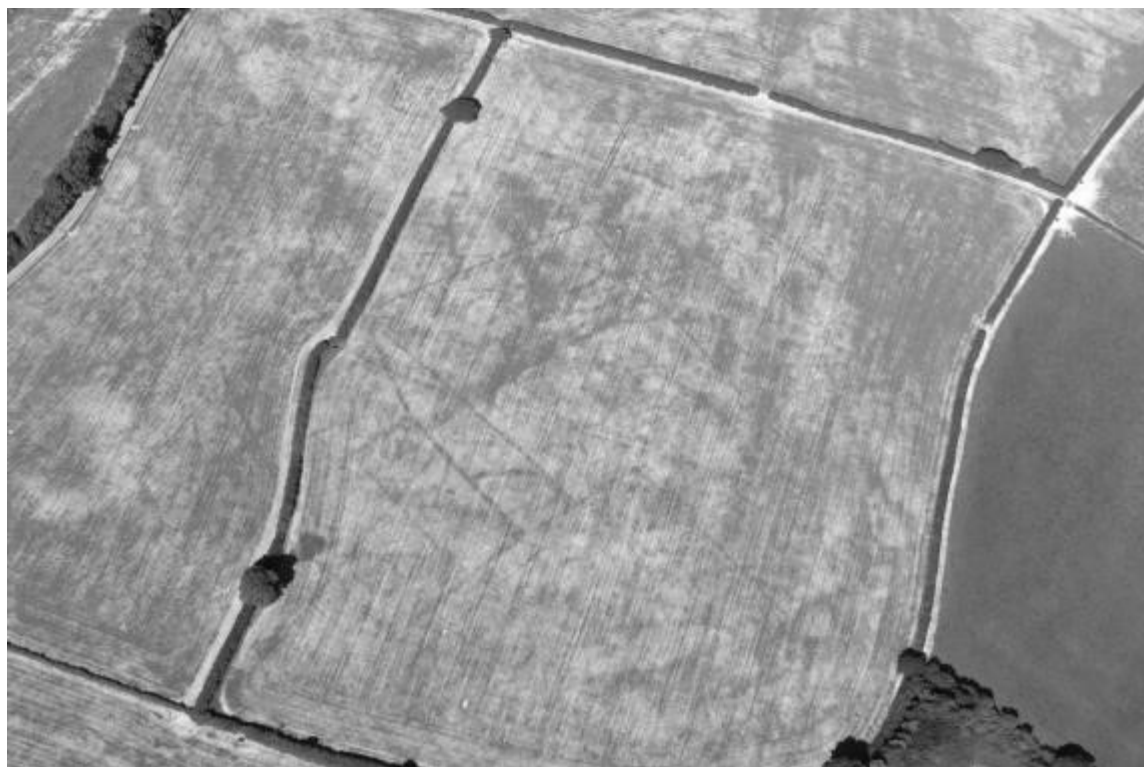


LLYS Y FRAN – POSSIBLE ROMAN VILLA SITE: GEOPHYSICAL SURVEY 2019



Aerial photograph of Llys y Fran cropmark. ©RCAHMW 2018

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LLYS Y FRAN – POSSIBLE ROMAN VILLA SITE: GEOPHYSICAL SURVEY 2019

By

Charles Enright & Andrew Shobbrook

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**LLYS Y FRAN – POSSIBLE ROMAN VILLA SITE:
GEOPHYSICAL SURVEY 2019**

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CRYNODEB GWEITHREDOL

Yn 2018 tynnodd y Comisiwn Brenhinol Henebion Cymru lun o ôl cnwd mawr, a nodwyd yn flaenorol gan Terry James ym mis Gorffennaf 1989, o fewn caeau amaethyddol yn Llys y Fran, Cas-Wis, Sir Benfro (PRN 14337).

Disgrifiodd Terry James y ôl cnwd fel arwydd o weddillion system gaeau debygol neu gyfres o badogau. Dangosodd awyrlun 2018 lawer mwy o fanylion ac awgrymodd y Comisiwn Brenhinol y gallai'r safle fod yn dystiolaeth o fferm neu fila Rufeinig. Yn 2019, fel rhan o Flwyddyn Darganfod Llywodraeth Cymru, cynorthwyodd grant Cadw arolwg geoffisegol ar draws ardal y cnwd i helpu i nodweddu'r dystiolaeth ymhellach.

Cynhaliodd Ymddiriedolaeth Archeolegol Dyfed yr arolwg geoffisegol hwn yn ystod haf 2019.

Roedd ansawdd cyffredinol canlyniadau'r arolwg geoffisegol yn dda ac roedd anomaledau magnetig a gofnodwyd yn ystod yr arolwg yn cyfateb â nodweddion a nodwyd yn awyrlun 2018. Fe'i hystyrir yn debygol iawn bod y canlyniadau wedi'i gasglwyd yn ystod yr arolwg yn dynodi presenoldeb fferm o'r cyfnod Brythonig-Rufeinig.

SUMMARY

In 2018 the Royal Commission on the Ancient and Historic Monuments of Wales photographed a large cropmark, that had been previously identified by Terry James in July 1989, within agricultural fields at Llys y Fran, Wiston, Pembrokeshire (PRN 14337)

Terry James described the cropmark as indicative of the remains of a probable field system or a series of paddocks. The 2018 aerial photograph showed much more detail and the Royal Commission suggested that the site might be evidence of a Roman farm or villa.

