

Archaeology Wales

Tyllwyd Hydro Schemes Cwmystwyth

Archaeological Appraisal and Site Visit



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Report No. 1041

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Tyllwyd Hydro Schemes, Cwmystwyth

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Non-Technical Summary

This report results from a Rapid Archaeological Assessment and Site Visit undertaken by Archaeology Wales Ltd (AW) for Mr James Raw of Tyllwyd Farm, Cwmystwyth, Ceredigion, prior to the proposed construction of two energy generating hydro schemes. Scheme 1 includes construction of a weir, a turbine house and the laying of 1800m of pipe. Scheme 2 involves the construction of another weir and turbine house and the laying of 1475m of pipe. The Archaeological Assessment confirmed that several features of archaeological interest are located in the vicinity of both schemes. Scheme 2 will not impact on any of these, but scheme 1 will impact on a defunct leat and possibly some ruinous post-medieval buildings at Blaenycwm. Neither scheme is likely to have a visual impact on any archaeological features.

1 Introduction

1.1 Location and scope of work

- 1.1.1 In December 2011 Archaeology Wales Ltd (AW) carried out a rapid Archaeological Assessment and site visit on land around Tyllwyd Farm, Cwmystwyth, Ceredigion (Fig 1).
- 1.1.2 The work was carried out as a planning condition (Ceredigion County Council: A110077&A110078) on the advice of Charles Hill (Planning Archaeologist for Dyfed Archaeological Trust). All work was undertaken prior to the commencement of the schemes.
- 1.1.3 The proposed hydro scheme at Tyllwyd Farm is made up of two distinct schemes. A succinct description of each scheme is detailed below.
- 1.1.4 Scheme 1(Figs 2&3): A weir is to be built across the Afon Ystwyth in order to draw water into the Penstock pipe. This pipe will travel above ground for 200m until it reaches the start of a pre-existing leat running parallel with the Ystwyth. The pipe will be 700mm in diameter and will be buried within the existing leat for 1200m. Close to Tyllwyd Farm the pipe will leave the leat and travel downslope through a field for 400m before entering the turbine house. A 1m diameter pipe will discharge water back into the Afon Ystwyth.
- 1.1.5 Scheme 2 (Fig 4): A small weir will be constructed out of plastic piling across the Nant yr Ydfran to allow water to enter a transfer pipe. This will be a 300mm pipe and will run for 600m below ground on top of Lan Fawr hill. The water from this pipe will be discharged into the Nant Cwm Gorlan. A small weir downslope will draw some of this water from the Nant Cwm Gorlan into the Penstock pipe. This 300mm pipe travels down the hillside below ground for 875m before entering the turbine house adjacent to Tyllwyd farm. The water is then discharged back into the stream via a 450mm pipe.

1.2 Geology and topography

- 1.2.1 The underlying solid geology of the area is comprised of limestone rocks from the Llandovery series of the Palaeozoic era (Geological Survey Map, 2001).
- 1.2.2 Both schemes one and two are linear in nature. Scheme one, measuring 1800m long in total begins at NGR SN85032 75679, some 2.8km to the east of Tyllwyd Farm. After following the path of a defunct leat west, along the side of the valley, for 1800m the linear scheme ends in a new turbine house at NGR SN82767 75504. This scheme is largely located within the defunct mine leat on the lower slopes of Craig y Lluest and Yr Allt though at its western end will pass through an area of deserted post-medieval dwellings close to Blaenycwm at the foot of Yr Allt.
- 1.2.3 Scheme two begins on the top of Banc Llwyd Mawr at NGR SN82137 76469. The scheme runs down the southern facing slope for 1475m and terminates adjacent to Tyllwyd Farm at NGR SN82637 75559.
- 1.2.4 Both schemes are located on sparsely wooded steep hill slopes. The whole area is very sparsely populated, the largest local settlement being Cwmystwyth located some 4km to the west of Tyllwyd Farmhouse.

1.3 Archaeological and Historical Background

- 1.3.1 A thorough study of the parish in which both schemes are located was undertaken by Samuel Lewis in his Topographic Dictionary of Wales (1833). The following extracts give a good indication of the state of the parish at that time:
- 1.3.2 "LLANVIHANGEL Y CREIDDYN (LLAN-VIHANGEL-Y-CREUDDYN), a parish in the upper division of the hundred of ILAR, county of CARDIGAN, SOUTH WALES, 7 miles (S. E.) from Aberystwith, on the road to Rhaiadr, comprising the chapelry of Eglwys-Newydd, or Llanvihangel y Creiddyn Uchâv, and the township of Llanvihangel y Creiddyn Isâv each supporting its own poor, and containing 1971 inhabitants, of which number, 944 are in Llanvihangel y Creiddyn Isâv. This parish, which is situated on the river Ystwith, and intersected by various other streams, is eminently distinguished by scenery which is equally remarkable for picturesque beauty and strikingly romantic grandeur. The former character prevails in a high degree through out the extensive and beautiful grounds of Hâvod and the latter on the precipitous and craggy cliffs through which the rivers Mynach and Rheidol wind an arduous and frequently interrupted course. Over the former of these streams is Pont ar Vynach, or, as it is called from a vulgar tradition, "the Devil's Bridge:" the Mynach here rushes with impetuosity through a narrow chasm between the lofty cliffs which on each side confine its waters, darkened by the entangled branches and foliage of numerous trees which have taken root among the rocks, and at a great depth beneath a bridge of one arch, thrown over it, at a very early period, by the monks of the abbey of Strata Florida, an ancient establishment in the neighbourhood. This bridge, to which the descent from the road was found inconvenient and dangerous, was, in 1753, surmounted by another bridge of one arch, at a higher elevation and of larger span, over which the road is continued to Aberystwith. The descent to the river, which lies at a great depth below its craggy and precipitous banks, is frightfully steep, and only rendered practicable by the numerous trees with which the rocks on both sides are

