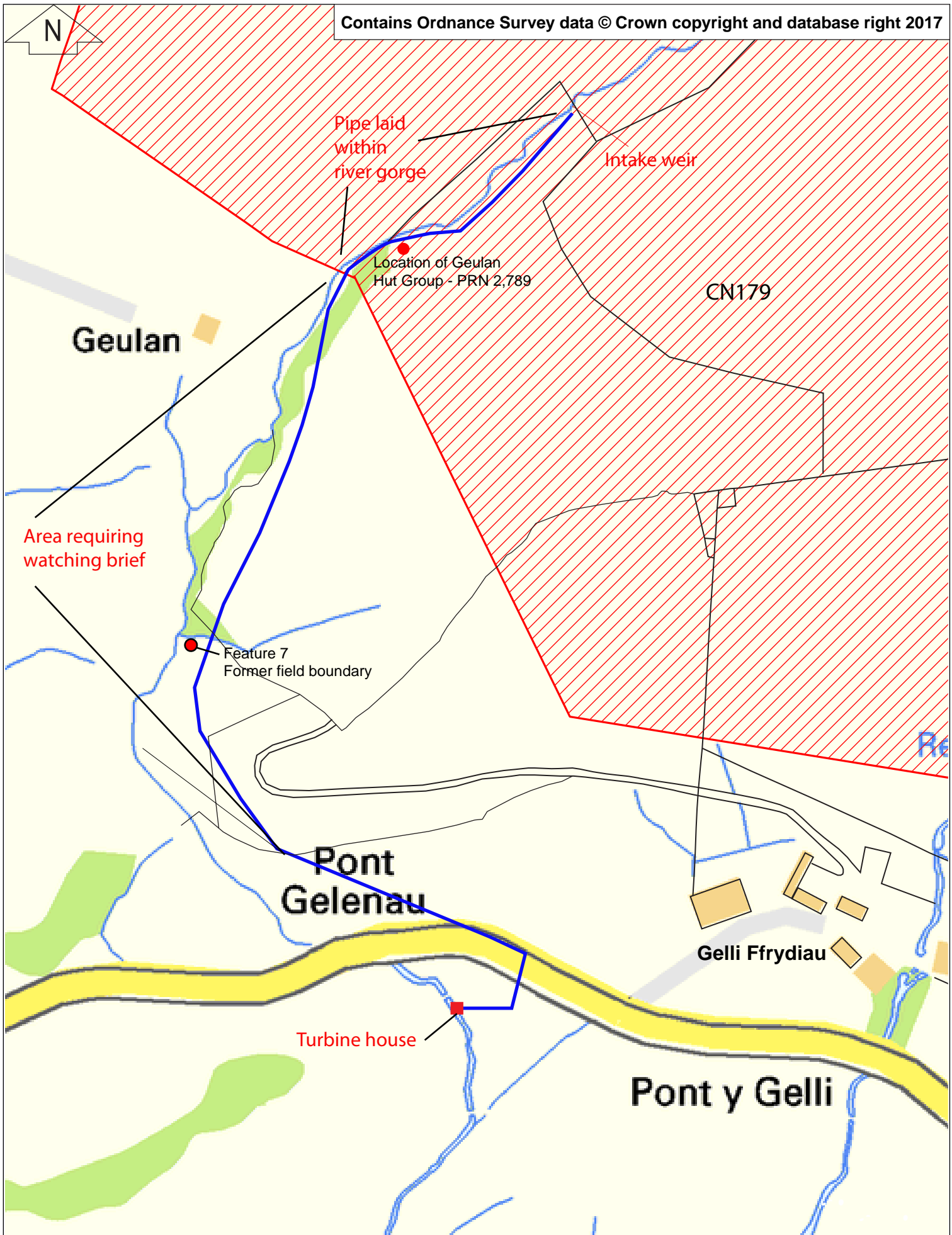
The scheme consisted of a 180mm (external diameter) HDPE black plastic pipe buried to a depth of 500mm. Approximately 30.0m length of pipe was required to run through the Scheduled Ancient Monument polygon of the *Hut Circles and field systems north west of Gelli Ffrydiau* (CN179) and it had been agreed upon with the Snowdonia National Park Authority (SNPA) archaeologist and Cadw that this section of pipe would be run overground within the river gorge of the Afon Drws-y-Coed. The pipe did not require any excavation or anchoring.

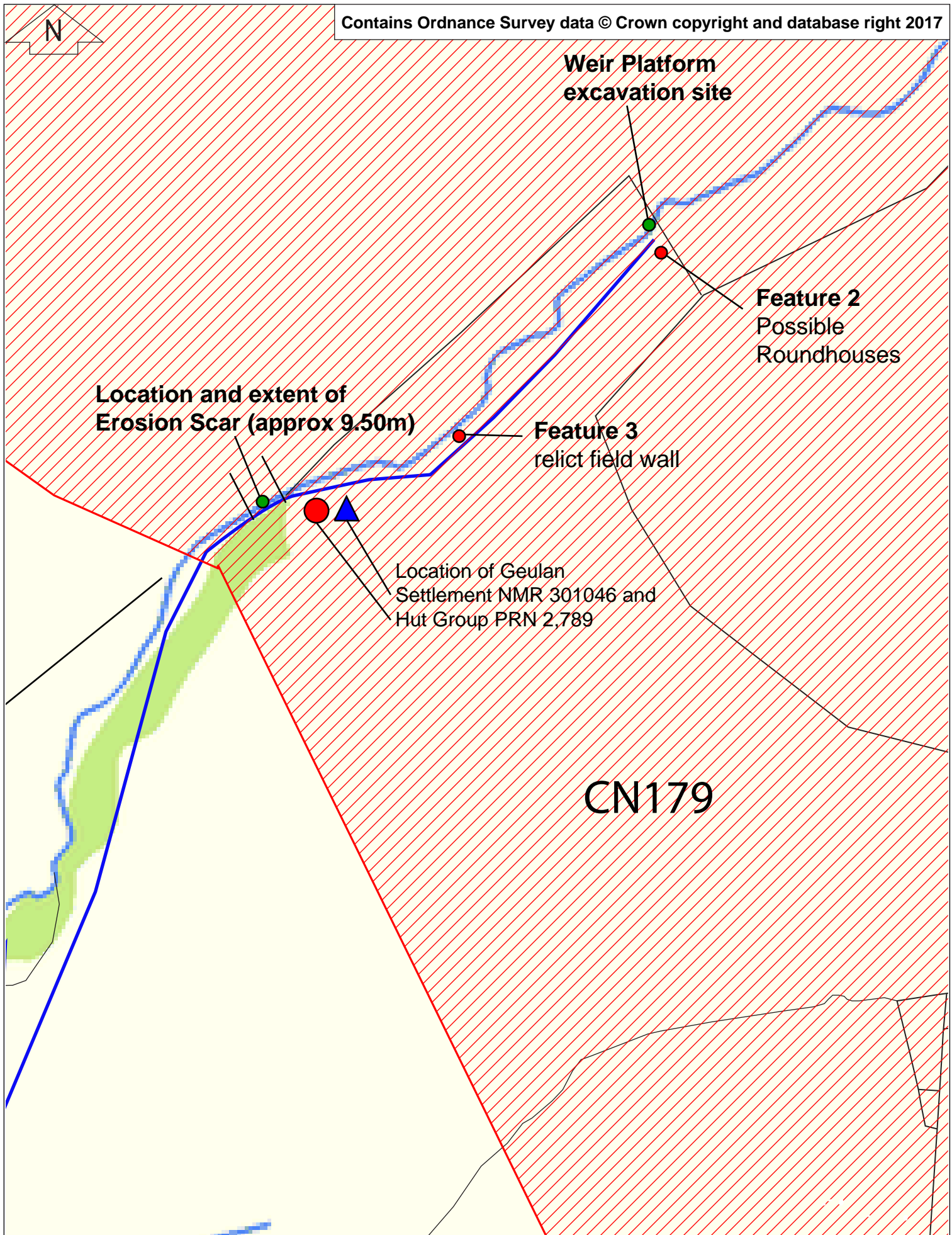
An archaeological desk-based assessment was carried out by Aeon Archaeology in July 2014 (Aeon report 0005) that identified eleven sites of archaeological interest within close proximity to the pipeline corridor, as detailed below.

Table 1. Archaeological features

Number	Name	PRN	NGR
1	Two possible roundhouses SAM CN179	59437	SH 52071 53978
2	Field boundary wall SAM CN179	36404	SH 52074 53981
3	Relict field revetment wall SAM CN179	59438	SH 52030 53936
4	Possible paddock wall SAM CN179	59439	SH 52020 53854 – SH 52024 53866
5	Hut Group, Geulan, northeast of <i>Nantlle Scheduled Ancient Monument 79</i>	2789	SH 5199 5390
6	Relict field wall	36405	SH 51876 53740 – SH 51967 53901
7	Former field boundary	36406	SH 51873 53699
8	Roundhouse	59440	SH 51863 53642
9	Field boundary wall	36407	SH 51989 53639
10	Trackway	36408	SH 52012 53511
11	Trackway	36409	SH 51931 53664

The following people and organisations are thanked for their help and contribution to the project. Liam Brown of Greenearth Hydro; Geraint Ellis of Gelli Ffrydiau; Ian Halfpenny of Cadw; and John G. Roberts of the Snowdonia National Park Authority (SNPA).





