
Cilfor Water Treatment Works: **Talsarnau, Gwynedd**



Archaeological Assessment

GAT Project No. 2145

Report No. 886

September, 2010

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Prepared for
Caulmert Ltd.

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By

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G2145 CILFOR WATER TREATMENT WORKS, LLANDECWYN

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CILFOR WATER TREATMENT WORKS, LLANDECWYN (G2145)

ARCHAEOLOGICAL ASSESSMENT

SUMMARY

An archaeological assessment has been carried out on land at Cilfor, Talsarnau in advance of a proposed extension to the Water Treatment Works. The land was identified as being former foreshore and salt marsh, and no medieval or earlier archaeological sites were identified within or adjacent to it. The land was owned by the influential Poole family of Cae Nest, and was improved in the late 18th or early 19th century. This included the canalisation of a stream which crossed the area, and the division of the area by the construction of drystone walls. Two houses with post-medieval origins were identified to the south of the study area. The Turnpike road from Harlech to Maentwrog was built across the area in 1833 on a slate embankment and a drainage channel excavated. Extensive land drainage and cultivation to improve the agricultural viability of the land has been carried out, which could have a significant negative affect on the survival of archaeological deposits.

Three features of post-medieval date were identified within or adjacent to the study area, which was considered to be of moderately low archaeological potential for the recovery of medieval or earlier information, although there was some potential for the identification of maritime activity on the former foreshore. An archaeological Watching Brief is recommended over both the area of permanent works and the site compound and non-permanent works areas.

1 INTRODUCTION

Gwynedd Archaeological Trust (GAT) was asked by Caulmert Ltd on behalf of their clients Dwr Cymru Welsh Water to carry out an archaeological assessment in advance of the construction of an extension to the Water Treatment Works at Cilfor, Llandecwyn (NGR SH 62173770). The development area is shown on *Black and Veatch* plan no. 167975-00-3006 and Fig. 1, and is located within the modern Community of Talsarnau, and the historic parish of Llandecwyn.

1.1 Acknowledgements

The staffs at Gwynedd Archives, Dolgellau and the National Library of Wales are thanked for their help with providing archive material. Ashley Batten of Gwynedd Archaeological Planning Service is thanked for his help and guidance.

2 DESIGN BRIEF AND SPECIFICATION

A detailed brief has not been prepared for this scheme, however an archaeological assessment was required by the Snowdonia National Park Authority (SNPA). A specification for the assessment was submitted to the SNPA by GAT. This report conforms to that brief, and to the guidelines specified in *Standard and Guidance for Archaeological Desk-based Assessment* (Institute of Field Archaeologists, 1994, rev. 2001).

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:

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

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

3 METHODS AND TECHNIQUES

3.1 Desk top 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. The archives held by the Meirionnydd Record Office, Dolgellau and Bangor University were also consulted. 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. Relevant aerial photographs from the collection at RCAHM, Wales were examined.

Sites, buildings and find spots listed in the GAT HER were identified (Fig. 2), with PRN referring to the unique Primary Record Number given to each individual site.

3.2 Field Search

The field search was undertaken during August 2010, when the area of the proposed development was examined. Notes were taken, sketches and measurements were taken of sites of potential archaeological interest and a photographic record was made. Weather and ground conditions were good for a site visit.

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 used for impact, field evaluation and mitigation are set out below.

3.3.1 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.

3.3.2 Definition of Impact

The impact of the proposed development on each feature 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.

3.3.3 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.

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.

3.3.4 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.

4 ARCHAEOLOGICAL RESULTS

4.1 Topographic description

The Water treatment Works at Cilfor (NGR SH 62173770) is situated on low lying ground to the south and at the foot of the rocky outcrop of Y Garth, in the historic parish of Llandecwyn. It was formerly salt marsh, forming part of the broad estuary of the Afon Dwyrdd, but had been encroached upon by the third quarter of the 18th century. The geology consists of Festiniog Flags of interbedded grey quartzose siltstone and grey silty mudstone of the Mawddach Group (BGS 1982). Soils consists of typical brown podzolic soils of the Manod Association (Soil Survey of England and Wales 1983).

4.2 Archaeological and historical background

4.2.1. Earlier Prehistoric

No early prehistoric sites are known within 500m of the study area, and the study area itself is likely to have been under water or formed an area of salt marsh, within the Dwyrdd estuary. In the wider area there are a number of prehistoric sites on the higher ground to the east and south of the study area. A possible Bronze Age burnt mound is located at Caerwych (PRN 4163; SH63733665) and a Ring Cairn is located south west of Y Gryn (PRN 1021).

4.2.2 Late Prehistoric / Romano-British

A probable late prehistoric or Romano-British hut circle and associated enclosure (PRN 6152, NGR SH62293803) is located on Y Garth, overlooking the study area from the north. Substantial evidence for late prehistoric enclosed and unenclosed settlement survives on the higher ground to the east and south of the study area, which includes the scheduled settlements at Coety Mawr (PRN 1026; SH63103603) and Coety Bach (PRN 1027; SH63023615) and the settlement at Maes y Caerau (PRN 1028; SH63503621).

4.2.3 Medieval

The parish church of Llandecwyn lies about 1km east of the study area, on high ground overlooking it. There is known to have been a church on the site from at least the 13th century, although the circular churchyard is indicative of an earlier foundation. The current building dates only from 1880, although there is an inscribed stone dating perhaps to between 800 and 1100, which was found during the demolition of the old church (Davidson 2001, 348).

In the 15th century it was claimed that in the years prior to the Edwardian conquest of Wales (i.e. before 1283) the free tenants of the township of Llandecwyn were liable to suit of mill at Taltreuddyn where the princely court of Ystumgwern was situated (Ellis 1838, 280), but that this had been commuted to a monetary payment (Beverley-Smith 2001, 37). In the Extent of Merioneth of 1352, three free tenants were said to occupy the low lying northern coastal stretches of the parish of Llandecwyn (Thomas 2001, 187).

A possible early medieval homestead has been identified at Bryn Melin (PRN1029; SH63123574). A holy well site with possible early medieval origins is located close to the parish church (PRN 1481; SH63173742). A possible medieval platform house (PRN 7889; SH63453780) is located 1.2km west of the study area, within the probable location of the medieval township of Llandecwyn (PRN 9835).

4.2.4 Post-Medieval and Early Modern

There are a number of farmsteads in the vicinity of the study area that, and though the date of their origin is unknown, it is probable they were founded in the 16th and 17th centuries. These include Borth Las (PRN 28187), and Ty Newydd (PRN 28837), which formed part of the estate of Cae Nest, Llanbedr owned by the Poole family, and estate records show the farms were certainly well established by 1770.