thickly interspersed. The view from the bottom of the valley is strikingly picturesque ; the bridges are seen to advantage only from this point, and present an appearance truly romantic; the height of the upper bridge above the bed of the river is about one hundred and twenty feet. At the distance of about fifty yards from the bridge, the river, rushing in a narrow and obstructed channel, falls with violence from a rock twenty feet in height into a cavity beneath : on its emerging it almost instantly descends from a precipice of sixty feet into another, and, after falling again from a height of twenty feet, descends in one unbroken sheet from an elevation of more than one hundred feet. On the opposite side of the glen a view of all the falls of the Mynach is obtained from a projecting mass of rock, a little below which the river falls into the Rheidol. The Rheidol, after receiving the Mynach, pursues a similar course, frequently interrupted by rocks of various elevation, over which it is precipitated with violence, and from one of which, of prodigious height, it descends in one vast and entire column, forming a cataract of great sublimity. The main torrent, in its descent, is partially intercepted on each side by projecting points of rock, which, diverting its course into an oblique direction, form two smaller cataracts which intersect each other in their descent. The scenery of the valley through which the Rheidol has its course is characterized by features similar to those of the vale of Mynach, and, notwithstanding the difficulty of access to those parts from which it is seen to the greatest advantage, it still continues to attract the attention, and to excite the admiration of all travellers into this part of the principality. Lead-ore abounds in the parish, but is not worked to any great extent : there is a mine called Cwm-Ystwith, capable of being rendered very productive, and there are others of smaller importance. The working of these mines at a former period led to the establishment of a small village called Pentre Briwnant, which was chiefly inhabited by the persons employed in them, and which stands on the road from Rhaiadr to Aberystwith, in the upper part of the vale of the Ystwith, where the country is remarkably wild and rugged; but the population is now principally engaged in agriculture. The living is a discharged vicarage, in the archdeaconry of Cardigan, and diocese of St. David's, rated in the king's books at £8, endowed with £200 royal bounty, and in the patronage of the Bishop. The church, dedicated to St. Michael, is a neat structure, in the later style of English architecture. The chapel of Eglwys-Newydd is within the precincts of the estate of Hâvod, and forms an interesting and beautiful feature in the landscape. There are places of worship for Calvinistic and Wesleyan Methodists. The average annual expenditure for the maintenance of the poor amounts to £344.16., of which sum, £ 189.2. is raised on the township of Llanvihangel y Creiddyn Isâv."

- 1.3.3 The mines at Cwmystwyth, to the west of Tyllwyd Farm, are considered by many to be the most important non-ferrous mining site in Wales. During the 18th century ore was extracted from the hillside around Cwmystwyth by hushing, this process involves releasing a large quantity of stored water to scour the surface ground cover away, exposing the rock and mineral veins beneath. A reservoir from these operations still exists. By 1844 most of the known reserves of ore had been worked out and an investigation was carried out to find potential new lodes. By 1850 the lease for the mine had changed hands again and the mine was producing over 1,000 tons of galena (lead ore) each year, various new rich ore bodies were found and the venture prospered.

During the 1860s the search was on yet again for new reserves, in the process the mine reached its lowest level at 54 fathoms. At the turn of the century the mine turned its attentions to zinc ore rather than lead. At this time money was invested in new buildings and machinery, a network of tramways, and inclines were constructed to move the ore across the site from adits higher up the hillside. Unfortunately the low price of ore at the time was not enough to repay the investment; the mine struggled on until it closed in 1921 (Welsh Mines Index).

2 Aims and Objectives

2.1 Archaeological Appraisal

2.1.1 The Archaeological Appraisal was undertaken to:

- Assess the presence of previously recorded archaeological sites within or close to the area(s) of development;
- Locate any potentially unrecorded archaeological features which may be impacted upon by the proposed schemes.

2.2 Site Visit

2.2.1 The site visit was undertaken to:

- Examine the locations and routes of the schemes and assess any potential impact on visible archaeological features.

3 Methodology

3.1 Archaeological Appraisal

3.1.1 As part of the appraisal, the following repositories were searched for readily available information:

- The Royal Commission for Ancient & Historical Monuments (Wales) in Aberystwyth was consulted for aerial photography coverage.
- The National Library in Aberystwyth was also consulted for readily available historic maps of the assessment area.
- A Cadw database of all scheduled ancient monuments in the area was also consulted.
- The local HER was consulted for a list and GIS plan of all known archaeological sites within a 300m corridor along the linear schemes.

3.1.2 All works were undertaken in accordance with the IfA's Standards and Guidance: for an archaeological desk based assessment (2008).

