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# Dolgarrog Hydro-Electric Works:

## Dolgarrog, Conwy

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### Archaeological Assessment

GAT Project No. 2158  
Report No. 928  
April 2011

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# Archaeological Assessment: Dolgarrog Hydro-Electric Works

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Report No. 928

Prepared for  
Capita Symonds  
on behalf of  
RWE Npower Renewables Ltd

April 2011

By  
  
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Front cover: frontispiece from a 1788 book of maps of Lord Newborough's Estate,  
MSS maps volume 96, National Library of Wales

# G2158 HYDRO-ELECTRIC PIPELINE, DOLGARROG

## ARCHAEOLOGICAL ASSESSMENT

Project No. G2158

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# **DOLGARROG HYDRO-ELECTRIC PIPELINE (G2158)**

## **ARCHAEOLOGICAL ASSESSMENT**

### **SUMMARY**

*An archaeological assessment was carried out on land adjacent to the upper section of a hydro-electric pipeline from the reservoir at Coedty to the Electricity Power Station at Dolgarrog, Conwy. A complex and well preserved landscape was identified on the hill slopes above Dolgarrog, dating from the 15<sup>th</sup> century to the Victorian era, for which a significant amount of evidence survives in the form of farmsteads, structures and associated field systems. The earlier field systems consisted of irregular enclosures dating from the 15<sup>th</sup> to 18<sup>th</sup> centuries, generally around or close to the homesteads on mid- slope terraces, whilst a more regular field pattern was created as a result of 19<sup>th</sup> century enclosure, which extended into the more upland areas. Some of the settlement pattern identified may have had its origins in the later Middle Ages, but no definitely medieval features were recognised. Two cairns may be prehistoric and fragments of possibly prehistoric field systems were identified but prehistoric activity was poorly represented, despite the number of sites known in the wider vicinity.*

*The construction of a hydro-electricity generating station and associated aluminium works in the early years of the 20<sup>th</sup> century led to significant changes within the upland landscape involving construction of a series of dams and leats to provide a water catchment system for the new works. New roads and tramways were built to service the construction.*

*This report provides a gazetteer of within the study area and recommendations for further assessment and mitigation.*

### **1. INTRODUCTION**

Gwynedd Archaeological Trust (GAT) was asked by Capita Symonds to carry out an archaeological assessment in advance of works on water pipelines which feed Dolgarrog Hydro Electric Power Station. It is proposed to replace the upper part of the existing pipe from Coedty Reservoir to the valve house with a new pipe which is to be buried below ground along much of its route. A new pipe is also to be constructed to replace the existing pipe to the south-west of the valve house, known as the surge pipe. The proposed development area is shown on *Halcrow* drawing no WSEDOL-001C, and the study area is shown on figure 1. The area includes part of the valley of the Afon Porthllywd from the base of the Coedty dam to the valve house known as ‘Marble Arch’, at the top of Coed Dolgarrog and the steep escarpment forming the main valley side (SH7558 6673 to SH7656 6718).

#### **1.1 Acknowledgements**

The staff at Conwy Archives, Llandudno and the National Library of Wales are thanked for their help with providing archive material. Ashley Batten of Gwynedd Archaeological Planning Service (GAPS) is thanked for his help and guidance with this project. Iwan Parry of GAT, who assisted on the field survey, provided much useful help and advice.

### **2. DESIGN BRIEF AND SPECIFICATION**

It is proposed to replace the upper part of the over-ground pipeline which feeds Dolgarrog Hydro Electric Power Station with a new pipe which is to be part buried below ground. Gwynedd Archaeological Trust (GAT) has undertaken an initial scoping assessment of the study area (Evans 2010, GAT Report 900). This identified some 48 sites within the area, and included recommendations for mitigation. GAT was subsequently asked by Capita Symonds on behalf of their clients RWE Npower Renewables Ltd (RWE NRL) to provide a cost and project design for carrying out a more advanced stage of archaeological assessment which is to take into account a revised project layout. This includes the proposed pipeline route, compound areas and access routes (where known).

Gwynedd Archaeological Trust provided a project design to Capita Symonds for undertaking the assessment (Appendix 3). The current document reports on the full assessment consisting of a desk-based study involving primary and secondary sources and aerial photographs and a field walk-over survey.

A desk-based assessment is defined as ‘a programme of assessment of the known or potential archaeological resource within a specified area or site on land, inter-tidal zone or underwater. It consists of a collation of existing written, graphic, photographic and electronic information in order to identify the likely character, extent, quality and worth of the known or potential archaeological resource in a local, regional, national or international context as appropriate’ (*Standard and Guidance for Archaeological Desk-based Assessment*, IFA 2001, 2).

The aims of the assessment as given in the specification are:

- to identify and record the cultural heritage within the defined study area;
- to evaluate the importance of what has been identified;
- to recommend ways in which impact upon the cultural heritage can be avoided or minimised.

To comply fully with the aims expressed above it can be necessary to undertake a programme of Field Evaluation following the Desktop study and Field Visit. This is because some sites cannot be assessed by desktop or field visit alone, and additional fieldwork is therefore required. This typically takes the form of geophysical survey or trial excavation, although measured survey is also a possible option. A full programme of assessment and evaluation may therefore consist of the following phases:

- Desktop study
- Field walkover
- Initial report
- Field evaluation
- Draft report
- Final report

This phase of the project concerns the first three of these phases, and recommendations are made concerning further archaeological evaluation or mitigation.

### **3. METHODS AND TECHNIQUES**

#### **3.1 Desktop study**

The desktop study comprised the consultation of maps, documents, computer records, written records and reference works, which form part of the Historic Environment Record (HER), located at Gwynedd Archaeological Trust (GAT), Bangor. A search of the archives held by the Conwy Archives, Llandudno, Bangor University and the National Archives, Aberystwyth was undertaken. Aerial photographs from the Aerial Photography Unit, Cardiff were also inspected.

Information about listed buildings was consulted by means of the CARN (Core Archaeological Index), which is the online index of the Royal Commission on Ancient and Historic Monuments, Wales. Information about an upland survey carried out by *Cambrian Archaeological Projects* (CAP) in 2002 over part of the study area was obtained from this source.

Sites, buildings and find spots within the study area listed in the GAT HER and the National Monuments Record were identified. These are listed in Appendix 1 with PRN referring to the GAT HER unique Primary Record Number and NPRN referring to the National Primary Record Number.

#### **3.2 Field search**

The field search was undertaken in two stages. Two members of staff carried out a rapid search on 25<sup>th</sup> October 2010 of the general area around the existing pipe route. When the route of the replacement pipe and associated works was available a more detailed walk-over survey was carried out along that route. This was undertaken on 22<sup>nd</sup> and 24<sup>th</sup> February 2011. In October bracken still posed a problem to identifying some sites, but it had died

back by February, although the dead bracken still effectively obscured some areas. Detailed survey is still likely to locate some sites not identified by the field walk-over survey.

Notes were taken, sketches and measurements were taken of sites of potential archaeological interest and a photographic record was made. Sites were located by reference to modern and 19<sup>th</sup> century maps and in some cases were located with a hand-held GPS; however locations may not be precise, especially in the woodlands where GPS could not work with much accuracy. Weather and ground conditions were good for all site visits.

### **3.3 Report**

The available information was synthesised to give a summary of the archaeological and historic background and of the assessment and recommendations, as set out below. The separate features, their evaluation and recommendations are listed separately, and a summary of the overall assessment of the area is given at the end.

The criteria used for assessing the value of features was based upon those used by the Secretary of State for Wales when considering sites for protection as scheduled ancient monuments, as set out in the Welsh Office circular 60/96. The definitions of categories of importance and of terms used for impact, recommended field evaluation and mitigation are set out in Appendix 2.

## **4. ARCHAEOLOGICAL RESULTS**

### **4.1 Topographic description**

(note: PRN = Primary Reference Number of a site listed in the regional Historic Environment Record)

The Afon Porthllwyd flows within a hanging valley on the western side of the Conwy Valley. The valley runs roughly south-west to north-east, from the dramatic crags around Cwm Eigiau, with its lake, through an undulating upland plateau, before descending the steep valley side in a 'rocky chasm', the Porth Llwyd (grey portal) (Jones and Gwyn 1989, 19) that gives the river its name. Running roughly parallel to the north and the south are the Afon Dulyn and the Afon Ddu, respectively. These both have lakes in the corries at the heads of their valleys; Llyn Dulyn and Melynlyn on the Afon Dulyn and Llyn Cowlyd on the Afon Ddu. The study area runs along the base and sides of the hanging valley of the Afon Porthllwyd at an altitude of between about 260 and 230m OD, making it over 220m above the flood plain below.

The geology of the area is dominated by Ordovician slates, with contemporary and intrusive igneous formations (Roberts 1979). The steep escarpment of the Conwy valley is caused by an igneous formation. Boulder clay, containing pockets of peat, lines the hanging valleys. Peat also covers much of the uplands, whilst the floor of the valley is covered with alluvial deposits (Geological Survey of England and Wales, sheets 9 and 10).

The soils reflect the geological and climatic conditions, and are badly drained and acidic (Smith and George 1961). Land use, outside the industrial activities around Dolgarrog itself, is restricted to pasture and meadow in the flood plain, and rough grazing for sheep on the uplands, with woodland on the escarpment.

### **4.2 Archaeological and historical background**

#### **4.2.1. Earlier Prehistoric**

An Early Neolithic chambered tomb on the valley floor at Porthllwyd was badly damaged in the Dolgarrog dam disaster in 1925 (PRN 1544), and its site is now under the hydro-electric works. A worked flint flake (PRN 4615) was found close to this tomb, and a polished stone axe (PRN 4573) was found on the valley side adjacent to Afon Ddu. No other prehistoric sites are known within or immediately adjacent to the study area, although a large number are known from the wider area on the west side of the Conwy valley. Two Bronze Age ring cairns (PRNs 684 and 685) have been located close to the farmstead of Fachell and three other cairns with evidence of cists (PRN 3765, 5181 and 3779) are positioned in a line up the ridge from Bwlch Cowlyd to Pen Llithrig y Wrach, with PRN 3779 on the ridge. A standing stone (PRN 5280) is located next to the track along the south-eastern slope of Moel Eilio, possibly indicating a Bronze Age route.

#### 4.2.2 Late Prehistoric / Romano-British

The Iron Age hillfort of Pen y Gaer (PRN 663, Scheduled Ancient Monument number Cn023) is about 2km north-west of the study area and there is closer evidence of late prehistoric settlement. A large roundhouse settlement (PRN 705) on the north-western slopes of Moel Eilio, possibly originated in the Iron Age, and is thought to have continued in use until the 3<sup>rd</sup> century AD. A number of isolated round huts on the upland pasture (PRN 3775 and 5622 in Cwm Eigiau; PRN 3766 on Bwlch Cowlyd) may have formed part of a transhumance system, which is also suggested by their presence close to later *hafotai*. It seems probable that there was cultivation within the study area in the Iron Age and Roman periods, but evidence of this is difficult to detect.

It is likely that the present road along the west side of the Conwy valley (B5106) follows the former Roman road (PRN 17,703) from the Roman fort at Caerhun to the fort at Bryn y Gefeiliau between Betws y Coed and Capel Curig (Davidson and Gwyn 1995, 4). The Roman fort at Caerhun lies about 2.5km north of the northern boundary of the study area.

#### 4.2.3 Medieval

In a charter dated 1198 Llywelyn Fawr granted the lands of Ardda and Dar-las to the Cistercian monastery at Aberconwy, for use as a grange (Gresham 1939). However, Gresham doubts the date of the charter and believes that the land was not granted in full until the beginning of the 13<sup>th</sup> century (*ibid.*, 125). In 1284 Edward I transferred the monastery to a new site at Maenan, contiguous with the grange of Ardda and Dar-las. The boundary of this grange extended from Llyn Cowlyd along the ridge to the summit of Pen Llithrig y Wrach, descending a stream and joining the Afon Eigiau before crossing the end of Llyn Eigiau and heading towards the Afon Conwy (*ibid.*, 157-158). The boundaries of the township of Dolgarrog are co-terminus with this. To the north of the township of Dolgarrog lay the commote of Arllechwedd Isaf, extending from the left bank of the Conwy estuary to the confluence with the Afon Porthllwyd adjacent to the Ardda lands (Jones-Pierce 1944, 162). Dolgarrog was therefore presumably within the commote of Nant Conwy, although Carr places the commotal boundary further south and includes Dolgarrog in Arllechwedd Isaf (Carr 1977, 72).

Previously known medieval settlement and farming activity close to the study area seems to have concentrated in three main areas: in the area of Ardda (on the south side of Moel Eilio), within the far west end of Cwm Eigiau, and in the northern parts of Waun Bryn Gwenith. The most significant of these are the remains of the medieval township of Ardda, mentioned in a mid-15<sup>th</sup> century manuscript (*Bangor MS. 1939*). The settlement was occupied into the 18<sup>th</sup> century, but is now deserted (Jones-Pierce 1944). The surviving ruined buildings, consisting of single long huts, field walls, banks and enclosures are probably of the mid to later period of occupation of the site (RCAHMW 1956), although it is possible that some of the field boundaries and some of the buildings on the southern slopes of Penardda date from the period when this area was a monastic grange. However most of the evidence concerning these sites comes from the Tudor or 17<sup>th</sup> century era (Withers 1995). The likely socio-economic structure of the settlements is discussed by T. Jones-Pierce (1944).

A number of trackways cross the study area, including one that headed north-east past Pen Bryn Brwynog, along the ridge, and crossed the Afon Porthllwyd at Pont Newydd (Feature 61). This would have formed part of the early route across the uplands towards Capel Curig from Llanbedr (GAT 2001).

#### 4.2.4 Post-Medieval to Modern (1500-1850)

The medieval land structure within the study area became fragmented partly because of the Welsh law of partible inheritance. This ended in 1535 with the first of the Acts of Union, which also allowed for easier buying and selling of land. Large estates were built up by purchase and marriage during the next three centuries, resulting in dominant landowning families such as the Bulkeley's of Baron Hill, Wynne's of Glynllifon and Wynn's of Gwydir. The growth of the threefold social structure of landowner / tenant / labourer eased the transition from feudalism to capitalism, and encouraged the assimilation of small parcels of land into rentable farms (Longley 2006, 61-82).

The farms on the uplands consisted of scattered medium sized holdings which were generally established on the slopes of the hill, making use of the lands both on the river meadow and on the upland pastures (Butler 1981, 34). This characteristic pattern of settlement has been shown to have evolved from the late Middle Ages and in the century or so after 1500 when the settlement patterns of earlier agrarian systems decayed, to be replaced by consolidated farmsteads. Encroachments on the waste and on common land were prompted by population pressure and legal and social changes associated with Wales incorporation into the English state following the Acts of Union of 1536-1542. Survival of enclosures and associated small paddocks around the farmsteads, probably dating from the sixteenth century, have been identified just to the north of the study area

in Caerhun and Llanbedr y Cennin parishes (Withers 1995), and similar field patterns are apparent here. These suggest scattered islands of settlement, each with a contiguous scatter of small fields, with the holdings marked out clearly, which can be seen on maps from 1777 onwards at Ffridd Eithinog (*ibid.*, 43). This pattern is particularly apparent around Pont Newydd and Ffridd Ddu farmsteads within the study area. The relict walls are sometimes associated with long huts (Hooke, 1997, 94), and two have been identified within the study area (Features 13 and 36), with a small farmstead also identified (feature 94). Excavation of similar sites has suggested a variety of structural types and for evidence of internal sub-divisions, with very shallow foundations (Smith and Thompson 2006, 128-132). The long huts identified within the study area are all aligned along the hill slope, rather than perpendicular to it as is typical for medieval long huts, and they lack the bank of a drainage hood. Excavation would be necessary to date these structures but the visible remains are more consistent with early post medieval rather than medieval buildings. It is likely that much of the earlier field system and farms within the study area date from the 16<sup>th</sup> century, although some may have developed in the 15<sup>th</sup> century. However it is possible that some of the long huts that did not develop into 19<sup>th</sup> century farms have an earlier date.

The field boundaries, which survive as ‘wandering walls’, survive amongst the more regular field systems created by the mid 19<sup>th</sup> century Parliamentary Enclosures (Davies 1979, 42-44). An upland survey of Eastern Snowdonia, carried out by *Cambrian Archaeological Projects* (CAP) identified a number of sites of this date both within the study and the wider area (Jones 2003).

Place and field names can be useful in tracking the history of settlement and land-use. Tithe maps normally give field names but those for Dolgarrog (Figure 5) and Caerhun just indicate the limits of farmsteads within the study area. However an estate map of 1788 (Figure 2) gives a detailed plan of the field boundaries to the south of Afon Porthllwyd and a sale catalogue for Dolgarrog dated 1896 (Figure 7) provides some field names for the farm of Coed Sadwrn. The 1896 map includes Erw Bellaf, Erw Ty and Erw Bach. ‘Erw’ is a term generally interpreted as relating to medieval arable cultivation (Hooke 1997, 83), and the 1788 map shows some of these under arable in the 18<sup>th</sup> century. The 1788 map includes several fields called Cae Lloi (field of the calves), suggesting that cattle were also important, so the meadow land indicated alongside the Porthllwyd would have been valued. The ‘coed’ (woodland) names of the farmsteads do suggest that the area was not cleared until after the medieval period, and Ffridd Ddu implies the enclosure of common or upland, but ‘ffridd’ can sometimes also suggest woodland (Hooke 89-90).

Land on the north side of the Afon Porthllwyd lay within the parish of Caerhun, while the township of Ardda and Dar Lâs (later Dolgarrog) created from the monastic grange at the Dissolution, was within the parish of Llanbedr y Cennin, although separated from the rest of that parish. The meadows on the floor of the Conwy valley, as far as the site of the old Abbey on the eastern side of the river, were extra-parochial, and south of the Afon Ddu were the united parishes of Trefriw and Llanrychwyn. The lands of the Abbey and nearly all of Dolgarrog township were owned by Lord Newborough of Glynllifon, and formed one of the dispersed holdings of his former estates (Figure 3). The land to the north-west, within the extensive parish of Caerhun formed part of the Gwydir estate (Jones and Gwyn 1989, 21). The tithe map of 1847 for the township of Dolgarrog shows the holdings (Figure 5) and the associated tithe apportionment is given below:

Landowners	Occupiers	Number on Plan	Name and Description of Land and Premises	State of Cultivation	Quantities in Statute Measure A R P
Lady Erskine	Henry Jones and others	24	Ardda	Arable, Pasture and Meadow	561 28
Lord Newborough	Edward Elias	12,12a,12b	Coed Sadwrn	“	144 2 35
	John Williams	10,10a	Coiti hir	“	81 22
	John Jones and others	11	Coiti bach	“	55 2 -
	William Roberts	9	Pyll du	“	172 3 14
	Robert Williams others	8	Eilio	Pasture and Meadow	215 4
	David Hughes	3	Hafod y rhiw and part of Llyneigiau	“ [Lake 2-0-0]	102 3 9
	Elinor Davies	2	Cedryn	Pasture and Meadow	478 28



	Owen Thomas	1	Cowlyd Part of Llyn Cowlyd	“ [Lake 83-0-0]	578 3 12
	John Griffith	5	Garregwen	Pasture and Meadow	141
	William Edwards and William Williams	6	Siglen and Pant	Arable, Meadow and Pasture	131 2 12
	William Hughes	7	Penbryn brwynog	“	166 37
	John Williams	14	Fulling Mill	Waste	2 1 13
	Richard Williams	15 and 15a	Tyn y Gerddi	Arable and Meadow	11 3 33
	Moses Jones	23 and 23a	Pant Teg	Arable and Meadow	21 16
	William Thomas	22	Cefn Morfa	Meadow	8 2 18
	Himself	13	Wood	-	108 2 26
	John Jones	16,16A,16B	Ty Newydd	Arable	17 2
	Richard Roberts	17,17A,17B	Ty ucha'r Ffordd	Arable[17] Meadow [17A and 17B]	17 2 17
	David Roberts	18, 18A	Tan y Ffordd	Arable [18] and Meadow [18A]	9 1 2
	William Hughes	19,19A	Tyddyn Isa	Arable and Pasture [19], Meadow [19A]	14 2 35
	William Roberts and Robert Roberts	20, 20A	Glanrafon	Arable and Pasture [20] and Meadow [20A]	11 1 16
	Owen Owens and others	21	Pladurian hirion	Meadow	10 3 32
	Tenants in Ardda	4	Eilio Mountain	Common	235 3 1

Use was made of the Afon Ddu as a source of water to power mills. It has been suggested that a *pandy* (fulling mill) located at SH 77416630 dates from the monastic period at Dolgarrog, although the first reference to this is in 1575 (Jack 1981, 88). The mill became the property of the Glynllifon estate and is recorded in the Glynllifon archive (Gwynedd Archives, Caernarfon) between 1787 and the break-up of the estate in the mid 20<sup>th</sup> century. A painting of this mill by William Muller hangs in the Williamson Art Gallery, Birkenhead. It was replaced by a woollen factory in c.1803 (Gwyn 2006, 121), and there was also a saw mill on the site (Jones and Gwyn 1989, 23, 24). On the Afon Porthllwyd there was a small water mill to grind corn (*ibid.* 24).

