

**TY'N Y CORNEL, LLANDDEWI BREFI,  
CEREDIGION,  
HYDRO ELECTRIC SCHEME  
ARCHAEOLOGICAL APPRAISAL  
SN 75080 53440**



Prepared by  
Dyfed Archaeological Trust  
For: H2 Rheidol Hydro Ltd



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Gan / By

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*Paratowyd yr adroddiad yma at ddefnydd y cwsmer yn unig. Ni dderbynnir cyfrifoldeb gan Ymddiriedolaeth Archaeolegol Dyfed Cyf am ei ddefnyddio gan unrhyw berson na phersonau eraill a fydd yn ei ddarllen neu ddibynnu ar y gwybodaeth y mae'n ei gynnwys*

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## **TY'N Y CORNEL, LLANDDEWI BREIF, CEREDIGION: ARCHAEOLOGICAL APPRAISAL**

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## **TY'N Y CORNEL, LLANDDEWI BREFI, CEREDIGION: ARCHAEOLOGICAL APPRAISAL**

### **SUMMARY**

*An archaeological appraisal was undertaken by DAT Archaeological Services on behalf of Charles George in connection with an application (A150808) for a proposed hydroelectricity scheme in an area of remote upland at Ty'n Y Cornel, Llanddewi Brefi, Ceredigion (SN 7420 5410). The scheme runs from approximately SN 7406 5459 to the northwest, running downslope to SN 7505 5349 at Ty'n y Cornel. The route is approximately 1.2km in length.*

*The scheme proposes the construction of a low, 800mm high, concrete barrier across the stream at SN 74065 54549 to collect water into an affixed stainless steel tank. Once collected, this water will be piped downstream through a buried 280mm diameter pipe for approximately 1.2km. At this terminus, the water will then pass through a single turbine housed in small built structure measuring approximately 3.5m<sup>2</sup> in plan and 3m high. This turbine house will be located at SN 74639 53715.*

*This archaeological appraisal comprised a rapid desk-based assessment all designated and undesignated historic environment assets within a 1km search radius around the proposed scheme. A rapid walkover survey was undertaken along the proposed route of the scheme to assess the impact of the scheme on known archaeological assets and to prospect for previously unrecorded sites which may or may not be impacted upon by this scheme.*

*The scheme lies partially within the Bryngwyn Bach Historic Landscape Categorisation (HLC) area and borders the Cwm Berwyn Forestry Plantation HLC as recorded on the Register of Landscapes of Outstanding Historic Interest in Wales (Cadw 1998). In total thirty known historic environment assets were identified, of which three are Scheduled Ancient Monuments (SAMs). Of these three monuments, SAM CD196 is located within 140m of the proposed turbine house location and the impact was assessed during the walkover survey.*

*Overall, this scheme was considered to have only a slight adverse impact on the historic environment of this area.*

## **1 INTRODUCTION**

### **1.1 Project Proposals and Commission**

- 1.1.1 DAT Archaeological Services were commissioned by Charles George of H2 Rheidol Hydro Ltd to prepare an archaeological appraisal for the proposed development of a hydro-electric scheme on the Doethie Fawr stream, leading to Ty'n y Cornel, near Llanddewi Brefi, Ceredigion (application ref: A150808; Figure 1). The scheme runs from approximately SN 7406 5459 to the northwest, running downslope to SN 7505 5349 at Ty'n y Cornel. The route is approximately 1.2km in length. The resulting report will enable the planners to make an informed decision on the proposal as regards to archaeological and historic environment issues.
- 1.1.2 The proposed hydro scheme is located in an area of remote upland approximately 8km south-east of the town of Llanddewi Brefi, Ceredigion. The development is contained to an area of land known as Ty Cornel with the nearest dwelling being Ty'n Y Cornel Youth Hostel (SN 75070 53430). The scheme proposes the construction of a low, 800mm high, concrete barrier across the stream at SN 74065 54549 to collect water into an affixed stainless steel tank. Once collected, this water will be piped downstream through a buried 280mm diameter pipe for approximately 1.2km. At this terminus, the water will then pass through a single turbine housed in small built structure measuring approximately 3.5m<sup>2</sup> in plan and 3m high. This turbine house will be located at SN 74639 53715 (Figure 2).

### **1.2 Scope of the Project**

- 1.2.1 The appraisal is presented as a fulfilment of a Written Scheme of Investigation (Appendix 1) working to a brief provided by the archaeological advisors to the planning authority (the Planning Services section of Dyfed Archaeological Trust). This appraisal is not a full desk-based assessment of the potential historic environment resource. Rather, it is a more rapid piece of work involving readily available information to assess the historic environment potential.
- 1.2.2 The results are intended to identify the extent and character of the known and potential archaeological resource, to assess the likely and potential impacts of the scheme on that resource and, if required, to outline a possible programme of further works to mitigate those impacts. The appraisal should be seen only as the first stage of the archaeological process and does not include the possibility that further archaeological input may be required prior to, or during, the proposed development.
- 1.2.3 The proposed hydro scheme lies within the planning jurisdiction of Ceredigion County Council.
- 1.2.4 The archaeological appraisal was limited to the resources held in the regional HER, a site visit and on-line resources.
- 1.2.5 Considering the potential size and nature of the proposed hydro scheme 1km search radius was considered sufficient with which to evaluate visual effects on designated and undesignated archaeological sites and elements of the historic environment (Scheduled Ancient Monuments, registered Historic Landscapes, registered Parks and Gardens, Grade I and II\* Listed Buildings). The same radius search area was used to establish the presence of Grade II listed buildings and buried archaeological potential using information held on the Dyfed Historic Environment Record and the RCAHMW National Monuments Record (Figure 3).

