1450

YSGOL NEWYDD LLANGEFNI

Archaeological Assessment & Evaluation (Geophysical Survey)

Ymddiriedolaeth Archaeolegol Gwynedd
Gwynedd Archaeological Trust

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Archaeological Assessment & Evaluation (Geophysical Survey)

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Written by: Robert Evans & John Roberts

Front cover image: View of Clegyrdy Mawr from Clawdd 1 view from SW (archive referenc: G2584_008)

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CRYNODEB ANNHECHNEGOL

Comisiynwyd Ymddiriedolaeth Archaeolegol Gwynedd gan Gyngor Ynys Môn, ar ran Llywodraeth Cymru, i ymgymryd ag asesiad archaeolegol ac arolwg geoffisegol cyn gwaith datblygu ysgol newydd yn, Llangefni, Ynys Môn. Roedd yr ardal ddatblygu yn cynnwys dwy lain mewn porfa agored wedi'i leoli i'r dwyrain o Ysgol y Graig bresennol ac i'r gogledd o Ffordd Gyswllt Llangefni.

Mae archeoleg arwyddocaol cynhanesyddol a chanoloesol wedi'i nodi o fewn 1km i'r ardal astudio, er nad oes unrhyw dystiolaeth benodol wedi'i nodi ynddi. Fodd bynnag, mae'r ardal ehangach yn gyfoethog o dystiolaeth archeolegol o bob cyfnod ac mae gan yr ardal astudio botensial sylweddol.

Yn hanesyddol, roedd yr ardal astudiaeth yn rhan o fferm Clegyrdy, rhan o ystâd Pencraig ers o leiaf ran olaf yr 17eg ganrif. Yn y 18fed ganrif, ymddengys bod yr ardal astudio yn cynnwys padogau bach, gyda'r patrwm caeau presennol yn bresennol erbyn argraffiad 1af map yr Arolwg Ordnans o 1889. Gwerthwyd yr ystâd yn 1952 pan ddatblygwyd yr ardal i'r de ac arhosodd yr ardal astudio mewn defnydd amaethyddol.

Mae data LiDAR a'r arolwg geoffisegol yn awgrymu bod presenoldeb posibl o hen ffordd wedi'i wisgo yn croesi'r safle o'r gorllewin i'r dwyrain, a allai fod yn gynharach mewn tarddiad na'r system cae hanesyddol. Ar y cyfan, mae'r dystiolaeth yn awgrymu bod y patrymau cae a nodwyd yn rhannol yn sgerbwd sydd wedi goroesi o'r system ôl-ganoloesol, er bod cyfuniad sylweddol a chyfosod o ffiniau newydd o'r 19eg ganrif ar aliniad gwahanol wedi digwydd.

Nodwyd chwe ased archeolegol ychwanegol yn yr ardal asesu yn ystod yr asesiad ac arolwg geoffisegol, gan gynnwys dwy system ffin cae, un llwybr, un amgáu, un anghysondeb cylchol a thystiolaeth ar gyfer tyfu crib ac arlliw. Efallai y bydd y cae yn cynrychioli safle hen gartref.

Argymhellir cynnal gwerthusiad archeolegol, ar ffurf ffosio treialu ar draws y safle fel y cam nesaf. Bydd hyn yn targedu'r nodweddion a nodwyd ynghyd â sampl gynrychioliadol o weddill y safle.

NON TECHNICAL SUMMARY

Gwynedd Archaeological Trust was commissioned by Ynys Môn Council, on behalf of Welsh Government, to undertake an archaeological assessment and geophysical survey in advance of proposed development works for a new school in, Llangefni, Ynys Môn. The development area comprised two plots within open pasture located east of the current Ysgol y Graig and north of the Llangefni Link Road.

Significant prehistoric and medieval archaeology has been identified within 1km of the study area, although no certain evidence has been identified within it. The wider area is however rich in archaeological evidence of all periods and the study area has significant potential.

Historically the study area formed part of Clegyrdy farm, part of the Pencraig estate since at least the later part of the 17th century. In the 18th century the study area appears to have consisted of small paddocks, with the current field pattern present by the time of the 1st edition Ordnance Survey map of 1889. The estate was sold off in 1952, when the area to the south was developed and the study area remained in agricultural use.

LiDAR data and the geophysical survey suggests the possible presence of a former hollow way crossing the site west to east, which may be earlier in origin than the historic field system. Overall the evidence suggests that the field patterns identified are partly a surviving skeleton of the post-medieval system, although significant amalgamation and insertion of new 19th century boundaries on a different alignment has taken place.

Six additional archaeological assets were identified within the assessment area during the assessment and geophysical survey, including two field boundary systems, one trackway, one enclosure, one circular anomaly and evidence for ridge and furrow cultivation. The enclosure may represent the site of a former homestead.

It is recommended archaeological evaluation, in the form of trial trenching be carried out across the site as the next stage. This will target the identified features along with a representative sample of the rest of the site.

1 INTRODUCTION

Gwynedd Archaeological Trust (GAT) was commissioned by Ynys Môn Council to undertake an archaeological assessment and evaluation (geophysical survey) in advance of proposed development works for a new school in Llangefni, Ynys Môn (NGR SH47097619; Figure 01). The development area included two plots of improved pasture with a combined area of 5.3ha, located east of the current Ysgol y Graig and north of the Llangefni Link Road. The assessment and geophysical survey were undertaken in January 2019.

The assessment conformed to the guidelines specified in the Chartered Institute for Archaeologists *Standard and Guidance for Historic Environment Desk-Based Assessment* and (Chartered Institute for Archaeologists, 2014), as well as the *Setting of Historic Assets in Wales* (Cadw, 2017). In addition, the project was managed in accordance with *MoRPHE* (English Heritage 2015) and MAP2 (English Heritage, 1991).

The assessment was monitored by Gwynedd Archaeological Planning Services (GAPS) and GAT undertook the works in accordance with an approved written scheme of investigation (Appendix I). The Historic Environment Record Enquiry Reference Number for this project was GATHER1001 and the Event Primary Reference Number was 45353.

GAT is certified to ISO 9001:2015 and ISO 14001:2015 (Cert. No. 74180/B/0001/UK/En) and is a Registered Organisation with the Chartered Institute for Archaeologists and a member of the Federation of Archaeological Managers and Employers (FAME).

2 METHODOLOGY

2.1 Assessment (Desktop Study)

A desk-based assessment is defined as “a programme of study of the historic environment within a specified area or site on land, the inter-tidal zone or underwater that addresses agreed research and/or conservation objectives. It consists of an analysis of existing written, graphic, photographic and electronic information in order to identify the likely heritage assets, their interests and significance and the character of the study area, including appropriate consideration of the settings of heritage….Significance is to be judged in a local, regional, national or international context as appropriate” (CIfA 2014, 4).

The desk-based assessment included the study of the following resources:

1. The regional Historic Environment Register ((HER) Gwynedd Archaeological Trust, Craig Beuno, Ffordd y Garth, Bangor, Gwynedd LL57 2RT) was examined for information concerning the study area, defined as the two plots in Figure 01. This included an examination of the core HER, the 1:2500 County Series Ordnance Survey maps and secondary information held within the HER, including preceding assessment, evaluation and mitigation reports prepared by GAT, Amec Foster Wheeler and Brython Archaeology (cf. Sources Consulted). All identified features were mapped, described and added to a gazetteer of sites and the relative importance of the assets defined;
2. The National Monuments Record of Wales (Royal Commission on the Ancient and Historical Monuments of Wales, Plas Crug, Aberystwyth SY23 1NJ) were checked for sites additional to the HER;
3. Aerial photographs from the National Monuments Record of Wales (Royal Commission on the Ancient and Historical Monuments of Wales, National Monuments Record of Wales, Plas Crug, Aberystwyth SY23 1NJ) were examined for potential features.
4. Archive data, including primary and secondary sources, historic maps and estate maps wad examined at the regional archives (Archifau Ynys Môn / Anglesey Archives, Diwydiannol Bryn Cefni / Industrial Estate Rd, Llangefni LL77 7JA and Library), and the Natio;al Library of Wales, Penglais Rd, Aberystwyth SY23 3BU which included historic mapping including the Llangefni tithe map and schedule.

5. Light Detection and Ranging (LiDAR) data was examined from the Lle Geo-Portal at http://lle.gov.wales/home for information on potential surface features using digital terrain modelling and digital surface modelling. Digital Terrain Models (DTM) and Digital Surface Model (DSM) datasets at 1m resolution were available for this area (cf. Figure 06).

2.2 Walkover Survey

A walkover survey was undertaken on the 18th January 2019 within the assessment area as detailed on Figure 01. All known and new archaeological features on the ground were located and described on GAT pro-formas. The sites were then added to the overall gazetteer and their relative importance defined. The potential for sub-surface archaeology was estimated and defined. A photographic record was maintained in RAW format using a digital SLR (Nikon D5100) camera set to maximum resolution (4,928 × 3,264; 16.2 effective megapixels) and were be converted to TIFF format for archiving using Adobe Photoshop; the photographic record was digitised in *Microsoft Access* using archive numbering system G2584_001 to G2584_035 (Appendix II). A handheld GPS unit was also used during the walkover survey.

2.3 Gazetteer

A gazetteer was compiled for all identified sites within and within proximity to the assessment based on information sourced from the regional HER; the gazetteer included the following:

1. Feature Number
2. Site name
3. PRN number
4. Grid reference
5. Period
6. Site type
7. Assessment category
8. Description
9. Impact
10. Recommendation for further assessment/evaluation
11. Recommendation for mitigatory measures

The following categories were used to define the assessment category of the archaeological asset:

Category A - Sites of National Importance.
Scheduled 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. In this report several sites of unknown potential have been allocated to this category.

The impact of the proposed works on any asset were identified using the following impact criteria, defined either as *none, slight, unlikely, likely, significant, considerable or unknown* as follows:

None:

There is no construction impact on this asset.

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 asset, *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 an asset affecting its overall integrity. Assets 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 an asset or its partial removal which would effectively destroy the remainder of the site.

Unknown:

This is used when the location of the asset 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.

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

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.

Controlled Strip (Strip/Map/Sample):

The technique of Controlled Strip (Strip/Map/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 as 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.

2.4 Geophysical Survey

2.4.1 Summary

The geophysical survey incorporated the two plots on Figure 01 and was carried out by *Eden Mapping* for GAT during w/c 14th January 2019. The survey was conducted using a Bartington Grad 601-2 dual fluxgate gradiometer with a 1.0m traverse interval and a 0.25m sample interval in a series of 20m grids and was tied into the Ordnance Survey grid using a Trimble R8 high precision GPS system. A copy of the *Eden Mapping* report is reproduced in Appendix III.

2.4.2 Instrumentation

The Bartington Grad 601-2 dual fluxgate gradiometer uses a pair of Grad-01-100 sensors. These are high stability fluxgate gradient sensors with a 1.0m separation between the sensing elements, giving a strong response to deeper anomalies. The instrument detects variations in the earth's magnetic field caused by the presence of iron in the soil. This is usually in the form of weakly magnetized iron oxides which tend to be concentrated in the topsoil. Features cut into the subsoil and backfilled or silted with topsoil, therefore contain greater amounts of iron and can therefore be detected with the gradiometer. This is a simplified description as there are other processes and materials which can produce detectable anomalies. The most obvious is the presence of pieces of iron in the soil or immediate environs which usually produce very high readings and can mask the relatively weak readings produced by variations in the soil. Strong readings are also produced by archaeological features such as hearths or kilns as fired clay acquires a permanent thermo-remnant magnetic field upon cooling. This material can also get spread into the soil leading to a more generalized magnetic enhancement around settlement sites. Not all surveys can produce good results as results can be masked by large magnetic variations in the bedrock or soil or high levels of natural background "noise" (interference consisting of random signals produced by material with in the soil). In some cases, there may be little variation between the topsoil and subsoil resulting in undetectable features. The Bartington Grad 601 is a hand held instrument and readings can be taken automatically as the operator walks at a constant speed along a series of fixed length traverses. The sensor consists of two vertically aligned fluxgates set 500mm apart. Their cores are driven in and out of magnetic saturation by a 1,000Hz alternating current passing through two opposing driver coils. As the cores come out of saturation, the external magnetic field can enter them producing an electrical pulse proportional to the field strength in a sensor coil. The high

frequency of the detection cycle produces what is in effect a continuous output. The gradiometer can detect anomalies down to a depth of approximately one meter. The magnetic variations are measured in nanoTeslas (nT). The earth's magnetic field strength is about 48,000 nT; typical archaeological features produce readings of below 15nT although burnt features and iron objects can result in changes of several hundred nT. The machine is capable of detecting changes as low as 0.1nT.

2.4.3 Data Collection

The gradiometer includes an on-board data-logger. Readings are taken along parallel traverses of one axis of a 20m x 20m grid. The traverse interval is 1.0m and readings are logged at intervals of 0.25m along each traverse. Marked guide ropes are used to ensure high positional accuracy during the high resolution survey. The data is transferred from the data-logger to a computer where it is compiled and processed using ArchaeoSurveyor2 software. The data is presented as a grey scale plot where data values are represented by modulation of the intensity of a grey scale within a rectangular area corresponding to the data collection point within the grid. This produces a plan view of the survey and allows subtle changes in the data to be displayed. This is supplemented by an interpretation diagram showing the main feature of the survey with reference numbers linking the anomalies to descriptions in the written report. It should be noted that the interpretation is based on the examination of the shape, scale and intensity of the anomaly and comparison to features found in previous surveys and excavations etc. In some cases the shape of an anomaly is sufficient to allow a definite interpretation e.g. a Roman fort. In other cases all that can be provided is the most likely interpretation. The survey will often detect several overlying phases of archaeological remains and it is not usually possible to distinguish between them. Weak and poorly defined anomalies are most 4 susceptible to misinterpretation due to the propensity of the human brain to define shapes and patterns in random background "noise". An assessment of the confidence of the interpretation is given in the text.

2.4.4 Data Processing

The data is presented with a minimum of processing although corrections are made to compensate for instrument drift and other data collection inconsistencies. High readings caused by stray pieces of iron, fences, etc. are usually modified on the grey scale plot as they have a tendency to compress the rest of the data. The data is however carefully examined before this procedure is carried out as kilns and other burnt features can produce similar readings. The data on some 'noisy' or very complex sites can benefit from

‘smoothing’. Grey-scale plots are always somewhat pixellated due to the resolution of the survey. This at times makes it difficult to see less obvious anomalies. The readings in the plots can therefore be interpolated thus producing more but smaller pixels and a small amount of smoothing based on a low pass filter can be applied. This reduces the perceived effects of background noise thus making anomalies easier to see. Any further processing is noted in relation to the individual plot.

2.4.5 Aims

The report will include a discussion of the grey scale plot and an interpretation of the any anomalies identified; these anomalies will be presented as either positive or negative, suggesting whether they could be cut features (ditches, pits etc.), or built sub-surface features (e.g., banks). Figures will be included for the grey scale plot and for the anomaly interpretation. The results of the geophysical survey will be used to inform further recommendations for archaeological evaluation and/or mitigation (if relevant)

2.5 Dissemination

Following completion of the stages outlined above, the following dissemination has been applied:

1. A copy of the GAT report has been submitted to client and GAPS;

2. A paper and digital report will be submitted to the regional Historic Environment Record, Gwynedd Archaeological Trust along with all relevant digital information , in accordance with the *Guidance for the Submission of Data to the Welsh Historic Environment Records (HERs)* (Version 1.1);

3. A digital report and archive (including photographic data) has been prepared for submission to the Royal Commission on Ancient and Historic Monuments Wales, in accordance with the *RCAHMW Guidelines for Digital Archives Version 1*. Digital information includes the photographic archive and associated metadata.

3 RESULTS

3.1 Desk based assessment

3.1.1 Statutory and non-statutory designations

There are no Scheduled Monuments within 1km of the study area. The nearest Scheduled Monument is the Tregarnedd Moated site (AN047; PRN 2727; SH46807460) which lies 1.4km to the south. There are numerous listed buildings to the west of the study area in the town of Llangefni 1.16km away to the south-west. The nearest is the Craig windmill which is 650m away to the south-west and is Grade II Listed (Ref: 5411; PRN 5371; SH46487576), being the only Listed Building within 1km of the study area.

The area does not lie within an area of Outstanding Historic Interest in Wales (Cadw/ICOMOS 1998), nor are there any registered Parks or Gardens within 1km of the study area. The study area lies within the Historic Landscape Character Area (LCA) 17 which is described as 'an expansive LCA which includes a large area of the rural hinterland of Anglesey. The topography is generally undulating which reflects its underlying geology, particularly the Coedana Granites. This results in a number of rocky outcrops that typify the landscape of this part of the island. These, together with small areas of semi-natural habitats are scattered throughout the area within a matrix of improved agricultural grassland.' (Anglesey Council 2001, 75).

The study area lies 1.1km east northeast of the Llangefni Conservation Area, and 1.4km east of the Nant y Pandy (The Dingle) Local nature Reserve.

3.1.2 Environmental remains and soil morphology

The underlying geology consists of Pre-Cambrian schists and gneisses of the Mona Complex and Gwna and Fydlyn Groups, but Lligwy Sandstone Formation and Clwyd Limestone is also believed to be present. These are a varied sequence of grits, shales and some limestones with interbedded layers of pyroclastic tuffs and clists (Smith and George 1961, 7-8). These are overlain by Devensian Till, consisting of typical Brown earths of the East Keswick 3 Association (BGS 1980; online 2019).