3.0 PROJECT AIMS

The aim of the works was to monitor and where relevant characterise the known, or potential, archaeological remains uncovered during the excavation of the penstock trench and weir platform. Furthermore the watching brief was to observe the laying of the penstock within the river gorge and provide working shots of the excavation at the weir and the installation of the gabions at the erosion scar at the SAM.

The broad aims of the archaeological watching brief were:

- To determine, as far as is reasonably possible, the location, extent, date, character, condition, significance and quality of any surviving archaeological remains on the site, the integrity of which may be threatened by the site works.
- To assess the degree of archaeological survival of buried deposits of archaeological significance.

The detailed objectives of the archaeological watching brief were determined to be:

- Compile an archive of pre-commencement photographs of the route and archaeological features.
- Compile an archive of pre-commencement photographs, description and sketch of the erosion scar at the SAM.
- Working shots of the excavation at the weir location as well as the installation of the gabions at the erosion scar.
- Watching brief while the penstock is laid within the river gorge.
- Watching brief of penstock trench after it leaves the river gorge to the northern boundary of the grazing field north of the road including breach of wall feature 7.

A Written Scheme of Investigation (WSI) (appendix I) was written by Aeon Archaeology and submitted to Greenearth Hydro, the SNPA, and Cadw in February 2016. This formed the basis of a method statement submitted for the work. The archaeological watching brief and observation was undertaken in accordance with this Project Design.

The management of this project has followed the procedures laid out in the standard professional guidance *Management of Research Projects in the Historic Environment Project Manager's Guide* (English Heritage 2006), and in the Chartered Institute for Archaeologists *Standard and Guidance for an archaeological watching brief* (2014).

4.0 METHODOLOGY

4.1 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)

The archaeological watching brief was maintained during the laying of the penstock within the SAM polygon of Hut Group, Geulan (CN179), as well as during the breaching of field boundary (feature 7), and from where the penstock leaves the river gorge and was buried within a trench to the northern boundary of the grazing field north of the road (see figure 1).

All soil removal was undertaken either by hand or using a mechanical excavator. A toothless ditching bucket was to be utilised until the first archaeological horizon was reached after which cleaning would be by hand. If no archaeological remains were encountered the watching brief would be maintained until the natural glacial substrata was exposed or the required excavation depth was reached, whichever occurred first.

A photographic record was maintained throughout using a digital SLR camera (Canon 600D) 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 would be 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 **A0006.2**.

4.2 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.

4.3 Artefact Methodology

All artefacts were to be collected and processed including those found within spoil tips. Finds numbers would be attributed and 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.

4.4 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.

4.5 Storage and curation

All artefacts recovered would be the property of the landowner but it is strongly recommended that these are donated to a museum for long-term storage. Acceptance of this report by the client is taken as agreement to this transfer of ownership to a museum; to be confirmed with the Gwynedd HER and GAPS.

4.6 Report and dissemination

This report will be placed in the public domain by submitting it to the Gwynedd HER within 6 months of completion unless the client specifically requests the report to remain confidential for a longer period. The report will also be archived with the Royal Commission on the Ancient and Historical Monuments in Wales (RCAHMW).

5.0 HISTORY OF THE SITE

(Reproduced from Aeon Archaeology report 0004)

5.1 Prehistoric and Roman Period

There is evidence of human occupation within the Nantlle valley since the Bronze Age, and it is likely that the copper deposits at Drws y Coed, approximately 2.2km to the east of the proposed development area, acted as a catalyst for that occupation. Evidence from the Bronze Age is however mostly limited to a scatter of burial cairns (PRN 599, 138, 2780, 1429, 3345, 1829, and 600) and burnt mounds (PRN 1388, 126, and 1389) across the northern slopes of the valley.

Physical evidence becomes more frequent in the Iron Age and Romano-British periods. Approximately 350.0m to the east of the penstock route lies the *Small Fort near Nantlle* prehistoric hillfort Scheduled Ancient Monument (CN178). The monument is situated on a rocky knoll on the western end of a small ridge and is constructed from large stone slabs laid flat and forming an irregular heptagon measuring approximately 22.0m in diameter. An entrance into the fort is located towards the centre of the western side and is now in a ruinous state.

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

The proposed penstock route runs through approximately 30.0m of the south-eastern limit of the Scheduled Ancient Monument area belonging to the *Hut Circles and field systems north east of Gelli Ffrydiau* (CN 179). This scheduled area comprises a land take of approximately 0.53km² and includes the remains of at least twelve separate hut circle settlements belonging primarily to the Romano-British period.

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

5.2 Early Medieval and Medieval Periods

The Early Medieval period is poorly represented within the Nantlle valley. However, by the 12th and 13th centuries the kingdom of Gwynedd was divided into administrative *commotes*, administered through a network of local centres governed by a royal court or *Llys*. The township of a commote associated with a *llys* was known as the *maerdref*, in which the Prince's agent would reside. The component parts of a *llys* included the royal hall and other buildings associated with the residence, as

well as the royal demesne worked by bond tenants, and the settlements of these tenants which constituted small hamlets. One such llys was located at Baladeulyn in Nantlle, although the precise location of the llys is not known (Govannon report 277). The llys and royal lands became the property of the English King upon the conclusion of the conquest of Wales.

The nearest surviving remains of the Medieval period to the proposed development site includes a possible long hut (PRN 6495) at SH53705350; a platform house (PRN 1412) at SH53975461; and a Medieval field system (PRN 7986) at SH52255479.

5.3 Post Medieval Period

The property of Gelli Ffrydiau is first mentioned in the will of James David, yeoman of Gelli Ffrydiau, dated 1712 (Bangor probate records 1576-1858), in which he bequeathed the property to his wife Angharad Humphries. In addition to this he bequeathed sums of money to his five children and two grandchildren, the former of which included Angharad James. She was noted as being highly educated and was a celebrated early female Welsh poet. Several of her original manuscripts survive in the National Library of Wales and they include an elegy to her son who had died when sixteen years old and another to her husband in the form of an imaginary dialogue. She was also fluent in Latin and learned in the law of the land. She played the harp and according to local tradition would gather her family and servants together to dance before retiring each night. Angharad James moved to Dolwyddelan when she was twenty years old after marrying William Prichard, a man far older than herself, who farmed Cwm Penamnen. She continued to farm after she was widowed until her death in 1749.

Part of the land belonging to Gelli Ffrydiau is Rhos Pawl, which is located on the southern side of the valley. Local tradition has it that a lad from Gelli Farm fell in love with a girl from Talmynnedd Uchaf, but the girl's father did not approve of the match. The lad pleaded with the father for his daughter's hand in marriage and in the end he agreed on one condition, that the lad would spend a freezing night naked on top of Rhos Pawl, remaining there until morning. The father expected that the lad would give up on the pursuit of his daughter, but instead he accepted the challenge. The lad took a post with him, as well as an axe and mallet and repeatedly hammered the post into the ground through the night to keep his body warm, while the girl kept a lantern burning in her window throughout the night. He succeeded in keeping his body temperature high and thus presented himself to the father and his daughter in the morning, thus winning her hand in marriage (www.nantlle.com).

The property of Gelli Ffrydiau is next mentioned in a sale catalogue dated the 28th June 1808, when it was put up for sale by auction along with the tenant Robert Davies, a sixty-five year old farmer. The landowner at the time is not mentioned and it is not clear who bought the property.

The Llandwrog (upper) parish tithe map of 1849 depicts the proposed development area rather similarly to how it exists today. The site is depicted as a long strip of land lying to the north of the farm of Gelli Ffrydiau, and flanked to the east and the west by tributaries of the Afon Drws-y-Coed. The land is shown as being divided into two large fields (2151 and 2152) with common land north of the *fridd* wall. The lower of the two fields (2151) is shown as one large field, whereas today the field is divided in two by a north-south field wall. Two smaller fields (2149 and 2150), both of which are in existence today, are depicted either side of the B4418.

Table 2. The tithe apportionment of 1849

Plot	Landowner	Tenant	Plot Name	A/R/P
2149	William Lewis Hughes, Lord Dinorben	Catherine Davies of Gelli Ffrydiau	Buarth (pasture)	10/3/3
2150	William Lewis Hughes, Lord Dinorben	Catherine Davies of Gelli Ffrydiau	Cae'r ardd goch (meadow)	4/1/30
2151	William Lewis Hughes, Lord Dinorben	Catherine Davies of Gelli Ffrydiau	Cae'r allt (pasture)	18/1/4
2152	William Lewis Hughes, Lord Dinorben	Catherine Davies of Gelli Ffrydiau	Nant (pasture)	32/1/34

As can be seen from the 1849 tithe apportionment (table 1), the proposed development site was owned by William Lewis Hughes, Lord Dinorben of the Kinnel Hall estate in Denbighshire. He inherited the estate from his father Edward Hughes upon his death in 1815. Edward Hughes had made the family money after marrying Mary Lewis, the daughter of his employer, the Rector of Trefdraeth in Anglesey. She had inherited on the death of her uncle the house of Llysduelas in Anglesey, as well as a 'baron hill' nearby. This hill later became known as the Mynydd Parys (Parys Mountain) copper mine and jointly earned Edward Hughes and Sir Nicholas Baylys a fortune through the demand for copper. Through this Edward Hughes built up a prodigious Estate, the jewel of which was the purchase of Kinnel in 1786.