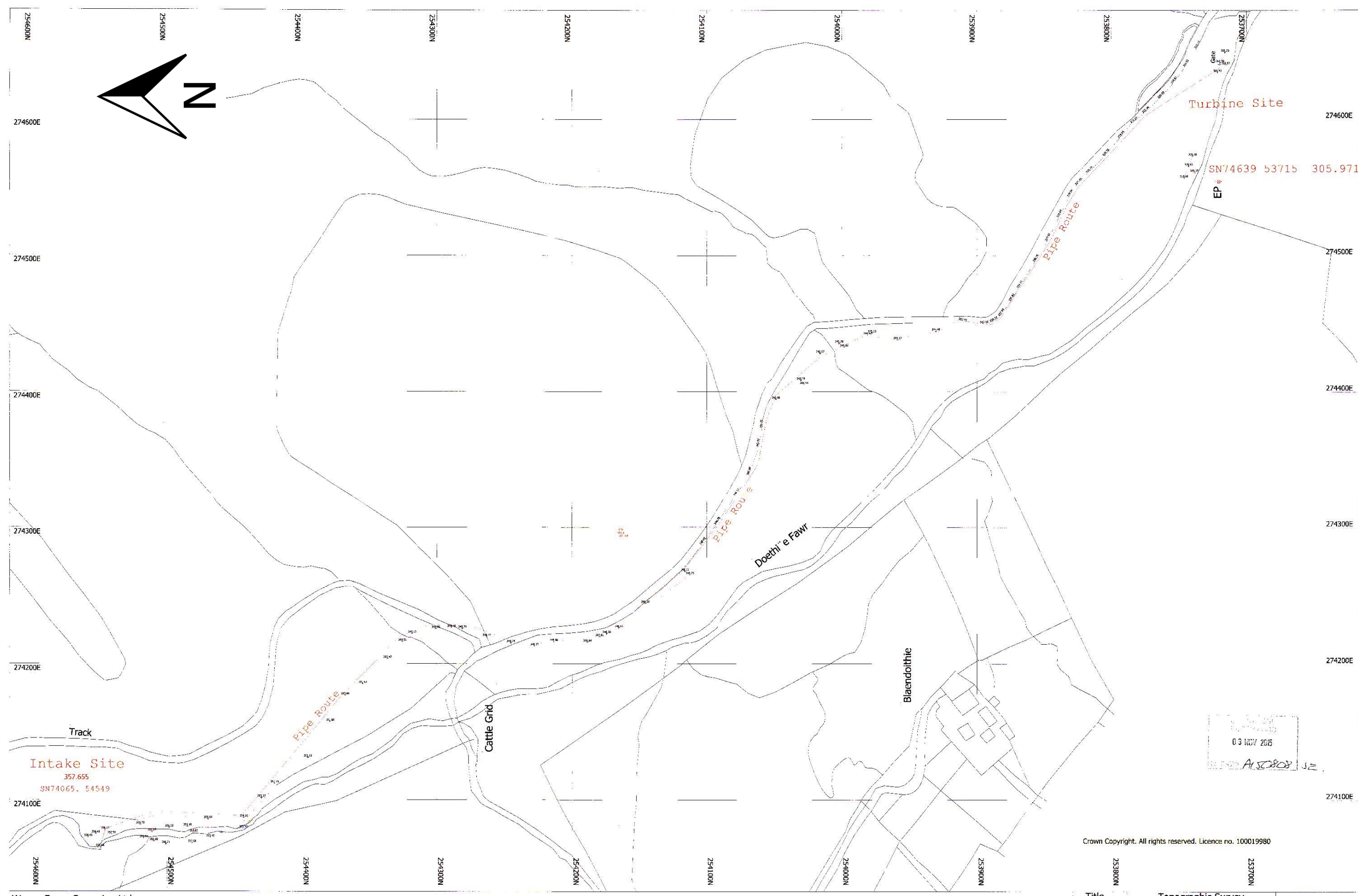




**Figure 1:** Location map based on the Ordnance Survey. Proposed development site outlined in blue. The letter "A" indicates the location of the water intake and "B" indicates the location of the single turbine.

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**Figure 2:** Hydro scheme proposals layout showing locations of collection weir and turbine (plan supplied by Wayne Evans Surveying Ltd)

### 1.3 Abbreviations

1.3.1 All sites recorded on the regional Historic Environment Record (HER) are identified by their Primary Record Number (PRN) and located by their National Grid Reference (NGR). Sites recorded on the National Monument Record (NMR) held by the Royal Commission on the Ancient and Historical Monuments of Wales (RCAHMW) are identified by their National Primary Record Number (NPRN). Scheduled Ancient Monument (SAM). Altitude is expressed to Ordnance Datum (OD). References to cartographic and documentary evidence and published sources will be given in brackets throughout the text, with full details listed in the sources section at the rear of the report.

### 1.4 Illustrations

1.4.1 Printed map extracts are not necessarily reproduced to their original scale.

### 1.5 Timeline

1.5.1 The following timeline (Table 1) is used within this report to give date ranges for the various archaeological periods that may be mentioned within the text.

Period	Approximate date	
Palaeolithic –	c.450,000 – 10,000 BC	Prehistoric
Mesolithic –	c. 10,000 – 4400 BC	
Neolithic –	c.4400 – 2300 BC	
Bronze Age –	c.2300 – 700 BC	
Iron Age –	c.700 BC – AD 43	
Roman (Romano-British) Period –	AD 43 – c. AD 410	Historic
Post-Roman / Early Medieval Period –	c. AD 410 – AD 1086	
Medieval Period –	1086 – 1536	
Post-Medieval Period <sup>1</sup> –	1536 – 1750	
Industrial Period –	1750 – 1899	
Modern –	20th century onwards	

**Table 1:** Archaeological and Historical Timeline for Wales

<sup>1</sup> The post-medieval and Industrial periods are combined as the post-medieval period on the Regional Historic Environment Record as held by Dyfed Archaeological Trust

## **2 LOCATION AND TOPOGRAPHY**

- 2.1 The proposed hydro scheme is located in an area of remote upland known as Ty'n y Cornel (SN 7420 5410) and is approximately 8km south-east of the town of Llanddewi Brefi in Ceredigion (Figure 1).
- 2.2 This area consists of typical upland topography comprising relatively flat topped mountains covered by moorland and intersected by steep sided ravines threaded by mountain streams. Specifically, this hydro scheme is situated in a length of the Doethie Fawr stream which winds between the steep slopes of Bryn y Gorlan and Llethr Llwyd mountains in a south-easterly direction, feeding the Afon Doethie (Figure 3).
- 2.3 The underlying solid geology of this area consists of interbedded mudstones and siltstones of the Llandovery Rock (Undifferentiated) Group dating to the Llandovery Epoch of the Silurian period. Geological information has been obtained through the British Geological Survey mapping portal.

## **3. METHODOLOGY**

- 3.1 This Historic Environment Appraisal followed the required methodology laid out in the written scheme of investigation (Appendix 1), which was prepared in response to a generic brief prepared by DAT Planning Services.

### **Desk Top Study**

- 3.2 Computer-based and other resources within the Regional HER were consulted in the preparation of this document. Sufficient information was consulted to inform comment on the goals of the appraisal. GIS layers were used to assess and illustrate what the likely effects of the proposals upon the historic environment might be.
- 3.3 Designated historic environment assets (including Scheduled Ancient Monuments, Listed Buildings, Historic Landscape Categorisation Areas, Historic Parks and Gardens) were identified within a 1km linear buffer from the proposed route of the hydro scheme. The potential visual effect of the proposed scheme on the settings of the designated sites within this area was then evaluated.
- 3.4 Non-designated archaeological and historic environment sites were also identified within this search radius. This area was considered sufficient to enable an assessment of the archaeological potential of the site area to be made.

### **Site Walkover Survey**

- 3.5 A detailed site visit was undertaken on the 17th December 2015. The visit comprised a walkover of the proposed hydro scheme and the surrounding area and also incorporated looking at the wider area for views looking back to the proposed development location from designated and other sites. Photographs were taken and field observations recorded in note form.



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## **4. ARCHAEOLOGICAL AND HISTORICAL BACKGROUND**

### **4.1 The Historic Landscape**

4.1.1 The proposed hydro scheme falls just within the boundaries of two Historic Landscape Categorisation Areas (HLC) recorded on the Register of Landscapes of Outstanding Historic Interest in Wales (Cadw 1998) (Figure 4). Approximately 700m of the scheme falls within the Bryngwyn Bach HLC (HLC 13) area whilst the most northerly extent of the 1km buffer zone lies within the Cwm Berwyn Forestry Plantation HLC (HLC 2).