The current B5106 road, running down the west side of the Conwy valley was turnpiked in 1777, which may be when the present Dolgarrog Bridge was built.

#### 4.2.5 Modern (1850 to present)

The industrial history of Dolgarrog is eloquently told by Eric Jones and David Gwyn in their 1989 book *Dolgarrog-An Industrial History*, from which much of the following information has been gleaned.

Small scale industrialisation started in the early 19<sup>th</sup> century when an iron sulphide mine and other small slate quarries were established in the neighbouring side valleys. Lead was mined on the land of Coedty Bach, ochre and sulphur on Coedty Mawr and Coed Sadwrn, although these were small and short-lived mines (Gwyn and Nevell 2006, 7). Small slate quarries were opened at Cedryn and Cwm Eigiau and worked between 1825 and 1873. Between 1861 and 1866 a tramway was built to join these with a wharf on the Conwy (Jones and Gwyn 1989, 22). The tramway did not last long, but it was reused for many subsequent developments. In particular the incline that took the tramway down the steep escarpment of the valley side proved useful for access to the uplands throughout the 20<sup>th</sup> century.

The water of this area was first collected to supply Llandudno with drinking water. Between 1878 and 1881 a dam was built at Dulyn and between 1891 and 1897 another dam was built at Llyn Cowlyd. The water from this dam was carried down to the valley floor in a cast iron pipe running next to the Afon Ddu. However the steep fall from the hanging valleys made the area particularly suitable for generating hydro-electric power; a power source being experimented with in North Wales from the late 1870s (Gwyn 2006, 142). Land above Dolgarrog was bought in the 1890s with the aim of developing hydro-electricity but little happened on the ground until 1907 when an aluminium extraction and smelting plant was established at Dolgarrog and the lakes and rivers were harnessed to supply water for a hydro-electric station to power the works (Jones and Gwyn 1989).

Work on a dam at Llyn Eigiau and related leats and pipelines started in May 1908, reusing the slate tramway to create a railway to bring men and materials to the works. By 1911 the work was complete and the aluminium works were powered by a hydro-electricity station which derived its water from Llyn Eigiau and the Afon Ddu. The water catchment works took a large amount of labour and up to 400 men lived in a shanty town, probably located within the study area near Coedty Mawr. This had a chapel and several grocery shops (Jones and Gwyn 1989, 39).

Part of the railway was reused in 1916 and extended to Llyn Cowlyd, when the dam here was rebuilt. This tramway continued in operation for about fifty years, and has left small sidings with corrugated iron sheds within the study area (Jones and Gwyn 1989, 178-183).

The aluminium works expanded during and after the First World War creating a need for housing, and resulting in the growth of Dolgarrog village. A new dam at Coedty and associated pipes were constructed in 1923 to 1924, but in 1925 a breach occurred in a badly built section of the Llyn Eigiau dam. The resulting flood water overwhelmed the new Coedty dam and caused it to collapse suddenly releasing a vast quantity of water that caused a devastating flood in the village below. The flood resulted in the deaths of sixteen people in Dolgarrog, partly destroyed the Porth Llwyd Neolithic chambered tomb and damaged the new pipework as well as the dam (Jones and Gwyn 1989, 113-125). However, the Coedty dam and pipes were rebuilt by 1927 (Jones and Gwyn 1989, 123).

In the 1950s another leat was added to the water catchment system, the design of which benefited from the Colwyn Bay based architect Sidney Colwyn Foulkes, whose design works also included the Tafolog Wier, to the north of the study area. A map produced in advance of improvement works at the Power Station, shows the pipelines, leats, and narrow gauge line (Figure 8). Colwyn Foulkes was a local architect, who achieved a national reputation for the design of hospitals, cinemas and housing estates. His work as landscape consultant on the Dolgarrog project earned the scheme a Civic Trust Award (Conwy Archive Service 2008).

#### **4.3 Statutory and non-statutory designations**

The study area lies within the Lower Conwy Valley Landscape of Outstanding Historic Interest in Wales (Ref: HLW (Gw) 4) (Cadw/ICOMOS 1998), which is described as a *topographically diverse landscape straddling the lower Conwy valley and adjacent uplands on the north eastern flanks of the Carneddau ridge in north Snowdonia, containing extensive and well-preserved relict evidence of land use, communications and defence from the prehistoric period onwards. The area includes: Neolithic chambered tombs; Bronze Age funerary and ritual monuments; Iron Age hillforts, settlements and field systems; a Roman fort and road; medieval motte, settlements and field systems; Parliamentary Enclosures; an early hydro-electric power station and aluminium works.*

The northern part of the study area and much of the pipe route are within the Coed Dolgarrog (2018) Historic Landscape Character Area (HLCA). This is described as an area of ancient woodland with water management features. The remainder of the study area is within the Enclosed Uplands HLCA (2008), which is an area rich in archaeological sites, with large enclosures and traces of early industrial exploitation (GAT 1999, 30-31).

The southern part of the study area lies within the Snowdonia National Park. About 470m of the main replacement pipeline route lies within the National Park, along with all the tracks to be improved for the works, most of the temporary compounds and the new penstock at the eastern end of the study area. There are no Scheduled Ancient Monuments or listed buildings within the study area.

#### 4.4 The Archaeological Survey (Figure 9)

One hundred and five features have been identified directly within or contiguous with the study area and within 30m of it; the features are located on figure 9. These are identified with a project specific feature number but those features that have been newly identified for this project have also been allocated a PRN (Primary Record Number) for the Gwynedd HER. Existing features already have a PRN and all the PRNs are included in the gazetteer below. The features are briefly described in the gazetteer forming Appendix 4 with recommendations for further assessment and mitigatory measures, where appropriate. The recommendations are summarised in section 6 below. The recommendations reflect the information currently provided by Capita Symonds, and assume impact only within a suggested easement around the pipeline of 60m. Any change to the boundary of the proposed development area will require the recommendations below to be changed also.

Sites have been given a category of importance (see Appendix 2) by considering them as part of their contemporary landscape. This means that field boundaries associated with early farm sites have been given the same importance category as the farm buildings (mostly category B). Obviously the destruction of a small section of a field boundary is of less significance than the destruction of the farmstead, but it is important to see features as part of a landscape rather than isolated elements. The whole water catchment system has been categorised as level B importance, because it is part of an industrial landscape including an early hydro-electric plant and the aluminium works that is clearly of regional importance. The earliest part of this system, i.e. that dating from before 1914, is of national importance and has been categorised as A.

A 'C' after the grid reference indicates that the reference is for the centre of the feature or field system, and 'A' after the grid reference indicates the general area of the feature, which may however extend over a wider area.

In the text in the gazetteer the maps referred to are as follows:

1788 map: Lord Newborough's Estate map, MSS maps volume 96, National Library of Wales (Figure 2)

1816-1824 map: Ordnance Survey preparatory map, MSS f34081, Bangor University Archives (Figure 4)

1889 map: Ordnance Survey 25 inch 1st edition map of 1889, Caernarvonshire sheets XIII.7 and XIII.8 (Figure 6)

1896 map: Sale catalogue of Dolgarrog Estate, Caernarvonshire 357, National Library of Wales (Figure 7)

1900 map: Ordnance Survey 25 inch 2nd edition map of 1900, Caernarvonshire sheets XIII.7 and XIII.8

1913 map: Ordnance Survey 25 inch 3rd edition map of 1913, Caernarvonshire sheets XIII.7 and XIII.8 (Figure 9)

1950s map: Colwyn Foulkes Collection C/Maps 21/2/11/1/2, Conwy Archives (Figure 8)

## 5. SUMMARY OF ARCHAEOLOGICAL POTENTIAL

### 5.1 Summary of sites found in the archaeological survey

The landscape of dispersed farms and fields evolved in the early modern period from a more disparate pattern of medieval settlement combined with the enclosure of waste and common grazing land. Close dating of the relict buildings and field systems is difficult, but one farmstead was deserted by the 19<sup>th</sup> century, and others of medieval date may only survive as buried archaeology. This landscape is complete with routeways linking it to both the valley below and the higher ground to the west. Wooded areas may be survivors of ancient woodland, carefully managed in the past for timber, panage and fuel.

There are a few slight traces of an earlier field system. These are fragmentary and unclear at present but could represent prehistoric fields. Possible prehistoric activity may also be represented by the two larger cairns above Coed Sadwrn (feature 40).

The straightening of field boundaries and the construction of new farmhouses and farm buildings in the 19<sup>th</sup> century, though of localised impact, left much of the earlier landscape intact. Of greater impact were the industrial developments of the late 19<sup>th</sup> and early 20<sup>th</sup> centuries which add a significant overlay to the rural landscape. The different phases of leats, the pipelines and the dam now form 'a remarkable industrial landscape' (Gwyn 2006, 126). The developments at Dolgarrog were part of the first phase of global innovation in hydro-electric power and as such 'the physical remains are a nationally, and possibly internationally, important survival' (Gwyn and Nevell 2006, 14).

## **5.2 Location, Summary and Setting**

The study area consists of 50ha of upland plateau to the west of Dolgarrog, Conwy above a steep escarpment, centred on NGR SH 76556718 at a height of 260-230m OD (Figure 1). The area consists of dispersed settlement on mid slope terraces above the river valleys. The importance of this landscape is demonstrated by part of it being within the Snowdonia National Park and all of it being included within an area of outstanding historical interest as defined by Cadw (Cadw/ICOMOS 1998).

The impact on this setting should be considered. To a large extent the proposed works will reduce the visual impact of the penstock pipe, as for much of its length it is to be buried. However, the trench to bury the pipe and the access track beside it will require considerable remodelling of the landscape including the felling of trees and the removal of large boulders and rock outcrops, as well as impact on archaeological features. The importance of the woodlands as a historic feature has been highlighted by the creation of the Coed Dolgarrog Historical Character Area. Some of the existing mature trees have been deliberately planted on field boundaries and other retain evidence of former coppicing regimes, while the woodland in general is an important element in the character of the area and how people now and in the past have experienced it. This is in addition to the ecological importance of the ancient woodland.

The works will have a large impact on small sections of woodland but this represents a small proportion of Coed Dolgarrog as a whole. The areas which will be impacted most severely are not easily visible from any public roads or footpath or from distant vantage points.

The current report forms part of an Environmental Impact Assessment (EIA). A usual requirement in an EIA within a landscape on the Cadw Register of Landscapes of Historic Interest is for an Assessment of the Significance of the Impact of Development on Historic Landscape (ASIDOL) to be carried out according to the Technical Annex of the Guide to Good Practice on Using the Register of Landscapes of Historic Interest (Cadw 2007). The current report covers many of the issues explored in an ASIDOL and may be considered adequate due to the limited impact on the Historic Landscape area as a whole.

## **5.3 Environmental Remains and Soil Morphology**

The peats of the uplands have a high potential for preserving a good pollen record, especially those in small bogs near farmsteads. However, the proposed works will not damage any peat bogs or affect the drainage regime of the area beyond that currently done by the Hydro-Electric works, so it will have no impact on this preserved record. Most of the area to be crossed by the scheme seems to have fairly thin soils, mostly at least occasionally disturbed by ploughing. Relict soils might be preserved under later field walls, especially those that may have been in use since the medieval period. The study of recovered palaeo-environmental remains might provide further understanding of the transhumance system employed in the upland regions around Dolgarrog (Caseldine 2006, 149).

## **5.4 Artefactual Potential**

The potential for the survival of prehistoric artefacts is unknown. However finds found in association with medieval upland settlement, identified in the survey and in significant quantity in the surrounding area (Withers 1995, Hooke 1997), is usually very limited in Wales. Artefacts associated with post-medieval and modern archaeology are moderately likely to survive.

## 6. SUMMARY OF RECOMMENDATIONS

The following table summarises the recommendations given above.

Feature No	Site name	Importance	Impact	Recommendation for further assessment	Mitigation recommendations
1	Coed Sadwrn Cottage	B	None	None	Avoidance
2	Coedty Mawr structure	E	None	None	Avoidance
3	Coedty Mawr sheepfold	B	None	None	Avoidance
4	Coedty Mawr farmhouse	B	None	None	Avoidance
5	Coedty Mawr well	E	None	None	Avoidance
6	Llyn Coedty Structure	D	Likely	None	Basic recording
7	Ffrith Ddu House	B	Considerable	None	Basic recording, fencing and avoidance
8	Pont Newydd Structure II	C	None	None	Avoidance
9	Coed Sadwrn Track	B	Significant	None	Survey and evaluation trenching
10	Llyn Coedty Leat	B	Considerable	None	Basic recording
11	Pont Newydd Cottage	B	None	None	Avoidance
12	Pont Newydd Structure I	C	None	None	Avoidance
13	Hafod or long hut	B	None	None	Avoidance
14	Hollow way and field system above Coed Sadwrn	B	None	None	Avoidance
15	Modern bridge	D	Likely	None	Basic recording
16	Drystone wall field boundary	B	Likely	None	Avoidance and fencing
17	Clearance cairn	C	None	None	Avoidance and fencing
18	Drystone wall	C	None	None	Avoidance
19	Possible ridge and furrow cultivation	E	None	None	Avoidance
20	Drystone wall	B	Considerable	None	Basic recording and fencing
21	Possible ridge and furrow cultivation	E	Likely	None	Avoidance
22	Clearance cairn	C	Considerable	None	Basic recording and fencing to ensure avoidance
23	Drystone wall	B	Likely	None	Basic recording and fencing to ensure avoidance
24	Coedty Reservoir	B	None	None	Avoidance
25	Pipe	B	Considerable	None	Basic recording
26	Drystone wall	B	Likely	None	Basic recording and fencing to ensure avoidance
27	Drystone walls	B	Likely	None	Basic recording and fencing to ensure avoidance
28	Drystone wall with possible inscribed stone	E	None	None	Avoidance
29	Drystone wall	C	None	None	Avoidance
30	Remnant of wall forming part of a structure	C	None	None	Avoidance

Feature No	Site name	Importance	Impact	Recommendation for further assessment	Mitigation recommendations
31	Terraced field boundary and possible trackway	E	Considerable	Survey and evaluation trenching	Dependant on results of further assessment
32	Natural outcrop/clearance cairn	E	Considerable	Survey and evaluation trenching	Dependant on results of further assessment
33	Trackway	D	Likely	None	Basic recording
34	Field boundary	B	Significant	None	Survey and trenching
35	Possible ridge and furrow cultivation	E	None	None	Avoidance
36	Stone structure/long hut	E	Likely	None	Fencing and avoidance
37	Entrance into enclosure	B	Likely	None	Fencing and avoidance
38	Probable clearance cairn	D	Likely	None	None
39	Field boundaries	B	None	None	Avoidance
40	Cairns	E	None	None	Avoidance
41	Field boundary wall	B	None	None	Avoidance
42	Field boundary wall	B	None	None	Avoidance
43	Trackway	C	Considerable	None	Basic recording
44	Field boundary wall	B	None	None	Avoidance
45	Field boundary wall	B	None	None	Avoidance
46	Former drum house and Coed Sadwrn railway yard	B	Likely	None	Basic recording, fencing and avoidance
47	Sub-oval enclosure	B	Likely	None	Fencing and avoidance or detailed survey
48	Coedty Bach	E	None	None	Avoidance
49	Pont Newydd Bridge	E	None	None	Avoidance
50	Pipeline, Dolgarrog Hydro-electric Plant	B	Unlikely	None	Avoidance
51	Dolgarrog Hydro-electric Plant	B	None	None	None
52	Incline, Ardda	A	None	None	Avoidance
53	Relict wall, Ardda	C	Likely	None	Basic recording, fencing and avoidance
54	Terraces, Ardda	B	Unlikely	Survey	Avoidance
55	Long hut, possible, Ardda	E	Unlikely	None	Avoidance
56	Tramway to Cwm Eigiau	A	Considerable	None	Basic recording
57	Coed Dolgarrog well	C	None	None	None
58	Leat and related drains	A	Slight	None	Basic recording
59	Incline for hydro pipe	A	Considerable	None	Detailed recording including a topographic survey
60	Building shown by track to Coed Sadwrn	C	None	None	Avoidance
61	Route to Llyn Cowlyd	B	Likely	None	None
62	Probable location of Tyddyn Du	B	None	None	Avoidance
63	Possible path to Ffridd Du	E	None	None	Avoidance
64	Low Level Leat	B	None	None	Avoidance
65	The Huts, site of shanty town	E	Unlikely	Survey and evaluation trenches	Dependant on results of further assessment
66	Siding to granite quarry	B	None	None	None

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<b>Feature No</b>	<b>Site name</b>	<b>Importance</b>	<b>Impact</b>	<b>Recommendation for further assessment</b>	<b>Mitigation recommendations</b>
67	Possible penstock railway branch	B	None	None	None
68	Tumbled field wall	C	Significant	None	Survey and evaluation trenches
69	Possible field boundary	E	Considerable	Survey and evaluation trenches	Dependant on results of further assessment
70	Trackway	D	Significant	None	Basic recording
71	Possible building platform or quarry	E	Likely	Survey and evaluation trenches	Dependant on results of further assessment
72	Heap of boulders	D	Unlikely	None	None
73	Small structure by track to Coed Sadwrn	E	Considerable	Survey and evaluation trenches	Dependant on results of further assessment
74	Gateway on track to Coed Sadwrn	C	Considerable	None	Survey and detailed recording
75	Terraced field boundary	B	Significant	None	Detailed survey
76	Trackway	D	Significant	None	None
77	Former locomotive shed	B	Unlikely	None	Basic recording and avoidance
78	Llyn Cowlyd tramway	B	Significant	None	Basic recording
79	Possible ancient wall	E	Considerable	Survey and evaluation trenches	Dependant on results of further assessment
80	Natural boulders/structure	E	None	None	Avoidance
81	Possible field boundary	E	None	None	Avoidance
82	Field wall	E	Significant	Survey and evaluation trenches	Dependant on results of further assessment
83	Track leading to footpath	C	None	None	Avoidance
84	Field wall/revetment	B	Unlikely	None	Avoidance
85	Probable clearance cairn	B	Unlikely	None	Avoidance
86	Field wall/revetment	B	Likely	None	Basic recording, fencing and avoidance
87	Access track to pipe	D	Significant	None	None
88	Small enclosure against rock face	C	None	None	Avoidance
89	Fragmentary field wall	B	Significant	None	Basic recording
90	Drainage channels for upper leat drain and surge pipe	D	Considerable	None	Basic recording
91	Fragmentary field wall	B	None	None	Avoidance
92	Fragmentary field wall	B	None	None	Avoidance
93	Location of field boundary with little visible	B	Likely	None	Basic recording
94	Small farmstead	E	Significant	Survey and evaluation trenches	Dependant on results of further assessment
95	Drain catchment	D	Considerable	None	None
96	Field wall	B	None	None	Avoidance
97	Corner of possible field terrace	B	Likely	None	Basic recording, fence and avoid
98	Llyn Coedty Farmstead	B	None	None	Avoidance
99	Channel for stream passing under leat	D	None	None	Avoidance

Feature No	Site name	Importance	Impact	Recommendation for further assessment	Mitigation recommendations
100	Small walled enclosure	B	None	None	Avoidance
101	Trackway leading to road from Pont Newydd	C	None	None	Avoidance
102	Field boundaries above Coed Sadwrn	B	None	None	Avoidance
103	Denuded field wall above Coed Sadwrn	B	None	None	Avoidance
104	Denuded field wall	B	Unlikely	None	Basic recording
105	Tan yr Ysgubor	E	Unlikely	None	Avoidance

## 7. GENERAL RECOMMENDATIONS

### 7.1 Potential buried archaeology

Specific recommendations have been given for individual sites, but there is considerable potential for buried archaeology beneath and between these sites. Much of the proposed pipe route crosses rough ground with numerous boulders and rock outcrops. It is likely that this was avoided in most periods. However, some areas of better ground have a higher potential for buried archaeology. The area from near the spillway, through feature 31, to the current road and boundary 82 contains visible traces of early fields, some possibly prehistoric. Where soil has built up against a field boundary, such as the south-western side of feature 31, or over feature 69, there is greater potential for buried land surfaces to survive. These may contain early features, such as prehistoric pits, undetectable from the surface. The former arable fields between field boundary 34 and feature 76 also have a high potential for buried archaeology, especially near feature 36, where related pits and ditches are possible. The full extent of the farmstead, feature 94, is currently unknown and there are likely to be buried remains associated with this. It is probable that the access track through this area will have to be widened, which will almost certainly impact on part of this site and excavation prior to the groundworks may be necessary.

These areas will require further evaluation to establish the likelihood of buried archaeology. This could be achieved by the excavation of trial trenches, typically measuring 2m by 20m, distributed across these areas of high potential at a density of between 5% and 10%. However trial trenches can only evaluate an area and cannot guarantee that archaeology will not be found between the trenches. To remove the risk of discovering archaeology during the pipe construction works it would be more efficient to carry out a Strip, Map and Sample evaluation on the full extent of the areas of high potential. This would involve the stripping of ploughsoil from these areas under archaeological supervision. Any potential features so revealed would be evaluated and if significant archaeology is found a mitigation strategy would be developed, usually involving excavation and detailed recording, or protection and avoidance. If this is done in advance of the construction works the risk of archaeology delaying construction is removed. An archaeological watching brief may then be required on the areas with low potential for buried archaeology.

