Appendix 11 Archaeology and Cultural Heritage

11.1 Methodology for assessing the potential impacts of development on historic assets

General

11.1.1 The primary aim of any assessment is to identify the historic assets within a development site in as far as constraints such as varying land-use allow, and to provide a report on them which should enable the reader to understand their historical context, offer guidance on their level of importance (whether national, regional or local), identify the degree of impact that the development might have upon them so that the significance of effect can be determined, and recommend mitigation to limit or offset the impact of development.

Impacts and Effects

11.1.2 The development may affect a historic asset in one of several ways:

1. Direct Impact: A direct impact upon a historic asset involves the physical alteration or destruction of the latter as a result of the construction, operation or decommissioning of a development. Direct impacts could include the site clearance, reduction of levels, foundations, services, access roads etc.

2. Indirect Impact: Sometimes known as a secondary impact. An indirect impact arises where the connection between the development and the asset is remote or unpredictable and can affect an asset lying outside the development site. An indirect impact can be physical or visual, and in certain circumstances noise, smell and other factors might also be considered under this heading. It should be noted too that in Wales, visual intrusion is normally considered to be indirect.

3. Cumulative Impact: A cumulative impact may arise from the multiple effects of the development and of other developments on an asset.

11.1.3 Impacts are considered changes introduced by the proposed development into the existing baseline conditions that would lead to enhancement or harm to the heritage significance of an asset. The significance of effect is the resultant scale of change in relation to the importance of asset. This is usually determined through a matrix.

The Assessment Methodology

11.1.4 It is a general tenet in conservation strategies that historic assets represent a non-renewable resource, and should be avoided wherever this is feasible in order to avoid damage or destruction. All sites can be classified according to a system based on that provided for the assessment of historic assets in the Design Manual for Roads and Bridges (revised 2019) (Volume 11, Section 3, Part 2).

11.1.5 The relative value (importance) of a historic asset, as given in greater detail in DMRB (2019) is laid out in Table 11.1.1.

Table 11.1.1 - Factors for Assessing the Value of Historic assets (based on DMRB 2019, Table 3.2N)

Factors for Assessing the Value of Historic assets	
Very High	Very high importance and rarity, international scale and very limited potential for substitution: • World Heritage Sites (including those nominated). • Assets of acknowledged international importance. • Assets that can contribute significantly to acknowledged international research objectives.
High	High importance and rarity, national scale, and limited potential for substitution: • Scheduled Monuments (including those proposed). • Non-designated monuments which might meet the criteria for scheduling. • Listed Buildings. • Assets that can contribute significantly to acknowledged national research objectives.
Medium	Medium or high importance and rarity, regional scale, limited potential for substitution: • Conservation Areas. • Designated or non-designated assets that contribute to regional research objectives.

Factors for Assessing the Value of Historic assets	
Low	Low or medium importance and rarity, local scale: • Non-designated assets of local importance. • Assets compromised by poor preservation and/or poor survival of contextual associations. • Assets of limited value, but with the potential to contribute to local research objectives. •
Negligible	Very low importance and rarity, local scale: • Assets with very little or no surviving heritage interest.
Unknown	The importance of the resource has not been ascertained

11.1.6 Factors that need to be considered in assessing the magnitude of the impact are given in Table 11.1.2, based on the DMRB (2019, Table 3.4N), but in modified form, for each historic environment sub-topic (archaeological remains, historic buildings, historic landscapes etc) has its own set of factors, which are set out in great detail in the Design Manual.

Table 11.1.2 - Magnitude of impact and typical descriptions

Magnitude of impact (change)		Typical description
Major	Adverse	Loss of resource and/or quality and integrity of resource; severe damage to key characteristics, features or elements.
	Beneficial	Large scale or major improvement of resource quality; extensive restoration; major improvement of attribute quality.
Moderate	Adverse	Loss of resource, but not adversely affecting the integrity; partial loss of/damage to key characteristics, features or elements.
	Beneficial	Benefit to, or addition of, key characteristics, features or elements; improvement of attribute quality.
Minor	Adverse	Some measurable change in attributes, quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features or elements.
	Beneficial	Minor benefit to, or addition of, one (maybe more) key characteristics, features or elements; some beneficial impact on attribute or a reduced risk of negative impact occurring.
Negligible	Adverse	Very minor loss or detrimental alteration to one or more characteristics, features or elements.
	Beneficial	Very minor benefit to or positive addition of one or more characteristics, features or elements.
No change		No loss or alteration of characteristics, features or elements; no observable impact in either direction.

11.1.7 The significance of the impact of a development on a particular historic asset is then established from the matrix (Table 11.1.3) also taken from the DMRB (2019, Part 4: LA 104, Table 3.8.1).

Table 11.1.3 – Significance Matrix

Magnitude of Impact	Value/Sensitivity of Historic asset				
	Very High	**High**	**Medium**	**Low**	**Negligible**
Major	**Very Large**	**Large/ Very large**	**Moderate/ Large**	Slight/ Moderate	**Slight**
Moderate	**Large/Very Large**	**Moderate/ Large**	Moderate	Slight	**Neutral/ Slight**
Minor	**Moderate/ Large**	Moderate/ Slight	Slight	Neutral/ Slight	**Neutral/ Slight**
Negligible	Slight	Slight	Neutral/ Slight	Neutral/ Slight	**Neutral**
No change	Neutral	Neutral	Neutral	Neutral	Neutral

11.1.8 The degree to which the significance of the effect might be treated by the decision-making process can be summarised in Table 11.1.4, which is taken from the DMRB (2019, Part 4: LA 104, Table 3.7). However, for listed buildings and their settings, the specific wording of their statutory protection requires the decision-maker to ensure that they "…shall have special regard to the desirability of preserving the building or its setting…" (Section 66 of the Planning (Listed Buildings and Conservation Areas) Act 1990). In Table 11A.1.4 the reference to whether the effect is material or not does not supercede this legislative requirement for the local planning authority to ensure the preservation of a listed building within its setting.

Table 11.1.4 - Significance categories and typical descriptions.

Significance category	Typical description
Very large	Effects at this level are significant and would be material in the decision-making process
Large	Effects at this level are significant and likely to be material in the decision-making process.
Moderate	Effects at this level are probably non- significant and unlikely to be material decision-making factors, subject to professional judgement
Slight	Effects at this level are non-significant and not material in the decision-making process
Neutral	No effects or those that are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error

11.2 Gazetteer of non-designated historic assets within the Site boundary or otherwise relevant to the assessment

PRN 1955 Fowler's Horse Block stone SO0425778973

Boundary marker Post Medieval Low value

Stone on parish boundary. 1.5m x 1.0m x 1.0m high.

PRN 4157 Ffordd Las (multiple) SO04837719

Platform Medieval? Medium value

Multiple site consisting of a house platform (50336) with adjoining enclosure (50337) to the south-west.

PRN 4456 Brondre Fawr Hill stone SO0445477486

Boundary stone; Standing stone Post Medieval; Bronze Age Negligible value

Stone on parish boundary between Llananno and Abbey Cwm-Hir. Formerly recorded as partially buried and measuring 0.48m by 0.38m. No longer visible.

PRN 6067 Brondre Fawr Hill bank I SO043789

Enclosure; Field system Post Medieval Negligible value

Recorded bank. No surviving remains.

PRN 6666 Polyn y Groes cairn III SO03948314

Round barrow; Bronze Age Medium value

Cairn c.5m diameter x 0.5m high. Damaged by agricultural improvements

PRN 6671 Waun Ddu Barthog stone II SO03008130

Standing stone Bronze Age Medium value

Standing stone c.0.5m high by 0.32m by 0.2m.

PRN 50336 NPRN 305879 Ffordd Las house platform SO0482977193

House platform Medieval? Medium value

House platform on south-east facing slope, 20m x 10m overall.

PRN 50337 NPRN 305879 Ffordd Las enclosure SO0479677170

Enclosure Medieval? Medium value

Sub-rectangular earthwork enclosure attached to platform 50336. 65m x 55m overall.

PRN 54048 Garn Fach cairn SO0424281040

Round barrow (cairn) Bronze Age Medium value

Clearance cairn, probably on top of a funerary cairn depicted here in 1817. Originally 15m diameter. Partly covered in shale to form a hardstanding.

PRN 55005 New House spring SO0435780641

Spring Post Medieval Negligible value

Spring depicted on the 1889 OS map. Possibly the water supply for nearby cottages.

PRN 55006 NPRN 81455 Pabyll-wyd-Uchaf, farmstead SO0429882267

Farmstead Post Medieval Negligible value

19th-century farmhouse with buildings in range; noted with sketch-plan in 1990. Subsequently levelled.

PRN 55007	Pabyll-wyd-Uchaf, ford	SO0424282289
Ford	Post Medieval	Negligible value

Location of a ford crossing Blue Lins Brook, as depicted on 1889 Ordnance Survey map. No surviving remains.

PRN 55009	Pabyll-wyd-Uchaf, sheepfold	SO0440882281
Sheep fold	Post Medieval	Low value

Sheepfold depicted on 1886 OS map. Stone built, walls up to 0.8m high.

PRN 55010	Pabyll-wyd-Uchaf, cairn	SO0414582571
Round barrow (cairn)	Bronze Age ; Post Medieval	Medium value

Circular cairn 6m diameter x 0.4m high with a central hollow. Site of a stone depicted on 1889 Ordnance Survey map.

PRN 68803	Banc Newydd, well	SO0510881015
Well	Post Medieval	Negligible value

A well shown on OS maps from 1889 to 1963. Not visible.

PRN 68804	Banc Newydd, Roman road	SO0411579726
Road	Roman	Negligible value

Suggested line of Roman Road RRX58 from Castell Collen to Caersws. No remains visible and course probably further west.

PRN 110628	Cwm-defaid, building	SO0408877167
Building	Post Medieval	Low value

Cottage on Llanbister (Golon and Cefn Pawl) Tithe map of 1842. Platform 20m x 10m with a few stones remaining that suggest it was occupied by a stone building.

PRN 127406	Cwm-defaid	SO0413277129
Cottage	Post Medieval	Negligible value

'Cwm-defaid', an encroachment cottage depicted on Llanbister (Golon and Cefn Pawl) Tithe map of 1842. Probably lost to quarrying, surface remains not apparent.

PRN 127466	Camp	O0516981015
Cottage	Post Medieval	Unknown value

'Camp', an encroachment cottage mentioned in a legal document of 1828 (Powys RO R/D/GNX/337-338). No physical remains.

PRN 127469	Cottage (Not named)	SO0485081100
Cottage	Post Medieval	Unknown value

Encroachment onto Radnorshire Common. No physical remains.

PRN 166606	Blue Lins cairn I	SO0437382671
Round barrow (cairn)	Bronze Age	Medium value

Cairn 6m diameter x 0.3m high.

PRN 166607	Blue Lins cairn II	SO0404182685
Round barrow (cairn)	Bronze Age	Medium value

Cairn, 6.5m diameter x 0.5m high.

PRN 166608 NPRN 534648 Waun Ddubarthog, peat workings SO0338482079

Peat cutting (possible) Post Medieval Negligible value

Possible peat workings.

PRN 166609 NPRN 534649 Bryn Gwaun, cairn I SO0379682553

Cairn? Bronze Age Unknown value

Mound 5m diameter x 0.3m high. Possibly natural.

PRN 166610 NPRN 534651 Bryn Gwaun, mound SO0373582862

Mound Unknown Negligible value

Natural mound.

PRN 166611 NPRN534650 Bryn Gwaun, cairn II SO0379482556

Cairn? Bronze Age? Unknown value

Recorded cairn. Site not identified - though see PRN 166609.

PRN 166612 NPRN 534644 Bryn Gwaun, Long Hut SO0371982858

Long hut Post Medieval; Medieval Medium value

Long hut on natural terrace.

PRN 166613 NPRN 534645 Bryn Gwaun, sheep fold SO0363082872

Sheep fold Modern Negligible value

Post and wire fenced sheepfold.

PRN 166614 NPRN 534646 Bryn Gwaun, earthwork bank SO0387182365

Bank (earthwork) Post Medieval Low value

Redundant field boundary crossing spur. 4m wide x 0.4m high.

PRN 166615 NPRN 534647 Bryn Gwyn, quarry II SO0377182378

Quarry Modern Negligible value

Modern quarry.

PRN 166616 Ty'n-y-ddol sheep fold SO0442982962

Sheep fold Post medieval Negligible value

Sheepfold on second edition OS 1:2500 map of 1903. No visible remains.

PRN 166617 Ddullui Bank quarry SO0505580994

Quarry Post medieval Negligible value

Old quarry depicted on the 1889 OS map. 15m diameter x 3m deep.

PRN 166618 Red Lion gravel pit SO0491277210

Gravel pit Post medieval Negligible value

Old gravel pit depicted on first edition 1889 Ordnance Survey map.

PRN 166619 Cwm Defaid sheepfold SO0397277159

Sheep fold Post medieval Negligible value

Sheepfold depicted on OS 1:2500 map of 1903. No visible remains.

PRN 166620 Bryn-gwaun footbridge SO0368582361

Bridge Post medieval Negligible value

Footbridge depicted on OS 1:2500 map of 1903. No longer present.

PRN 166621	Fuallt clearance cairn	SO0386479267
Clearance cairn	Post Medieval	Negligible value

Recorded as possible remains of a stone building. Photographed (CPAT-CCW/2793-0120). Clearance stone only.

PRN 166622	Bryn Gwain turbary	SO0405282922
Peat cutting	Post medieval	Negligible value

Turbary of 5 acres depicted on the 1839 Mochdre tithe map. No visible remains.

PRN 166623	Waun Ddu Barthog turbary	SO0309681300
Peat cutting	Post medieval	Negligible value

Turbary of 29 acres depicted on the 1847 Llandinam tithe map. No obvious remains.

PRN 166624	Polyn y groes ddu quarry	SO0400083066
Quarry	Modern	Negligible value

Quarry seen on 1990 aerial photograph. 30m diameter.

PRN 166625	Pabyll-wyd-Uchaf ridge and furrow	SO0424282289
Ridge and furrow?	Post medieval	Negligible value

Cultivation strips allegedly seen on aerial photographs. No trace.

PRN 166626	Waun Ddubarthog earthwork	SO03358165
Earthwork	Unknown	Negligible value

Alleged feature near summit, seen on 1990 aerial photograph. Not evident.

PRN 166627	Garn Fach mound	SO04028109
Landform	Unknown	Negligible value

Apparent mound seen on aerial photographs. Landform.

PRN 166628	The Barns platform	SO04658190
House platform?	Medieval?	Unknown value

Recorded building platform with relict field system to east, seen on aerial photographs. No visible evidence.

PRN 166629	Custogion platform	SO04658035
Spring	Unknown	Negligible value

Alleged platform. Natural spring.

PRN 166630	Custogion cropmarks	SO046803
Cropmark	Unknown	Negligible value

Group of rectangular/circular/linear features seen on RAF APs of 1940s. Not visible on the ground. Unlikely to be archaeological.

PRN 166631	Banc Ddu platforms	SO047798
Platform	Medieval?	Medium value

General record for the group of platforms on Banc Du.

PRN 166632	Cefn house	SO0377279325
House	Post Medieval	Low value

Ruinous house on 1889 OS map. Stone built with fireplace at east end.12m x 6m overall. Attached enclosures.

PRN 166633	Cefn clearance cairns	SO04117949
Clearance cairn	Post Medieval	Negligible value

One linear, one sub-circular stone cairn. Clearance.

PRN 166634	David's Well cultivation marks	SO048792
Cultivation marks?	Post Medieval?	Negligible value

Traces of ploughing allegedly seen on 1940s RAF APs. Nothing visible in unimproved pasture.

PRN 166635	Ffordd Las walls	SO049773
Wall?	Post Medieval?	Negligible value

Converging linear stone features, allegedly former field boundaries, on 1990 AP. Nothing visible, probably drainage features.

PRN 166636	Ffordd Las platform	SO04857735
Platform?	Medieval?	Unknown value

Building platform 11m x 4m. 1990 APs suggest others nearby. Nothing visible.

PRN 166637	Brondre-fach Hill platform	SO042765
Landform	Unknown	Negligible value

Record of a building platform. No trace.

PRN 166638	Brondre-fach Hill cairn I	SO0387576300
Round barrow (cairn)	Bronze Age	Medium value

A cairn on local summit, 12.5m diameter x up to 1.3m high. Eroded, loose stone on surface. No visible structure. Depicted on 1817 OS drawing.