In the post medieval period the estuary of the Dwyryd and Traeth Bach became focal points in the transshipment of slates brought from Ffestiniog. The slates were initially brought on pack mules and carts from Ffestiniog down to quays on the Afon Dwyryd, where they were loaded onto small boats and taken to Ynys Cyngar and transferred to sea going ships. The earliest evidence for slate roofing material in the area is between 1575 and 1580, but this is likely to have been from small scale quarries sporadically tapped for local needs. The first evidence for the transport of slate comes from 1750 (Lewis 1989, 17). Larger scale production at Ffestiniog began around 1760, and between then and the transfer of the transshipment point to Porthmadog after the harbour was created there in 1824, and the opening of the Ffestiniog Railway in 1836, the traffic on the Afon Dwyryd was crucial to the process of exporting slate (*ibid.*, 9).

In 1770 the study area was part of the Cae Nest Estate, which was the property of Owen Anthony Poole Esq. and formed part of Ty Newydd farm (NLW Maps Vol. 2 094/8/3; Fig. 3), located in an area of salt marsh on the edge of Traeth Bach (Field 2, Fig. 3). Before the beginning of the 19th century, the high tides washed the cliffs, which would have included Y Garth (Lloyd 1958, 137). Small boats were said to be able to reach Y Garth on the high tides.

A number of wharves were constructed on the Dwyryd, the oldest of which was at Cemlyn, near Maentwrog (NPRN 91,425; SH65994011), also the property of the Poole family of Cae Nest, which is known to have been in operation by 1760. The import side of the trade on the Dwyryd was initially dominated by limestone and culm (slack to burn the limestone), which was converted to lime in limekilns for use in both building and agriculture. At least seven of these were located on the Dwyryd, including one at Cemlyn (*ibid.*, 23). During the early to middle part of the 19th century a number of other quays were constructed on the Dwyryd, including one at Cei Newydd (PRN 20,671; SH62703870) opened in 1836 and Cei Gelli Grin (PRN 20,672; SH63903960) in 1834.

An insight into the workings of the transshipping trade is given by Richard Fenton who visited the area in 1804 and stated that he ‘strolled under Tan y Bwlch House as far as the estuary, and returned along the embankment on the opposite side of the river wharf, on which lay vast quantities of a delicate blue slate of all sizes, ready for shipping... Vessels of 200 tons come up the river to be loaded at spring tides, and the slates are sent down in boats from the wharf to them’ (Fenton 1917, 50).

4.2.5 Modern

The study area remained part of the Poole Estate of Cae Nest, owned by Richard Anthony Poole, a Caernarfon attorney, in 1842 (Tithe Schedule, Gwynedd Archives, Dolgellau; Fig. 4). The field pattern which survives today had been largely created following land reclamation within the Traeth, and the construction of the Turnpike road between Maentwrog and Harlech in 1833, which led ‘along the Dolorean valley to Llandecwyn and down to Felenrhyd Bridge near to Maentwrog (Lloyd 1958, 138). An original mile post survives on this road (LB 83457; SH62393792).

Land ownership and fields present in 1842, and noted on the tithe map of the parishes of Llanfihangel y Traethau and Llandecwyn is as noted in the table below. The study area is located within field 360 on the tithe map (Fig. 4)

Landowner	Occupier	Plan Nos	Name and Description of Land and Premises	State of Cultivation	Quantities in Statute Measures		
					A	R	P
Richard Anthony Poole Esq.	William Owen	359	A moiety or Garth	Pasture	31	-	-
		360	Meadow	Arable	9	2	11
		361	Meadow	Meadow	2	2	35
		362	Cottage and Piece	Cottage Do	-	1	30
		363	Cottage and Piece	Cottage Do	-	1	18
		364	Lle mun Werglodd	Meadow	2	1	-
		365	Waen	Meadow	5	3	8
		366	Gors		4	2	31
	Robert Jones	360a	Morfa'r Garth	Pasture	15	3	7
		423	Cae Mawr	Arable	2	2	36
		425	Caer Odyn	Arable	3	-	17

		426	Buildings &c	Buildings	- - 37
		427	Bryn Glas	Pasture	10 - 31
		428	Borth Las Ucha	Cottage Do.	- 1 10
		429	Borth Las Isa	Cottage Do.	- - 34
		430	Pen Bryn Las	Cottage Do.	- - 38
		435	Werglodd Lwyn y Bryn	Pasture	2 - 36
		435a	Salt Marsh	Pasture	85 - -
		441a	Part of the Garth	Pasture	31 - 11
Lord Newborough	Silvanus Jones	355	Gors Fawr	Meadow	4 - 3

The crossing of the estuaries at Traeth Mawr and Traeth Bach had always been problematic, and a number of routes are known to have existed, where crossings could be made on-foot or by boat (Lloyd 1958, 137-50). A ferry ran across Traeth Bach from Ynysfawr and Craig y Don on the saltings below Penrhyn across to Llandecwyn. It was still working in the 1840's, but did not survive the construction of the current railway and road viaduct known as Pont Briwet (Lewis 1989, 58-60). The bridge was built as part of the Cambrian Railway, and was opened on 10th October 1867 (Baughan 1980, 99). The railway created a transport link from Porthmadog and beyond through Penrhyndeudraeth and down the Meirionydd coast to Barmouth. The viaduct was constructed of timber, and was of 22 spans of 19ft each. It was completely reconstructed in 1932 (Tourret 2003, 65-66). The establishment of Cooke's explosives factory at Penrhyndeudraeth in 1872 provided a considerable amount of freight traffic for this line, in addition to the passenger traffic (Rear and Williams 1994).

The field patterns around the study area remain largely unchanged from the time of the 1st edition 25 inch Ordnance Survey map of 1889 (Fig. 5) until the present time, although housing has subsequently been built nearby at Trem y Garth and the Water Treatment Works was added in the mid-20th century. Significant amounts of land drainage works have also been carried out in recent times (Fig. 7).

4.3 Statutory and non-statutory designations

The study area is located within the Snowdonia National Park. It is also situated within the Arddudwy Landscape of Outstanding Historic Interest (Ref: HLW (Gw) 2, No. 20), which is described as an area retaining 'a natural integrity as a territory, probably since prehistoric times, because topography has strongly constrained both access and settlement in the area. It also has an exceptional wealth of relict archaeological remains, from the prehistoric period to the recent past, reflecting recurrent human activity in an area with juxtaposed resources of lowland and upland and, not least, the easy availability and survival of stone as a building material.' (ICOMOS/CADW 1998, 73). There are no listed buildings or Scheduled Ancient Monuments within 500m of the study area.