Given the intense nature of the agricultural exploitation of the study area of recent centuries, it is unlikely that any environmental remain of significance will be encountered, unless recovered from a secure archaeological context. However there is evidence of wetter ground within the study area, evidence by the presence or reeds and juncus to the south of the study are so the presence of significant environmental remains is possible, but they are unlikely to be of great antiquity.

3.2 Historical and archaeological background

3.2.1 Prehistoric and Roman

A polished stone axe (PRN 5040; SH47307640) was found 250m north-east of the study area. It was a Graig Lwyd axe, discovered in the rubble fill of a stone wall, so cannot be said with any certainty to have been lost locally. Another polished stone axe, 30cm long and 9.5cm wide was found 690m south west of the study area (PRN 2669; SH46387576), was found during foundation trench digging so is from a more secure archaeological context. Evaluation trenching 1.02km south of the study area has also revealed a pit containing Neolithic artefacts (PRN 36389; NGR SH4650874710), with another adjacent, possibly contemporary pit. Together these finds do suggest evidence of Neolithic activity in the vicinity, although the isolated nature of the recovered information means that the wider context of these is not fully understood.

Further evidence for prehistoric archaeology in the wider area included a Middle Bronze Age burnt mound (PRN 16073; NGR SH46907500), which was identified 1.02km to the south during construction work for Bryn Cefni Industrial Park. GAT has also completed an archaeological evaluation on several plots 1.41km to the south of the current proposed development, in advance of a separate scheme (GAT Report 1108). A geophysical survey and targeted trenching identified the remains of an enclosed settlement (PRN 36390; NGR SH4650874710) that was used into the 2nd century AD, which is into the Roman period. The settlement enclosure was probably pentagonal in shape and defined by a single small ditch. There appeared to have been at least one roundhouse inside as well as internal ditches, many small pits and other activity. This location was subsequently partially developed as part of the Llangefni Link Road scheme, for which additional archaeological mitigation was completed by Wessex Archaeology (results not available at time of writing, but will be reviewed if accessible). The site of the possible roundhouse is still present, but the associated enclosures have been developed.

These indicate that whilst known prehistoric and Roman archaeology within the close vicinity of the study area is limited to chance finds, the wider area, particularly to the south close to the former edge of the now drained Malltraeth marsh is rich in archaeology. The absence of known remains close to the study area is more likely to be a reflection of lack of previous archaeological work in the area rather than any genuine absence.

3.2.2 Medieval

Brython Archaeology identified 45 early medieval graves during topsoil stripping for the construction of section 1 of the Llangefni Link Road, in 2016 (Brython Archaeology Document Number B1604.03 DRAFT). The graves were located at NGR SH47247580, *c.*423m southeast of the assessment area. Additional fieldwork was completed by *Archaeology Wales*, associated with the expansion of Coleg Menai that increased the number of graves to 87 (results not available at time of writing).

The study area lies within the medieval parish of Llangefni and the cantref of Rhosyr and commote of Menai (Carr 1982). The medieval church at Llangefni was rebuilt in 1824, but its site lies 1.24km west northwest of the study area (PRN 2672, LB Grade II Ref: 5410; SH45807592).

A reset 15th century doorway with a 2 centred head, moulded jambs, trefoils and spandrels with an internal stoup, was noted in a garden wall 450m south west of the study area (PRN 11,144; SH46877567). This appears to be ecclesiastical in origin, and to have been found out of its historical context, but it was probably a former element of Llangefni Church, which had been rebuilt in 1824 and the doorway removed to this location (RCAHMW 1937, 91). It is shown in a photograph album belonging to the family of Pencraig Hall and dating to around 1910, where it is described as “The Garden Gate, Pencraig” (Anglesey Archives, WD/12/60). This suggests that the family removed the medieval doorway at the time of the church restoration and incorporated it as a garden feature at Pencraig Hall.

3.2.3 Post-Medieval

The former Plas Llangefni (PRN 2684; SH46007602), a 16th century house which was demolished in 1944-5, was located 1.07km west of the study area. Four houses were subsequently built on the site (RCAHMW 1937, 90-91). The former Craig Fawr windmill, Chapel Street, Llangefni probably originating in the late 18th or early 19th century, is located 630m south west of the study area (PRN 5731; SH46487576). It is a Grade II Listed Building (Ref: 5411). This was last used in 1897 and has gone through a period of dereliction since 1937 before being adapted for use as a communications tower in the 1990s. Hendre Hywel House, a Grade II Listed Building (Ref: 5338), is located 950m north east of the study area (PRN 2686; SH47927680).

Pencraig was an estate of 186 acres with a substantial associated mansion. The first documentary reference to the estate including the land of Clegyrdu (Clegyrdy) Fawr (which includes the study area and lay close to the Pencraig demesne), is in a bundle of deeds dating from 1699 (Anglesey Archives, WD/12/1). In the mid-18th century it was in the possession of Richard Poole and his wife Mary, the daughter of Robert Owen (Griffith 1914, 51), whose son Anthony was to become an influential attorney in Caernarfon and substantial landowner with estates in Anglesey and Merioneth by the turn of the 19th century. The Window Tax of 1753 records than Pengraig (*sic*) had 19 windows and paid 16/3 in tax (Clegyrdu is not mentioned), indicating that it was a very substantial property at that time (Anglesey Archives, WQT/117/1).

In 1773 Clegyrdu was leased to Joseph Knowles for 21 years (Anglesey Archives, WD 12/3), and subsequent leases describe the subsequent letting of the farm (WD12.4-5). In 1781 the property was leased to Samuel Grindley, who was already occupying Pencraig itself (WD/12/7). In 1798 10 shillings in Land tax was paid for Clegydir Fawr, and 13/6½ was paid for the demesne of Pencraig itself (WD12/37), and a comprehensive set of tax returns survive from 1753 to 1917-18 that detail the changing ownership and occupation of the property and the changing fortunes of the agricultural economy detailed in the rate of taxation (Anglesey Archives, WQT/49/1-60; WLTAA/18/42). By 1851 10s was still being paid annually by David Jones living in Clegrydy, suggesting that there had been little overall inflation ion land values (WQT/49/60).

In 1860 its owner, George Richard Owen Griffith, was High Sheriff of the County of Anglesey. He had been noted as the landowner of the study area on the tithe map and apportionment of 1843 (Figure 05).

In 1879, following the death of its then owner Sir Richard Waldie Griffith, the estate passed to the wife of Colonel Bramston Smith of Dublin, who was High Sheriff of Anglesey in 1876, and then to her daughters, one of whom was married to Lieutenant Colonel Phibbs of the Royal Irish Fusiliers and the other to Captain Newman of Cork. In 1910 there was an agreement to partition the holdings of the estate, and Clegyrdy Mawr (Area 11) covered 74 acres 1 rood and 36 perches in statute measure (Anglesey Archives, WD/12/46). By 1916 the estate was in the possession of Mrs. Phibbs' daughter, Mrs. H.T. Daniell.

The Pencraig estate was sold in 1952, with a housing estate and college bearing the name Pencraig being established on the site. The sale catalogue of that year described the plot divisions in the same way as the 1910 partition had (Anglesey Archives, WF/122; Figure 08), with the study area defined as Ordnance Survey Fields 545 and 546 and part of Clegyrdy Mawr farm (Lot 4, shown in red on Figure 08). These fields are described as being for pasture and to be of 6.644 and 4.362 acres in area respectively.

Clegyrdy Mawr is described as 'conveniently situated close to the market town, and bounded on two sides by metalled highways and sheltered by mature timber boundaries- an area about 73.308 acres. The house, stone built with slated roof contains parlour, kitchen, pantry, scullery, dairy. The outbuildings include shippon to tie 8, another shippon tying 6, loose box with loft over, barn with granary over, engine house, potato store, two stall stable, implement shed together with a large hay barn with covered feeding passage. Apportioned tithe £8 16s 5d, now let to Mr Andrew Hughes on an annual tenancy at a rental of £31 10s per annum (*ibid.*). The study area remained in agricultural use after the 1952 sale, whilst Pencraig itself was developed for the college and a housing estate.

3.3 Cartographic evidence

A *Survey of Pencraig and Cae Nest estates* dating to 1802, when the estate was the property of Owen Anthony Poole, depicts both Pencraig and Clegyrdy (NLW Thorogood, Tabor and Hardcastle Vol. 2 094/8/3; Figure 09). The title page of this book of estate maps is dated 1770 with 'survey'd by R. Owen 1770' within the cartouche, but has a hand written note on it stating that 'the original survey was made in 1770, but this book was made (partly copied and partly amended) about 1801 or 1802' (*ibid.*), suggesting that much of the map evidence included in it may date back to 1770. The difficulty is that it is not clear which parts of the volume were 'copied' and which parts were 'amended'.

The holding of Clegyrdy is shown to cover the study area, just to the north of the boundary with the Pencraig demesne, with the farmhouse to the immediate north-east of the study area (Figures 01-04, 09). The area is shown to consist of a patchwork of small paddocks and fields suggestive of a complex agricultural regime (Nos. 36-41 on map within the green overlain outline; Figure 09). These are likely to be post-medieval in date and the intensity of these on the map makes it likely that evidence for them will be uncovered as part of the evaluation process. They were clearly identified by the geophysical survey carried out on the site (Barker 2019; Appendix III).These field boundaries have been amalgamated by the time of the 1st edition 25 inch Ordnance Survey Map into larger parcels, in all probability as part of agricultural improvements by the Pencraig Estate (Figure 02). Clawdd 1, which crosses the study area west northwest – east southeast, and is shown on the 1st edition Ordnance Survey map, can be seen to cut through the former paddocks 36 and 38 shown on the 1802 map (Figure 09), evidence for which was confirmed by the geophysical survey. This clawdd can therefore confidently be dated to between 1802 and 1889. The map evidence also suggests that the agricultural husbandry regime at the farm changed radically over this period, requiring larger pasture and arable fields. It is possible that some of the paddocks shown in 1802 survived at the time of the tithe map for Llangefni of 1843 (Figure 05), but as only the tenant held parcels are shown on the map the character of the field boundaries at this time remain uncertain.

The study area is shown on the Llangefni tithe map of 1843 (Figure 05). It is within plot 152 on the tithe map, immediately north of plot 151, and shows an earlier southern field boundary that is not shown on the later Ordnance Survey Maps. The details on the tithe apportionment are given below. The owner Richard Griffiths lived in the substantial Plas Pencraig, and plot 151 formed his demesne. The numbers refer to those shown on the tithe map (Figure 05):

Landowners	Occupiers	Numbers referring to the Plan	Name and Description of Lands and Premeses	Quantities in Statute Measure A R P
Richard Griffiths Esq.	Richard Griffiths Esq^{re}	151	Pencraig	102 3 -
	William Jones	152	Clegyrdy	83 1 26

An examination of the First to Third Edition Ordnance Survey 1-inch to 25-mile County Series Map Sheet of the area (Sheets XIII.15, XIII.16, XVIII.3 and XVIII.4; 1889, 1900 and 1920 respectively; cf. Figures 02-04) shows the development area with the same two fields as at present, located within a wider agricultural landscape of improved pasture. Little change is noted between 1889 and 1920. Clegyrdy-mawr farm is located to the north and a woodland covert to the south (cf. Figures 02 to 04), both of which are still present on current mapping, suggesting a local landscape little changed since at least the late nineteenth century until the break-up of the Pencraig estate in 1952.

The associated map within the Pencraig Estate Sale catalogue of 1952 (WF/122) shows the same estate field system, however two fields to the south-west of the study area and four to the east southeast are described in the schedule as ‘P.O.W. Fields’, covering 15.632 acres (Figure 08). This suggests that prisoners of war were housed in these areas during the Second World War, and Italian prisoners are known to have been housed in the Llangefni area (Jackson 2010).

3.4 Artefact potential

Two Neolithic polished axes have been found close by to the study area so there has to be a moderate potential for the recovery of prehistoric artefacts. Roman to early medieval burials and probably settlement is also noted to be close by; therefore there is moderate potential for the recovery of artefacts from this period. The archaeological fieldwork carried out in the surrounding area is believed to have been productive and artefacts well preserved, therefore if archaeological deposits are encountered there is a moderate to high potential of artefact recovery, and their potential for understanding the sites could be considerable.

The area has been farmed in post-medieval times and probably earlier, so whilst there is some potential for the recovery of medieval and later artefacts, chance finds will probably not be from significant archaeological contexts. However the location of the study area is an attractive one for settlement and other activity in historic times, and artefacts are likely to be encountered.

There is therefore considered to be a moderate potential for the recovery of archaeological artefacts, with a moderate to high potential if deposits of Roman to medieval date are encountered.

3.5 Aerial photographs and LiDAR

LiDAR DTM and DSM datasets at 1m and 2m resolution were examined at the Lle Welsh Government data portal http://lle.gov.wales (Figure 06). Whilst the field boundaries that can be traced back to the 19th century Ordnance Survey maps were clearly little certain additional archaeological detail was visible, suggesting intensive agricultural use of the study area, with the exception of a potential hollow way (Feature 01). The elaborate field system noted on the historic mapping (Figure 09) and the geophysical survey (Appendix III), was not noted. Earlier LiDAR 2m DTM data from 2014 suggests more clearly the presence of a west-east linear feature in the form of a depression in the ground running across the northwest of the study area and then heading eastwards, which is faintly visible on the Welsh Government data (Figure 06). This could indicate the former presence of a track or hollow way (a track that is significantly lower than the land on either side, possibly of some antiquity due to repeated erosion of the track surface). It is of unknown date but hollow ways often have their origins in medieval times, and is considered a potential feature that may predate the small paddock field system (Feature 02). The evidence could possibly also be indicative of a palaeo-channel and therefore not of archaeological origin, but that is considered to be a less likely option.

The RAF aerial photograph 106G/UK655 frame 3115 taken on 13th August 1945 (Figure 07), also shows evidence of intensive land use. Unchanged field boundaries from the 19th century were observed and the fields were noted to have been ploughed and sometimes used as grassland, but no new archaeological features were identified. The evidence for ploughing is likely to relate to intensified wartime agriculture, when areas of quality pastureland were frequently put under the plough in order to increase productivity during a time of national emergency.

3.6 Geophysical Survey (Appendix III)

The geophysical survey of the study area, covering an area of approximately five hectares was carried out on 14th January 2019 by *Eden Mapping*. The results of this work are detailed in Appendix III.

A series of magnetic linear anomalies likely to be associated with former field boundaries and trackways was identified (Feature 02). A possible sunken trackway was also identified running parallel to one of the former field boundaries (Feature 01). A mix of weak, linear, angled and curvilinear anomalies were present within the data (Features 04-05). Some of that could predate the former field boundaries, and some could be a former farmstead (Feature 03) within one of the former plots, given the morphology of the landscape. Evidence of possible ridge and furrow cultivation was also identified within the study area (Feature 06). This suggests that there have been times during the medieval or post-medieval times when arable agriculture was carried out, although use for pasture was more common. More ephemeral, and likely modern anomalies, were also identified, which have not been interpreted as archaeological features.

The greyscale plots and an interpretation plan are given in the geophysics report (Appendix III, Figures 02-04).

3.7 Walkover survey

The walkover survey was carried out on 18th January 2019, during a period of dry weather, but conditions had been wet earlier. The study area consisted of two heavily improved fields to the southwest of the farm of Clegyrdy Mawr (Figure 01), and the northern field was designated Field ‘a’, and the southern one Field ‘b’. The land slopes gently from the northeast to southwest, but undulates within that (Plate 01). Within the cloddau, the fields are bounded by modern post and wire fencing (Plate 02).

With the exception of the field boundaries detailed below, no archaeological features were noted within them. They consisted of rich and improved grassland, although reedy ground was noted, particularly in at the southern end of Field ‘b’, suggesting areas of wetter ground despite all the improvements that has been carried out (Plate 03). Five distinct field boundaries were noted, four of which were *cloddau* and one drystone wall (see below, and Figure 01). These are all thought to be of some antiquity, owing to the presence of mature trees on the clawdd, and are shown on the historic mapping and aerial photograph (Figures 02-05, 07-09). The *clawdd* are generally denuded, but some of the facing stones are clearly visible (Plate 04).

To the west and south of the study area, beyond the boundary, an area of mature woodland was noted (Plate 05). This is narrow, but contains tall mature trees; it is shown on the historic Ordnance Survey mapping so is at least 19th century in date (Figure 02). The trees include tall evergreen firs, suggesting specimen trees planted by the Pencraig estate. The name for this plantation, Clegyrdy Covert, suggests that it may have been a covert related to the hunting activities of the Pencraig estate

A small recent tree plantation was noted to the south in Field ‘b’ (Plate 06). At the gated entrance to Field ‘b’ from (a) in the centre of Clawdd 1 hard core packing was noted stabilizing the entrance on both sides of the gate (Plate 07), of clearly modern date. The old track to Clegyrdy Mawr, which now runs northeast of Ger y Coed (a modern house), has been macadamised in part (Plate 08). This, along with the hard core packing, suggests that the fields can be boggy.

