CPAT Report No. 1909

Carrog Battery Storage, Cemaes, Anglesey

Archaeological Geophysical Survey

YMDDIRIEDOLAETH ARCHAEOLEGOL CLWYD-POWYS
CLWYD-POWYS ARCHAEOLOGICAL TRUST

Client name:	Boom Developments
CPAT Project No:	2656
Project Name:	Carrog Battery Storage, Cemaes Bay
Grid Reference:	SH3761592230
County/LPA:	Isle of Anglesey
CPAT Report No:	1909
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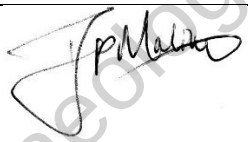
Prepared by:	**Checked by:**	**Approved by:**
		
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17/11/22	21/11/22	30/11/22

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The Clwyd-Powys Archaeological Trust is a Registered Organisation
with the Chartered Institute for Archaeologists

CONTENTS

Summary

Between October and November 2022, a geophysical survey was undertaken by the Clwyd Powys Archaeological Trust on behalf of Boom Developments Ltd, in connection with a proposed battery storage installation. The survey has identified one feature which is of high importance as well as six features of medium importance that require further consideration. The development is located within an area of known prehistoric activity, and therefore is likely to be reflective of the prehistoric landscape of Cemaes.

The most notable feature is a clearly defined oval enclosure with adjacent field systems, the former likely dating to the Bronze Age or Iron Age, the latter more broadly prehistoric to Romano-British. The northern and southern fields also produced features that may form smaller oval enclosures or ring ditches, possibly associated with a nearby barrow cemetery.

Other features have included possible burnt mounds, linear features which are probable modern drainage, and a zone of disturbance near Carrog farm.

Crynodeb

Rhwng mis Hydref a mis Tachwedd 2022, bu Ymddiriedolaeth Archaeolegol Clwyd-Powys yn gwneud arolwg geoffisegol ar ran Boom Developments Ltd, mewn cysylltiad â gwaith arfaethedig i osod storfa batri. Mae'r arolwg wedi nodi un nodwedd sy'n hynod bwysig yn ogystal â chwe nodwedd o bwysigrwydd canolig sy'n galw am ystyriaeth bellach. Mae'r datblygiad o fewn ardal o weithgarwch cynhanesyddol hysbys, ac felly mae'n debygol ei bod yn adlewyrchu tirwedd gynhanesyddol Cemaes.

Lloc hirgrwn clir ei ddiffiniad gyda chyfundrefnau caeau cyfagos yw'r nodwedd fwyaf hynod. Mae'r lloc ei hun yn dyddio o'r Oes Efydd neu'r Oes Haearn, mae'n debyg, ac mae'r caeau'n fwy bras o'r cyfnod cynhanesyddol i'r cyfnod Rhufeinig-Brydeinig. Cynhyrchodd y caeau gogleddol a deheuol nodweddion hefyd a allai fod yn llociau hirgrwn llai neu'n ffosydd cylch, o bosibl yn gysylltiedig â mynwent crugiau gerllaw.

Mae nodweddion eraill hefyd wedi cynnwys twmpathau wedi'u llosgi o bosibl, nodweddion llinellol o ganlyniad i system ddraenio fodern mae'n debyg a pharth lle bu aflonyddu ger fferm Carrog.

1 Introduction

1.1. The Clwyd-Powys Archaeological Trust (CPAT) were commissioned by Boom Developments Ltd to conduct a geophysical survey in connection with a proposed battery storage installation and solar farm at Carrog Farm, Cemaes Bay, Anglesey (SH3761592230) (Figure 1).

1.2. The geophysical survey was undertaken over an area of 12 hectares divided between three fields and was comprised of standard-resolution magnetic gradiometery. The survey was conducted in accordance with the nationally recognised standards laid out in 'Geophysical survey in archaeological field evaluation' by David and Linford (2008) and the Chartered Institute for Archaeology's *Standard and Guidance for Archaeological Geophysical Survey* (2014).

Geology and topography

1.3. The survey area consists of three medium sized pastoral fields totalling c.18ha, enclosed with mixed hedge and fence boundaries, with a coppice and river forming the eastern boundary. The northernmost field is steep with a fall towards the east that had been freshly ploughed and rolled at the time of the survey. The middle field is divided by a steep-sided former ravine. The low-lying areas of the field adjacent to the river were very waterlogged at the time of the survey, with significant pitting resulting from cattle movement. The southern field is relatively flat with a slight fall towards the south and southeast.

1.4. The geological conditions of the site consist of New Harbour Group Mica schist and psammite bedrock with an east-west orientated seam of igneous Jasper bedrock crossing field 2, formed between 635 and 541 million years ago during the Ediacaran period. The drift geology consists of glacial till with a band of alluvium forming the site's eastern boundary.

1.5. Glacial till is known to give good results over Jurassic clays and metamorphic bedrocks, however, the potential for igneous intrusions sometimes found in Anglesey can be highly problematic when using gradiometry.

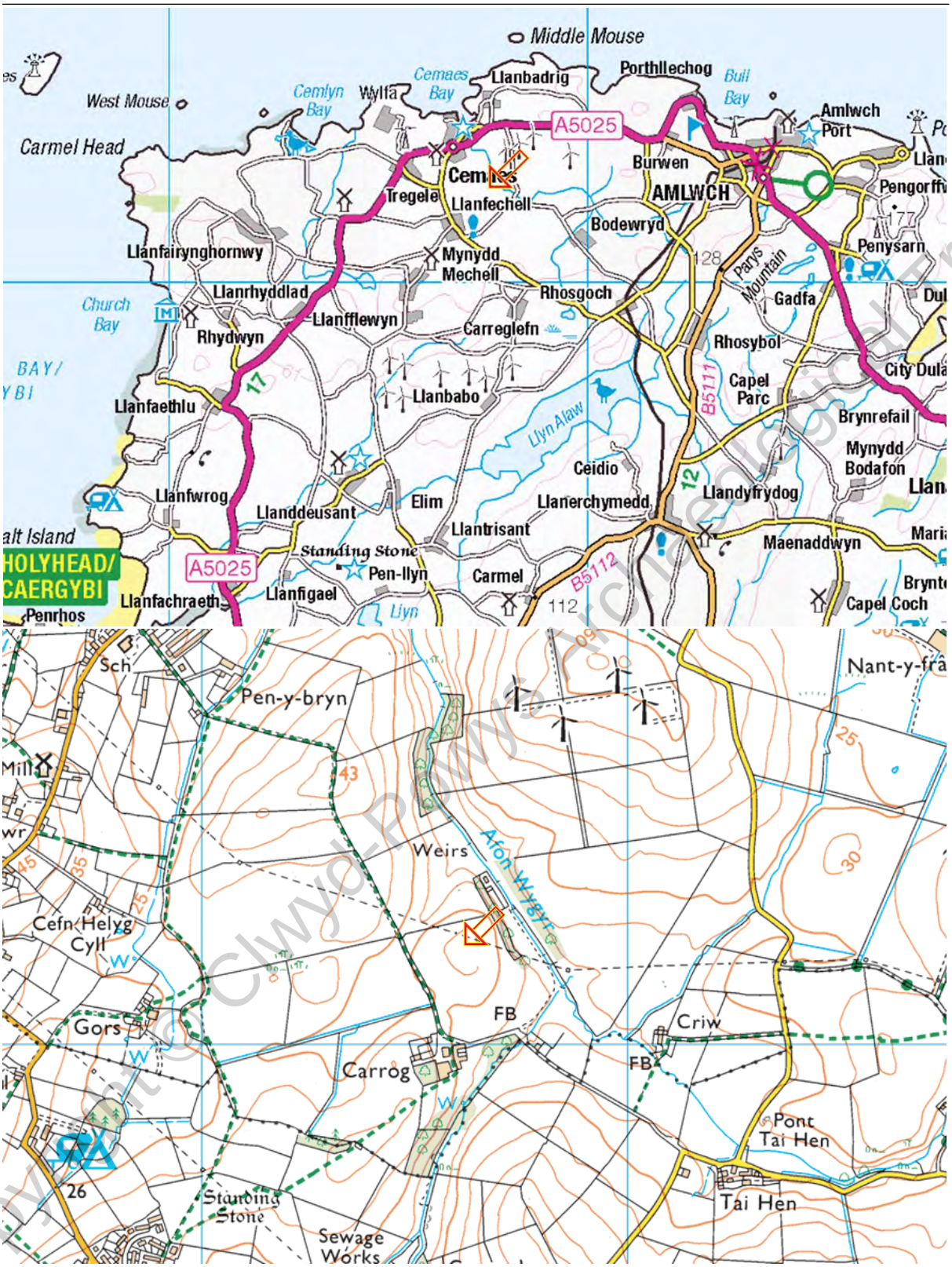

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Fig. 1 Location of survey

2 Historical Background

Fig. 2 1845 tithe map for the parish of Llanbadrig (National Library of Wales)

Fig. 3 6 inch to 1 mile Ordnance Survey map Surveyed: 1887, Published: 1888 (National Library of Scotland)

2.1. This section briefly summarises the local history and archaeology to help characterise any possible features identified within the survey.