4.4 The Archaeological Survey (Fig. 2)

Three features were identified directly within or contiguous with the proposed development area, defined as the outline shown on Fig. 2 and within 30m of it; the features are located on Fig. 2. These are initially described listed below with recommendations for further assessment and mitigatory measures, where appropriate. The recommendations reflect the information currently provided by Dwr Cymru Welsh Water, and assume impact only within the defined proposed development area (as outlined on fig. 2). Any change to the boundary of the proposed development area will require the recommendations below to be changed also.

It appears that services, associated with the Water Treatment Works and adjacent Sewage Treatment Works, are located within the proposed development area, and these are shown on Dwr Cymru Welsh Water Drawing dated 3/9/2010 (Fig. 8, Plate 6). These may result in any potential archaeological deposits having been previously disturbed in places. The ground within the current Water Treatment Works is completely landscaped and disturbed, and there is no prospect of any archaeological remains surviving within this area. Extensive land drainage and deep ploughing (Fig. 7) has also been carried out by the landowners in the study area over a number of years, which may have a detrimental effect on the survival of archaeological remains.

Feature 1 Drainage channel and embankment (Fig. 2; Plates 2-3)

SH 62253780-SH62213773

Period: Post-medieval

Category: B Impact: None

A ditched embankment, with drainage ditch parallel to a slate embankment, which formed the sub base for the 1833 Turnpike Road leading from Harlech to Maentwrog. It was created owing to the need to create a secure base as the road crossed the former salt marsh area on the edge of Traeth Bach.

Recommendations for further assessment: None

Recommendations for mitigatory measures: Avoidance

Feature 2 Channelled Stream Course (Fig. 2; Plate 4)

SH 62233779-SH62083780

Period: Post-medieval

Category: C Impact: None

The Nant yr Efail, flowing westwards towards the Afon Dwyrdd has been channelled at this point, with a simple crossing point created at SH62163778. This would appear to have taken place before 1842, as the land is shown in its current form on the tithe map of 1842 (Fig. 4). On the 25 inch 1st edition Ordnance Survey map the channelled stream is shown as it is now (Fig. 5). It would seem to have been carried out as part of land improvement, to improve the land from salt marsh to good quality pasture land. The stream appears in its original meandering course in the 1770 estate map (NLW Vol. 2 094/8/3; Fig. 3), so the work must be likely to have been carried out between 1770 and 1840.

Recommendations for further assessment: None

Recommendations for mitigatory measures: Avoidance

Feature 3 Field Boundary (Fig. 2; Plate 5)

SH 62103761-SH62133765

Period: Post-medieval

Category: C Impact: Possibly Considerable

A dry stone wall forming a field boundary, which extends for 48m northwards from its junction with the road to the south west. It appears to have been truncated at its northern end by the construction of the original Water Treatment Works. The original line ran north eastwards and met the 1833 Turnpike Road under the current works (Fig. 5). It is unlikely to be earlier than 19th century in date as it is on the reclaimed land.

Recommendations for further assessment: Possibly considerable

Recommendations for mitigatory measures: Avoidance, or basic recording if this is not possible

5. SUMMARY OF ARCHAEOLOGICAL POTENTIAL

5.1 Location Summary

The Water treatment Works at Cilfor (NGR SH 62173770) is situated on low lying ground at about 5m OD to the south of, and at the foot of the rocky outcrop of Y Garth, in the modern community of Talsarnau, and the historic parish of Llandecwyn (Fig. 1, Plates 1, 7). It was formerly salt marsh, forming part of the broad estuary of the Afon Dwyrdd, but had been encroached upon by the third quarter of the 18th century. It is about 600m south east of Pont Briwet, the railway viaduct built across Traeth Bach in 1867, and west of the 1833 Turnpike road between Harlech and Maentwrog, adjacent to the modern settlement of Trem-y-Garth.

Sites within 500m of the study area on the Gwynedd HER are noted on Fig. 2 and in Appendix 1. The proposed development area, taken from Black and Veatch drawing no. 167975-00-3006, consists of 2927 m² and is shown on Fig. 2, with 5161m² to be used for temporary works, such as the compound area.

5.2 Environmental Remains and Soil Morphology

There is no information available on the likely survival of environmental remains, however the area is low lying and is reclaimed land, so the potential for the survival of waterlogged deposits must be considered to be moderately high. The construction of significant land drainage as part of agricultural improvement may however have affected the water levels of the site, thereby reducing the potential for the survival of waterlogged deposits. The soil morphology is unknown, but the soil is likely to consist of topsoil overlying silty sands.

5.3 Artefactual Potential

The potential for the recovery of artefactual information is unknown. However the area was probably an area of foreshore and it is thought that small boats could reach the foot of Y Garth into the 18th century at high tides. It is possible that material relating to foreshore maritime activity could be recovered. The area may also have been salt marsh used for grazing, but it is unlikely that any artefacts relating to settlement activity could be recovered from the study area from the time before land improvement was carried out in the late 18th or early 19th centuries.

6. SUMMARY OF RECOMMENDATIONS

6.1 Summary

Number	Name	Importance	Impact	Recommendation for further evaluation	Mitigation recommendations
1	Drainage Channel and embankment	B	None	None	None
2	Channelled stream course	C	None	None	None
3	Drystone wall field boundary	C	Possibly Considerable	None	Basic Recording

6.2 General Recommendations

- The potential for the recovery of archaeological information from before post-medieval times is considered to be low, as the area formed part of the tidal estuary of the River Dwyryd, and the extensive programme of drainage works carried out on the site has subsequently affected the potential for the survival of archaeology.
- Whilst there is no evidence for quays or other coastal structures in the low lying area at Cilfor and around the base of Y Garth, it is possible that evidence for maritime activity survives below the surface in the study area. This may survive as timber structures or wrecks of ships.
- Archaeological evaluation trenching is not recommended as the nature of the potential archaeology is such that it would be difficult to identify by this method, and interpretation would be likely to be hampered by disturbance caused by the significant quantity of land drainage.
- An **archaeological watching brief** is recommended during the development. This will ensure any surviving archaeological remains are identified and also recorded during the construction process.
- In the compound and temporary works areas an **archaeological watching brief** should be carried out during any topsoil stripping prior to the laying of any *terram* and hard surfaces, to ensure that no archaeological deposits are disturbed.