The temporary compounds may also have an impact on buried archaeology. An archaeological watching brief should be undertaken during topsoil stripping at all the compounds to record any archaeological remains that might be revealed. If any of the compounds are to be significantly levelled (most are on sloping sites), then there is a greater risk of buried archaeology being exposed. In this case a full Strip, Map and Sample programme may be necessary to identify and record archaeological features.

### 7.2 Avoiding known archaeology

Where there is flexibility in the groundworks it is recommended that known archaeological features be avoided. This particularly applies to the temporary compounds, which should be located so as to avoid known archaeological features. It appears that compound 5 could easily be moved to the middle of a field so that it does not overlap any field walls or other features. Where archaeological features lie close to compounds or other areas of work they should be recorded at a basic level in case of accidental damage and should be clearly fenced off to minimise the risk of any such damage. In the case of compound 2 care should be taken to minimise damage to or the obscuring of the embankment on which the Cowlyd tramway ran. At this location the embankment is about 6m high and this is the clearest point at which it can be appreciated that this was a tramway and not just a modern track.



Any features close to the pipe route should be recorded at a basic level and be clearly fenced to avoid damage. No disturbance, including moving of stones and breaching field boundaries should take place outside the proposed works corridor without consultation with an archaeologist.

## 8. CONCLUSIONS

The archaeological assessment identified a complex landscape settlement pattern on the hill slopes above Dolgarrog, dating from the late medieval to the Victorian era, for which a significant amount of evidence survives in the form of farmsteads and associated field systems. These consisted of irregular enclosures, probably created during the 16<sup>th</sup> to 18<sup>th</sup> centuries, generally around the homesteads on mid slope terraces, and a more regular field pattern created as a result of 19<sup>th</sup> century Parliamentary enclosure, which extended into the more upland areas. No demonstrably earlier sites were identified, although some of the settlement pattern identified today may well have had its origins in the earlier Middle Ages.

The survival of prehistoric archaeology within the study area is likely although no specific sites have been identified. Some of the terracing and field systems may be of prehistoric origin.

From the early years of the 20<sup>th</sup> century the landscape was transformed by rapid industrialisation, as a result of the establishment of a hydro-electricity station to power the Aluminium works which had been built in the valley below. In addition to the Coedty dam, reservoir, and early 20<sup>th</sup> century main water pipes, water supply in the form of leats was noted. The remains of an early 19<sup>th</sup> century tramway and associated sheds were also noted within the study area.

The risks to these landscapes have been identified and evaluation and mitigation measures recommended. Further measures, such as excavation, may be necessary dependant on the exact limits of the easement for the proposed pipe route and on other related works, such as widening access tracks.

## 9. ARCHIVE

The archive consists of historic maps, plans and aerial photographs, along with notes and digital images taken on the field visit. The archive is currently held by GAT under project code **G2158**

## 10. REFERENCES AND OTHER SOURCES CONSULTED

- Butler, L.A.S. 1981 'The Boundaries of the Abbey of Aberconwy at Maenan, Gwynedd', *Archaeologia Cambrensis* 130, 19-35
- CADW/ICOMOS 1998 *Register of Landscapes of Outstanding Historic Interest in Wales*, Cadw, Cardiff
- Cadw 2007. *Technical Annexe of the Guide to Good Practice on Using the Register of Landscapes of Historic Interest in Wales in the Planning and Development Process*, Cadw, Cardiff
- Caseldine, A. 2006 'Potential and Possibilities for Palaeoenvironmental Studies' in K. Roberts (ed.) *Lost Farmsteads and Deserted Rural Settlements in Wales* (York)
- Carr, A.D., 1977, 'Medieval Administrative Districts', in TM Bassett and BL Davies (eds) *Atlas of Caernarvonshire*, Gwynedd Rural Council, Caernarfon
- Conwy Archive Service 2008, Sidney Colwyn Foulkes, Biographical History, document reference CD7
- Davidson, A. and Gwyn, D. 1995 *Dolgarrog-Eglwysbach Pipelines*. Unpublished GAT report no. 179
- Davies, E. 1979 'Hendre and Hafod in Caernarvonshire', *Trans. Caerns. Hist. Soc.* 40, 17-46
- Evans, R, 2010. *Dolgarrog Hydro-Electric Works, Dolgarrog, Conwy: an archaeological assessment*. Unpublished GAT report no. 900 (November 2010)

- GAT, 1999 *Historic Landscape Characterisation- Creuddyn and Arllechwedd*. GAT Unpublished Report No. 318
- GAT 2001 *Monastic Landscapes- A Threat Related Archaeological Assessment*. Unpublished GAT Report No. 414
- Gresham, C. 1939 'The Aberconwy Charter', *Archaeologia Cambrensis* 94, 123-162
- Gwyn, D., 2006. *Gwynedd, Inheriting a Revolution: the archaeology of industrialisation in North-West Wales*, Phillimore, Chichester.
- Gwyn, D. and Nevell, M., 2006. *Dolgarrog, Conwy, North Wales: an archaeological assessment and survey of an early 20<sup>th</sup> century hydro-electric water catchment system*, unpublished report by Govannon Consultancy and University of Manchester Archaeological Unit.
- Hooke, D. 1997 'Understanding Settlement in the Conwy Valley' in N. Edwards (ed.) *Landscape and Settlement in Medieval Wales* (Oxbow Monograph 81)
- IFA, 2001 *Standard and Guidance for Archaeological Desk-based Assessment*
- Jack, R.I. 1981 'Fulling –Mills in Wales and the March before 1547', *Archaeologia Cambrensis* 130, 70-130
- Jones, E. and Gwyn, D. 1989 *Dolgarrog- An Industrial History* (Caernarfon)
- Jones, R. S. 2003 *Uplands Initiative Survey- East Snowdonia*. Unpublished CAP Report No. 296
- Jones, S., Kenney, J. and Davidson, A. 2001 *Monastic Landscapes- A Threat Related Archaeological Assessment*. Unpublished GAT Report No. 414
- Jones-Pierce, T. 1944 'The Gafael in Bangor MS. 1939', *Trans. Hon. Soc. Cymmrodorion* 1942, 158-188
- Longley, D. 2006 'Deserted Rural Settlements in North-West Wales', in K. Roberts (ed.) 2006 *Lost Farmsteads- Deserted Rural Settlements in Wales* (CBA, York), 61-82
- RCHAMW, 1956 *An Inventory of the Ancient Monuments in Caernarfonshire, Vol. 1 East* (Cardiff)
- Roberts, B. 1979 *The Geology of Snowdonia and Llyn*
- Roberts, K. (ed.) 2006 *Lost Farmsteads- Deserted Rural Settlements in Wales* (CBA, York)
- Smith, B. and George, T.N. 1961 *British Regional Geology, North Wales*.
- Smith, G. and Thompson, D. 2006 'Results of the Project Excavations' in K. Roberts (ed.) 2006 *Lost Farmsteads- Deserted Rural Settlements in Wales* (CBA, York), 113-132
- Withers, C.J. 1995 'Conceptions of cultural landscape change in upland North Wales: a case study of Llanbedr-y-Cennin and Caerhun parishes, c.1560- c.1891', *Landscape History* 17, 35-47
- Conwy Archives, Llandudno**  
 Colwyn Foulkes Collection C/Maps 21/2/11/1/2 *British Electricity Authority: Dolgarrog Hydro-Electric Works Extension to Catchment General Plan*, 1950s  
 Tithe Map and Schedule of the Parish of Caerhun 1840  
 Tithe Map and Schedule of Dolgarrog and Ardda Townships, Parish of Llanbedr y Cennin 1847
- Bangor University Archives, Bangor**  
 Ordnance Survey preparatory drawings by Robert Dawson, MSS f34081, 1816-1824
- Gwynedd Archives, Caernarfon**

GAS XD2/8356-7 *Plans and Schedule of Lord Newborough's Estates c.1815*

***GAT Historic Environment Record***

Ordnance Survey 25 inch 1st edition map of 1889, Caernarvonshire sheets XIII.7 and XIII.8

Ordnance Survey 25 inch 2nd edition map of 1900, Caernarvonshire sheets XIII.7 and XIII.8

Ordnance Survey 25 inch 3rd edition map of 1913, Caernarvonshire sheets XIII.7 and XIII.8

***National Library of Wales***

Sale catalogue of Dolgarrog Estate, Caernarvonshire 357, 1896

Survey of the Menai and Abbey Estates, in the county of Denbigh, Ardda in the county of Carnarvon, also  
Festiniog and Landecwin in the county of Merioneth. Property of the Right Honourable Thomas Lord  
Newborough, MSS maps volume 96, 1788

***Air Photography Unit, Cardiff***

Library No	Sortie	Date	Organisation	Frame number
4613	3G TUD UK 34	16/01/1946	RAF	5263 and 5376
7181	OS 71 284	04/06/1971	OS	189

# APPENDIX 1: Sites previously listed on Gwynedd HER and National Monument Register

Table of sites within the study area previously listed in the Gwynedd HER

PRN	SITENAME	NGR	SITETYPE	PERIOD	FORM
1637	Hafod (rems. of), above Coed Sadwrn	SH76256697	Foundations	Medieval	Building - ruined
1638	Hollow Way & Field System, above Coed Sadwrn	SH76256695	Holloway	Medieval	Stone built feature
12990	Track to Coed Sadwrn	SH75876715	Track	Post-Medieval	Cartographic
12974	Pont Newydd Bridge	SH75876715	Bridge	Post-Medieval	Cartographic
12955	Coed Sadwrn Cottage	SH76126707	Cottage	Post-Medieval	Stone built feature
12973	Coed Ty Mawr	SH75756663	Farm	Post-Medieval?	Stone built feature
16195	Pipeline, Dolgarrog Hydro-electric Plant	SH7651767134	Pipeline	Modern	Other structure
16321	Dolgarrog Hydro-electric Plant	SH7655167184	Power station	Modern	Building-roofed
16322	Incline, Ardda	SH7650167162	Inclined plane	Post-Medieval	Earthwork
16323	Relict wall, Ardda	SH76476712	Wall	Medieval	Other structure
16324	Terraces, Ardda	SH7650167132	Terraced ground	Medieval	Earthwork
16325	Long hut, possible, Ardda	SH7646867077	Long hut	Medieval	Other structure

Table of sites within the study area previously listed in the National Monument Register

NAME	NPRN	NGR	BROADCLASS	TYPE	PERIOD	FORM
Coed Ty Mawr Farmhouse	276374	SH75776676	Unassigned	Farmhouse	Post Medieval	Ruin
Coed Ty Mawr Sheepfold	276375	SH75786681	Agriculture and Subsistence	Sheep fold	Post Medieval	Other Structure
Bont Newydd Farmhouse	276378	SH75666722	Domestic	Farmhouse	Post Medieval	Ruin
Pont Newydd Structure I	276379	SH75826720	Domestic	Building	Post Medieval	Ruin
Llyn Coedty Leat	276380	SH75666709	Agriculture and Subsistence	Leat	Post Medieval	Earthwork
Coed Dolgarrog Well	276383	SH76366686	Water Supply and Drainage	Well	Unknown	Documents
Llyn Coedty Structure I	276391	SH75586672	Water Supply and Drainage	Structure	Post Medieval	Other Structure
Ffrith Ddu House	276392	SH75666696	Agriculture and Subsistence	Farmstead	Post Medieval	Ruin
Pont Newydd Cottage	276491	SH75806715	Domestic	Farmhouse	Post Medieval	Ruin
Pont Newydd Structure II	276492	SH75756706	Agriculture and Subsistence	Field barn	Post Medieval	Ruin
Coed Ty Mawr Well	276495	SH75786679	Domestic	Well	Post Medieval	Other Structure
Coed Ty Bach House	276496	SH75636661	Domestic	House	Post Medieval	Documents
Coed Ty Mawr Structure	276498	SH75706667	Unassigned	Building	Post Medieval	Documents

NAME	NPRN	NGR	BROADCLASS	TYPE	PERIOD	FORM
Hafod (rems. of), above Coed Sadwrn	276888	SH76256697	Domestic	Hafod	Medieval	Earthwork
Hollow Way & Field System, above Coed Sadwrn	276889	SH76256695	Transport	Hollow way	Medieval	Earthwork
Pont Newydd Bridge	276890	SH75876714	Transport	Bridge	Post Medieval	Other Structure
Llyn Coedty Reservoir	276903	SH75466664	Water Supply and Drainage	Reservoir	Post Medieval	Landform
Coed Sadwrn Track	276904	SH75876713	Transport	Trackway	Medieval?	Earthwork

## **APPENDIX 2: Definition of terms**

### **Categories of importance**

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

#### *Category A - Sites of National Importance.*

Scheduled Ancient Monuments, Listed Buildings of grade II\* and above, as well as those that would meet the requirements for scheduling (ancient monuments) or listing (buildings) or both.

Sites that are scheduled or listed have legal protection, and it is recommended that all Category A sites remain preserved and protected *in situ*.

#### *Category B - Sites of regional or county importance.*

Grade II listed buildings and sites which would not fulfil the criteria for scheduling or listing, but which are nevertheless of particular importance within the region.

Preservation *in situ* is the preferred option for Category B sites, but if damage or destruction cannot be avoided, appropriate detailed recording might be an acceptable alternative.

#### *Category C - Sites of district or local importance.*

Sites which are not of sufficient importance to justify a recommendation for preservation if threatened.

Category C sites nevertheless merit adequate recording in advance of damage or destruction.

#### *Category D - Minor and damaged sites.*

Sites that are of minor importance or are so badly damaged that too little remains to justify their inclusion in a higher category.

For Category D sites, rapid recording, either in advance of or during destruction, should be sufficient.

#### *Category E - Sites needing further investigation.*

Sites, the importance of which is as yet undetermined and which will require further work before they can be allocated to categories A - D are temporarily placed in this category, with specific recommendations for further evaluation. By the end of the assessment there should usually be no sites remaining in this category. In this case several areas of unknown potential have been allocated to this category. These require environmental sampling which should be carried out during the pipeline works.

### **Definition of Impact**

The impact of the proposed pipeline on each site was estimated. The impact is defined as *none, slight, unlikely, likely, significant, considerable or unknown* as follows:

#### *None:*

There is no construction impact on this particular site.

#### *Slight:*

This has generally been used where the impact is marginal and would not by the nature of the site cause irreversible damage to the remainder of the feature, *e.g.* part of a trackway or field bank.

#### *Unlikely:*

This category indicates sites that fall within the band of interest but are unlikely to be directly affected. This includes sites such as standing and occupied buildings at the margins of the band of interest.

#### *Likely:*

Sites towards the edges of the study area, which may not be directly affected, but are likely to be damaged in some way by the construction activity.

*Significant:*

The partial removal of a site affecting its overall integrity. Sites falling into this category may be linear features such as roads or tramways where the removal of part of the feature could make overall interpretation problematic.

*Considerable:*

The total removal of a feature or its partial removal which would effectively destroy the remainder of the site.

*Unknown:*

This is used when the location of the site is unknown, but thought to be in the vicinity of the proposed works.

*Definition of field evaluation techniques*

Field evaluation is necessary to fully understand and assess most class E sites and to allow the evaluation of areas of land where there are no visible features but for which there is potential for sites to exist. Two principal techniques can be used for carrying out the evaluation: geophysical survey and trial trenching. Topographic survey may also be employed where sites are thought to survive as earthworks. This involves the close inspection of earthwork and building remains and their accurate recording and interpretation.

Geophysical survey most often involves the use of a magnetometer, which allows detection of some underground features, depending on their composition and the nature of the subsoil. Other forms of geophysical survey, including resistivity survey and ground penetrating radar might also be of use.

Trial trenching allows a representative sample of the development area to be investigated at depth. Trenches of appropriate size can also be excavated to evaluate category E sites. Trenching is typically carried out with trenches of between 20 to 30m length and 2m width. The topsoil is removed by machine and the resulting surface is cleaned by hand, recording features. Depending on the stratigraphy encountered the machine may be used to remove stratigraphy to deeper levels.

**Definition of Mitigatory Recommendations**

Below are the measures that may be recommended to mitigate the impact of the development on the archaeology.

*None:*

No impact so no requirement for mitigatory measures.

*Detailed recording:*

This requires a full photographic record and measured survey prior to commencement of works.

Archaeological excavation may also be required depending on the particular feature and the extent and effect of the impact.

*Basic recording:*

Requiring a photographic record and full description prior to commencement of works.

*Strip, Map and Sample:*

The technique of Strip, Map and Sample involves the examination of machine-stripped surfaces to identify archaeological remains. The stripping is undertaken under the supervision of an archaeologist. Stripping and removal of the overburden is undertaken in such a manner as to ensure damage does not take place to surfaces that have already been stripped, nor to archaeological surfaces that have not yet been revealed.

Stripping is undertaken in as careful a manner as possible, to allow for good identification of archaeological features. A small team of archaeologists will be responsible for subsequently further cleaning defined areas where necessary. Complex sites which cannot be avoided will need to be fully excavated.

*Watching brief:*

This is 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. The programme will result in the preparation of a report and ordered archive.

*Avoidance:*

Features, which may be affected directly by the scheme, or during the construction, should be avoided. Occasionally a minor change to the proposed plan is recommended, but more usually it refers to the need for care to be taken during construction to avoid accidental damage to a feature. This is often best achieved by clearly marking features prior to the start of work.

*Reinstatement:*

The feature should be re-instated with archaeological advice and supervision.



## **APPENDIX 3: Project Design for Archaeological Assessment of Hydro-Electric Pipeline, Dolgarrog**

### **PROJECT DESIGN FOR ARCHAEOLOGICAL ASSESSMENT PHASE 2 (G2158)**

Prepared for Capita Symonds, February 2011

#### **1. PROJECT BACKGROUND**

It is proposed to replace the upper part of the over-ground pipeline which feeds Dolgarrog Hydro Electric Power Station with a new pipe which is to be buried below ground. Gwynedd Archaeological Trust (GAT) has undertaken an initial scoping assessment of the study area (GAT Report 900, November 2010). This identified some 48 sites within area, and included recommendations for mitigation. GAT has been asked by Capita Symonds on behalf of their clients RWE NRL to provide a cost and project design for carrying out a more advanced stage of archaeological assessment which is to take into account the revised project layout. This will include the proposed pipeline route, compound areas and access routes (where known).

This design will also conform to the guidelines specified in *Standard and Guidance for Archaeological Desk-based Assessment* (Institute for Archaeologists, 1994, rev. 2001, 2008).

Curatorial responsibility for this project lies with Snowdonia National Park Authority and Conwy County Borough Council. The archaeological curators should be consulted prior to the start of the project.

#### **2. ARCHAEOLOGICAL AIMS**

A desk-based assessment is defined as “a programme of assessment of the known or potential archaeological resource within a specified area or site on land, inter-tidal zone or underwater. It consists of a collation of existing written, graphic, photographic and electronic information in order to identify the likely character, extent, quality and worth of the known or potential archaeological resource in a local, regional, national or international context as appropriate” (IFA 2008, 2)

The aims of the assessment are:

- to identify and record the cultural heritage within the defined study area;
- to evaluate the importance of what has been identified;
- to recommend ways in which impact upon the cultural heritage can be avoided or minimised.

To comply fully with the aims expressed above it can be necessary to undertake a programme of Field Evaluation following the Desktop study and Field Visit. This is because some sites cannot be assessed by desktop or field visit alone, and additional fieldwork is therefore required. This typically takes the form of geophysical survey or trial excavation, although measured survey is also a possible option. A full programme of assessment and evaluation may therefore consist of the following phases:

- Desktop study
- Field walkover
- Initial report
- Field evaluation
- Draft report
- Final report

This design is for the first three phases only, and recommendations will be made for any field evaluation required. This phase of the work will build on the assessment work already undertaken, and will be specifically targeted at the proposed impact.

### 3. PROGRAMME OF WORK

#### 3.1 Introduction

*Stage 1 – Desk-based study* This stage will consist of a desk-based study to include the Newborough archive at the National Library of Wales and Caernarfon Record Office. Lord Newborough was owner of the majority of the land within the study area, and estate maps exist which can be used to aid an understanding of the development of settlement patterns and field systems. Place name evidence may indicate the presence of buried archaeology.

*Stage 2 – Field survey* This stage will consist of targeted field survey within the study area in order to identify both specific sites and broader areas of archaeological sensitivity in areas of proposed impact.

*Stage 3 – Report.* The existing Assessment Report will be updated to take into account any new findings and recommendations will be amended to match current proposed impacts.

*Stage 4 – Evaluation* The requirement for any further archaeological work at this stage will be dependant upon the results of stages 1 and 2 and the final layout of the proposed works.

*Stage 5 – Mitigation* Similarly, the requirement for further archaeological work and mitigation recommendations at this stage will depend upon the results of all prior archaeological reporting. A separate brief and report on the results will be required for this stage. The brief and report may be combined with stage 3 in some circumstances.

#### 3.2 Stage 1 - Desk-based assessment

The desk-based assessment will involve a study of the following records

A review of the regional Historic Environment Register (HER, Gwynedd Archaeological Trust) will be examined for new information concerning the study area. The National Monuments Record (NMR RCAHMW, National Monuments Record of Wales, Plas Crug, Aberystwyth, SY23 1NJ) will be checked for new sites additional to the HER, and if required additional supporting information will be examined at the NMR.