PRN 166639	Cwm-defaid platforms	SO04447715
Landform	Unknown	Negligible value

Record of 4 building platforms. No trace in unimproved pasture.

PRN 166641	Brondre-fach Hill boundary I	SO0352276144
Field boundary	Post Medieval	Low value

Redundant field boundary, 3m wide x 0.5m high.

PRN 166642	Brondre-fach Hill boundary II	SO0359376172
Field boundary	Post Medieval	Low value

Redundant field boundary, 3m wide x 0.5m high.

PRN 166643	Brondre-fach Hill short dyke	SO0389176360
Short dyke	Early Medieval	Medium value

Sinuous short dyke crossing ridge. Bank 4m wide x 0.5m high with ditch to north. Within 2km of the boundary of Maelienydd as depicted by Melville Richards.

PRN 166644	Cwm Nant-y-stabl quarry	SO0407176201
Quarry	Post Medieval	Low value

Quarry hollow, 10m x 5m x 0.8m deep with flanking banks. Possible mineral trial.

PRN 166645	Brondre-fach Hill cairn II	SO0402776619
Round barrow (cairn)	Bronze Age	Medium value

Probable burial cairn on local summit. 6m diameter x 0.4m high. Some stone beneath the surface.

PRN 166646	Brondre-fach Hill boundary III	SO0384476748
Field boundary	Post Medieval	Low value

Partly redundant section of hill boundary, 3m wide x 0.5m high.

PRN 166647	Cwm Defaid quarry	SO0390376887
Quarry	Post Medieval	Low value

Area of quarrying on rock scarp. Stone used for nearby walling.

PRN 166648	Cwm defaid pillow mound	SO0387376946
Pillow mound	Post Medieval	Medium value

Classic oval pillow mound, 20m x 5m x 0.8m high. Possibly another 10m to south-west but indistinct.

PRN 166649	Cwm Defaid long hut	SO0389876963
Long hut	Post Medieval	Medium value

Probable long hut 11m x 5m x 0.2m high on slight platform. Possibly related to nearby pillow mound.

PRN 166650	Garn Fach platform I	SO0403680621
Platform	Prehistoric?	Medium value

Sub-circular platform on steep slope. Approximately 5m diameter.

PRN 166651	Garn Fach platform II	SO0402280624
Platform	Prehistoric?	Medium value

Sub-circular platform on steep slope. Approximately 5m diameter.

PRN 166652	Pabyll-wyd-uchaf platform	SO0421882283
Platform	Post Medieval	Low value

Platform next to stream, 20m x 12m. Stone revetment 1m high on south. Possibly the site of an agricultural building.

PRN 166653	Blue Lins Brook mound	SO0399682320
Mound	Unknown	Unknown value

Mound next to stream, 9m x 3.5m x 1.8m high. No obvious function, could be natural.

PRN 166654	Bryn-gwaun long hut I	SO0394782289
Long hut	Medieval	Medium value

Possible long hut, 15m x 6m wide x 0.3m high. Interior slightly hollowed.

PRN 166655	Bryn-gwaun long hut II	SO0387582576
Long hut	Medieval	Medium value

Long hut in narrow valley next to stream. 8m x 4m x 0.4m high. Entrance and possible internal division.

PRN 166656	Banc Gwyn stone	SO0392679845
Landform	Unknown	Negligible value

Recorded as part of an alleged prehistoric alignment. Quartz vein having 'snake' appearance. Natural bedrock. Outside proposed wind farm.

PRN 166657	Banc Gwyn cairn	SO0406779579
Round barrow (cairn)	Bronze Age	Medium value

Round barrow with central hollow. A few stones visible but no structure evident. 8m diameter x 0.7m high.

PRN 166658	Custogion Brook bank	SO0461280217
Field boundary	Post Medieval	Low value

Earthwork bank, 4m wide x 0.5m high.

PRN 166659	Banc Du boundary I	SO0493879694
Field boundary	Medieval?	Low value

Possible former field boundary. May be associated with PRN 166660.

PRN 166660	Banc Du boundary II	SO0464679742
Field boundary	Medieval?	Low value

Redundant boundary on the northern slope of Banc Du.

PRN 166661	Banc Du platform I	SO0476279761
Platform	Medieval?	Medium value

Platform approximately 20m east/west x 12m. Possible site of building.

PRN 166662	Banc Du platform II	SO0480479764
Platform	Medieval	Medium value

Platform approximately 40m north/south x 14m overall. Probable site of building.

PRN 166663	Banc Du platform III	SO0484779731
Platform	Medieval?	Medium value

Terrace/platform approximately 45m east/west x 20m. Possible site of building(s).

PRN 166664	Brondre Fawr Hill bank II	SO0477777761
Field boundary	Post Medieval	Low value

Former boundary immediately to south of farm track. 1.5m wide x 0.6m high.

PRN 166665	Fowlers Horse Block building	SO0424878970
Building	Post Medieval?	Medium value

Remains of stone building, within 10m of the stone. Partly buried by farm track, 6m x 4m x 0.5m high visible.

PRN 166666	Brondre Fawr Hill cairn	SO0421178422
Round barrow (cairn)	Bronze Age	Medium value

Cairn on ridge, 10m diameter x 0.5m high. Crest plough damaged and stone visible. Outside proposed wind farm.

PRN 166667	Brondre Fawr Hill clearance cairn	SO0443278798
Clearance cairn	Post Medieval	Negligible value

A collection of fairly well-set large stones, 3m overall diameter.

PRN 166668	Garn Fach cairn	SO0417681513
Round barrow (cairn)	Bronze Age	Unknown value

Cairn/round barrow on Garn Fach depicted on 1817 OS drawing. Area afforested so site unlocated. Outside proposed wind farm.

PRN 166936	Bryn-gwaun peat cutting	SO0373681878
Peat cutting	Post medieval	Low value

Area of peat cutting, 125m by 40m.

PRN 166937	Bryn-gwaun cairn	SO0373582034
Round barrow (cairn)	Bronze Age	Medium value

Round barrow (cairn) on small plateau near Bryn-gwaun, c.4.8m in diameter and 0.5m high, with a central hollow.

PRN 166938	Bryn-gwaun standing stones	SO0377381942
Standing stone	Bronze Age	Medium value

Pair of end-set stones collectively aligned east/west and up to 1.2m high. Morphology suggests possibly part of a stone circle but this is uncertain.

PRN 166939	Bryn-gwaun farmstead	SO0371582294
Farmstead	Post medieval	Low value

Encroachment farmstead within an enclosure. Only one surviving building, the rest levelled but probably with sub-surface traces. Area c.50m across.

11.3 Archaeology and Cultural Heritage Plates

Plate 11.1 - Pegwn Bach barrow (MG126) looking North with existing turbines in setting (located off-site to the west)

Plate 11.2 - Fowler's Arm Chair (RD039) looking North with existing Llandinam turbines on skyline

Plate 11.3 - Domen Ddu barrow (RD248) looking North-East (located off-site to the west of the central part)

Plate 11.4 - Fowler's Arm Chair Stone Circle (RD039) detail looking North-West with Llandinam turbines on skyline

Plate 11.5 - Fowler's Arm Chair stone circle (RD039) looking South-West (located in centre of proposed development)

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Plate 11.8 - PRN166657 Banc Gwyn cairn looking North-West (located north of Fowler's Arm Chair)

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11.4 Geophys Report

GEOPHYSICS FOR ARCHAEOLOGY & ENGINEERING

GEOPHYSICAL SURVEY REPORT

Garn Fach Wind Farm, Powys, Wales

Client

Dulas Ltd

Survey Report

02957

Date

May 2021

REGISTERED ORGANISATION CIfA

Survey Report 02957: Garn Fach Wind Farm, Powys, Wales

Survey dates	4 - 13 May 2021
Field co-ordinator	James Lorimer BA
Field Team	Jasmin Folland MA Stephen Weston BA
Report Date	25 May 2021
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Appendix B Technical Information: Magnetic Theory

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2. SURVEY TECHNIQUE

Detailed magnetic survey (magnetometry) was chosen as the most efficient and effective method of locating the type of archaeological anomalies which might be expected at this site.

Bartington Grad 601-2 Traverse Interval 1.0m Sample Interval 0.25m

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3 SUMMARY OF RESULTS

3.1 A detailed magnetometer survey was conducted over approximately 43 hectares over four parcels of land near Garn Fach, Powys. No definite archaeological anomalies have been identified. A tentative enclosure has been mapped, however its exact origin is uncertain, while other linear and curvilinear trends also have an uncertain origin. Evidence for land drains, possible ploughing effects and former field boundaries have been mapped, along with large areas of natural magnetic variation.

4 INTRODUCTION

4.1 **SUMO Geophysics Ltd** were commissioned to undertake a geophysical survey of an area outlined for development. This survey forms part of an archaeological investigation being undertaken by **Dulas Ltd**.

4.2 Site details

NGR / Postcode	SO 042 810 / LD1 6YS
Location	The site occupies four parcels of land near Garn Fach,and lies approximately 10km south-west of Newtown and 8km east of Llanidloes, Powys. The A483 lies roughly 4km to the east.
Unitary Authority	Powys
Parish	Mochdre, Llanbadarn Fynydd, Abbey Cwmhir
Topography	Steeply undulating slopes / hilltops
Current Land Use	Rough pasture
Geology (BGS 2021)	Solid: Penstrowed Grits Formation - sandstone and mudstone. Superficial: None recorded.
Soils (CU 2021)	Soilscape 19: slowly permeable wet very acid upland soils with a peaty surface.
Archaeology (CPAT 2021	Clwyd-Powys Archaeological Trust Historic Environment Record (HER) identifies numerous heritage assets within the site and the surrounding area. The Scheduled Monument (RD039) of Fowler's Arm Chair Stone Circle and Round Cairns, Banc Du are located immediately south of the southern extent of the site, while the Scheduled Monuments of Polyn y Groes Ddu Round Cairn (MG290) and Polyn y Groes Ddu Round Barrow (MG086) are located just north-west of the northern most area. Numerous cairns, barrows and stone settings are located in the survey areas and immediate vicinity, with further undated enclosures, ridge and furrow and post-medieval farmsteads / buildings also noted.
Survey Methods	Magnetometer survey (fluxgate gradiometer)
Study Area	*c.* 43 ha

4.3 **Aims and Objectives**

To locate and characterise any anomalies of possible archaeological interest within the study area.

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5 RESULTS

The survey has been divided into thirteen survey areas (Areas 1-13) and specific anomalies have been given numerical labels [1] [2] *which appear in the text below, as well as on the Interpretation Figure(s).*

5.1 ***Probable / Possible Archaeology***

5.1.1 Despite the high density of known archaeological sites in the vicinity of the survey areas, no magnetic responses have been recorded that could be interpreted as being of definite interest.

5.2 ***Uncertain***

5.2.1 A number of linear and curvilinear trends [1] in the south of Area 2 and [2] in Area 6 have an uncertain origin. The responses [1] could be interpreted as concentric ditches that may form an enclosure approximately 85m in diameter while those at [2] could indicate a second enclosure approximately 62m x 62m in size. However, the interpretations are extremely tentative, and given the high number of curvilinear and sinuous natural responses in the vicinity, it is equally feasible that the responses have a geological or topographical explanation.

5.2.2 Further linear trends [3] in Area 1 and [4] in Area 2 are perhaps suggestive of respectively a trackway and a small enclosure, though it is also possible that they are natural or agricultural in origin.

5.2.3 Discrete positive anomalies [5-6] are visible in Areas 1 and 6. These are thought most likely to have a natural explanation, although an archaeological interpretation cannot be entirely ruled out given the number of archaeological sites known within the vicinity of the site.

5.3 ***Former Field Boundary***

5.3.1 A linear response [7] in Areas 3 and 4, plus further linear features in Area 8 [8-9] correspond with the locations of former field boundaries, visible as such on available historic Ordnance Survey maps dating to *c.* 1888.

5.4 ***Agricultural – Ploughing / Land Drains***

5.4.1 Possible evidence for modern agricultural / ploughing activity can be seen in Area 13 in the form of straight, parallel linear anomalies.

5.4.2 A series of weak linear anomalies comprising positive and negative components [10] can be seen in Area 8 and are indicative of land drains.

5.5 ***Natural / Geological / Pedological / Topographic***

5.5.1 Numerous amorphous and sinuous areas of enhanced magnetic response are visible across the whole of the site. These are most likely natural in origin, i.e. a result of geological, pedological or topographic variations.

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5.6 ***Ferrous / Magnetic Disturbance***

5.6.1 Ferrous responses close to boundaries are due to adjacent fences and gates, while a number of discrete ferrous anomalies in Area 2 are a result of a large pylon and cable supports. Smaller scale ferrous anomalies ("iron spikes") are present throughout the data and are characteristic of small pieces of ferrous debris (or brick / tile) in the topsoil; they are commonly assigned a modern origin. Only the most prominent of these are highlighted on the interpretation diagram.

6 DATA APPRAISAL & CONFIDENCE ASSESSMENT

6.1 Historic England guidelines (EH 2008) Table 4 states that the typical magnetic response on the local soils / geology is variable. The results from this survey indicate the presence of linear trends of uncertain origin, along with former field boundaries and land drains. There is no *a priori* reason to suggest that archaeological anomalies would not have been detected, should they be present.

7 CONCLUSION

7.1 The survey at Garn Fach has not identified any anomalies of definite archaeological interest, however a number of linear and curvilinear trends of uncertain origin have been detected. The uncertain trends include tentative enclosures, though it is equally feasible that the responses are a result of topographic or geological variations. A few former field boundaries have been mapped, along with a series of land drains and possible evidence for modern ploughing activity. Large areas of natural magnetic variation are also visible in the results, as well as areas of modern ferrous disturbance.

8 REFERENCES

BGS 2020 British Geological Survey, Geology of Britain viewer [accessed 25/05/2021] *website*: (http://www.bgs.ac.uk/opengeoscience/home.html?Accordion1=1#maps)

ClfA 2014 *Standard and Guidance for Archaeological Geophysical Survey*. Amended 2016. ClfA Guidance note. Chartered Institute for Archaeologists, Reading http://www.archaeologists.net/sites/default/files/ClfAS%26GGeophysics_2.pdf

CPAT 2021 Clwyd-Powys Archaeological Trust, Historic Environment Record [accessed 15/04/2021] *website:* www.archwilio.org.uk

CU 2020 The Soils Guide. Available: www.landis.org.uk. Cranfield University, UK. [accessed 25/05 /2021] *website: http://mapapps2.bgs.ac.uk/ukso/home.html*

EAC 2016 *EAC Guidelines for the Use of Geophysics in Archaeology,* European Archaeological Council, Guidelines 2.