7. CONCLUSIONS

The area surrounding the Water Treatment Works at Cilfor has been shown to be reclaimed land which once formed the foreshore on the eastern side of Traeth Bach. It was owned by the influential Poole family of Cae Nest in post-medieval times. A number of farms in the area, including Ty Newydd belonged to the estate and the buildings may retain fabric of the 17th or 18th centuries.

Though earlier improvements may have been carried out by the Poole family in the 18th century, the principal improvements were undertaken when the Turnpike Road was built in 1833. Three sites, associated with the land improvement and the construction of the Turnpike road, were identified within or adjacent to the study area.

The Afon Dwyryd was an important transshipment point in the slate trade from Ffestiniog from the mid 18th century onwards and a number of quays are located upstream of the study area. The study area was also close to an important crossing point of the river, which was replaced by the building of the Briwet railway and road viaduct across the Traeth Bach estuary in 1865-7. There may be some potential, therefore, for the survival of timber wharves or buried ships or boats within the study area, although the extensive land drainage carried out across the study area as part of agricultural improvement is likely to have caused significant damage to any potential archaeological deposits. In recent times significant modern housing development has been carried out to the east of the study area at Trem-y-Garth.

8. ARCHIVE

The archive consists of historic maps, plans and aerial photographs, along with notes and digital images taken on the field visit.

Three copies of the bound report will be sent to the SNPA archaeologist, and a further copy sent to the HER Archaeologist at the curatorial division of Gwynedd Archaeological Trust, Bangor, for deposition in the Regional HER. A copy of the report will be provided to the National Monument Record, Royal Commission on the Ancient and Historic Monuments of Wales, Aberystwyth.

9. REFERENCES AND OTHER SOURCES CONSULTED

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GAT Historic Environment Record

Gwynedd Archives, Dolgellau

Tithe Map of the Parishes of Llanfihangel y Traethau and Llandecwyn 1842

National Library of Wales

Maps Vol. 2 094/8/3 *A survey of Pencraig and Cae Nest Estates: in the Several Parishes of....Llandecwyn in the County of Merioneth, the property of Owen Anthony Poole Esq. surveyed by R. Owen 1770-1802*