Archive repositories were not examined in detail in the first phase of the project. These will now be examined at the National Library of Wales; Bangor University Archives and Conwy Record Office.

#### 3.3 Stage 2 - Field survey

This part of the assessment will involve targeted field walking to assess the sites which will be impacted upon by the proposed development. Any additional sites noted will also be assessed. The location of potentially well-preserved environmental deposits will be noted.

The aims of this stage of the work are to:

- verify the results of the desk based assessment
- identify any further archaeological sites which may exist as above ground features
- assess the potential for the preservation of below-ground archaeology
- assess the impact upon the historic landscape
- photograph and record the present condition of all sites noted.

Field walking will be carried out along the route of the pipeline and any proposed access routes. Field walking will also be undertaken where other direct impact may occur.

Located sites or finds will be accurately fixed by means of GPS satellite navigation and/or related to fixed local topographic features and the OS national grid by means of measured survey.

The character, function, condition, vulnerability, potential dating and relationship to other features of each identified site or find will be described fully. The importance of the site or find will be assessed in terms of local, regional or national significance.

Photographs in high resolution digital format of each recorded site or artefact/object identified will be taken. Both specific photographs of the site and wider angle views of the site within its landscape context will be included.

Access onto land is to be arranged by the Clients.

### 3.3.1 Historic Landscape

It has been identified within the scoping assessment that the proposed development lies within the defined Historic Landscape: Lower Conwy Valley (Gw 4) as described within the *Register of Landscapes of Outstanding Historic Interest in Wales* (Cadw 1998). The need for any further assessment of impact on the historic landscape will be considered, and in particular the need to undertake an Assessment of the Significance of the Impact of Development on Historic Landscape Areas on the Register of Landscapes of Historic Interest in Wales (ASIDOHL) as described within *Guide to Good Practice on Using the Register of Landscapes of Historic Interest in Wales in the Planning and Development Process* (Cadw 2<sup>nd</sup> edition 2007)

### 3.4 Data processing and report compilation

Following completion of the stages outlined above, a report will be produced based on the initial scoping assessment and incorporating the following:

Non-technical summary

1. Introduction
2. Aims and purpose
3. Specification and Project Design
4. Methods and techniques, including details and location of project archive
5. Archaeological Background
6. Results of assessment in the form of a gazetteer
7. Assessment of impacts
8. Proposals for field evaluation and/or mitigation
9. Summary and conclusions
10. List of sources consulted.

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

A draft copy of the report will be sent to the regional curatorial archaeologist and to the client prior to production of the final report.

### 3.4 Stage 4 - Field Evaluation

Following desk-based assessments field evaluation work may also be required in order to further assess the presence or absence of remains, their extent, nature, quality and character before determining the appropriate mitigation strategy, whether it be preservation *in situ*, archaeological excavation or a combination of the two.

This might include a methodology for non-intrusive survey and or intrusive evaluation to determine the location, extent, date, character, condition, significance and quality of any surviving archaeological remains liable to be threatened by the proposed development.

Field evaluation needs to be carefully targeted in response to proposed impact and archaeological potential. It would usually be undertaken in stages, and might typically include:

geophysical survey.

a programme of trenching and/or test pits to investigate the deposit model in more detail.

Recommendations for any field evaluation considered necessary will be contained within the assessment report. Specific attention will be paid during the assessment as to the suitability of the geology for geophysical survey.

A further brief and report will be necessary for this stage. The brief and report may combine with, and include the results of, stage 4.

### 3.5 Stage 5 - Mitigation

This stage will essentially include a specific mitigation strategy based on the results of the preceding stages. The mitigation strategy will be prepared by the archaeological curator and will seek to preserve all archaeological sites in situ, within the framework of the development. The mitigation strategy may commonly include any or all of the following components:

- a) Preservation in-situ by exclusion. Sites identified as being within 50m of any proposed ground disturbance must be clearly and robustly marked and/or fenced off to protect them from accidental damage during construction. The location, marking and/or fencing of archaeological sites must be completed in the presence of a monitoring archaeological contractor who will be engaged by the developer to oversee this work. Every exclusion area must be completed prior to construction commencing on the site and must remain in place for the duration of all construction works.
- b) Preservation by record. Where damage is unavoidable specifically targeted programmes of intensive archaeological investigation will be recommended which may include measured/drawn survey or full excavation.
- c) Watching brief. A watching brief should be maintained over the whole development area during the early stages of any new ground disturbance so that previously unrecorded features revealed by this work can be monitored and recorded where necessary.

A separate brief and report on the results will be required for this stage. The brief and report may be combined with stage 3 in some circumstances.

## 4. DISSEMINATION AND ARCHIVING

For the purposes of this project the full site archive will be deposited within one month of the completion of the final report. The archive will be deposited at a time and location to be agreed with the curator. Normally the paper/drawing/digital archive will be deposited with the regional curator and the regional HER and the finds at an appropriate local museum.

The archive will include all site notes, finds, documents, drawings, photographs, digital data and a copy of the final report and any prior draft versions. In the archive deposition statement, located at the rear of the interim and final clients report, all of the above items must be clearly quantified in tabular form and their ultimate location and proposed date of deposition stated.

## 5. PERSONNEL

The work will be supervised by Mr Andrew Davidson, Principal Archaeologist. The work will be undertaken by one of the Trust's Archaeologists experienced in the relevant skills/periods required. Full details of personnel involved, with *curricula vitae*, can be supplied upon request.

## 6. MONITORING AND TIMING

Monitoring meetings can be arranged during the course of the project if required.

## 7. HEALTH AND SAFETY

The Trust subscribes to the SCAUM (Standing Conference of Archaeological Unit Managers) Health and Safety Policy as defined in Health and Safety in Field Archaeology (2006). Risks will be assessed prior to and during the work.

## 8. INSURANCE

Contract Works Insurance – Aviva Policy 24719850 CTC

Sum insured £500,000 any one occurrence

The current period expires 04/09/11

Liability Insurance - Aviva Policy 24299068 CCI

Employers' Liability: Limit of Indemnity £10m in any one occurrence

Public Liability: Limit of Indemnity £5m in any one occurrence

The current period expires 01/04/12

Professional Indemnity Insurance - Brit Policy F10064930A

Limit of Indemnity £5,000,000 in the aggregate

The current period expires 23/07/11

## 9. OTHER

Any queries concerning the above should be directed to Mr Andrew Davidson or Mr John Roberts at the Gwynedd Archaeological Trust Offices, Garth Road, Bangor. Telephone (01248) 352535.

## 10. SOURCES CONSULTED

*Standard and Guidance for Archaeological Desk-based Assessment* (Institute for Archaeologists, 1994, rev. 2001)

#### APPENDIX 4: Gazetteer of sites found during the desk-based assessment and field walk-over

**Feature 1** Coed Sadwrn Cottage

**PRN** 12955

**Grid ref:** SH76166708

**Period:** late medieval/early post medieval

**Category:** B **Impact:** None

A ruined and roofless cottage was recorded here in 1956 and described as being of former croglift type, about 6m by 3.7m and constructed of mortared rubble, with a farm building to the south-west of one build with the house. The fireplace, at the north-east end was 2.3m by 1.2m deep, with a large beam slightly cambered and chamfered (RCAHMS 1956, 74). The cottage has been reroofed, although there is no evidence that it had completely lost its roof, and maintained to ensure it is sound and weather proof. The farm buildings to the SW are ruined. Both cottage and farm buildings are shown on the 1788 map. The farm is marked on the 1816-1824 map, named on the 1847 tithe schedule and all the buildings are shown on the 1889 map. The site of the farm is clearly the focus of the fields in this area and in comparison with similar farms in neighbouring areas it probably dated from at least the 16th century.

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** Avoidance

**Feature 2** Coedty Mawr structure

**PRN** 31887

**Grid ref:** SH75696666

**Period:** C19th

**Category:** E **Impact:** None

The location of a roofed structure marked on the 1889, 1900 and 1913 maps. No remains were noted on the ground. The field in which it stood was called 'Cae Lloie' {B3} (calves field) on the 1788 map and seems to have been under arable.

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** Avoidance

**Feature 3** Coedty Mawr sheepfold

**PRN** 31888

**Grid ref:** SH75796681

**Period:** C18th

**Category:** B **Impact:** None

Remains of a former stone built sheepfold located at the edge of the track, 8m by 6m. It is divided into two units by 1m high stone wall along the central line. The main enclosure wall is 1.5m to 1.75m high and 0.75m wide, with an entrance at the NW corner. Shown on maps from 1889 and apparently recently renovated. The 1788 map shows small enclosures to the NE of the farmhouse so this probably had an 18th century origin at least.

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** Avoidance

**Feature 4** Coedty Mawr farmhouse

**PRN** 12973

**Grid ref:** SH75776677

**Period:** C18th or earlier

**Category:** B **Impact:** None

The remains of a former stone building, measuring c.18m by 7.5m, are located alongside the trackway. The structure was built on a stone platform above the track. It is divided into two large bays, with enclosures at either end. The access is along the SE facing side of the building. A ground plan of the farmhouse is included in the East Snowdonia Uplands Survey Report (Jones 2003, Appendix 1). The farm of Coedty Mawr is shown on the 1889 map and Coedty is named on the 1816-1824 map. It is named as 'Coiti hir' on the 1847 tithe schedule, and is called 'Coitia hir' on the 1788 map. The farm looks quite different to Coed Sadwrn as the fields are spread up the river rather than clustered around the farmhouse. This may indicate a later extension of farming or enclosure up the river and probably suggests a later date for Coedty Mawr than for Coed Sadwrn.

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** Avoidance

**Feature 5** Coedty Mawr well

**PRN** 31889

**Grid ref:** SH75806680

**Period:** C19th

**Category:** E **Impact:** None

On 1889 map. The location of a well marked on the early Ordnance Survey maps from 1889. It appears to have been within a square enclosure, approximately 5m across.

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** Avoidance

**Feature 6** Llyn Coedty Valve House

**PRN 31890**

**Grid ref:** SH75586672

**Period:** modern

**Category:** D **Impact:** Likely

A small corrugated iron structure is located at the foot of Llyn Coedty dam, with the pipe entering it.

Valve house for water exiting the dam into the pipe.

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** Basic recording

**Feature 7** Ffrith Ddu House

**PRN 31891**

**Grid ref:** SH75666696

**Period:** C18th or earlier

**Category:** B **Impact:** Considerable

The remains of a small farmstead consisting of a former farmhouse, now in ruins with a small outbuilding also in ruin were noted. Partial demolition appears to have taken place, but there are standing remains to a height of about 1m. A significant amount of rubble is spread over the whole area and it is difficult to interpret the whole ground plan. A collection of small paddocks survive around the building. The farm is marked on the 1816-1824 map and considerable detail is shown on the early OS maps.

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** It is recommended that the location of temporary compound 5 is moved to avoid damage to this site and related features. Basic recording is recommended in case of accidental damage and the area should be clearly fenced off to ensure that it is avoided during the works.

**Feature 8** Pont Newydd Structure II

**PRN 31892**

**Grid ref:** SH75766706

**Period:** C19th

**Category:** C **Impact:** None

The remains a small dry stone walled structure, about 6m square in the field corner, with south wall surviving to a height of about 1.5m, and probable entrance to the east. It appears likely to have been a former sheepfold, and is marked as unroofed on the 1st edition Ordnance Survey map of 1889. It has been suggested that it could be a former field barn (Jones 2003). Its incorporation into the 19th century field system, suggests that it is of that date.

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** Avoidance

**Feature 9** Coed Sadwrn Track

**PRN 31893**

**Grid ref:** SH75946706

**Period:** C18th or earlier

**Category:** B **Impact:** Significant

A trackway leading towards Coed Sadwrn. This is well defined on E side of gateway seen as a clear hollow-way with walls on either side for part of its route. The walls are tumbled and the whole is overgrown. The low level leat has destroyed part of it but it continues on the other side. To the W of the gateway one branch of the track is quite clear as a hollow but the other branch is not visible. Shown in detail on 1889 map but track also marked on 1816-1824 map, and shown running from gateway 74 on the 1788 map.

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** The works will significantly impact on the NW end of the track and gateway area. A detailed topographic survey of the area is recommended and evaluation trenching to inform the mitigation.

**Feature 10** Llyn Coedty Leat

**PRN 31894**

**Grid ref:** SH75666709 C

**Period:** Mid C20th

**Category:** B **Impact:** Considerable

SH75576673-75686789. The leat, associated with the hydro-electric works, is orientated NE-SW running

into Llyn Coedty reservoir from Rowlyn Isaf, in a concrete channel about 8m wide. It cuts through the former field systems of Bont Newydd and Ffrith Ddu. A short section of this leat was built with the dam but most was constructed in 1955-58 (Jones and Gwyn 1989, 185). The trackway by the leat was in part the route of a tramway for the construction of the leat. The route of the leat and working spaces for its construction are marked on a map in the Sidney Colwyn Foulkes Collection (Figure 8) and the route of the leat was designed by Colwyn Foulkes to minimise the impact on the landscape.

The trackway running next to the leat is to be upgraded to provide access for the current works.

**Recommendations for further assessment:** *None*

**Recommendations for mitigatory measures:** *Basic recording*

**Feature 11** Pont Newydd Cottage

**PRN** 31895

**Grid ref:** SH75816715

**Period:** *C18th or earlier?*

**Category:** *B* **Impact:** *None*

The remains of a former cottage and garden. The cottage, approximately 5m by 4m, remains partially roofed and used for storage. Two ancillary buildings are attached at either end which are unroofed but still stand to full height. There is a surviving fireplace at the eastern, unroofed portion of the main building. The entrance faces south and the structure is enclosed with a low wall that incorporates a yard to the north. The cottage appears on the 1889 map. Pontnewydd is named on the 1816-1824 map, but that almost certainly refers to the bridge. It is not clear from this map that there was also a farm of Pontnewydd at this time, but it is surrounded by fields of an early character so this seems likely, however it is possible that enclosure feature 100 was the site of the original farmhouse.

**Recommendations for further assessment:** *None*

**Recommendations for mitigatory measures:** *Avoidance*

**Feature 12** Pont Newydd Structure I

**PRN** 31896

**Grid ref:** SH75826720

**Period:** *C19th*

**Category:** *C* **Impact:** *None*

The remains of a small 3m square structure, which is ruined and unroofed. The standing remains are about 1m high. The area is covered in a significant amount of rubble and it is difficult to identify the floor plan, but its location to the rear of Pont Newydd cottage suggests that it was a former privy or ty bach, and possible storage area. Shown on the 1889 map.

**Recommendations for further assessment:** *None*

**Recommendations for mitigatory measures:** *Avoidance*

**Feature 13** Hafod or long hut

**PRN** 1637

**Grid ref:** SH76256697

**Period:** *late medieval/early post medieval*

**Category:** *B* **Impact:** *None*

The foundations of a former building, approximately 12m by 5m, with entrance to the south, are noted at this location. It appears to have some evidence of surviving internal sub-divisions, including a possible high end to the east. It lies within an area of early field systems (Feature 14).

**Recommendations for further assessment:** *None*

**Recommendations for mitigatory measures:** *Avoidance*

**Feature 14** Hollow way and field system above Coed Sadwrn

**PRN** 1638

**Grid ref:** SH76256695 C

**Period:** *late medieval/early post medieval*

**Category:** *B* **Impact:** *None*

Part of the field system above Coed Sadwrn, and including feature 13. The field system as a whole may be of varying dates and to have been in use over a long period of time.

**Recommendations for further assessment:** *None*

**Recommendations for mitigatory measures:** *Avoidance*

**Feature 15** Modern bridge

**PRN** 31897

**Grid ref:** SH75766733

**Period:** *modern*

**Category:** *D* **Impact:** *Likely*

A modern concrete bridge faced with stone crossing the leat (feature 10). It must date from the



construction of the leat in the 1950s, but is built on the line of a road that may have medieval or post-medieval origins, leading from the valley to the farms of Pont Newydd, Ffrith Ddu and Coed Ty Mawr.

**Recommendations for further assessment:** *None*

**Recommendations for mitigatory measures:** *Basic recording*

**Feature 16** Drystone wall field boundary **PRN 31898**

**Grid ref:** SH75726718 C

**Period:** *late medieval/early post medieval*

**Category:** *B* **Impact:** *Likely*

A wandering drystone wall, up to two rough courses wide and high. It probably forms the boundary to Pont Newydd Cottage fields or paddocks and to be of 18th century or earlier in date (Withers 1995).

**Recommendations for further assessment:** *None*

**Recommendations for mitigatory measures:** *There is a risk that work to the track next to the leat may cause damage to this wall or dumping may obscure the wall. Care should be taken to ensure that this does not happen by fencing the area to ensure avoidance.*

**Feature 17** Clearance cairn **PRN 31899**

**Grid ref:** SH75736718

**Period:** *late medieval/early post medieval*

**Category:** *C* **Impact:** *None*

A low cairn about 1m diameter with some larger stones at the edge but no real sign of a kerb. A clearance cairn on the edge of the field.

**Recommendations for further assessment:** *None*

**Recommendations for mitigatory measures:** *Avoidance and fencing*

**Feature 18** Drystone wall **PRN 31900**

**Grid ref:** SH75696709

**Period:** *C19th*

**Category:** *C* **Impact:** *None*

A well built drystone wall, surviving up to six courses high, of loose rounded boulders. The wall is up to 1m high in places. Its character appears to be of 19th century date, and built on a regular straight alignment. It probably forms a later sub division of some of the wandering wall systems.

**Recommendations for further assessment:** *None*

**Recommendations for mitigatory measures:** *Avoidance*

**Feature 19** Possible ridge and furrow cultivation **PRN 31901**

**Grid ref:** SH75736699 C

**Period:** *C19th?*

**Category:** *E* **Impact:** *None*

Faint traces of furrows were seen. These ran along the slope, parallel to the 19th century boundary wall. They were very shallow and very narrow.

**Recommendations for further assessment:** *None*

**Recommendations for mitigatory measures:** *Avoidance*

**Feature 20** Drystone wall **PRN 31902**

**Grid ref:** SH75656699

**Period:** *late medieval/early post medieval*

**Category:** *B* **Impact:** *Considerable*

A wandering drystone wall, up to two rough courses wide and a single course high surviving. It probably forms part of the early fields and paddocks associated with Ffrith Ddu farmhouse and may be of 18th century or earlier in date.

**Recommendations for further assessment:** *None*

**Recommendations for mitigatory measures:** *At present the site of compound 5 entirely overlies this wall, which would presumably have to be removed. It is recommended that the site of the compound be moved to avoid damage to this wall and related features. The area should be fenced off and basic recording done in case accidental damage occurs.*

**Feature 21** Possible ridge and furrow cultivation **PRN 31903**

**Grid ref:** SH75716695 A

**Period:** *late medieval/early post medieval*

**Category:** E      **Impact:** Likely

Faint traces of furrows were seen. These run down the slope, parallel to the field boundaries. They are very shallow and very narrow. Arable agriculture is shown on the 1788 map at the other side of the river and it is indicated by lines suggesting furrows, so these may date to a similar period.

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** Some impact to the northern end of this field would result with compound 5 in its proposed position. It is recommended that the compound is moved and this area is avoided.

**Feature 22**      Clearance cairn

**PRN 31904**

**Grid ref:** SH75656699

**Period:** late medieval/early post medieval

**Category:** C      **Impact:** Considerable

A pile of stones, probably created as a result of post medieval field clearance.

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** At present the site of compound 5 entirely overlies this feature, which would presumably have to be removed. It is recommended that the site of the compound be moved to avoid damage to this and related features. Basic recording should be carried out and the area should be fenced to ensure avoidance.

**Feature 23**      Drystone wall

**PRN 31905**

**Grid ref:** SH75576690 C

**Period:** late medieval/early post medieval

**Category:** B      **Impact:** Likely

Probably rebuilt and straightened at NW end but probably part of the older field system. A well built drystone wall of loose rounded boulders. The wall is up to 1m high in places. Its character appears to be of 19th century date, but its south-eastern end was far from straight as shown on the 1889 map. It is probable that the wall has been rebuilt and straightened but was originally part of the wandering wall system around Ffrith-Ddu (Features 16 and 20).

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** There is a risk that this wall might be damaged by works to improve the leat track and if the location of compound 5 is moved this wall should also be avoided. Basic recording is recommended with fencing to ensure avoidance.

**Feature 24**      Coedty Reservoir

**PRN 31906**

**Grid ref:** SH75456664 C

**Period:** Early C20th

**Category:** B      **Impact:** None

A small reservoir and dam built in the early 1920s (completed by 1924 (Jones and Gwyn 1989, 74)) to provide water for the Hydro-Electric Station. The reservoir was built on formerly marshy and waterlogged land, which contained the small farmstead of Coedty Bach. When the Llyn Eigiau dam burst the water overwhelmed the Coedty dam and caused its sudden collapse. It was this collapse that caused the main and most damaging flood in the village (Jones and Gwyn 1989, 113). The dam was rebuilt in 1927. The fields covered by the reservoir on the SE side of the river were the meadow lands for Coedty Mawr farm. The field in the sharp bend in the river was called 'Ddol' {B3} i.e. water meadow but was shown in 1788 as under arable.