EH 2008 *Geophysical Survey in Archaeological Field Evaluation.* English Heritage, Swindon https://content.historicengland.org.uk/images-books/publications/geophysical-survey-in-archaeological-field-evaluation/geophysics-guidelines.pdf/

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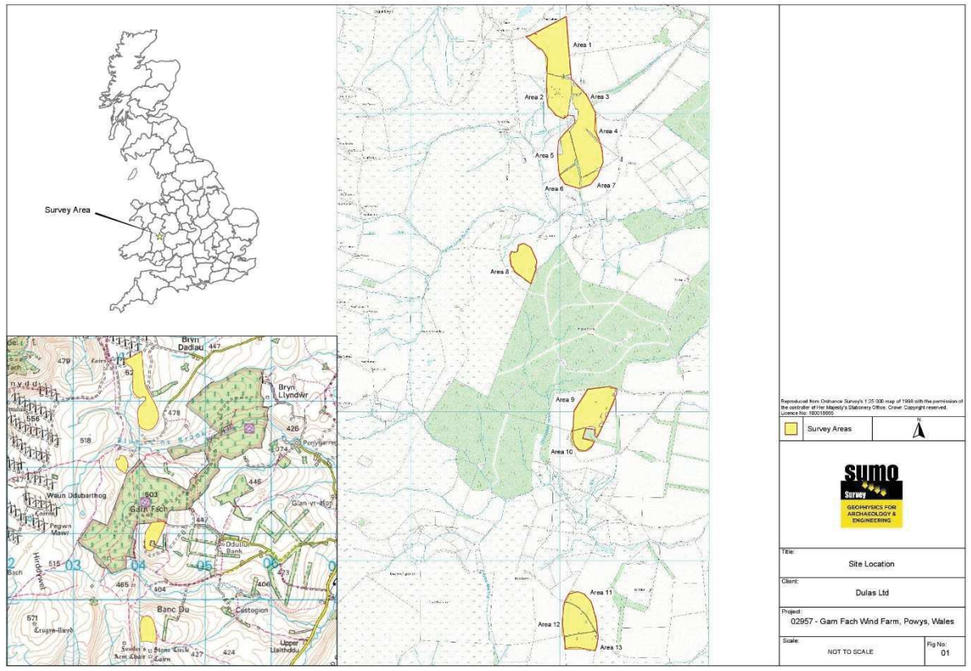