2.2. There are a significant number of archaeological assets identified in the Historic Environment Record within the area of Cemaes Bay. This includes a feature within the survey area identified as a possible earthwork or burnt mound visible on National Environment Agency LiDAR survey data (PRN: 84120). The HER listing describes the earthwork as being c. 35m across and crescentic in shape, which could imply the presence of a burnt mound. To the north, archaeological evaluations associated with Wylfa Newydd have also identified a significant number of archaeological assets ranging from settlement activity to burial.

2.3. Geophysical surveys have been undertaken within the vicinity of the site, including a survey in the adjacent western field that identified possible archaeological features (PRN 46212). A survey was also carried out by Gwynedd Archaeological Trust to the northwest which identified potential prehistoric activity (PRN: 44629).

2.4. The 1845 tithe map for the parish of Llanbadrig shows the site as being unenclosed with only the trackway, stream and Carrog farmhouse depicted (Figure 2). The 1888 first edition Ordnance Survey map shows the site divided between two fields separated by a northeast-to-southwest orientated boundary that follows a shallow ravine that today bisects the middle field (Figure 3). By 1899 the Ordnance Survey maps show the area divided into the present three fields.

3 Methodology

3.1. The purpose of a geophysical survey is to identify the archaeological potential of an area of land in a rapid, non-intrusive and relatively inexpensive way. To achieve this and produce data that can identify the widest range of archaeological features, the method of magnetometry has been chosen.

3.2. The purpose of magnetometry is to map the background magnetic properties of the soil to identify localised anomalies. These anomalies can be caused by features containing greater or lesser magnetic properties than the surrounding soils. This can be due to natural phenomena as well as a range of processes resulting from human activity. As a broad example, a cut feature such as a ditch that has been infilled with materials of greater magnetic properties than the surrounding soil, would appear as a positive linear. A feature such as a wall comprised of materials with lesser magnetic properties would appear as a sharply defined negative. These can be distinguished from features containing ferrous or fired materials such as iron or ceramics based on the strength and gradient of the magnetic response. The following constitutes a broad classification of feature types based on Gaffney and Gater (*Revealing the Buried Past: geophysics for archaeologists*, 2003):

- **Wall (positive):** A sharply defined linear anomaly with an increased magnetic signal.
- **Wall (negative):** A sharply defined linear anomaly with a lesser magnetic signal.
- **Road:** Often presenting as a broad negative linear anomaly flanked by weak positive linear anomalies. Roads can also be defined as a linear absence of anomalies within an archaeologically active area.
- **Ditch (positive):** A linear anomaly with an increased magnetic signal and gradually defined edges. This feature has been backfilled with material containing higher magnetic properties than the surrounding soil.
- **Ditch (negative):** A linear anomaly with lesser magnetic signal and gradually defined edges. This feature has been backfilled with material containing lower magnetic properties than the surrounding soil.

- **Pit (positive):** A discrete feature of increased magnetic properties, determined to be caused by a pit-type feature.
- **Pit (negative):** A discrete feature of lesser magnetic properties, determined to be caused by a pit-type feature.
- **Industrial:** An area of significantly increased magnetic activity distinguishable from surface ferrous debris. This anomaly can be caused by intense burning often associated with features such as hearths, ovens or kilns.
- **Disturbance:** A concentrated area of increased magnetic noise that is identified as having archaeological potential. A concentrated magnetic disturbance can also represent structural origins, with the noise attributed to demolition material.
- **Modern:** A feature determined to be of modern origin, resulting from surface interference, or known activity including services and/or agriculture features.
- **Geological:** A feature determined to be of geomorphological origin.

3.3. The method of geophysical survey to be employed during these investigations comprised **standard-resolution** magnetic gradiometer survey. The specifications for this survey are as follows:

Equipment

- Bartington 601-2 fluxgate gradiometer.
- Trimble GPS with VRS correction capable of between 0.01 and 0.1m accuracy.

Software

- Terra Surveyor Lite
- QGIS

Survey Parameters

- **0.25m** sample / 4 points per meter (y axis)
- **1m** traverse (X axis)
- Zig-zag traverse pattern
- 20m gids
- Range 100nT

3.4. Grids were established using a GPS capable of between 0.01 and 0.1m accuracy and marked out using blue bamboo flags. Using a tape, each traverse was flagged at **4m** intervals, alternating between red and yellow.

4 Survey Analysis

4.1. The survey was conducted between October and November 2022 in accordance with the Chartered Institute for Archaeologists' (CIfA) *Standard and Guidance for an Archaeological Geophysical Survey* (2014). Four plots of the survey areas, LiDAR, magnetometer results, and interpretation are presented as A3 drawings at the end of this report.

4.2. The conditions during the survey were predominantly poor, with heavy rain, strong winds and the occasional lightning storm which delayed the survey. The ground conditions were also poor, with very steep areas resulting in some staggering, the most extreme of which was deemed unsurveyable. There were also waterlogged areas near the stream and trackway that were deemed unsurveyable.

4.3. The following analysis is based on features identified during the survey (Maps 2 and 3) and illustrated in Map 4. Anomalies have been group labelled by area (1, 2 and 3), with features lettered sequentially. For example, 1A equates to Area 1 feature A. Each feature has been assigned an assumed potential based on this analysis. These are given as the most likely interpretation based on available data and should not be considered absolute. The categories of which are defined as follows:

High: A feature clearly identified as being of archaeological origin that would require preservation *in situ*, or detailed mitigation measures.
Medium: A feature with probable archaeological significance that should require further investigation or mitigation measures.
Low: A feature with possible archaeological potential that might require further investigation or mitigation.
Negligible: A feature that has little or no archaeological significance and requires no further investigation.

Area 1

Anomaly	*Type*	*Description*	*Significance*	*Potential*
1A	Linear	These anomalies consist of regular striations present throughout the dataset and likely represents a combination of cultivation and wheel ruts.	Multi-period cultivation and vehicular movement on site. (19-21st century)	Negligible
1B	Linear	Two meandering linear anomalies that are likely associated with former boundaries or drainage; however, they follow a similar alignment to a large geological feature and therefore may be contemporary.	The features are not associated with any boundaries present on any of the consulted historic mapping and therefore could represent pre mid-19th century field systems.	Low
1C	Geomorphological	This anomaly consists of a wide irregular magnetic disturbance that corresponds with a linear terrace visible crossing the northern field on the LiDAR. The feature is likely to be the result of a geological formation of igneous rock often found within the bedrock geology of Anglesey.	The scale of the feature and its relationship to the visible terrace indicates that this is a natural feature.	Negligible
1D	Linear (field drain)	These anomalies consist of long sharply defined narrow linear features consistent with field drainage.	The strength and orientation of the anomalies suggest the use of ceramic field drainage directing water towards the stream.	Negligible
1E	Mixed Linear	This feature consists of a possible oval enclosure defined by a strong positive linear and weak negative linear that join a curving section of feature 1C. The linear elements suggest a constructed feature; however, it is possible that the anomaly is the result of the adjacent geological formation.	This feature has the potential to be associated with prehistoric activity but may be the result of natural geological conditions.	Medium
1F	Linear	This feature consists of a mixed ferrous and strong positive anomaly that is likely associated with a former field boundary or drainage. The feature is in alignment with a field boundary to the west.	The feature is not associated with any boundaries present on the consulted historic mapping and therefore could represent part of an earlier field system.	Low