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** Avoidance

**Feature 25**      Pipe

**PRN 31907**

**Grid ref:** SH75526674-76566718

**Period:** Early C20th

**Category:** B      **Impact:** Considerable

A riveted and welded 6 foot pipe running from Coedty Reservoir to its junction with other pipes at Marble Arch, and thence down to the power station at the aluminium works (plate 1). It was built on concrete piers and a plinth, and completed 1924, but there were problems with it and it failed under test and caused flooding in the village (Jones and Gwyn 1989, 74). The pipe was damaged in the flood of November 1925 and rebuilt by March 1927 (Jones and Gwyn 1989, 123).

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** The proposal is to remove the pipe and it should be recorded to a

*basic level before this occurs. RWE NRL intend to leave a section of the pipe in situ near the public road so that technological information inherent in the pipe can be preserved and the public will be able to see a physical representation of the history of the water catchment system (Louise Shaw pers com).*

**Feature 26** Drystone wall **PRN 31908**  
**Grid ref:** SH75606678 C  
**Period:** late medieval/early post medieval  
**Category:** B **Impact:** Likely  
 A well built drystone wall of loose rounded boulders, although now very collapsed. The wall is up to 0.5m high in places. Trees grow along its length. Shown on 1889 map as a line of trees, so the wall must have been out of use by then.  
**Recommendations for further assessment:** None  
**Recommendations for mitigatory measures:** There could be a risk of damage to this wall during works and this should be avoided. Basic Record and Fence.

**Feature 27** Drystone walls **PRN 31909**  
**Grid ref:** SH75646690  
**Period:** late medieval/early post medieval  
**Category:** B **Impact:** Likely  
 A well built drystone wall of loose rounded boulders. The wall is up to 1m high in places. Associated with other less well preserved walls forming small rectangular fields. These walls wander slightly and are probably of pre-19th century date.  
**Recommendations for further assessment:** None  
**Recommendations for mitigatory measures:** These boundaries should be avoided by compound 5 with basic recording and fencing to ensure avoidance.

**Feature 28** Drystone wall with possible inscribed stone **PRN 31910**  
**Grid ref:** SH75726697  
**Period:** late medieval/early post medieval  
**Category:** E **Impact:** None  
 A much collapsed drystone wall, probably associated with Ffrith Ddu farmhouse. It included a rough boulder, about 1.3m high and 0.4m wide, inscribed with a possible Latin Cross orientated slightly north-north-west to south-south-east. The stone is broken along its western side.  
**Recommendations for further assessment:** None  
**Recommendations for mitigatory measures:** Avoidance

**Feature 29** Drystone wall **PRN 31911**  
**Grid ref:** SH75736703  
**Period:** C19th  
**Category:** C **Impact:** None  
 A well built drystone wall, surviving up to six courses high, of loose rounded boulders. The wall is up to 1m high in places. Its character appears to be of 19th century date, and built on a regular straight alignment. It probably forms a later sub division of some of the wandering wall systems, and incorporates the sheepfold (Feature 8).  
**Recommendations for further assessment:** None  
**Recommendations for mitigatory measures:** Avoidance

**Feature 30** Remnant of wall forming part of a structure **PRN 31912**  
**Grid ref:** SH75766680  
**Period:** C19th  
**Category:** C **Impact:** None  
 A well built mortared wall of angular rubble. Its character appears to be of 19th century date, and it was presumably part of the building shown on the old OS maps from 1889.  
**Recommendations for further assessment:** None  
**Recommendations for mitigatory measures:** Avoidance

**Feature 31** Terraced field boundary and possible trackway **PRN 31913**  
**Grid ref:** SH75746686 C  
**Period:** C18th or earlier

**Category:** E **Impact:** Considerable

Terraced field boundary running downslope SE-NW (plate 2). Field to SW about 1m higher than field to NE and terrace revetted with stone facing, some of which has collapsed. At one point stone seems to have been dumped over a corner in the terrace. At the uphill (SE) end a slight linear hollow indicates a ditch or track on the NE side of the terrace.

This formed the SW boundary to 'Cae Bach' {A5} as shown on the 1788 map. Cae Bach was under arable in the 18th century. The field to the SW was called 'Cae tan Ty' {B2} and was meadow and rough grazing. This boundary is shown on the 1889 map with a double line. It is not entirely obvious from the map but comparison with other boundaries indicates that the NE line is a ditch and the boundary was composed of a wall and a ditch, shown draining directly into the river.

A track is shown on the 1889 map running down the western side of this boundary leading from Coedty Mawr via a foot bridge to Ffrith Ddu. This was not seen on the ground but some buried remains may survive.

**Recommendations for further assessment:** *The proposed work area runs through this boundary and would destroy a large proportion of it. Survey and evaluation trenching is therefore recommended to record the remains and evaluate their age.*

**Recommendations for mitigatory measures:** *Dependant on results of further assessment*

**Feature 32** Natural outcrop/clearance cairn

**PRN 31914**

**Grid ref:** SH75746687

**Period:** late medieval/early post medieval

**Category:** E **Impact:** Considerable

Group of stones adjacent to field boundary 31. Some field stones have been deposited on what appears to be a natural outcrop.

**Recommendations for further assessment:** *This feature is in the middle of the proposed work area and would probably be destroyed. Survey and evaluation trenching is therefore recommended to record the remains and evaluate their status and age.*

**Recommendations for mitigatory measures:** *Dependant on results of further assessment*

**Feature 33** Trackway

**PRN 31915**

**Grid ref:** SH75746682 C

**Period:** C20th

**Category:** D **Impact:** Likely

A track way running along the slope north-west (downhill) of Coed Ty Mawr. It joins a diagonal track (feature 70) at its northern end and this cuts through the field boundary feature 31, so the tracks are later features. This track is fairly well defined, although entirely grass grown and seems to have been used for access recently, but although terraced slightly into the slope it has not involved significant groundworks. While these tracks could be related to Coedty Mawr they are not shown on the maps and this track is most likely to be related to the construction of the leat immediately above it.

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** *It is possible that the creation of compound 4 may impact on this feature, and it should be included in the survey of other features in this area, but it is of minor importance, so only basic recording is required.*

**Feature 34** Field boundary

**PRN 31916**

**Grid ref:** SH75906709

**Period:** C19th

**Category:** B **Impact:** Significant

Regular straight boundary shown on 1889 map. A drystone wall, up to two rough courses wide and high. This wall forms the boundary to Coed Sadwrn farm and is of 19th century date, but it roughly followed and regularised the line of an early boundary along the western side of 'Erw' {A3} and 'Tir Newydd' {A4}, shown on the 1788 map.

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** *The works will significantly impact on the NW end of the boundary. This should be avoided but if this is not possible detailed survey is recommended and sufficient excavation to record its makeup and detail.*

**Feature 35** Possible ridge and furrow cultivation

**PRN 31917**

**Grid ref:** SH75786724 A

**Period:** C18th?

**Category:** E **Impact:** None

Slight traces of parallel narrow furrows seen in this field and others nearby. They run downhill parallel to existing field boundaries. They may relate to 18th century arable agriculture.

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** Avoidance

**Feature 36** Stone structure/long hut

**PRN 31918**

**Grid ref:** SH75976716

**Period:** late medieval/early post medieval

**Category:** E **Impact:** Likely

Small rectangular stone built structure orientated north-east south-west, measuring c8.5m x 4.7m externally (plate 7). It is built of rough coursed angular shale slabs, and smaller stones forming walls about 0.7m wide. The SE wall is best preserved as it is terraced into the slope and it stands c.1m high, the SW wall is also fairly well preserved but the other two walls survive only at foundation level. The NW wall has a line of facing stones surviving at foundation level. The interior is full of rubble. The building runs along the slope rather than perpendicular to it and has no other characteristics of medieval long huts. Its preservation also suggests an early post medieval rather than a medieval date. It was probably the house associated with a small farmstead including the adjacent enclosure (Features 37 and 47). Although the enclosure is shown on the maps there is no hint of a building here on the 1788 map so presumably it went

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** The current works avoid this site but it is between the old and new pipelines and care must be taken to avoid any damage. Fencing should be used to ensure that it is avoided.

**Feature 37** Entrance into enclosure

**PRN 31919**

**Grid ref:** SH75986719

**Period:** late medieval/early post medieval

**Category:** B **Impact:** Likely

The SW side of a small enclosure is formed by a wandering drystone wall, up to two rough courses wide and generally not more than a single course high. There is a 2m wide gap in the wall bounded on the NW side by a line of boulders. Against the inside of the wall to the SE of the gap is a heap of stones. This could be the remains of a small structure but the stones seem to be quite haphazardly dumped rather than laid. A track runs through the gap into the enclosure. The gap faces the long hut (feature 36). It is possible that the gap was created for later access to the enclosure but it is neatly formed and the track is well defined so it is likely that this gap was the original entrance to the enclosure and demonstrates the close association of the long hut and the enclosure.

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** The current works avoid this site but it is between the old and new pipelines and care must be taken to avoid its damage. Fencing should be used to ensure that it is avoided.

**Feature 38** Probable clearance cairn

**PRN 31920**

**Grid ref:** SH75956717

**Period:** modern?

**Category:** D **Impact:** Likely

A group of large boulders loosely collected together. This is close to the pipe and probably related to the pipe construction..

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** None

**Feature 39** Field boundaries

**PRN 31921**

**Grid ref:** SH76026700 C

**Period:** late medieval/early post medieval

**Category:** B **Impact:** None

Scarp defining flat area above track to Coed Sadwrn Cottage, and field wall running up slope. Scarp of terrace up to 1m high. N-S field wall is composed of occasional stones in a rough line. Foundations only survive. The N-S boundary may be the eastern boundary of 'Tir Newydd' {A4} as shown on the 1788 map.

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** Avoidance

**Feature 40** Cairns

**PRN 31922**

**Grid ref:** SH76126698

**Period:** *Possibly prehistoric*

**Category:** *E* **Impact:** *None*

Two adjacent cairns, with possible kerb stones and about 5m across. These are much larger and better defined than the small clearance cairns and it is possible that they represent the remains of prehistoric burial cairns, and the kerb stones give further credence to this claim.

**Recommendations for further assessment:** *None*

**Recommendations for mitigatory measures:** *Avoidance*

**Feature 41** Field boundary wall

**PRN** 31923

**Grid ref:** SH76206696 C

**Period:** *late medieval/early post medieval*

**Category:** *B* **Impact:** *None*

A drystone wall, up to two rough courses wide and high, and orientated c E-W above Coed Sadwrn. This is shown on the 1788 map as the southern boundary of 'Pen y Brynn' {A7}.

**Recommendations for further assessment:** *None*

**Recommendations for mitigatory measures:** *Avoidance*

**Feature 42** Field boundary wall

**PRN** 31924

**Grid ref:** SH76306702 C

**Period:** *late medieval/early post medieval*

**Category:** *B* **Impact:** *None*

A drystone wall, up to two rough courses wide and high, and orientated north-south at Coed Sadwrn. It appears to be of 19th century date but certainly of earlier origin. This is shown on the 1788 map as the eastern boundary of 'Pen y Brynn' {A7}.

**Recommendations for further assessment:** *None*

**Recommendations for mitigatory measures:** *Avoidance*

**Feature 43** Trackway

**PRN** 31925

**Grid ref:** SH75956702 C

**Period:** *Early C20th*

**Category:** *C* **Impact:** *Considerable*

Track running beside Low Level Leat and built to service the leat presumably in 1925. Reuses part of the Llyn Eigiau railway trackbed and for most of its length follows the Llyn Cowlyd tramway.

**Recommendations for further assessment:** *None*

**Recommendations for mitigatory measures:** *The track is to be improved for access. Original features such as rock cut sections should be left intact or recorded in detail. Basic recording should be carried out prior to the works.*

**Feature 44** Field boundary wall

**PRN** 31926

**Grid ref:** SH76176708

**Period:** *late medieval/early post medieval*

**Category:** *B* **Impact:** *None*

A drystone wall, up to two rough courses wide and high, and orientated c. SW-NE at Coed Sadwrn. Runs along base of hill and behind Coed Sadwrn farm and forms terrace revetment along south side of track to Coed Sadwrn. Part of early field system but also used in 19th century.

**Recommendations for further assessment:** *None*

**Recommendations for mitigatory measures:** *Avoidance*

**Feature 45** Field boundary wall

**PRN** 31927

**Grid ref:** SH76146713

**Period:** *late medieval/early post medieval*

**Category:** *B* **Impact:** *None*

A denuded field wall with stones forming a rough line. Some of the stones are large boulders up to 1m tall but no coursing survives. This wall is shown on the 1889 map as quite straight but looks slightly wandering on the ground. It is shown on the 1788 map. The field to the E was called 'Cae Fynnon' {A8} and was arable in 1788. The field to the W was 'Erw' {A2} and was under pasture in 1788 despite the name, which suggests that it was originally enclosed for arable.

**Recommendations for further assessment:** *None*

**Recommendations for mitigatory measures:** Avoidance

**Feature 46** Former drum house and Coed Sadwrn railway yard **PRN 31928**

**Grid ref:** SH76366712

**Period:** Early C20th

**Category:** B **Impact:** Likely

Corrugated iron shed on the Llyn Cowlyd tramway identified by Jones and Gwyn (1989, 180) as a drum house formed part of the Coed Sadwrn yard (Jones and Gwyn 1989, 180-181). The shed is built on a platform cut into a rocky outcrop above a level area that formed the small railway yard. The shed and the yard are shown on the 1913 map, and were part of railway for construction of Llyn Eigiau dam. The shed was the probable location of a winch in the 1950s. There was also another small shed in this area in the 1930s (Jones and Gwyn 1989, 181) but this is not on the 1913 map and seems to be a late and temporary addition.

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** This area is adjacent to track that is to be improved. Any damage to the shed, yard and associated features should be avoided. If the yard is required as part of the improved trackway basic recording should be carried out.

**Feature 47** Sub-oval enclosure **PRN 31929**

**Grid ref:** SH75976721

**Period:** late medieval/early post medieval

**Category:** B **Impact:** Likely

Small rather irregular sub-oval enclosure defined by low denuded walls. There is a gap in the NE side that may be an entrance to match the one on the SW side (feature 37). This route seems to have been used for access recently but the gap in the NE side is not as clear and convincing as an original entrance as that in the SW side, and may have been made more recently to allow access through the enclosure. The difficulty of terrain to the NE of the enclosure and the lack of a clear track here suggests that there was not an original route through the enclosure. However the area was covered in dense dead bracken so earthworks were difficult to detect.

This enclosure is named as Erw Bach {31} on the 1896 map. On the 1788 map it is shown as a distinct enclosure but labelled as part of 'Erw' {A2}, with 'Cae Bach' applied to a field much further west {A5}. The 'erw' name indicates a possible arable field, although on the 1788 map all of A2 is shown as under pasture.

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** The current works are shown just clipping the SE boundary of this enclosure. The preferred option is for the works can avoid this boundary, and for it to be fenced off. If this is not possible this boundary and others adjacent should be surveyed and recorded in detail.

**Feature 48** Coedty Bach **PRN 31930**

**Grid ref:** SH75556662

**Period:** C19th

**Category:** E **Impact:** None

A farmstead named as Coed-ty-bach is shown at this location on the 1889 map, but no building is marked here on the 1788 map so it is assumed that this building was of early 19th century origin and had acquired the name Coedty Bach from the farmstead further to the SW, which is also shown on the 1889 map. The building seems to have been destroyed when the Coedty Reservoir was built.

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** Avoidance

**Feature 49** Pont Newydd Bridge **PRN 12974**

**Grid ref:** SH75876715

**Period:** modern

**Category:** E **Impact:** None

This is the site of the late medieval or early post medieval bridge but nothing can be seen of that earlier bridge. The existing bridge is of concrete and steel beams with modern stone facing to the river banks. It is possible, but unlikely, that traces of the early bridge survive beneath the modern superstructure.

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** Avoidance

**Feature 50** Pipeline, Dolgarrog Hydro-electric Plant **PRN 16195**

**Grid ref:** SH7651767134

**Period:** Early C20th

**Category:** B **Impact:** Unlikely

Pipeline added when a third generator and turbine were installed in 1936. The pipeline runs from Llyn Cowlyd to a new penstock running down the valley side near parallel to the earlier penstock from the upper leat (Jones and Gwyn 1989, 128). The pipe can be seen on an aerial photograph dating to 1942. Refurbishment work was being carried out on this pipe in October 2010 and some ground disturbance has taken place along side the pipe.

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** Avoidance

**Feature 51** Dolgarrog Hydro-electric Plant

**PRN** 16321

**Grid ref:** SH7655167184

**Period:** Early C20th

**Category:** B **Impact:** None

The junction of pipes and valve house known as Marble Arch, after an iron gantry footbridge over the incline. Built after 1925 (Gwyn and Nevell 2006, 8).

The original Marble Arch had to be demolished as it was unsafe.

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** None

**Feature 52** Incline, Ardda

**PRN** 16322

**Grid ref:** SH7650167162

**Period:** C19th

**Category:** A **Impact:** None

Incline initially built for slate quarry tramway in the early 1860s and was in operation by 1864 (Jones and Gwyn 1989, 167); it is first shown on the 1889 map. It was reused in 1907 to construct a railway for building the Llyn Eigiau dam and in 1917 to build the Llyn Cowlyd dam (Jones and Gwyn 1989, 38, 169), and continued to be used in the early 20th century to take equipment up and down the escarpment. There was a winch and a ropeway on the incline in the 1950s. Much of the upper part of the incline is still well preserved with some sections in cuttings and some on stone embankments.

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** Avoidance

**Feature 53** Relict wall, Ardda

**PRN** 16323

**Grid ref:** SH76476712

**Period:** late medieval/early post medieval

**Category:** C **Impact:** Likely

Fairly well preserved drystone wall up to c0.7m high in places, but completely tumbled elsewhere. Forms part of the main boundary around Coed Sadwrn. Shown on 1889 map and shown on the 1788 map as the eastern boundary of 'Bryn Kelin' {A15}.

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** The SW end of this wall could be impacted by compound 2. The compound should be located to avoid the wall.

**Feature 54** Terraces, Ardda

**PRN** 16324

**Grid ref:** SH7650167132

**Period:** late medieval/early post medieval

**Category:** B **Impact:** Unlikely

There are several possible agricultural terraces down this slope, aligned about NW-SE along the slope and facing NE. The best defined is at the grid reference given. This is up to 10m wide with slight possible traces of a stone revetment on the uphill side. The oak trees seem to mainly be growing along the edges of this terrace as if planted, but there are exceptions. There is a less well defined possible terrace above this one and further up hill is the possible terrace on which the possible long hut is located.

The current works should not significantly effect these terraces, although recent works along the new pipeline have caused ground disturbance along the SE ends of these terraces. The ground here has been tidied up, levelled off and sown with grass seed.

**Recommendations for further assessment:** Survey

**Recommendations for mitigatory measures:** Avoidance



- Feature 55** Long hut, possible, Ardda **PRN 16325**  
**Grid ref:** SH7646867077  
**Period:** late medieval/early post medieval?  
**Category:** E **Impact:** Unlikely  
 There is a bracken covered heap of stones measuring about 6m x 4m, aligned c. NW-SE along the slope. There is a line of stones along the uphill side of the feature that may be the remains of a wall. Stones are haphazardly heaped over the rest of the feature and the density of dead bracken makes it very hard to determine any structure. The SE end of the feature has been slightly disturbed by works to the new pipeline. The groundworks have created a straight, fairly sharp scarp at this end but this is very recent and gives a false impression of this end of the feature.  
 The feature is located on a fairly level terrace that may have been created by agricultural activity. It is possible that this feature is the remains of a small stone building of long hut type. There are no other heaps of stones in the area and few surface stones, so this is unlikely to be merely a clearance cairn and the stones seem to have been part of a structure, but its form is difficult to determine without clearing the bracken and decayed vegetation away.  
**Recommendations for further assessment:** None  
**Recommendations for mitigatory measures:** Avoidance
- Feature 56** Tramway to Cwm Eigiau **PRN 31931**  
**Grid ref:** SH76056706 C  
**Period:** C19th  
**Category:** A **Impact:** Considerable  
 Slate quarry tramway built to service two "small and unpromising" quarries exploited between 1825 and 1873 (Jones and Gwyn 1989, 22). The tramway was constructed in the early 1860s and was in operation by 1864 (ibid, 167). The tramway was reused in 1907 to construct a railway for building the Llyn Eigiau dam (Jones and Gwyn 1989, 38, 169). Work on the dam completed Nov 1910 and in 1911 all plant removed apart from track on the incline through the woods. Again reused in 1917 as start of tramway to build Cowlyd dam.  
**Recommendations for further assessment:** None  
**Recommendations for mitigatory measures:** The track running along the route of the tramway is to be improved as part of the current works. Basic recording should be carried out before this occurs.
- Feature 57** Coed Dolgarrog well **PRN 31932**  
**Grid ref:** SH76366686  
**Period:** Early C20th  
**Category:** C **Impact:** None  
 Well marked on 1913 map  
**Recommendations for further assessment:** None  
**Recommendations for mitigatory measures:** None
- Feature 58** Leat and related drains **PRN 31933**  
**Grid ref:** SH76086691 C  
**Period:** Early C20th  
**Category:** A **Impact:** Slight  
 Upper leat built as part of the water catchment system for hydro-power station built for the aluminium works. The leat was constructed between 1907 and 1911 (Jones and Gwyn 1989, 38) and is shown on the 1913 map. The upper leats ran from the Afon Ddu and the Afon Porth-llwyd to a pipe that took the water down to the power station. There are two drains running down from the Afon Porth-llwyd branch of the leat, allowing overflow water to flow back into the river.  
**Recommendations for further assessment:** None  
**Recommendations for mitigatory measures:** The leat is well above the current works but the overflow drains will be impacted and these should have basic recording.
- Feature 59** Incline and water pipe **PRN 31934**  
**Grid ref:** SH76476704  
**Period:** Early C20th  
**Category:** A **Impact:** Considerable  
 Part of water catchment system for hydro-power station built for the aluminium works between 1907 and 1911, an incline taking water in a pipe from the upper leat to the power station. The incline is shown on

1913 map, although it does not indicate the pipe. The pipe was made redundant when the pipeline from Llyn Cowlyd was constructed in 1936 and 1937 (Gwyn and Nevell 2006, 8), but is still used as part of the surge protection for the Coedty system. This pipe is to be entirely removed and replaced, and will possibly be mounded over and partially buried.