4.1.2 The Bryngwyn Bach HLC is a large historic landscape area which encompasses parts of Ceredigion and Carmarthenshire, equating to 3916 hectares. The following extract, taken from the Upland Ceredigion Historic Landscape Categorisation report (Murphy 1999) provides a comprehensive description of this area:

#### **BRYNGWYN BACH**

GRID REFERENCE: SN 757574

AREA IN HECTARES: 3916

#### **Historic Background**

*This extremely large historic landscape character area crosses from Ceredigion into Carmarthenshire. It is entirely upland and included within it are parts of the Bishop of St David's Llanddewi Breifi estate and Strata Florida Abbey's Penardd Grange. It is likely that by the late Medieval Period both of these holdings would have been divided into farms, which were leased out and farmed on a commercial basis. The antiquity, however, of all the upland farms contained within this area is uncertain, and while it is likely that some originated in the Medieval Period in the manner indicated above, others may well have started as squatter settlements in the 18th or early 19th century. The 20th century has witnessed an abandonment of these farms, and only a handful are now occupied. The surviving chapel at Soar y Mynydd testifies to the once more populated nature of this area. The farms are clearly an important element in the landscape, but the vast majority of the land in this area is, and has been for at least the last few centuries, unenclosed, and would have been claimed by the Crown. Crossing the area are important trans-mountain natural route-ways linking the farming communities of Ceredigion with lands and towns to the east. These trans-mountain route-ways are celebrated for their use by drovers in the historical period, but they are likely to be of great antiquity, and not only provided communication across the Cambrian mountain chain, but allowed access onto the high moorland for the establishment of permanent or seasonal settlement, for the grazing of animals and for peat cutting.*

#### **Description and essential historic landscape components**

*This is a very large tract of unenclosed upland with an uneven and widely dispersed settlement pattern of upland farms. At the northern end unenclosed land runs down to as low as 200m, but with heights of over 500m achieved in the central area. On average the height range is between 300 and 450m. The landscape is rarely craggy, and wide stretches of undulating moor with blanket bog on higher levels and peaty hollows are the norm. There is abundant evidence of deserted settlements across this area, particularly along the route-ways. Occupied farms, of note is Nantymaen, are traditionally stone built, surrounded by a collection of modern farm buildings, and situated within a system of just a few fields. Older boundaries of these fields consist of earth banks, but wire fences now provide the stock-proof barriers. These fields now comprise improved*

*pasture, and there are further blocks of unenclosed improved pasture close to the farms. Apart from a block of recent forestry, this is a treeless landscape.*

*The recorded archaeology of this area is rich and varied. Considerable time-depth to the landscape is provided by the numerous Bronze Age monuments that include single round barrows, groups of round barrows and cairns, standing stones and a stone circle. No occupation sites of this date are known, but the density of these ritual and funerary monuments surely indicates a settled landscape. Castell Rhyfel is an Iron Age site situated towards this area's border, and Gwys-yr-Ychen Bannog is a defensive or administrative linear earthwork. Numerous abandoned cottages and other settlement sites indicate a greater level of population across this area through to the 19th century. Agricultural features and evidence of peat cutting testify to this former occupation.*

*This is a very well defined area; to the east and west lie very extensive forestry plantations. To the north and northwest there is mainly lower lying enclosed and settled land.*

4.1.3 The hydro scheme is located approximately 430m south of the Cwm Berwyn Forestry Plantation HLC. Consequently, a small part of this HLC is included within the study area of this appraisal and is included for consistency. The following extract (*ibid*) provides a detailed description of this HLC:

#### **CWM BERWYN**

GRID REFERENCE: SN 696539

AREA IN HECTARES: 3177

#### **Historic Background**

*This character area once lay within Cwmwd Penardd. A large portion of it lay within the Bishop of St David's Llanddewi Breifi estate, with the remainder probably considered Crown land. Place-name evidence - Llethr Hafodydd - suggests transhumance was practised in the past. It straddles a trans-mountain route-way that provided communication between Tregaron and lands to the west, with the upper Tywi valley and the east. This was an important line of communication in the past, but is now used mainly by tourists. Apart from the extreme southern tip, which was partially enclosed prior to afforestation, the whole of this historic landscape area comprised unenclosed moorland and sheep-walk. In the 1960s the Forestry Commission afforested the whole area.*

#### **Description and essential historic landscape components**

*This is a vast tract of hard-edged forestry lying across former open land. It achieves a maximum height of over 480m, is on average between 400-450m high, and runs down to approximately 300m at its southern end. Apart from enclosures at the southern end, this area was entirely unenclosed moorland prior to afforestation in the 1960s. The plantations, tracks and other features of afforestation now form the major landscape components of this area.*

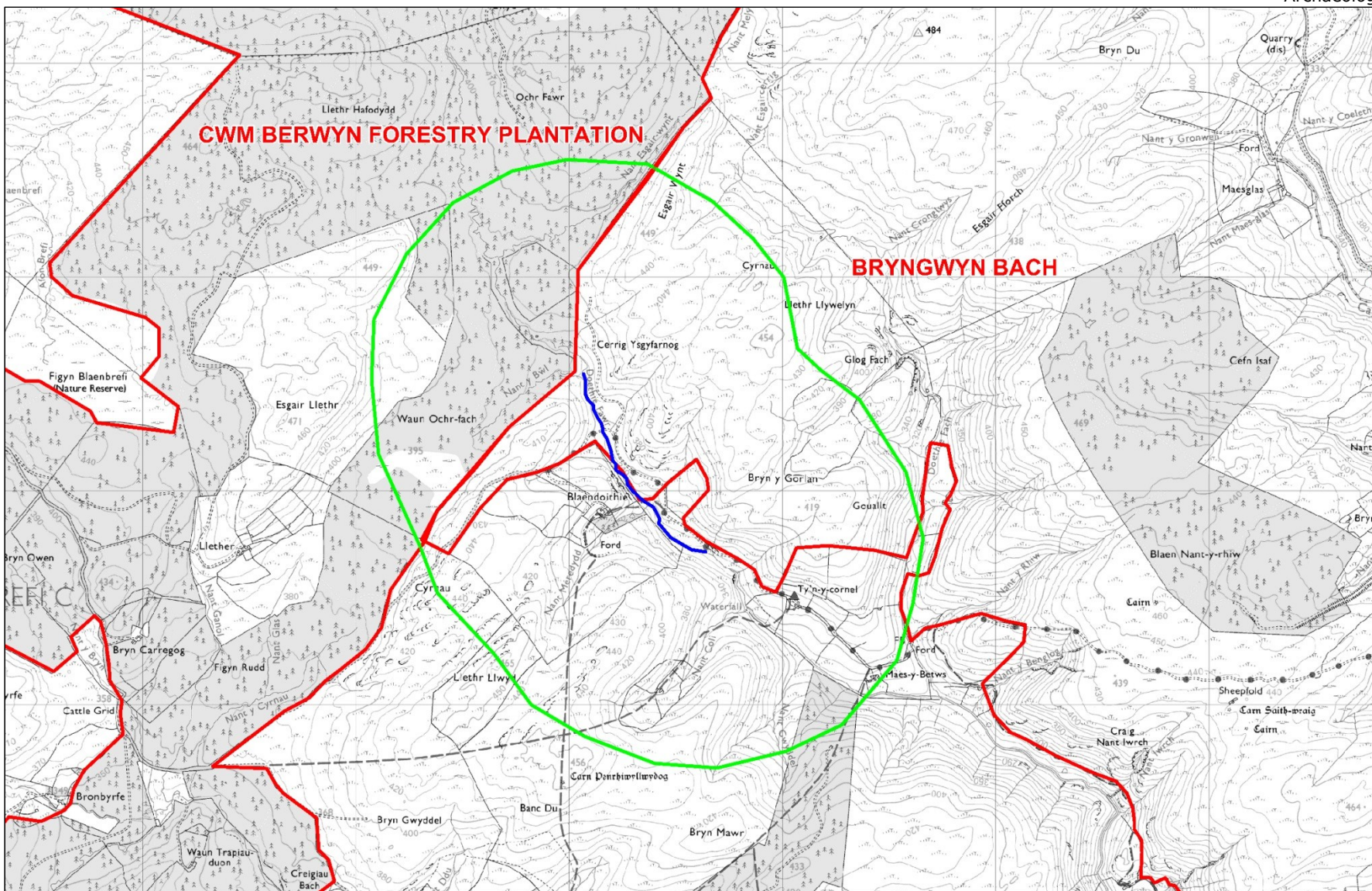
*Recorded archaeology in this area is rich and varied. Mostly it consists of abandoned cottages and farmsteads of post-Medieval date, and other agricultural pre-afforestation features such as boundary markers. However, a time-depth component is lent to the landscape by three Bronze Age round barrows and two putative similar sites, a Bronze Age standing stone, two possible stones of the same date, and a Roman marching camp.*

*This area is clearly defined by the surrounding open land.*

4.1.4 The overall impact of the proposed hydro scheme on the character of these designated areas is considered to be very minimal. The scheme itself is relatively non-invasive and will only occupy a very small percentage of the Bryngwyn Bach HLC and will be barely visible from the Cwm Berwyn Forestry Plantation HLC boundary.