William Lewis Hughes was made Baron Dinorben of Kinnel in 1831, as well as being MP for Wallingford, Aide de Camp to Queen Victoria, Colonel of the Anglesey Militia, and a champion of the poor, founding a free school for local girls in the grounds of Kinnel Hall in 1830. He died in 1852 and was succeeded by his only surviving son William Lewis Hughes, second Lord Dinorben. He however was invalided and unmarried, and died with no children only eight months after succeeding his father thus leaving the title extinct (www.KinnelEstate.co.uk).

The property of Gelli Ffrydiau is mentioned in the Welsh census of 1841 when the farm was tenanted by Catherine Prichard recorded as an eighty year old farmer. Catherine would almost certainly have been a descendant of the marriage between Angharad James and William Prichard in the previous century or through her marriage into the Prichard family. She is recorded as living with her son William (aged fifty) and daughter Mary (aged thirty-five). The property was also home at this time to six agricultural labourers, one shepherd, and one house servant. By the time of the tithe apportionment of 1849 the primary tenant is Catherine Davies and it can only be assumed that Catherine Prichard had remarried or changed her name at the ripe old age of eighty eight. By the time of the Welsh census of 1851 the farm of Gelli Ffrydiau was tenanted by Mary Davis, presumably the former Mary Prichard, daughter of Catherine Prichard Davies.

The tithe apportionment of 1849 names the southernmost field (2149) as *buarth* or playground. This suggests that the field was being utilised by the local school *Ysgol Baladeulyn* located approximately 500.0m to the west. The names of the remaining fields all relate to the terrain of the site.

By the production of the first edition county series Ordnance Survey map in 1889 the proposed development site is depicted more like it exists today. The first large field to the north of the farm had been subdivided by a north-south field wall with a sheepfold constructed in its north-western corner. Moreover, the weir (feature 7, see section 5.6) had been built across the stream, which by way of a sluice and leat fed water to an overshot wheel for the churning of butter and the threshing of gorse (pers comm. Geraint Ellis, landowner). By this point the current farm house had been built to the south of the original Gelli Ffrydiau house. This building does not appear to be depicted on the 1849 tithe map and it is probable that it was constructed sometime in the mid to late 19th century. The original farmhouse became dilapidated and was demolished in 2005.

The second and third edition county series Ordnance Survey maps of 1900 and 1915 respectively, depict the study area the same as the first edition map, and there appears to have been little development of the farm between this time.

6.0 QUANTIFICATION OF RESULTS

6.1 The Documentary Archive

The following documentary records were created during the archaeological watching brief and hand excavated trial trench.

Context sheets	0
Watching brief day sheets	3
Drawings	2
Digital photographs	106

6.2 Environmental Samples

No environmental samples were taken as part of the watching brief or hand excavated trial trench as no suitable archaeological deposits were encountered.

6.3 Artefacts

No artefacts were recovered during the archaeological watching brief or hand-excavated trial trench.

7.0 RESULTS OF THE ARCHAEOLOGICAL WATCHING BRIEF

A penstock trench was excavated along a predetermined route between the northern boundary of the grazing field immediately north of the road (SH 52519 53535) to where it enters the river gorge (SH 52519 53538). This phase of the works was intended to monitor for the possible emergence of buried archaeological features or structures. The desk based assessment (Aeon report 0005) highlighted the location of a possible former field boundary (Feature 7) close to the alignment of a modern fence line.

The location and orientation of photographs are shown on Figure 05.

7.1 Pre-excavation photography of Penstock route.

12th September 2016
(Plates 3-10)

Prior to the excavation of the penstock trench a pre commencement photographic record of the route was compiled in order to document the archaeological features and landscape to be affected by the excavation. This began at the location of the weir (Plate 3) and then followed the proposed route through the river gorge where the pipe would be placed above ground (Plate 4-6), the route then passed the erosion scar (Plates 7-8) (northwest of PRN 2789), to the point at which it left the gorge (Plate 32) continuing southeast across the field to the former field boundary (Feature 7) (Plate 9) and subsequently southwards, down slope across a farm track to the northern boundary of the field immediately north of the road (Plate 9).

7.2 Archaeological Watching Brief – Penstock Trench,

12th September 2016
(Plates 11-20)

An archaeological watching brief was maintained during the excavation of the new hydro-electric penstock trench within the field directly south of the SAM polygon (Figure 01). The trench ran south by southwest from where it exited the Afon Drws y Coed gorge (SH 52519 53538) to a field boundary marking the northern limit of the field at (SH 52519 53535). The trench measured approximately 1.00m in width and varied in depth from approximately 0.75m to 1.0m.

The trench was excavated in spits using a tracked excavator with toothless bucket, with the route of the trench having been pre-agreed with Cadw and the SNPA archaeologist to avoid all archaeological features identified in the archaeological desk-based assessment (Aeon report 0005) excepting the possible former field boundary (Feature 7) which was truncated by the excavation. At the base of the slope the track was removed to a maximum depth of 0.25m in order to gain access to the field with the tracked excavator (Plate 11). Immediately to the north of this area the penstock trench was excavated through a 0.48m deep moderately soft dark grey-brown clay-silt topsoil which overlaid a 0.22m moderately firm mid orange-brown silt-clay subsoil and cut partially through the glacial substrata which consisted of a firm light brown-grey clay of >1.0m in depth (Plate 12).

The penstock trench continued north through the former field boundary (Feature 7) (Plate 13); as this feature was sectioned (Plate 14) by the tracked excavator it became clear that this feature had no stones associated with it. The penstock trench cut through 0.55m of firm mottled grey-brown silt clay with almost no stone content; this constituted the peaty mound visible on the surface. This deposit overlaid 0.35m of soft dark black-brown clay-silt peaty subsoil which was situated upon a 0.22m firm mid orange brown silt-clay layer; this trench also partially overcut into the firm light brown-grey clay natural of >1.0m in depth.

Further northeast along the route before the entrance to the river gorge the penstock trench crossed another grazing field (Plates 15-20). The trench was excavated through a 0.30m fairly loose 0.15m mid grey-brown clay-silt topsoil, 0.45m light orange-brown clay-silt with frequent inclusions of sub-rounded/angular large cobbles; also visible within this layer periodically were concentrations of white silts and blue gleys. Below this stony layer was 0.25m fairly friable dark grey-brown clay-silt subsoil with very frequent small angular and sub-angular cobbles and pebbles.

The only archaeological feature observed during the watching brief was a suspected former field boundary (Feature 7). The boundary consisted of a 0.55m deep and 0.75m wide deposit (at the point of truncation) of firm mottled grey-brown silt clay with almost no stone content observed within the pipe trench section (Plate 14). The positive identification of this feature as a field boundary was made particularly difficult by a lack of stones; such stones could have been used to revet such a boundary in order to protect it from heavy rains. Furthermore there is the possibility that this was a naturally occurring feature; a concentration of degraded reed beds for example.

The suspected boundary was not clearly discernible in the opposing (west facing) trench section, although it is unclear whether this is because the boundary had previously been disturbed by the modern fence line or simply that it had been damaged by repeated flooding events within the marshy area.

There were no artefacts recovered from the entire penstock trench excavation.

7.3 Archaeological Watching Brief – Excavation of Weir Platform,

7th October 2016.

(Plates 29-31)

The excavation of the weir platform took place in the river bed of the Afon Drws y Coed after the water had been diverted by a temporary dam and 16 inch diameter plastic pipe. The excavation cut into the northern bank of the river by 2.75m approximately and was excavated to a depth of 0.87m through a 0.15m deep layer of loose dark black-brown clay-silt topsoil with frequent medium-small sub rounded cobble inclusions. This overlaid a 0.60m deposit of very firm light grey-brown silt-clay with frequent medium-small sub rounded boulder inclusions. The excavation then cut 0.13m into a light red-brown silt-clay with very frequent small sub-rounded pebble inclusions.

Although the excavation took place in very close proximity to two suspected roundhouses (Feature 1) the dig did not encroach onto the southern bank of the river which is where the suspected roundhouses were located (NGR: SH 52071 53978). Furthermore these roundhouses could represent concentrations of stone stones deposited during times of flood. The pipe route and the weir excavation did not affect these suspected monuments.

No archaeological features or remains were uncovered during the excavation.