3.1.3 The work was undertaken by Chris E Smith (MIfA).

4 Archaeological Appraisal Results

4.1 Cadw Data

4.1.1 A search of the Cadw scheduled ancient monument database revealed only one Scheduled Ancient Monument within 300m of the Hydro Scheme (Fig 5).

- CD203 – Hafod Yr Abad. E284599 N275968. Medieval deserted rural settlement

4.1.2 Although significant scheduled ancient monuments exist just outside the 300m search radius (Cwmystwyth/Copa Hill lead copper & zinc mines), these will not be impacted upon by the proposed schemes.

4.2 HER Data

4.2.1 A search of the regional HER database revealed a total of 22 known archaeological sites within 300m of the Hydro Scheme (Fig 5).

- PRN19907 – Destroyed post-medieval building
- PRN19908 – Site of post-medieval mine leat aqueduct
- PRN21759 – Site of minor post-medieval bridge over the Ystwyth
- PRN25935 – Site of minor post-medieval lead mine
- PRN25936 – Site of minor post-medieval lead mine
- PRN35155 – Site of post-medieval building
- PRN35156 – Site of damaged post-medieval structure
- PRN35159 – Site of post-medieval hollow trackway
- PRN35160 – Site of Cwmystwyth mine leat
- PRN35161 – Site of medieval/post-medieval platform
- PRN35162 – Cwmystwyth mine dam
- PRN35166 – Site of medieval/post-medieval drystone wall and earth bank enclosure
- PRN35174 – Possible standing stone or boundary marker
- PRN35181 – Site of medieval/post-medieval long hut
- PRN35182 – Site of building complex consisting of a house with attached outbuildings and a fold.

- PRN35183 – Medieval/post-medieval long hut
- PRN42221 – Post-medieval peat stand
- PRN42222 – Post-medieval platform
- PRN42631 – Deserted post-medieval settlement
- PRN58283 – Grade II listed outbuilding
- PRN58285 – Grade II listed bridge
- PRN58290 – Grade II listed house

4.3 Historic Maps

4.3.1 The following historic maps were consulted as part of the desk based assessment:

- 1840s Parish Tithe Map
- 1888 1:2500 1st Ed OS Map
- 1953 1:10560 Ed OS Map

4.4 Map Regression

4.4.1 1840s Parish Tithe Map

The Tithe map of the parish of Llanvihangel y Creiddyn was consulted in the National Library, Aberystwyth. Unfortunately the map was in poor condition. The areas of proposed development showed little recognisable detail.

4.4.2 1888 1:2500 1st Ed OS Map

This map shows the areas covered by each scheme in their entirety. The only features marked close to the route of scheme 1 are buildings around Blaenycwm, as identified by the HER data. No features are shown on the route of scheme 2.

4.4.3 1953 1:10560 Ed OS Map

This map shows the areas covered by each scheme in their entirety. The features marked on the 1888 OS map, towards the western end of scheme 1, are still partly shown although are not marked as being roofed at this time. They are therefore likely to be ruinous. No features are shown on the route of scheme 2.

4.5 Map Regression Summary

4.5.1 The historic maps consulted as part of the archaeological appraisal show that the only features close to the route of either scheme lie at the western end of scheme 1. The abandoned buildings at Blaenycwm appear to have gone out of use sometime between 1888 and 1953.

4.6 Aerial Photographs

- 4.6.1 The assessment area was generally well covered by aerial photography, with good examples dating from the immediate post-war period (WWII) up to the present day. All of the photographs studied, however, including those held within the Royal Commission (including the Welsh Assembly Collection), were taken at too high an altitude to contain any specific detail.
- 4.6.2 A full list of the aerial photographs consulted as part of the archaeological appraisal is contained within the Bibliography.

4.7 Site Visit

- 4.7.1 A site visit was undertaken along the proposed route of each scheme. No features, other than those previously identified by the HER and cartographic data, were observed.
- 4.7.2 Plates 1 to 12 show the areas of schemes 1 and 2. The abandoned structures at Blaenycwm are shown in plates 6-9.

5 Discussion and Interpretation

5.1 Overall interpretation

- 5.1.1 The overall interpretation gained from the appraisal and site visit carried out for the two schemes is that very little in terms of significant archaeological features is likely to be impacted by either. Neither scheme is likely to have a visual impact on any archaeological features.
- 5.1.2 Scheme 1 will run, for the majority of its length, along a defunct leat. The leat is recorded in the HER (PRN35160) as being a post-medieval leat associated with the Cwmystwyth lead mine to the west of Tyllwyd Farm. This feature will be damaged by the below ground installation of a 700mm pipe along 1.2km of its length.
- 5.1.3 At its western extremity the pipe will leave the leat and be laid close to the ruinous buildings at Blaenycwm, also recorded in the HER (PRN42631 & PRN35182). Whilst all efforts will be undertaken to avoid obvious above ground features (walls, banks etc), there is a slight chance that previously unrecorded below ground remains in this area will be damaged by the laying of the pipe and the construction of the turbine house.
- 5.1.4 The route of scheme 2 does not pass closer than 50m to any known HER data spot and is therefore likely to have no impact upon known archaeological sites.