4.1.5 There are no further designated historic landscape areas within the appraisal study area.





**Figure 4:** Location map based on the Ordnance Survey. Proposed development site outlined in blue. The letter "A" indicates the location of the water intake and "B" indicates the location of the single turbine.

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## 4.2 Scheduled Ancient Monuments

4.2.1 There are three Scheduled Ancient Monuments (SAMs) within the 1km buffer of the proposed hydro scheme:

SAM Number	Site Name	Period	NGR	Distance and Direction from Site (approx.)
CD136	Stone Circle and Associated Structures on Bryn y Gorlan	Prehistoric	SN74937 54696	762m
CD196	Llethr Bryn y Gorlan Platform	Medieval	SN74791 53706	136m
CD197	Nant Gwyddel Deserted Rural Settlement	Post-Medieval/Modern	SN75052 53007	732m

**Table 2:** Scheduled Ancient Monuments within 1km of the proposed development (Figure 5)

- 4.2.2 There is one prehistoric Scheduled Ancient Monument within 1km of the proposed hydro scheme; CD 136 Stone Circle and Associated Structures on Bryn y Gorlan. This SAM is comprised of a group of prehistoric monuments consisting of a stone circle (PRN 9001), a standing stone (PRN 9002), a round barrow (PRN 9003) and two possible ring barrows (PRNs 9004 & 9005).
- 4.2.3 Bryn Gorlan Stone Circle (PRN 9001) is located at the highest point of the plateau and survives as a semi-circle of ten, low yet visible stones, the largest of which stands to almost 1m in height. These remains suggest an original diameter of c.18m for the stone circle. Bryn Gorlan Standing Stone (PRN 9002) now recumbent, is located around 90m southeast of the stone circle (PRN 9001) and is close to the eastern scarp of the plateau just beyond which the ground begins to fall steeply. It is aligned east-west, is 1.5m wide and once would have stood around 1.8m tall. Around 110m north of (PRN 9002) is Bryn Gorlan round barrow (PRN 9003) which is a low lying, turf covered circular mound measuring c.2.5m in diameter. There is a small, circular hollow in the centre of the mound which may have once stood a standing stone. The first of the possible ring barrows is located just over 100m southwest of the stone circle (PRN 9001). This monument (PRN 9004) consists of a discontinuous ring of upright or leaning slabs surrounding an oval grass grown interior. The northern slabs are contiguous whilst the southern slabs are interrupted by a gap 1.5m wide. In the interior, there is a single leaning slab, whilst on the south-eastern side there is a large white quartz boulder embedded just outside and yet adjacent, to the ring. Finally, the second possible ring barrow (PRN 9005) is the most westerly stone monument within this scheduled group and consists of seven falling or leaning slabs surrounding an oval grass grown interior measuring 2m long and 1.5m wide, with overall dimensions of 2.8m in length and 2.5m width. A single fallen slab lies in a roughly central position. This group of monuments is located approximately 820m northeast and approximately 114m up slope above the hydro scheme (Figure 5).
- 4.2.4 Llethr Bryn y Gorlan Platform (CD196) is a medieval house platform (PRN 36060). The site consists of a levelled platform measuring 11m long and 9m wide, cut into the bank and aligned northeast-southwest. This monument is closest to the scheme being approximately 136m away from the turbine house location (Figure 4). Owing to its proximity to the scheme, Cadw have provided the local planning authority with an assessment concerned with the likely impact or impacts of this proposed



scheme on this scheduled monument. Their advice is summarised as follows:

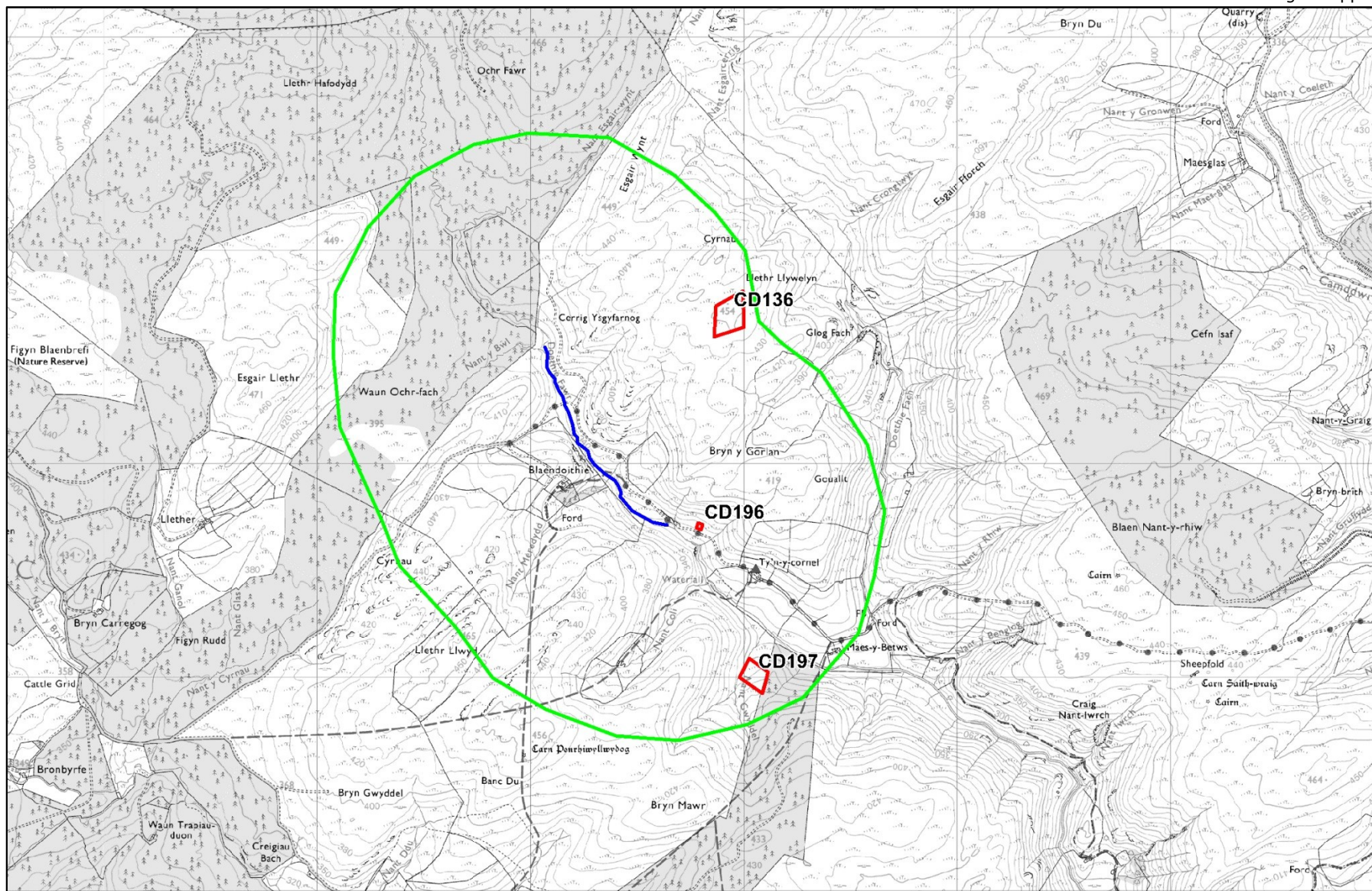
*In spite of the relative proximity of the SAM to the development, the distance of the site is such that it ought to avoid any physical impact from the construction and implementation of the scheme. However, it is considered likely that the turbine house will only be partly concealed in the landscape and therefore there is an impact on the setting of the monument to take into consideration. It is likely that this remote landscape and vegetation cover has remained little unchanged since the time of the abandonment of the monument save for the rebuilding of the farmstead (presently the Ty'n Y Cornel Youth Hostel) and the addition of its electricity line. The construction of the turbine house is an additional modern intrusion into the landscape and thus will slightly reduce the feeling of remoteness surrounding the scheduled monument. With this consideration, Cadw have advised that the proposed scheme will have a very slight adverse impact on the setting of this SAM.*