3.7.1 Cloddau and Walling (Figure 01)

Clawdd (Boundary 1): This runs west northwest – east southeast between Fields 'a' and 'b'. The clawdd is 1.1m wide and 0.6m high, with the facing stones clearly visible at the western end, which consist of rough fieldstone boulders (Plate 09). A trimmed hedgerow and some mature trees are located on the top of the *clawdd*, suggesting that it is of some antiquity (Plate 10). It is shown on the 1st edition Ordnance Survey map of 1889 (Figure 02), and can be seen to cut through the former paddocks 36 and 38 shown on the *Survey of Pencraig and Cae Nest Estates* map dating to 1802 (Figure 09), evidence for which was also confirmed by the geophysical survey (Appendix III). This clawdd can therefore confidently be dated to have been created between 1802 and 1889.

Clawdd (Boundary 2): This clawdd run northeast-southwest along the southeastern boundary of the study area (Figure 01). The bank is 0.8m high and about 2.4m wide. It is much denuded, but the superimposed hedgerow is well maintained, extending to a height of about 2m. The mature trees include oak (Plate 11).

Clawdd (Boundary 3): A clawdd running northwest – southeast on the northeast side of the study area. It is of a very similar character to Cloddau 2 but more denuded. The superimposed hedgerow is well maintained and the mature trees more occasional (Plate 12).

Clawdd (Boundary 4): The clawdd takes a sinuous north-south course on the western side of the study area along both fields 'a' and 'b'. It is about 1m high and 1.5m wide with fieldstone rubble facing stones irregularly coursed (Plate 13). There is less of a hedgerow here but mature trees grow both on top of and behind the clawdd, demonstrating that it is of some antiquity. At the southern end of Field 'b', as the boundary returns to the south there is about 30m of dry stone walling (Wall 5), which seems to have replaced former clawdd (Figure 01).

Wall (Boundary 5): A 30m length of dry stone walling, about 1.2m high and 0.5m wide of local field stone rubble, a conglomerate with pebble inclusions), each block up to 0.45m by 0.3m, along with some limestone blocks (Plate 14).

3.8 Gazetteer of features

The use of ‘C’ after the National Grid Reference indicates the central point of a feature; ‘A’ indicates that the feature covers an area wider than that indicated.

Feature Number	01 [‘H’ in geophysics report]
Site name	Possible hollow way
PRN number	74995
Grid reference	SH46977622- SH47117622 (points where the feature crosses the study area to the west and east)
Period	Unknown
Site type	Transport
Assessment category	E
Description	A possible hollow trackway of unknown date, shown of LiDAR DTM 1m and 2m data as a sinuous linear hollow crossing the northwest of the study area west-east, and about 1.5-2m wide. It is much less clear on the DSM data. The evidence is uncertain however and this may be a palaeochannel or other natural feature, but its relationship to the topography suggests that it is more likely to be a trackway of unknown date, and could connect pre-existing settlements. It was identified in the geophysical survey, and as it runs parallel to the former field boundary was thought to be less likely to be of natural origin
Impact	Unknown
Recommendation for further assessment/evaluation	Evaluation by archaeological trial trenching
Recommendation for mitigatory measures	Await the results of the evaluation

Feature Number	02
Site name	Former field/paddock boundaries
PRN number	74996
Grid reference	SH 47097628 A
Period	Post-medieval
Site type	Field Boundaries
Assessment category	C
Description	A set of field boundaries in the form of small paddocks, noted across the site. They are shown on the estate map of 1802 (Figure 09), and were clearly evidence on the geophysical survey (Appendix III). They had been removed by the time of the 1st edition Ordnance Survey Map of 1889 (Figure 02), and Clawdd 1 built across them. One boundary anomaly running northwest-southeast [identified as 'B' in the geophysics report] consists of parallel lines, suggesting a possible access track to Feature 03.
Impact	Unknown
Recommendation for further assessment/evaluation	Evaluation by archaeological trial trenching
Recommendation for mitigatory measures	Await the results of evaluation

Feature Number	03 [‘E’ in geophysics report]
Site name	Possible enclosure
PRN number	74997
Grid reference	SH 47097637
Period	Unknown
Site type	Possible settlement area
Assessment category	E
Description	Short angled and curvilinear magnetic anomalies identified during geophysical survey in the north of Field ‘b’. They are hard to interpret, and are weaker than those of Feature 02. However they lie within one of the former enclosures (40 on the 1802 map) and appear to have an access track running southeast from it. The morphology of the surrounding landscape and paddocks suggests that this may be the site of a former farmstead that was later replaced by Clegyrdy Mawr to the northeast.
Impact	Unknown
Recommendation for further assessment/evaluation	Evaluation by archaeological trial trenching
Recommendation for mitigatory measures	Await results of evaluation

Feature Number	04 [‘F’ in geophysics report]
Site name	Sub circular geophysical anomaly
PRN number	74998
Grid reference	SH 47007623
Period	Unknown
Site type	Possible ring-ditch
Assessment category	E
Description	A weak, small circular response to the west of field ‘b’. If it is of archaeological origin, it must predate the field boundary [Feature 02] that crosses it
Impact	Unknown
Recommendation for further assessment/evaluation	Evaluation by archaeological trial trenching
Recommendation for mitigatory measures	Await results of evaluation

Feature Number	05 [‘G’ in geophysics report]
Site name	Linear geophysical anomaly
PRN number	74999
Grid reference	SH 46987616
Period	Unknown
Site type	Possible ditch or field boundary
Assessment category	E
Description	A linear anomaly running across the south of Field ‘b’. This may be a field boundary, but its origins are uncertain and it is not shown on any historic mapping.
Impact	Unknown
Recommendation for further assessment/evaluation	Evaluation by archaeological trial trenching
Recommendation for mitigatory measures	Await results of evaluation

Feature Number	06 [‘C’ in geophysics report]
Site name	Linear negative magnetic geophysical anomaly
PRN number	75000
Grid reference	SH 47107639 C and SH 47097618
Period	Unknown, possibly medieval
Site type	Possible ridge and furrow cultivation
Assessment category	E
Description	A series of broad parallel linear anomalies, whose wide spacing could be evidence of former ridge and furrow cultivation. Later evidence of cultivation is also thought to be present. This was noted to the northeast in Field ‘a’ and east in Field ‘b’.
Impact	Unknown
Recommendation for further assessment/evaluation	Evaluation by archaeological trial trenching
Recommendation for mitigatory measures	Await results of evaluation

4 CONCLUSION & RECOMMENDATIONS

4.1 Conclusion

Significant prehistoric and medieval archaeology has been identified within 1km of the study area, although no certain evidence has been identified within it. The wider area is however rich in archaeological evidence of all periods and the study area has significant potential. Some of the geophysical anomalies whose character has not been identified (Features 04-05) could be of medieval or earlier date.

Historically the study area formed part of Clegyrdy farm, which formed part of the Pencraig estate since at least the later part of the 17th century. The demesne of that estate lay immediately to the south. This relationship remained the case until the estate was sold off in 1952, when the area to the south was developed and the study area remained in agricultural use. In the 18th century the study are appears to have consisted of small paddocks, with the current field pattern present by the time of the 1st edition Ordnance Survey map of 1889 (Figure 02). The field boundaries were noted to be of some antiquity and maturity, due to the presence of mature trees and historic *cloddau.* These boundaries are shown on the 19th century historic mapping (Figure 02-04) and possibly earlier, with the exception of Clawdd 1, which can be demonstrated to have been put in place after the removal of the paddocks shown on the 1802 map, and before the 1st edition Ordnance Survey map of 1889. The earlier 1802 evidence suggests that Cloddau 2-4 may have formed part of a more elaborate system of small paddocks (Figure 09). LiDAR data also suggests the possible presence of a former hollow way (Feature 01, Figure 06); these are typically medieval in date, so this example may predate the post-medieval field system noted on the 1802 estate map. Overall the evidence suggests that the field patterns identified are partly a surviving skeleton of the post-medieval system, although suggesting that some amalgamation and insertion of new 19th century boundaries has taken place.

The walkover survey failed to identify and archaeological features beyond the field boundaries. This is thought to be because there was evidence that the fields have been heavily agriculturally improved over the years. The presence of reeds and juncus at the south of the study area, and the presence of modern hard core stabilisation at the central gateway and the Macadamisation of the access track suggests the presence of softer ground; therefore there is some limited potential for the survival of environmental remains, but this is

unlikely to be of great significance due to the levels of improvement that have been undertaken.

Whilst the geophysical survey identified the series of paddocks noted on the 1802 estate map (Figure 09), it also identified the presence of a possible settlement site within Field 40 on that map (Feature 03). It is possible that this represents the remains of a former homestead, replaced by Clegyrdy Mawr possibly in the 18th century. Whilst this interpretation remains somewhat speculative, it would fit with the morphology of the field system and the access tracks identified, and needs to be tested through the archaeological evaluation work. The field system was removed and re-ordered sometime between 1802 and the 1st edition Ordnance Survey map of 1889, and suggests that a relict settlement and field pattern that predates the current one has been identified. This is of unknown date, but is likely to be post-medieval in origin. Ridge and furrow cultivation associated with this small field agriculture has also been identified (Feature 06).

The current improved agricultural landscape identified in the assessment and geophysical survey was noted to be of a 19th century date and character, with associated cloddau of which one example could be demonstrated to have been built in the 19th century. A relict field system of small paddocks was noted on an estate map of 1802, which was confirmed by the geophysical survey. The survey further suggested the possible presence of a former farmstead and access track, suggesting evidence for the survival of a palimpsest of a former landscape pattern. The presence of medieval and earlier features also cannot be discounted, although none of the features identified are clearly of the earlier eras.

4.2 Recommendations

In addition to the site specific recommendations given in Section **3.8** it is recommended that a basic record of the field boundaries be made, including the photographic recording of any breaches made in them.

Due to the nature of the potential for archaeological remains identified in the assessment, a programme of **archaeological trial trenching** is also recommended to evaluate the site. This would allow a representative sample of the development area to be investigated at depth, and to enable the unknown (Category E) sites to be characterised. It is recommended that a percentage of the study area should be trenched, a proportion of the trenches targeting the identified Features 01 to 06, with the remainder of the trenches placed to give

an overall coverage of the development area. The trenching should be carried out with trenches of a minimum 20m in length and 2m width. The results of the evaluation would enable a subsequent strategy of archaeological mitigation to be worked out for site.

5 SOURCES CONSULTED

5.1 Primary Sources

Aerial Photographic Unit, Welsh Government

Aerial photographs RAF 106G/UK 655 frames 3112 and 3113, taken on 13th August 1945

Anglesey Archives, Llangefni

Pencraig Estate Papers (WD/12)

WD/12/1 Bundle of title Deeds 1699-1792

WD/12/2 Lease for 14 years of Clegyrdu Dec. 29th 1766

WD/12/3 Lease for 21 years of Clegyrdu June 16th 1773

WD/4-5 Bundle of Leases (4) of Clegyrdu Isaf

WD/12/7 Lease of Pencraig Fawr August 1st 1781

WD/12/11 Lease between Richard and Mary Poole of Pencraig and John Lewis of Caernarfon of the Capital Messuage Pencraig…. July 14th-15th 1760

WD/12/37 Redemption of Land Tax certificate Dec. 13th 1799

WD/12/46 Agreement as to the Partition touching the sale of part of the Pencraig Estate April 30th 1910

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Other

WLTAA/18/42 Land Tax 1917-1918

WQT/117/1 Window Tax for the parish of Llangefni 1753

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Thorowgood, Tabor and Hardcastle Vol. 2 094/8/3 *Survey of Pencraig and Cae Nest estates in the several parishes of Llangefni, Llandyfrydog, Coedana, Pentraeth and Llandegfan in the County of Anglesey. Llanbedr, Llanendowyn, Llandowywa, Llanfair, Llandanwg, Llanfihangel y Traethau, Llandecwyn, and Maentwrog in the County of Merioneth, the property of Owen Anthony Poole Esq'r. ca. 1802*

Tithe map and Apportionment of the parish of Llangefni, 1843

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30. Standard and Guidance for Archaeological Geophysical Survey (Chartered Institute for Archaeologists, 2014).
31. Standard and Guidance for Historic Environment Desk-Based Assessment (Chartered Institute for Archaeologists, 2014).

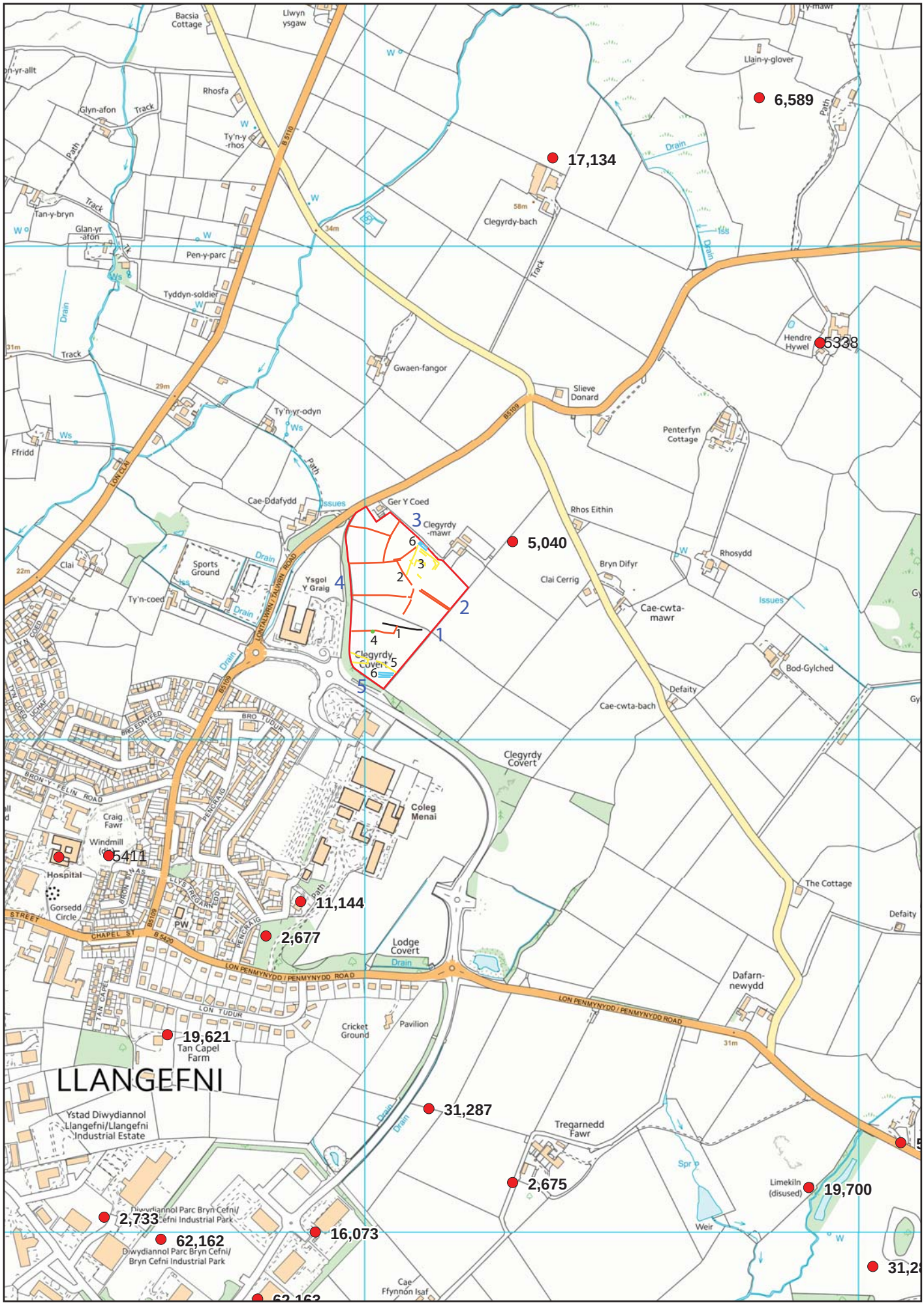

Figure 01: Location of assessment/evaluation area (outlined red) and local archaeological features; based on Ordnance Survey 1:10000 County Series Map Sheets SH47NE. Scale 1:10000 @ A4. Cloddau numbered in purple, features in black. Relict field system shown in red. Red dots indicate sites noted on the Gwynedd HER.