Area 2

Anomaly	*Type*	*Description*	*Significance*	*Potential*
2A	Mixed Linear	This feature corresponds with a LiDAR feature noted in the Historic Environment Record and consists of an oval bank with an outer strong positive linear that likely represents either a ditch with an infill of highly magnetic material or a structural feature such as a wall constructed of materials with high magnetic properties. The feature is consistent with a prehistoric oval enclosure often attributed to the Bronze Age.	A highly significant feature that represents prehistoric settlement activity.	High*
2B	Linear	These features consist of a system of curvilinear boundaries that likely represent an early field system. The form of the linear features as well as their possible relationship to feature 2A suggest Prehistoric or Romano-British origins.	Potentially significant features forming part of an ancient field system.	Medium
2C	Linear	This feature consists of a weak negative linear that corresponds with a linear visible in the LiDAR data that crosses the northern part of area 2. This feature is likely to represent either a former field boundary or a trackway leading to a possible crossing point of the former stream that bisects area 2.	This feature is not associated with any boundaries present on any of the consulted historic mapping and therefore could represent part of an earlier boundary or trackway.	Low
2D	Disturbance	This feature consists of a concentration of magnetic disturbance likely associated with a collection of debris or burnt material. The feature is located on a terrace above a steep drop towards a possible former channel of the river. The feature is similar to others identified in local surveys, identified as burnt mounds.	The feature has the potential to represent Bronze Age activity in the form of a burnt mound but may also be the result of a collection of near-surface debris.	Medium
2E	Linear	This feature consists of a linear that follows the path of a former watercourse bisecting area 2 that also formed the field boundary in the late 19th century.	The feature represents part of an earlier field system and watercourse shown on the 1888 Ordnance survey map.	Low
2F	Ferrous Industrial	This feature consists of a concentration of strong magnetic readings and a large magnetic spike that is often attributed to industrial activity such as an oven or kiln. It is positioned on the steep slopes of the ravine that bisects the field. The feature may also be the result of a concentration of large ferrous material.	This feature has the potential to represent an industrial activity or a collection of large ferrous materials.	Medium
2G	Linear	These anomalies consist of regular striations present throughout the dataset and likely represents a combination of cultivation and wheel ruts.	Multi-period cultivation and vehicular movement on site. (19-21st century)	Negligible
2H	Linear	This feature consists of a weak negative linear running along the base of the ravine that bisects the field. The feature is likely to be associated with the watercourse of the former field boundary present in the 1888 ordnance survey map.	The feature represents part of an earlier field system and watercourse shown on the 1888 Ordnance Survey map.	Low

Area 3

Anomaly	*Type*	*Description*	*Significance*	*Potential*
3A	Linear	These features consist of mixed linear anomalies comprised of ferrous and twin parallel strong positive linear anomalies that are consistent with wheel ruts and trackways. The features appear to mostly emanate from existing and possible former field entrances.	The wheel rutting is likely to be associated with 19th-century activity or later.	Negligible
3B	Linear	This feature consists of a wide positive linear that could indicate a large ditch, however, the feature is most likely the result of interference from the overhead cable running on the same alignment to the southwest. The feature does not appear to continue into field 2.	Most likely the result of modern interference.	Negligible
3C	Linear	These anomalies consist of regular striations present throughout the dataset and likely represents a combination of cultivation and wheel ruts.	Multi-period cultivation and vehicular movement on site. (19-21st century)	Negligible
3D	Ferrous Industrial	This feature consists of a concentration of strong magnetic readings and a large magnetic spike that is often attributed to industrial activity such as an oven or kiln. The feature is located near a modern tip of demolition debris as well as a structure and possible settling tanks to the north. It is therefore likely to be modern and associated with the nearby activity.	This feature has the potential to represent an industrial activity or a collection of large ferrous materials but is likely to be modern.	Low
3E	Linear	This feature consists of a strong linear anomaly running parallel with the stream to the east. The feature is likely associated with drainage or a service.	Likely modern drainage or a service.	Negligible
3F	Linear	This feature consists of a curving linear anomaly following the contours of the land sloping towards the stream. The feature is likely associated with drainage, geology, or a former boundary.	Likely modern drainage geology or a former boundary that is not present on the Ordnance Survey mapping	Low
3G	Disturbance	This feature consists of a large spread of magnetic noise along the southern boundary. This noise is likely the result of near-surface debris relating to nearby activity from the farm or houses.	A spread of material that's most likely associated with modern activity.	Low
3H	Mixed	This feature consists of a mixed strong positive, ferrous, and magnetic disturbance that corresponds with a mound visible in the LiDAR data. The feature suggests a concentration of magnetic material with some structural elements that could indicate debris associated with a structure or an area of burning.	This feature may be associated with the farm and nearby houses, however, there is a potential for earlier structural or industrial activity.	Medium
3I	Linear	This feature consists of a weak curvilinear that appears most clearly in the raw dataset and colu indicate some form of enclosure or boundary.	A weak feature removed in processing that may represent prehistoric activity.	Low
3J	Mixed disturbance	A weak circular anomaly that is clearly visible in the raw data as a disturbance with a weak linear outline measuring 25m wide. The feature is intersected by a later trackway.	A weak feature that may be associated with the nearby prehistoric funerary activity in the form of a 25m diameter barrow.	Medium

5 Discussion and Conclusions

5.1. The survey took place between October and November of 2022 and covered three fields located to the north of Carrog farm near Cemaes Bay, Anglesey. The following represents a summary of potential archaeological assets identified in the survey, their interpretation and potential significance.