7.4 Mitigation on the effect of the penstock route on the erosion scar (CN179),

19th October 2017

Plates 22 -28

The Geulan Hut group (PRN 2789) centred on (**NGR: SH 5199 5390**) sits on a rise approximately 10m above the Afon Drws y Coed to its north and west. The north western extremity of this settlement site exhibits a substantial erosion scar (approx. 9.50m²). The erosion scar has been caused by the constant action of the river; constant fluctuations in river level over the winters have resulted in high energy and low energy events which have contributed to the severe erosion (See Figure 03) of the monument (Plates 22-23).

The pipe line route had to run very close to this scar in order to achieve the correct fall to carry the water for the hydro-electric scheme. The landowner devised a solution where by the pipe would be supported by a robust horizontal beam of timber (telegraph pole) which in turn was supported by two further vertical timbers at either end of the scar (Plates 24-26). The pipes were brought to within 10m of the SAM polygon by tractor and then carried into position by hand across CN179 to the location of the erosion scar before being subsequently welded in situ and successfully routed around the scar (Plates 27-28).

With regards to the steel gabions to be filled with river stone (acquired from the Afon Drws y Coed), which were required to be installed as part of the hydro-electric scheme works; this work is as of yet to take place.

7.5 River gorge and the breaching of relict field wall (Feature 3),

19th October 2017.

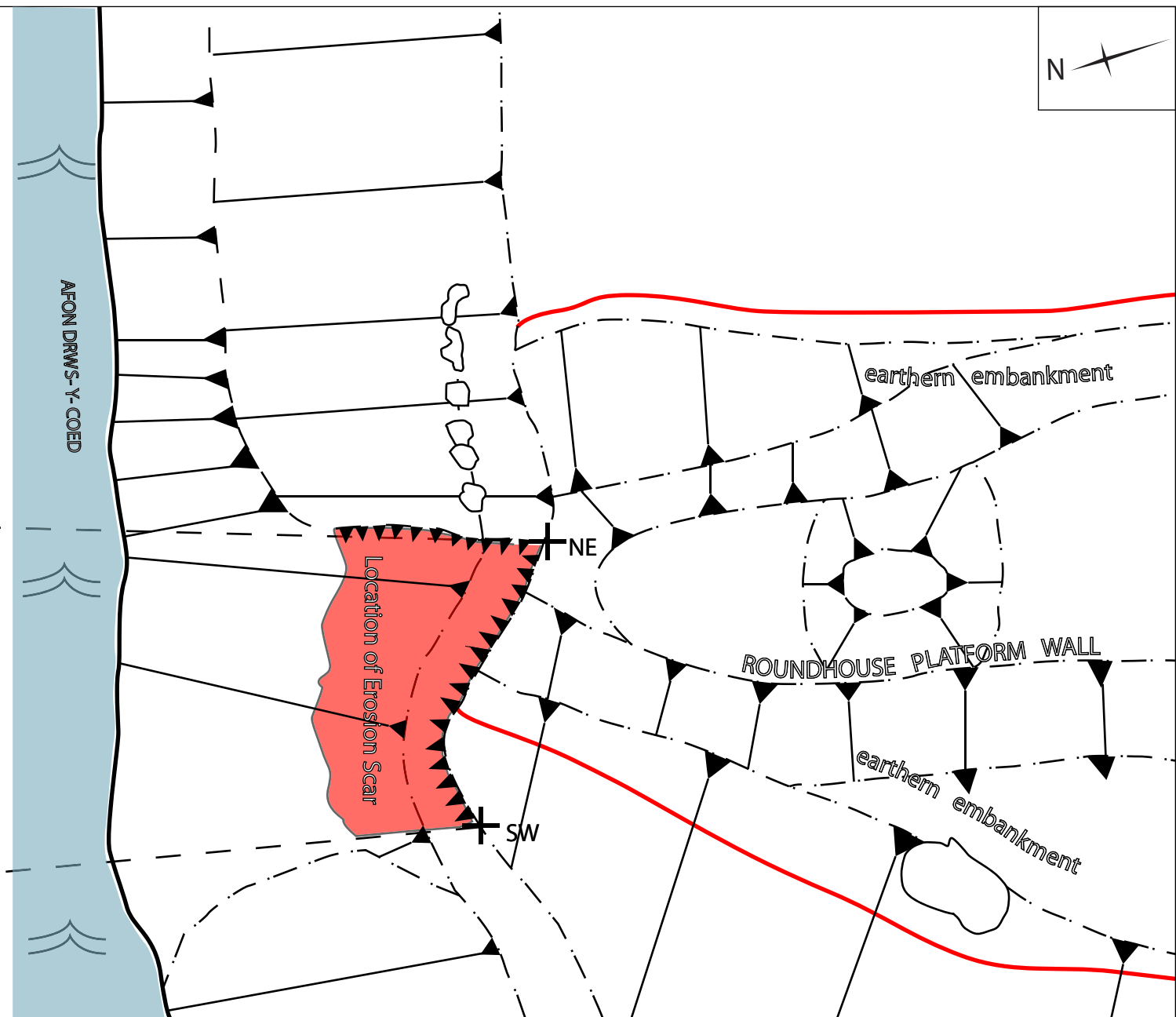
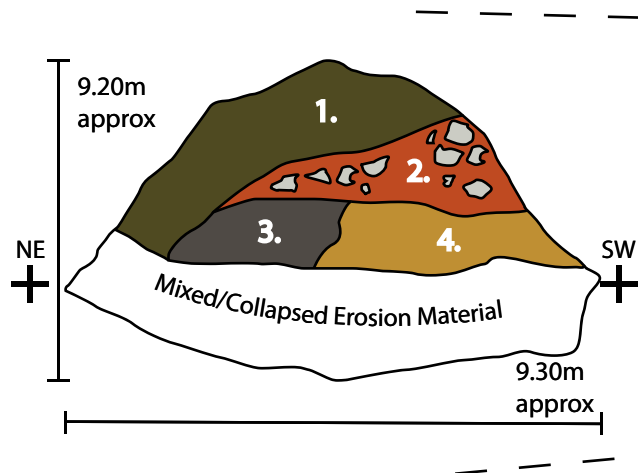
Plates 32-39

Following the excavation of the penstock trench and the mitigation works concerning the erosion scar centred on (**NGR: SH52517 53539**) the pipe was to run overground for approximately 135m. The pipe was carried into the gorge and then placed on the southern river bank before being subsequently welded in situ (Plates 32-34). The only feature encountered along this route was a relict field wall (Feature 3) which appeared to be a revetment wall; measuring 0.47m in width and 0.77m in height and it runs from north to south for 3.17m to the immediate southeast of the stream at this point. The wall was constructed from medium and large sized sub-angular stones of dry-stone construction. It is possible that it is associated with the Iron Age/Roman field system Scheduled Ancient Monument (CN179).