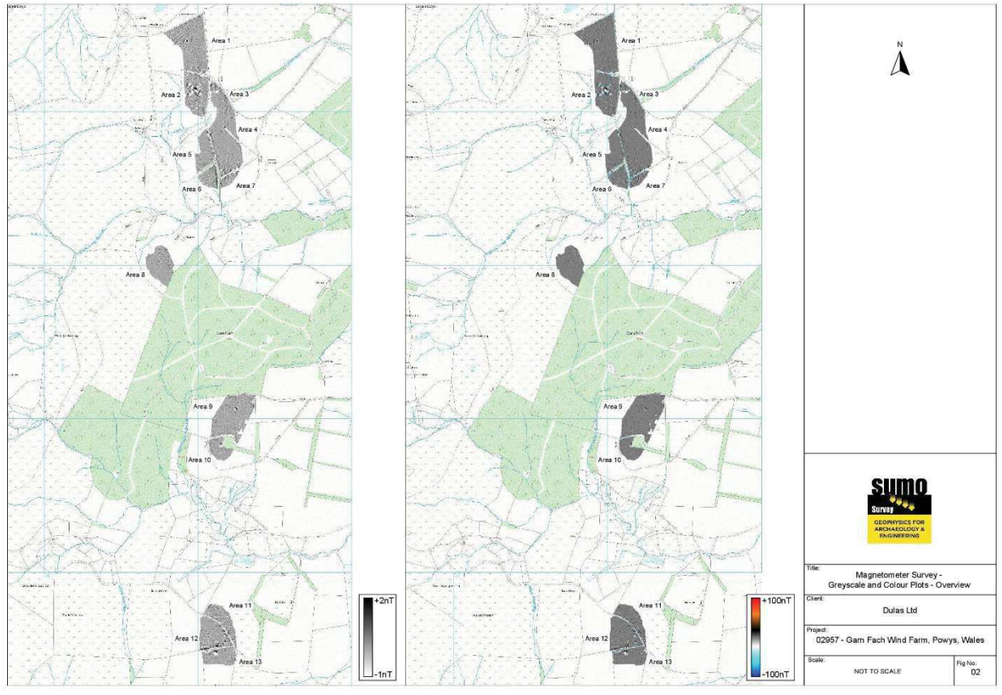

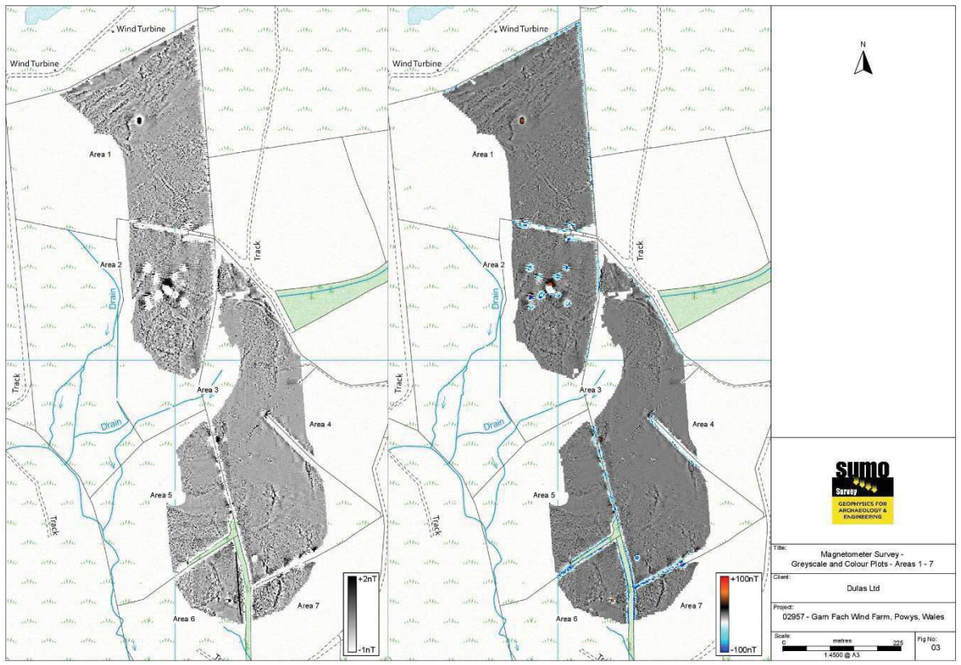
Wind Turbine
Wind Turbine
Wind Turbine
Wind Turbine
Area 1
Area 2
Area 3
Area 4
Area 5
Area 6
Area 7
Track
Drain
+2nT
-1nT
+100nT
-100nT
N
sumo Survey
GEOPHYSICS FOR ARCHAEOLOGY & ENGINEERING
Title: Magnetometer Survey - Greyscale and Colour Plots - Areas 1 - 7
Client: Dulas Ltd
Project: 02957 - Garn Fach Wind Farm, Powys, Wales
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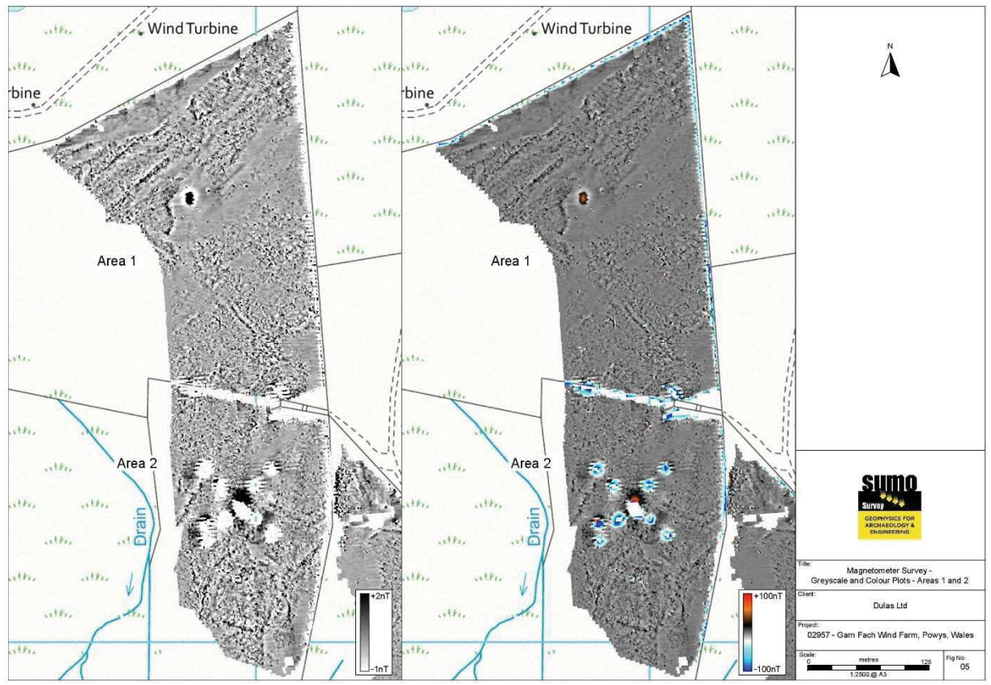
Wind Turbine
Wind Turbine
Area 1
Area 2
Drain
+2nT
-1nT
+100nT
-100nT
N
sumo Survey
GEOPHYSICS FOR ARCHAEOLOGY & ENGINEERING
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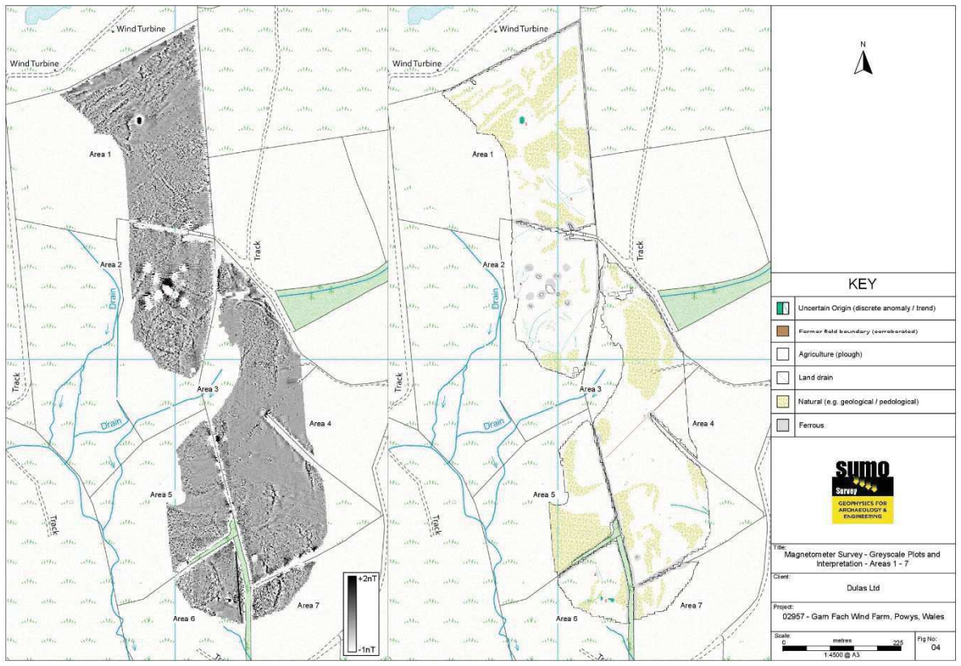
Wind Turbine
Wind Turbine
Wind Turbine
Wind Turbine
Area 1
Area 2
Area 3
Area 4
Area 5
Area 6
Area 7
Track
Drain
+2nT
-1nT
N
KEY
Uncertain Origin (discrete anomaly / trend)
Former field boundary (corroborated)
Agriculture (plough)
Land drain
Natural (e.g. geological / pedological)
Ferrous
sumo Survey
GEOPHYSICS FOR ARCHAEOLOGY & ENGINEERING
Title: Magnetometer Survey - Greyscale Plots and Interpretation - Areas 1 - 7
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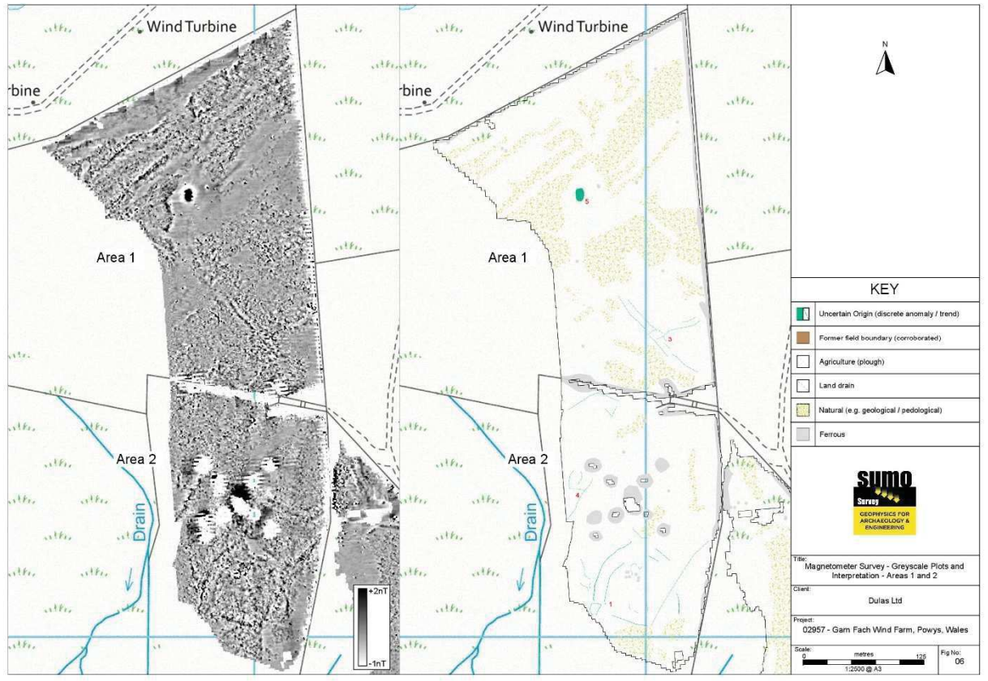
Wind Turbine
Wind Turbine
Area 1
Area 2
Drain
+2nT
-1nT
N
KEY
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Former field boundary (corroborated)
Agriculture (plough)
Land drain
Natural (e.g. geological / pedological)
Ferrous
sumo Survey
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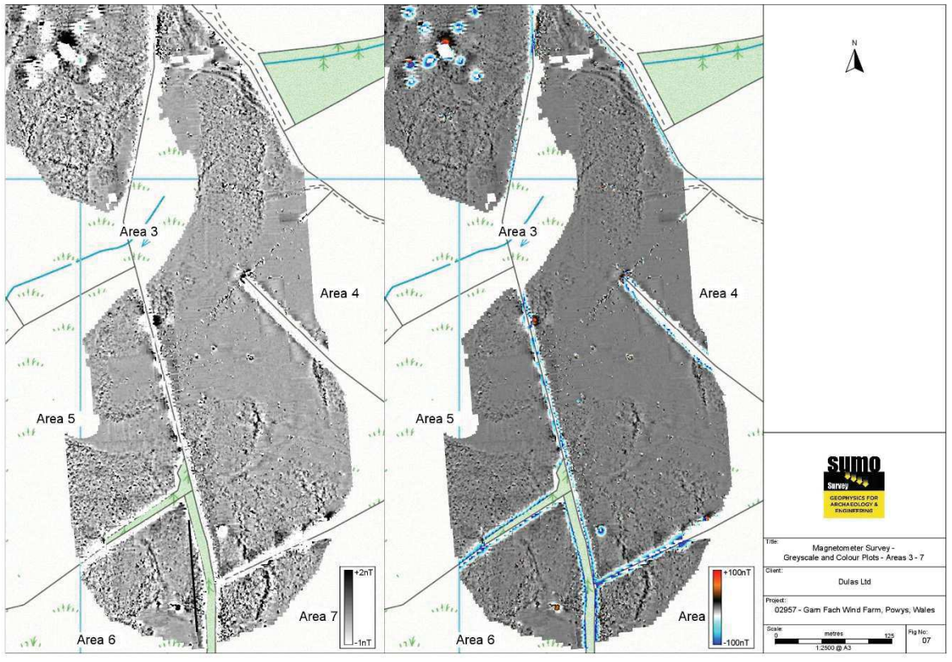
Area 3
Area 4
Area 5
Area 6
Area 7
+2nT
-1nT
+100nT
-100nT
N
sumo Survey
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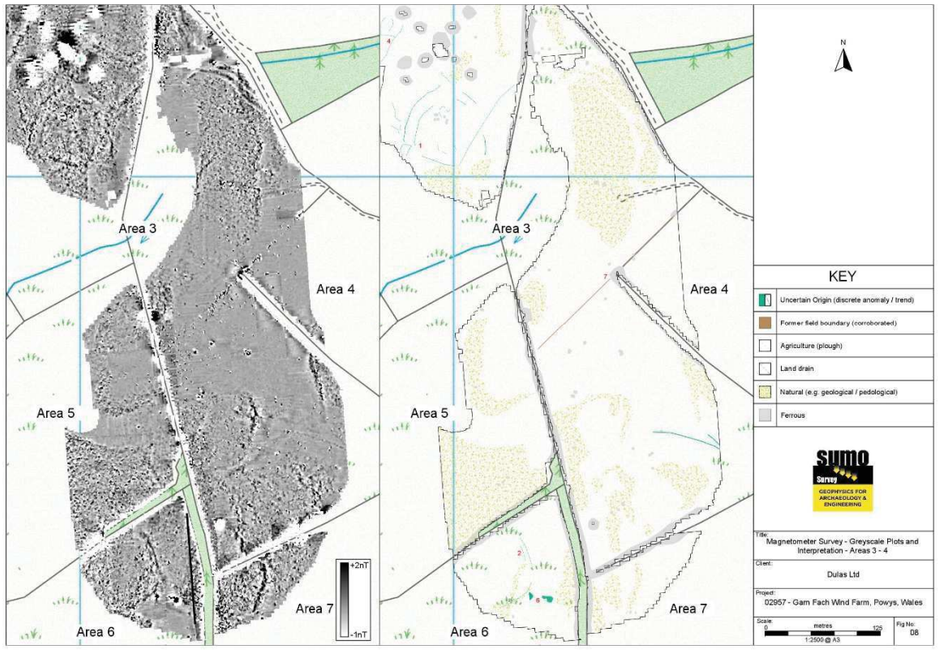
Area 3
Area 4
Area 5
Area 6
Area 7
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-1nT
N
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Former field boundary (corroborated)
Agriculture (plough)
Land drain
Natural (e.g. geological / pedological)
Ferrous
sumo Survey
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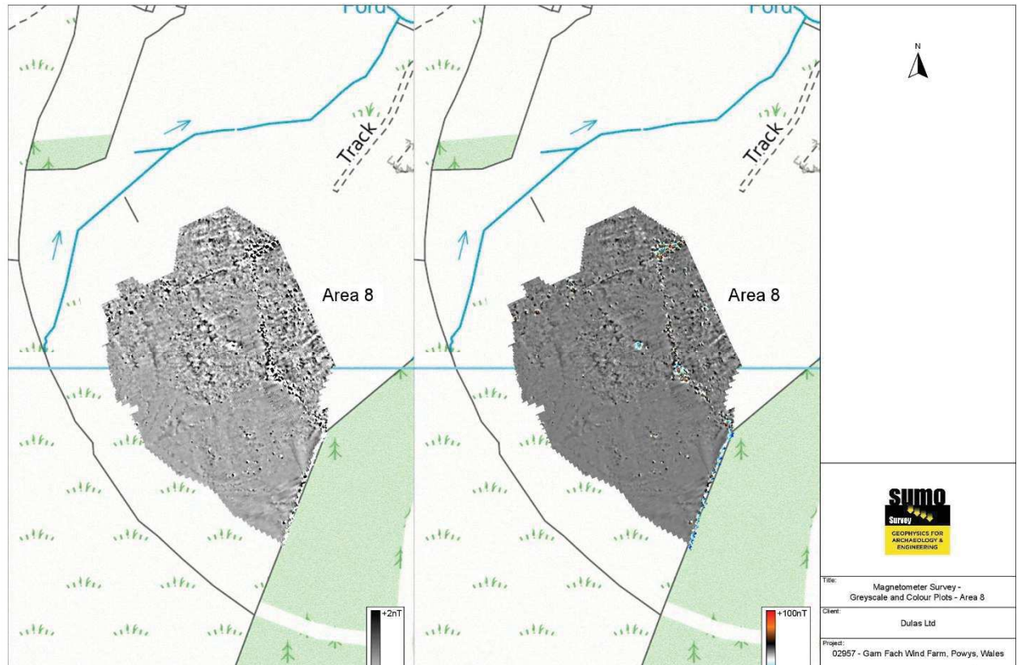
Track
Area 8
+2nT
-1nT
+100nT
-100nT
N
sumo Survey
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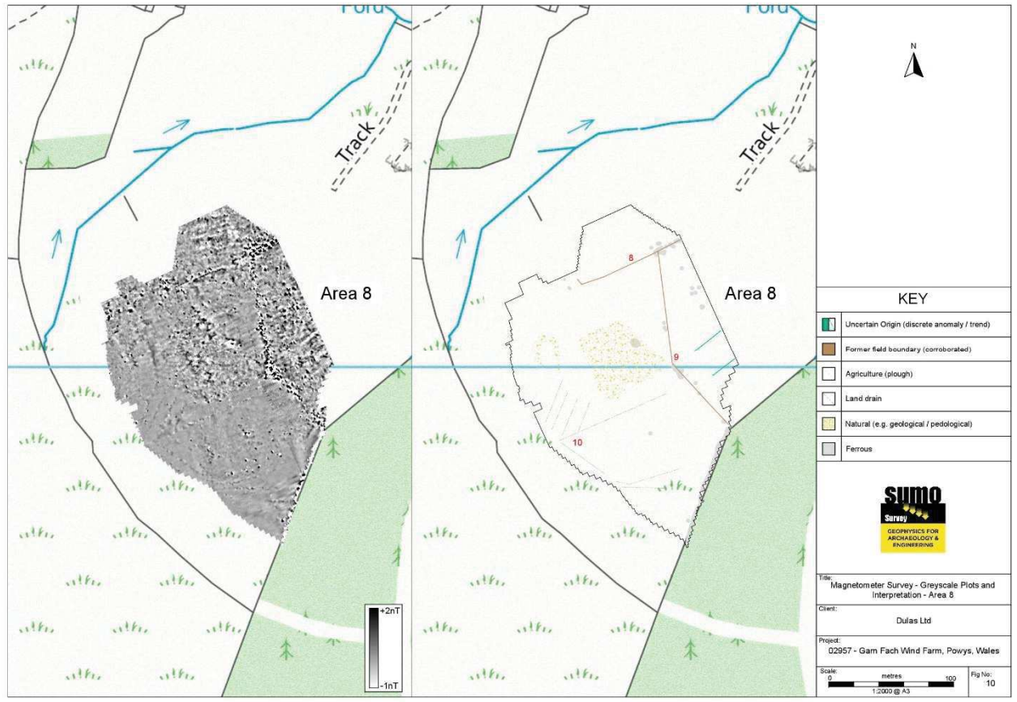
Track
Area 8
8
9
10
+2nT
-1nT
N
KEY
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Former field boundary (corroborated)
Agriculture (plough)
Land drain
Natural (e.g. geological / pedological)
Ferrous
sumo Survey
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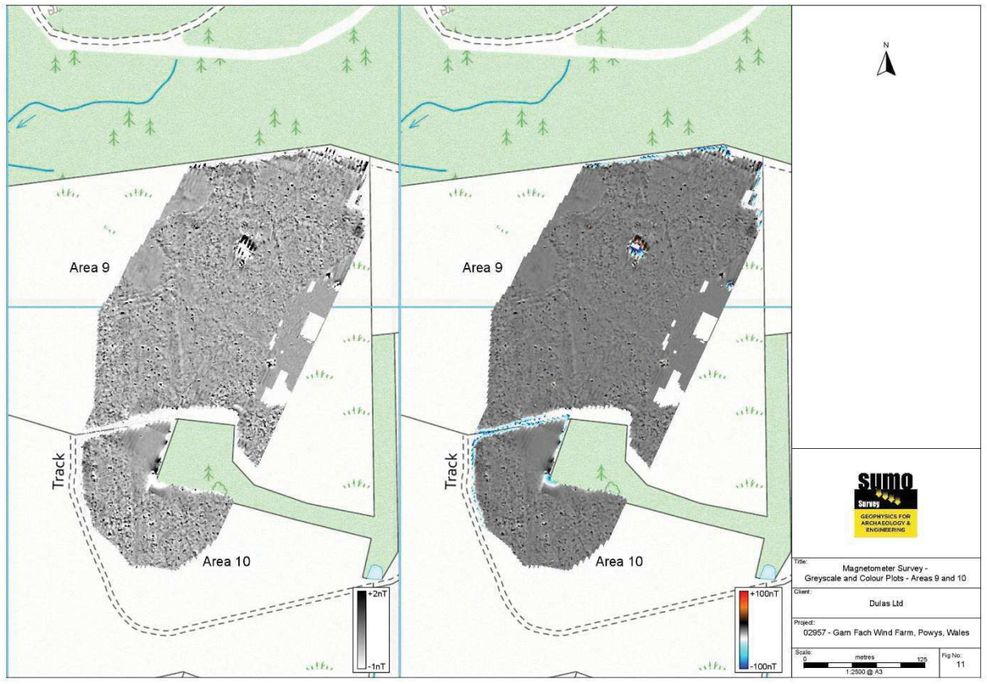
Area 9
Area 9
Track
Track
Area 10
Area 10
+2nT
-1nT
+100nT
-100nT
N
sumo Survey
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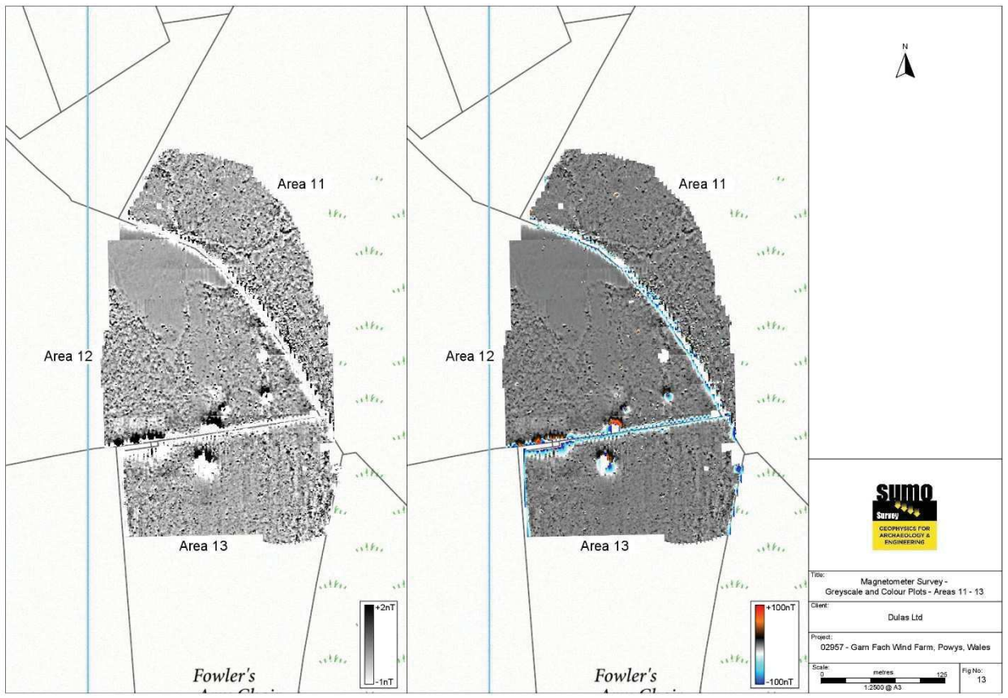
Area 11
Area 11
Area 12
Area 12
Area 13
Area 13
Fowler's
Fowler's
+2nT
-1nT
+100nT
-100nT
N
sumo Survey
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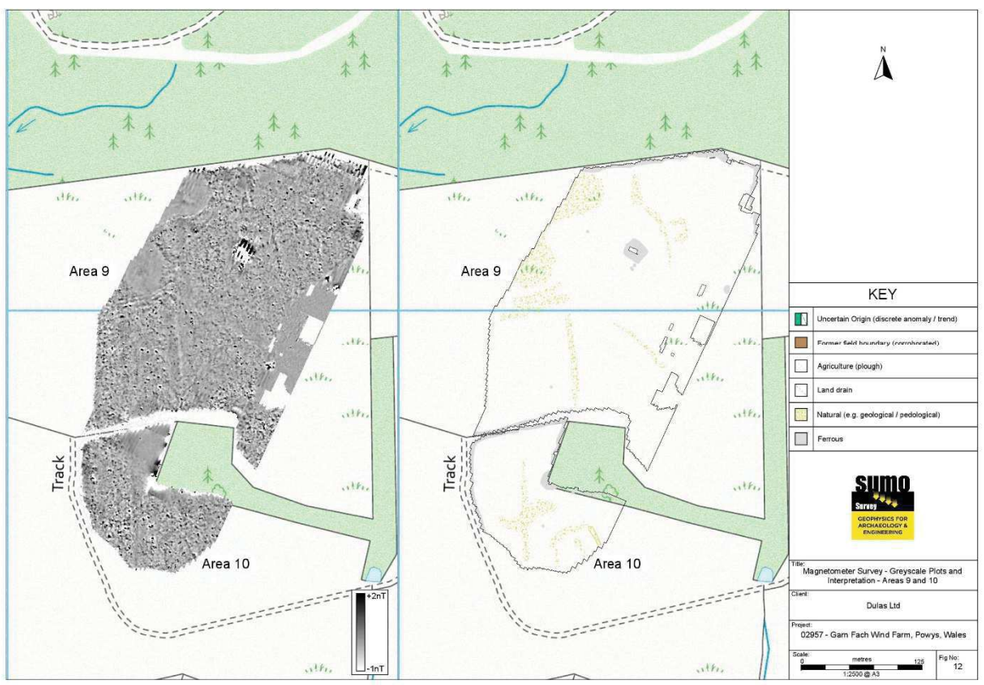
Area 9
Area 9
Track
Track
Area 10
Area 10
+2nT
-1nT
N
KEY
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Former field boundary (corroborated)
Agriculture (plough)
Land drain
Natural (e.g. geological / pedological)
Ferrous
sumo Survey
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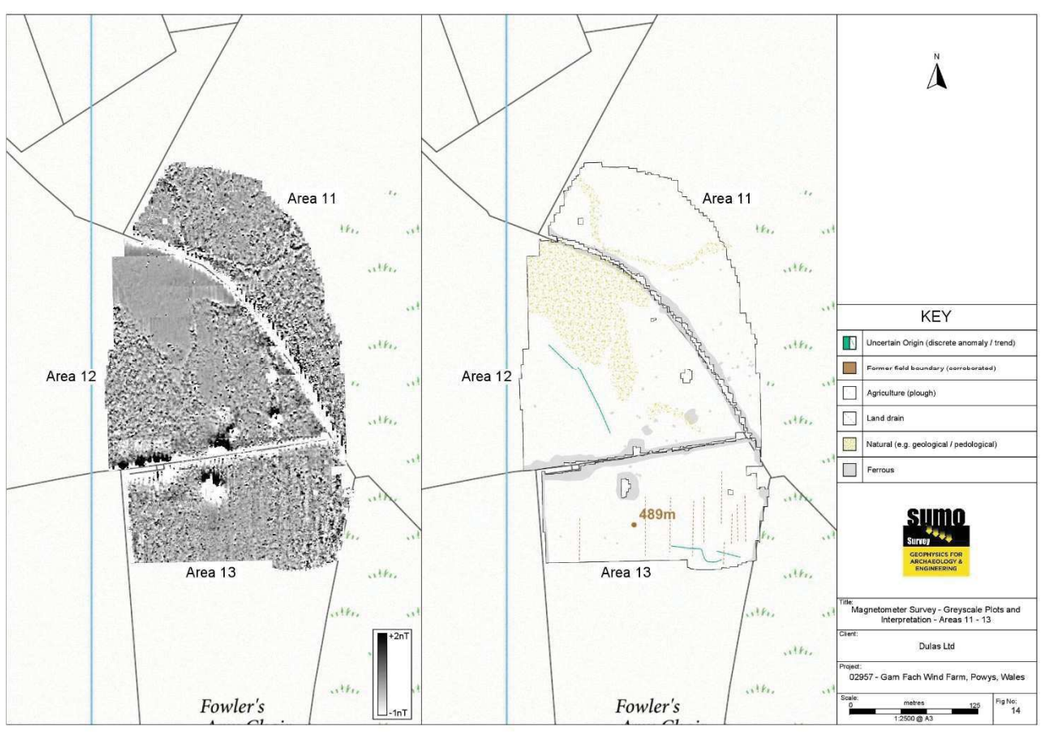
Area 11
Area 11
Area 12
Area 12
Area 13
Area 13
489m
Fowler's
Fowler's
+2nT
-1nT
N
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Agriculture (plough)
Land drain
Natural (e.g. geological / pedological)
Ferrous
sumo Survey
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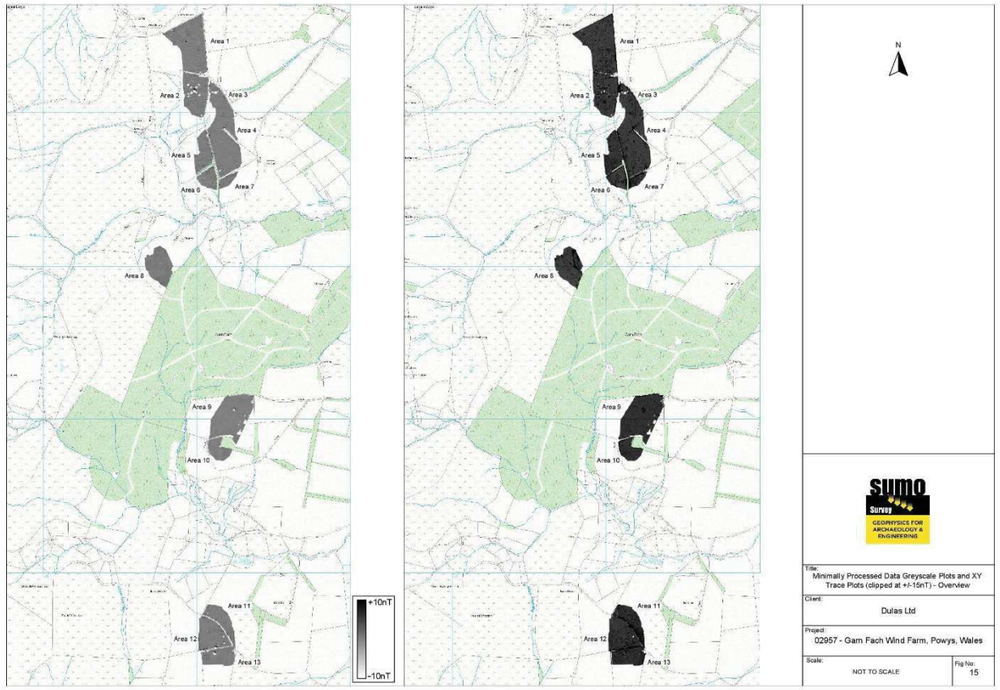
Area 1
Area 2
Area 3
Area 4
Area 5
Area 6
Area 7
Area 8
Area 9
Area 10
Area 11
Area 12
Area 13
+10nT
-10nT
N
sumo Survey
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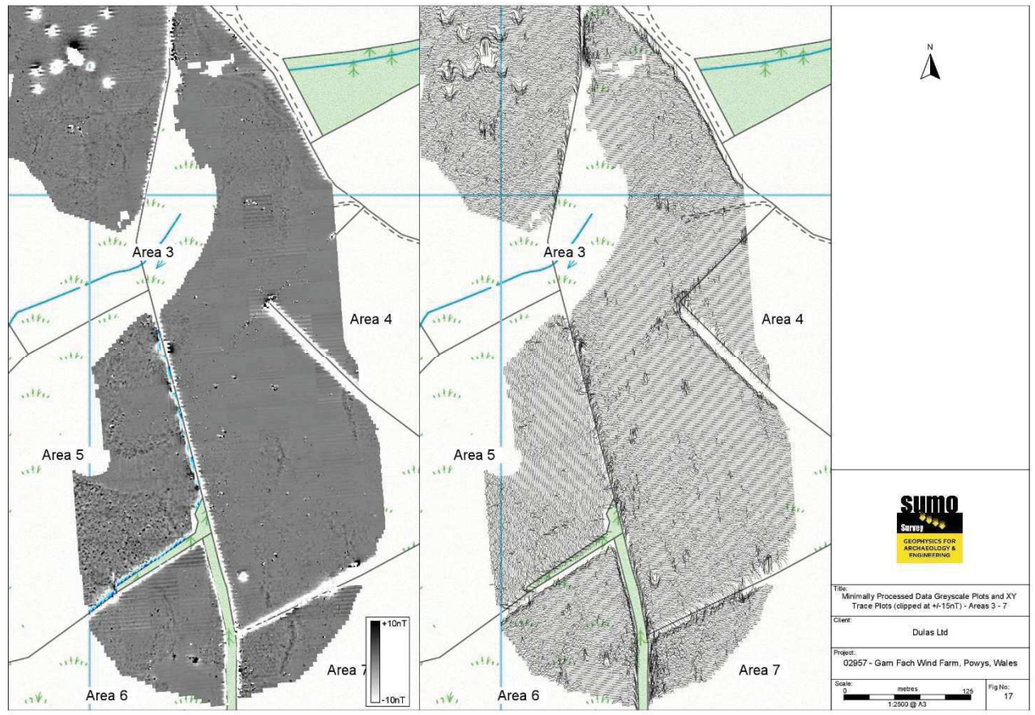
Area 3
Area 4
Area 5
Area 6
Area 7
+10nT
-10nT
N
sumo Survey
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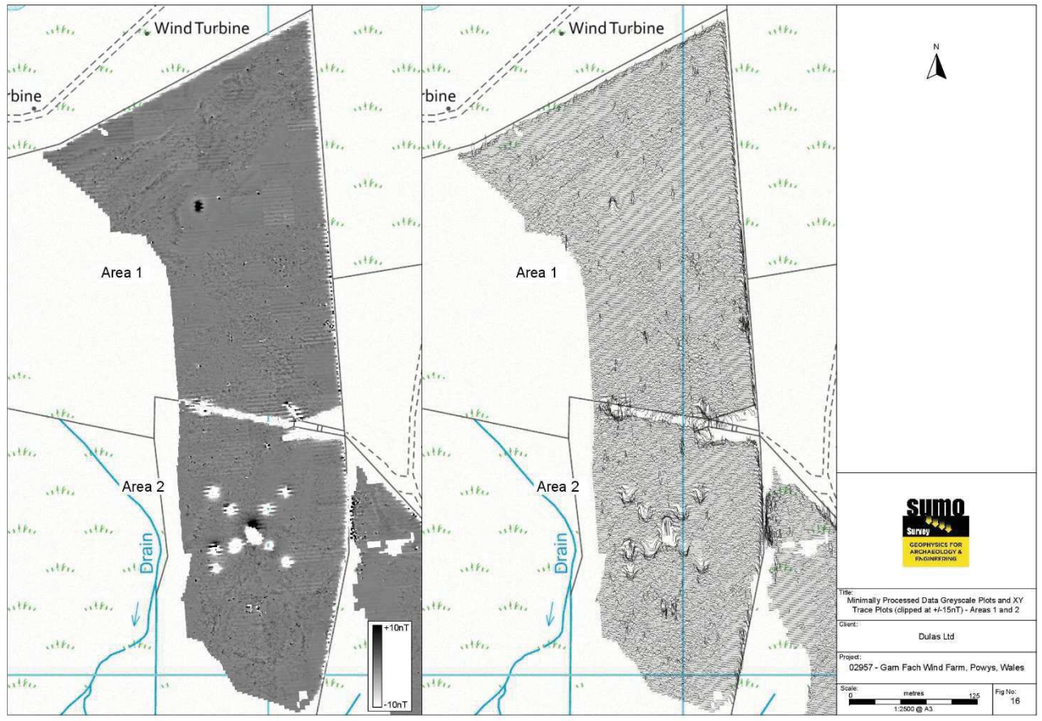
Wind Turbine
Area 1
Area 2
Drain
+10nT
-10nT
N
sumo Survey
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Client: Dulas Ltd
Project: 02957 - Garn Fach Wind Farm, Powys, Wales
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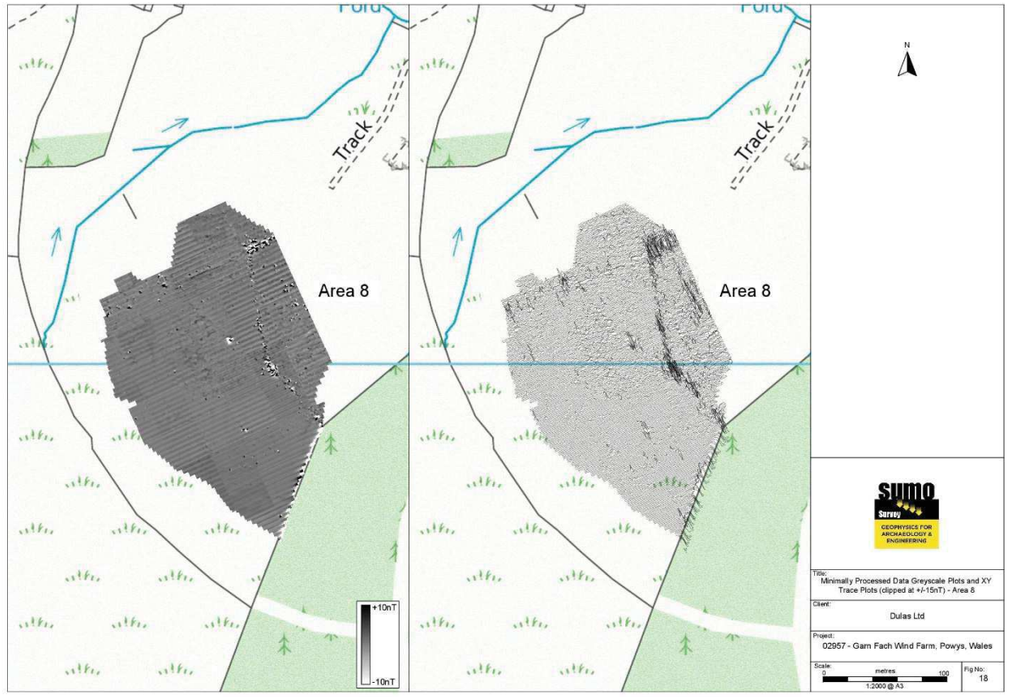
Track
Area 8
+10nT
-10nT
N
sumo Survey
GEOPHYSICS FOR ARCHAEOLOGY & ENGINEERING
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Client: Dulas Ltd
Project: 02957 - Garn Fach Wind Farm, Powys, Wales
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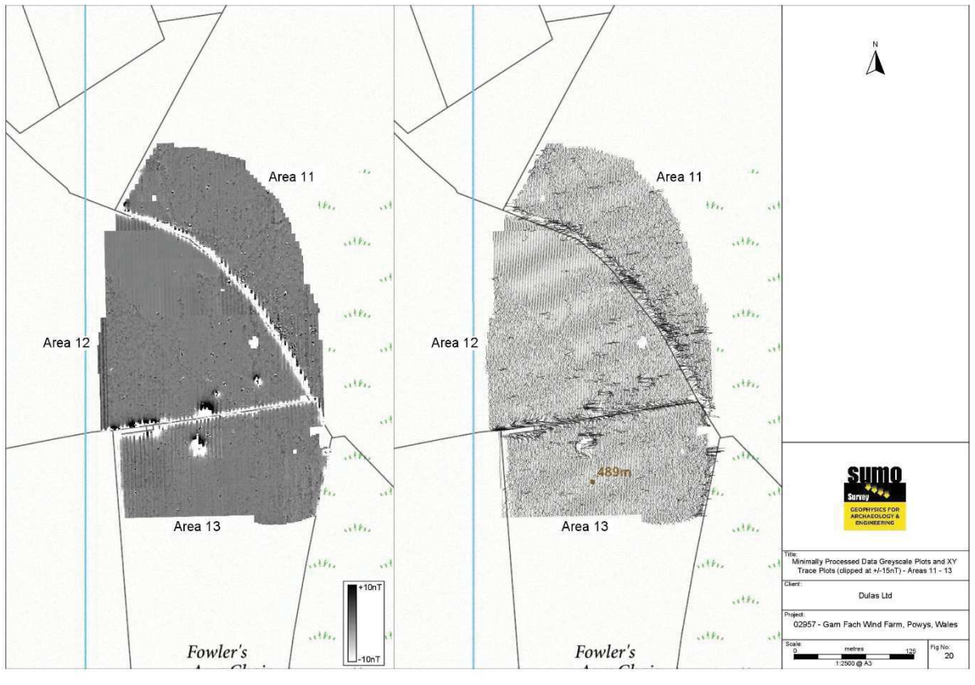