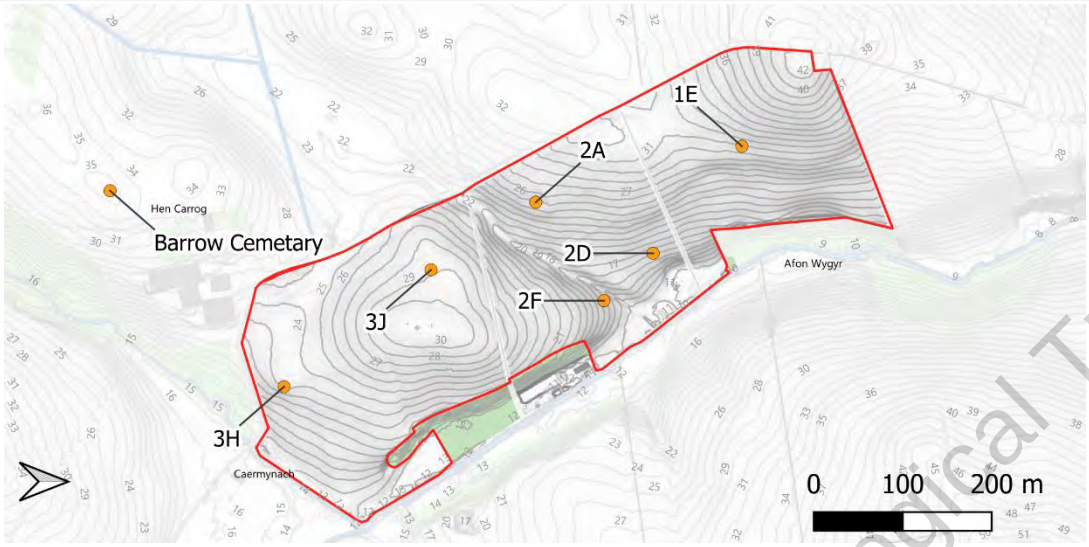


Fig. 4 Locations of archaeological potential features

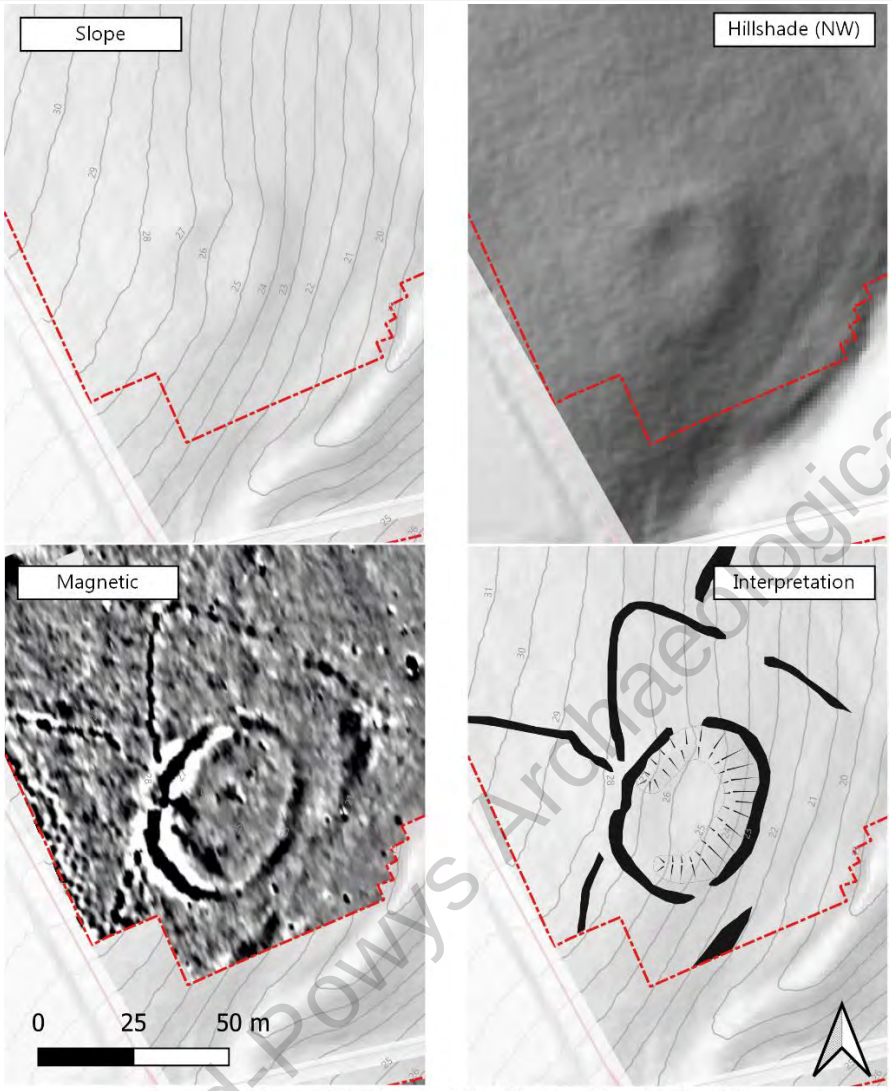
Area 1

5.2. The most prominent feature within this field is a large geological disturbance that corresponds with a terrace visible in the LiDAR data (1C) (Maps 2 - 4). Adjacent to this feature are parallel curvilinear anomalies, one of which possibly forms a small oval enclosure or ring ditch 25m wide that is set on a slight plateau (1E) (Figs. 4, 7, 8 and 9). Whilst it is possible that the feature might have geological origins like the adjacent disturbance, the number of prehistoric sites identified locally indicates a greater potential for prehistoric settlement or funerary activity. Located to the south of Carrog farm are three ring ditches, each 20m wide, that have been identified as a possible Bronze Age barrow cemetery (PRN: 34697).

5.3. Other features within the field include strong, sharply defined linear anomalies, most of which are probably associated with field drainage. The present fields only appear to have been enclosed in the mid to late 19th century, and therefore most linear features are most likely associated with drainage, with the broader linear anomalies perhaps having much earlier origins as possible boundaries.

Area 2

The most prominent feature in this field is an earthwork present in the LiDAR data and noted in the Historic Environment Record as a possible burnt mound (PRN: 84120) (Map 2). The extant earthwork was not present in the magnetic survey data, as it is likely comprised of upturned natural and therefore gives very little contrast. However, the magnetic survey identified a strong oval curvilinear forming an outer edge to the earthwork (2A) (Figures 4, 5, 10, 11 and 12). Together the anomalies represent a clear oval enclosure defined by either a bank and ditch or a bank with a wall revetment/curb that is comprised of stone with high magnetic properties, the former being the most likely. It is clearly not a burnt mound. The enclosure is likely to be Bronze Age or Iron Age in date, with this form of oval shape more often ascribed to the transitional period between the Late Bronze age and the Early Iron Age. Surrounding this feature are curving linear anomalies that appear to form a possible field system, probably prehistoric or Romano-British (2B) (Figure 4).



Fig, 5. Archaeological Interpretation of feature 2A.

5.4. Also within this field is a possible burnt mound located on a platform above a steep slope that descends towards a former watercourse (2D). The feature consists of a concentration of magnetic noise that may be the result of surface debris, however, its position as well as the number of burnt mounds identified locally, indicate potential archaeological significance.

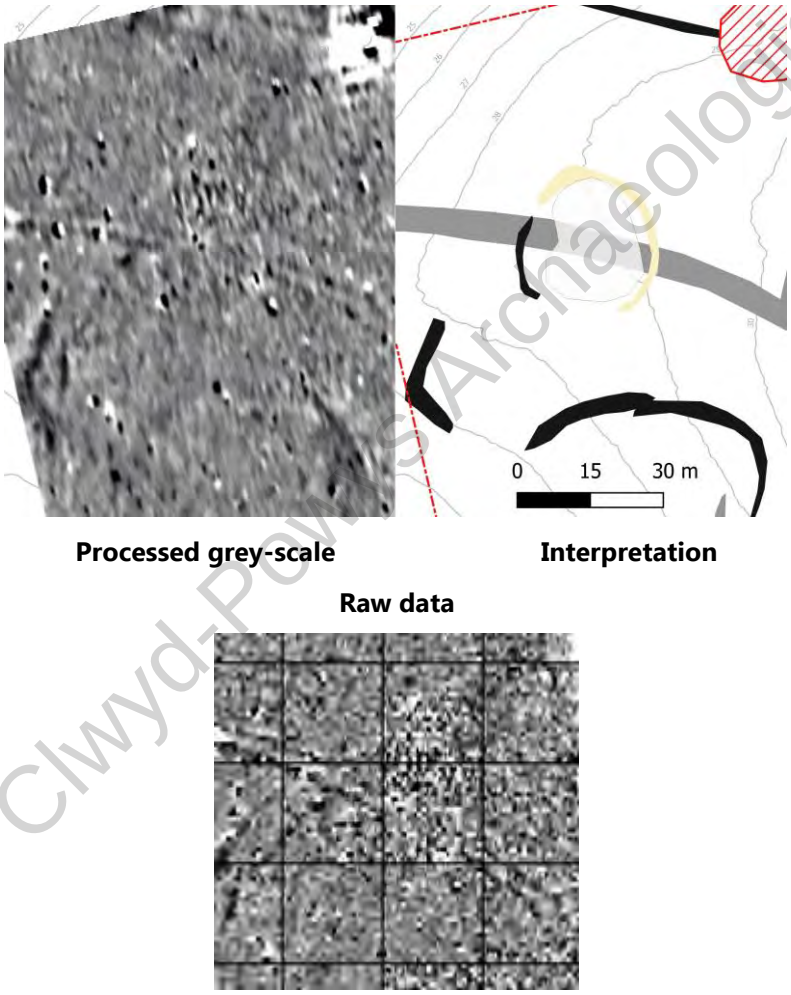
5.5. Situated on the steep bank of a former watercourse is a strong ferrous industrial anomaly that indicates either the presence of large ferrous debris or a thermoremanence associated with industrial activity such as kilns (2F). There is a significant 19th-century brick manufacturing industry located further downstream (PRN : 36110), which could suggest that this feature may be an earlier cottage industry production.

Area 3

5.6. The most prominent feature in this field is a possible structural or industrial disturbance that corresponds with a slight mound visible in the LiDAR data (3H) (Fig. 4 and Map 2). The feature is located in an area of increased magnetic noise (Map 3) close to the farmyard and houses to the south of the site and may be the result of surface debris associated with the nearby activity. However, the concentrated magnetic and linear features associated with the mound have the

potential to represent something more structural. Tips of 19th and 20th-century demolition material were observed within this field and therefore it is possible that these readings are the result of a similar tip, however, there was no associated debris observed on the surface around the mound.

5.7. Other features consist of two weak possible prehistoric features including a circular disturbance with a weak linear outline that measures 25m wide (3J) (Figures 6 and 15). The feature is located close to the hilltop on a slight platform, giving it a similar setting to the Bronze Age round barrows identified 365m to the southwest (PRN: 34697). There are also several linear anomalies, most of which are likely associated with wheel rutting and modern disturbance.



Fig, 6. Archaeological interpretation of feature 3J.