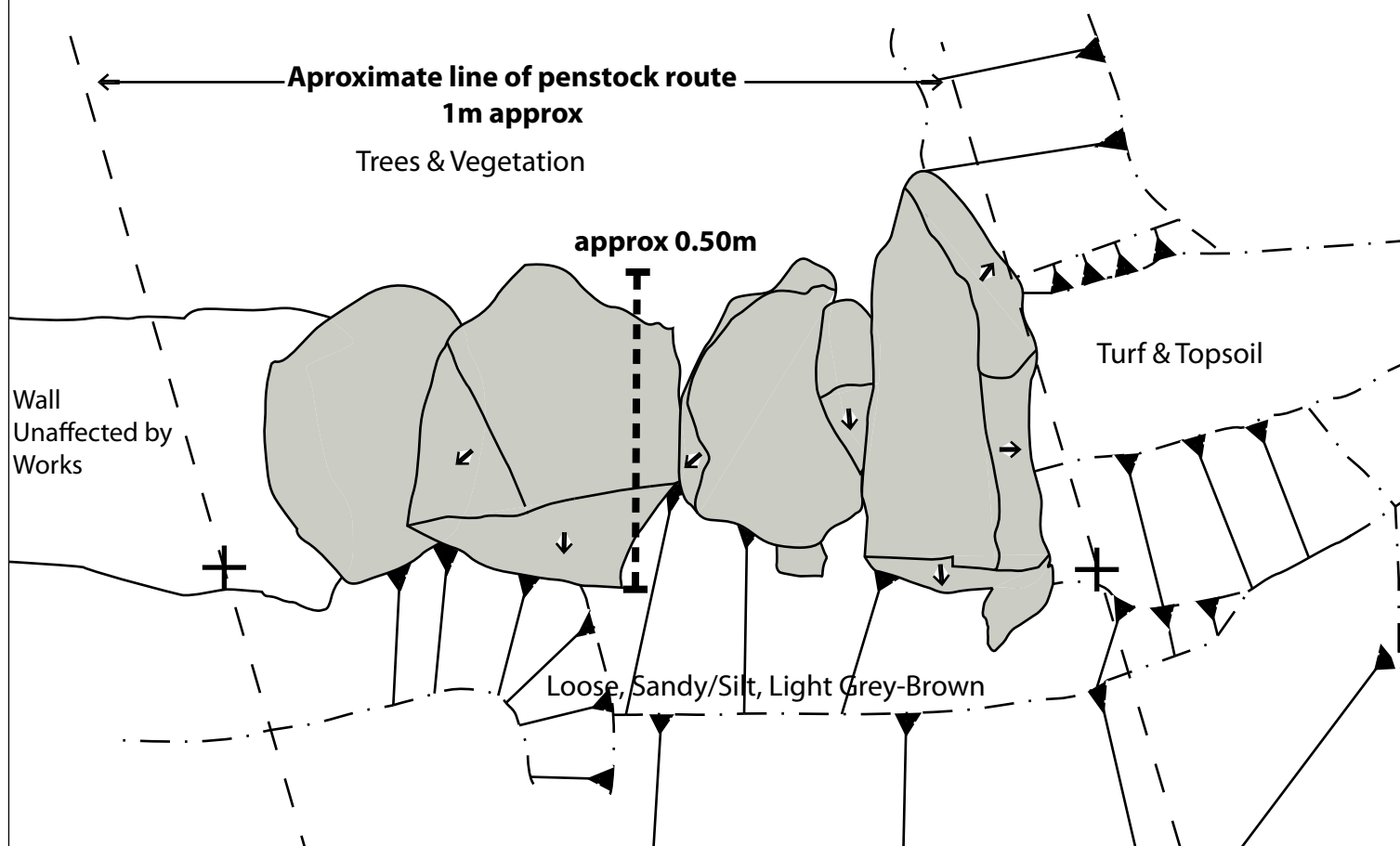
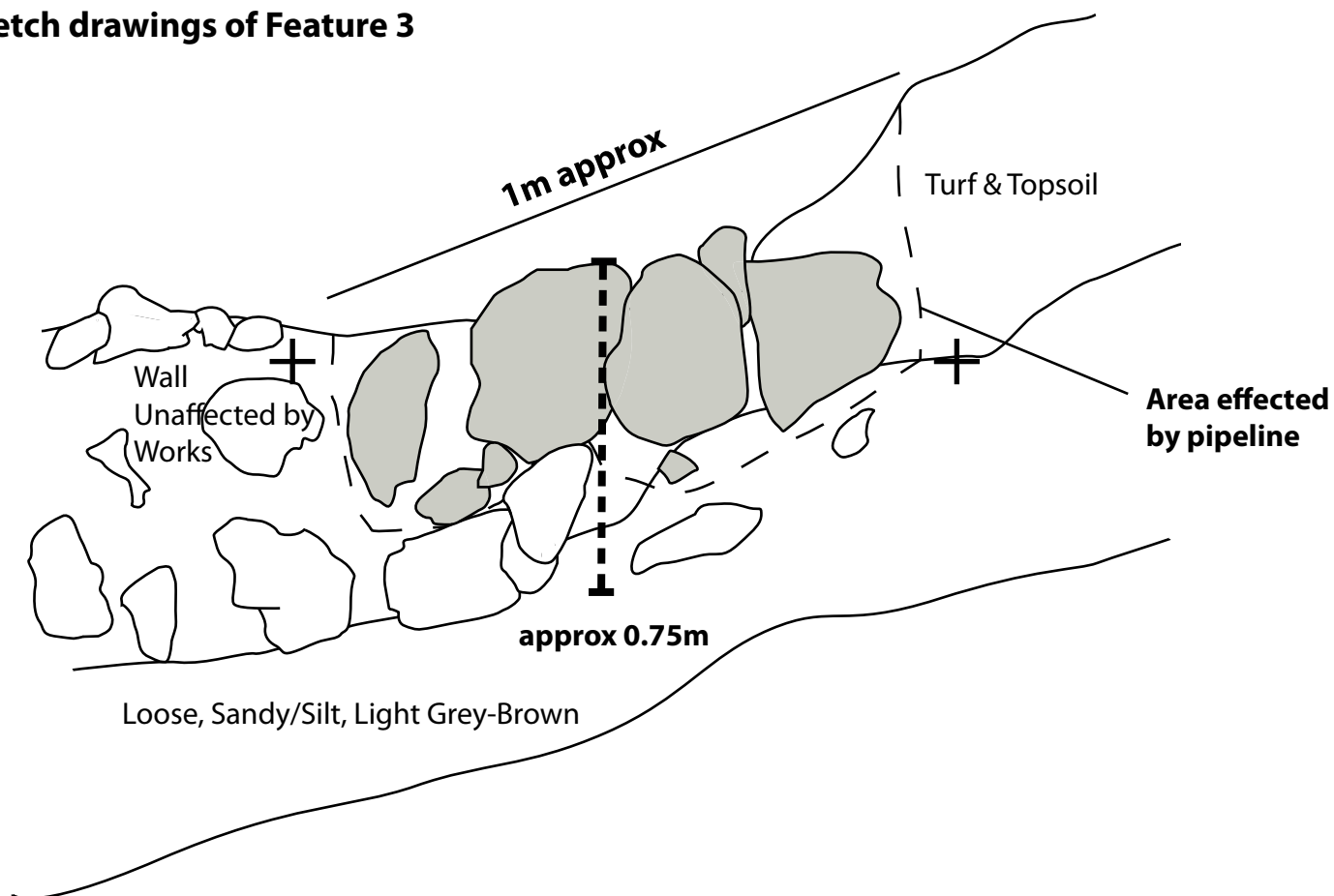
In order to accommodate the route of the pipe and in order to achieve the relevant fall the first course of stones had to be removed for approximately 1m from the northern portion of the wall. The wall was archaeologically recorded prior to removal (see Figure 04); four medium sized angular boulders were removed from the uppermost course and a couple of medium to large sized sub-angular/sub-rounded

were removed from the lower course. Apart from this modest physical impact upon the wall no other archaeological features were disturbed during the placement of the pipe within the river gorge.

1. Granular, Silt/Sand, Dark Grey - Brown
2. Coarse & Gritty, Sand, Dark Red-Brown frequent, sub rounded/sub angular, large cobbles and small boulders
3. Smooth, Silt/Clay, Mid Blue-Brown
4. Smooth, Silt/Clay, Mid Yellow-Brown



Sketch drawings of Feature 3



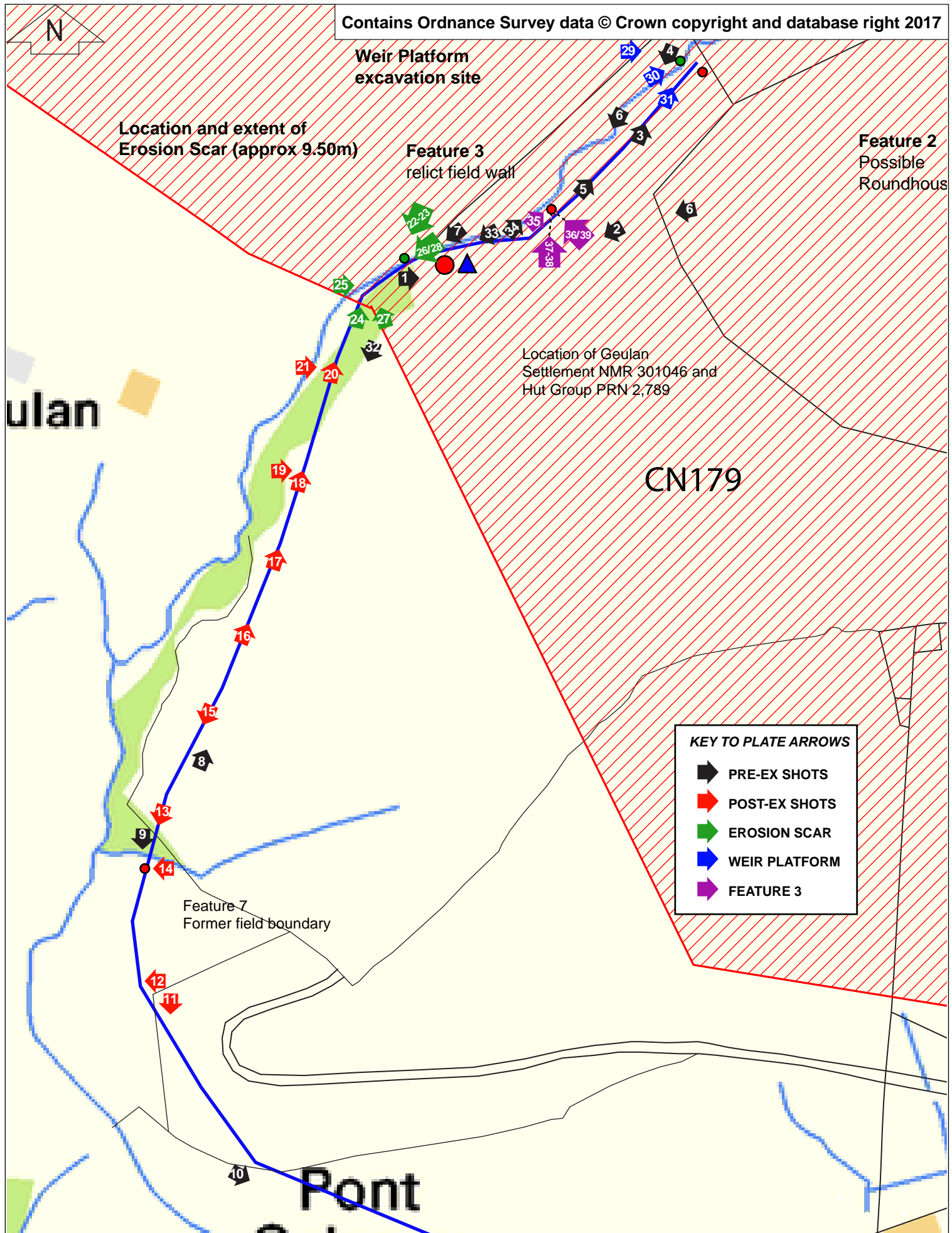




Plate 01: General shot encompassing the Scheduled Ancient Monument (SAM) from the South - no scale