In 2019, as part of the Welsh Government's Year of Discovery, Cadw grant aided a geophysical survey across the area of the cropmark to help further characterise the evidence. Dyfed Archaeological Trust undertook this geophysical survey in the summer of 2019.

The general quality of the geophysical survey results was good and magnetic anomalies recorded during the survey corresponded with features identified in the 2018 aerial photograph. It is considered highly likely that the results collected during the survey indicate the presence of a Romano-British period farmstead.

**LLYS Y FRAN – POSSIBLE ROMAN VILLA SITE:
GEOPHYSICAL SURVEY 2019**

1. INTRODUCTION

1.1 Project Commission

- 1.1.1 The site of a possible roman villa (PRN 14337 / NPRN 423780) at Llys Y Fran (centred on SN 03370 23940; Figure 1) was first recorded in 1989 by Terry James (Photo 1). He described it:

"The cropmark was barely visible when noted during air survey in July 1989. It comprises perfectly straight sided positive cropmarks of presumably a field system or a series of paddocks. It is possible that there are buildings in the vicinity - but these are not clear. A Roman date seems probable. This site would certainly be worth re-photographing in another dry year".

- 1.1.2 During the dry summer of 2018, Toby Driver of the Royal Commission on the Ancient and Historic Monuments of Wales (RCAHMW) re-photographed the site (Photo 2). This photograph shows more detail than that recorded in 1989 and the cropmark again suggests this may be the site of a Roman settlement, farm or villa; displaying traits similar to Abermagwr villa in Ceredigion and Llys Brychan villa in Carmarthenshire.
- 1.1.3 Roman villas are rare in southwest Wales and until recently it was considered that the countryside of the region was lightly Romanised and therefore discoveries of villa sites were thought unlikely. However, the discovery of a villa at Abermagwr, Ceredigion and Crosswell, Pembrokeshire, has changed this view and more villa sites could exist. If Llys-y Fran was confirmed as the site of a Roman villa then it would be considered of national importance and worthy of designation as a scheduled monument.
- 1.1.4 In 2019 Cadw granted-aided Dyfed Archaeological Trust to carry out a geophysical survey of the site to help further characterise the evidence, as part of the Welsh Government's Year of Discovery. Depending on the results this could be the first stage of a larger project.

1.2 Community Engagement

- 1.2.1 During the fieldwork the survey team was visited by members of the local Claberston Road History Society. The members listened to an explanation of geophysical survey methods and were able to see the survey results on a laptop.



Photo 1: Aerial photo of Llys y Fran cropmark taken in 1989 (©DAT AP89-187.3)

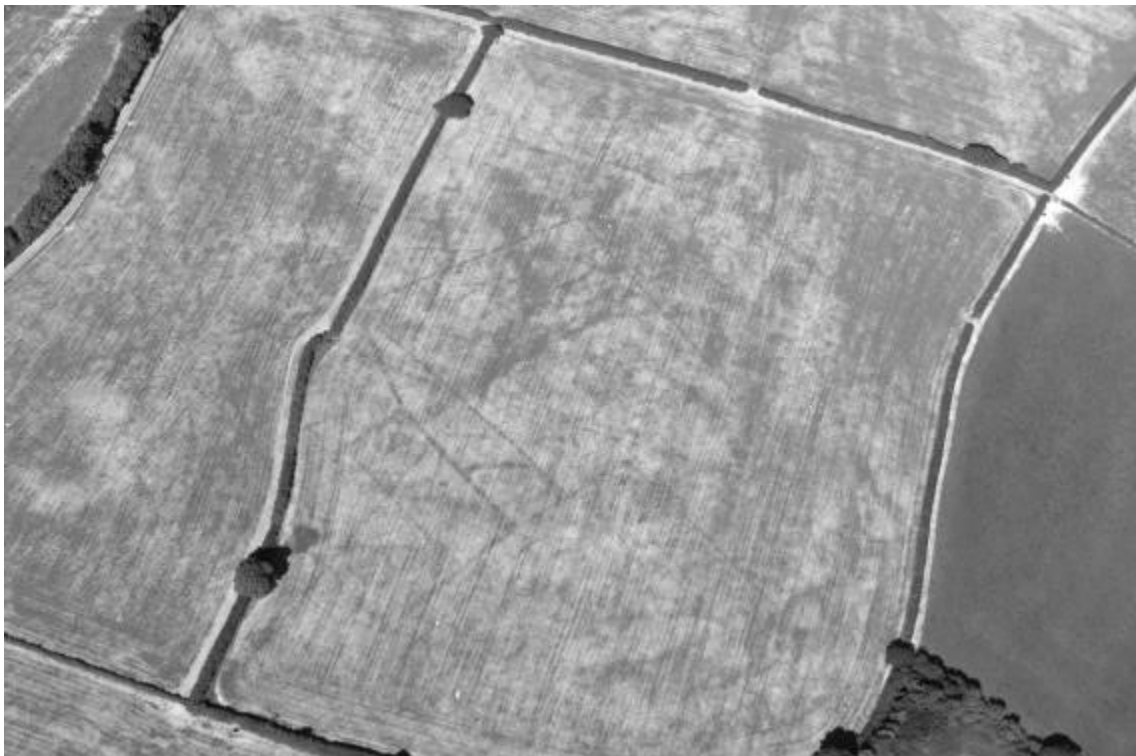


Photo 2: Royal Commission aerial photograph of Llys y Fran cropmark enclosure taken on the 19th July 2018 during the 2018 drought. The image is Crown copyright and is reproduced with the permission of Royal Commission on the Ancient and Historical Monuments of Wales (RCAHMW), under delegated authority from The Keeper of Public Records.