- 4.2.5 As the name suggests, Nant Gwyddel Deserted Rural Settlement (CD197) is a post-medieval or early twentieth century, deserted settlement (PRN 36061) located on the north-west facing sides of the Nant Gwyddel ravine. The site comprises a well preserved earthwork site, including an oval enclosure which is sub-divided into two fields, within which there survives a rectilinear dwelling. This SAM is approximately 733m south-east from the location of the turbine house (Figure 5) and is located on the southern side of a steep sided spur.

#### **4.3 Listed Buildings**

##### **Grade I and II\***

- 4.3.1 There are no listed buildings within 1km of the study area.



**Figure 5:** Map showing Scheduled Ancient Monuments (red) within 1km of the proposed hydro scheme (outlined in blue).

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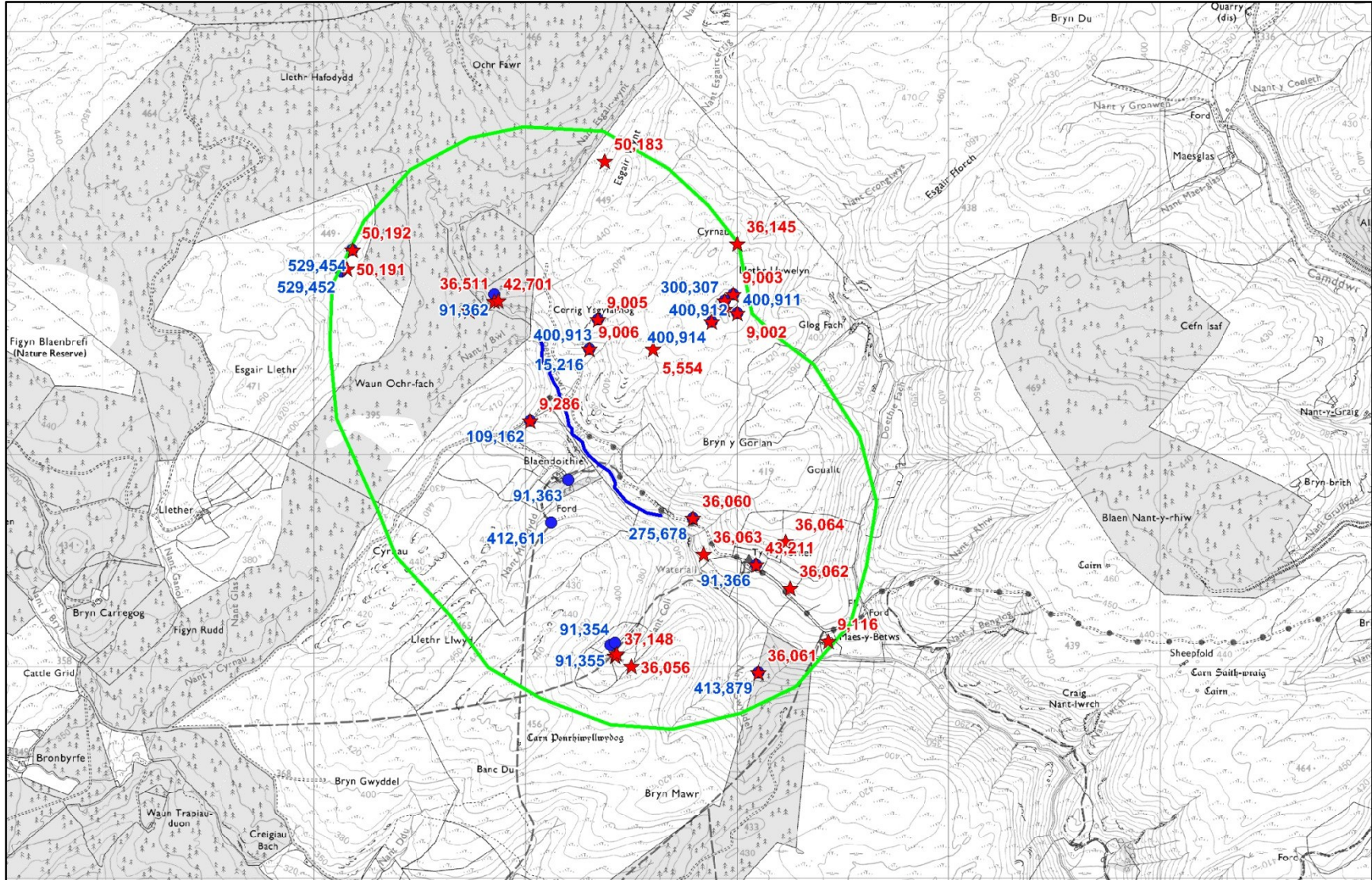
#### **4.4 Known Archaeological Remains**

- 4.4.1 Table 3 lists the designated and non-designated archaeological and historic assets that are recorded in the Regional HER and the NMR within a 1km radius of the proposed hydro scheme. The distance of each site from the hydro scheme is also recorded. The Regional HER records twenty six sites of archaeological interest, seventeen of which are also recorded in the NMR. A further four sites are recorded only in the NMR. The distribution of these sites is recorded in Figure 6.
- 4.4.2 There no known archaeological sites which are in danger of being directly impinged upon by either the construction or implementation of the hydro scheme.
- 4.4.3 Exclusive of CD196, the remainder of the archaeological sites are all beyond 150m of the hydro scheme and are located at elevated positions to the ravine. Consequently, none will be significantly impacted by the proposed development.