Plate 02: General shot encompassing the SAM from the Northeast with the Llyn Nantlle Uchaf below - no scale



Plate 03: Pre excavation shot of the Weir intake location - 1m scale



Plate 04: Pre excavation shot looking from the Weir to the Southwest into the Drws y Coed river gorge - 1m scale



Plate 05: Pre excavation shot looking Northeast up the gorge from the erosion scar - no scale



Plate 06: Pre excavation shot looking West with the erosion scar of the SAM behind the tree - no scale



Plate 07: General shot of the SAM erosion scar - 1m scale



Plate 08: Pre excavation shot looking upslope toward the river gorge (left) and the SAM (upper right) - no scale



Plate 09: Pre excavation shot looking South and downslope toward access pathway - no scale



Plate 10: Pre excavation shot looking Southeast toward farm and turbine house - no scale



Plate 11: Post excavation shot looking South across access trackway - no scale



Plate 12: East facing section of penstock trench 100m to North of access trackway - 1m scale



Plate 13: Penstock trench at CH500 looking South - 1m scale



Plate 14: East facing section of Penstock trench at CH520 - 1m scale



Plate 15: Penstock trench at CH450 looking South - 1m scale



Plate 16: Penstock trench at CH400 looking North - 1m scale



Plate 17: Penstock trench at CH350 looking North - 1m scale



Plate 18: Penstock trench at CH250 looking North - 1m scale



Plate 19: West facing section of penstock trench at CH250 - 1m scale



Plate 20: Penstock trench at CH200 looking North (entering river gorge) - 1m scale



Plate 21: West facing section of penstock trench at CH200 - 1m scale



Plate 22: Close up of the erosion scar to the Northwest of the SAM - no scale



Plate 23: Close up of revetment stones revealed by the erosion scar (facing northwest) - no scale



Plate 24: Mitigation response routing the pipe around the SAM erosion scar (Afon Drws y Coed to North) - no scale



Plate 25: Mitigation response routing the pipe around the SAM erosion scar (Horizontal timber to support pipe) - no scale



Plate 26: Mitigation response from the Northeast (upright timbers support the weight) - no scale



Plate 27: Working shot of assembly of the pipe around the SAM erosion scar - no scale



Plate 28: Completed works with pipe routed around the SAM erosion scar - no scale



Plate 29: Working shot of excavation for Weir platform (within watching brief area) - no scale



Plate 30: Southwest facing section of Weir platform excavation - 1m scale



Plate 31: Completed excavation of Weir platform - 1m scale



Plate 32: Laying out of pipe along route ahead of installation in the river gorge - no scale



Plate 33: Final pipe route through the river gorge (northeast of the SAM) - no scale



Plate 34: Example of pipe welding in the river gorge (shot facing Northeast) - no scale



Plate 35: Relic stone wall within the river gorge - 1m scale



Plate 36: Relic wall within the river gorge (from the Southeast) - 1m scale



Plate 37: Relic stone wall within the river gorge (oblique shot from South) - 1m scale



Plate 38: Installed pipe truncating relic stone wall (oblique shot from South) - no scale



Plate 39: Installed pipe truncating relic stone wall (from the Southeast) - no scale

8.0 CONCLUSION AND RECOMMENDATIONS

The archaeological watching brief at Gelli Ffrydiau partially confirmed the presence of buried archaeological remains in the field to the south of CN179 in the form of a former field boundary (Feature 7), although this could be a natural feature; both a change in soil composition and the feature's linear morphology provide evidence to the contrary.

The mitigation work on the erosion scar satisfactorily moved the pipeline around the SAM polygon (CN179) whilst affording a small degree of stability to the monument in this area. However the absence of steel gabions filled with river stone would enhance this protection and has not been completed at the time of writing this report.

The breach of the relict wall (Feature 3) was anticipated by the watching brief and allowed for the archaeological record of that feature to be created. Furthermore apart from this minor truncation a variety of archaeological remains were successfully avoided and the hydro-electric pipe line was installed.

The hut circle settlement and relict field systems at Gelli Ffrydiau have not been included within a detailed survey and it has been highlighted by previous works (Aeon report 0025) that associated remains clearly continue outside of the designated area to the northeast of CN179. It is therefore clear that the entire site would benefit from a survey effort and it is recommended that any further works within the area are subject to a similar form of archaeological mitigation. Furthermore it is the recommendation of this report that the steel gabions filled with river stone, be at some point in the future added to the monument in order to preserve as much of it as possible before the Afon Drws y Coed erodes it further.

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aeon archaeology

**Gelli Ffrydiau Hydro Scheme 2,
Nantlle, Gwynedd.
Written Scheme of Investigation
for Archaeological Watching Brief.**

February 2016.



Archaeological WSI
Project Code: A0006.2

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1.0 PROJECT BACKGROUND

Aeon Archaeology has been commissioned by Greeneearth Hydro Ltd to provide a Written Scheme of Investigation (WSI) for carrying out an archaeological watching brief of a proposed hydro-electric scheme with turbine house, buried penstock (pipeline), and electrical cable connection. The proposed scheme is to include a power house located in a field to the southwest of Gelli Ffrydiau farm (NGR **SH 51942 53550**) and a 500.0m long penstock (buried pipe) from an intake weir located on a tributary of the Afon Drws-y-Coed (NGR **SH 52085 53987**) (Figure.1).

The archaeological mitigation is being completed as part of a planning condition (Planning Reference: **NP3/22/29D**):

Condition 10

Prior to any work commencing (including any ground disturbance works or site clearance) pursuant to this permission the applicant/developer shall submit to and receive written approval from the Local Planning Authority for an archaeological specification for a programme of works which must meet all relevant archaeological standards. The development shall subsequently be carried out in strict accordance with the approved programme of works unless otherwise agreed to in writing by the Local Planning Authority.

Condition 11

The development hereby approved shall be carried out in strict accordance with the archaeological specification for a programme of works as approved in condition 10 above unless otherwise agreed to in writing by the Local Planning Authority.

Condition 12

No development shall take place until Scheduled Ancient Monument Consent has been approved by Cadw.

Reason

To ensure no matters of archaeological interest adversely affected as a result of this development and are satisfactory recorded.

Scheduled Ancient Monument Consent has been applied for and granted by Cadw on 19th October 2015 (CN179). This WSI provides the statement of methodology so that the spirit and intention of Conditions 10 and 11 can be met and ultimately discharged. It is therefore a condition of the planning permission that this WSI is submitted to and approved by the Local Planning Authority prior to the commencement of any associated works on site.

Aeon Archaeology produced an archaeological assessment of the hydro intake, penstock route, turbine house location, and electrical cable connection route in July 2014. This report identified 11 archaeological receptors within a 40.0m wide assessment corridor centred on the penstock route. The potential impacts, importance, and resulting significance of effect was determined for each receptor and appropriate recommendations for mitigatory measures made. This WSI provides a methodology for meeting these recommendations.

This WSI and all subsequent mitigation will conform to the guidelines specified in Standard and Guidance for an Archaeological Watching Brief (Chartered Institute for Archaeologists, 2014).

2.0 HISTORICAL BACKGROUND

(Reproduced from Aeon Archaeology assessment report 0005)

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

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

Table 1. Historic periods

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

2.1 Prehistoric and Roman Period

There is evidence of human occupation within the Nantlle valley since the Bronze Age, and it is likely that the copper deposits at Drws y Coed, approximately 2.2km to the east of the proposed development area, acted as a catalyst for that occupation. Evidence from the Bronze Age is however mostly limited to a scatter of burial cairns (PRN 599, 138, 2780, 1429, 3345, 1829, and 600) and burnt mounds (PRN 1388, 126, and 1389) across the northern slopes of the valley.

Physical evidence becomes more frequent in the Iron Age and Romano-British periods.

Approximately 630.0m to the east of the penstock route lies the *Small Fort near Nantlle* prehistoric hillfort Scheduled Ancient Monument (CN178). The monument is situated on a rocky knoll on the western end of a small ridge and is constructed from large stone slabs laid flat and forming an irregular heptagon measuring approximately 22.0m in diameter. An entrance into the fort is located towards the centre of the western side and is now in a ruinous state.