1.3 Project Aim and Objectives

1.3.1 The aim of the project was:

- to define the extent and character of the archaeology of the site.
- to formulate ways in which the remains can be managed and protected for future generations.
- to make appropriate scheduling recommendations

The objectives of the project were:

- to characterise the buried remains of the site by means of a geophysical survey.
- to improve our understanding, management and protection of the site, and by extension, other similar sites in the region.
- to engage members of the local community in the project.
- to disseminate the results of the project to a wide audience.
- to recommend further work on the site.

1.4 Report Outline

1.4.1 This report provides a summary and discussion of the archaeological survey and its results, and puts those results within their regional and national context.

1.5 Abbreviations

1.5.1 Sites recorded on the regional Historic Environment Record (HER) are identified by their Primary Record Number (PRN) and located by their National Grid Reference (NGR). Sites recorded on the National Monument Record (NMR) held by the Royal Commission on the Ancient and Historical Monuments of Wales (RCAHMW) are identified by their National Primary Record Number (NPRN). Altitude is expressed to Ordnance Datum (OD). References to cartographic and documentary evidence and published sources will be given in brackets throughout the text, with full details listed in the sources section at the rear of the report.

1.6 Illustrations

1.6.1 Printed map extracts are not necessarily produced to their original scale.

1.7 Timeline

1.7.1 The following timeline (Table 1) is used within this report to give date ranges for the various archaeological periods that may be mentioned within the text.

Period	Approximate date	
Palaeolithic –	c.450,000 – 10,000 BC	Prehistoric
Mesolithic –	c. 10,000 – 4400 BC	
Neolithic –	c.4400 – 2300 BC	
Bronze Age –	c.2300 – 700 BC	
Iron Age –	c.700 BC – AD 43	
Roman (Romano-British) Period –	AD 43 – c. AD 410	Historic
Post-Roman / Early Medieval Period –	c. AD 410 – AD 1086	
Medieval Period –	1086 – 1536	
Post-Medieval Period ¹ –	1536 – 1750	
Industrial Period –	1750 – 1899	
Modern –	20 th century onwards	

Table 1: Archaeological and Historical Timeline for Wales.

¹ The post-medieval and industrial periods are combined as the post-medieval period on the Regional Historic Environment Record as held by Dyfed Archaeological Trust