5.2 Summary

- 5.2.1 It is felt, therefore, that whilst scheme 2 is located away from known archaeology and is thus unlikely to impact on any features of archaeological significance, scheme 1 is located close to readily identifiable archaeological remains of post-medieval date. Whilst above ground features such as walls, banks, ditches etc will be avoided by the planned route of the pipe, there remains the slight possibility of previously unrecorded below ground remains being encountered in this area.

6 Acknowledgements

- 6.1.1 Thanks are due to; James Raw (Tyllwyd Farm), Charles Hill & William Steele (Dyfed Archaeological Trust) and all the helpful staff at the National Library & Royal Commission (Aberystwyth).

7 Bibliography and References

British Geological Survey. 2001, 4th Edition. Solid Geology Map, UK South Sheet.

Lewis, S. 1833 *Topographic Dictionary of Wales*

Welsh Mines Index - <http://www.sbury8.freemove.co.uk/mines1/wales.htm> - Accessed 3/1/12

Llandeilo HER database – Search of all known HER data points within 300m corridor of each scheme

Search of Cadw scheduled ancient monument and listed buildings database

Maps Consulted:

1840s Llanvihangel y Creiddyn Parish Tithe Map

1888 1st Ed 1:2500 OS Map

1953 Ed 1:10560 OS Map

RAF Aerial Photographs by Sortie/Frame/Date

CPE/UK/1873 – 6125-8, 4/12/1946

CPE/UK/1873 – 1251-3, 4/12/1946

CPE/UK/2095 – 2274-7, 28/05/1947

CPE/UK/2095 – 4273-7, 28/05/1947

CPE/UK/2531 – 4225-6, 24/03/1948

541/515 – 4192-4, 11/05/1951

OS Aerial Photographs by Sortie/Frame

OS SN

85-093	086
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94-346	041
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94-342	002
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96-228	039-040
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73-221	142
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75-218	121
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APPENDIX I: Figures