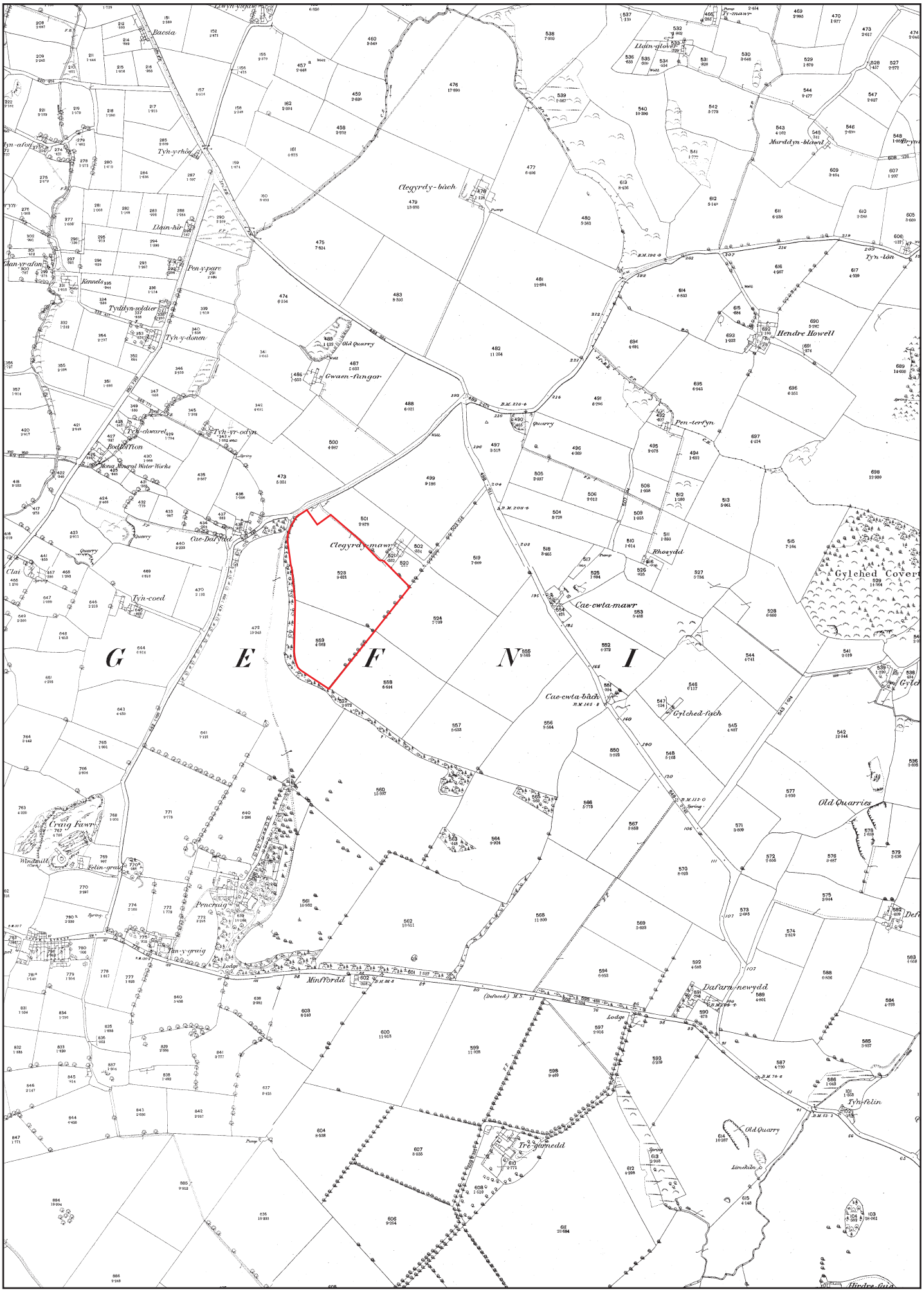

Figure 02: First Edition Ordnance Survey 1-inch to 25-mile County Series Map Sheets XIII.15, XIII.16, XVIII.3 and XVIII.4, published in 1889, with location of assessment/evaluation area outlined red. Scale: 1 to 10000@A4.

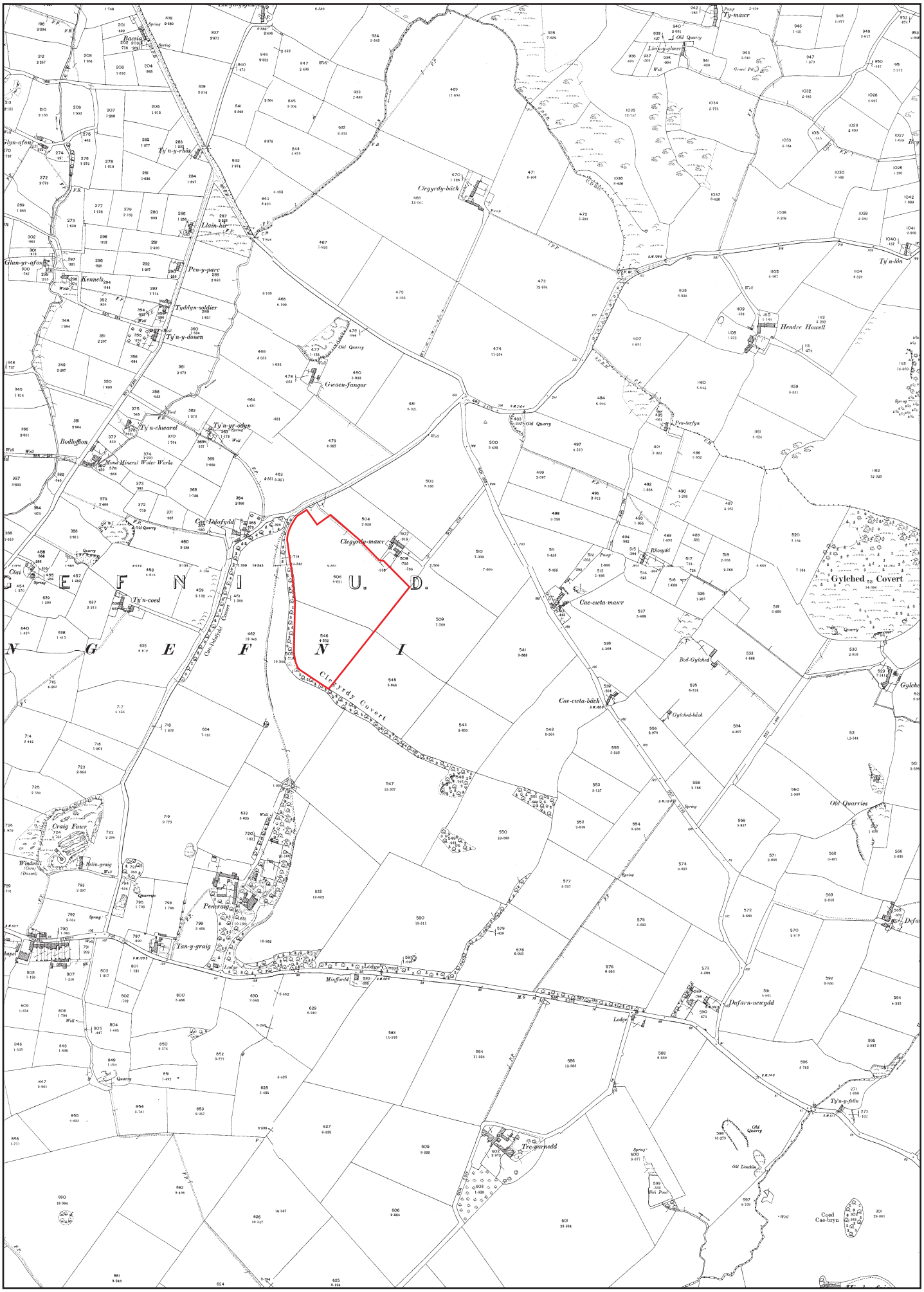

Figure 03: Second Edition Ordnance Survey 1-inch to 25-mile County Series Map Sheets XIII.15, XIII.16, XVIII.3 and XVIII.4, published in 1900, with location of assessment/evaluation area outlined red. Scale: 1 to 10000@A4.

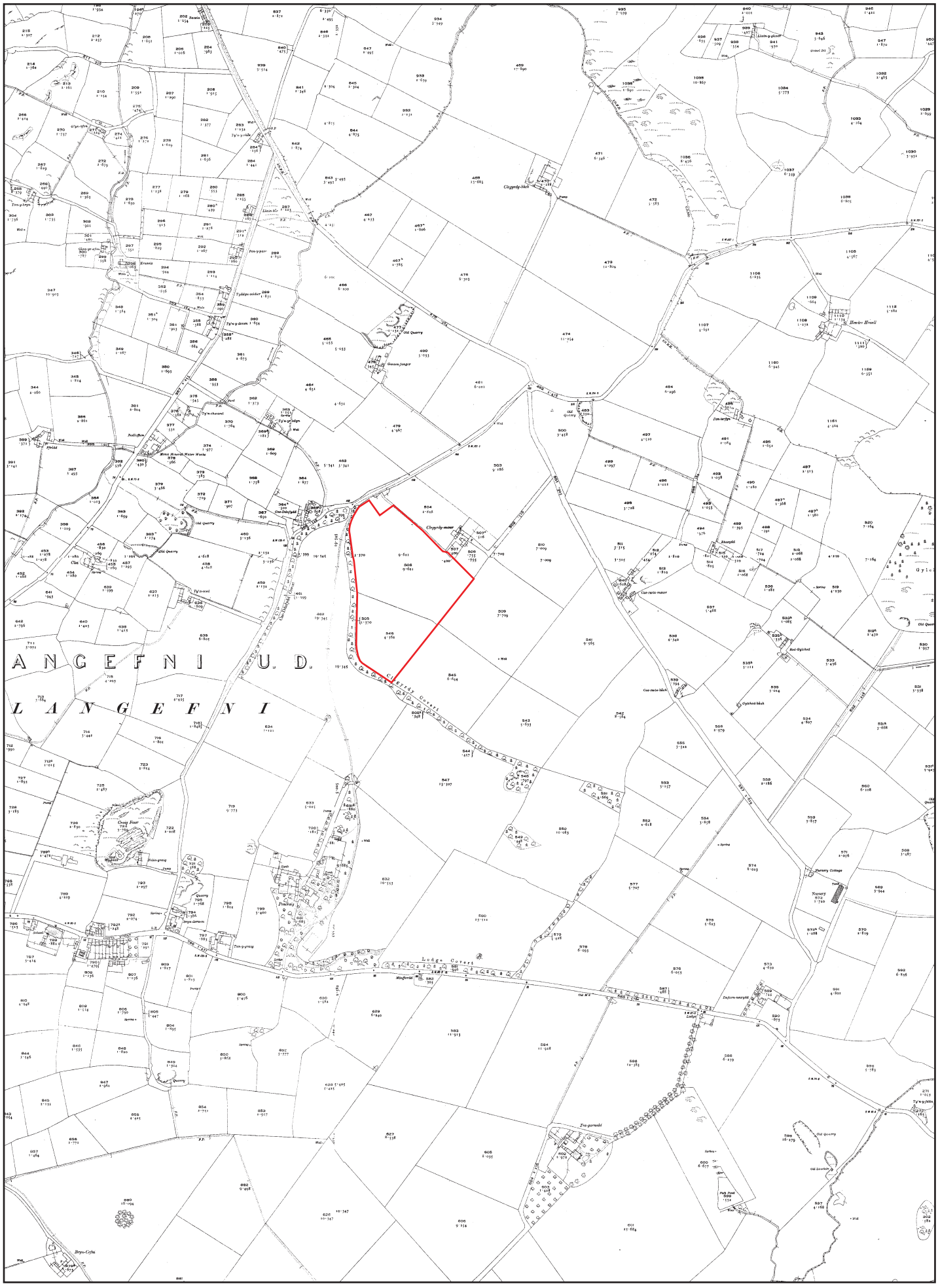

Figure 04: Third Edition Ordnance Survey 1-inch to 25-mile County Series Map Sheets XIII.15, XIII.16, XVIII.3 and XVIII.4, published in 1920, with location of assessment/evaluation area outlined red. Scale: 1 to 10000@A4.

Figure 05: Reproduction of Llangefni Parish Tithe Map, published 1843. The general assessment area is highlighted in red. Not to scale (Source: NLW)

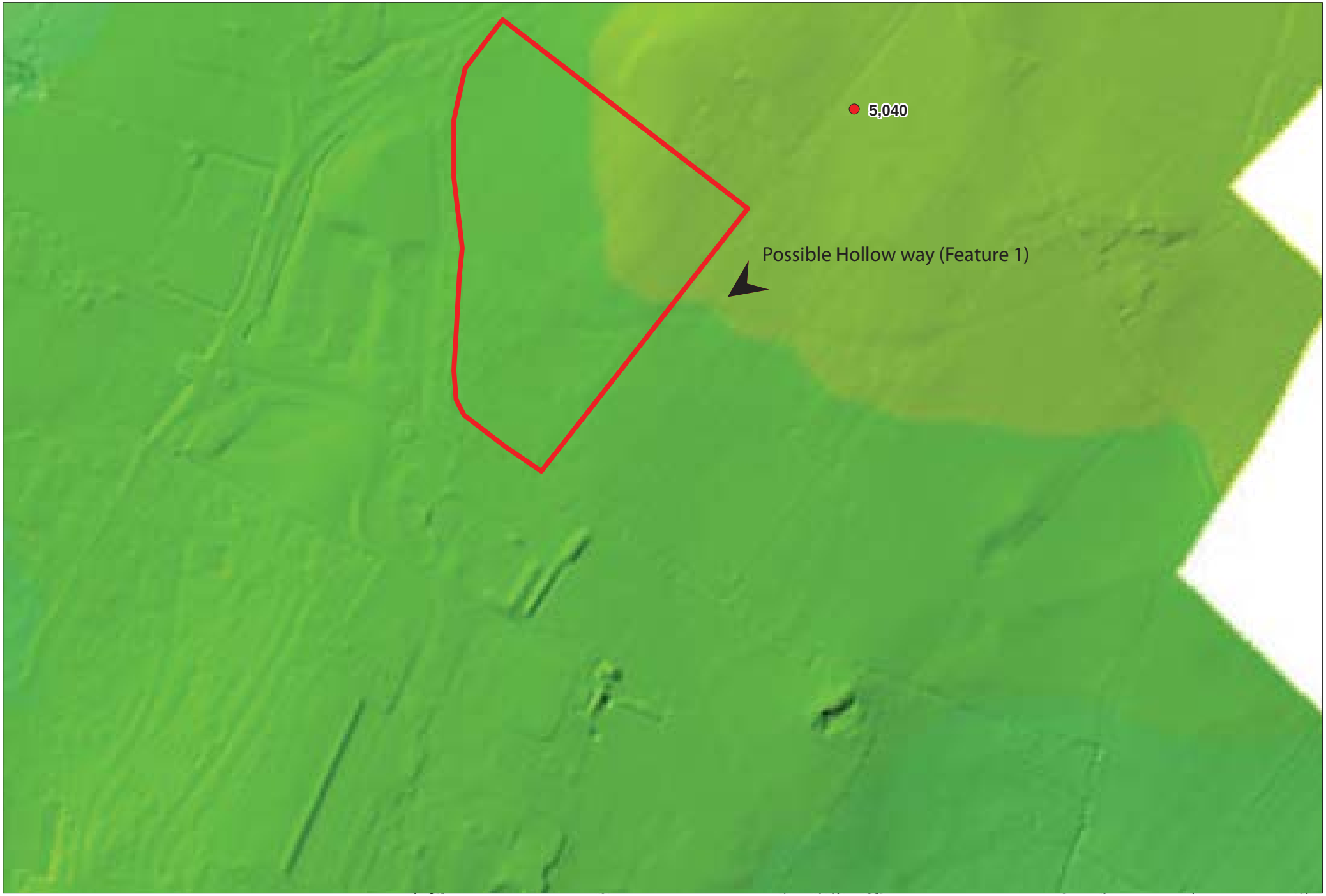

Figure 06: Detail of LiDAR DTM and dataset at 2m resolution (Lle Welsh Government data portal http://lle.gov.wales). The study area is outlined in red, and the possible hollow way (Feature 1) is shown crossing the site east-west.