RCAHM Wales Aberystwyth

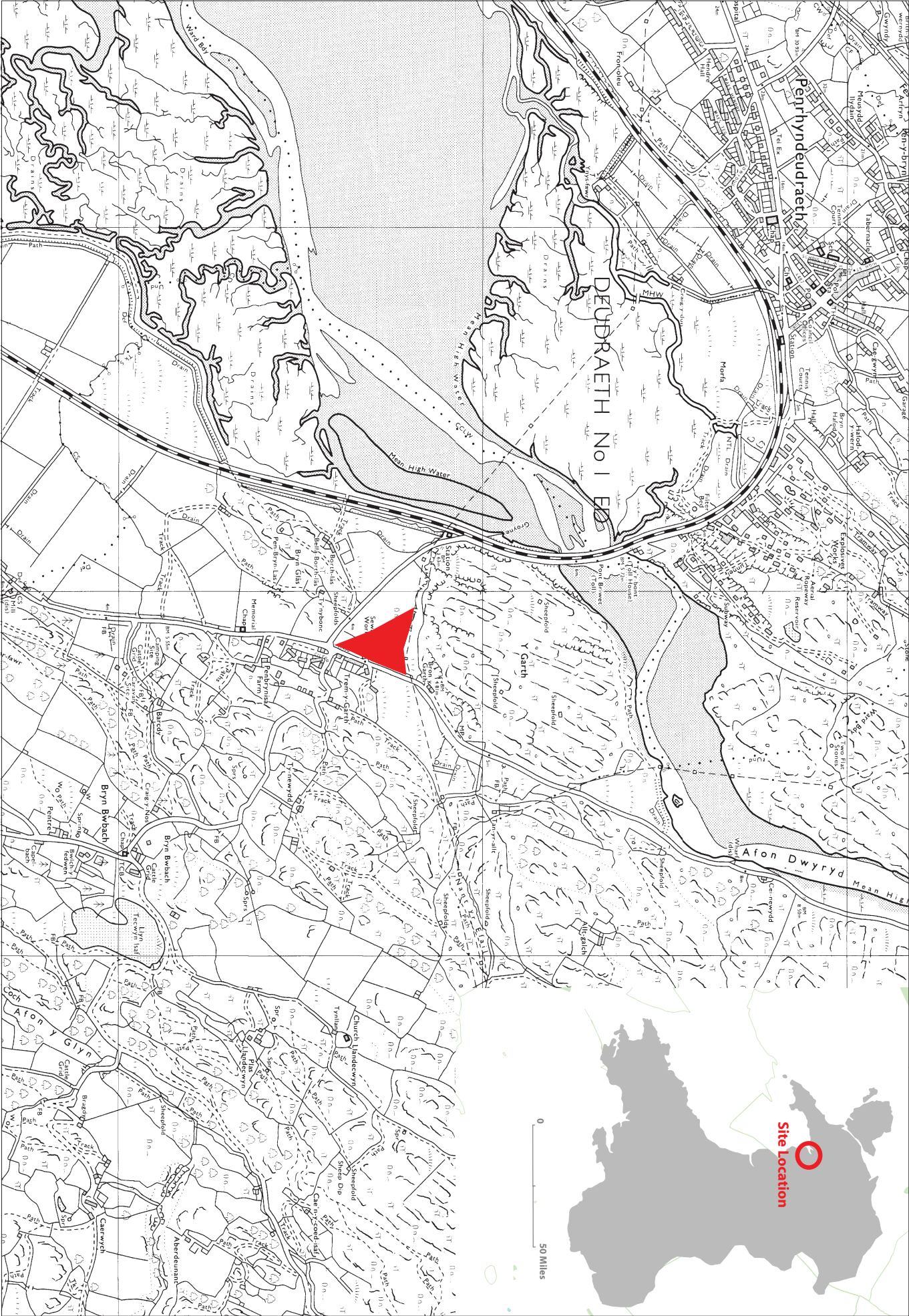


Fig. 1 Site Location

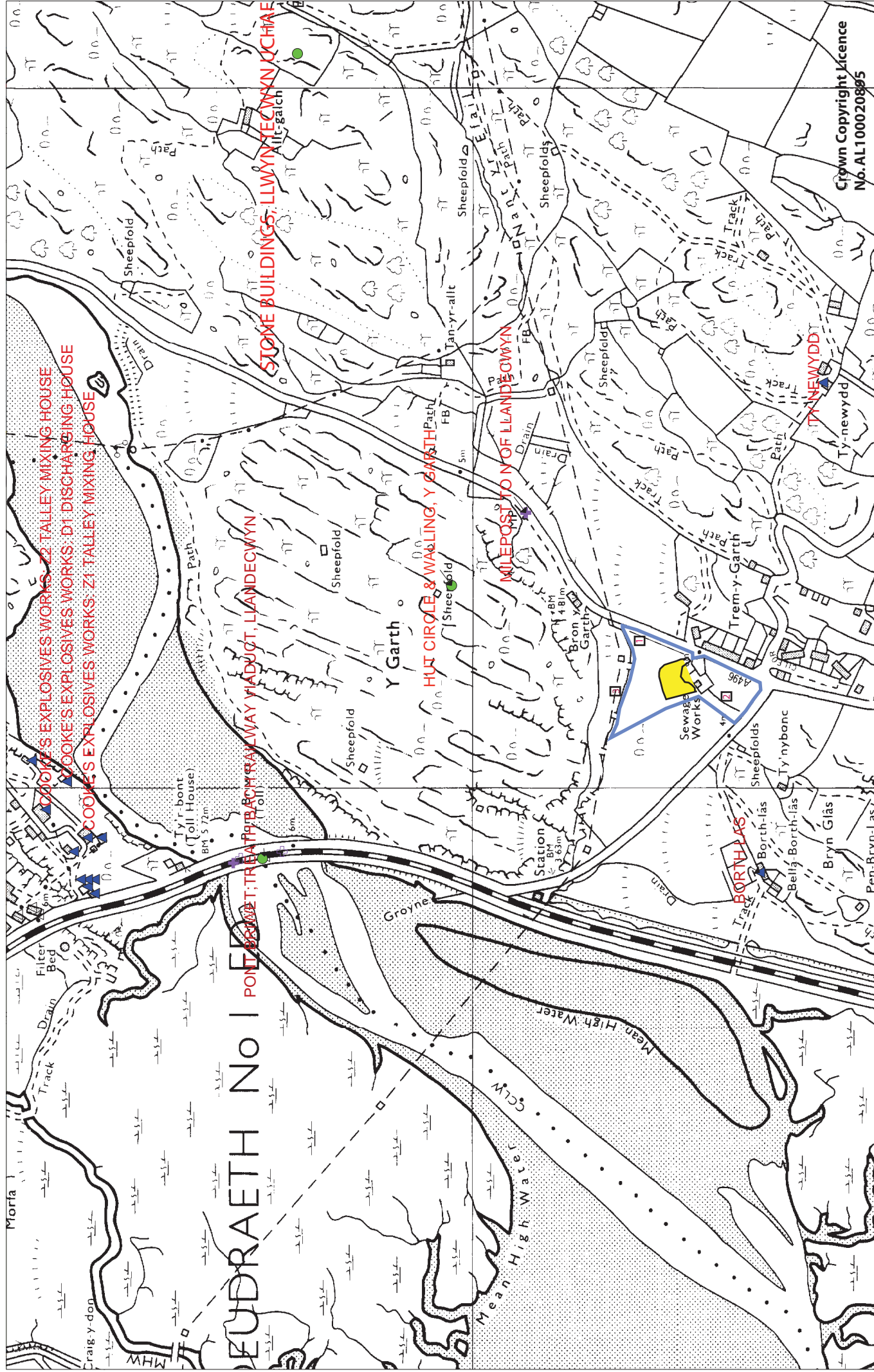


Fig. 2 Location of sites on the Gwynedd HER (Green dots), RCAHMW CARN database (Blue triangles) and listed buildings (Pink cross). The study area is outlined in blue, the development area in yellow and the sites referred to in the text are numbered in pink. Base map taken from OS 1:10 000 sheet SH63NW. Scale 1:5000.