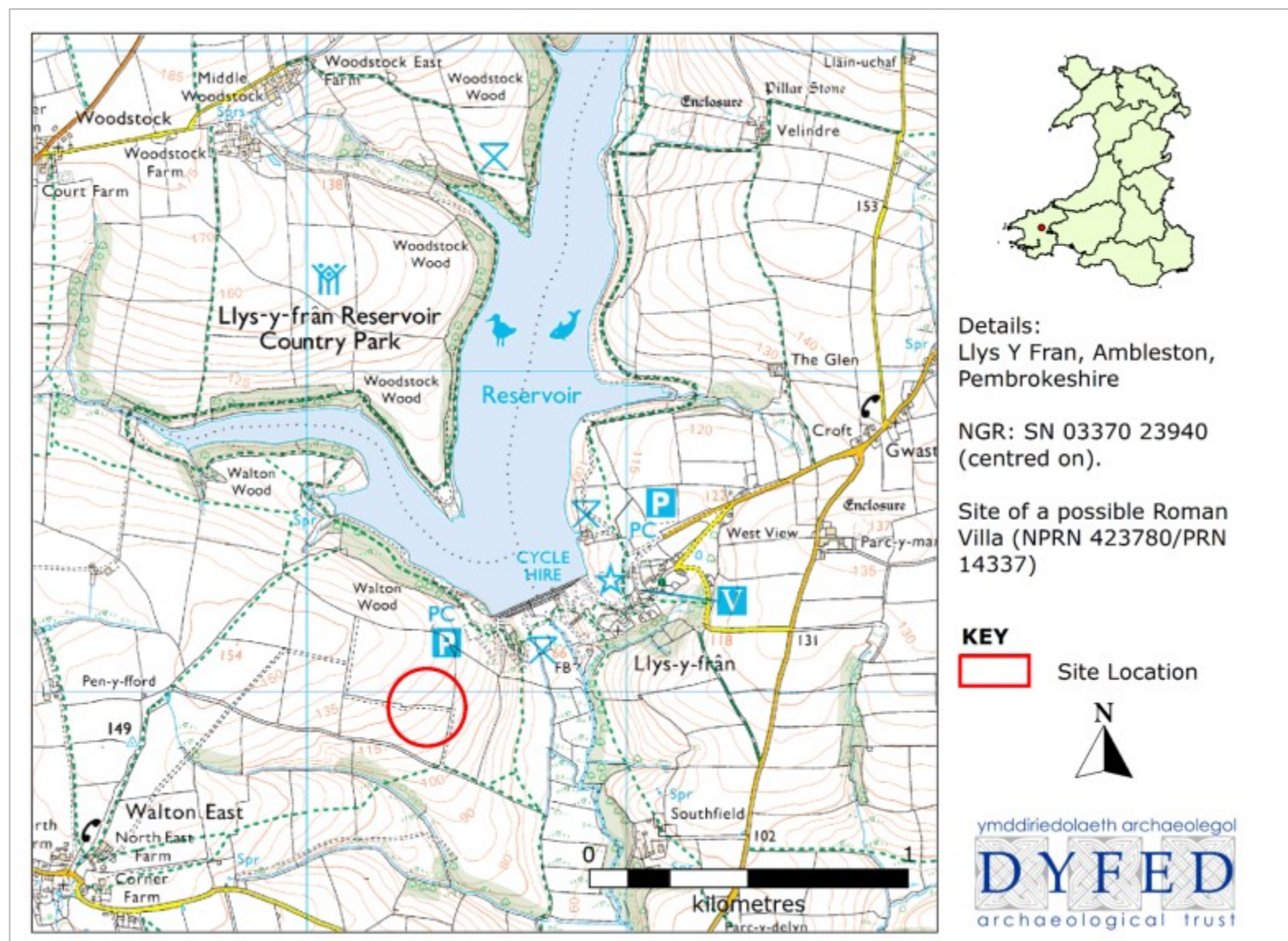


Figure 1: Site Location

2. THE SITE

2.1 Site Location and Topography

- 2.1.1 The cropmark sits at an elevation between 115m – 135m OD and occupies an east-facing hill-slope offering spectacular views of the Afon Syfynwy Valley, now occupied by the Llys y Fran reservoir.
- 2.1.2 Aside from former field boundaries that appear on the 1840 parish tithe map there are no obvious earthworks.
- 2.1.3 The underling bedrock geology consists of Penmaen Dewi Shale Formation – mudstone. A sedimentary rock formed approximately 466 – 478 million years ago in the Ordovician Period in a local environment previously dominated by open seas with pelagite deposits. (British Geological survey online [Accessed 13/01/20]).



Photo 3: *View across survey area from southwest corner of Field 1.*

3. GEOPHYSICAL SURVEY

3.1 Methodology

- 3.1.1 A fluxgate gradiometer with a DL601 data logger was used to conduct the detailed geophysical survey, which detects variations in the earth's magnetic field. A sample interval of 0.25m (four readings per metre) was used with 1.0m wide traverses across 30m x 30m grids using the zigzag traverse method of collecting data. The gradiometers sensitivity was set to detect a magnetic variation in the order of 0.1 nanoTesla.
- 3.1.2 The survey grid was tied into the local Ordnance Survey grid using Differential Global Position System (DGPS).
- 3.1.3 The data was processed using *Terrasurveyor 3.0.35.10* and is presented with a minimum of processing. The presence of high values caused by ferrous objects, which tend to hide fine details and obscure archaeological features, have been 'clipped' to remove the extreme values allowing the finer details to show through.
- 3.1.4 The processed data has been presented as a grey-scale plot, overlaid on local topographical features. The main magnetic anomalies have been identified and an interpretation of those results is also given.
- 3.1.5 The resulting survey results and interpretation diagrams should not be seen as a definitive model of what lies beneath the ground surface, not all buried features will provide a magnetic response that can be identified by the gradiometer. In interpreting those features that are recorded the shape is the principal diagnostic tool, along with a comparison with known features from other surveys. The intensity of the magnetic response could provide further information, a strong response, for example, indicates burning, high ferric content or thermoremnancy in geology. The context may provide further clues but the interpretation of many of these features is still largely subjective.
- 3.1.6 All measurements given will be approximate as accurate measurements are difficult to determine from fluxgate gradiometer surveys. The width and length of identified features can be affected by its relative depth and magnetic strength.
- 3.1.7 The results of the geophysical survey did not necessitate the need for XY trace plots to enhance the interpretation and have not been included.

4. Results (Fields 1-3)

4.1 The geophysical survey results are depicted as a greyscale plot in Figure 2 with an interpretation of the results provided in Figures 3-7. In total, an area of 15.65ha was surveyed across three fields.

4.2 The following text describes the groups of identified features as shown in Figures 3 – 7.

4.3 Figure 3

Post-medieval field boundaries

4.3.1 Within all three fields the geophysical survey results show several anomalies that appear to represent the remains of historic field boundaries, as they align closely with boundaries shown on the 1839 tithe map of Walton East which is the earliest available map of the area (Figure 8). The 1839 tithe map indicates that although the present-day field-scape was in place at this point; that since then many field boundaries have been removed.

Magnetic interference

4.3.2 Magnetic interference or disturbance occurs where the survey is undertaken close to a field boundary that contains ferrous material such as wire-fencing. In this instance, where the disturbance has occurred a single polarity response has been exhibited. This is evident along the northern and southern boundaries of Field 3. However, the interference is minimal and has not impacted adversely upon the rest of the survey.

Pits

4.3.3 Several discrete positive anomalies that could reflect evidence of possible pits can be seen across all three fields. Some of the possible pits appear to form arrangements that could indicate the presence of timber buildings, stock enclosures and wattle fences. There remains the potential that some of the anomalies are of natural origin and are the result of geology or tree throws.