Recommendations

5.8. The survey has successfully identified a high potential for surviving archaeological deposits that include prehistoric settlement, field systems and possible burial. Based on this assessment it is recommended that the developer considers a design that limits the potential impact on these features. Alternatively, a program of archaeological mitigation approved by Gwynedd Archaeological Planning Services may need to be implemented so that all features directly

impacted by the development can be recorded. Based on the survey results, it is recommended that any resulting mitigation should focus on features identified in figure 4.

6 Sources

David, A. and Linford, N. 2008 *Geophysical Survey in Archaeological Field Evaluation* English Heritage

Gaffney, C. and Gater, J. 2002. *Revealing the Buried Past: Geophysics for Archaeologists*. Stroud: Tempus

Cartographic sources

1845 Tithe map for the parish of Llanbadrig, Anglesey

1888 First edition 6inch Ordnance Survey map Anglesey Sheet II.SE

1899 Revision of the 6inch Ordnance Survey Map Anglesey Sheet II.SE

7 Archive Selection Strategy

2656-Carrog Battery Storage (NGR SH3761592230) Geophysical Survey 01/10/22 – 17/11/22 Selection Strategy v2.0	
CPAT Project Management	
Project Manager	Tim Malim
Project Supervisor	Chris Matthews
Archives Manager	Sophie Watson
Project Stakeholders	
Project Lead / Project Assurance	Jenny Emmett
Collecting Institutions	
Regional HER	Gwynedd Archaeological Trust
HER Enquiry Number	N/A
HER Event PRN	46727
Digital Archive Repository	Royal Commission on the Ancient and Historical Monuments of Wales
Documentary Archive Repository	N/A
Finds Archive Repository	N/A
Museum Accession Number	N/A

Digital Project Data (Geophysics)			
Project sub-folders	**Data**	**Retained**	**Selected for Archive**
Admin			
H&S - RAMS	Risk Assessment	Y	N
WSI	Written Scheme of Investigation	Y	(Method statement included in the report)
Client Data	Planning documents/other files provided by the client.	Y	N
Correspondence	Correspondence records relevant to the project	Y	N
GIS data	Survey data	Y	Y
Metadata	The survey metadata is included in section 8 of the report. • Raw data grids • Processing stages • Grid assembly matrix Additional metadata will also be provided separately.	Y	Y
Photography	NA	N/A	N/A
Report	2656_Carrog_Geophysical_Survey_Report_1909	Y	Y
Report Illustrations	Illustrations generated for inclusion within the project report	Y	N
Research Data	Research data – always secondary sources and available elsewhere	Y	N
Site data	Geophysical survey grids and composite datasets	Y	Y
Temporary	Temporary storage for temporary files – always deleted at project completion	N	N

8 Survey metadata

Area 1

General metadata

PROGRAM
Name: TerraSurveyor
Version: 3.0.37.30
COMPOSITE
Instrument Type: Bartington 601-2
Units: nT
Direction of 1st Traverse: 0 deg
Collection Method: ZigZag
Sensors: 2 @ 1 m spacing.
Dummy Value: 32702

Raw data

Dimensions	**Stats**
Composite Size (readings): 800 x 200	Max: 2.00
Survey Size (meters): 200 m x 200 m	Min: -1.80
Grid Size: 20 m x 20 m	Std Dev: 1.04
X Interval: 0.25 m	Mean: 0.04
Y Interval: 1 m	Median: 0.00
	Composite Area: 4 ha
	Surveyed Area: 3.0429 ha

Processed data

Stats	**Processes: 6**
Max: 2.00	1 Base Layer
Min: -1.80	2 DeStripe Median Traverse: Grids: All
Std Dev: 0.76	3 Despike Threshold: 1 Window size: 3x3
Mean: 0.04	4 Low pass Gaussian filter: Window: 3 x 3
Median: 0.01	5 Interpolate: X & Y Doubled.
Composite Area: 4 ha	6 Clip from -1.80 to 2.00 nT
Surveyed Area: 3.0429 ha	

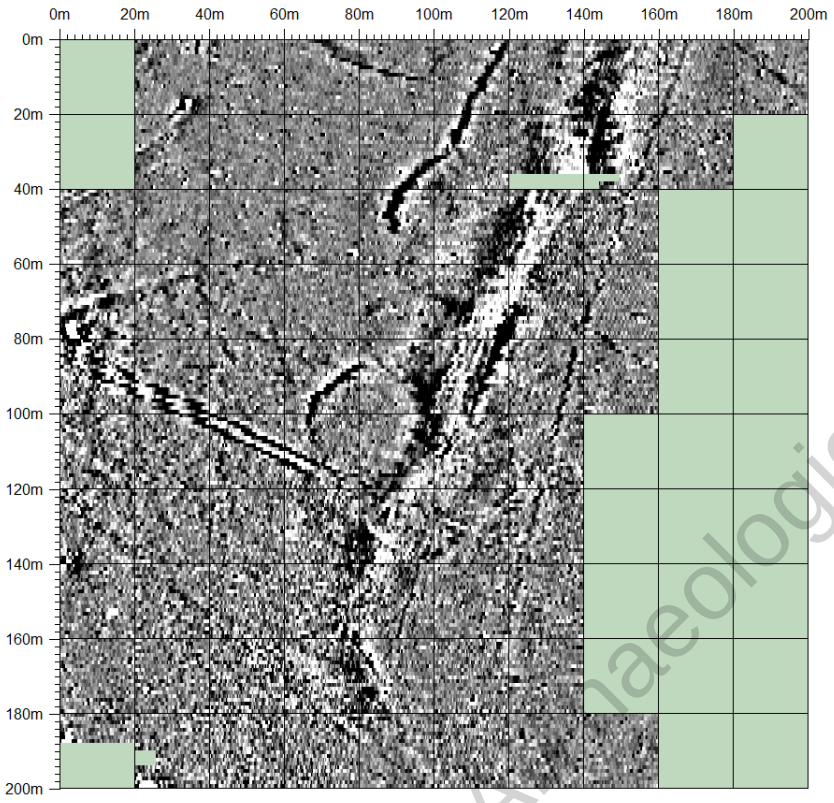


Fig 7: Area 1 Raw data grey-scale plot (-1.8 2nT clip)

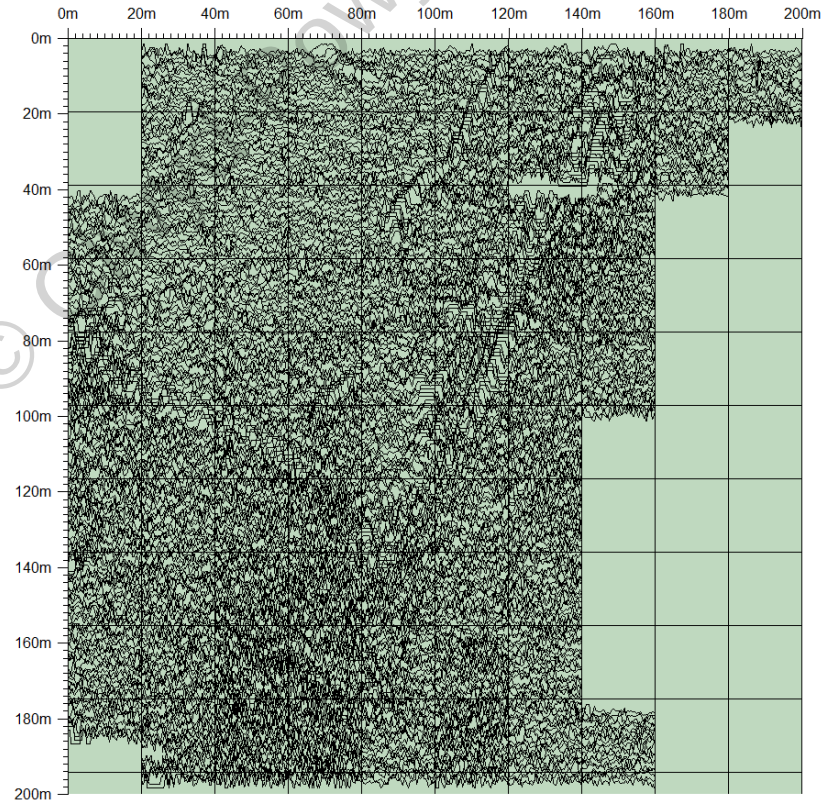


Fig 8: Area 1 Raw data trace plot (-1.8 2nT clip)