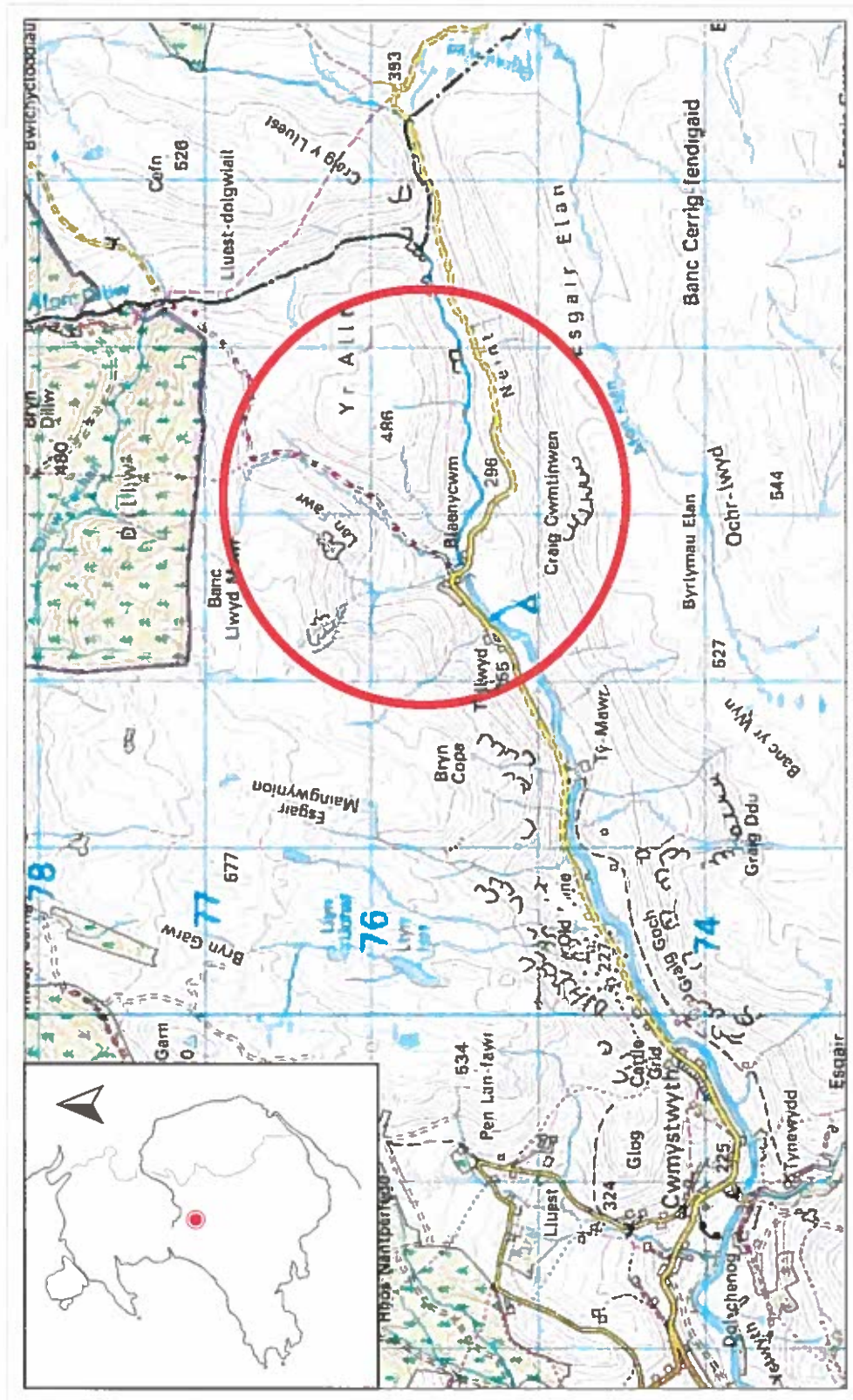
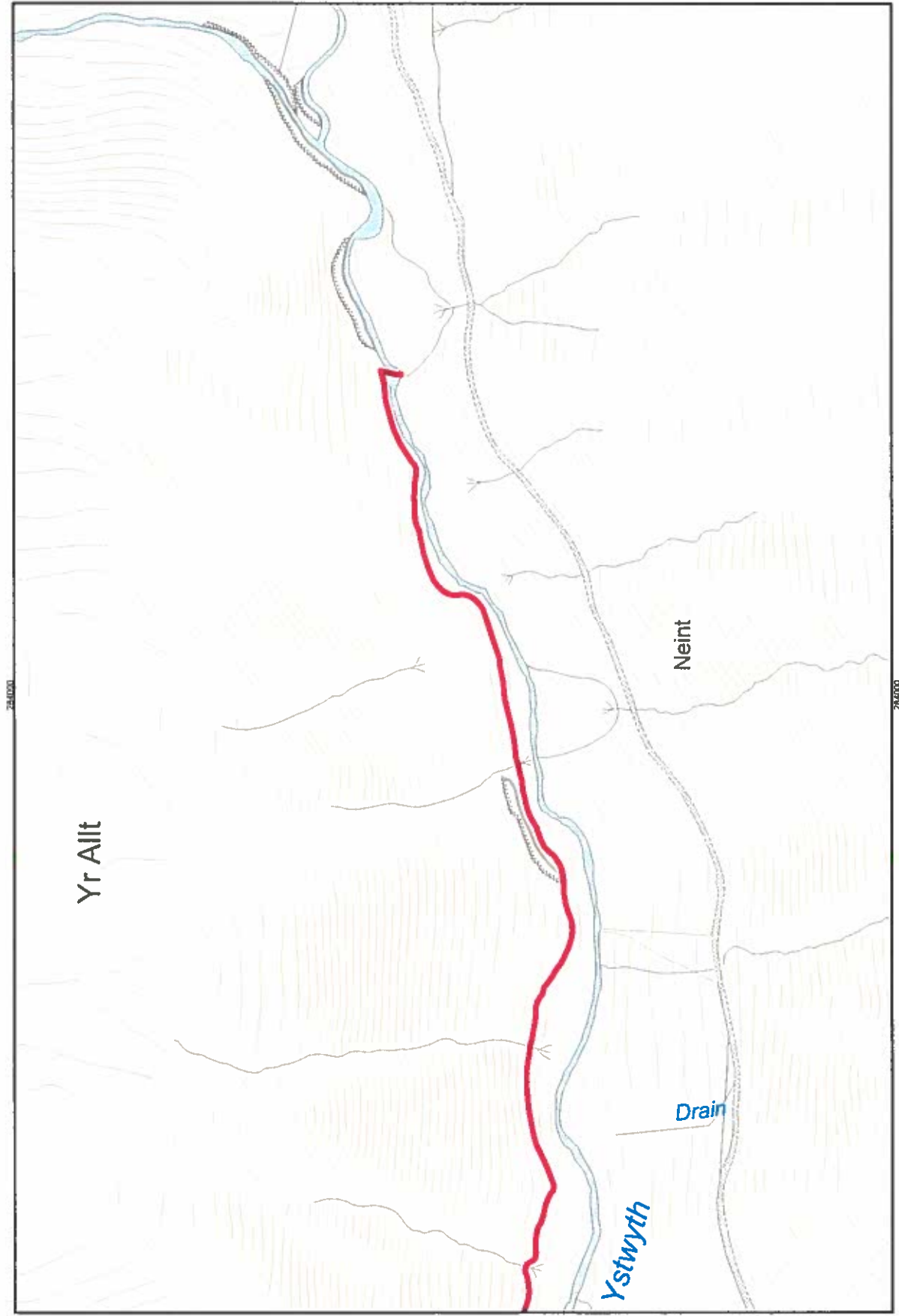