PRN	NPRN	Site Name and Type	Period	NGR	Distance
5554		Cerrig Ysgyfarnog Stone Circle	Neolithic; Bronze Age	SN 746 545	485m
9001	300307	Bryn Gorlan Stone Circle (Part of CD136)	Neolithic; Bronze Age	SN 7494 5473	885m
9002	400911	Bryn Gorlan Standing Stone (Part of CD136)	Bronze Age	SN 7500 5467	920m
9003	400912	Bryn Gorlan Round Barrow (Part of CD136)	Bronze Age	SN 7498 5476	930m
9004	400914	Bryn Gorlan Ring Barrow (Part of CD136)	Bronze Age	SN 7488 5463	795m
9005	400913	Bryn Gorlan Ring Barrow	Bronze Age	SN 7434 5464	290m
9006	15216	Cerrig Ysgyfarnog Enclosure; Pen	Medieval; Post-Medieval	SN 743 545	215m
9116		Maes-Y-Betws Farmstead	Post-Medieval	SN 7543 5312	985m
9286	109162	Penlan Cottage	Post-Medieval	SN 7402 5416	175m
9287		Nant Coli Farmstead	Post-Medieval	SN 7443 5306	680m
36056		Nant Coli Farmstead	Post-Medieval	SN 745 530	725m
36060	275678	Llethr Bryn Y Gorlan House Platform (CD196)	Medieval; Post-Medieval	SN 7479 5370	150m
36061	413879	Nant Gwyddel Deserted Rural Settlement (CD197)	Medieval; Post-Medieval	SN 7510 5297	870m
36062		Ty'n Cornel House Platform	Medieval; Post-Medieval	SN 7525 5337	700m
36063		Ty'n Cornel House Platform	Medieval; Post-Medieval	SN 7484 5353	270m
36064		Ty'n Cornel House Platform	Medieval; Post-Medieval	SN 7523 5359	600m
36145		Castell Motte	Medieval	SN 75 55	1km
36510		Waun Ochr Fach Peat workings	Unknown	SN 73730 54680	360m
36511		Waun Ochr Fach sheep fold	Unknown	SN 73870 54730	270m
37148	91354	Nant Coli shelter	Post-Medieval	SN 7442 5305	690m
	91355	Tir Bach (Part Of Bron Byfran) Deserted Rural Settlement	Medieval; Post Medieval	SN 744 531	645m
	91362	Pen-Y-Lan Dwelling	Medieval; Post Medieval	SN 7385 5476	505m
	91363	Blaendoethie Farmstead	Post Medieval	SN 7420 5388	150m
42701		Waun Ochr Fach Long Hut	Medieval; Post-Medieval	SN 73849 54726	280m
43211	91366	Ty'n Y Cornel Prehistoric Monument Complex	Post-Medieval	SN 7509 5348	875m
48381		Bryn Gorlan Standing Stone (Part of CD136)	Neolithic; Bronze Age	SN 7494 5469	895m
50183		Unnamed Enclosure	Bronze Age	SN 74373 55389	970m
	412611	Nant Meredydd, Deserted Farmstead / settlement	Post Medieval	SN 7412 5368	340m
50191	529452	Llethr Hafodydd Long Hut	Medieval; Post-Medieval	SN 73153 54881	980m
50192	529454	Llethr Hafodydd Deserted Rural Settlement	Medieval; Post-Medieval	SN 73180 54968	980m

**Table 3:** HER and NMR sites within 1km of the proposed hydro scheme, the table is ordered by PRN (Figure 7)





**Figure 6:** Map showing distribution of archaeological sites recorded on the Historic Environment Record (red stars) and NRW records (blue dots) within the 1km buffer of the proposed hydro scheme (blue line).

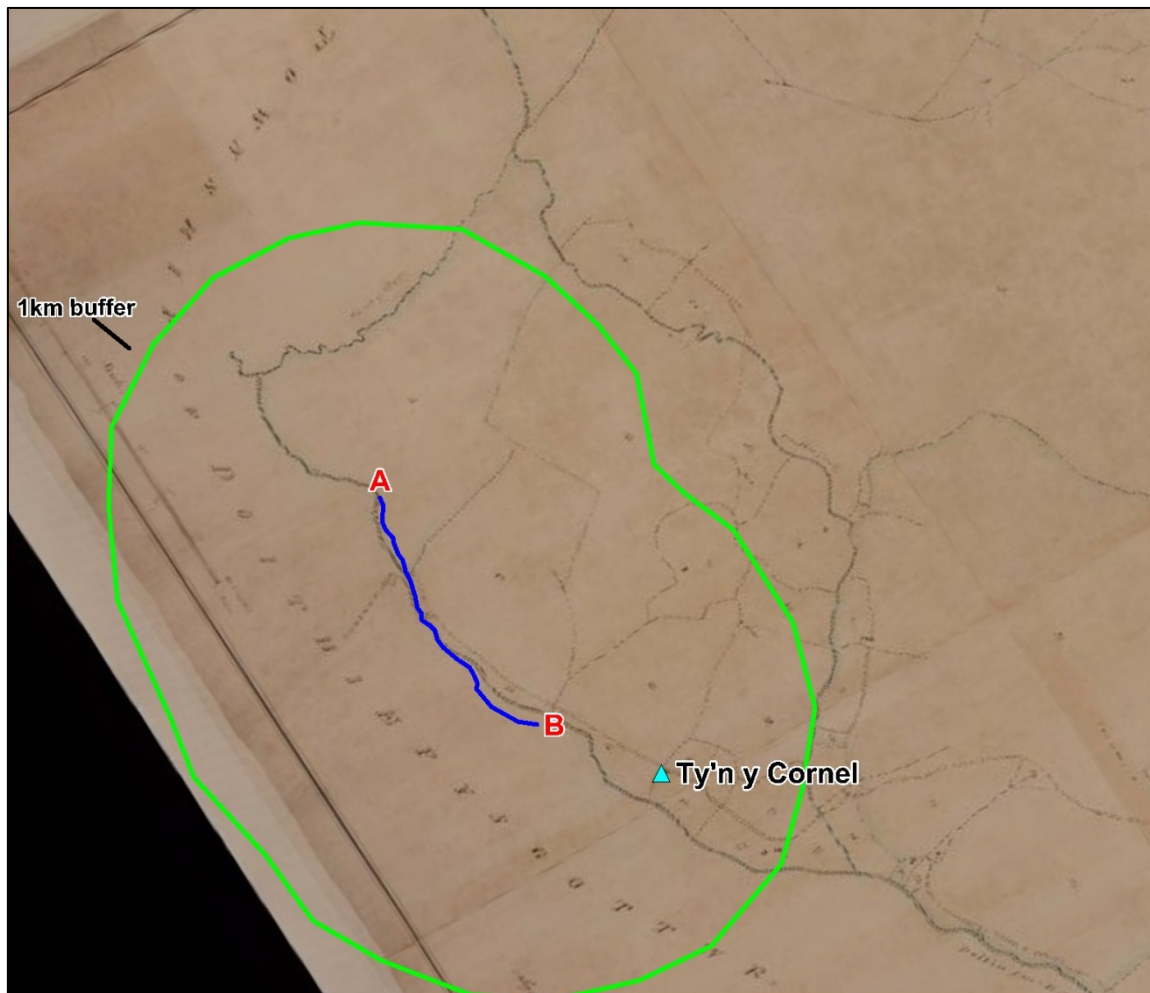
Reproduced from the Ordnance Survey 1:25,000 scale Explorer Map with the permission of The Controller of Her Majesty's Stationery Office,  
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## 4.5 Archaeological finds

- 4.5.1 There are no records of archaeological finds being found within the 1km buffer zone of this proposed scheme.

## 4.6 Historic Mapping

- 4.6.1 The Llanddewi-Brefi (Doethi Camddu) tithe map of 1842 shows that the landscape was once more enclosed but essentially, little has changed since the mid-nineteenth-century (Figure 7). The Ty'n Cornel youth hostel is present but the nearby Blaendoethie farmstead (NPRN 412611) on the western side of the ravine is absent. The metaled track which follows the course of the Doethie fawr stream and services Ty'n Cornel is annotated as simply a "sheep track" in the accompanying tithe apportionments.
- 4.6.2 The 1<sup>st</sup> and 2<sup>nd</sup> edition Ordnance Survey 1:10560 maps of 1888 and 1906 respectively show little change in the landscape save for the presence of Blaendoethie (NPRN 412611) and Penlan farms (NPRN 91362).



**Figure 7.** Llanddewibrefi (Doethie Camddu) tithe map of 1842 showing the development scheme and the location of Ty'n Cornel youth hostel (Credit: <http://cynefin.archiveswales.org.uk/en/tithe-maps/>)



#### **4.7 Site Walkover survey**

- 4.7.1 The purpose of a walk over survey is to empirically verify the information gained during the desk-based assessment given consideration of the actual topography, terrain and setting of the landscape under appraisal. It is also designed to prospect for previously unrecorded sites which may or may not be impacted upon by the proposed development.
- 4.7.2 This site walkover survey was undertaken on the 17th December 2015 during adverse weather conditions (Photos 1 – 8). The course of the hydro scheme was walked along the eastern side of the ravine and long transects were undertaken towards the summit of the plateau to assess the visibility from a higher elevation. No unrecorded features of archaeological value were identified during this survey.
- 4.7.3 Scheduled Ancient Monument CD196 was visited to assess the impact of the scheme to the site. This monument is a very discrete feature in the landscape and is situated in a slight recess behind a gentle spur which virtually obstructs a clear line of sight to the proposed turbine location (Photo 6).
- 4.7.4 No other archaeological sites were visited during this survey owing to their remoteness to the development area

## **5. IMPACT OF PROPOSED HYDRO ELECTRIC SCHEME ON THE HISTORIC ENVIRONMENT**

### **5.1 Physical Impacts**

- 5.1.1 There will be no physical impacts on any known archaeology within the development site.