Archaeological features

4.3.4 During the geophysical survey many strong anomalies were identified within all three fields and appear to collectively represent a series of interconnecting sub-rectangular enclosures, field systems, and small paddocks. All of the anomalies identified within this section are considered to be earlier than the extant and removed field boundaries due, mainly, to their different alignment.

Agricultural lines

4.3.5 Within Field 2 of the survey area linear anomalies probably represent plough marks aligned roughly northwest/southeast.

Modern service

4.3.6 Aligned approximately east-west a modern service was recorded running across Fields 1 and 2.

4.4 Figure 4

Possible pit arrangement K

4.4.1 The remains of a sub rectangular arrangement of possible pits was recorded within the central area of an enclosure (H). The arrangement is 28m long northeast/southwest by 20m northwest/southeast and may represent the remains of a possible timber building. The pits may

represent the remains of post holes which are presumed to have accommodated load-bearing wooden posts. This possible building also appears to have been constructed on the same alignment as the north-western boundary of enclosure H which would suggest that both features are possibly contemporary.

4.5 **Figure 5**

Possible pit arrangement L

- 4.5.1 A smaller arrangement of pits was recorded within the north-western portion of Field 2; in the form of a right-angled arrangement in plan. These pits could also represent the remains of postholes and may indicate the remains of a corner of a timber building.

4.6 **Figure 7**

Enclosure A

- 4.6.1 A strong anomaly depicting a sub-rectangular enclosure was recorded within the south-eastern portion of Field 1. Enclosure A measured 56m long northeast-southwest by 37m northwest-southeast and was defined by a ditch c. 1.3m wide.

Enclosure B

- 4.6.2 Located within the south-eastern portion of Field 1 were the remains of enclosure B. Enclosure B is very similar in shape to enclosure A but somewhat larger in plan. The enclosure was positioned on a similar northwest-southeast alignment to that of enclosure A and also appears to overlie enclosure A. The boundaries of enclosure B appear quite well defined along its northwest, northeast and southwest edges, whereas its southeast edge appears to include several smaller rectangular enclosures or paddocks. Enclosure B measured roughly 112m northwest-southeast by 68m southwest-northeast with the ditch between 1.8m to 3.0m wide. Evidence for an entrance into the enclosure can be seen along the south-western boundary.

Enclosure C

- 4.6.3 To the southwest of enclosure B is another sub-rectangular enclosure; Enclosure C. It appears joined to enclosure B but is set slightly at an angle to it. This enclosure is bisected by the modern field boundary dividing Fields 1 and 3. Enclosure C measured 56m northeast-southwest and 59m northwest-southeast with an average ditch width of around 2.2m. A slight break in the anomaly along the enclosure's south-western boundary may indicate the possible presence of an entrance; a very similar position to enclosure B.

Enclosure D

- 4.6.4 The remains of a small square enclosure, Enclosure D was recorded on the edge and to the south of previous enclosures A, B, and C to the north. This smaller enclosure measured roughly 26m square. Enclosure D is on a slightly different alignment to the adjacent enclosures.

Enclosure E

- 4.6.5 Enclosure E comprised the partial remains of a possible enclosure. The enclosure ditch measured 61m west-southwest-east-northeast before turning slightly northeast-southwest, after which it continues for a further 26m. The ditch measured between 1.6m to 2.4m wide.

Enclosure F

- 4.6.6 The remains of a curvilinear anomaly assumed to be the remains of a possible enclosure annex was identified just to the northwest of Enclosure B. The curving ditch measures a total length of 42.m long with an average width of 2.3m.

Enclosure G

- 4.6.7 A straight length of linear ditch aligned roughly northeast-southwest comprised Enclosure G. It is located to the southwest of Enclosure F within Field 1. The linear ditch measured around 87m long and there is an indication of a possible entrance along its length. This linear may form the southeast side of Enclosure H.

Enclosure H

- 4.6.8 Enclosure H comprised a large rectangular enclosure lying to the northwest of the enclosure complex, within Field 1. This enclosure enclosed an area measuring 1.1ha. No evidence for an entrance was seen on its northwest and southwest boundaries. The gap seen in the northeast boundary is possibly the result of the post-medieval north-south field boundary that ran across the enclosure here (Figure 3). However, access to the enclosure may have been gained through the entrance seen within the linear ditch that comprised Enclosure G. Enclosure H measured 47m along its northeast boundary, 134m along its northwest boundary and 94m along its southwestern boundary. The enclosure ditch had an average width of around 1.5m.

Enclosure I

- 4.6.9 A second large rectangular enclosure formed the northeast limit of the enclosure complex. Enclosure I was comprised of three sides of what appeared to be a rectangular enclosing roughly an area measuring 1.3ha. There was no evidence of an east side although together with Enclosure J, it could form a much larger enclosure on the east side of the enclosure complex.

- 4.6.10 The southwest boundary of Enclosure I was on the same alignment and a continuation of Enclosure B's boundary. A break between the two may indicate an entrance. Another entrance break can be seen in the enclosure's northeast boundary.

- 4.6.11 The north-eastern boundary of Enclosure I measured 94m, the north-western boundary measured 94m and the south-western boundary 45m. The boundary ditch measured 2.0m wide.