Appendix A - Technical Information: Magnetometer Survey Method, Processing and Presentation

Standards & Guidance

This report and all fieldwork have been conducted in accordance with the latest guidance documents issued by Historic England (EH 2008) (then English Heritage), the Chartered Institute for Archaeologists (CIfA 2014) and the European Archaeological Council (EAC 2016).

Grid Positioning

For hand held gradiometers the location of the survey grids has been plotted together with the referencing information. Grids were set out using a Trimble R8 Real Time Kinematic (RTK) VRS Now GNSS GPS system.

An RTK GPS (Real-time Kinematic Global Positioning System) can locate a point on the ground to a far greater accuracy than a standard GPS unit. A standard GPS suffers from errors created by satellite orbit errors, clock errors and atmospheric interference, resulting in an accuracy of 5m-10m. An RTK system uses a single base station receiver and a number of mobile units. The base station re-broadcasts the phase of the carrier it measured, and the mobile units compare their own phase measurements with those they received from the base station. This results in an accuracy of around 0.01m.

Technique	Instrument	Traverse Interval	Sample Interval
Magnetometer	Bartington Grad 601-2	1m	0.25m

Instrumentation: Bartington *Grad* 601-2

Bartington instruments operate in a gradiometer configuration which comprises fluxgate sensors mounted vertically, set 1.0m apart. The fluxgate gradiometer suppresses any diurnal or regional effects. The instruments are carried, or cart mounted, with the bottom sensor approximately 0.1-0.3m from the ground surface. At each survey station, the difference in the magnetic field between the two fluxgates is measured in nanoTesla (nT). The sensitivity of the instrument can be adjusted; for most archaeological surveys the most sensitive range (0.1nT) is used. Generally, features up to 1m deep may be detected by this method, though strongly magnetic objects may be visible at greater depths. The Bartington instrument can collect two lines of data per traverse with gradiometer units mounted laterally with a separation of 1.0m. The readings are logged consecutively into the data logger which in turn is daily down-loaded into a portable computer whilst on site. At the end of each site survey, data is transferred to the office for processing and presentation.

Data Processing

Zero Mean Traverse	This process sets the background mean of each traverse within each grid to zero. The operation removes striping effects and edge discontinuities over the whole of the data set.
Step Correction (De-stagger)	When gradiometer data are collected in 'zig-zag' fashion, stepping errors can sometimes arise. These occur because of a slight difference in the speed of walking on the forward and reverse traverses. The result is a staggered effect in the data, which is particularly noticeable on linear anomalies. This process corrects these errors.

Display

Greyscale/ Colourscale Plot	This format divides a given range of readings into a set number of classes. Each class is represented by a specific shade of grey, the intensity increasing with value. All values above the given range are allocated the same shade (maximum intensity); similarly, all values below the given range are represented by the minimum intensity shade. Similar plots can be produced in colour, either using a wide range of colours or by selecting two or three colours to represent positive and negative values. The assigned range (plotting levels) can be adjusted to emphasise different anomalies in the data-set.

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Presentation of results and interpretation

The presentation of the results includes a 'minimally processed data' and a 'processed data' greyscale plot. Magnetic anomalies are identified, interpreted and plotted onto the 'Interpretation' drawings.

When interpreting the results, several factors are taken into consideration, including the nature of archaeological features being investigated and the local conditions at the site (geology, pedology, topography etc.). Anomalies are categorised by their potential origin. Where responses can be related to other existing evidence, the anomalies will be given specific categories, such as: Abbey Wall or Roman Road. Where the interpretation is based largely on the geophysical data, levels of confidence are implied, for example: Probable, or Possible Archaeology. The former is used for a confident interpretation, based on anomaly definition and/or other corroborative data such as cropmarks. Poor anomaly definition, a lack of clear patterns to the responses and an absence of other supporting data reduces confidence, hence the classification Possible.

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Interpretation Categories

In certain circumstances (usually when there is corroborative evidence from desk-based or excavation data) very specific interpretations can be assigned to magnetic anomalies (for example, *Roman Road, Wall,* etc.) and where appropriate, such interpretations will be applied. The list below outlines the generic categories commonly used in the interpretation of the results.