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** Detailed recording including a topographic survey.

**Feature 60** Building shown by track to Coed Sadwrn **PRN 31935**

**Grid ref:** SH75946704

**Period:** Early C20th

**Category:** C **Impact:** None

The rectangular platform for a building can clearly be seen on the ground, although overgrown with bracken. The platform is aligned SW-NE and measures about 8m x 5m. The SE side is defined by a steep scarp up to 1m high and the NW side is marked by a line of stones that may be the remains of the wall. Otherwise there are few traces of walls visible. The building is shown on 1913 map but not on 1900 map, and there is another small building to the SW next to the track to Coed Sadwrn.

The building is on a plot of land called 'Tir Newydd' {A4} (new land) on the 1788 map.

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** Avoidance

**Feature 61** Route to Llyn Cowlyd **PRN 31936**

**Grid ref:** SH75846701 C

**Period:** late medieval/early post medieval

**Category:** B **Impact:** Likely

This is shown as a track on the 1816-1824 map, although not marked on the 1788 map. However the early map does not seem to mark tracks, and this route is possibly medieval or earlier. In the 18th century it passed along the north-western edge of a large field of mountain pasture called 'Castell' {A6}.

This route has been much reused and altered and it unlikely that any trace of a medieval road might survive, especially as this was probably just a horse/pony path, not a paved road.

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** None

**Feature 62** Probable location of Tyddyn Du **PRN 31937**

**Grid ref:** SH75836738

**Period:** C18th or earlier

**Category:** B **Impact:** None

This farmstead is named on the 1816-1824 map, but no roofed building survived to be shown on the 1889 map. This area was not inspected on the ground as it is distant from the current proposed works.

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** Avoidance

**Feature 63** Possible path to Ffridd Du **PRN 31938**

**Grid ref:** SH75836716

**Period:** C18th or earlier

**Category:** E **Impact:** None

A path is shown on the 1816-1824 map leading from the road to Ffridd Du and beyond to Fechell. This has not been recognised on the ground and is not obvious on later maps but the line indicated is a suggested route.

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** Avoidance

**Feature 64** Low Level Leat **PRN 31939**

**Grid ref:** SH76186711

**Period:** Early C20th

**Category:** B **Impact:** None

Leat to carry water from Afon Ddu to Coedty reservoir. Completed to Afon Ddu by 1925. Not on 1913 map but in 1950s marked as existing leat.

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** Avoidance

**Feature 65** The Huts, site of shanty town **PRN 31940**

**Grid ref:** SH75786678

**Period:** Early C20th

**Category:** E **Impact:** Likely

Site of shanty town locally known as 'the huts' for workers on Llyn Eigiau dam. As many as 400 workmen may have lived here. There was a chapel and 5 or 6 grocery shops. Precise location not known but described as being "near the railway line at Coedty" (Jones and Gwyn 1989, 39). It is assumed that the huts were adjacent to the buildings of Coedty Mawr and that many may have been in the area used for the low level leat, however considering the number of people involved it is possible that the area below Coedty Mawr down to the stream was used.

**Recommendations for further assessment:** Compound 4 and some of the other works could impact on any buried remains of the shanty town if these were fairly close to the river. Topographic survey of the area should include a careful inspection for any traces of the shanty town and if these are found trial trenching should be used to evaluate the remains.

**Recommendations for mitigatory measures:** Dependant on results of further assessment

**Feature 66** Siding to granite quarry

**PRN** 31941

**Grid ref:** SH75786670 C

**Period:** Early C20th

**Category:** B **Impact:** None

Jones and Gwyn (1989, 169, 170) state that there was a branch of the Llyn Eigiau tramway that went from near Coedty to the granite quarry used as stone source for the dam, built 1907. The track climbing up hill behind Coedty Mawr has certainly been improved and reinforced and must be the route of this

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** None

**Feature 67** Possible penstock railway branch

**PRN** 31942

**Grid ref:** SH76096695

**Period:** Early C20th

**Category:** B **Impact:** None

Jones and Gwyn (1989, 169, 170) state that there was a branch of the Llyn Eigiau tramway that went from near Coedty to the penstock, built 1907. Much of this followed a pre-existing footpath (and is still a footpath now) but at its W end is visible as cuttings and embankment curving across the hillslope to join the route of the main railway to the NE of Coedty Mawr. Although clear on the ground this tramway route is not indicated on any of the old maps.

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** None

**Feature 68** Tumbled field wall

**PRN** 31943

**Grid ref:** SH75776692 C

**Period:** early C19th

**Category:** C **Impact:** Significant

Low tumbled wall running SE-NW downhill. SE end is quite well defined but becomes rather vague to NW, although still visible as a slight scarp. Not completely straight, wanders slightly. About 1m wide and up to 0.6m high in best preserved sections. This field was under arable in the late 18th century and this boundary is not shown on the 1788 map. It therefore seems to have been a sub-division added in the 19th century as it is shown on the 1889 map.

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** The current works will have significant impact on this feature and could result in damage to more than half of it. Survey and excavation trenches are recommended to investigate its date and structure.

**Feature 69** Possible field boundary

**PRN** 31944

**Grid ref:** SH75746688 C

**Period:** medieval/prehistoric?

**Category:** E **Impact:** Considerable

Fairly gradual and indistinct scarp running c. SE-NW down slope turning towards the S at its NW end. At the corner it becomes more clearly defined and is up to 1m high. Where the scarp is well defined it is about 2m wide but reaches 5m wide and more where less distinct. Some rocks are visible near the corner and it is possible that this is a natural feature of the bedrock, but its relation to the slope and the fairly clear corner make it appear like a field boundary.

**Recommendations for further assessment:** *The current works risk damage to most of this feature. Survey and evaluation trenches are recommended to investigate its date and nature.*

**Recommendations for mitigatory measures:** *Dependant on results of further assessment*

**Feature 70** Trackway

**PRN 31945**

**Grid ref:** SH75706681 C A

**Period:** C20th

**Category:** D **Impact:** Significant

A track running diagonally across the slope from boundary feature 69 to the river. The track is defined by a bank of earth with some stone on its downhill side and a slighter, less continuous bank on the uphill side. The track is about 2m wide and the largest bank is up to 0.7m high. This track cuts through boundary feature 69 and track feature 33 runs from this track and they seem to be contemporary. At its SW end the track is revetted with stone where it meets the bank of the stream. There seems to be no ford across the stream here but there is a small weir made of mortared river stones with a plastic pipe through. This track is not shown on any of the older maps and the current OS data suggests that the stream has been significantly remodelled here during the construction of the dam, so even the ancient looking revetment near the stream must be modern. This is almost certainly a track used in the 1950s when the spillway next to the dam was constructed.

**Recommendations for further assessment:** *None*

**Recommendations for mitigatory measures:** *The creation of compound 4 will impact on this feature, and it should be included in the survey of other features in this area, but it is of minor importance, so only basic recording is required.*

**Feature 71** Possible building platform or quarry

**PRN 31946**

**Grid ref:** SH75736682 A

**Period:** C20th?

**Category:** E **Impact:** Likely

A semi-circular hollow dug into the slope just above trackway 71. The area above the hollow is level and may be a building platform. Presumably the platform and hollow are related, but it is possible that the former is a natural feature highlighted by the hollow. The hollow certainly seems quite well defined and fresh and may be related to the trackway and be a small borrow pit, dating it to the 1950s.

**Recommendations for further assessment:** *It may be possible to position compound 4 and the spoil heap to avoid this feature but it would be at risk of damage unless clearly marked and protected. Survey and evaluation trenches are recommended to investigate the date and nature of this feature.*

**Recommendations for mitigatory measures:** *Dependant on results of further assessment*

**Feature 72** Heap of boulders

**PRN 31947**

**Grid ref:** SH75616676

**Period:** Early C20th

**Category:** D **Impact:** Unlikely

A large collection of massive boulders, some well embedded in grass. Although quite overgrown this is deposited on made-ground relating to the dam construction and the heap must date from the same period.

**Recommendations for further assessment:** *None*

**Recommendations for mitigatory measures:** *None*

**Feature 73** Small structure by track to Coed Sadwrn

**PRN 31948**

**Grid ref:** SH75926706

**Period:** C19th

**Category:** E **Impact:** Considerable

Small structure by track to Coed Sadwrn (plate 4). Rectangular, c6m x 5m with low wall surviving to no more than 0.5m high. Abuts main boundary wall and no obvious entrance visible, although SE wall is very poorly preserved with considerable gaps. Not shown on any of the old maps but character of remains is similar to boundary wall etc and it seems to be roughly contemporary. Probably the structure was too small and insignificant to show on the maps.

**Recommendations for further assessment:** *This structure risks being either levelled in advance of spoil dumping or being buried by spoil unless marked and protected. Survey and evaluation trenches are recommended to investigate the date and nature of this feature.*

**Recommendations for mitigatory measures:** *Dependant on results of further assessment*

**Feature 74** Gateway on track to Coed Sadwrn

**PRN 31949**

**Grid ref:** SH75916707

**Period:** C19th

**Category:** C **Impact:** Considerable

Gateway across track to Coed Sadwrn, flanked by large unworked stones as gate posts (plate 5). The tallest gatepost is 1.9m high and there are holes for hanging a gate on the W side of the stones. The 1889 map shows the track crossing the boundary here but does not mark a gate as such.

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** This is on the route of the new pipe and trackway and is likely to be destroyed. Survey and detailed recording is recommended.

**Feature 75** Terraced field boundary

**PRN 31950**

**Grid ref:** SH76026714 C

**Period:** late medieval/early post medieval

**Category:** B **Impact:** Significant

Natural scarp running SE-NW revetted and regularised as a field boundary (plate 6). The scarp is up to 4m high but much of this is natural. Towards the SE end the scarp disappears and the boundary is represented by a simple tumbled wall. The top of the scarp at its highest is revetted with stone facing, much now tumbled. The 1896 map suggests that there were other small enclosures on or against the rocky outcrop at the NW end of the boundary and these might be identified by detailed survey. The map also names the field to the W of this boundary as Erw Bellaf {32} and that to the E as Erw Ty {35}. The 1788 map calls both sides of the boundary 'Erw' {A3} and {A2}, respectively. The 'erw' names indicate that these were created as

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** The NW end of the boundary is likely to be significantly impacted by the works and needs detailed survey.

**Feature 76** Trackway

**PRN 31951**

**Grid ref:** SH76086721

**Period:** Early C20th

**Category:** D **Impact:** Significant

SW end of NE-SW aligned trackway, which curves to the north and then joins line of pipe. At this point the trackway passes through a gap in the rock outcrops. The gap may have been a natural one that was improved but much clearance of stone, if not actual quarrying of rock must have been done. No obvious traces of quarrying on rock face but this is heavily overgrown with lichen and moss. The track currently leads to a gate in a modern fence but extent of grass and moss growth and the lack of obvious tool marks on the rock face make it appear to be of some antiquity. However it is not shown on the old maps and does lead to the pipe. In places it can be seen that the surface of the track is covered with hard core. There is a short section of track running from the main track to the W and curving to the top of a small rock outcrop over looking the pipe. The relationship to the pipe, the presence of hard core and the absence from the old maps suggests that this track was used for access while building the pipe and dates from the 1920s.

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** None

**Feature 77** Former locomotive shed

**PRN 31952**

**Grid ref:** SH76406706

**Period:** Early C20th

**Category:** B **Impact:** Unlikely

Corrugated iron shed identified by Jones and Gwyn (1989, 180) as a locomotive shed on siding on Llyn Cowlyd tramway.

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** The tramway is to be improved and care should be taken not to damage the shed or remains of the siding. Basic recording should be carried out and the area should be fenced and avoided.

**Feature 78** Llyn Cowlyd tramway

**PRN 31953**

**Grid ref:** SH76406707

**Period:** Early C20th

**Category:** B **Impact:** Significant

Main branch of the Llyn Cowlyd Tramway. Built 1916/1917 for construction of Llyn Cowlyd dam. Now

appears as an embanked trackway. Embankment is over 6m high in places. Also cut through rock near feature 46.

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** This route is to be improved and care should be taken not to disguise its character as a tramway by groundworks or dumping over the embankment. Original features such as rock cut sections should be left intact or recorded in detail.

**Feature 79** Possible ancient wall

**PRN 31954**

**Grid ref:** SH75826696

**Period:** Prehistoric?

**Category:** E **Impact:** Considerable

A rough line of stones running c. NW-SE uphill, including one stone set on edge (plate 3). The alignment continues for about 22m with a large natural boulder forming part of it. Some of the stones in the line look possibly laid and others look natural. The field is very stony and this could be a chance alignment but it is quite coherent and may be a much denuded field wall. If it is the latter its condition suggest that it might be older than the other boundaries in this area and could be prehistoric. This field may have suffered severely from erosion as it is shown on the 1788 map as being under arable, which currently seems unlikely with the quantity of stones. However if it was of much better quality in the past its use as a prehistoric field seems more likely.

**Recommendations for further assessment:** This feature is likely to be severely impacted by the works. Survey and evaluation trenches are recommended to investigate its date and nature.

**Recommendations for mitigatory measures:** Dependant on results of further assessment

**Feature 80** Natural boulders/structure

**PRN 31955**

**Grid ref:** SH75816699

**Period:** Unknown

**Category:** E **Impact:** None

A group of stones around low bedrock outcrops. There is a gap on the uphill side that might be an entrance but the stones that are not obviously natural look dumped rather than laid.

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** Avoidance

**Feature 81** Possible field boundary

**PRN 31956**

**Grid ref:** SH75776694

**Period:** Prehistoric?

**Category:** E **Impact:** None

An 8m long scarp running SW-NE along the slope, with a rock projecting from it at SW end. The scarp is up to 0.7m high and 1.5m wide. It may be natural but could be the remains of an early field boundary. This is not shown as a boundary on any of the early maps but may be on the same alignment as the ridges shown on the 1788 map and could have been enhanced by ploughing.

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** Avoidance

**Feature 82** Field wall

**PRN 31957**

**Grid ref:** SH75846699

**Period:** C18th or earlier

**Category:** E **Impact:** Significant

Denuded field wall running along side track. Generally largely collapsed, occasionally surviving to 0.5m high. This formed the eastern boundary of a field called 'Cae Bach' {A5} on the 1788 map. This is shown as being under arable and belonging to Coed Sadwrn rather than Coedy Mawr, but seems to be a later enclosure than the fields clustered around Coed Sadwrn.

**Recommendations for further assessment:** The route will cut through this boundary. Survey and evaluation trenches are recommended to investigate its date and nature.

**Recommendations for mitigatory measures:** Dependant on results of further assessment

**Feature 83** Track leading to footpath

**PRN 31958**

**Grid ref:** SH75896713

**Period:** C19th

**Category:** C **Impact:** None

Track, c2m wide running at an angle up the slope from near the bridge. Stones cleared from the route are

dumped along the track edge but there is not real wall or revetment. The track breaks through the field boundary at the top of the slope, with much of the stone from the wall still visible in the surface of the track. The track is shown on the 1889 map and joins with a footpath running across the field to Coed Sadwrn. No earthwork remains of this footpath could be seen.

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** Avoidance

**Feature 84** Field wall/revetment

**PRN 31959**

**Grid ref:** SH75926716 C

**Period:** late medieval/early post medieval

**Category:** B **Impact:** Unlikely

Field boundary wall running along top of natural escarpment. Revetment of rounded boulders c1m high facing NW. Ground to SE level with top of wall. A line of hazel and ash grows along the wall indicating a former hedge. Many of the hazel are old coppices and some trunks are bent showing where they were once laid. Wall is fairly close to the existing pipeline so care must be taken that the wall is not damaged when the pipe is dismantled.

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** Avoidance

**Feature 85** Probable clearance cairn

**PRN 31960**

**Grid ref:** SH76006720

**Period:** late medieval/early post medieval

**Category:** B **Impact:** Unlikely

Small circular cairn c. 2m diameter composed of small and medium sized sub-rounded stones. Heavily overgrown with grass and moss. 1m high on downhill side but nearly level with ground on uphill side. There is a large group of boulders to the NW of this but these are too large to have been moved (unless it was during the pipe construction) and these are probably natural.

The works pass to the SE of this feature and it should not be impacted.

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** Avoidance

**Feature 86** Field wall/revetment

**PRN 31961**

**Grid ref:** SH76036721

**Period:** late medieval/early post medieval

**Category:** B **Impact:** Likely

Rough revetment wall filling gaps between natural boulders along top of escarpment. Up to 1m high but mainly due to the size of the boulders. Wall does not project above the level of the field to the E.

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** The works will avoid most of this wall but may disturb any traces of it returning to the E. It should receive basic recording, and should be fenced off to ensure that it is avoided.

**Feature 87** Access track to pipe

**PRN 31962**

**Grid ref:** SH76246722 C

**Period:** Early C20th

**Category:** D **Impact:** Significant

One of several tracks that were probably built for the construction of the pipeline and are still used for access for maintenance.

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** None

**Feature 88** Small enclosure against rock face

**PRN 31963**

**Grid ref:** SH76226722

**Period:** C19th

**Category:** C **Impact:** None

Small sub-rectangular enclosure built against a rock outcrop. Interior is level and the walls survive to no more than 0.7m high. The walls are very overgrown with bracken and difficult to see clearly. There may be a narrow entrance in the SE corner. The field that this enclosure lies within is called Cae Lloiau (field of the calves) on the 1896 map, which raises the possibility that the enclosure may have been used for managing calves.

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** Avoidance

**Feature 89** Fragmentary field wall

**PRN 31964**

**Grid ref:** SH76226723 C

**Period:** late medieval/early post medieval

**Category:** B **Impact:** Significant

Vague and unclear boundary. Follows the top of the crags and can be seen as fragments of walling but little seems to survive near the present pipe. Shown on the 1889 and 1788 maps. On the latter it is the western boundary of 'Cae Lloi' {A11}, this field is also called 'Cae Lloiau' (field of the calves) on the 1896 map.

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** Damage to surviving fragments of this wall may occur due to the works in which case basic recording is necessary in advance of the works.

**Feature 90** Drainage channels for upper leat drain and surge pipe

**PRN 31965**

**Grid ref:** SH76326726

**Period:** Later C20th

**Category:** D **Impact:** Considerable

Neatly revetted channels running from the base of a boulder filled ravine. A broad catchment area divides into two channels. Built in mortared field stone, with the base of the channels also lined with stone. The channels are part of the overflow drain from the upper leat.

Nearby is a reinforced concrete pipe running down the slope to the main pipe. This used to be attached to the main pipe as a surge pipe, releasing water pressure in case of flooding. This would have carried excess water up to the Low Level Leat.

**Recommendations for further assessment:** These features have been surveyed in some detail as part of the topographic survey in advance of the works. No further assessment.

**Recommendations for mitigatory measures:** Basic recording should be carried out in advance of any damage.

**Feature 91** Fragmentary field wall

**PRN 31966**

**Grid ref:** SH76276723 C

**Period:** late medieval/early post medieval

**Category:** B **Impact:** None

Fragmentary wall running along the top of the escarpment. Survives up to 0.5m high. Joins rock outcrops in places. Northern boundary to 'Cae Fynnon' {A8} as shown on the 1788 map.

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** Avoidance

**Feature 92** Fragmentary field wall

**PRN 31967**

**Grid ref:** SH76296718 C

**Period:** late medieval/early post medieval

**Category:** B **Impact:** None

The edge of the scrub shown on the 1889 map was defined by a wall now low and tumbled but in places surviving up to 0.5m high. The wall joins rock outcrops. Eastern boundary to 'Cae Fynnon' {A8} as shown on the 1788 map.

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** Avoidance

**Feature 93** Location of field boundary with little visible

**PRN 31968**

**Grid ref:** SH76366724 C

**Period:** late medieval/early post medieval

**Category:** B **Impact:** Likely

A field boundary is shown on the 1889 map running along the base of the crags but very little can be seen on the ground. This is shown on the 1788 map as the northern boundary of 'Bryn Kelin' {A15}. To the north of this was 'Carreg wen' {A12}, shown as rough ground.

A detailed survey might identify some fragmentary traces of a wall but it is possible that the crags themselves were used as a boundary and no wall was needed.

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** If any surviving fragments of wall are to be destroyed by the works they should receive basic recording in advance.