Enclosure J

- 4.6.12 Enclosure J is formed of a curving east boundary that appears to be a continuation of the northeast boundary of Enclosure I and a southwest boundary that runs up to the south corner of Enclosure C, enclosing very roughly an area of 1.6ha on the east side of the enclosure complex.

- 4.6.13 There is evidence for at least two possible entrances, one situated on the enclosure's south-western boundary and a second situated on the south-eastern boundary.

- 4.6.14 The enclosure measured 111m along its southwestern boundary and around 351m along its eastern boundary. The boundary ditch that defines Enclosure J measured on average 2.2m wide. Due to the similar strength of magnetic reading produced by both Enclosure ditch J and I it is assumed that both anomalies would have joined but have since been truncated by the existing modern north/south field boundary which separates Fields 1 and 2.

Ring ditches

- 4.6.15 A total of 12 ring ditch anomalies were identified throughout the survey area. Typically the ring ditches had an average diameter of 11m. They were all recorded within the enclosures; none were recorded outside.

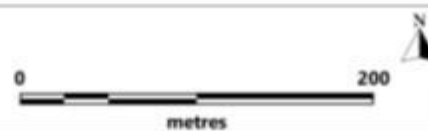
5. CONCLUSIONS

- 5.1 Generally the quality of the magnetic data was good allowing it to be possible to discern features of probable archaeological interest.
- 5.2 Overall the results from the geophysical survey have identified the remains of a complex of large interconnecting polygonal-shaped anomalies, which, it is suggested, form the remains of a later prehistoric/Romano British farmstead. There is, however, no evidence of an associated Roman villa. Within the complex of interconnected and somewhat overlapping rectangular enclosures, the only evidence for settlement is several circular ring ditches; that could represent the location of former roundhouses.
- 5.3 Other similar sites dating to the Romano British period within the vicinity of Llys y Fran include Southfield defended enclosure (PRN 10498) located across the valley to the east, as well as Castle Flemish enclosure (PRN 1278), located 3.8km to the northwest. The recently discovered Roman fort at Wiston (PRN 5683) is located 5.4km to the south of Llys y Fran.
- 5.4 It is possible that the larger outer enclosures H, I and J, surrounding the smaller central enclosures or paddocks, were used for livestock; providing ample grazing for livestock kept within the farmstead. Linking these large enclosures would provide the farmstead access to an enclosed area of approximately 4ha for grazing; perhaps allowing for stock rotation.
- 5.5 The remains of several ring ditch shaped anomalies identified within the results could be surviving evidence for domestic roundhouse structures, which are commonly found throughout Wales at occupation sites of Iron Age/Romano British periods. Two of the ring ditches have southeast-facing openings which typically avoids the general southwest winds that blow across western Britain. Indications of several phases of roundhouse are seen in Enclosure H where there is evidence for one roundhouse clearly cutting another.
- 5.6 Further evidence for structures is found in the arrangements of pits recorded during the survey. In Field 1 a rectilinear arrangement of pits (arrangement K) could be surviving evidence for a rectangular timber building. This building lies close to a number of roundhouses; a pattern seen nearby at Walesland Rath where a group of Romano British roundhouses was found in close association with a rectangular stone building which was considered to be the remains of a byre (Arnold and Davies, 2000, p-74-75).
- 5.7 It is difficult to phase the development of the enclosures within the farmstead. Looking at the enclosure plan one could tentatively suggest that the earliest enclosure is most likely to be Enclosure A at the centre of the complex, and around which subsequent enclosures and paddocks have developed, perhaps as the farmstead became more prosperous. The creation of the larger Enclosures H, I and J appear to have been the last phase of development, and are in contrast to the much smaller enclosures they surround.
- 5.8 The form of the enclosure complex and its similarities to other known sites, suggests the features are surviving evidence for a Romano British

farmstead. Further archaeological work, including targeted archaeological trial trenching, could provide evidence that would help date the settlement more securely, and also provide a better understanding of the buried archaeological remains that survive at Llys y Fran.



Figure 2: Grey scale plot of geophysics results within Fields 1-3.