Numerous hut circle sites are found clinging to the upland slopes between the slate quarry of Pen yr Orsedd in the west and Fron quarry in the east. A large area of the south-western slopes of Mynydd Mawr and in close proximity to the study area is included within the Scheduled Ancient Monument of *Hut Circles and field systems north east of Gelli Ffrydiau* (CN 179), and incorporates several clusters of hut circles with associated relict field walls enclosing paddocks. These sites constitute part of a wider relict historic landscape, in which evidence of various periods of settlement and land-use can be

recognised. The group value of these early settlements is of particular importance and can be seen as being of national, if not international importance.

The proposed penstock route runs through approximately 151.0m of the Scheduled Ancient Monument area belonging to the *Hut Circles and field systems north east of Gelli Ffrydiau* (CN 179). This scheduled area comprises a land take of approximately 0.53km² and includes the remains of at least twelve separate hut circle settlements belonging primarily to the Romano-British period. However, it is proposed that the penstock route run over ground through the existing river valley while within the Scheduled Ancient Monument polygon.

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

2.2 Early Medieval and Medieval Periods

The Early Medieval period is poorly represented within the Nantlle valley. However, by the 12th and 13th centuries the kingdom of Gwynedd was divided into administrative *commotes*, administered through a network of local centres governed by a royal court or *Llys*. The township of a commote associated with a *llys* was known as the *maerdref*, in which the Prince's agent would reside. The component parts of a *llys* included the royal hall and other buildings associated with the residence, as well as the royal demesne worked by bond tenants, and the settlements of these tenants which constituted small hamlets. One such *llys* was located at Baladeulyn in Nantlle, although the precise location of the *llys* is not known (Govannon report 277). The *llys* and royal lands became the property of the English King upon the conclusion of the conquest of Wales.

The nearest surviving remains of the Medieval period to the proposed development site includes a possible long hut (PRN 6495) at SH53705350; a platform house (PRN 1412) at SH53975461; and a Medieval field system (PRN 7986) at SH52255479.

2.3 Post-Medieval Period

The property of Gelli Ffrydiau is first mentioned in the will of James David, yeoman of Gelli Ffrydiau, dated 1712 (Bangor probate records 1576-1858), in which he bequeathed the property to his wife Angharad Humphries. In addition to this he bequeathed sums of money to his five children and two grandchildren, the former of which included Angharad James. She was noted as being highly educated and was a celebrated early female Welsh poet. Several of her original manuscripts survive in the National Library of Wales and they include an elegy to her son who had died when sixteen years old and another to her husband in the form of an imaginary dialogue. She was also fluent in Latin and learned in the law of the land. She played the harp and according to local tradition would gather her family and servants together to dance before retiring each night. Angharad James moved to Dolwyddelan when she was twenty years old after marrying William Prichard, a man far older than herself, who farmed Cwm Penamnen. She continued to farm after she was widowed until her death in 1749.

Part of the land belonging to Gelli Ffrydiau is Rhos Pawl, which is located on the southern side of the valley. Local tradition has it that a lad from Gelli Farm fell in love with a girl from Talymignedd Uchaf, but the girl's father did not approve of the match. The lad pleaded with the father for his daughter's hand in marriage and in the end he agreed on one condition, that the lad would spend a freezing night naked on top of Rhos Pawl, remaining there until morning. The father expected that the

lad would give up on the pursuit of his daughter, but instead he accepted the challenge. The lad took a post with him, as well as an axe and mallet and repeatedly hammered the post into the ground through the night to keep his body warm, while the girl kept a lantern burning in her window throughout the night. He succeeded in keeping his body temperature high and thus presented himself to the father and his daughter in the morning, thus winning her hand in marriage (www.nantlle.com).

The property of Gelli Ffrydiau is next mentioned in a sale catalogue dated the 28th June 1808, when it was put up for sale by auction along with the tenant Robert Davies, a sixty-five year old farmer. The landowner at the time is not mentioned and it is not clear who bought the property.

The Llandwrog (upper) parish tithe map of 1849 (figure 6.) depicts the proposed development area rather similarly to how it exists today. The site is depicted as a long strip of land lying to the north of the farm of Gelli Ffrydiau, and flanked to the east and the west by tributaries of the Afon Drws-y-Coed. The land is shown as being divided into two large fields (2151 and 2152) with common land north of the *fridd* wall. The lower of the two fields (2151) is shown as one large field, whereas today the field is divided in two by a north-south field wall. Two smaller fields (2149 and 2150), both of which are in existence today, are depicted either side of the B4418.

Table 1. The tithe apportionment of 1849

Plot	Landowner	Tenant	Plot Name	A/R/P
2149	William Lewis Hughes, Lord Dinorben	Catherine Davies of Gelli Ffrydiau	Buarth (pasture)	10/3/3
2150	William Lewis Hughes, Lord Dinorben	Catherine Davies of Gelli Ffrydiau	Cae'r ardd goch (meadow)	4/1/30
2151	William Lewis Hughes, Lord Dinorben	Catherine Davies of Gelli Ffrydiau	Cae'r allt (pasture)	18/1/4
2152	William Lewis Hughes, Lord Dinorben	Catherine Davies of Gelli Ffrydiau	Nant (pasture)	32/1/34

As can be seen from the 1849 tithe apportionment (table 1), the proposed development site was owned by William Lewis Hughes, Lord Dinorben of the Kinmel Hall estate in Denbighshire. He inherited the estate from his father Edward Hughes upon his death in 1815. Edward Hughes had made the family money after marrying Mary Lewis, the daughter of his employer, the Rector of Trefdraeth in Anglesey. She had inherited on the death of her uncle the house of Llysduelas in Anglesey, as well as a 'baron hill' nearby. This hill later became known as the Mynydd Parys (Parys Mountain) copper mine and jointly earned Edward Hughes and Sir Nicholas Baylys a fortune through the demand for copper. Through this Edward Hughes built up a prodigious Estate, the jewel of which was the purchase of Kinmel in 1786.

William Lewis Hughes was made Baron Dinorben of Kinmel in 1831, as well as being MP for Wallingford, Aide de Camp to Queen Victoria, Colonel of the Anglesey Militia, and a champion of the poor, founding a free school for local girls in the grounds of Kinmel Hall in 1830. He died in 1852 and was succeeded by his only surviving son William Lewis Hughes, second Lord Dinorben. He however was invalided and unmarried, and died with no children only eight months after succeeding his father thus leaving the title extinct (www.KinmelEstate.co.uk).

The property of Gelli Ffrydiau is mentioned in the Welsh census of 1841 when the farm was tenanted by Catherine Prichard recorded as an eighty year old farmer. Catherine would almost certainly have been a descendant of the marriage between Angharad James and William Prichard in the previous

century or through her marriage into the Prichard family. She is recorded as living with her son William (aged fifty) and daughter Mary (aged thirty-five). The property was also home at this time to six agricultural labourers, one shepherd, and one house servant. By the time of the tithe apportionment of 1849 the primary tenant is Catherine Davies and it can only be assumed that Catherine Prichard had remarried or changed her name at the ripe old age of eighty eight. By the time of the Welsh census of 1851 the farm of Gelli Ffrydiau was tenanted by Mary Davis, presumably the former Mary Prichard, daughter of Catherine Prichard Davies.

The tithe apportionment of 1849 names the southernmost field (2149), which is the proposed location of the turbine house, as *buarth* or playground. This suggests that the field was being utilised by the local school *Ysgol Baladeulyn* located approximately 500.0m to the west. The names of the remaining fields all relate to the terrain of the site.

By the production of the first edition county series Ordnance Survey map in 1889 (figure 7.) the proposed development site is depicted more like it exists today. The first large field to the north of the farm had been subdivided by a north-south field wall with a sheepfold constructed in its north-western corner. Moreover, a weir had been built across the stream, which by way of a sluice and leat fed water to an overshot wheel for the churning of butter and the threshing of gorse (pers comm. Geraint Ellis, landowner). By this point the current farm house had been built to the south of the original Gelli Ffrydiau house. This building does not appear to be depicted on the 1849 tithe map and it is probable that it was constructed sometime in the mid to late 19th century. The original farmhouse became dilapidated and was demolished in 2005.

The second and third edition county series Ordnance Survey maps of 1900 and 1915 (figures 8 and 9) respectively, depict the study area the same as the first edition map, and there appears to have been little development of the farm between these times.

The farm of Gelli Ffrydiau was sold by auction (lot 42) on behalf of the Kimmel Estate by Addie and Son on the 19th March 1921. The farm was described as a ‘compact and conveniently situated sheep farm with rich feeding pastures’. The farmhouse was described as having ‘two sitting rooms and hall, pantry, kitchen and back kitchen, coal house and potato house outside, seven bedrooms approached by a front and back staircase’. The auction also included a range of outbuildings including the original house, which is described as being used as a storehouse. This shows that by 1921 the original Gelli Ffrydiau farmhouse had already been abandoned for use as an outbuilding (Kimmel Estate sale catalogue 1921).

2.4 Aerial Photographs

A range of aerial photographs of the proposed development area were examined from the Welsh Government. This included a high level photograph taken by the Royal Air Force in 1946 and 1948, as well as an Ordnance Survey photograph from 1973. Recent aerial coverage of the proposed development area from 2012 was also inspected. No new archaeological sites were identified in the aerial photographs.