Archaeology / Probable Archaeology	This term is used when the form, nature and pattern of the responses are clearly or very probably archaeological and /or if corroborative evidence is available. These anomalies, whilst considered anthropogenic, could be of any age.
Possible Archaeology	These anomalies exhibit either weak signal strength and / or poor definition, or form incomplete archaeological patterns, thereby reducing the level of confidence in the interpretation. Although the archaeological interpretation is favoured, they may be the result of variable soil depth, plough damage or even aliasing as a result of data collection orientation.
Industrial / Burnt-Fired	Strong magnetic anomalies that, due to their shape and form or the context in which they are found, suggest the presence of kilns, ovens, corn dryers, metal-working areas or hearths. It should be noted that in many instances modern ferrous material can produce similar magnetic anomalies.
Former Field Boundary (probable & possible)	Anomalies that correspond to former boundaries indicated on historic mapping, or which are clearly a continuation of existing land divisions. Possible denotes less confidence where the anomaly may not be shown on historic mapping but nevertheless the anomaly displays all the characteristics of a field boundary.
Ridge & Furrow	Parallel linear anomalies whose broad spacing suggests ridge and furrow cultivation. In some cases, the response may be the result of more recent agricultural activity.
Agriculture (ploughing)	Parallel linear anomalies or trends with a narrower spacing, sometimes aligned with existing boundaries, indicating more recent cultivation regimes.
Land Drain	Weakly magnetic linear anomalies, quite often appearing in series forming parallel and herringbone patterns. Smaller drains may lead and empty into larger diameter pipes, which in turn usually lead to local streams and ponds. These are indicative of clay fired land drains.
Natural	These responses form clear patterns in geographical zones where natural variations are known to produce significant magnetic distortions.
Magnetic Disturbance	Broad zones of strong dipolar anomalies, commonly found in places where modern ferrous or fired materials (e.g. brick rubble) are present.
Service	Magnetically strong anomalies, usually forming linear features are indicative of ferrous pipes/cables. Sometimes other materials (e.g. pvc) or the fill of the trench can cause weaker magnetic responses which can be identified from their uniform linearity.
Ferrous	This type of response is associated with ferrous material and may result from small items in the topsoil, larger buried objects such as pipes, or above ground features such as fence lines or pylons. Ferrous responses are usually regarded as modern. Individual burnt stones, fired bricks or igneous rocks can produce responses similar to ferrous material.
Uncertain Origin	Anomalies which stand out from the background magnetic variation, yet whose form and lack of patterning gives little clue as to their origin. Often the characteristics and distribution of the responses straddle the categories of *Possible Archaeology / Natural* or (in the case of linear responses) *Possible Archaeology / Agriculture*; occasionally they are simply of an unusual form.

Where appropriate some anomalies will be further classified according to their form (positive or negative) and relative strength and coherence (trend: weak and poorly defined).

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Appendix B - Technical Information: Magnetic Theory

Detailed magnetic survey can be used to effectively define areas of past human activity by mapping spatial variation and contrast in the magnetic properties of soil, subsoil and bedrock. Although the changes in the magnetic field resulting from differing features in the soil are usually weak, changes as small as 0.1 nanoTeslas (nT) in an overall field strength of 48,000 (nT), can be accurately detected.

Weakly magnetic iron minerals are always present within the soil and areas of enhancement relate to increases in *magnetic susceptibility* and permanently magnetised *thermoremanent* material.

Magnetic susceptibility relates to the induced magnetism of a material when in the presence of a magnetic field. This magnetism can be considered as effectively permanent as it exists within the Earth's magnetic field. Magnetic susceptibility can become enhanced due to burning and complex biological or fermentation processes.

Thermoremanence is a permanent magnetism acquired by iron minerals that, after heating to a specific temperature known as the Curie Point, are effectively demagnetised followed by re-magnetisation by the Earth's magnetic field on cooling. Thermoremanent archaeological features can include hearths and kilns; material such as brick and tile may be magnetised through the same process.

Silting and deliberate infilling of ditches and pits with magnetically enhanced soil creates a relative contrast against the much lower levels of magnetism within the subsoil into which the feature is cut. Systematic mapping of magnetic anomalies will produce linear and discrete areas of enhancement allowing assessment and characterisation of subsurface features. Material such as subsoil and non-magnetic bedrock used to create former earthworks and walls may be mapped as areas of lower enhancement compared to surrounding soils.

Magnetic survey is carried out using a fluxgate gradiometer which is a passive instrument consisting of two sensors mounted vertically 1m apart. The instrument is carried about 30cm above the ground surface and the top sensor measures the Earth's magnetic field whilst the lower sensor measures the same field but is also more affected by any localised buried feature. The difference between the two sensors will relate to the strength of a magnetic field created by this feature, if no field is present the difference will be close to zero as the magnetic field measured by both sensors will be the same.

Factors affecting the magnetic survey may include soil type, local geology, previous human activity and disturbance from modern services.

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11.5 Scoring of affected non-designated historic assets

11.5.1 A total of 12 non-designated historic assets were identified within the Site that might be affected by the proposed development, but one of these was too poorly preserved to be certain of its function and so has not been studied in detail. These were monuments discovered by field survey, which formed part of the prehistoric ritual landscape along the Garn Fach ridge, and appear to have visual and functional relationships to many of the designated historic assets within the surrounding landscape. Planning Policy Wales (11th edition 2021) paragraph 6.1.24 states the need to treat non-designated historic assets that are of national importance as equivalent to scheduled monuments, and therefore each of the 11 assets have been checked to determine how well their attributes might perform against the scheduling criteria (Annex A in TAN 24, May 2017). This appendix records that process showing the scheduling criteria in bold text. In addition DMRB criteria for determining the heritage value of an asset have been used, which distinguish between High and Medium values for designated and non-designated historic assets alike, on the basis of whether they can be judged to be of national scale or regional scale.

11.5.2 PRN 54048: The asset is a large diameter but low height Bronze Age burial cairn sited on a local summit, though much of its site is occupied by a shale hardstanding. This appears, however, to have just covered the asset rather than the ground having been cleared/levelled in advance. This asset would qualify for scheduling due to its contemporary period and group value with other summit cairns in the locality. There is also documentation supporting the presence of the asset in the form of its depiction on the 1817 Ordnance Surveyors Drawing and photographic evidence of the time before the hardstanding within the HER. It can be argued that the asset also merits protection on the grounds of its fragility/vulnerability as any reworking of the overlying hardstanding could easily damage the surviving remains, which have the potential to retain significant evidence relating to prehistoric burial practices in the region.

11.5.3 PRN 55010: The asset is very small and probably disturbed Bronze Age burial cairn that would qualify for scheduling on the grounds of its period and group value with other similar dated funerary cairns in the locality. The survival/condition of the asset is not as good as others within the group but it is likely to retain some of its original features, meaning that it has the potential to provide significant evidence relating to prehistoric burial practices in the region. It also merits protection on the grounds of its fragility/vulnerability as the area has already been subject to land improvement and further work of this sort could lead to the complete loss of the asset.

11.5.4 PRN 166606: The asset is very small Bronze Age burial cairn that would qualify for scheduling on the grounds of its period and group value with other Bronze Age funerary cairns in the locality. The survival/condition of the asset is good although a depression in the top suggests some disturbance and local information is that the field was ploughed in the last decade. It is likely to retain most of its original features, meaning that it has the potential to provide significant evidence relating to prehistoric burial practices in the region. It also merits protection on the grounds of its fragility/vulnerability as the area has already been subject to land improvement and further work of that sort could lead to the complete loss of the asset.

11.5.5 PRN 166607: The asset is a small and very low Bronze Age burial cairn that would qualify for scheduling on the grounds of its period and also its group value with other contemporary funerary cairns in the locality. The survival/condition of the asset appears to be good and it is likely to retain most of its original features, meaning that it has the potential to provide significant evidence relating to prehistoric burial practices in the region. It also merits protection on the grounds of its fragility/vulnerability as the area has already been subject to land improvement and further work of this sort could lead to the complete loss of the asset.

11.5.6 PRN 166638: The asset is a large Bronze Age burial cairn sited on a local summit and there is documentation supporting its presence in the form of its depiction on the 1817 Ordnance Surveyors Drawing. The asset would qualify for scheduling on the grounds of its period and its group value with other summit cairns in the locality. It can be argued that the asset merits protection on the grounds of its fragility/vulnerability as there has been stock erosion of its perimeter and it lies within an area that has already been subject to land improvement and may see more in the future. Despite the erosion, the asset is relatively large, which enhances the likelihood that its survival/condition will be sufficient for it to have the potential to retain most of its original features and therefore contribute significant evidence relating to prehistoric burial practices in the region.

11.5.7 PRN 166643: The asset is a short dyke likely to date to the Early Medieval period. It would qualify for protection on the grounds of its period but particularly its rarity as all confirmed examples that are in at least moderate condition are scheduled. In this case the earthwork is in a good state of survival/condition and its important features, which allow an assessment to be made of the reasons behind its siting, survive. This contributes additional, highly relevant, information regarding the diversity of this monument type. Like the other assets of this importance in the

immediate locality, it merits protection on the grounds of its fragility/vulnerability as it lies within an area that has already been subject to land improvement and may see more in the future.

11.5.8 PRN 166648: The asset is another Bronze Age burial cairn that would qualify for scheduling on the grounds of its period and also its group value with other funerary cairns in the locality. The survival/condition of the asset is relatively good and it is likely to retain many of its original features, meaning that it has the potential to provide significant evidence relating to prehistoric burial practices in the region. It also merits protection on the grounds of its fragility/vulnerability as the area has already been subject to land improvement and further work of this sort could lead to the complete loss of the asset.

11.5.9 PRN 166657: The asset is very small and low Bronze Age burial cairn that would qualify for scheduling on the grounds of its period and also its group value with other funerary cairns in the locality. The survival/condition of the asset is very good and it is likely to retain most of its original features, meaning that it has the potential to provide significant evidence relating to prehistoric burial practices in the region. It also merits protection on the grounds of its fragility/vulnerability as land nearby has been subject to land improvement; any work of this sort in the area occupied by the asset could lead to its complete loss.

11.5.10 PRN 166666: The asset is a very low Bronze Age burial cairn that would qualify for scheduling on the grounds of its period and group value with other contemporary funerary cairns in the locality. The survival/condition of the asset has been disturbed by ploughing around five years ago but it is likely to retain some of its original features, meaning that it has the potential to provide significant evidence relating to prehistoric burial practices in the region. It also merits protection on the grounds of its fragility/vulnerability as the area has already been subject to land improvement and further work of this sort could lead to the complete loss of the asset.

11.5.11 PRN 166937: The asset is a very low Bronze Age burial cairn that would qualify for scheduling on the grounds of its period and also its group value with contemporary funerary cairns in the locality. The survival/condition of the asset shows some damage from “topping” in the recent past but it is likely to retain many of its original features, meaning that it has the potential to provide significant evidence relating to prehistoric burial practices in the region. It also merits protection on the grounds of its fragility/vulnerability as the area has already been subject to land improvement and further work of this sort could lead to the complete loss of the asset.

11.5.12 PRN 166938: The asset is enigmatic but contains at least two large end- or edge-set stones and there is other surviving evidence which seems to indicate this was some form of prehistoric ritual and/or funerary monument. This means that the asset would merit protection from the point of view of its period (if contemporary or a precursor for associated monuments in the local landscape) and, more particularly, its rarity as it does not seem to be a typical funerary cairn. It would nevertheless have group value with the funerary cairns in the locality, to which it may have been related. Although the asset remains enigmatic, it seems probable that it has the potential to retain sufficient sub-surface evidence to allow its nature to be understood; this might provide a significant contribution to our understanding of prehistoric ritual and funerary practices in the region. It also merits protection on the grounds of its fragility/vulnerability as the area has already been subject to land improvement and further work of this sort could lead to the complete loss of the asset.

11.5.13 In summary PRN 6666 falls well short of fulfilling the scheduling criteria, and its condition is such that definitive attribution of this site as having been a monument cannot now be confirmed. Of the remaining assets, 10 have attributes which can be ticked against five of the eight criteria for scheduling, and one (PRN 166638) has attributes for six of the criteria. None would seem to stand out as monuments that could be described as fulfilling the DMRB criteria of “High importance and rarity, national scale, and limited potential for substitution”, but as a group they would have regional importance, subordinate to the more impressive scheduled monuments within the surrounding landscape.

11.6 Prehistoric Ritual and Funerary Landscape

11.6.1 One of the notable characteristics of the main ridge which lies to the west of the proposed development, and on which the existing P&L Windfarm is sited, is the presence of a series of substantial round barrows (Bronze Age funerary monuments), averaging about 20m in diameter, which are mostly placed on hill summits. Their visibility in the landscape perhaps suggests that they helped to define the territories of different family groupings occupying land in the surrounding area, as they are often visible on the skyline from the lower ground that surrounds the ridge. Their prominence has led to their identification as important on a national scale, and therefore designated for protection as scheduled monuments.

11.6.2 In the area of the proposed Development Area, a small number of large cairns or barrows (which although of lesser size than the scheduled monuments, are still >10m in diameter) are present on the crests of some of the lower hills to the east of the main ridge. Their prominence has been reduced in more recent times owing to their siting in land utilised more intensively than the western ridge, for agriculture and particularly forestry. As examples, PRN 54048 has been degraded and reduced as an upstanding monument by farming activity, whilst 19th century historic mapping which records it, also suggests there was a similar barrow in the forestry at Garn Fach (outside the boundary of the development). The dense tree cover there has prevented any possibility to identify this monument as part of the current study.

11.6.3 In combination with other monuments that have been located along the crest of the Garn Fach and Brondre Fawr ridge, such as the cairns at PRN 166657, PRN 166666 and PRN 166638 further south, it is reasonable to suggest from the available evidence that the typical prehistoric funerary and ritual monument found on the higher ground to the west, also extends to the east into the proposed development.

11.6.4 The larger barrows on the higher ground of the main ridge are also accompanied by smaller barrows, around 5m or so in diameter, and other structures belonging to the same broad period, such as the various individual elements that comprise Fowler's Arm Chair, or standing stones. These smaller monuments, like the larger barrows, almost certainly represent prehistoric funerary and ritual activity, though whether they were intended to have any extra territorial significance is uncertain. The presence of standing stones may suggest a boundary, or markers for routeways or processional routes. It could be that some of these smaller monuments were deliberately placed to relate to the larger barrows, perhaps filling in the spaces between them in an area which had been recognised as having significance. This assemblage of monuments along the eastern, lower ridge, could well be associated with communities in the Llaithddu Valley to the east rather than those that lie to the south, west and north of the western ridge. The approach from the east is a gentler access, and the upland that forms the watershed for the streams that flow east into Llaithddu rather than those that flow in other directions to the Afon Marteg and the Severn Valley, might have been regarded as a sacred zone where burial and ceremonial activities would have been conducted in the liminal space between earth and sky.

11.6.5 Within the Development Area, the smaller barrows sometimes appear singly, though a broad grouping covering an area about 1km in diameter exists in the northern part of the Area in the upper reaches of the Blue Lins Brook. Here the appearance of the monuments strongly suggest they are contemporary with one another, and their siting around a small promontory perhaps implies a shared commonality in concept.

11.6.6 The overall impression is that there is a clustering of prehistoric funerary and ritual monuments set within a restricted geographical zone, notable by comparison to the wider area where widely-spaced single barrows, or barrows clustered in very small groups, with each of similar size, are more typical. The presence of varying types and sizes of monument belonging to a single general period, which might indicate some layering of the activity over time or by style, is also of potential significance. Confirmation of this hypothesis would require a programme of investigation by means of numerous excavations to provide dates for the monuments, reveal structural similarities and demonstrate parallels between characteristics at the different locations. Only by this means might individual monuments be found to be more directly and conclusively related as part of group, although surface indications suggest this as a strong possibility. The landscape in which the proposed development sits, therefore appears to form the eastern fringe of a wider landscape, centred on the area occupied by the P&L Windfarm with several scheduled monuments, which was seen by the prehistoric inhabitants as having ritual and funerary significance.

CPAT Report No. 1845

Garn Fach Wind Farm

Archaeological Evaluation of Geophysical Anomalies

YMDDIRIEDOLAETH ARCHAEOLEGOL CLWYD-POWYS
CLWYD-POWYS ARCHAEOLOGICAL TRUST

Client name:	Dulas
CPAT Project No:	2466
Project Name:	Garn Fach Wind Farm
Grid Reference:	SO 044 808
County/LPA:	Powys
Planning Application:	N/A
CPAT Report No:	1845
HER Enquiry No:	N/A
Event PRN:	214601
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[redacted]

Richard Hankinson Senior Archaeologist	Tim Malim Principal Archaeologist	Tim Malim Principal Archaeologist
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Summary

The Field Services Section of the Clwyd-Powys Archaeological Trust carried out an archaeological evaluation of a series of geophysical anomalies that had been revealed during investigations contributing to an Environmental Impact Assessment for a proposed wind farm at Garn Fach in Powys (NGR SO 044 808). The work was commissioned by Dulas Ltd, acting on behalf of EDF Renewables, and was carried out in January 2022.