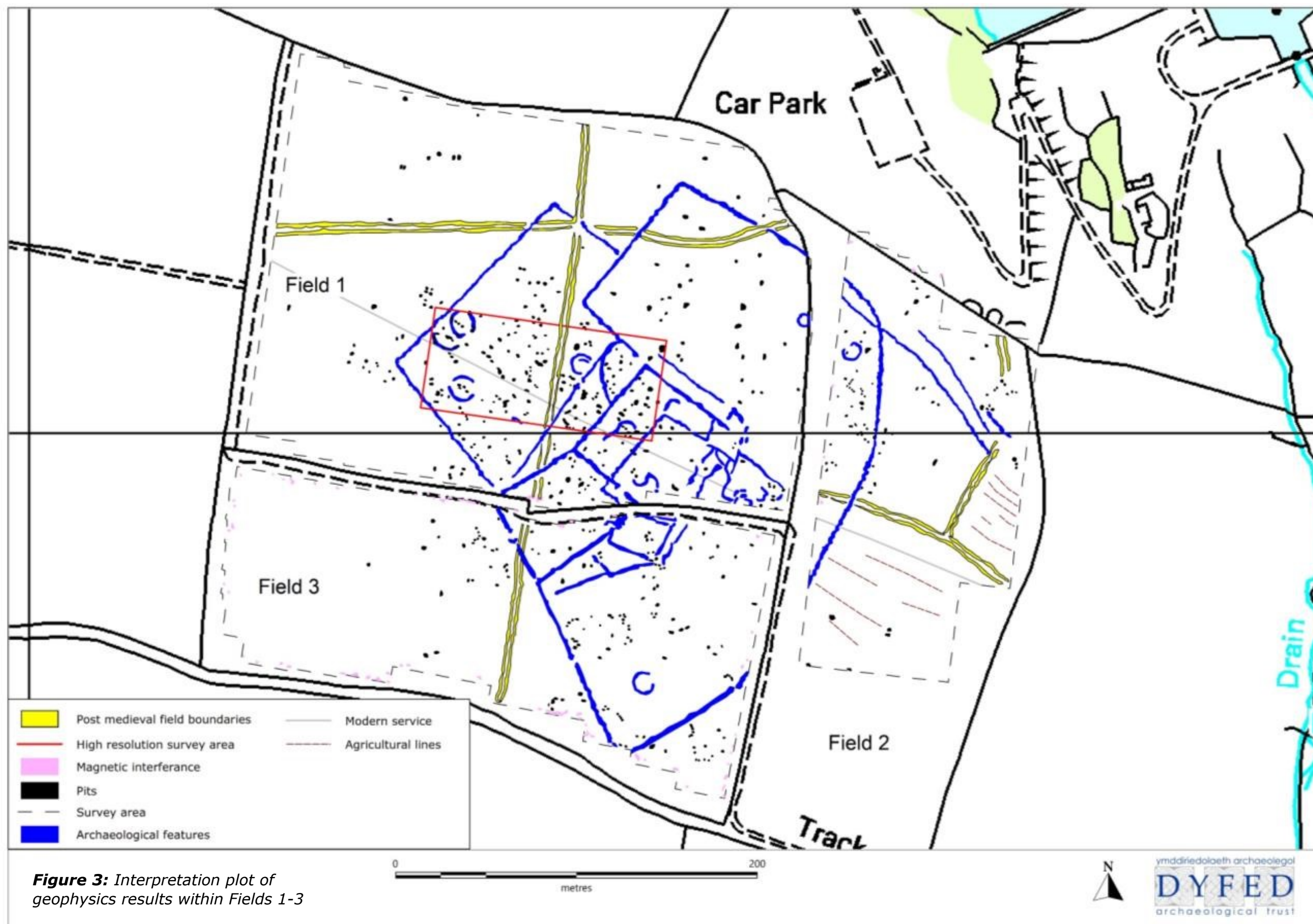


Figure 3: Interpretation plot of geophysics results within Fields 1-3

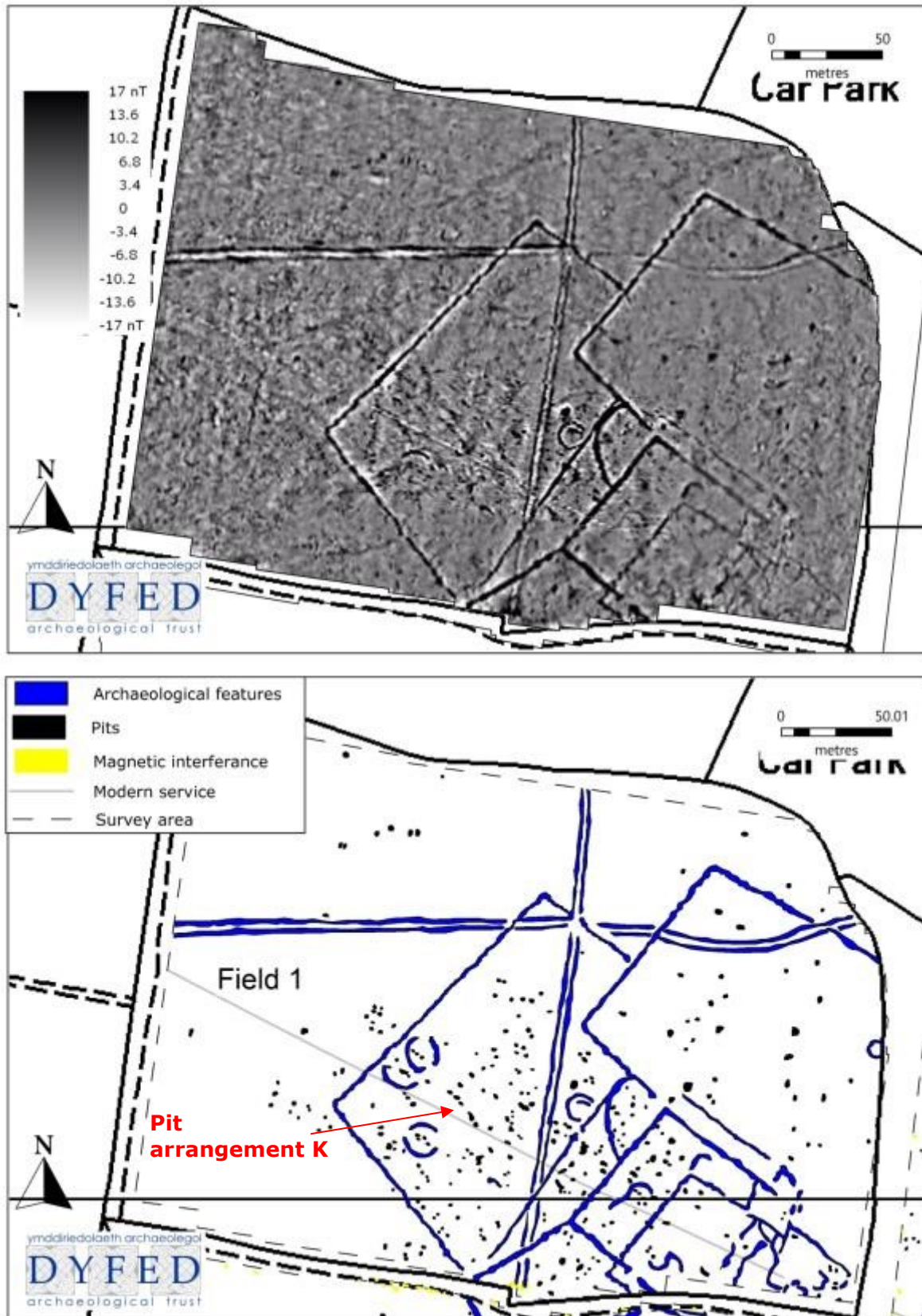