Figure 07: RAF Aerial Photograph 106G/UK655 frame 3115, taken on 13th August 1945. The Ysgol Newydd area is outlined in red. Image not to scale

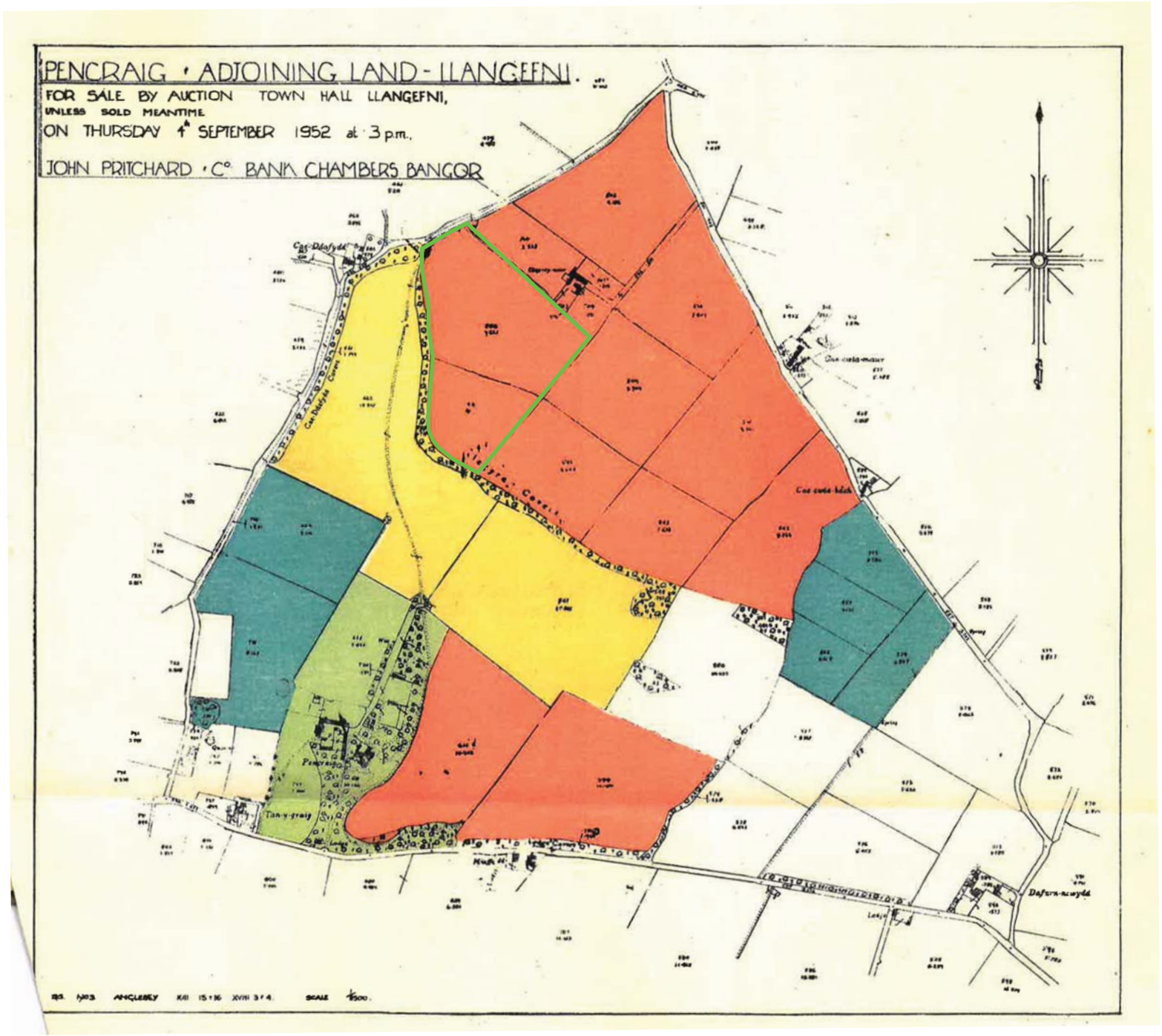

Figure 08: Map from *Particulars of Sale of the Freehold Agricultural Residence known as Pencraig and Adjoining Lands* of 1952(Anglesey Archives WF/122). Clegyrdy Fawr Lands shown in orangey-red. The fields shown in blue are referred to as the 'P.O.W. Fields'. Not to Scale

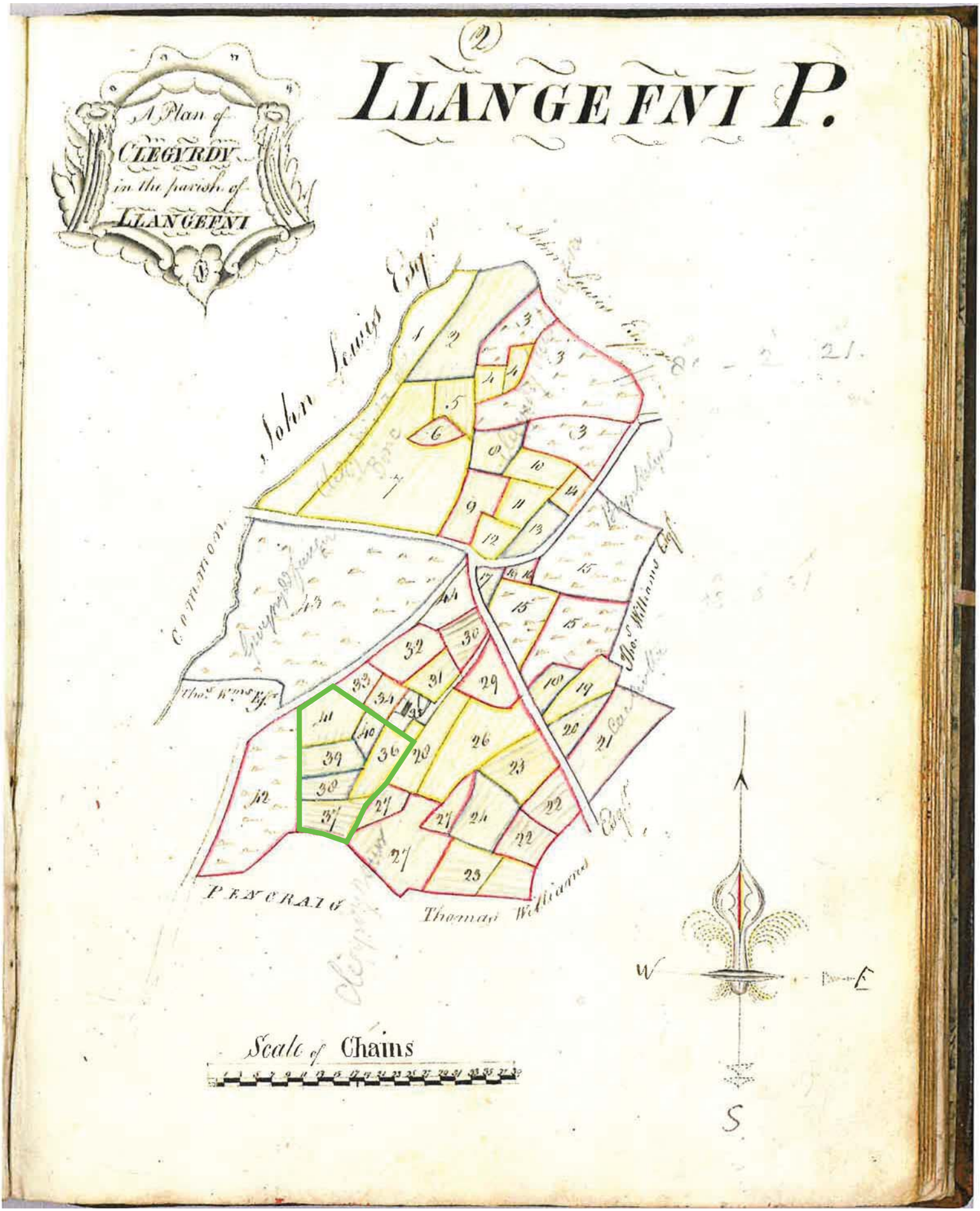

Figure 09: Clegyrdy farm in 1802, when the property of Owen Anthony Poole with the study area outlined in green (NLW Thorogood, Tabor and Hardcastle Vol. 2 094/8/3). Scale as shown on map.

Plate 1: View of Clegyrdy Mawr from Clawdd 1; scale: 1x2m (archive reference: G2584_008).

Plate 2: View along clawdd/hedgerow field boundary 2 along the southeast boudnary of the study area; scale: 1x2m (archive reference: G2584_009).

Plate 3: View along southeast boundary (Clawdd 2) in Field B; scale: 1x2m (archive reference: G2584_029).

Plate 4: Elevation view of Clawdd 4; scale: 1x2m (archive reference: G2584_016).

Plate 5: View of northern portion of Field A; scale: 1x2m (archive reference: G2584_014).

Plate 6: View of modern tree plantation to the south of Field B; scale: 1x2m (archive reference: G2584_030).

Plate 7: View of modern bar gate providing access from Field A to Field B, with stone ground stabilisation in the foreground; scale: 1x2m (archive reference: G2584_013).

Plate 8: View of minor access track into Field A. This was a former entrance route to Clegyrdy Mawr; scale: 1x2m (archive reference: G2584_019).

Plate 9: View along clawdd/hedgerow field boundary 1; scale: 1x2m (archive reference: G2584_001).

Plate 10: View of clawdd/hedgerow 1; scale: 1x2m (archive reference: G2584_011).

Plate 11: View of clawdd/hedgerow 2; scale: 1x2m (archive reference: G2584_012).

Plate 12: General view towards Ger y Coed from the gateway in Clawdd 1; scale: not used (archive reference: G2584_034).

Plate 13: View of southern end of Clawdd/Drystone wall 4 in Field B; scale: 1x2m (archive reference: G2584_025).

Plate 14: View of Drystone Walling 5; scale: 1x2m (archive reference: G2584_027).

APPENDIX I

Gwynedd Archaeological Trust approved written scheme of investigation, September 2018.

YSGOL NEWYDD LLANGEFNI (G2584)

WRITTEN SCHEME OF INVESTIGATION FOR ARCHAEOLOGICAL ASSESSMENT & EVALUATION (GEOPHYSICAL SURVEY)

Prepared for Ynys Môn Council

January 2019

Ymddiriedolaeth Archaeolegol Gwynedd
Gwynedd Archaeological Trust

Approvals Table				
	Role	**Printed Name**	**Signature**	**Date**
Originated by	Document Author	JOHN ROBERTS		07/01/19
Reviewed by	Document Reviewer	ROBERT EVANS		7/01/19
Approved by	Principal Archaeologist	JOHN ROBERTS		07/01/19

Revision History			
Rev No.	**Summary of Changes**	**Ref Section**	**Purpose of Issue**
1	Revised site plan	All	Approval

All GAT staff should sign their copy to confirm the project specification is read and understood and retain a copy of the specification for the duration of their involvement with the project. On completion, the specification should be retained with the project archive:

Name Signature Date

YSGOL NEWYDD LLANGEFNI (G2584)

WRITTEN SCHEME OF INVESTIGATION FOR ARCHAEOLOGICAL ASSESSMENT & EVALUATION (GEOPHYSICAL SURVEY)

Prepared for *Ynys Môn Council*, September 2018

CONTENTS

1 INTRODUCTION

Gwynedd Archaeological Trust (GAT) has been asked by Ynys Môn Council to prepare a written scheme of investigation for an archaeological assessment and evaluation (geophysical survey) in advance of proposed development works for a new school in Llangefni, Ynys Môn (NGR SH47097619; Figure 01). The development area includes two plots of improved pasture with a combined area of 5.9ha, located east of the current Ysgol y Graig and north of the Llangefni Link Road. The assessment and evaluation will be undertaken from January 2019. Based on these results, additional evaluation and/or mitigation may be undertaken.

A number of archaeological assessment, evaluation and mitigation projects have been completed within the wider area. Information from these projects and any available reporting for the Llangefni Link Road will be consulted as part of the current assessment and evaluation.

The assessment will conform to the guidelines specified in the Chartered Institute for Archaeologists *Standard and Guidance for Historic Environment Desk-Based Assessment* (Chartered Institute for Archaeologists, 2014) and the evaluation to Chartered Institute for Archaeologists *Standard and Guidance for Archaeological Geophysical Survey* (Chartered Institute for Archaeologists, 2014). The format of this written scheme of investigation corresponds to the requirements of section 2.3 of MoRPHE (English Heritage 2015) and to MAP2 (English Heritage, 1991, *Management of Archaeological Projects*).

The assessment will be monitored by Gwynedd Archaeological Planning Services (GAPS); the content of this written scheme of investigation and all subsequent reporting by GAT must be approved by GAPS prior to final issue.

The Historic Environment Record Enquiry Reference Number for this project is GATHER1016 and the Event Primary Reference Number is 45353.

GAT is certified to ISO 9001:2015 and ISO 14001:2015 (Cert. No. 74180/B/0001/UK/En) and is a Registered Organisation with the Chartered Institute for Archaeologists and a member of the Federation of Archaeological Managers and Employers (FAME).

2 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

There are no known archaeological assets within the development area, but it is located within a wider area of known prehistoric, Roman and medieval archaeology.

A prehistoric stone axe findspot is located 251m to the northeast (Primary Reference Number (PRN) 5040; NGR SH47307640). The axe was identified as Graig Lwyd and was recovered from the rubble fill of a stone wall. Further evidence for prehistoric archaeology in the wider area included a Middle Bronze Age burnt mound (PRN 16073; NGR SH46907500), which was identified 1.02km to the south during construction work for Bryn Cefni Industrial Park. GAT completed an archaeological evaluation on several plots 1.41km to the south of the current proposed development, in advance of a separate scheme (GAT Report 1108). A geophysical survey and targeted trenching identified the remains of an enclosed settlement (PRN 36390; NGR SH4650874710) that was used into the 2nd century AD. The settlement enclosure was probably pentagonal in shape and defined by a single small ditch. There appeared to have been at least one roundhouse inside as well as internal ditches, many small pits and other activity. The evaluation trenching also revealed a pit containing Neolithic artefacts (PRN 36389; NGR SH4650874710), with another adjacent, possibly contemporary pit. This location was subsequently developed as part of the Llangefni Link Road scheme, for which additional archaeological mitigation was completed by Wessex Archaeology (results not available at time of writing, but will be reviewed if accessible).

Brython Archaeology identified 45 medieval graves during topsoil stripping for the construction of section 1 of the Llangefni Link Road, in 2016 (Brython Archaeology Document Number B1604.03 DRAFT). The graves were located at NGR SH47247580, *c.*423m southeast of the current development site. Additional fieldwork was completed by *Archaeology Wales*, associated with the expansion of Coleg Menai that increased the number of graves to 87 (results not available at time of writing, but will be reviewed if accessible).

An examination of the First to Third Edition Ordnance Survey 1-inch to 25-mile County Series Map Sheet of the area (Sheets XIII.15, XIII.16, XVIII.3 and XVIII.4; 1889, 1900 and 1920 respectively; cf. Figure 02) shows the development area with the same two fields as present, located within a wider agricultural landscape of improved pasture. Clegyrdy-mawr farm is located to the north and a woodland covert to the south (cf. Figure 02), both of which are still present on current mapping, suggesting a local landscape little changed since at least the late nineteenth century.

3 METHODOLOGY

3.1 Assessment (Desktop Study)

A desk-based assessment is defined as “a programme of study of the historic environment within a specified area or site on land, the inter-tidal zone or underwater that addresses agreed research and/or conservation objectives. It consists of an analysis of existing written, graphic, photographic and electronic information in order to identify the likely heritage assets, their interests and significance and the character of the study area, including appropriate consideration of the settings of heritage….Significance is to be judged in a local, regional, national or international context as appropriate” (CIfA 2014, 4).

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

1. The regional Historic Environment Register ((HER) Gwynedd Archaeological Trust, Craig Beuno, Ffordd y Garth, Bangor, Gwynedd LL57 2RT) will be examined for information concerning the study area, defined as the two plots on Figure 01. This will include an examination of the core HER, the 1:2500 County Series Ordnance Survey maps and any secondary information held within the HER. All identified features will be mapped, described and added to a gazetteer of sites and the relative importance of any sites defined;
2. The National Monuments Record of Wales (Royal Commission on the Ancient and Historical Monuments of Wales, Plas Crug, Aberystwyth SY23 1NJ) will be checked for sites additional to the HER;
3. Aerial photographs from the National Monuments Record of Wales (Royal Commission on the Ancient and Historical Monuments of Wales, National Monuments Record of Wales, Plas Crug, Aberystwyth SY23 1NJ) will be examined for potential features;
4. On-line catalogue search of the National Library of Wales (Penglais Rd, Aberystwyth SY23 3BU);
5. Archive data, including primary and secondary sources, historic maps and estate maps will be examined at the regional archives (Archifau Ynys Môn / Anglesey Archives, Diwydiannol Bryncefni / Industrial Estate Rd, Llangefni LL77 7JA and Library). The examination of the archive data will include historic mapping including the local tithe map and schedule;

6. Light Detection and Ranging (LiDAR) data will be examined from the Lle Geo-Portal at http://lle.gov.wales/catalogue/item/lidarcompositedataset/?lang=en for information on potential surface features using digital terrain modelling and digital surface modelling;

3.2 Walkover Survey

A walkover survey will be undertaken that will incorporate the assessment area as detailed on Figure 01, incorporating the two designated plots. All known and new archaeological features on the ground will be located and described on GAT pro-formas; the sites will then be added to the overall gazetteer and their relative importance defined. The potential for sub-surface archaeology will be estimated and defined.

A photographic record will be maintained in RAW format using a digital SLR set to maximum resolution (Nikon D3000; resolution: 3,872 × 2,592 [10.2 effective megapixels]) and photographic metadata table will be completed and included in the report. Photographic images will be archived in TIFF format; the archive numbering system will start from G2584_001. A handheld GPS unit will also be used during the walkover survey

3.3 Gazetteer

A gazetteer will be compiled for any identified sites within and within proximity to the specified route based on information sourced from the regional HER; the gazetteer will include:

1. Feature Number
2. Site name
3. PRN number
4. Grid reference
5. Period
6. Site type
7. Assessment category
8. Description
9. Impact
10. Recommendation for further assessment/evaluation
11. Recommendation for mitigatory measures.

The following categories will be used to define the assessment category of the archaeological asset:

Category A - Sites of National Importance.

Scheduled 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. In this report several sites of unknown potential have been allocated to this category.

The impact of the proposed works on any asset will be identified using the following impact criteria, defined either as *none, slight, unlikely, likely, significant, considerable or unknown* as follows:

None:

There is no construction impact on this asset.

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 asset, *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 an asset affecting its overall integrity. Assets 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 an asset or its partial removal which would effectively destroy the remainder of the site.

Unknown:

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

3.4 Geophysical Survey

3.4.1 Summary

The geophysical survey will incorporate the two plots on Figure 01 and will be carried out in a series of 20m grids, which will be tied into the Ordnance Survey grid using a Trimble R8 high precision GPS system. The survey will be conducted using a Bartington Grad 601-2 dual fluxgate gradiometer with a 1.0m traverse interval and a 0.25m sample interval. The geophysical survey will be completed by *Eden Mapping* for GAT and will be undertaken from w/c 14/01/2019.