Fig 01: Map showing location of assessment area

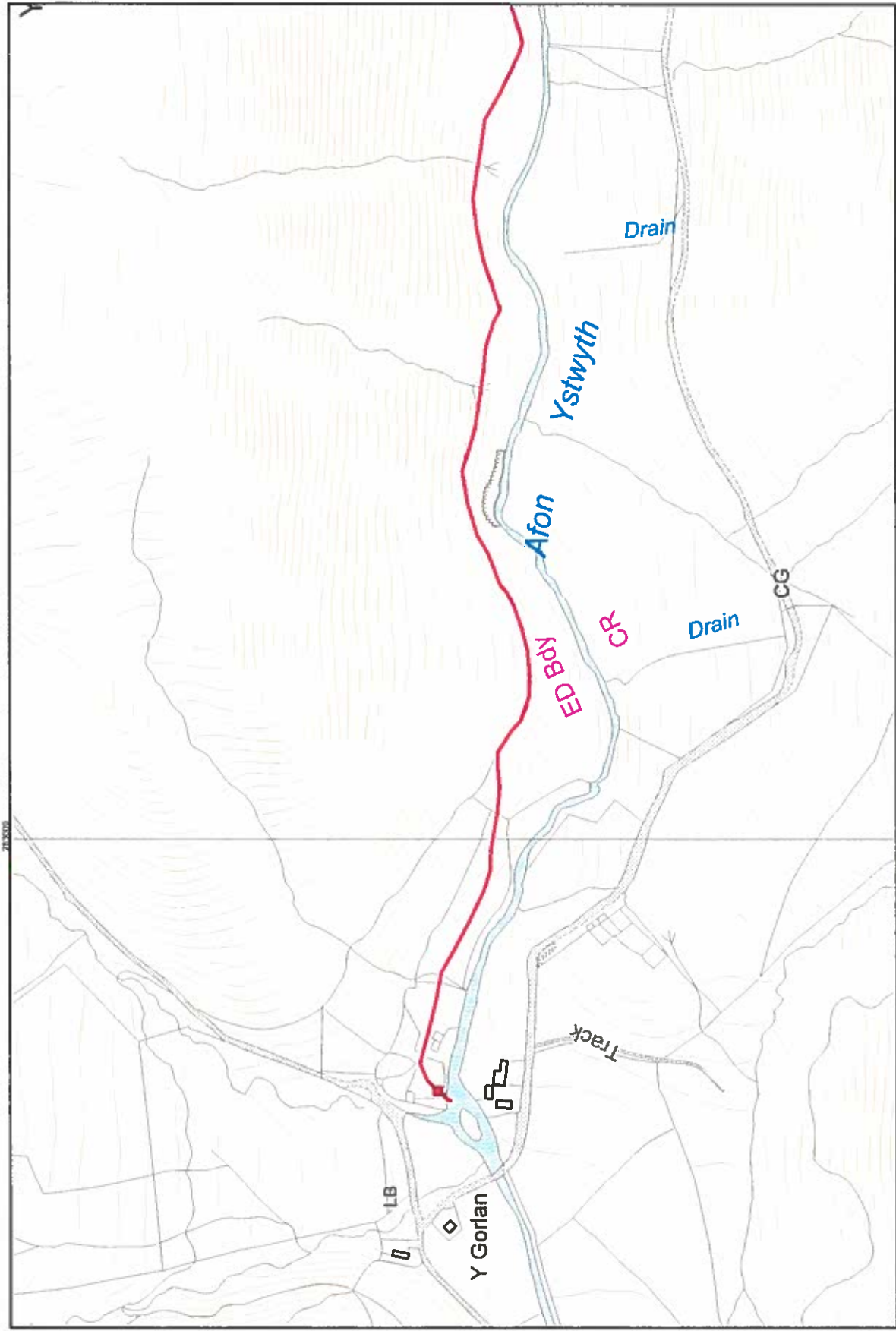
Ty-llywd Scheme 1 base map - east end Fig 2



Produced by CCW on: 15 June 2011
Scale 1:5000

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Ty-llwyd Scheme 1 map - west end Fig 3