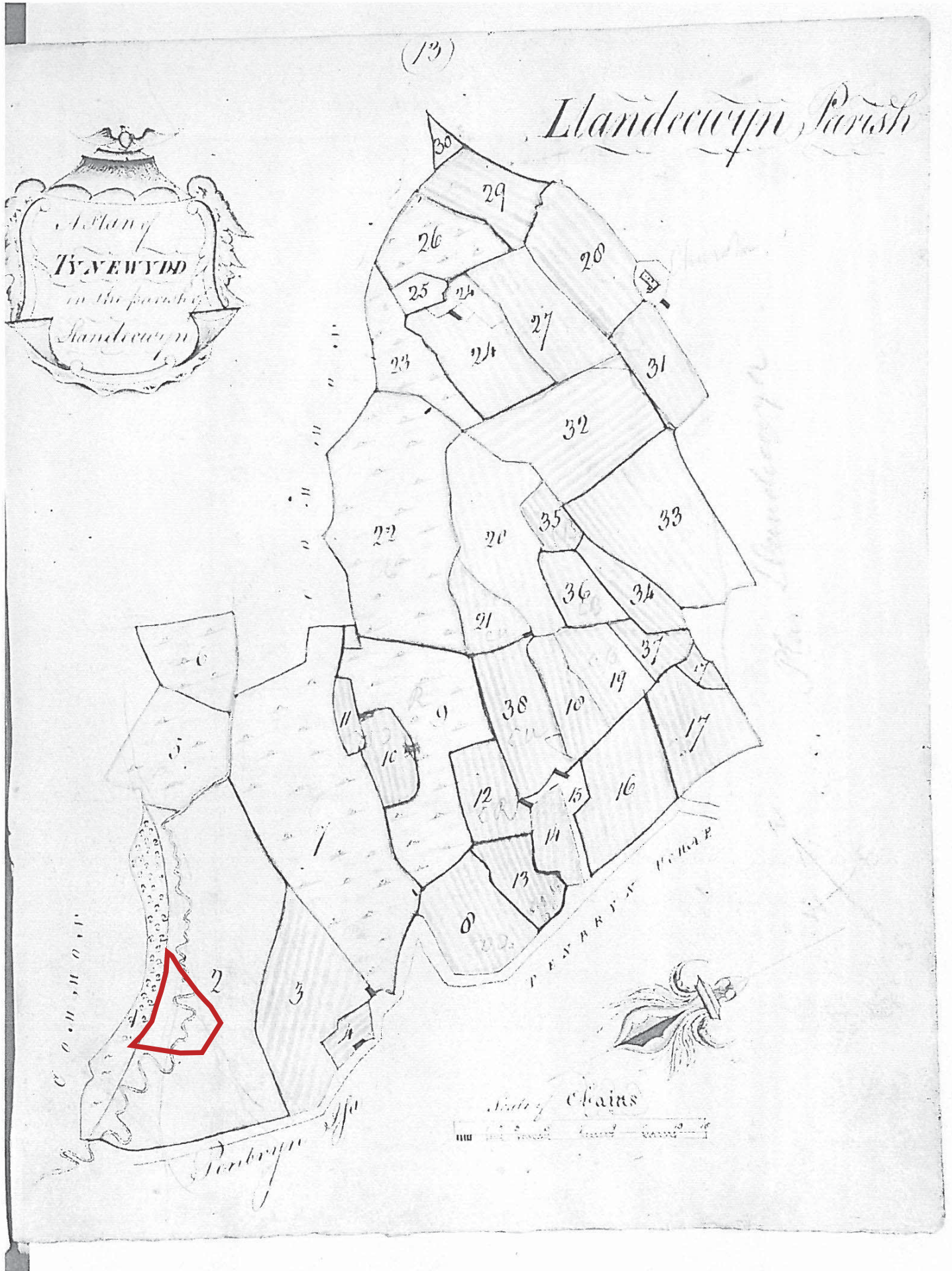


Fig. 3 Approximate location of study area, overlain in red on 1770 Survey of Pencraig and Cae Nest Estates ...the Property of Owen Anthony Poole Esq. (NLW Maps Vol.2 094/8/3)

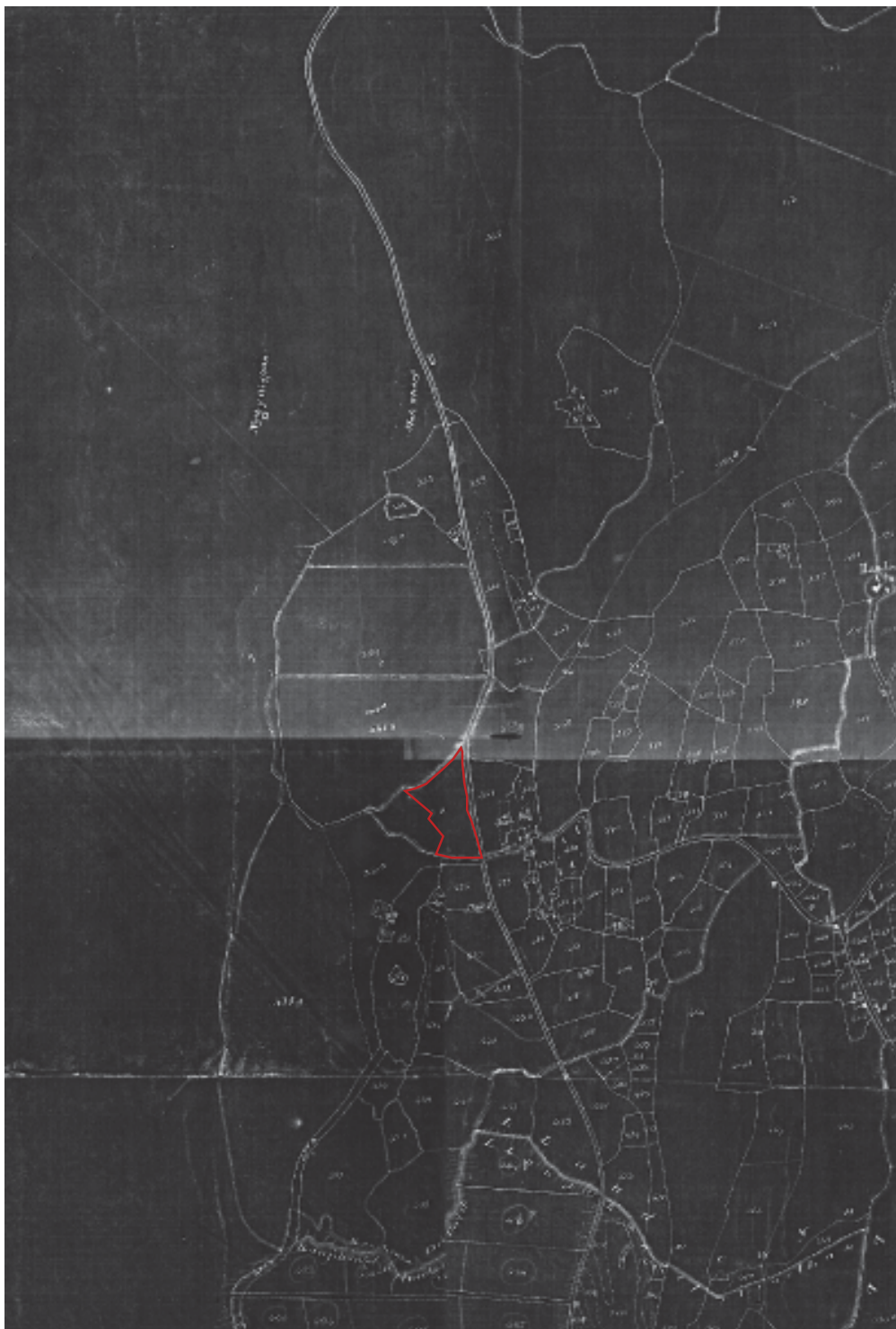


Fig. 4 Tithe map of Llanfihangel y Traethu and Llandecwyn 1842 with assessment area outlined in red.