### **5.2 Buried Archaeological Potential**

- 5.2.1 The archaeological potential for hitherto unknown archaeological sites to be present within the proposed development area is considered to be low.

### **5.3 Palaeo-environmental Potential**

- 5.3.1 Upland areas are usually favorable environments for peat deposits. Substantial deposits of peat have a high potential for paleo-environment analysis and are a valuable resource. However, the potential for such analysis within this study area is considered to be limited owing to superficiality of the underlying geology. There are two significant geological faults running through the area of appraisal and the bedrock is dipping northwest-southeast in excess of 45°. Consequently, the bedrock outcrops at several locations and is even visible at worn parts of the metaled track. The steep sided nature of the ravine sides will also accelerate soil erosion and subsequently the depths of soil in these parts will be very shallow. Greater deposits may survive at the base of the slopes in areas of a lesser gradient.

### **5.4 Visual Impacts**

- 5.4.1 Whilst the proposed hydro scheme falls within the boundaries of two Historic Landscape Categorisation areas, it is not located within the further designation of a Registered Historic Landscape. However, it is still relevant to consider the visual impact on the area as a landscape as a whole. It is an area vast remoteness, sparsely populated and is relatively inaccessible. The historic mapping shows that the area has remained virtually unchanged since the late nineteenth-century save for the installation of electricity poles and lines threading the landscape.
- 5.4.2 The proposed development although initially disruptive during its construction, is largely non-intrusive and has been designed to be as unobtrusive as possible. The visible elements of the scheme include the concrete barrier and turbine house. Both will occupy only a very small percentage of the landscape and will largely be concealed by the wrappings of the landscape itself. Overall, the visual impact on this area will be very low.
- 5.4.3 This scheme will not have any significant visual impacts on the Scheduled Ancients Monuments in the area. Owing to the remoteness of these monuments from the scheme and their elevated location, the scheme will pose no direct impact on the monuments of CD136 nor serve any impingement on their setting. The topography of the ravine and mountain plateau is such that it prevents inter-visibility between the hydro scheme and this SAM. Similarly, there will be very little or no visual impact on monuments CD 196 and CD 197.
- 5.4.4 As for the remaining undesignated archaeological sites, it is considered that these too will suffer little or no visual impact to their setting.

## **5.5 Other Constraints**

5.5.1 There are four Glastir polygons which encompass sites within the appraisal area of which this scheme will have no impact.

## **5.6 Summary of Impacts**

- 5.6.1 It is concluded that there will be no physical impacts to any known archaeology within the development area. There is considered to be a low potential for any hitherto unknown archaeological remains to be impacted upon by the scheme.
- 5.6.4 It is concluded that the proposed development will have no significant visual impact on any designated or undesignated sites of archaeological or historical interest already recorded in the area
- 5.6.5 It is considered that no further monitoring will be required during the construction of the hydro scheme.
- 5.6.6 Ultimately, the requirement and scope of any further programme of archaeological works lies with the Archaeological Advisor to the local Planning Authority (Planning Services, Dyfed Archaeological Trust).

## PHOTOGRAPHS



**Photo 1:** View from eastern side of ravine looking towards proposed location of concrete barrier across the Doethie Fawr stream. The southern extent of the Cwm Berwyn Forestry Plantation HLC is visible in the background. (DAT photo IMG\_5863-108989)



**Photo 2:** View looking south down the ravine from metalled track above the proposed concrete barrier location. (DAT photo IMG\_5861-108989)





**Photo 3:** The author walking a transect over the elevated ground above the ravine. This view is facing north-east. (DAT photo IMG\_5864-108989)



**Photo 4:** View facing south-west down ravine. The metalled track which runs above the stream is visible in the centre of the photograph. Note also, the steep sided slopes of the ravine. (DAT photo IMG\_5865-108989)





**Photo 5:** View looking north from the metalled track. Just visible is a metal gate in the post and wire fence visible in the foreground. The area immediately west of the gate is the proposed location for the turbine house. (DAT photo IMG\_5887-108989)



**Photo 6:** View looking north-north-west towards proposed turbine house location from SAM CD 196. (DAT photo IMG\_5893-108989)





**Photo 7:** View facing south-east showing the discrete platform of SAM CD196. The ranging pole is placed roughly center of its eastern edge.  
(DAT photo IMG\_5895-108989)



**Photo 8:** View facing south-east towards proposed location of turbine house at southern end of the stream. (DAT photo IMG\_5899-108989)

## 6. SOURCES

### Published

Cadw 1998. Register of Landscapes of Outstanding Historic Interest in Wales.

Murphy, K., 1999. *Upland Ceredigion Historic Landscape Characterisation*. Dyfed Archaeological Trust.

### Database

Dyfed Archaeological Trust Historic Environment Record, housed with Dyfed Archaeological Trust in The Corner House, 6 Carmarthen Street, Llandeilo, Carmarthenshire, SA19 6AE

### Websites

British Geological Survey mapping portal. Available at:

**<http://mapapps.bgs.ac.uk/geologyofbritain/home.html>** [Accessed 21/Dec/2015]

The Tithe Maps of Wales; Cynefin Project. Available at:

**<http://cynefin.archiveswales.org.uk/>**

Dyfed Historic Landscape Categorisation. Available at:

**<http://www.dyfedarchaeology.org.uk/>** [Accessed 16/Dec/2015]

The National Library of Scotland, Historic OS maps. Available at:

**<http://www.nls.uk/>** [Accessed 21/Dec/2015]

Old Maps online, Historic OS maps. Available at:

**<http://www.oldmapsonline.org/>** [Accessed 21/Dec/2015]

### Cartographic

Llanddewi-Brefi (Doethi Camddu) tithe map of 1842

1<sup>st</sup> Edition Ordnance Survey 1888 Cardiganshire 1:10560 Sheet XXVII.SE

2<sup>nd</sup> Edition Ordnance Survey 1906 Cardiganshire 1:210560 Sheet XXVII.SE

## APPENDIX 1

### WRITTEN SCHEME OF INVESTIGATION FOR AN ARCHAEOLOGICAL APPRAISAL FOR THE PROPOSED NEW HYDRO ELECTRICITY SCHEME AT TY'N Y CORNEL, LLANDDEWI BREFI, CEREDIGION. SN 75080 53440. Ref: A150808