3.4.2 Instrumentation

The Bartington Grad 601-2 dual fluxgate gradiometer uses a pair of Grad-01-100 sensors. These are high stability fluxgate gradient sensors with a 1.0m separation between the sensing elements, giving a strong response to deeper anomalies. The instrument detects variations in the earth's magnetic field caused by the presence of iron in the soil. This is usually in the form of weakly magnetized iron oxides which tend to be concentrated in the topsoil. Features cut into the subsoil and backfilled or silted with topsoil, therefore contain greater amounts of iron and can therefore be detected with the gradiometer. This is a simplified description as there are other processes and materials which can produce detectable anomalies. The most obvious is the presence of pieces of iron in the soil or immediate environs which usually produce very high readings and can mask the relatively weak readings produced by variations in the soil. Strong readings are also produced by archaeological features such as hearths or kilns as fired clay acquires a permanent thermo-remnant magnetic field upon cooling. This material can also get spread into the soil leading to a more generalized magnetic enhancement around settlement sites. Not all surveys can produce good results as results can be masked by large magnetic variations in the bedrock or soil or high levels of natural background "noise" (interference consisting of random signals produced by material with in the soil). In some cases, there may be little variation between the topsoil and subsoil resulting in undetectable features. The Bartington Grad 601 is a hand held instrument and readings can be taken automatically as the operator walks at a constant speed along a series of fixed length traverses. The sensor consists of two vertically aligned fluxgates set 500mm apart. Their cores are driven in and out of magnetic saturation by a 1,000Hz alternating current passing through two opposing driver coils. As the cores come out of saturation, the external magnetic field can enter them producing an electrical pulse proportional to the field strength in a sensor coil. The high frequency of the detection cycle produces what is in effect a continuous output. The gradiometer can detect anomalies down

to a depth of approximately one meter. The magnetic variations are measured in nanoTeslas (nT). The earth's magnetic field strength is about 48,000 nT; typical archaeological features produce readings of below 15nT although burnt features and iron objects can result in changes of several hundred nT. The machine is capable of detecting changes as low as 0.1nT.

3.4.3 Data Collection

The gradiometer includes an on-board data-logger. Readings are taken along parallel traverses of one axis of a 20m x 20m grid. The traverse interval is 1.0m and readings are logged at intervals of 0.25m along each traverse. Marked guide ropes are used to ensure high positional accuracy during the high resolution survey. The data is transferred from the data-logger to a computer where it is compiled and processed using ArchaeoSurveyor2 software. The data is presented as a grey scale plot where data values are represented by modulation of the intensity of a grey scale within a rectangular area corresponding to the data collection point within the grid. This produces a plan view of the survey and allows subtle changes in the data to be displayed. This is supplemented by an interpretation diagram showing the main feature of the survey with reference numbers linking the anomalies to descriptions in the written report. It should be noted that the interpretation is based on the examination of the shape, scale and intensity of the anomaly and comparison to features found in previous surveys and excavations etc. In some cases the shape of an anomaly is sufficient to allow a definite interpretation e.g. a Roman fort. In other cases all that can be provided is the most likely interpretation. The survey will often detect several overlying phases of archaeological remains and it is not usually possible to distinguish between them. Weak and poorly defined anomalies are most 4 susceptible to misinterpretation due to the propensity of the human brain to define shapes and patterns in random background "noise". An assessment of the confidence of the interpretation is given in the text.

3.4.4 Data Processing

The data is presented with a minimum of processing although corrections are made to compensate for instrument drift and other data collection inconsistencies. High readings caused by stray pieces of iron, fences, etc. are usually modified on the grey scale plot as they have a tendency to compress the rest of the data. The data is however carefully examined before this procedure is carried out as kilns and other burnt features can produce similar readings. The data on some 'noisy' or very complex sites can benefit from 'smoothing'. Grey-scale plots are always somewhat pixellated due to the resolution of the survey. This at times makes it difficult to see less obvious anomalies. The readings in the plots can therefore be interpolated thus producing more but smaller pixels and a small

amount of smoothing based on a low pass filter can be applied. This reduces the perceived effects of background noise thus making anomalies easier to see. Any further processing is noted in relation to the individual plot.

3.4.5 Aims

The report will include a discussion of the grey scale plot and an interpretation of the any anomalies identified; these anomalies will be presented as either positive or negative, suggesting whether they could be cut features (ditches, pits etc.), or built sub-surface features (e.g., banks). Figures will be included for the grey scale plot and for the anomaly interpretation. The results of the geophysical survey will be used to inform further recommendations for archaeological evaluation and/or mitigation (if relevant).

3.5 Report compilation

Following completion of the stages outlined above, a report will be produced incorporating the following:

1. Front cover;
2. Inner cover;
3. Figures and Plates List;
4. Non-technical summary;
5. Introduction;
6. Methodology;
    i. Desk-based assessment;
    ii. Walkover survey;
    iii. Geophysical survey;
7. Results;
    a. Desk based assessment;
        i. Location and geological summary;
        ii. Statutory and non-statutory designations;
        iii. Environmental remains and soil morphology;
        iv. Historical and archaeological background;
        v. Cartographic evidence;
        vi. Artefact potential;
        vii. Aerial photographs and LiDAR;
    b. Gazetteer of features;
    c. Walkover survey;
    d. Geophysical survey;
8. Conclusions and recommendations;
    a. Conclusion;
    b. Table of sites and recommendations;
9. Acknowledgements;
10. Bibliography;
    a. Primary sources;
    b. Secondary sources;
11. Figures; inc.:
    - location plan;
    - historic mapping;
    - location plan with identified features;
    - grey scale plot;
    - anomaly identification and interpretation;
12. Appendix I (approved written scheme of investigation);
13. Appendix II (Sites listed on GAT Historic Environment Record);
14. Appendix III (Definition of mitigation terms);
15. Appendix IV Photographic metadata (walkover survey);

    Back cover.

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.

A full archive including plans, photographs, written material and any other material resulting from the project will be prepared. The archaeological assessment outlined in this written scheme of investigation will be submitted in draft format in February 2019; a final report will be submitted to the Historic Environment within six months of submitting the draft report (July 2019).

The following dissemination will apply:

- A paper report(s) plus digital report(s) will be provided to the client/consultant and GAPS (draft report then final report);

- A paper report plus a digital report will be provided to the regional Historic Environment Record, Gwynedd Archaeological Trust; this will be submitted within six months of project completion (final report only), along with any relevant, digital information such as the project database, GIS table(s) and photographs. All digital datasets submitted will conform to the required standards set out in *Guidance for the Submission of Data to the Welsh Historic Environment Records (HERs)* (Version 1.1);

- A digital report and archive (including photographic and drawn) data will be provided to Royal Commission on Ancient and Historic Monuments, Wales (final report only), in accordance with the *RCAHMW Guidelines for Digital Archives Version 1*. Digital information will include the photographic archive and associated metadata;

4 PERSONNEL

The project will be managed by John Roberts, Principal Archaeologist GAT Contracts Section. The assessment will be completed by a project archaeologist who will have responsibility for completing the desk based assessment, maintaining the site archive, liaising with GAPS and *Ynys Môn Council* and submitting the draft report and final report. The project manager will be responsible for reviewing and approving the report prior to submission.

5 INSURANCE

5.1 Public/Products Liability

Limit of Indemnity- £5,000,000 any one event in respect of Public Liability
INSURER Aviva Insurance Limited
POLICY TYPE Public Liability
POLICY NUMBER 24765101CHC/UN/000375
EXPIRY DATE 21/06/2019

5.2 Employers Liability

Limit of Indemnity- £10,000,000 any one occurrence.
The cover has been issued on the insurers standard policy form and is subject to their usual terms and conditions. A copy of the policy wording is available on request.
INSURER Aviva Insurance Limited
POLICY TYPE Employers Liability
POLICY NUMBER 24765101 CHC / UN/000375
EXPIRY DATE 21/06/2019

5.3 Professional Indemnity

Limit of Indemnity- £5,000,000 in respect of each and every claim
INSURER Hiscox Insurance Company Limited
POLICY TYPE Professional Indemnity
POLICY NUMBER 9446015
EXPIRY DATE 22/07/2019

6 SOURCES CONSULTED

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17. Smith, S. 2016 Cerbydau Gwynfor Coaches, Llangefni Ynys Môn. Gwynedd Archaeological Trust Report No. 1300.
18. Standard and Guidance for Archaeological Geophysical Survey (Chartered Institute for Archaeologists, 2014).
19. Standard and Guidance for Historic Environment Desk-Based Assessment (Chartered Institute for Archaeologists, 2014).

FIGURE 01

Location of assessment/evaluation area (outlined red) and local archaeological features; based on Ordnance Survey 1:10000 County Series Map Sheets SH47NE. Scale 1:10000 @ A4 © Crown Copyright. All Rights Reserved. Licence Number Al100020895.

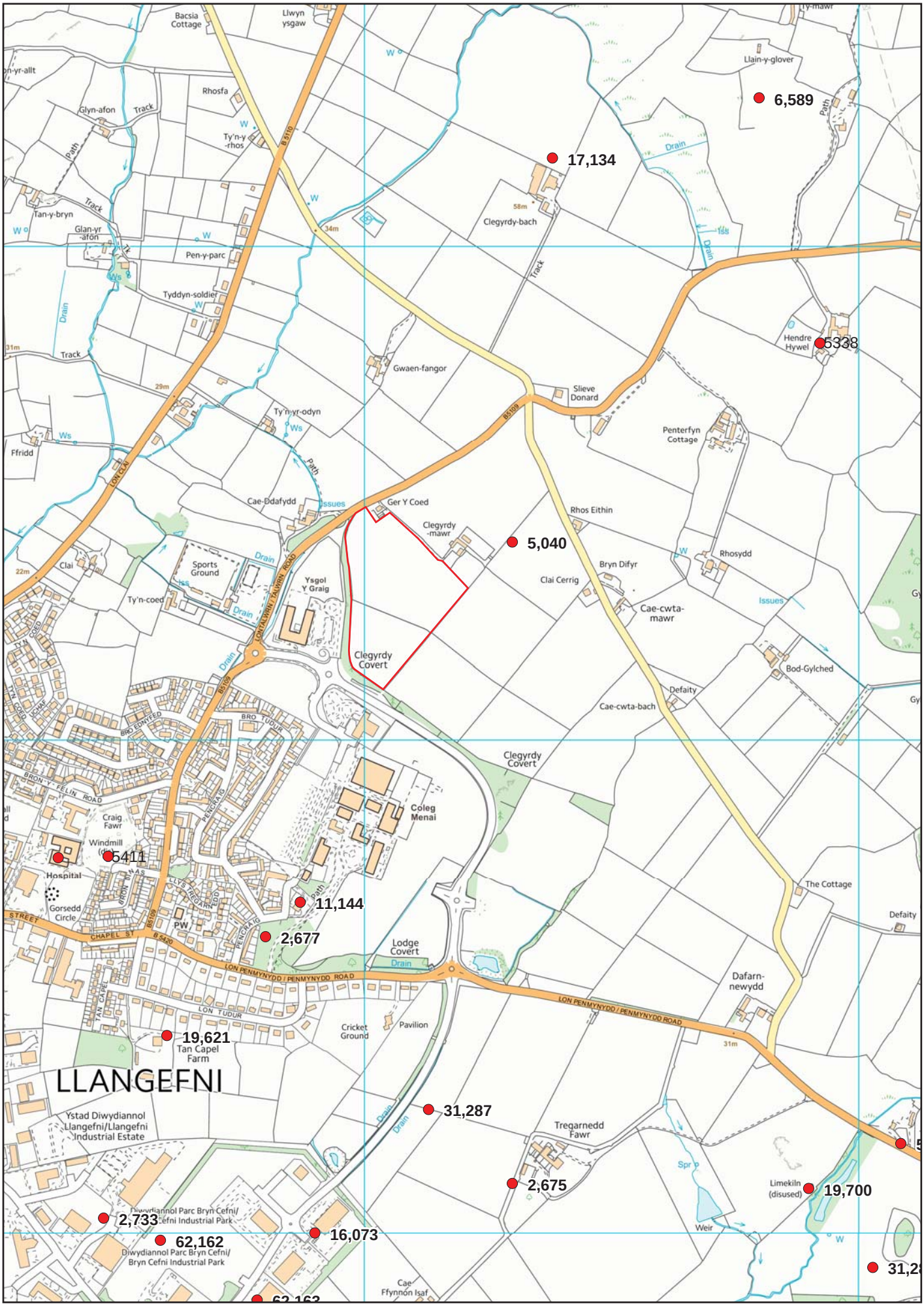

Figure 01: Location of assessment/evaluation area (outlined red) and local archaeological features; based on Ordnance Survey 1:10000 County Series Map Sheets SH47NE. Scale 1:10000 @ A4

FIGURE 02

Third Edition Ordnance Survey 1-inch to 25-mile County Series Map Sheets XIII.15, XIII.16, XVIII.3 and XVIII.4, published in 1920, with location of assessment/evaluation area outlined red. Scale: 1 to 10000@A4.

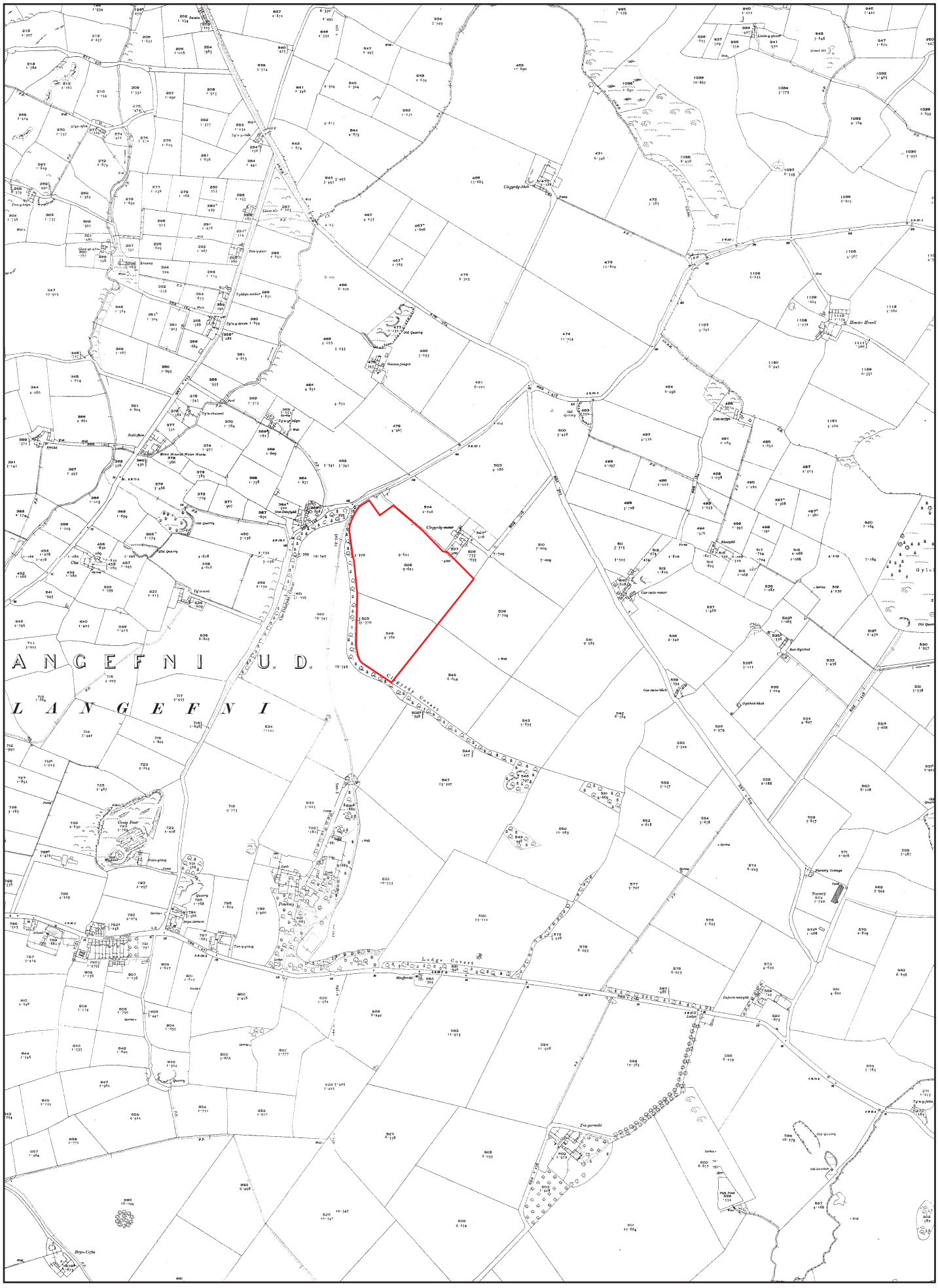

Figure 02: Third Edition Ordnance Survey 1-inch to 25-mile County Series Map Sheets XIII.15, XIII.16, XVIII.3 and XVIII.4, published in 1920, with location of assessment/evaluation area outlined red. Scale: 1 to 10000@A4.