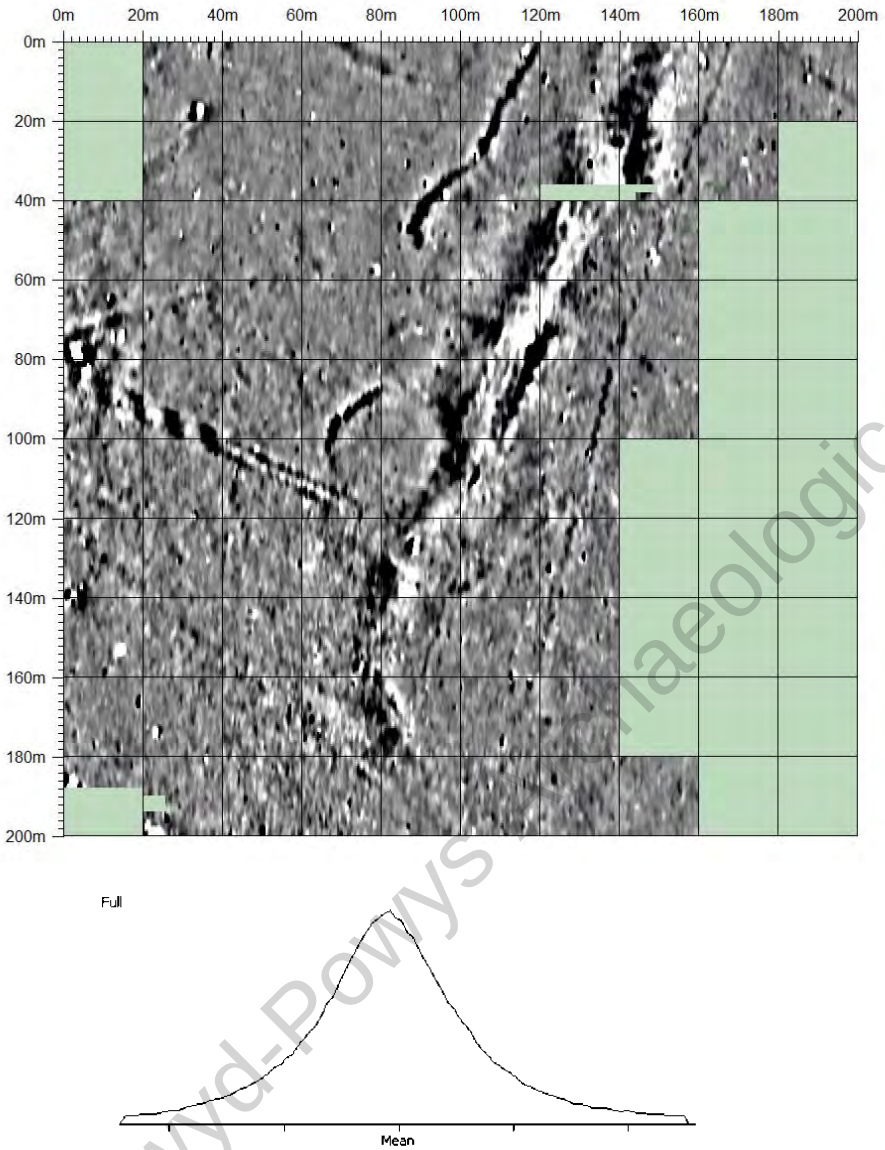


Fig 9: Area 1 processed data grey-scale plot (-1.8 2nT clip)

Area 2

General metadata

PROGRAM
Name: TerraSurveyor
Version: 3.0.37.30
COMPOSITE
Instrument Type: Bartington 601-2
Units: nT
Direction of 1st Traverse: 0 deg
Collection Method: ZigZag
Sensors: 2 @ 1 m spacing.
Dummy Value: 32702

Raw data

Dimensions	**Stats**
Composite Size (readings): 880 x 220	Max: 2.00
Survey Size (meters): 220 m x 220 m	Min: -1.80
Grid Size: 20 m x 20 m	Std Dev: 1.06
X Interval: 0.25 m	Mean: 0.03
Y Interval: 1 m	Median: 0.00
	Composite Area: 4.84 ha
	Surveyed Area: 3.3721 ha

Processed data

Stats	**Processes: 7**
Max: 2.00	1 Base Layer
Min: -1.80	2 DeStripe Median Traverse: Grids: All
Std Dev: 0.81	3 Despike Threshold: 1 Window size: 3x3
Mean: 0.04	4 De Stagger: Grids: All By: 25.00cm
Median: 0.01	5 Low pass Gaussian filter: Window: 3 x 3
Composite Area: 4.84 ha	6 Interpolate: X & Y Doubled.
Surveyed Area: 3.3721 ha	7 Clip from -1.80 to 2.00 nT

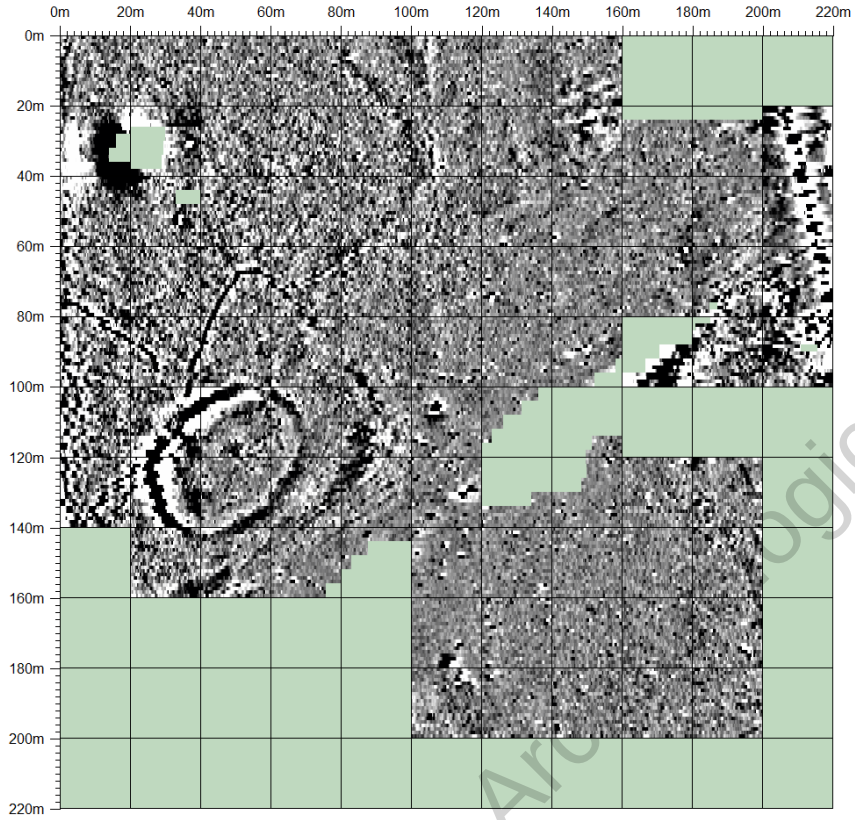


Fig 10: Area 2 Raw data grey-scale plot (-1.8 2nT clip)

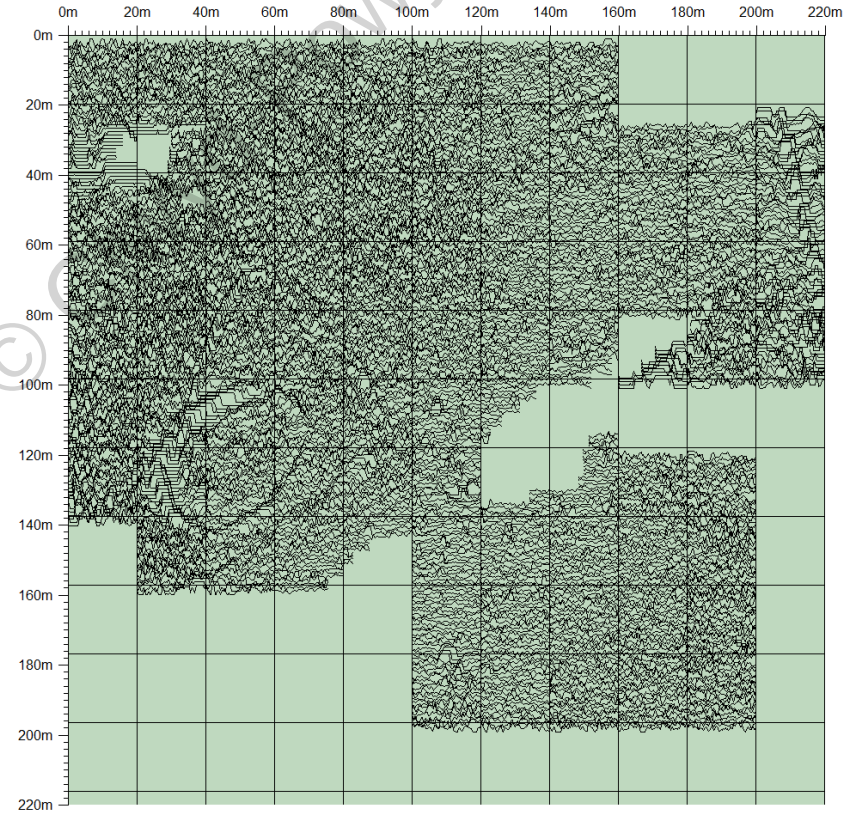


Fig 11: Area 2 Raw data trace plot (-1.8 2nT clip)