**Feature 94** Small farmstead

**PRN 31969**

**Grid ref:** SH76446723

**Period:** late medieval/early post medieval

**Category:** E **Impact:** Significant

One definite and one probable building platform lie between a tumbled wall and the base of a low rocky Escarpment (plate 8). Some of the wall survives to a height of 0.5m but the traces of the buildings are very slight. The best defined platform is rectangular, measures about 10m x 3m and lies parallel to the slope. To its east is a less well defined platform about 5m long that may be part of a yard rather than for a building. To the north is a sub-circular enclosure c.6m in diameter, very over grown with bracken. This may have an entrance in the SW side. A track giving access to the pipe cuts through this area and on the E side of the track is a low boundary wall with a possible building platform adjacent to it. This platform has been disturbed by the track but is 3m wide and at least 3m long. A long stone slab built into the wall may indicate that one wall of the building was incorporated into the field wall. There is no hint of this farmstead on the 1788 map so presumably it went out of use before the late 18th century.

**Recommendations for further assessment:** *The main building platforms lie just beyond the proposed works and might be avoided but the sub-circular enclosure, platform by the track and associated wall are likely to be severely impacted by the works. Survey and evaluation trenches are recommended to investigate the full extent, nature and date of the remains.*

**Recommendations for mitigatory measures:** *Dependant on results of further assessment*

**Feature 95** Drain catchment

**PRN 31970**

**Grid ref:** SH76506721

**Period:** Early C20th

**Category:** D **Impact:** Considerable

Drain catchment basin lined with stone with a drain in the N wall. There is part of a large drainage pipe in the base but this is not functional. Two drainage channels run into the basin.

**Recommendations for further assessment:** *None*

**Recommendations for mitigatory measures:** *This feature has been surveyed in some detail as part of the topographic survey in advance of the works, it has been photographed as part of this assessment and no further recording is recommended.*

**Feature 96** Field wall

**PRN 31971**

**Grid ref:** SH76496718 C

**Period:** late medieval/early post medieval

**Category:** B **Impact:** None

Field wall that becomes a terrace as it descends the slope. Most of its corner has been cut away by the recent track but it continues on the other side of the incline. It generally appears as a low tumbled wall but becomes a terrace 1m high near the corner. Large oaks and coppiced hazel grow along the boundary. This is shown on the 1788 map as the north-eastern boundary of 'Bryn Kelin' {A15}.

**Recommendations for further assessment:** *None*

**Recommendations for mitigatory measures:** *Avoidance*

**Feature 97** Corner of possible field terrace

**PRN 31972**

**Grid ref:** SH76446708

**Period:** late medieval/early post medieval

**Category:** B **Impact:** Likely

The corner of a possible terrace, the same that the possible long hut (feature 55) is located on. There is a considerable scarp about 10m high most of which must be natural but the neat regular corner suggests that the terrace has been enhanced and regularised by agriculture.

**Recommendations for further assessment:** *None*

**Recommendations for mitigatory measures:** *Compound 2 is located close to this feature and should be positioned so as to avoid it. The terrace should be fenced so that it can be avoided.*

**Feature 98** Llyn Coedty Farmstead

**PRN 31973**

**Grid ref:** SH75496650

**Period:** C18th or earlier

**Category:** B **Impact:** None

Former small farmstead at edge of reservoir, now in ruin. Most of year area submerged by reservoir. Measuring c. 7m x 5m with small extension at E end. Platform area at N end. Former enclosure walls are visible in dry season just visible through silt. (Jones 2003). A building is shown here on the 1788 map and this

is presumably the original Coedty Bach. 'Coiti bach' is recorded in this location on the 1847 tithe map. Coedty Bach was built on the land of Coedty Mawr

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** Avoidance

**Feature 99** Channel for stream passing under leat

**PRN 31974**

**Grid ref:** SH75726722

**Period:** 20th century

**Category:** D **Impact:** None

Channel roughly lined with boulders where the stream that has been channelled under the leat exits. Although this looks ancient it was presumably constructed when the leat was built, although some of the stream may have been canalised previously.

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** Avoid

**Feature 100** Small walled enclosure

**PRN 31975**

**Grid ref:** SH75806708

**Period:** late medieval/early post medieval

**Category:** B **Impact:** None

Sub-circular enclosure defined by low tumbled wall. Occasionally this survives to nearly 1m high but much of it is much lower. Wall is built of sub-rounded field stones and boulders. The enclosure is heavily overgrown and it is impossible to see anything of its interior. This may be a livestock enclosure, but it is possible that it is the site of an earlier farmhouse for Pont Newydd Farm. The sub-circular shape suggests that it is part of the late medieval/early post medieval field system.

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** Avoidance

**Feature 101** Trackway leading to road from Pont Newydd

**PRN 31976**

**Grid ref:** SH75836722

**Period:** C19th

**Category:** C **Impact:** None

Slight, overgrown lines of stones indicate the walls bounding the track running from Pont Newydd to the road. This is clearly shown on the 1889 map, and is probably of 19th century date, although it could be earlier.

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** Avoid

**Feature 102** Field boundaries above Coed Sadwrn

**PRN 31977**

**Grid ref:** SH76116700 C

**Period:** late medieval/early post medieval

**Category:** B **Impact:** None

A well defined scarp up to 1m high running roughly E-W along the hill slope above Coed Sadwrn. At its E end it turns north down the slope. This is part of an ancient field system running all along this slope. It fits with the rest of the probable late medieval/early post medieval field system, but the dividing boundaries were abandoned in the 18th century as they are not shown on the 1788 map. However the presence of the possible prehistoric cairns (feature 40) may hint at an earlier origin for these fields.

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** Avoidance

**Feature 103** Denuded field wall above Coed Sadwrn

**PRN 31978**

**Grid ref:** SH76156700

**Period:** late medieval/early post medieval

**Category:** B **Impact:** None

A very denuded field wall visible as little more than a line of stones running c. S-N down the hill slope above Coed Sadwrn. This is part of an ancient field system running all along this slope. It fits with the rest of the probable late medieval/early post medieval field system, but the dividing boundaries were abandoned in the 18th century as they are not shown on the 1788 map. However the presence of the possible prehistoric cairns (feature 40) may hint at an earlier origin for these fields.

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** Avoidance

**Feature 104** Denuded field wall

**PRN 31979**

**Grid ref:** SH76116725

**Period:** late medieval/early post medieval

**Category:** B **Impact:** Unlikely

Denuded field wall. This is not shown on 1889 map but is on the 1788 map and forms the northern boundary of an enclosure forming part of 'Cae Pwll Cowerch' {A10}. As this is not shown on the 1889 map its exact route is not known in detail.

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** *This wall lies beyond the current proposed route but may be disturbed in small sections for access; in which case basic recording should be undertaken.*

**Feature 105** Tan yr Ysgubor

**PRN 31980**

**Grid ref:** SH76206720

**Period:** late medieval/early post medieval

**Category:** E **Impact:** Unlikely

Small enclosure shown on the 1788 map called 'Tan yr Ysgubor' {A9}, and therefore possibly containing the remains of a barn. No remains were noticed on the ground here but a more thorough search through the bracken may find the wall of the enclosure and possibly even traces of the barn.

**Recommendations for further assessment:** None

**Recommendations for mitigatory measures:** *This area is unlikely to be impacted by the works but the possible presence of these remains should be considered when choosing access routes through this area and where identified they should be avoided.*



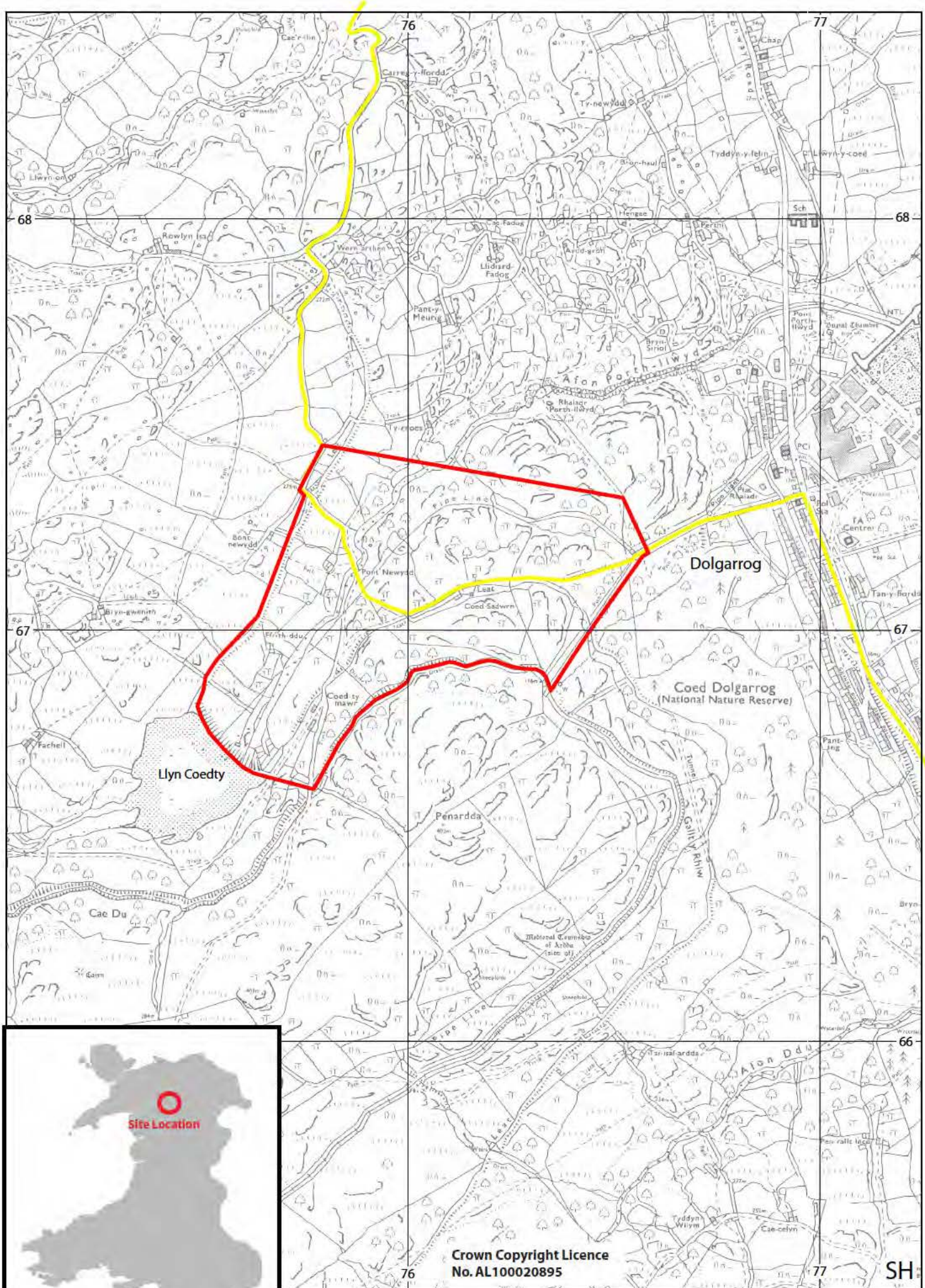


Figure 1. Location of site (study area in red and National Park boundary in yellow)  
Base map taken from Ordnance Survey 1:10 000 sheet SH76 SE



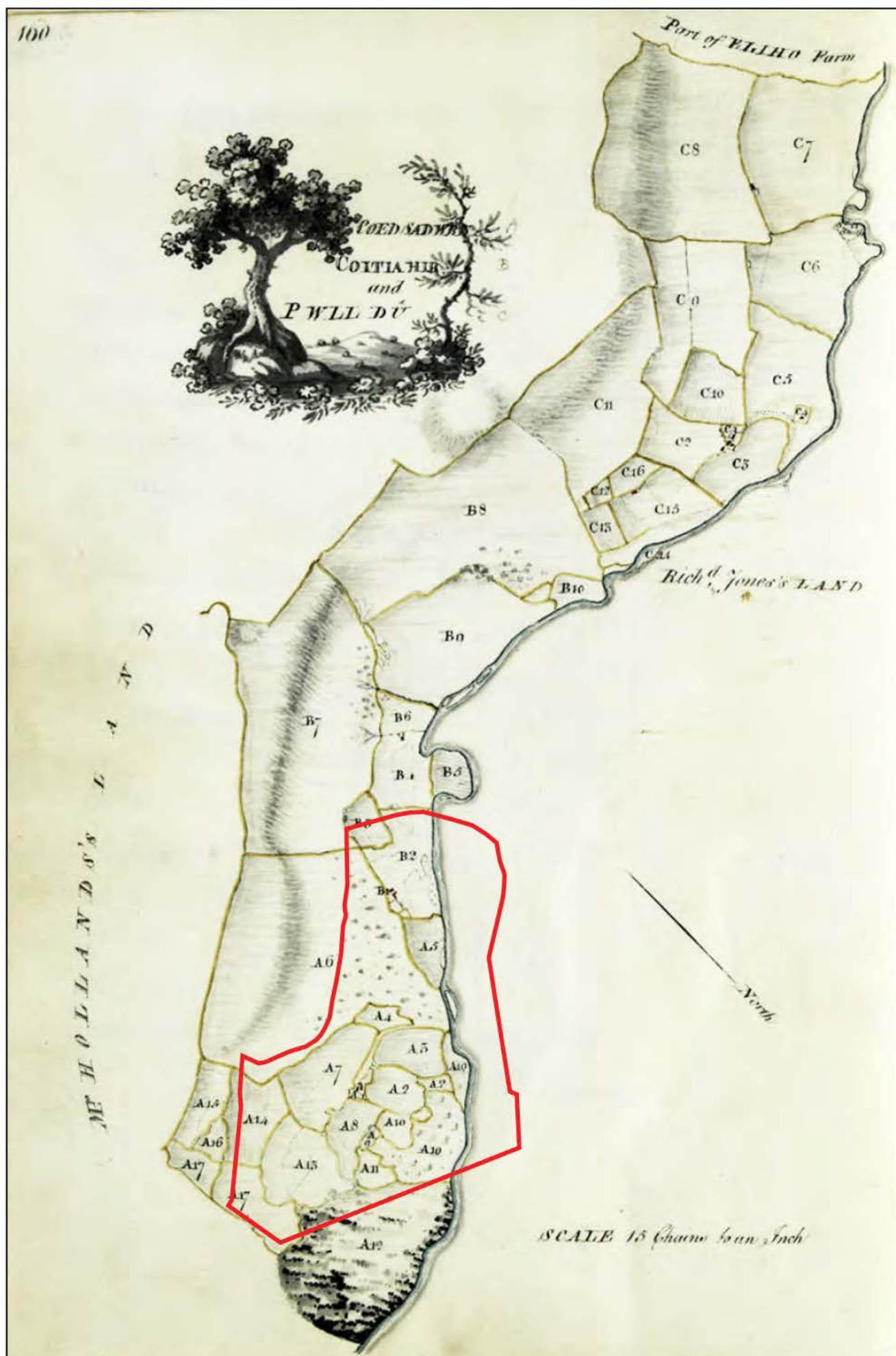


Figure 2. Coed Sadwrn, Coitia Hir and Pwll Du. Map dated 1788 showing field boundaries with study area approximately shown in red. (National Archives MS vol 96, p160)







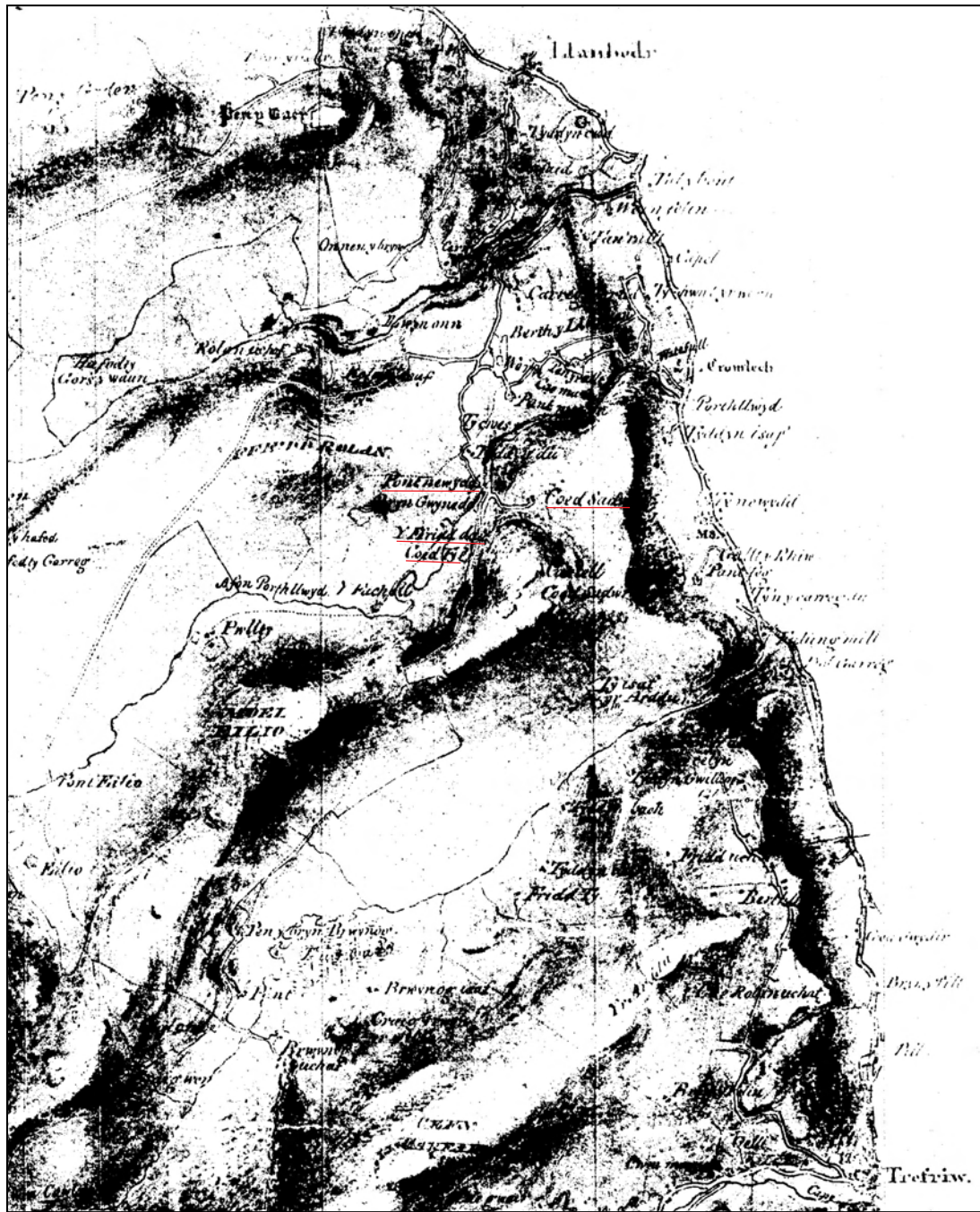


Figure 4. 1816-1824 map: Ordnance Survey preparatory map, MSS f34081, Bangor University Archives (place names within the study area underlined in red)

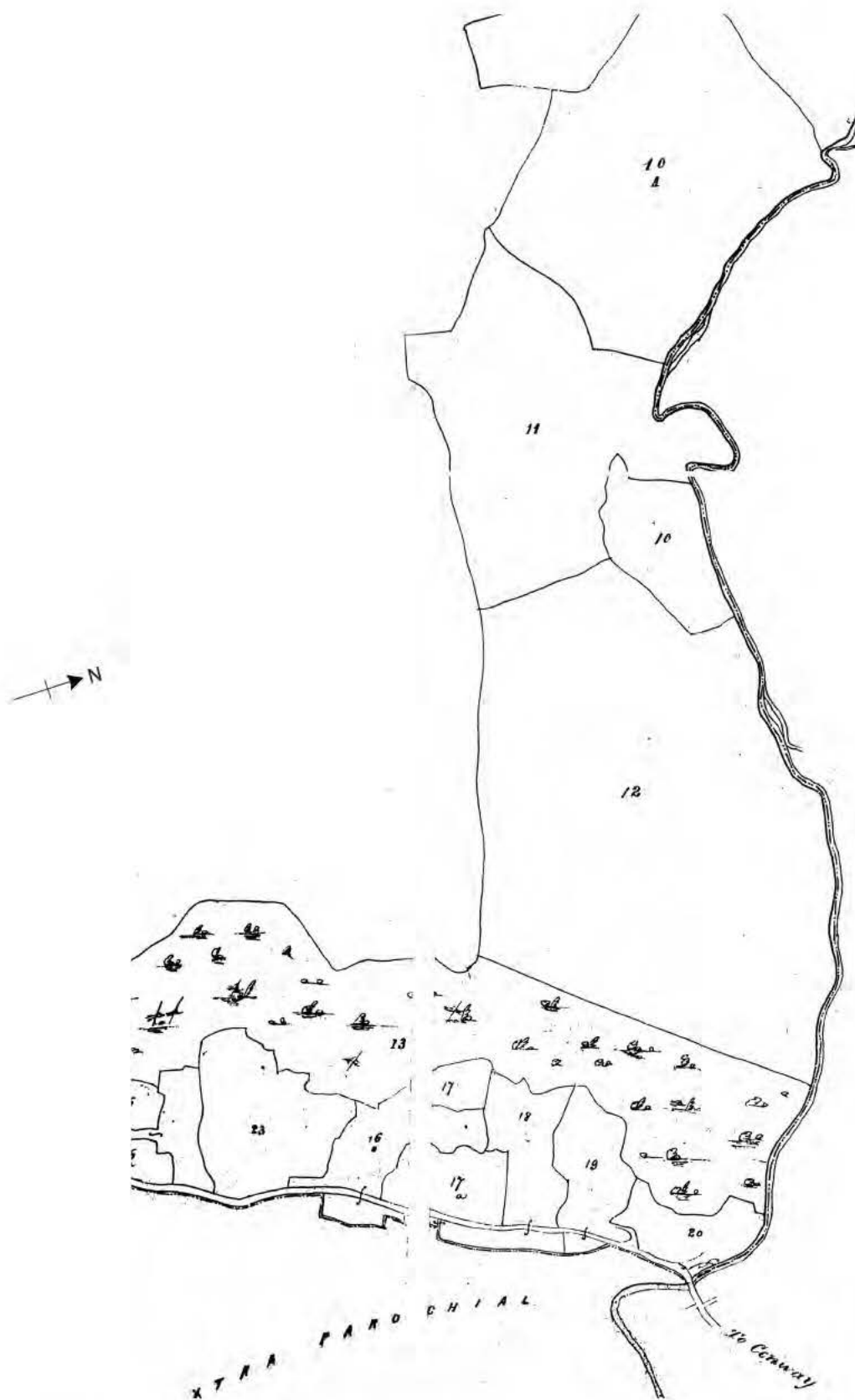


Figure 5. Extract from the Dolgarrog Tithe map of 1847. Field 10 is 'Coiti hir', field 11 'Coiti bach' and field 12 is 'Coed Sadwrn' (Conwy Archives)