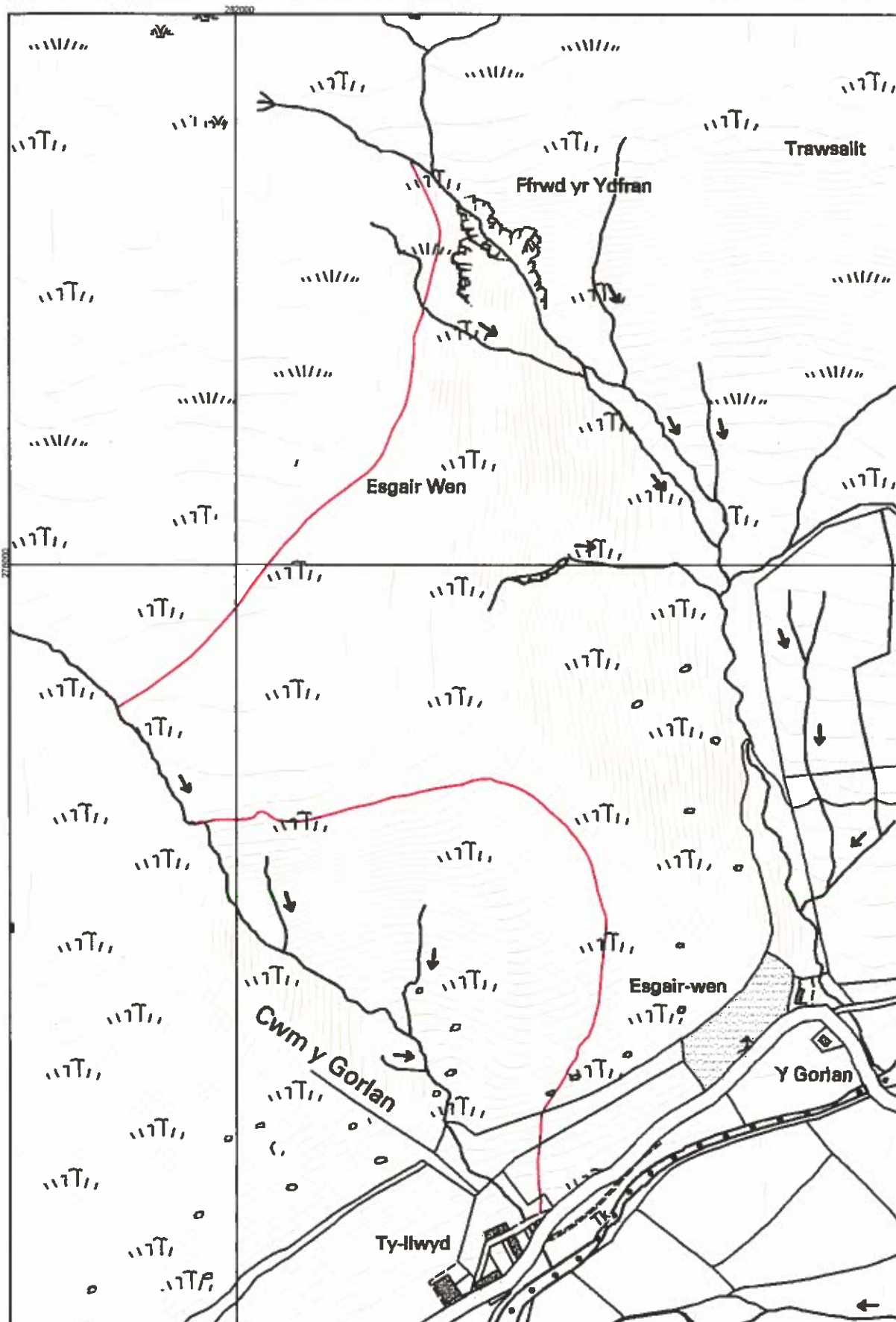


Produced by CCW on: 8 June 2011

Scale 1:5000

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Produced by CCW on: 1 November 2010

Scale 1:5353.5

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Cyngor Llyn Cwlad Cymru
Cymdeithas Cymru Cymru