3.0 REQUIREMENTS

3.1 Archaeological Watching Brief

The **watching brief** will consist of the following:

- Observation of the laying of the penstock within the river gorge throughout the Scheduled Ancient Monument polygon of the Hut Group, Geulan, (CN179) (feature 5);
- Observation of the breaching of wall boundary (feature 7) and the recording of it in section following breach;
- Observation of the excavation of the penstock trench from when it leaves the river gorge to the northern boundary of the grazing field immediately north of the road;
- A written and photographic record of any archaeological features revealed by the work.
- Preparation of a full archive report.

If archaeological remains are encountered during the watching brief it may be necessary to suspend development work in that area. The client should have a suitable contingency in place in case of such a scenario.

In addition to the requirements set out above the archaeological contractor will be responsible for ensuring that no physical and/or non-physical impacts occur to the Scheduled Ancient Monument and archaeological resource within the immediate environs, as a consequence of the installation of the hydro-electric scheme. The direction of the archaeological contractor must be followed in relation to the development as well as in relation to any ancillary works including laydown areas, access routes etc. The archaeological contractor should be kept informed of all stages of work at least two weeks before they occur and will be required to provide archaeological supervision of the works throughout the scheme.

4.0 METHOD STATEMENT

4.1 Archaeological 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)

The archaeological watching brief shall be maintained during the laying of the penstock within the SAM polygon of Hut Group, Geulan (CN179), as well as during the breaching of field boundary (feature 7), and from where the penstock leaves the river gorge and is buried within a trench to the northern boundary of the grazing field north of the road (see figure 1).

All soil removal will be undertaken either by hand or using a mechanical excavator. A toothless ditching bucket will be utilised until the first archaeological horizon is reached after which cleaning will be by hand. If no archaeological remains are encountered the watching brief will be maintained until the natural glacial substrata is exposed or the required excavation depth is reached, whichever occurs first.

A photographic record will be maintained throughout, using a digital SLR camera (Canon 550D) set to maximum resolution and any subsurface remains will be recorded photographically, with detailed notations and measured drawings being undertaken if required.

In the event of archaeological discovery features will be excavated by hand and will be 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 will be held at Aeon Archaeology under the project code **A0006.2**.

5.0 FURTHER ARCHAEOLOGICAL WORKS

The identification of significant archaeological features during the watching brief stage may necessitate further archaeological works. This will require the submission of new cost estimates to the contractor and may be subject to a separate WSI, to be agreed by Cadw and the Snowdonia National Park Authority Archaeologist prior to implementation.

This WSI does not include a methodology or cost for examination of, conservation of, or archiving of finds discovered during the evaluation, nor of any radiocarbon dates required, nor of examination of palaeoenvironmental samples associated with any peat deposits. The need for these will be identified in the post-fieldwork programme (if required), and a new WSI will be issued for approval by Cadw and the Snowdonia National Park Authority Archaeologist prior to implementation.

6.0 ENVIRONMENTAL SAMPLES

If necessary, 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 linear 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)

7.0 HUMAN REMAINS

Any finds of human remains will be left *in-situ*, covered and protected, and both the coroner and the SNPA Archaeologist and Cadw 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.

8.0 SMALL FINDS

The vast majority of finds recovered from archaeological excavations comprise pottery fragments, bone, environmental and charcoal samples, and non-valuable metal items such as nails. Often many of these finds become unstable (i.e. they begin to disintegrate) when removed from the ground. All finds are the property of the landowner; however, it is recommended that all finds are donated to an appropriate museum where they can receive specialist treatment and study. Access to finds must be granted to Aeon Archaeology for a reasonable period to allow for analysis and for 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 fieldwork phase. Any changes in recovery priorities will be under guidance from an appropriate specialist and agreed with the SNPA Archaeologist and Cadw. There will be a presumption against the disposal of archaeological finds with the exception of unstratified items dating to the twentieth or twenty-first centuries AD which will be recorded by material, type, form, identification and weight, and discarded.

All finds will be collected and processed including those found within spoil tips. Their location will be recorded; 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 finds 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.

9.0 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.

10.0 DISSEMINATION AND ARCHIVING

A full archive including plans, photographs, written material and any other material resulting from the project will be prepared in line with the *RCAHMW Guidelines for Digital Archives (2015 v1.0)*. 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.

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 SNPA archaeologist (x 3#) and to the National Monument Record, of the Royal Commission on the Ancient and Historic Monuments of Wales (RCAHMW) (x 1#), and Cadw (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).

11.0 PERSONNEL

The work will be managed and undertaken by Richard Cooke BA MA MCIfA, Archaeological Contractor and Consultant at Aeon Archaeology. Full details of personnel involved, with *curricula vitae*, can be supplied upon request.

12.0 MONITORING AND TIMING

Monitoring visits can be arranged during the course of the project with the clients and with the appropriate Development Control archaeologist.

13.0 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.

14.0 INSURANCE

Liability Insurance – Insignia Insurance 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 07/09/16

Professional Indemnity Insurance – Insignia Insurance Policy 347002

- Limit of Indemnity £500,000 any one claim

The current period expires 07/09/16

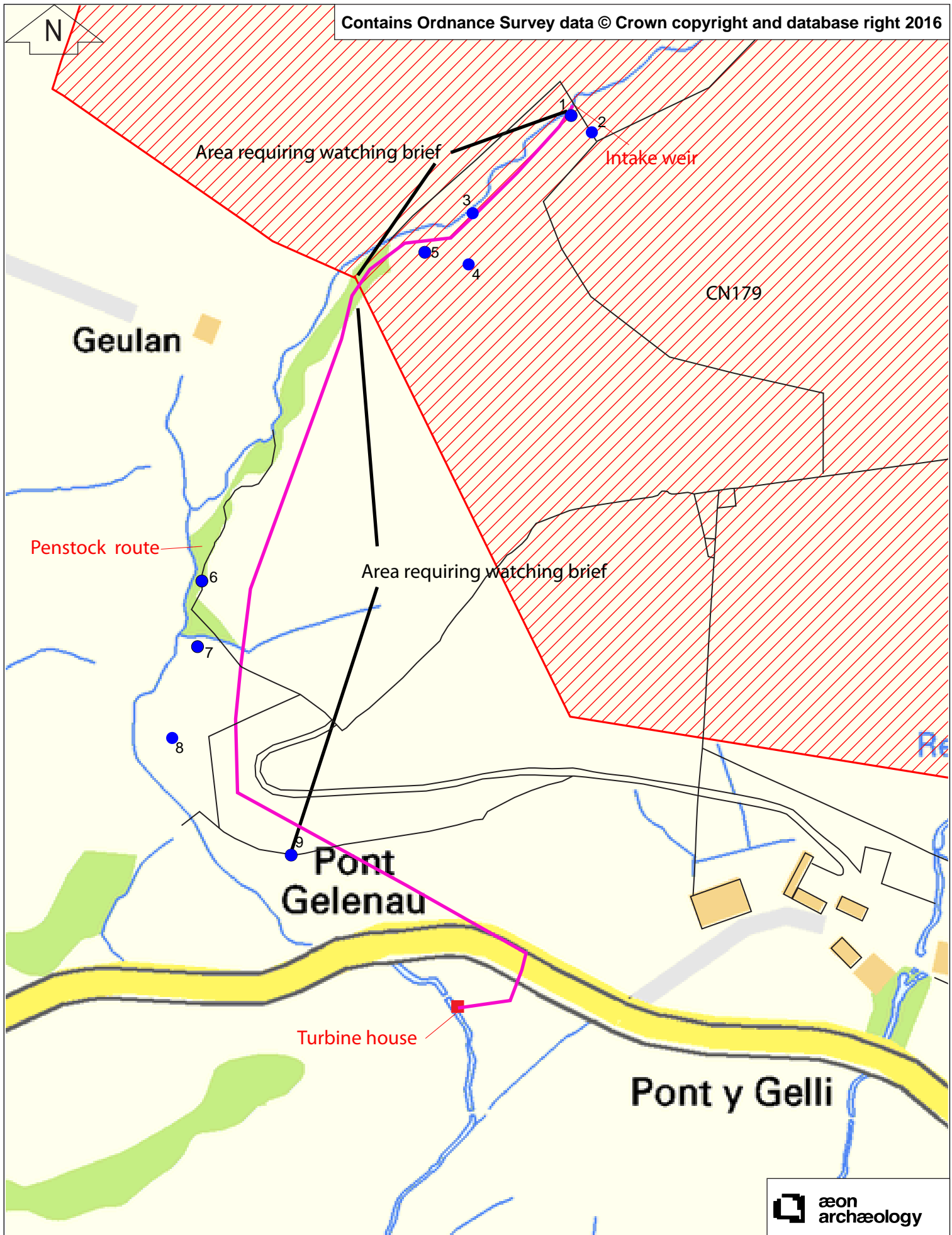


Figure 01: Location of archaeological sites discovered during the site visit (blue circles) and areas requiring watching brief. Scale 1:2,500 at A4.