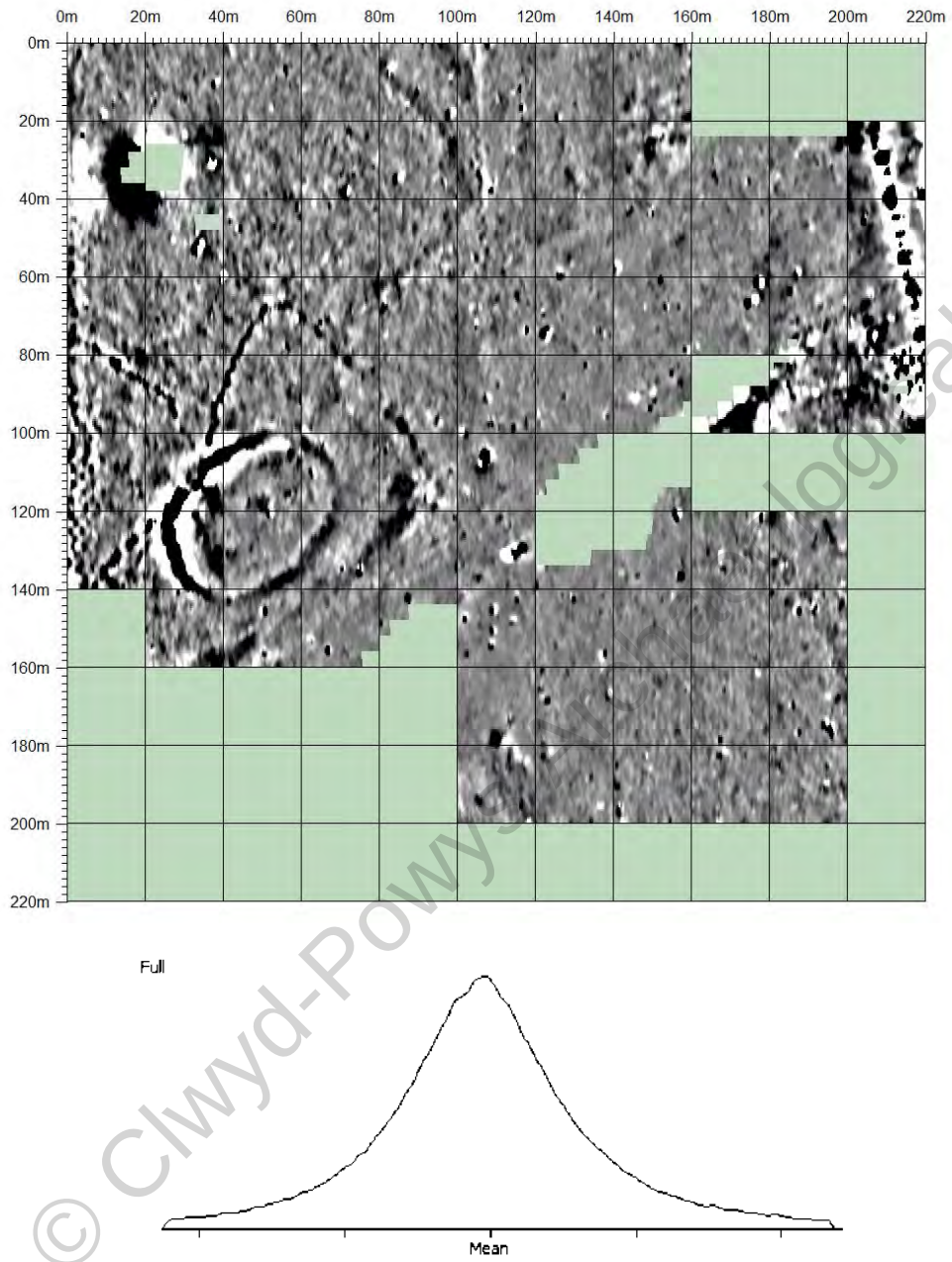


Fig 12: Area 2 processed data grey-scale plot (-1.8 2nT clip)

Area 3

General metadata

PROGRAM
Name: TerraSurveyor
Version: 3.0.37.30
COMPOSITE
Instrument Type: Bartington 601-2
Units: nT
Direction of 1st Traverse: 0 deg
Collection Method: ZigZag
Sensors: 2 @ 1 m spacing.
Dummy Value: 32702

Raw data

Dimensions	**Stats**
Composite Size (readings): 1200 x 260	Max: 2.00
Survey Size (meters): 300 m x 260 m	Min: -1.80
Grid Size: 20 m x 20 m	Std Dev: 0.96
X Interval: 0.25 m	Mean: 0.03
Y Interval: 1 m	Median: 0.00
	Composite Area: 7.8 ha
	Surveyed Area: 5.0644 ha

Processed data

Stats	**Processes: 6**
Max: 2.00	1 Base Layer
Min: -1.80	2 DeStripe Median Traverse: Grids: All
Std Dev: 0.69	3 Despike Threshold: 1 Window size: 3x3
Mean: 0.03	4 Low pass Gaussian filter: Window: 3 x 3
Median: 0.01	5 Interpolate: X & Y Doubled.
Composite Area: 7.8 ha	6 Clip from -1.80 to 2.00 nT
Surveyed Area: 5.0644 ha	

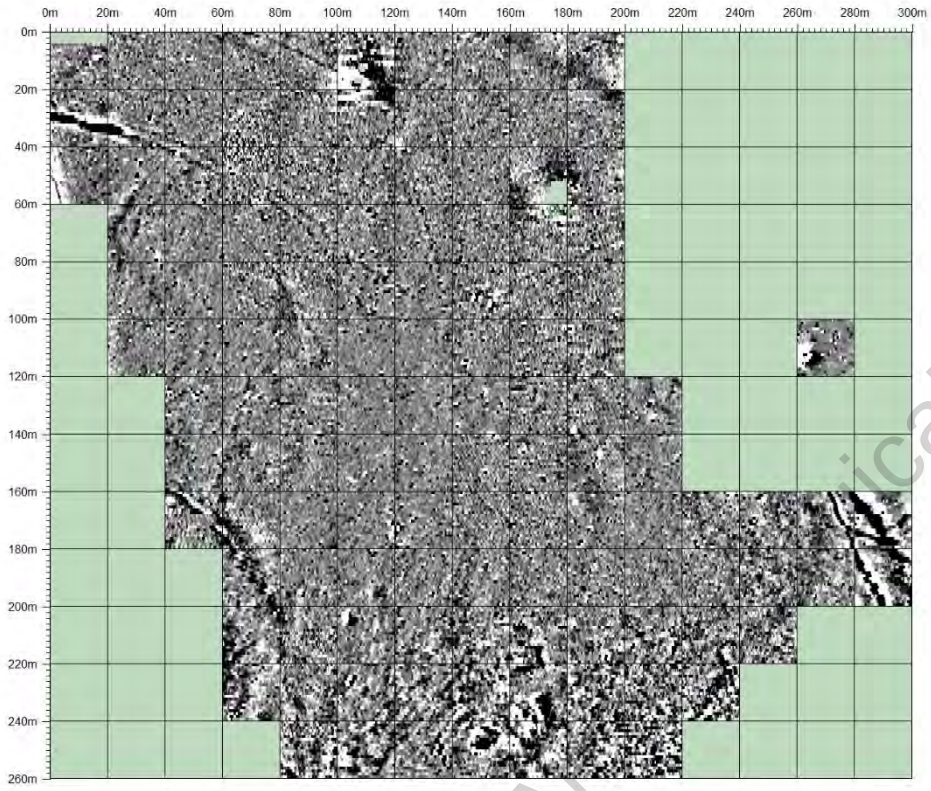


Fig 13: Area 3 Raw data grey-scale plot (-1.8 2nT clip)