The evaluation was required by the archaeological advisor to Powys County Council, a requirement supported by Cadw, to provide sufficient additional information for them to comment on this aspect of the planning proposal. Accordingly, seven trenches were excavated to assess the nature and authenticity of the anomalies. No significant archaeological features were revealed and it was proved that, with the exception of one of the anomalies that was caused by a modern land drain, all were of natural origin.

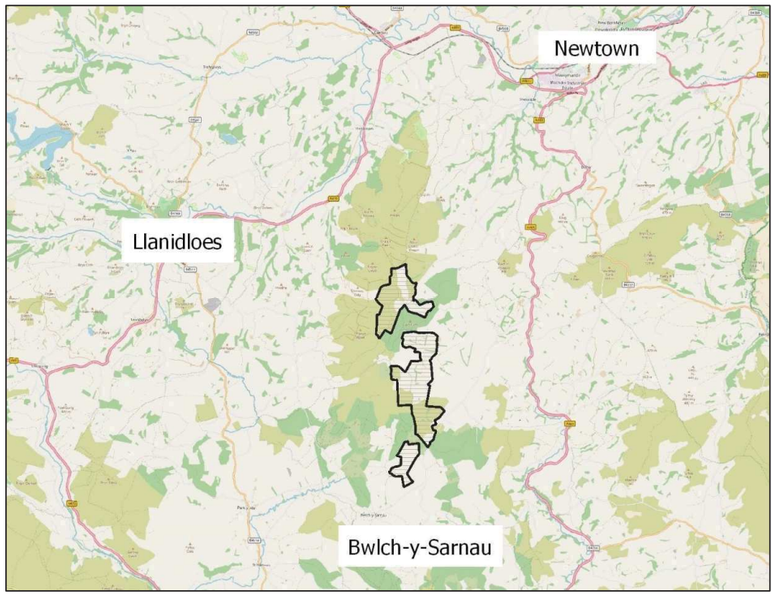
Crynodeb

Bu Adran Gwasanaethau Maes Ymddiriedolaeth Archaeolegol Clwyd-Powys yn gwneud gwerthusiad archaeolegol o gyfres o anomaleddau geoffisegol a oedd wedi'u datgelu yn ystod ymchwiliadau, gan gyfrannu at Asesiad o Effaith Amgylcheddol ar gyfer fferm wynt arfaethedig yng Ngarn Fach ym Mhowys (Cyfeirnod Grid Cenedlaethol SO 044 808). Comisiynwyd y gwaith gan Dulas Ltd, ar ran EDF Energy, a chwblhawyd ef ym mis Ionawr 2022.

Roedd y cynghorydd archaeolegol i Gyngor Sir Powys wedi galw am y gwerthusiad i ddarparu digon o wybodaeth ychwanegol iddynt allu gwneud sylwadau ar yr agwedd hon ar y cynnig cynllunio. Felly cloddiwyd saith rhych i asesu natur a dilysrwydd yr anomaleddau. Ni ddatgelwyd unrhyw nodweddion archaeolegol arwyddocaol a phrofwyd bod tarddiad pob un yn naturiol, heblaw am un o'r anomaleddau yr oedd draen tir modern wedi'i achosi.

1 Introduction

1.1. The Field Services Section of the Clwyd-Powys Archaeological Trust were engaged by Dulas Ltd to undertake an archaeological evaluation in connection with proposals for the construction of a new windfarm on land to the west of the village of Llaithddu in central Powys (Centred at approximately NGR SO 044 808).



Base mapping: OpenStreetMap

Fig. 1: Location of the proposed windfarm

1.2. The proposed windfarm is the subject of an Environmental Impact Assessment, which includes the consideration of its potential effect on the archaeological resource of the area of the development and its surroundings. As part of the assessment, a geophysical survey was conducted by Sumo Geophysics Ltd in May 2021 (Sumo report 02957) and this identified a number of anomalies of potential archaeological relevance.

1.3. The conclusions of the report stated that the survey had not identified any anomalies of definite archaeological interest, though a number of linear and curvilinear trends of uncertain origin were detected. The uncertain trends included tentative enclosures, though it was thought equally feasible that the responses were a result of topographic or geological variations.

1.4. Mark Walters, acting in his role as the archaeological advisor to Powys County Council, the local planning authority, indicated that the uncertainty regarding the nature of the geophysics results meant that further investigation by means of archaeological evaluation was required to allow him to comment on the planning proposal. Accordingly, a scheme for the investigation was discussed and led to the production of a Written Scheme of Investigation (WSI), which was approved by Mark Walters. Cadw also approved the proposed evaluation trench plan.

1.5. The purpose of evaluation is to gain information about the archaeological resource within a given area or site (including its presence or absence, character, extent, date, integrity, state of preservation and quality), in order to make an assessment of its merit, leading to one or more of the following:

- an informed planning determination;
- the formulation of a strategy to ensure the recording, preservation or management of the resource;
- the formulation of a strategy to mitigate a threat to the archaeological resource; and/or
- the formulation of a proposal for further archaeological investigation within a programme of research

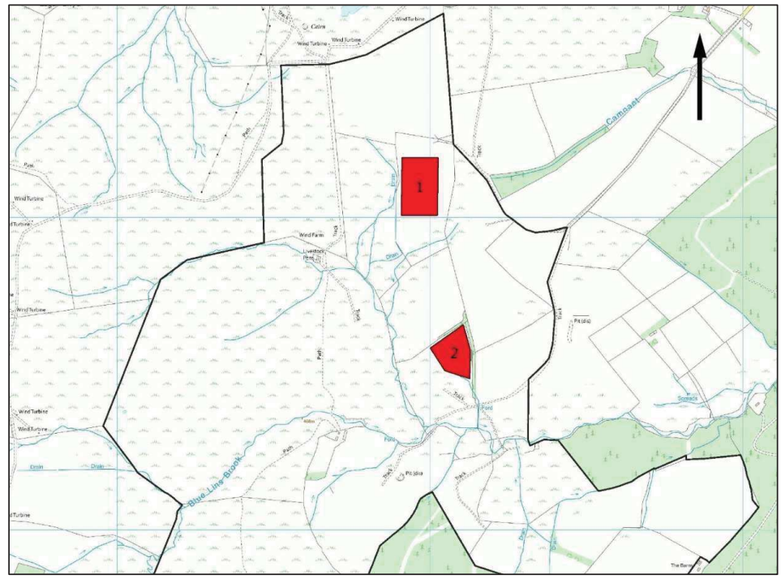


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Fig. 2: Site of the two evaluation localities in the northern area of the proposed windfarm

2 Methodology

2.1. A plan showing the northern part of the Development Site, with the two evaluation localities marked is given as Fig. 2. The trenches were laid out using survey grade GPS equipment which also allowed the anomaly locations to be checked in the field against the trench locations. Each trench was excavated by a machine using a 1.5m-wide toothless bucket, and then cleaned by hand to reveal any anomalies that might be present. Any features recognised were excavated by hand to determine their origin and dating.

2.2. The trench locations are shown in detail for the two areas as Fig. 3.

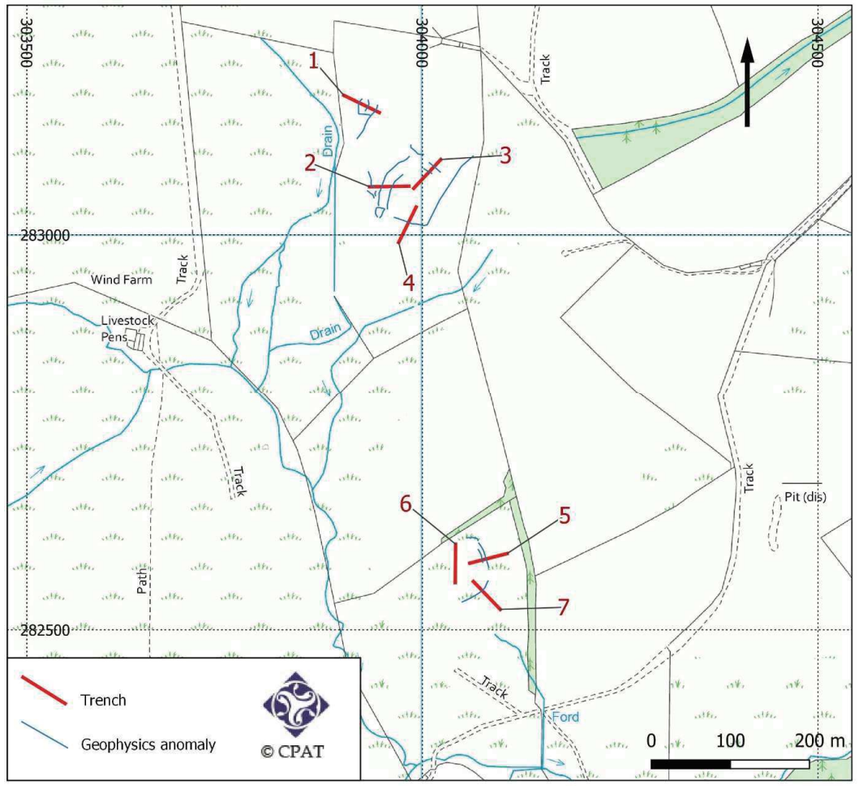

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Fig. 3: The location of the evaluation trenches (numbered in red) compared to a plot of the geophysics anomalies

3 Evaluation

Trench 1 (50m x 1.5m)

3.3. The geophysical survey report identified a possible small enclosure at this location, though it was also thought possible that the anomalies were of natural or agricultural origin.

3.4. The deposits revealed in the trench comprised a layer of black peat, 0.2m thick, overlying natural orange-grey clay silt, though bedrock was present at the west-north-west end of the trench. At 17.0m from the east-south-east end of the trench there was a feature (see Fig. 6), 0.25m wide, cutting across the trench which matched one of the suggested anomalies. This proved to be a modern land drain, 0.5m deep, that had been backfilled by mixed grey silt and peat and contained a blue plastic pipe in its base. None of the other anomalies were evident.

Fig. 4: Trench 1 from the west-north-west. CPAT 4967-0016

Fig. 5: Trench 1 from the east-south-east. CPAT 4967-0019

Fig. 6: The land drain in Trench 1 from the south-south-west. CPAT 4967-0046

Trench 2 (50m x 1.5m)

3.5. The geophysical survey report identified anomalies here that could be interpreted as concentric ditches forming an enclosure approximately 85m in diameter. However, the interpretations were considered to be extremely tentative, and given the high number of curvilinear and sinuous natural responses in the vicinity it was thought to be equally feasible that the responses had a geological or topographical explanation.

3.6. The deposits revealed in the trench comprised a layer of dark grey-brown peaty silt, 0.2m thick, overlying natural orange stony silt with some patches of pale grey clay. No evidence of the potential anomalies was revealed. The easternmost 7.5m of the trench cut across the area of a backfilled modern quarry, visible on the surface, which had been cut into natural soils and bedrock.

Fig. 7: Trench 2 from the west. CPAT 4967-0021

Fig. 8: Trench 2 from the east, showing the backfilled quarry in the foreground. CPAT 4967-0023

Trench 3 (50m x 1.5m)

3.7. As with Trench 2, this excavation investigated anomalies that could be interpreted as concentric ditches forming an enclosure approximately 85m in diameter. Again, the interpretations were considered to be extremely tentative, and given the high number of curvilinear and sinuous natural responses in the vicinity it was thought to be equally feasible that the responses had a geological or topographical explanation.

3.8. The deposits revealed in the trench comprised a layer of black peat, 0.2m thick, overlying natural orange and grey clay silt. As with Trench 2, part of the trench, the first 20m from the south-west end, encountered a backfilled modern quarry, that was visible on the surface and had been cut into natural soils and bedrock. The backfill was a mixture of stone, brown silt, black peat and orange silt, up to 0.6m thick. One flint flake of indeterminate function was observed in the backfill, obviously not in-situ. No physical evidence of the anomalies was present.

Fig. 9: Trench 3 from the south-west, showing the backfilled quarry in the foreground. CPAT 4967-0026

Fig. 10: Trench 3 from the north-east. CPAT 4967-0028

Trench 4 (50m x 1.5m)

3.9. As with Trenches 2 and 3, this excavation investigated an anomaly that could be interpreted as forming part of an enclosure approximately 85m in diameter. Again, the interpretation was considered to be extremely tentative, and given the high number of curvilinear and sinuous natural responses in the vicinity it was thought to be equally feasible that the responses had a geological or topographical explanation.

3.10. The deposits revealed in the trench comprised a layer of dark grey peaty silt, 0.20m-0.25m thick, which became more peaty in nature towards the south-south-west end of the trench. Underneath the layer was a deposit of natural orange clay silt though the last 10m at the south-south-west end of the trench was very stony in character. No evidence of the anomaly was revealed.

Fig. 11: Trench 4 from the north-north-east. CPAT 4967-0030

Fig. 12: Trench 4 from the south-south-west. CPAT 4967-0032

Trench 5 (49m x 1.5m)

3.11. This excavation investigated a pair of anomalies that could be interpreted as forming part of an enclosure measuring approximately 62m by 62m in size. As with the northern locality, the interpretation was considered to be extremely tentative, and given the high number of curvilinear and sinuous natural responses in the vicinity it was thought to be equally feasible that the responses had a geological or topographical explanation.

3.12. The deposits revealed in the trench comprised a layer of black peat, 0.2m-0.3m thick, which overlay natural orange silt containing a large number of stones. From the west end of the trench for approximately 17m there was a layer dark grey-brown and slightly more silty in nature. There was an occasional layer of pale grey silt, up to 0.05m thick, between the peat and the natural subsoil but no trace of any archaeological features.

Fig. 13: Trench 5 from the west. CPAT 4967-0035

Fig. 14: Trench 5 from the east. CPAT 4967-0037

Trench 6 (48.5m x 1.5m)

3.13. This trench was placed to evaluate the interior of the apparent enclosure measuring 62m by 62m in size suggested by the geophysics. Again, the interpretation of the alleged enclosure was considered to be doubtful, given the high number of curvilinear and sinuous natural responses in the vicinity and it was thought to be equally feasible that the responses had a geological or topographical explanation.

3.14. The deposits revealed in the trench comprised a layer of dark grey-brown peaty silt, 0.1m-0.2m in thickness, which overlay up to 0.1m of pale grey-buff clay. These overlay the natural subsoil, a very stony orange silt. No trace of any archaeological features was revealed.

Fig. 15: Trench 6 from the south. CPAT 4967-0038

Fig. 16: Trench 6 from the north. CPAT 4967-0040

Trench 7 (40.5m x 1.5m)

3.15. This trench was placed to examine what was thought to identify the 62m by 62m anomaly that was potentially indicative of an enclosure, as well as extending over a different type of anomaly

located to the south-east of it. Again, the interpretation of the alleged enclosure was considered to be doubtful, given the high number of curvilinear and sinuous natural responses in the vicinity and it was thought to be equally feasible that the responses had a geological or topographical explanation.

3.16. The deposits revealed at the north-west end of the trench comprised a layer of dark grey-brown silt, 0.25m thick, which overlay natural silt, grading from dark brown to orange over the first 19m from the north-west end of the trench. Beyond this there were increasing amounts of brown peat, up to 0.5m thick, which overlay natural pale grey clay. The trench was terminated prematurely owing to flooding from the waterlogged ground. No trace of any archaeological features was revealed, and the second anomaly at the south-eastern end had probably been caused by the change in superficial deposit.

Fig. 17: Trench 7 from the north-west. CPAT 4967-0042

Fig. 17: Trench 7 from the south-east, showing the waterlogged ground. CPAT 4967-0042

3.17. One further trench (8) had originally been proposed, to examine a potential ditch terminal of the alleged 62m by 62m enclosure. However, the lack of any evidence for this enclosure in Trenches 5 and 7 suggested this would not be worthwhile. Contact was made with Mark Walters who agreed that this trench would not be required in the circumstances.

4 Conclusions

4.1. The evaluation comprised 7 trenches, placed to evaluate three possible enclosures that had been suggested by the geophysics, although in all cases the geophysicists had expressed doubt as to whether the relevant anomalies were of archaeological origin.

4.2. None of the trenches contained any archaeology and the only anomaly which matched those identified was found to represent a modern land drain. One undiagnostic flint flake was also found but this was from the backfill of a modern quarry and clearly not in-situ; it is not surprising that material of this nature was found with a prehistoric funerary monument recorded within about 300m and the land having been subject to pasture improvement.