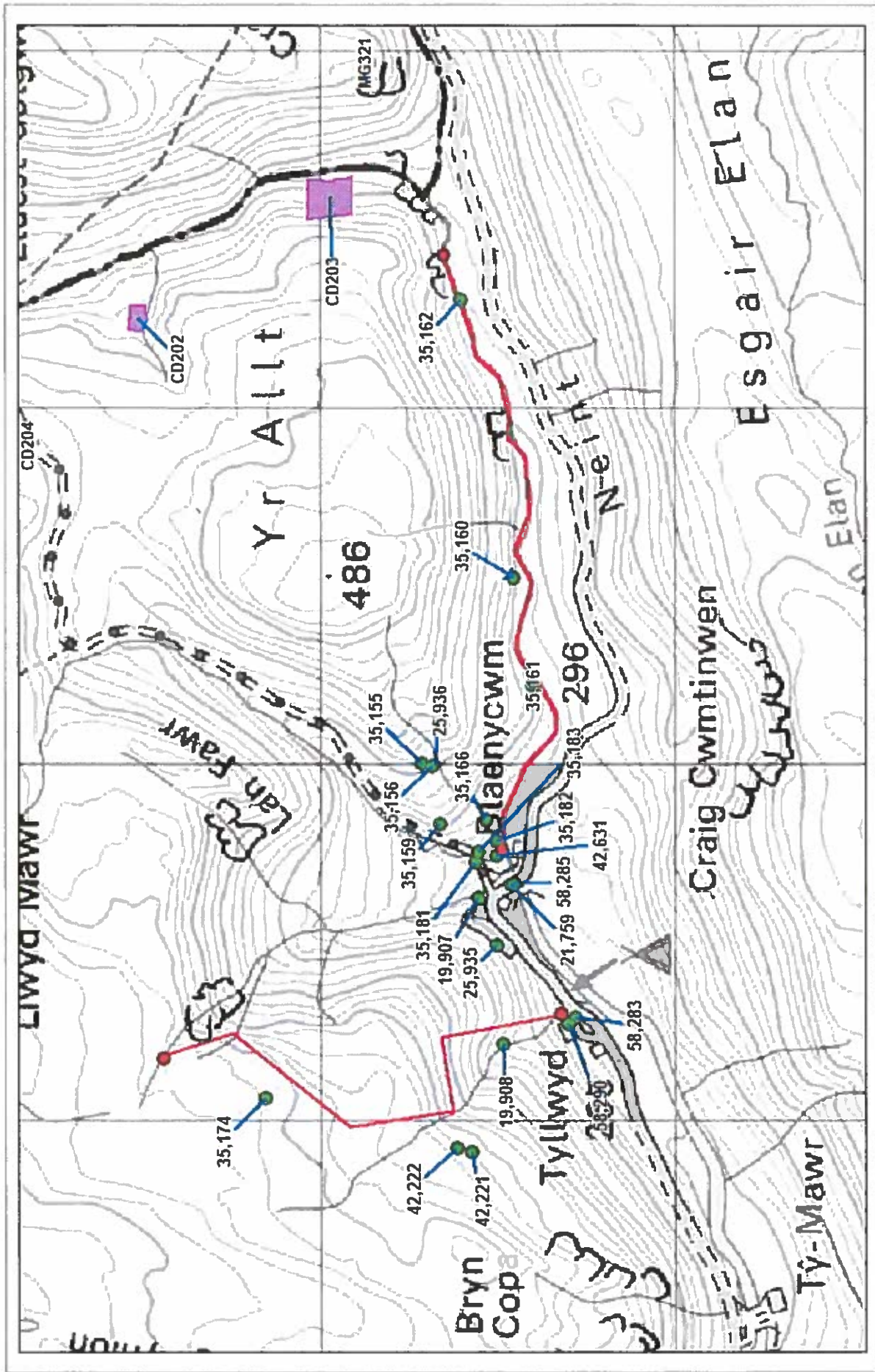


Figure 5: Map showing locations of HER data spots (Green) and SAMs (Pink) in relation to scheme routes (Red)

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APPENDIX II: Plates





Plate 1: Start point of scheme 1. Looking north. Note horizontal leat level



Plate 2: View along corridor of scheme 1, looking west along the Afon Ystwyth
Note leat level on northern bank



Plate 3: View of leat level at mid point of scheme 1, looking north



Plate 4: View along scheme 1 corridor looking east, leat level on northern bank of Afon Ystwyth



**Plate 5: View along western third of scheme 1 corridor, looking north west
Note level on northern bank of Afon Ystwyth**



**Plate 6: View of collapsed post-medieval structure at end of scheme 1,
adjacent to Blaenycwm**



Plate 7: View of collapsed post-medieval structure at Blaenycwm, western end of scheme 1



Plate 8: View of collapsed post-medieval structure at Blaenycwm, western end of scheme 1



Plate 9: View of collapsed post-medieval structure at Blaenycwm
western end of scheme 1



Plate 10: View north from southern end of scheme 2, looking up scheme 2
corridor

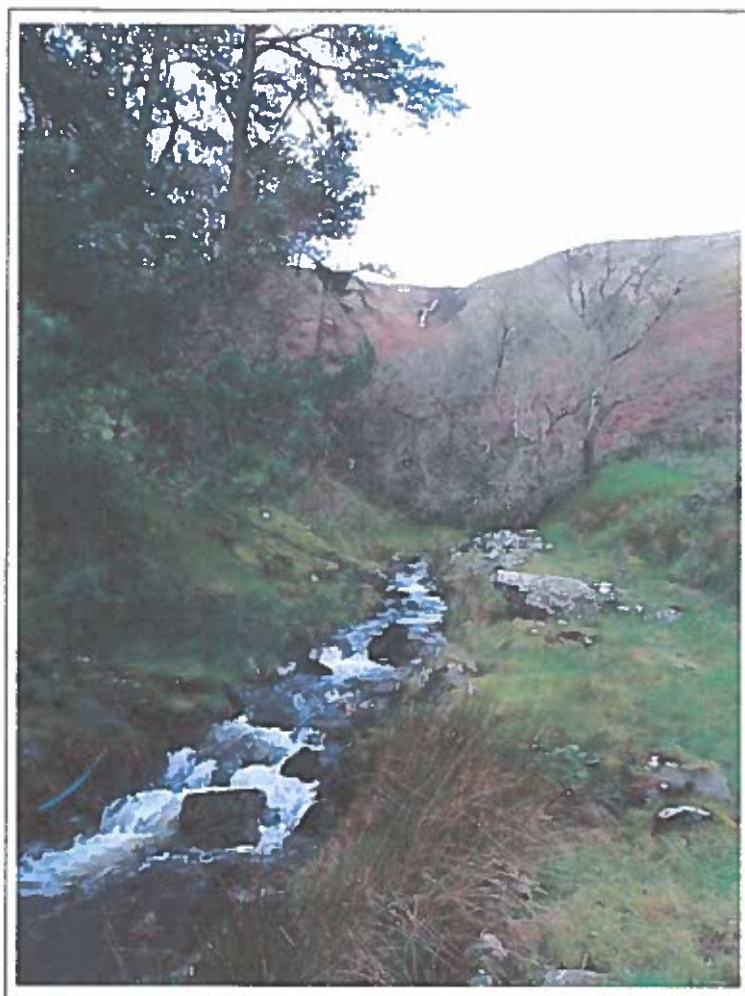


Plate 11: View of scheme 2 discharge point, looking north



Plate 12: View north along scheme 2 corridor

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APPENDIX III: Archive Cover Sheet

ARCHIVE COVER SHEET

Tyllwyd Hydro Schemes, Cwmystwyth

Site Name:	Tyllwyd Farm Hydro
Site Code:	TFC/11/DBA
PRN:	-
NPRN:	-
SAM:	-
Other Ref No:	-
NGR:	NGR SN85032 75679
Site Type:	Rural
Project Type:	Appraisal and Site Visit
Project Manager:	Chris E Smith
Project Dates:	Dec 2011-Jan 2012
Categories Present:	Post-medieval
Location of Original Archive:	AW
Location of duplicate Archives:	-
Number of Finds Boxes:	-
Location of Finds:	-
Museum Reference:	-
Copyright:	AW
Restrictions to access:	None