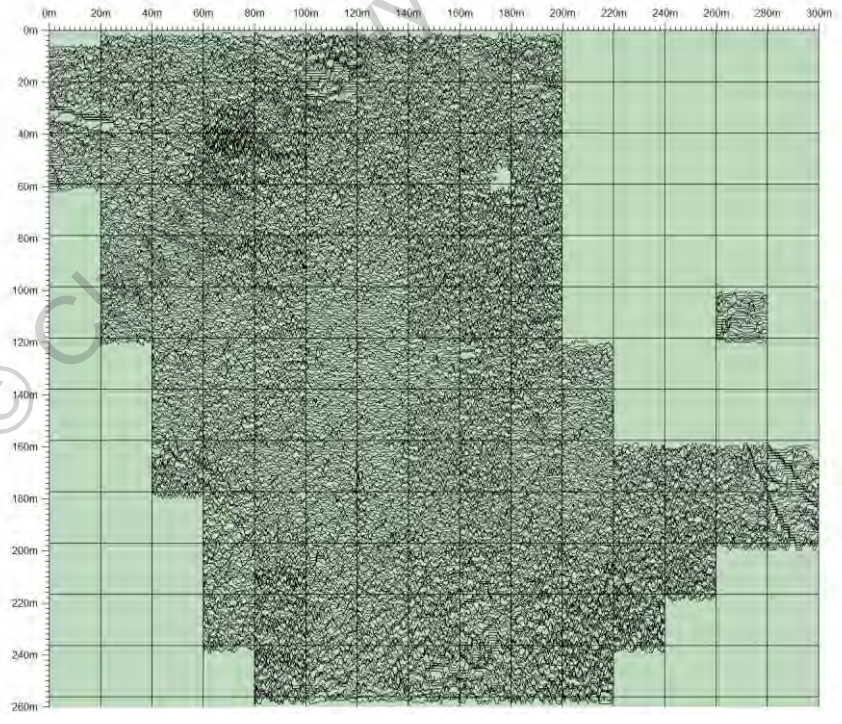


Fig 14: Area 3 Raw data trace plot (-1.8 2nT clip)

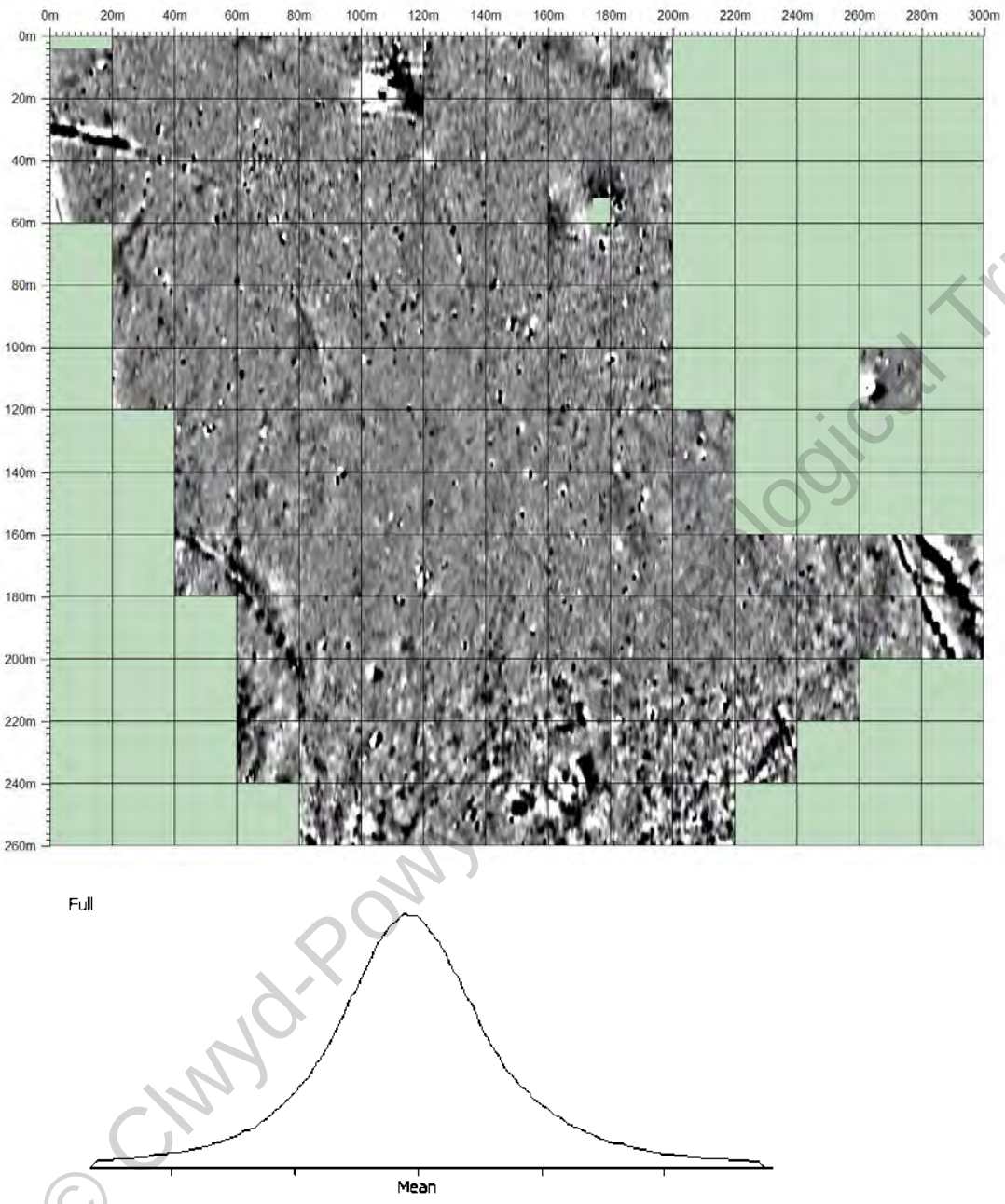


Fig 15: Area 3 processed data grey-scale plot (-1.8 2nT clip)

392000
392250
392500
392750
237250
237500
237750
Hen Carrog
Caermynach
Afon Wygyr
N
50 0 50 100 m

Legend

Site_Boundary

Survey

CPAT
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Carrog Battery Storage

Cemaes Bay

Survey Grid

Map 1

Scale
1:2500 @ A3

Date
October 2022

392000
392250
392500
392750
237250
237500
237750
PRN: 84120
Hen Carrog
Caermynach
Afon Wygyr
N
50 0 50 100 m
Legend
Site_Boundary
Azimuth: Northwest 310°

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CPAT
Carrog Battery Storage
Cemaes Bay
LiDAR Hillshade Analysis
Map 2
Scale
1:1250 @ A3
Date
October 2022

392000
392250
392500
392750
237250
237500
237750
N
Hen Carrog
Caermynach
Afon Wygyr
Legend
Site_Boundary
+2 nT
0 nT
-1.8nT
50 0 50 100 m

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CPAT
Carrog Battery Storage
Cemaes Bay
Magnetic Grey Scale Plot
Map 3
Scale
1:2500 @ A3
Date
October 2022

392000
392250
392500
392750
237250
237500
237750
N
1A
1B
1C
1D
1E
1F
2A
2B
2C
2D
2E
2F
2G
2H
3A
3B
3C
3D
3E
3F
3G
3H
3I
3J
Feeder
Pylon
Pylon
Hen Carrog
Caermynach
Afon Wygyr
50 0 50 100 m

Legend

- Cultivation / Wheel rut
- Negative linear
- Posative anomaly
- Disturbance
- Ferrous / industrial
- Linear anomaly
- Modern disturbance
- Service
- Watterlogged
- Field drain
- dist
- Track / wheel rut
- LOS

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Cemaes Bay

Magnetic Feature Plot

Map 4

Scale	Date
1:2500 @ A3	October 2022