4.3. A quarry was found by Trenches 2 and 3 within the postulated enclosure in Geophysical Area 3. This was visible on the ground as a depression and was backfilled with stone rubble and soil. It had a diameter of c.30m and the landowner said it had been excavated in modern times to extract rock for laying down around field entrances and trackways.

5 Sources

Unpublished sources

Fradgley, R, 2021. *Garn Fach Wind Farm, Powys, Wales: Geophysical Survey.* Sumo Geophysics Report No 02957.

6 Archive deposition Statement

6.1. The project archive has been prepared according to the CPAT Archive Policy and in line with the CIfA *Standard and guidance for the creation, compilation, transfer and deposition of archaeological archives guidance* (2014). The archive is entirely digital and will be deposited jointly with the Historic Environment Record, Clwyd-Powys Archaeological Trust and the National Monuments Record (RCAHMW). No artefacts have been retained.

Archive summary

CPAT Event PRN: 214601

7 trench recording forms (scanned)

48 digital photographs, CPAT film no 4967

1 undiagnostic flint flake from Trench 3 (not retained)

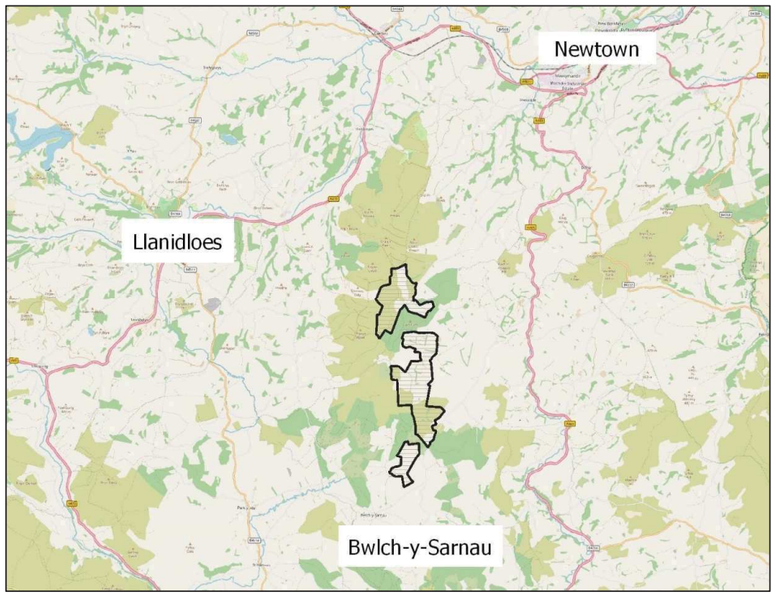
Trench location table

Trench	Terminal 1	Terminal 2
1	303900.7, 283176.3	303945.6, 283154.6
2	303933.3, 283060.7	303983.1, 283061.5
3	304023.4, 283095.2	303989.2, 283058.7
4	303970.2, 282990.4	303992.3, 283035.1
5	304107.2, 282595.9	304060.1, 282583.9
6	304042.1, 282607.8	304041.7, 282559.4
7	304064.3, 282562.0	304092.8, 282534.0

Appendix 1: CPAT WSI 2446

1 Introduction

1.1. The Field Services Section of the Clwyd-Powys Archaeological Trust has been instructed by Dulas Ltd to undertake an archaeological evaluation in connection with proposals for the construction of a new windfarm on land to the west of the village of Llaithddu in central Powys (Centred at approximately NGR SO 044 808).



Base mapping: OpenStreetMap

Fig. 1: Location of the proposed windfarm

1.2. The proposed windfarm is the subject of an Environmental Impact Assessment, which includes the consideration of its potential effect on the archaeological resource of the area of the development and its surroundings. As part of the assessment, a geophysical survey was conducted by Sumo Geophysics Ltd in May 2021 (Sumo report 02957) and this identified a number of anomalies of potential archaeological relevance.

1.3. The conclusions of the report stated that the survey had not identified any anomalies of definite archaeological interest, though a number of linear and curvilinear trends of uncertain origin were detected. The uncertain trends included tentative enclosures, though it was thought equally feasible that the responses were a result of topographic or geological variations.

1.4. Mark Walters, acting in his role as the archaeological advisor to Powys County Council, the local planning authority, indicated that the uncertainty regarding the nature of the geophysics results meant that further investigation by means of archaeological evaluation was required to allow him to comment on the planning proposal. Accordingly, a scheme for the investigations was

discussed and has led to the methodology described in this WSI; this has been approved by Mark Walters.

1.5. The purpose of evaluation is to gain information about the archaeological resource within a given area or site (including its presence or absence, character, extent, date, integrity, state of preservation and quality), in order to make an assessment of its merit, leading to one or more of the following:

- the formulation of a strategy to ensure the recording, preservation or management of the resource
- the formulation of a strategy to mitigate a threat to the archaeological resource
- the formulation of a proposal for further archaeological investigation within a programme of research

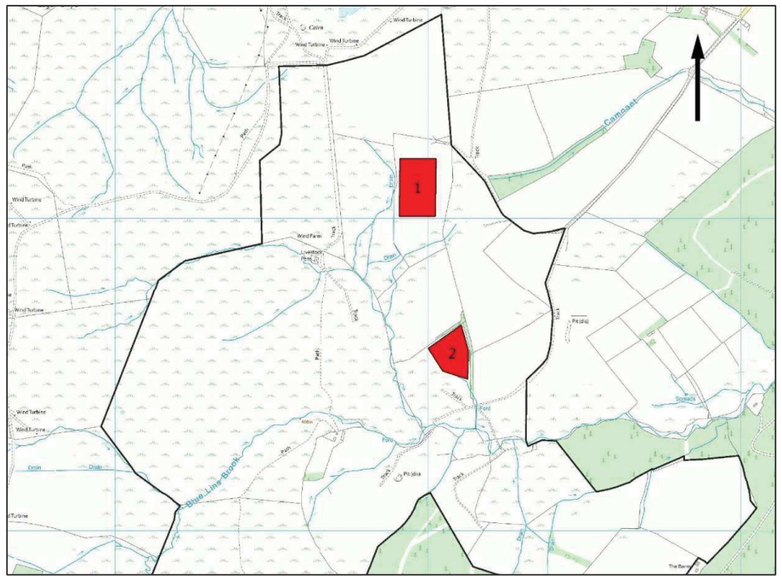


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Fig. 2: Site of the two evaluation localities in the northern area of the proposed windfarm

2 Methodology

2.1. A plan showing the northern part of the Development Site, with the two evaluation localities marked is given as Fig. 2. The trench locations are shown in detail for each of these as Figs. 3 and 4. The trenches will be located by means of survey grade GPS equipment.

2.2. In the northern area (locality 1) four trenches are proposed, each measuring 50m long by approximately 2m wide. Trench 1 will evaluate an area that was thought to be suggestive of a trackway and a small enclosure [4], while Trenches 2-4 will investigate linear and curvilinear trends [1] which could be interpreted as denoting concentric ditches forming an enclosure approximately 85m in diameter.

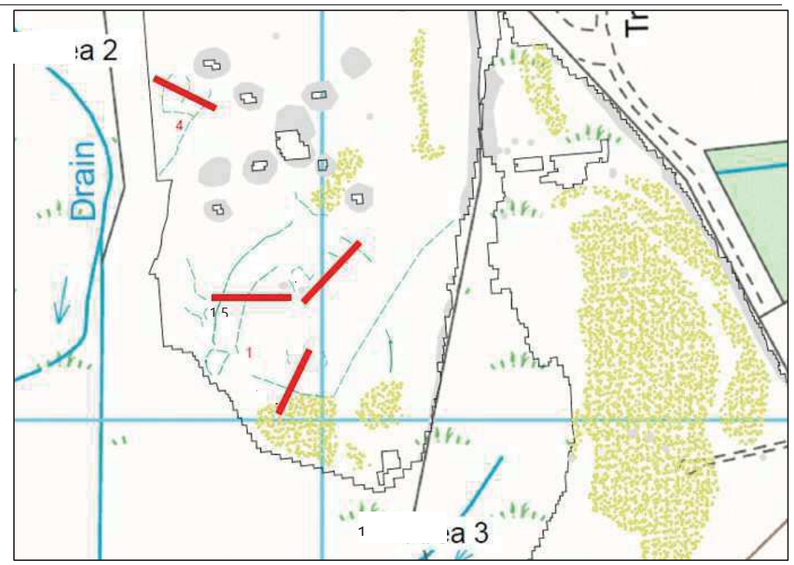

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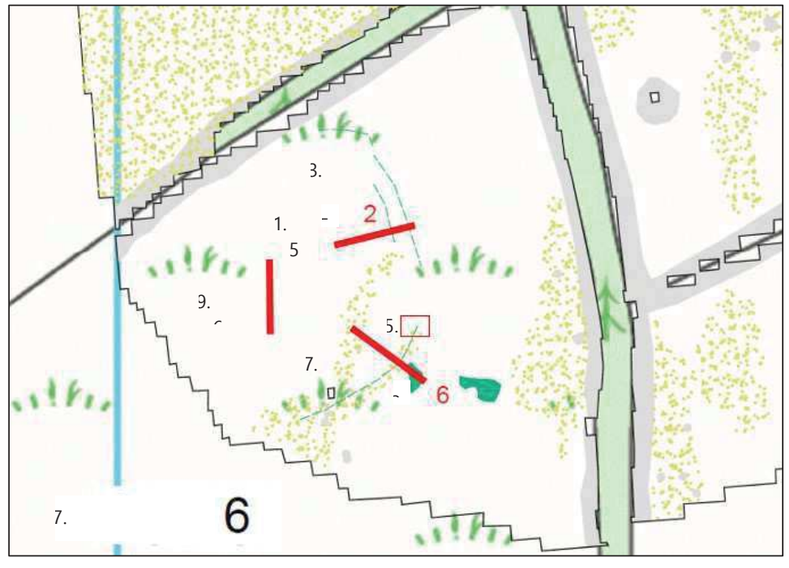
Fig. 3: The trenches in evaluation locality 1



6.2.

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Fig. 4: The trenches in evaluation locality 2

2.3. In the southern area (locality 2) a further four trenches are proposed, all of which will investigate a possible second enclosure, approximately 62m x 62m in size [2]. Three of these trenches (5-7) will measure 50m long by approximately 2m wide, while the fourth (8) will measure up to 20m east/west by 15m north/south, with the aim of identifying a potential ditch terminal.

2.4. The evaluation trenches will be initially excavated by machine under close archaeological supervision, to ensure that the correct level is maintained, in order to ensure any archaeological features are identified. Machine excavation will be down to the first significant archaeological horizon or the natural subsoil, whichever is encountered first. This will be followed by hand cleaning, investigation and recording of any layers or features that may be revealed, sufficient to elucidate their nature and likely origin, within the aims of the evaluation.

2.5. The evaluation will be conducted according to the Chartered Institute for Archaeologists' (CIfA) *Standard and Guidance for Archaeological Field Evaluation* (2014, revised 2020). The excavation of any archaeological features or deposits will be undertaken by hand using the conventional techniques for archaeological excavation:

- The presence or absence of archaeological features will be noted.
- Where features of archaeological interest are identified they will be systematically investigated by hand with sufficient work being undertaken to determine their date, character and function, using the conventional techniques for archaeological excavation and in accordance with CIfA Standard and Guidance.
- All features will be located as accurately as possible on an overall plan of the relevant locality at an appropriate scale, showing boundaries depicted on OS mapping.
- Contexts will be recorded on individual record forms, using a continuous numbering system, and be drawn and photographed as appropriate.
- Plans will be drawn on permatrace to a scale of 1:10, 1:20 or 1:50, as appropriate.
- Photography will utilise a digital SLR camera with a minimum resolution of 12 mega pixels, include a metric scale in each view, and be logged in a photographic register.
- In the event of human burials being discovered the Ministry of Justice (MoJ) will be informed. The remains will initially be left in situ, and if removal is required, a MoJ licences will be applied for under the Burial Act 1857.
- In the event of finding any artefacts covered by the provisions of the Treasure Act 1996, the appropriate procedures under this legislation will be followed.

3 Artefact selection strategy

3.1. Unstratified finds will only be collected where they contribute significantly to the project objectives or are of particular intrinsic interest. All artefacts will be retained from stratigraphically secure contexts of 18th-century date or earlier. In the case of later or disturbed contexts, all 18th-century or earlier material will be retained, together with a sample of later finds to assist with dating and phasing, unless later deposits/artefacts are deemed to be of high archaeological value.

3.2. CPAT has a retention policy for artefacts which prioritises as follows:

High priority for retention

- Rare finds from stratified and unstratified contexts
- Prehistoric and early medieval assemblages
- Key stratigraphic dating assemblages crucial to the structural development of the site
- Assemblages which are not well represented in museum collections

High priority for disposal

- Unstratified material unless intrinsically dateable and unusual/rare
- Artefacts from residual/intrusive contexts unless of key stratigraphic importance to the site
- Assemblages already well represented in museum collections
- Unprocessed environmental/soil samples

4 Post-excavation and reporting

4.1. All artefacts and environmental samples will be treated in a manner appropriate to their composition and a sampling strategy will be developed as appropriate:

- All stratified finds will be collected by context, or where appropriate, individually recorded in three dimensions. Unstratified finds will only be collected where they contribute significantly to the project objectives or are of particular intrinsic interest.
- All finds and samples will be collected, processed, sorted, quantified, recorded, labelled, packed, stored, marked, assessed, analysed and conserved in a manner appropriate to their composition and in line with appropriate guidance.
- arrangements will be made to assess and study any artefacts, assemblages and environmental samples.
- Any artefacts recovered during the evaluation will be deposited with an appropriate museum, subject to the permission of the owner.

4.2. Following the on-site work an illustrated report will be prepared containing conventional sections to include:

- Non-technical summary
- Introduction
- Site location
- Archaeological Background
- Aims & objectives
- Methodology
- Evaluation results
- Conclusions
- References
- Appropriate appendices on archives and finds

4.3. The report summary will be provided in English and Welsh, in accordance with the *Guidance for the Submission of Data to the Welsh Historic Environment Records (HERs) V1* (July 2018).

5 Site archive

5.1. The overall archive will conform to guidelines described in *Management of Research Projects in the Historic Environment* (MoRPHE), Historic England 2015, the CIfA (2014) *Standard and Guidance for the Creation, Compilation, Transfer and Deposition of Archaeological Archives* and *The National Standard and Guidance to Best Practice for Collecting and Depositing Archaeological Archives in Wales* (NPAAW, 2017).

5.2. The paper and digital archive will be deposited with the National Monuments Record (NMR), RCAHMW, including a copy of the final report. This archive will include all written, drawn, survey and photographic records relating directly to the investigations undertaken. A copy of

the digital archive only will also be lodged with the Historic Environment Record, Clwyd-Powys Archaeological Trust.

6 Data management plan

6.1. The project will be conducted in accordance with CPAT's data management policy. All paper records will be collated, catalogued and labelled with the unique project code. All digital data will follow strict file naming, to include the unique project code, and be sorted into a standard series of sub-folders. The digital data will be catalogued, including a list of file types and relevant software, and managed on an Excel spreadsheet.

7 Resources and programming

7.1. The evaluation will be undertaken by two skilled archaeologists under the overall supervision of Tim Malim, a senior member of CPAT's staff who is also a member of the Chartered Institute for Archaeologists (CIfA). CPAT is also a CIfA Registered Organisation and as such agrees to abide by their *Code of Conduct* (2021) and the *Standard and guidance for commissioning work or providing consultancy advice on archaeology and the historic environment* (2014).

7.2. All report preparation will be completed by or with the assistance of the same field archaeologist(s) who conducted the site work. Copies of the report will be deposited with the client and the regional Historic Environment Record within one month of the completion of on-site works. If appropriate, a short report will be published in *Archaeology in Wales*.

7.3. The client should be aware that in the event that significant archaeological remains are revealed there may be a requirement for more detailed excavation and specialist services. Any further work over and above the original evaluation and report would be the subject of a separate WSI and costing. The following figures provide an indication of the types of additional services and indicative costs which might be required, for which the client is advised to make some provision.

7.4. Requirements relating to Health and Safety regulations will be adhered to by CPAT and its staff.

7.5. CPAT is covered by appropriate Public and Employer's Liability insurance, as well as Professional Indemnity insurance.

Richard Hankinson

17th January 2022