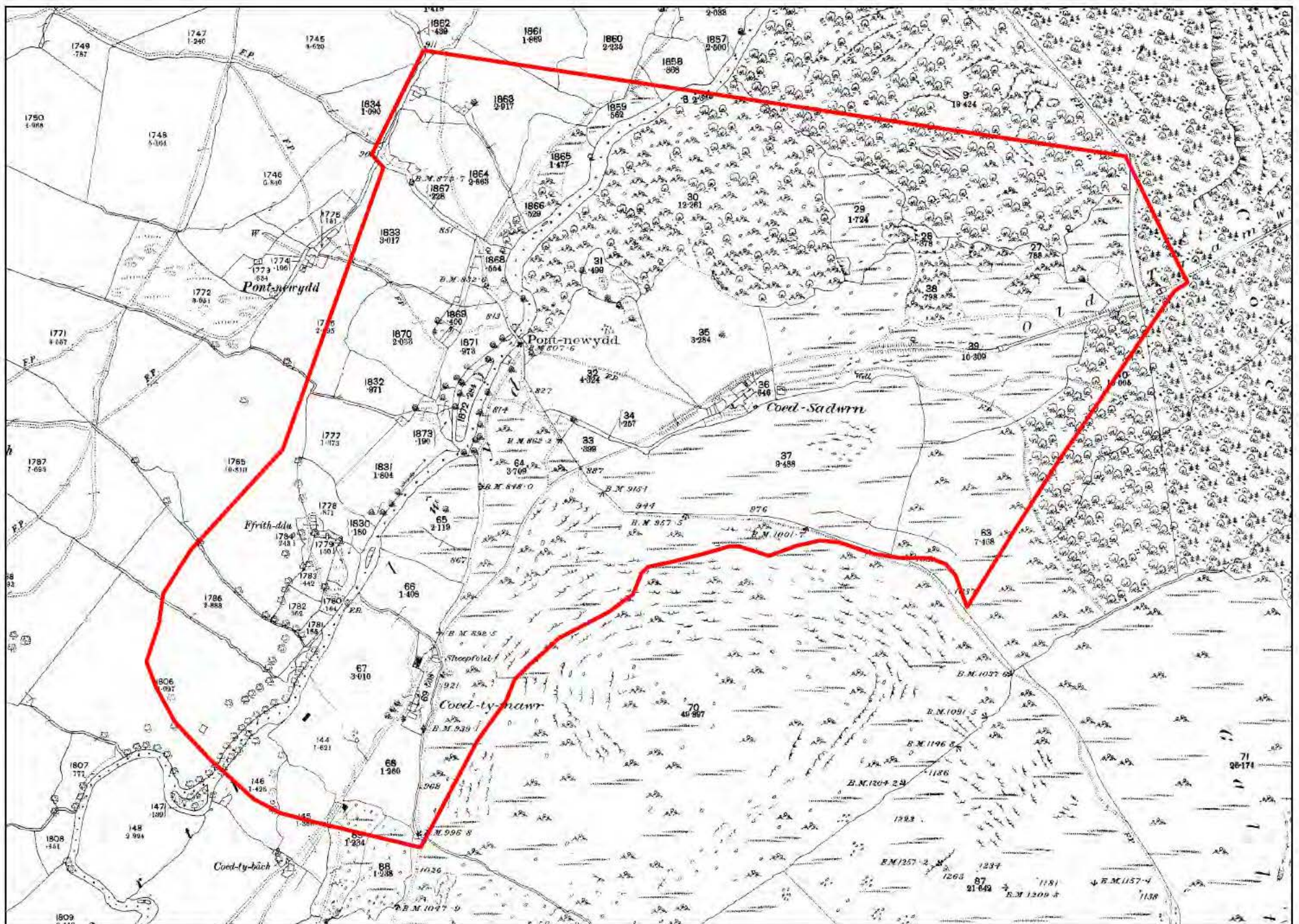


Figure 6. The study area outlined on the Ordnance Survey 25 inch 1st edition map of 1889, Caernarvonshire sheets XIII.7 and XIII.8



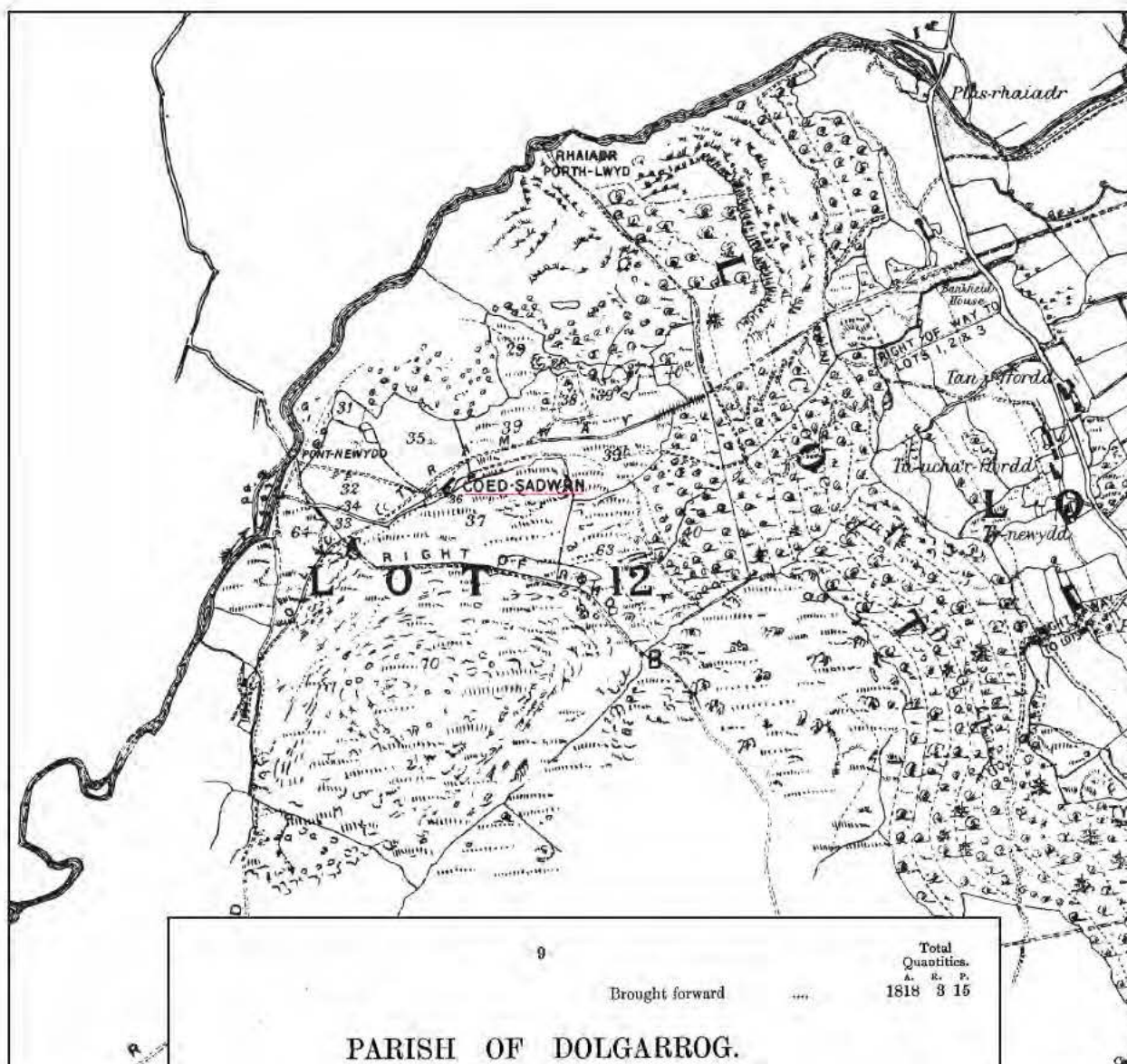
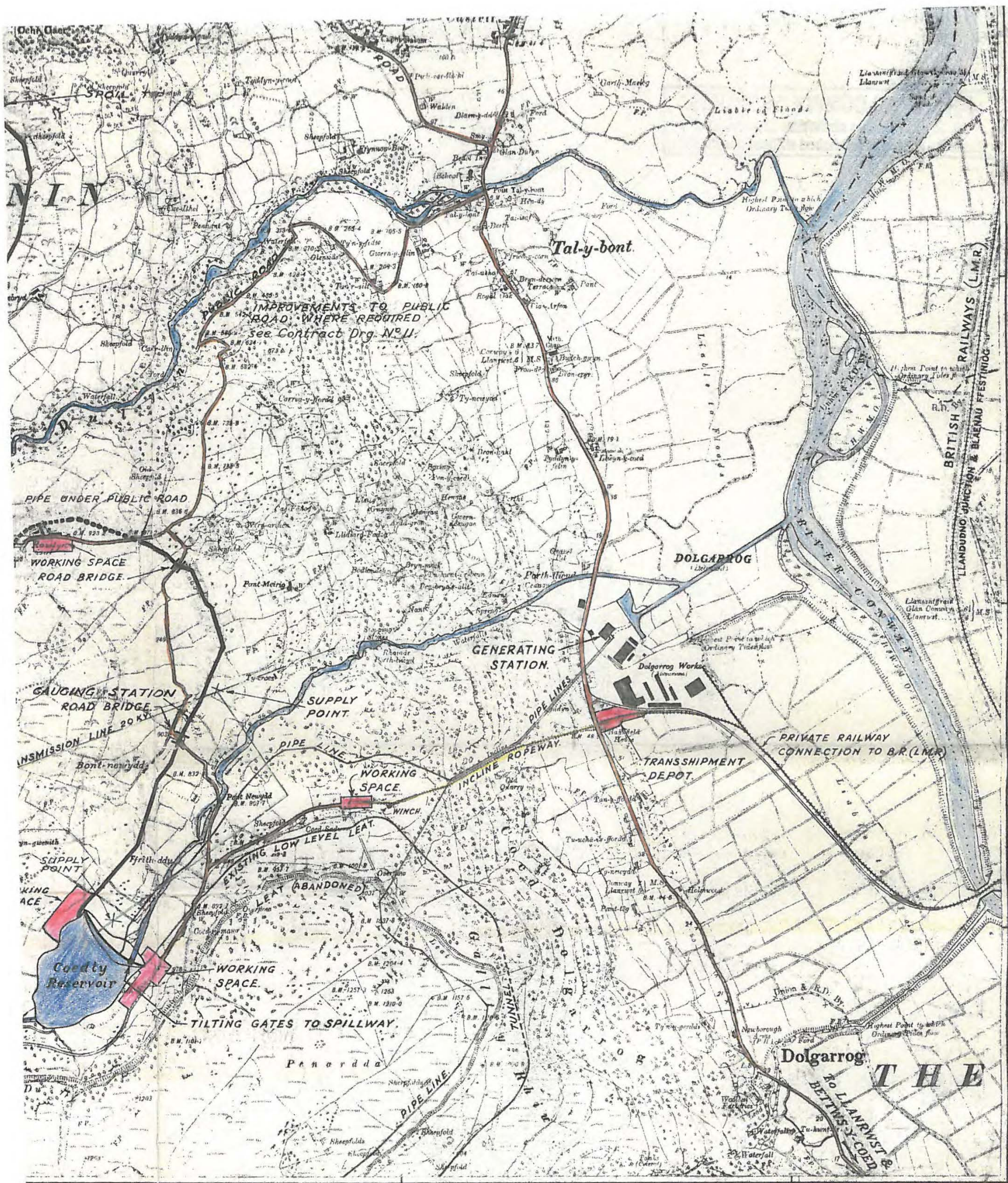


Figure 7. 1896 map: Sale catalogue of Dolgarrog Estate showing Coed Sadwrn, Caernarvonshire 357, National Library of Wales





1000 2000 3000 4000 5000 5280 Feet  
 1/4 1/2 3/4 1 Mile  
 Scales to One Statute Mile or 5280 Feet to One Inch - 10560

**BRITISH ELECTRICITY AUTHORITY**  
 MERSEYSIDE AND NORTH WALES DIVISION.  
**DOLGARROG HYDRO-ELECTRIC WORKS**  
**EXTENSION TO CATCHMENT**  
**GENERAL PLAN**  
**CONTRACT DRG. NO. 1.**  
**DRG. NO. B. 46525**  
 FREEMAN, FOX & PARTNERS  
 68, VICTORIA STREET, S.W.1.

Figure 8. British Electricity Authority plan showing Hydro-Electric Works at Dolgarrog, dating from the 1950s. Sidney Colwyn Foulkes Collection, Conwy Archives (C/Maps 21/2/11/1/2)



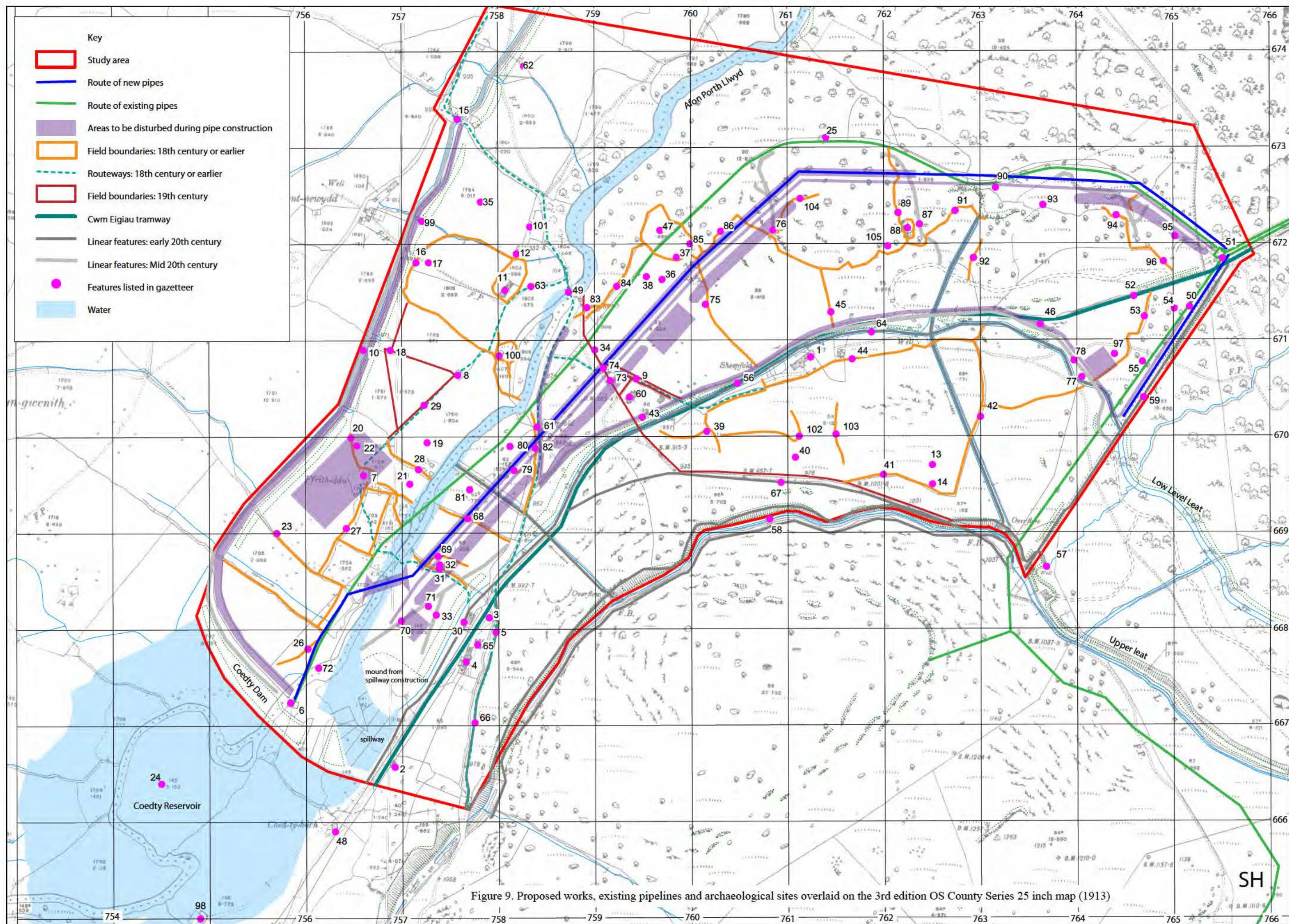


Figure 9





Plate 1: SW end of pipeline where it crosses the stream, from E



Plate 2: Ancient field boundary, feature 31, from E



Plate 3: Possible prehistoric field boundary, feature 79, from NW





Plate 4: Small structure, feature 73,  
from SE



Plate 5: Gateway on track to Coed Sadwrn,  
feature 74, from E



Plate 6: NW end of field boundary,  
feature 75, from SW





Plate 7: Small stone building (long hut), feature 36, from NE

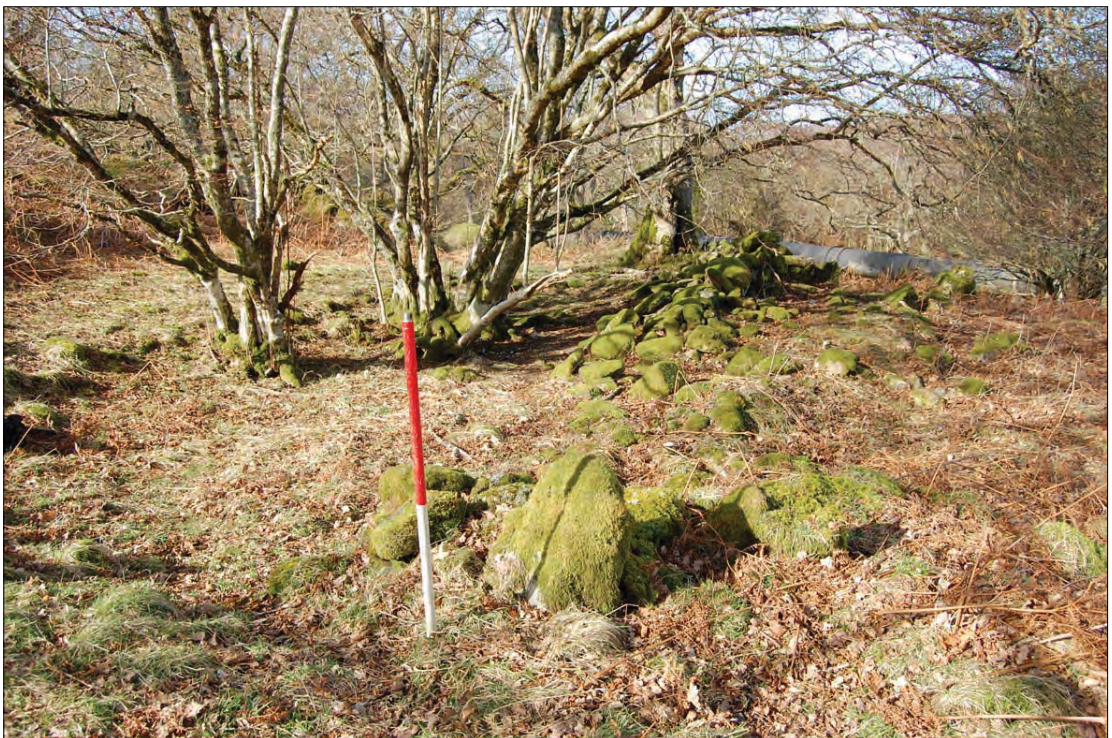


Plate 8: Building platform and wall in farmstead, feature 94, from E

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TRUST

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