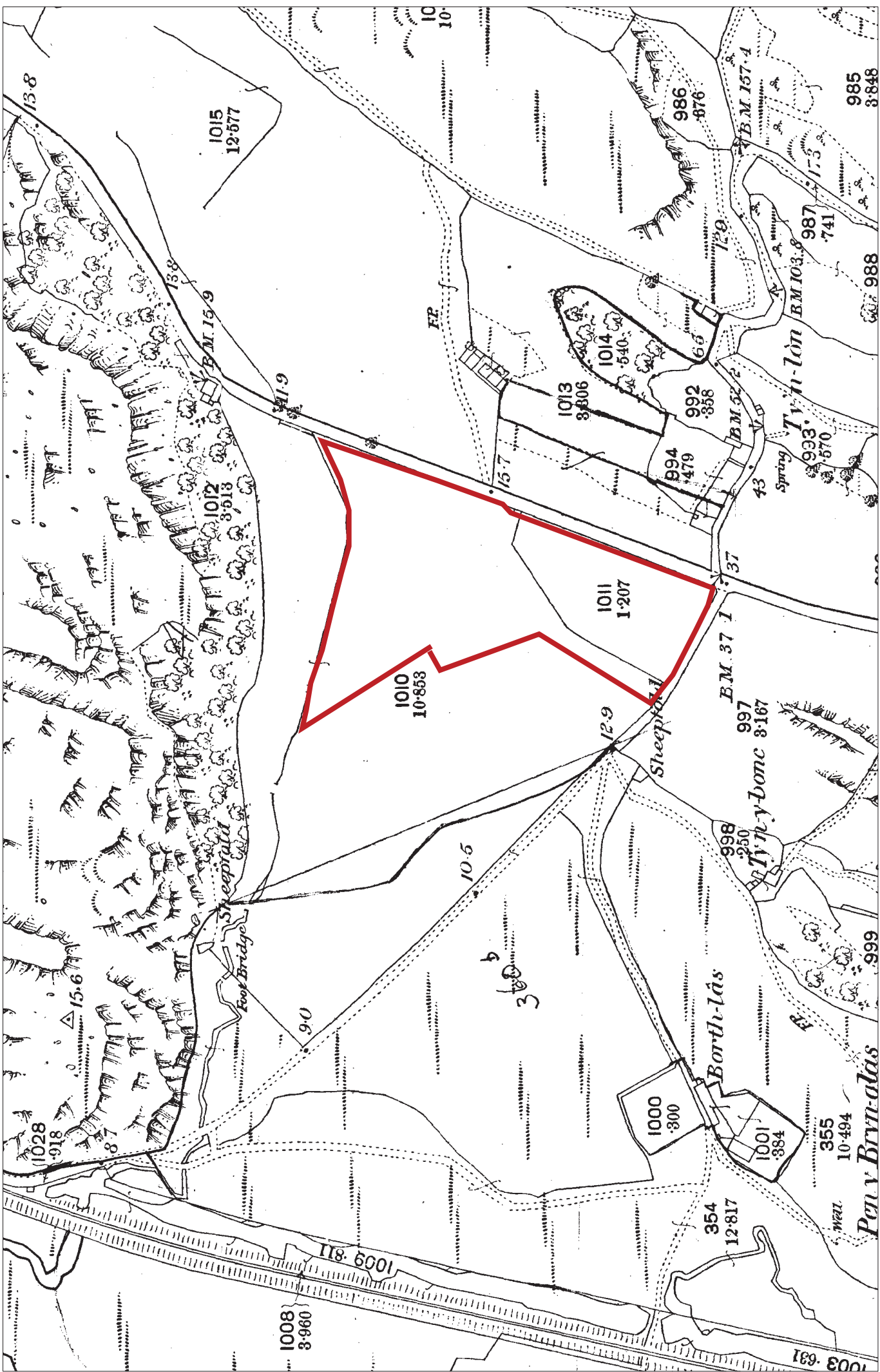


Fig. 5 Ordnance Survey 25 inch 1st edition map of 1889 Merionethshire sheet XI.14. Study area outlined in red

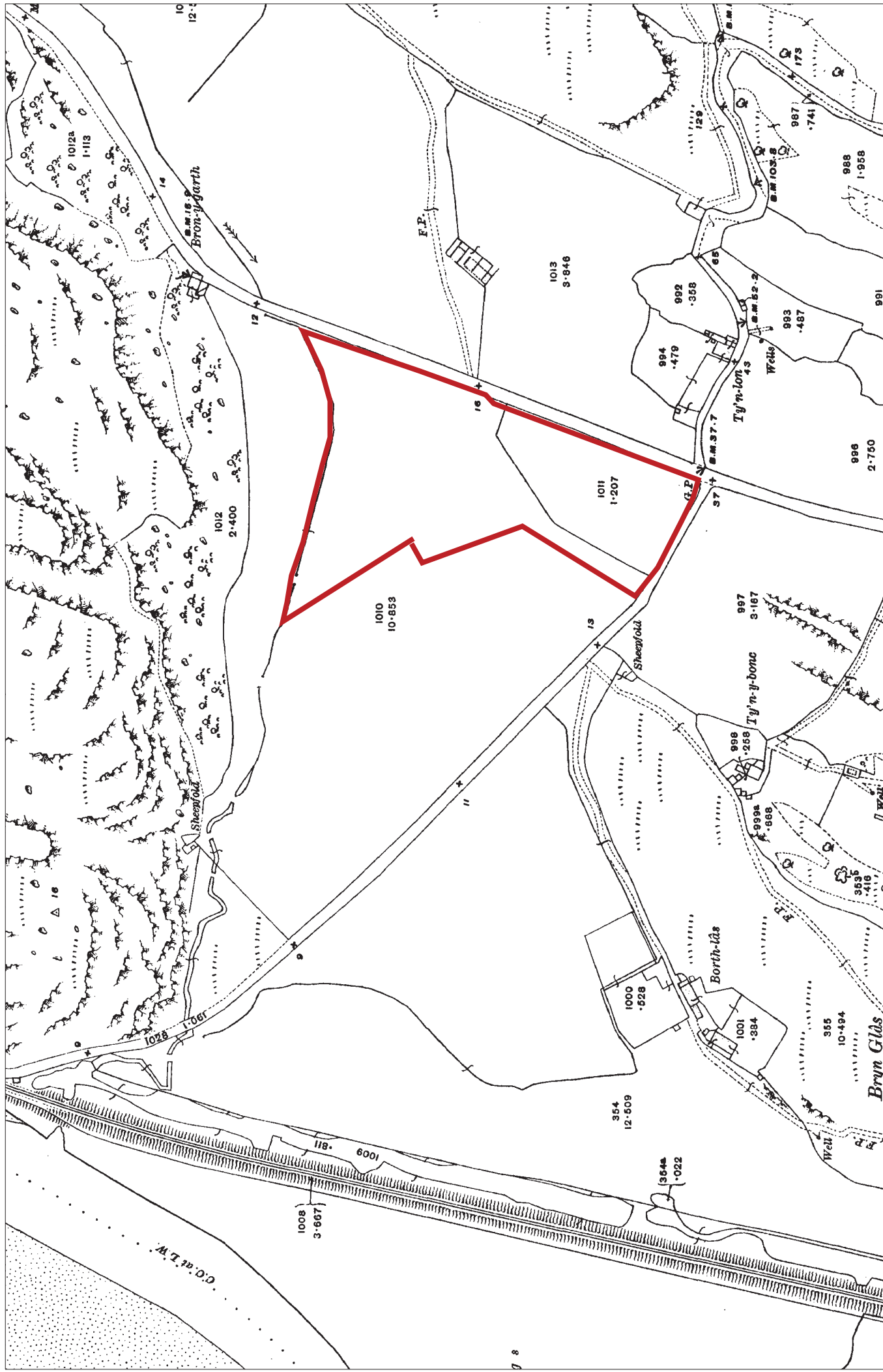


Fig. 6 Ordnance Survey 25 inch 3rd edition map of 1916 Merionethshire sheet XI.14. Study area outlined in red