#### 1 INTRODUCTION

- 1.1 This written scheme of investigation presents a proposed methodology for an archaeological appraisal for the proposed development of a new hydroelectricity scheme at Ty'n Y Cornel, Llanddewi Brefi, Ceredigion roughly centred on NGR SN 75080 53440. The appraisal has been requested by Ceredigion County Council to support the planning application (A150808) for the scheme being submitted.
- 1.2 A generic brief for the required archaeological appraisal has been prepared by the archaeological advisors to the local planning authority, Planning Services of Dyfed Archaeological Trust. This document outlines the proposed methodology that will be used to undertake the appraisal and provide the information required in support of the planning application for the development.
- 1.3 The appraisal will be a primarily desk-based study of the site area, identifying any known archaeological or historical sites within the site and its environs, identifying potential setting impacts on scheduled ancient monuments or listed buildings in the vicinity, identifying any historic landscape areas that may be affected by the proposals and assessing the potential for hitherto unknown archaeological remains to be present within the proposed development area.
- 1.4 An indication of what further archaeological works might be required, if any, will also be prepared.
- 1.5 The specification is in accordance with the *Standard and Guidance for Archaeological Desk-Based Assessments* (Chartered Institute for Archaeologists (CIfA), 2014).
- 1.6 The Trust always operates to best professional practice. DAT Archaeological Services has its own Health and Safety Policy, and all works are covered by appropriate Employer's Liability and Public Liability Insurances. Copies of all are available on request.
- 1.7 ***Dyfed Archaeological Trust is an CIfA Registered Archaeological Organisation.***
- 1.8 ***All permanent staff members of DAT Archaeological Services are CSCS<sup>2</sup> registered.***

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<sup>2</sup> Construction Skills Certification Scheme (Health and Safety Tested)



## 2. AIM AND OBJECTIVES OF THE PROJECT

2.1 This document provides a scheme of works for:

***The preparation of an archaeological appraisal for the proposed development of a new hydroelectricity scheme at Ty'n Y Cornel, Llanddewi Brefi, Ceredigion roughly centred on NGR SN 75080 53440. The report will assess the potential impact the development may have on any underlying archaeological remains, if present within the area, and an assessment of the wider impact of it on the historic environment. The appraisal shall be presented within a report which will be submitted with the planning application for the new scheme.***

2.2 Provision of a written scheme of investigation to outline the methodology by which DAT Archaeological Services will undertake the appraisal.

2.2 To identify any known archaeological remains and assess the potential of any hitherto unknown archaeological deposits within the location of the water treatment works and any associated infrastructure.

2.3 To identify any known historic environment features within the wider area that could be affected indirectly by the proposed works.

## 3. ARCHAEOLOGICAL APPRAISAL Methodology

3.1 The archaeological appraisal will involve the preparation of a stand-alone report. The report will be prepared using relevant information from a number of sources, and will comprise a number of elements, including:

- Dyfed Archaeological Trust Historic Environment Record data and other relevant information (including a review of online information held on the RCAHMW Coflein site) – **1km search area**;
- Identification of any Scheduled Ancient Monuments, Listed Buildings, Conservation Areas or Historic Landscape Areas within or in the vicinity of the site area from information held by Dyfed Archaeological Trust, CADW and CCW – **1km search area**;
- Readily available bibliographic information, cartographic material and photographs (including aerial photographs) held at the Trust;
- A review of historic maps;
- Relevant web-based information;
- Site visit and walkover survey;
- Assessment of the archaeological potential of the area; and
- Assessment of likely impacts on any identified remains (or potential remains) or setting issues and likely requirements, if any, for further stages of archaeological work.

3.2 The proposed site visit would be undertaken to provide an assessment of the presence of any visible archaeological remains within the development area and its visibility from nearby cultural heritage features. Photographs will be taken of the site area and its environs and these will be used within the report.

3.3 A 500m (undesigned and Grade II listed buildings) search area and 1km (designated sites, except Grade II listed buildings) search area will be used to determine the presence of historic environment features within the site location

for and vicinity of the proposed wind s. This will identify HER sites, SAMs, Listed Buildings and Historic Landscape Categorisation areas etc.

- 3.4 The following will be considered when preparing the appraisal, although in some cases no such features may be present and will thus not be considered further:
- a. Scheduled Ancient Monuments {SAMs} and their settings;
  - b. Non-scheduled ancient monuments and their settings;
  - c. Listed buildings and their settings;
  - d. Non statutory Buildings of Local Importance, where this information is readily available and relevant to the proposed development;
  - e. Registered Parks and Gardens and their essential settings;
  - f. Registered Historic Landscapes;
  - g. Non-registered historic landscapes;
  - h. Buried archaeological potential;
  - i. Palaeo-environmental potential;
  - j. Hedgerows and field patterns;
  - k. Ancient woodland;
  - l. Place-name evidence;
  - m. Newly identified sites of historic importance;
  - n. Cumulative impacts, e.g. wind turbines in close proximity;
  - o. Any Tir Gofal / Glastir interests or requirements (where relevant); and
  - p. LANDMAP and landscape Categorisation information.
- 3.5 A report will be prepared on the results of the appraisal. This report will include information on known sites within and in the vicinity of the proposed development site. Maps of known archaeological and historical sites will be presented in the report. Photographs will be used where appropriate.
- 3.6 The report will be fully representative of the information gained from the above methodology, even if there should be negative evidence. The report will include the following:
- a) A concise non-technical summary of the appraisal results.
  - b) The report will contain at least one plan showing the site's location in respect to the local topography.
  - c) The report should list all the sources consulted.
  - d) Where necessary, the report will also contain suitably selected plans and maps (including historic maps) of significant archaeological features.
  - e) Written descriptions of all archaeological features observed during the site visit.
  - f) Statement of the local and regional context of the historic assets identified. Consideration, where appropriate, of the national Research Agenda.
  - g) An assessment of the relative value or significance of each recognised historic asset.
  - h) An impact assessment of the proposed development on the potential archaeological resource.

- 3.7 Once completed, a copy of the report will be submitted to the LPA for the consideration of their archaeological advisers. A further copy of the report should be provided to the Dyfed Archaeological Trust for deposition within the Regional Historic Environment Record (HER).
- 3.8 Where appropriate, a summary report on any new significant archaeological discovery will be submitted for publication to a national journal (e.g. Archaeology in Wales) no later than one year after the completion of the work.
- 3.9 Although there may be a period during which client confidentiality should be maintained, the report and the archive should normally be deposited in the appropriate repository not later than six months after completion of the work.

#### **4 STAFF**

- 4.1 The project will be managed by J Meek MIFA, Head of DAT Archaeological Services.
- 4.2 The report and site walkover survey will be undertaken by an experienced member of DAT Archaeological Services staff.

#### **5. HEALTH AND SAFETY**

- 5.1 All permanent members of DAT Archaeological Services staff are CSCS<sup>3</sup> registered.
- 5.2 DAT Archaeological Services will carry out a health and safety risk assessment prior to the site walkover survey to ensure that all potential risks are minimised.
- 5.3 All relevant health and safety regulations must be followed where advised by the client.
- 5.4 As the site visit will likely be undertaken by a single archaeologist, it may be necessary to implement lone working procedures and contacts.

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<sup>3</sup> *Construction Skills Certification Scheme (Health and Safety Tested)*



# **Ty'n y Cornel, Llanddewi Brefi, Cardiganshire:**

## **ARCHAEOLOGICAL APPRAISAL**

RHIF YR ADRODDIAD / REPORT NO. 2015/66  
RHIF Y DIGWYDDIAD / EVENT NO. 108989

Rhagfyr 2015  
December 2015

Paratowyd yr adroddiad hwn gan / This report has been prepared by

Swydd / Position:

Llofnod / Signature ..... Dyddiad / Date

Mae'r adroddiad hwn wedi ei gael yn gywir a derbyn sêl bendith  
This report has been checked and approved by

**James Meek**

ar ran Ymddiriedolaeth Archaeolegol Dyfed Cyf.  
on behalf of Dyfed Archaeological Trust Ltd.

Swydd / Position: **Head of DAT Archaeological Services**

Llofnod / Signature ..... Dyddiad / Date

Yn unol â'n nôd i roddi gwasanaeth o ansawdd uchel, croesawn unrhyw sylwadau sydd  
gennych ar gynnwys neu strwythur yr adroddiad hwn

As part of our desire to provide a quality service we would welcome any comments you  
may have on the content or presentation of this report