APPENDIX II

Gwynedd Archaeological Trust Photographic Metadata

PRN*	PHOTO RECORD NUMBER*	PROJECT PHASE	NGR*	DESCRIPTION*	VIEW FROM	SCALE(S)	CREATOR OF DIGITAL PHOTO*	DATE OF CREATION OF DIGITAL PHOTO*	ORIGINATING ORGANISATION	PLATE
45353	G2584_001	Assessment	SJ16206450	View along clawdd/hedgerow field boundary 1	WNW	1x2m	Robert Evans	18/01/2019	Gwynedd Archaeological Trust	09
45353	G2584_002	Assessment	SJ16206450	General view of Field A	WSW	not used	Robert Evans	18/01/2019	Gwynedd Archaeological Trust	
45353	G2584_003	Assessment	SJ16206451	General view of Field B	NW	not used	Robert Evans	18/01/2019	Gwynedd Archaeological Trust	
45353	G2584_004	Assessment	SJ16206452	General view of Field B	W	not used	Robert Evans	18/01/2019	Gwynedd Archaeological Trust	
45353	G2584_005	Assessment	SJ16206453	General view of Field A from the southeast	SE	1x2m	Robert Evans	18/01/2019	Gwynedd Archaeological Trust	
45353	G2584_006	Assessment	SJ16206454	General view of Field A	NW	1x2m	Robert Evans	18/01/2019	Gwynedd Archaeological Trust	
45353	G2584_007	Assessment	SJ16206455	View of Field A from Clegyrdy Mawr	NW	1x2m	Robert Evans	18/01/2019	Gwynedd Archaeological Trust	
45353	G2584_008	Assessment	SJ16206456	View of Clegyrdy Mawr from Clawdd 1	SW	1x2m	Robert Evans	18/01/2019	Gwynedd Archaeological Trust	01

PRN*	PHOTO RECORD NUMBER*	PROJECT PHASE	NGR*	DESCRIPTION*	VIEW FROM	SCALE(S)	CREATOR OF DIGITAL PHOTO*	DATE OF CREATION OF DIGITAL PHOTO*	ORIGINATING ORGANISATION	PLATE
45353	G2584_009	Assessment	SJ16206457	View along clawdd/hedgerow field boundary 2 along the southeast boudnary of the study area	NE	1x2m	Robert Evans	18/01/2019	Gwynedd Archaeological Trust	02
45353	G2584_010	Assessment	SJ16206458	View along clawdd/hedgerow field boundary 2 along the southeast boudnary of the study area	SW	1x2m	Robert Evans	18/01/2019	Gwynedd Archaeological Trust	
45353	G2584_011	Assessment	SJ16206459	View of clawdd/hedgerow 1	ESE	1x2m	Robert Evans	18/01/2019	Gwynedd Archaeological Trust	10
45353	G2584_012	Assessment	SJ16206460	View of clawdd/hedgerow 2	SW	1x2m	Robert Evans	18/01/2019	Gwynedd Archaeological Trust	11
45353	G2584_013	Assessment	SJ16206461	View of modern bar gate providing access from Field A to Field B, with stone ground stabilisation in the foreground	NNW	1x2m	Robert Evans	18/01/2019	Gwynedd Archaeological Trust	07

PRN*	PHOTO RECORD NUMBER*	PROJECT PHASE	NGR*	DESCRIPTION*	VIEW FROM	SCALE(S)	CREATOR OF DIGITAL PHOTO*	DATE OF CREATION OF DIGITAL PHOTO*	ORIGINATING ORGANISATION	PLATE
45353	G2584_014	Assessment	SJ16206462	View of northern portion of Field A	S	1x2m	Robert Evans	18/01/2019	Gwynedd Archaeological Trust	05
45353	G2584_015	Assessment	SJ16206463	View along western boudnary of Field A, showing overgrown Clawdd 4 and Ger-y-Coed	S	1x2m	Robert Evans	18/01/2019	Gwynedd Archaeological Trust	
45353	G2584_016	Assessment	SJ16206464	Elevation view of Clawdd 4	ESE	1x2m	Robert Evans	18/01/2019	Gwynedd Archaeological Trust	04
45353	G2584_017	Assessment	SJ16206465	View of Ger-y-Coed, showing clawdd/walling cut through by new property boundary	W	1x2m	Robert Evans	18/01/2019	Gwynedd Archaeological Trust	
45353	G2584_018	Assessment	SJ16206466	View of Ger-y-Coed, showing clawdd/walling cut through by new property boundary	SSE	1x2m	Robert Evans	18/01/2019	Gwynedd Archaeological Trust	

PRN*	PHOTO RECORD NUMBER*	PROJECT PHASE	NGR*	DESCRIPTION*	VIEW FROM	SCALE(S)	CREATOR OF DIGITAL PHOTO*	DATE OF CREATION OF DIGITAL PHOTO*	ORIGINATING ORGANISATION	PLATE
45353	G2584_019	Assessment	SJ16206467	View of minor access track into Field A. This was a former entrance route to Clegyrdy Mawr	SE	1x2m	Robert Evans	18/01/2019	Gwynedd Archaeological Trust	08
45353	G2584_020	Assessment	SJ16206468	View along minor track to Clegyrdy Mawr showing Clawdd/Hedgerow 3	NW	1x2m	Robert Evans	18/01/2019	Gwynedd Archaeological Trust	
45353	G2584_021	Assessment	SJ16206469	View from the minor access track (former route to Clegyrdy Mawr) across Field A	N	1x2m	Robert Evans	18/01/2019	Gwynedd Archaeological Trust	
45353	G2584_022	Assessment	SJ16206470	General view towards Ger y Coed from the gateway in Clawdd 1	S	not used	Robert Evans	18/01/2019	Gwynedd Archaeological Trust	
45353	G2584_023	Assessment	SJ16206471	General view of Field B	NNW	1x2m	Robert Evans	18/01/2019	Gwynedd Archaeological Trust	
45353	G2584_024	Assessment	SJ16206472	General view of Field B	SSE	1x2m	Robert Evans	18/01/2019	Gwynedd Archaeological Trust	

PRN*	PHOTO RECORD NUMBER*	PROJECT PHASE	NGR*	DESCRIPTION*	VIEW FROM	SCALE(S)	CREATOR OF DIGITAL PHOTO*	DATE OF CREATION OF DIGITAL PHOTO*	ORIGINATING ORGANISATION	PLATE
45353	G2584_025	Assessment	SJ16206473	View of southern end of Clawdd/Drystone wall 4 in Field B	N	1x2m	Robert Evans	18/01/2019	Gwynedd Archaeological Trust	13
45353	G2584_026	Assessment	SJ16206474	View looking north of Clawdd 4 in Field B	S	1x2m	Robert Evans	18/01/2019	Gwynedd Archaeological Trust	
45353	G2584_027	Assessment	SJ16206475	View of Drystone Walling 5	ESE	1x2m	Robert Evans	18/01/2019	Gwynedd Archaeological Trust	14
45353	G2584_028	Assessment	SJ16206476	View along southeast boundary (Clawdd 2) in Field B showing area of plantation to the south of field	NE	1x2m	Robert Evans	18/01/2019	Gwynedd Archaeological Trust	
45353	G2584_029	Assessment	SJ16206477	View along southeast boundary (Clawdd 2) in Field B	SW	1x2m	Robert Evans	18/01/2019	Gwynedd Archaeological Trust	03
45353	G2584_030	Assessment	SJ16206478	View of modern tree plantation to the south of Field B	WSW	1x2m	Robert Evans	18/01/2019	Gwynedd Archaeological Trust	06

PRN*	PHOTO RECORD NUMBER*	PROJECT PHASE	NGR*	DESCRIPTION*	VIEW FROM	SCALE(S)	CREATOR OF DIGITAL PHOTO*	DATE OF CREATION OF DIGITAL PHOTO*	ORIGINATING ORGANISATION	PLATE
45353	G2584_031	Assessment	SJ16206479	General view of the southern part of Field B showing the specimen trees in the woods beyond	NE	1x2m	Robert Evans	18/01/2019	Gwynedd Archaeological Trust	
45353	G2584_032	Assessment	SJ16206480	Genenral shot towards Clegyrdy Mawr from the southern point of the study area	S	not used	Robert Evans	18/01/2019	Gwynedd Archaeological Trust	
45353	G2584_033	Assessment	SJ16206481	General view of Field B	ENE	not used	Robert Evans	18/01/2019	Gwynedd Archaeological Trust	
45353	G2584_034	Assessment	SJ16206482	General view towards Ger y Coed from the gateway in Clawdd 1	SE	not used	Robert Evans	18/01/2019	Gwynedd Archaeological Trust	12

APPENDIX III

Reproduction of Eden Mapping report GAT-19-YNL, January 2019

Ysgol, Newydd
Llangefni

Geophysical Survey

PN: GAT-19-YSL

January 2019

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Ysgol, Newydd
Llangefni

Geophysical Survey

January 2019

Project reference	**GAT-19-YSL**
On behalf of	**Gwynedd Archaeological Trust**
GAT reference	**G2584_Ysgol_Newydd_Llangefni**
Report prepared by	**Nigel Barker BA, MA**

1 Contents

CAD Drawings: GAT-19-YSL

- Drawing GAT-19-YSL.01 (A3) Site Location & Survey Extents
- Drawing GAT-19-YSL.02 (A1) 1:800 Processed Greyscale Gradiometer Data
- Drawing GAT-19-YSL.03 (A1) 1:800 Gradiometer X-Y Trace Plot
- Drawing GAT-19-YSL.04 (A1) 1:800 Interpretation Drawing

2 Summary

This report presents the results of a geophysical survey undertaken on land located at Llangefni, Anglesey on behalf of Gwynedd Archaeological Trust.

The detailed magnetic survey covered approximately five hectares and detected a series of magnetic linear anomalies likely to be associated with former field boundaries and trackways. A possible sunken trackway was also identified running parallel to one of the former field boundaries.

A mix of weak linear, angled and curvilinear anomalies were present within the data that could pre-date the former field boundaries. Most are fragmented, possibly from subsequent plough activity but could be of archaeological significance.

Additional anomalies of varying strength were detected, however given their context it is not possible to determine if they are archaeological or natural.

Evidence of possible ridge and furrow cultivation was also identified within the survey area.

The categorisation of anomalies as 'probable' are determined by the confidence of the anomaly either by morphology or that they relate to known features documented by other sources. Anomalies defined as 'possible' tend to be more spurious and are not supported by other data sources.

3 Introduction

A geophysical survey was commissioned by Gwynedd Archaeological Trust on land located to the northeast of Llangefni, Anglesey (NGR SH 2471 3763). The purpose of the survey was to determine the presence of any archaeological potential within an area proposed for development.

3.1 Location and land use

The survey area measured approximately 5 hectares in total and comprised two fields used as pasture. The location and survey area are shown in drawing GAT-19-YSL.01. Field A measured approximately 1.5 hectares in area and was found to be relatively level topographically. It was bounded by post and wire fencing and was accessed by metallic gates. Field B is located north of Field A and measured approximately 3.5 hectares in area. The eastern corner of Field B was at a higher elevation than Field A and sloped down to the west. The field was bounded by post and wire fencing and was accessed by metallic gates. A mass of tipped materials was positioned in the northeast of Field B as well as a metallic water trough and an animal pen.

3.2 Site history

A desktop study was not available at the time of the survey.

3.3 Geology and soils

The solid geology of the site is believed to be comprised of Lligwy Sandstone Formation (LGY) in the southwest and Clwyd Limestone Group (CLWYD) in the remainder of the survey area. The superficial deposits are believed to be Devensian Till (TILLD). (British Geological Survey: online: 2019).

3.4 Dates and additional information

The magnetic survey was undertaken on 14th January 2019, under mixed weather conditions.

4 Field Methodology

4.1 Geomatic referencing

The data was collected over 20m x 20m survey grids that were initially drafted in CAD software and overlain onto a digital Ordnance Survey Land-Line tile. The grid was uploaded to a Trimble R10 GPS system to enable the accurate setting out of the co-ordinates in the field. Non-magnetic surface flags were used to define the corner points of the grid and incremented trapeze ropes for heading and positional markers.

4.2 Magnetic survey

A detailed magnetic survey was undertaken to identify the presence and extent of anomalies with an enhanced magnetic susceptibility, such as ditches, pits, field systems and paleochannels. Fired structures such as hearths, kilns and ovens as well as any buried ferrous metals would also be detected using this technique.

4.2.1.1 Instrumentation

A Bartington 601-2 Fluxgate Gradiometer was used to collect the data.

4.2.1.2 Data Collection

The instrument was balanced in a magnetically stable area located within the centre of Field-A and was checked and rebalanced using this point throughout the duration of the survey. The data was collected over the pre-determined grid using trapeze ropes, with readings taken at 0.25m increments spaced on 1m traverses in a zig-zag pattern. The instrument sensitivity was set at 0.1nT.

4.2.1.3 Post-processing

The data collected by the instrument was imported into TerraSurveyor software. Processing was kept to a minimum to prevent the creation of artificial artefacts within the data and was restricted to:

- De-stripe - applied to compensate for a slight drift that sometimes occurs between the two sensors (<2nT).
- De-stagger – applied to compensate for heading errors caused when data is collected using zig-zag traverses.

4.2.1.4 Data presentation

The processed greyscale data was clipped at a level deemed appropriate to best show any possible archaeology and was presented as a 1:800 greyscale plot in drawing GAT-19-YSL.02 and as a 1:800 X-Y trace plot in drawing GAT-19-YSL.03.

5 Results

The interpretation of the magnetic data is shown in drawing GAT-19-YSL.04.

5.1 Areas of magnetic disturbance

Dipolar magnetic anomalies are strong positive-negative responses that indicate the presence of surface or near surface ferrous objects or fired materials.

Magnetic disturbance can be seen to dominate the perimeter of the gradiometer data sets and is likely to be the response from the post and wire fencing that bounded the two fields. Concentrated areas of magnetic disturbance are also present in the northeast and far northwest corners of Field B and correspond to the accumulation of tipped materials and general magnetic surface features associated with the farm in the northeast and the private dwelling in the far northwest.

Two strong magnetic responses have been identified and labelled as anomalies **A** on the drawing. Both have high values and are isolated from any surface magnetic influences. It is possible that the anomalies could be associated with former infrastructure such as telegraph or electricity poles as they are not readily associated with any archaeological features.

Numerous isolated dipolar spikes were evident within the survey area. They were identified using the X-Y trace plots and are likely to correspond to surface or near-surface ferrous materials such as nails, shotgun cartridges etc. and have high magnetic values. It is possible

that the iron spikes could correspond to buried material culture when located adjacent to known archaeological features. Only the larger spikes have been shown on the interpretation drawing.

5.2 *Positive magnetic anomalies*

Positive magnetic anomalies are indicative of an enhanced magnetic field gradient and can be associated with archaeological soil filled features such as cut ditches or pits.

A network of clear linear anomalies was identified from the gradiometer data that are likely to be the sub-surface remnants of former field boundaries. For the most part they comprise a single magnetic signature flanked by an adjacent negative response. Anomaly **B** in the east of Field B differs as it comprises two long parallel linear anomalies and could either represent a former field boundary or a trackway.

A series of several broad parallel linear anomalies **(C)** were identified in the east of Field A and in the north of Field B. The wide spacing of the anomalies could be evidence of former ridge and furrow cultivation. Elsewhere within the former field boundaries there is evidence of regularly spaced, weaker linear anomalies that are probably indicative of later agricultural activity.

Several magnetically enhanced pit-like features **(D)** are positioned in the southeast and centre of Field A. They are irregular in shape and vary between 5nT and 25nT in strength. Unfortunately, their context within the field and to other anomalies provides uncertainty in their identification as either natural or archaeological features.

Elsewhere, additional isolated magnetic enhancements were detected within both fields. Field B can be seen to have a more heterogenous background response that Field A. The increased spread of isolated magnetic enhancements in Field B could possibly be caused by a change in the underlying geology. The selected anomalies have low, broad magnetic values, identified on the drawing using the raw X-Y trace plots. The sample is not exhaustive and such anomalies could be considered to be archaeological when associated with features of known human agency however, it is more likely that they represent variations within the underlying geology or deeply buried ferrous metal / burnt materials.

5.3 *Weak positive magnetic anomalies*

Several long linear anomalies have been identified within both fields that are substantially weaker than those of the former field boundaries and are not readily associated with them. It is therefore possible that they could be of archaeological interest.

Short angled and curvilinear anomalies **(E)** are also present in the north of Field B. Although fragmented, it is possible that they could be of archaeological significance. Similarly, anomaly **F** is a weak, small circular response located in Field A. If this is of archaeological origin, then it can be assumed to predate the former field boundary that intersects it. Weak linear anomalies **(G)** are also evident running across the south of Field A in an east-west orientation. From the data and their context, it is unclear if they are a product of human agency or of natural origin.

5.4 Negative magnetic anomalies

Anomaly **H** is located in the north of Field A. It comprises two broad negative responses running in an east-west orientation with magnetically enhanced material between them. It is possible that this could relate to a cut feature such as a former sunken trackway as it runs parallel to the former field boundary and is therefore less likely to be of a natural origin.

6 Conclusions

The geophysical survey has identified a series of magnetic anomalies that are likely to be associated with former field boundaries and trackways that once segmented the fields. A possible sunken trackway was also evident in Field A. The anomaly runs parallel to one of the former field boundaries and is therefore likely to be evidence of human agency rather than a natural feature such as a paleochannel.

A mix of weak anomalies were present within the data that could pre-date the former field boundaries. Most are fragmented possibly due to subsequent plough activity but could be of archaeological significance, especially those located in Field B.