E No 7482,

HOLDING No. 7,

PLAN OF A TILE DRAINAGE SCHEME AT PENBRYN-ISA TALSARNAU

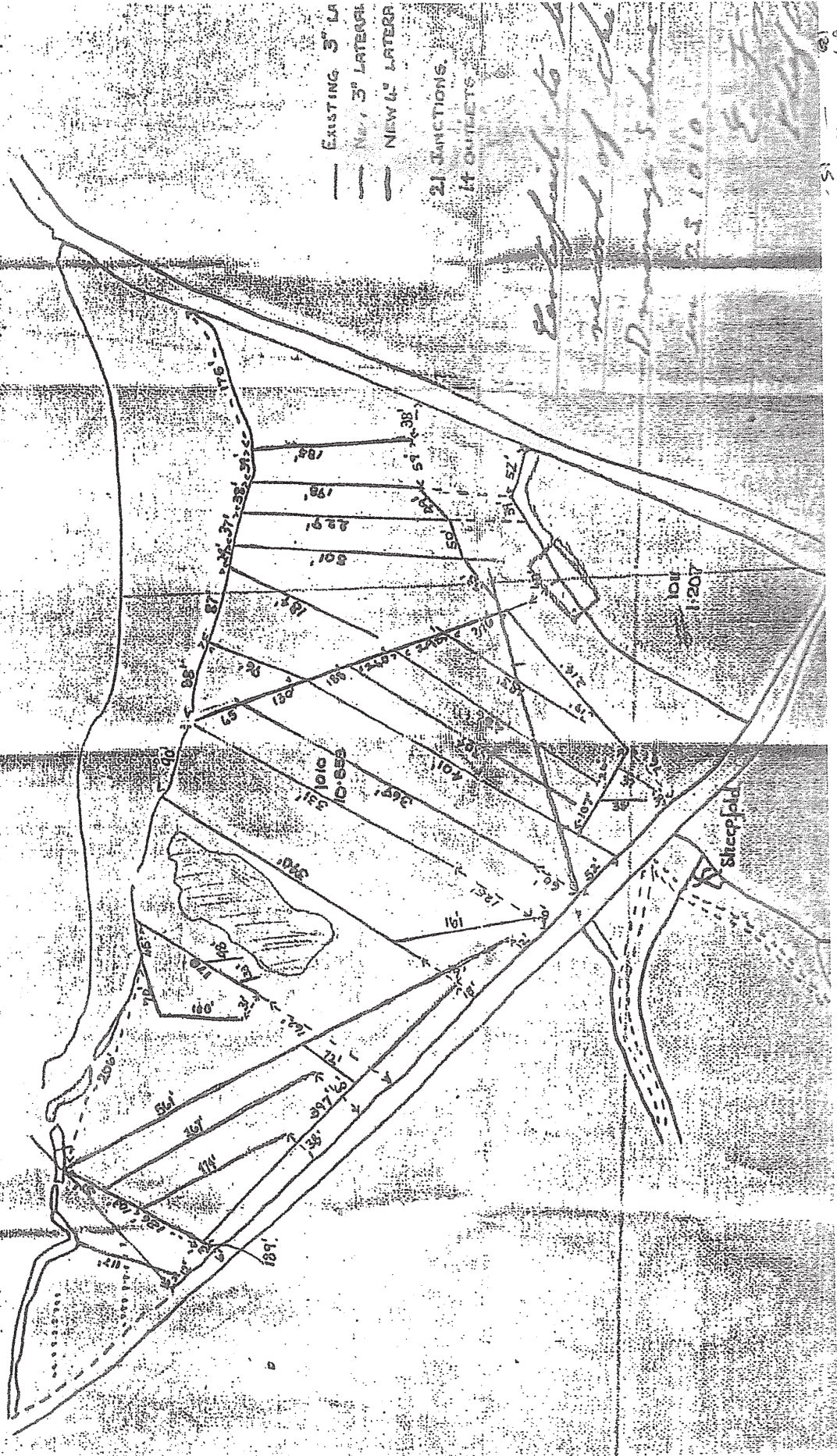
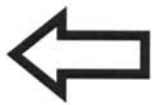


Fig. 7 Plan of 20th century land drainage at Cilfor (plan provided by Dwr Cymru)



LEGEND

Clean Water

- Sluice Val, AIR Val, SINGLE
- Tap
- Pressure Reducing Valve
- Meter
- BULK Meter
- FH
- Cap
- Existing Main
- NON COMPANY, NON COMP

Sewerage External

- Foul
- Surface Water
- Combined
- RISING MAIN, Private
- Treatment Works
- Pumping Station
- Special Purpose, Unknown End, Change, COMBINED OVERFLOW, Outfall, FOUL, Lamp Hole, FOUL

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EXACT LOCATION OF ALL

ives this information as to the position of its aratus by way of general guidance only on the strict t it is based on the best information available and no



Plate 1 General view of the study area from the south-east



Plate 2 Feature 1, the embanked Turnpike road of 1833, from the north



Plate 3 Detail showing slate sub-base for the Turnpike Road (Feature 1), from the south west



Plate 4 Feature 2, detail of channelled stream course, view from the south



Plate 5 Feature 3, the truncated dry stone wall, from the north-east



Plate 6 Detail of services within development area



Plate 7 The proposed development area from the west

APPENDIX 1

Sites on the Gwynedd HER, the RCAHMW CARN database and listed buildings, within 500m of the study area

PRN	NPRN	SITENAME	NGR	COMMCOUNC	AREA	SITE TYPE	PERIOD
6152	60967	HUT CIRCLE & WALLING, Y GARTH	SH62293803	TALSARNAU	SNOWDONIA NATIONAL PARK	HUT CIRCLE	PREHISTORIC
		MILEPOST TO N OF LLANDECWYN	SH62393792	TALSARNAU	SNOWDONIA NATIONAL PARK	GII LISTED BUILDING 83457	POST MEDIEVAL STRUCTURE
	28187	BORTH LAS	SH61883759	TALSARNAU	SNOWDONIA NATIONAL PARK		POST MEDIEVAL DWELLING
	28837	TY NEWYDD	SH62583750	TALSARNAU	SNOWDONIA NATIONAL PARK		POST MEDIEVAL DWELLING



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