Evidence of possible ridge and furrow cultivation was also identified within the survey area and are defined by broad parallel linear anomalies. The strength of the positive polarity of those evident in Field A suggests that they could be also be field drainage, however, if they were, one would expect them to appear consistently across the field rather in isolation.

Additional anomalies of varying magnetic enhancement were also present, including linear features as well as clusters of small soil filled features. However, it is not possible to determine if they are of archaeological or natural origin from their shape or context.

Numerous isolated magnetic enhancements as well as isolated dipolar spikes were identified using the raw X-Y trace plots. The magnetic enhancements could be archaeological when associated with known anthropogenic features; however, they could also be from variations in the underlying geology or deeply buried ferrous metal / burnt materials. The frequency of the magnetic enhancements was high, especially within field B and are more likely to originate from the underlying geology. The dipolar spikes have high magnetic values and usually correspond to surface or near-surface ferrous materials or burnt materials but could be of significance if associated with known archaeological features.

Appendix

7 Detailed Magnetic Survey

7.1 Theory

A detailed magnetic survey involves the detection of small variations in the Earth's magnetic field to locate buried anomalies associated with human activity. Usually, the topsoil will contain an increased amount of ferrous minerals than that of the sub-soil, caused by a complex fermentation effect and therefore a higher magnetic susceptibility in non-igneous geologies. The action of digging a ditch or excavating a floor can expose the sub-soil layer that can be filled with debris or topsoil as they are in-filled or silted up. The features will then be magnetically enhanced in comparison to the sub-soil. The strength of the anomaly detected by the instrumentation is largely dependent upon the measurable contrast between the buried feature and the surrounding material.

In addition, the action of heating weakly magnetic compounds will convert them to oxides that are demagnetised as they reach their relative Curie temperatures. When cooled they become permanently magnetised and aligned with the geomagnetic field present at the time of heating, which is generally greater than the ground that has not been exposed to the high temperatures. This process is referred to as thermoremanence and can be indicative of human activity as kilns, ovens, hearths, and destructive burning will all leave a magnetic signature within the subsurface.

7.2 Instrumentation

Fluxgate gradiometer instruments are commonly used for magnetic surveys. They have two vertically positioned sensors that have a separation of between 0.5m – 1.0m. Both sensors measure the Earth's magnetic field, but the bottom sensor will be affected by local variations in the field created by weakly magnetised buried features. To determine the strength of the buried anomaly, the value of the top sensor is removed from the value of the bottom sensor. This is the magnetic gradient and is measured in nanoteslas (nT). The readings are instant and shown in real-time on a display built into the instrument, and can also be stored in an internal logger. Eden Mapping will use either a Bartington Grad 601-2 fluxgate gradiometer or a Geoscan FM256 fluxgate gradiometer to undertake magnetic surveys.

7.3 Survey Method

An orthogonal grid system is used for the gradiometer survey and is established using either a 1-person robotic total station or a GPS instrument. For surveys covering large areas, the grid will be drawn in CAD software and overlain onto Ordnance Survey digital data to be used as a backcloth for the co-ordinates. The co-ordinates can then be transferred to the survey instrument prior to arrival on site. For small areas, a local grid can be established on site to ensure a best fit. If a local grid is used then survey stakes will be established around the perimeter of the survey area. This will ensure that the co-ordinates of any detected anomalies can be easily targeted at a later date.

Each grid square will measure either 20m or 30m. The size used is dependent upon the size and shape of the survey area. Trapeze ropes are used by the operator as a reference for both positioning and heading.

A base point with a stable magnetic background will be established either within the survey area or external to it dependent upon ground conditions. The instrument will be balanced from this point and checked regularly for drift. Readings will be taken using the 0.1nT range every 0.25m over 1m traverses.

The data from the instrument will be downloaded during a midday interval and at the end of the shift to monitor quality and the progress of the survey. The data will be post-processed in bespoke software to produce a greyscale interpretation of the readings. An X-Y trace map is also produced to aid interpretation. The maps are imported into CAD software as raster images for the production of interpretation and data presentation drawings. A report will also be produced to accompany the drawing.

7.4 Limitations

The success of a magnetic survey detecting archaeological features is dependent upon a measurable contrast between the anomaly and the surrounding ground. The presence of made ground, ferrous materials and burnt materials can all produce strong responses that can mask the presence of buried archaeological features. It is therefore not possible to guarantee that all sub-surface features will be identified by a geophysical survey.

Surface features such as buildings, metallic fencing, vehicles, electricity pylons and wind turbines can also have an impact on the magnetic data due to the sensitivity of the instrumentation. An attempt can be made to remove the magnetic disturbance by post-processing the data in bespoke software, but this cannot reliably be used to detect underlying anomalies and could create false artefacts within the data itself.

Natural sub-surface processes can also produce anomalies that may be mistaken for archaeological features, such as fluvial deposits or the accumulation of sediments in areas prone to flooding. Alternatively, igneous geologies can make it difficult to detect cut features in the sub-surface as there is minimal contrast between the topsoil and sub-soil.

The quality of the data is also reliant upon the operator of the instrument. The data is collected at normal walking pace, therefore it is advantageous to the ground surface to be even and unobstructed. Overgrown land, roughly ploughed fields and heavily saturated ground can all affect the pace of the operator and movement of the instrument sensors that, in turn can produce heading errors and false artefacts in the data. In some instances, it may not be possible to undertake the survey until ground conditions are more favourable. Generally, gradiometer sensors can identify anomalies at a depth of approximately 1.0m dependent upon the strength of the buried feature. Beyond this depth, only large accumulations of thermoremanent materials or ferrous metal will be detected.

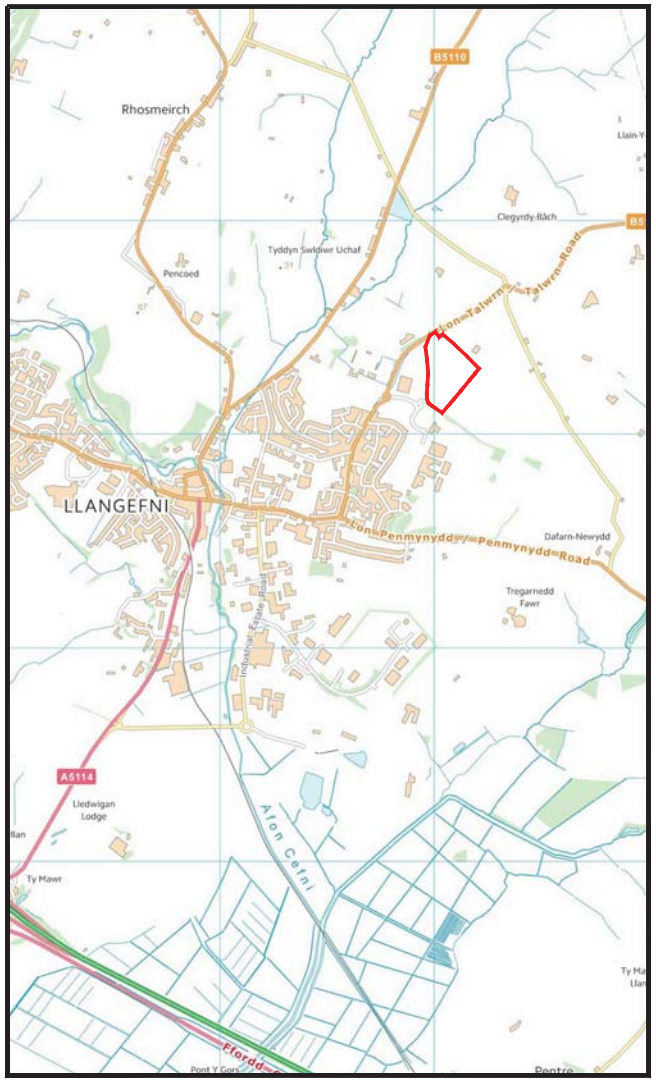
8 References

Historic England (English Heritage) Geophysical Survey in Archaeological Field Evaluation. Research and Professional Services Guideline #1.

Institute of Field Archaeologists: IFA Paper No 6, The use of geophysical techniques in archaeological evaluations.

Charted Institute of Archaeologists: Standard and Guidance for Archaeological Geophysical Survey.

British Geological Survey (online) mapapps.bgs.ac.uk/geologyofbritain/home.html



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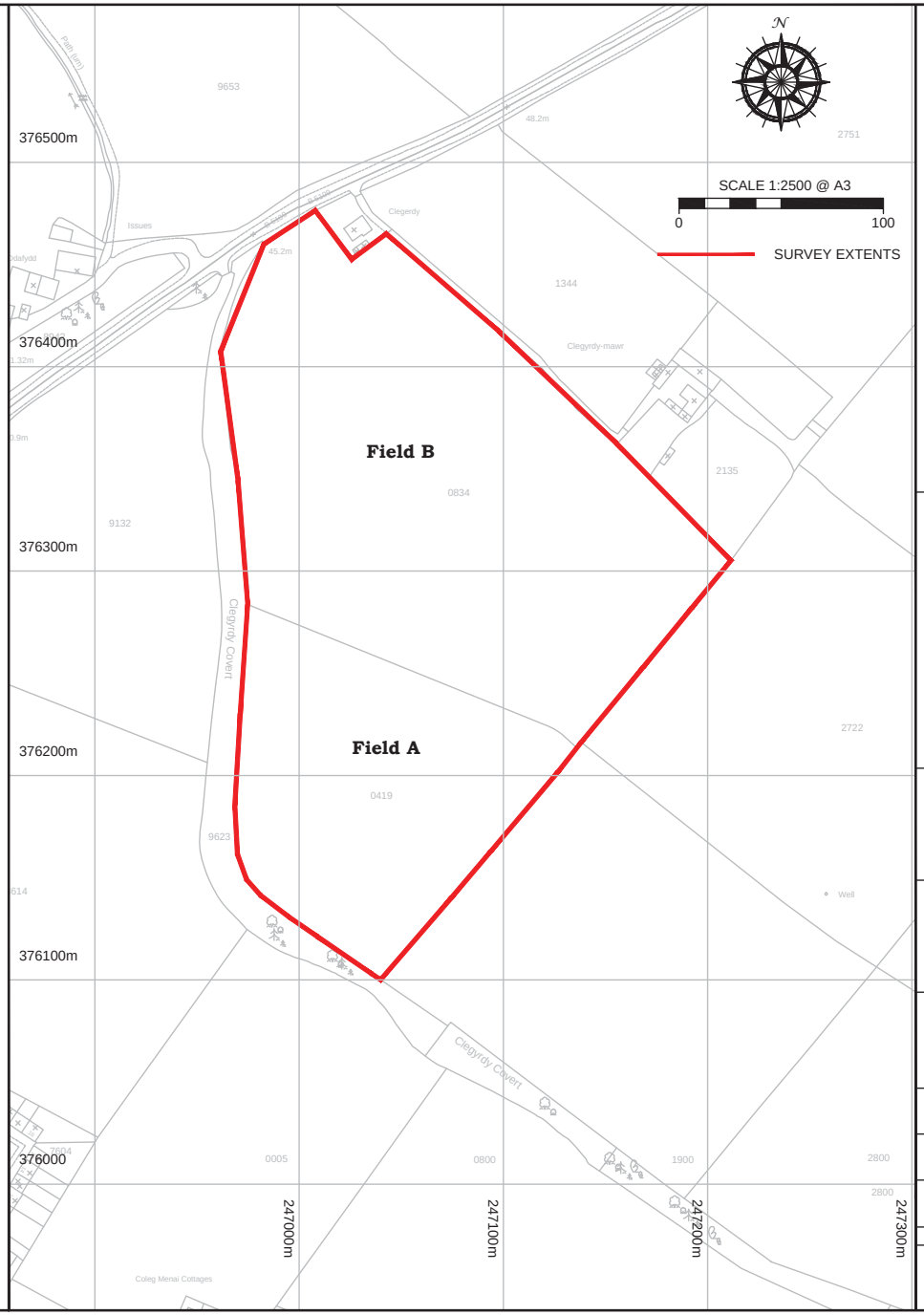

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Client Name

Gwynedd Archaeological Trust

Job Title

Ysgol, Newydd,
Llangefni

Drawing Title

Site Location & Survey Extents

Scale	As Shown	Drawn	NB
Date	17/01/19	Approved	AP

Revision	Amendments		By	Checked

Project Number	Drawing No.	Revision	Status
GAT-19-YNL	01	-	Final

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Eden Mapping

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SR6 0AN
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W: www.eden-mapping.co.uk

Client Name: Gwynedd Archaeological Trust

Job Title: Ysgol, Newydd, Llangefni

Drawing Title: Processed Greyscale Gradiometer Data

Scale	1:800 @ A1	Drawn	NB
Date	17/01/19	Approved	AP

Revision	Amendments	By	Checked

Project Number	Drawing No.	Revision	Status
GAT-19-YNL	02	-	Final

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W: www.eden-mapping.co.uk

Client Name: Gwynedd Archaeological Trust

Job Title: Ysgol, Newydd, Llangefni

Drawing Title: Gradiometer X-Y Trace Plot

Scale	1:800 @ A1	Drawn	NB
Date	17/01/19	Approved	AP

Revision	Amendments	By	Checked

Project Number	Drawing No.	Revision	Status
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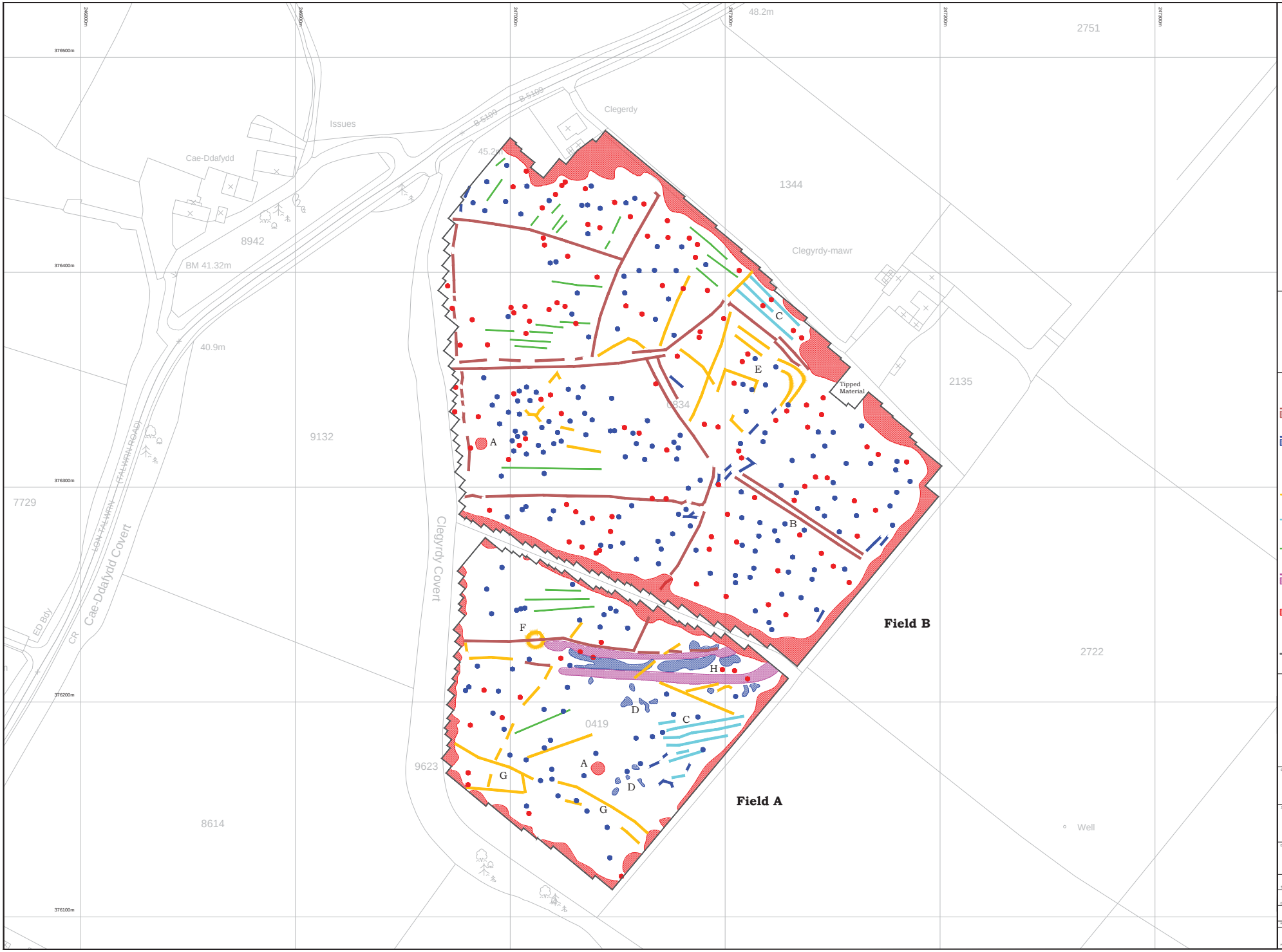

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W: www.eden-mapping.co.uk

Client Name: Gwynedd Archaeological Trust

Job Title: Ysgol, Newydd, Llangefni

Drawing Title: Interpretation

Scale	1:800 @ A1	Drawn	NB
Date	17/01/19	Approved	AP

Project Number	Drawing No.	Revision	Status
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