Figure 4: Detail of interpretation of geophysics results from Field 1.

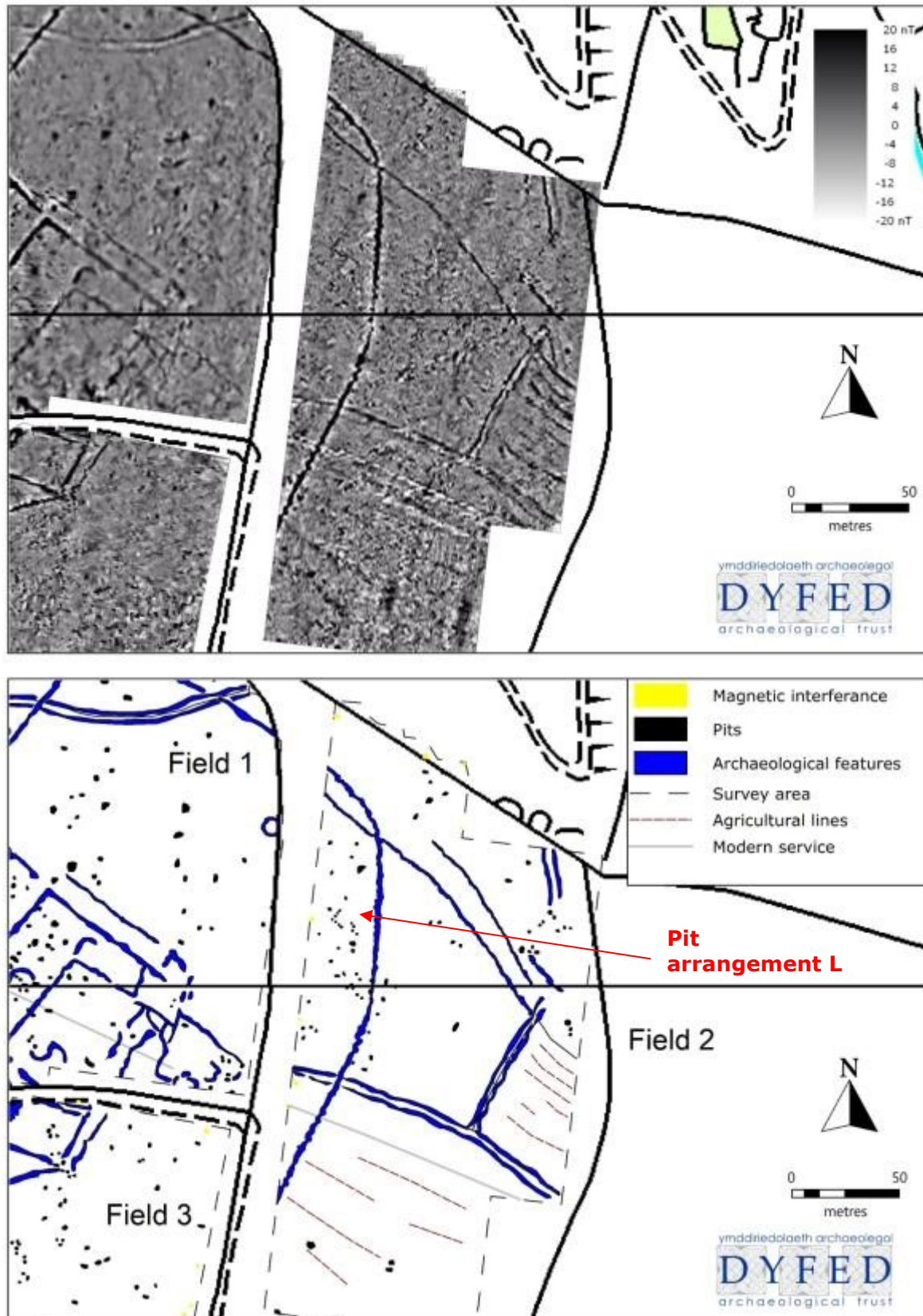


Figure 5: Detail of interpretation of geophysics results from Field 2.

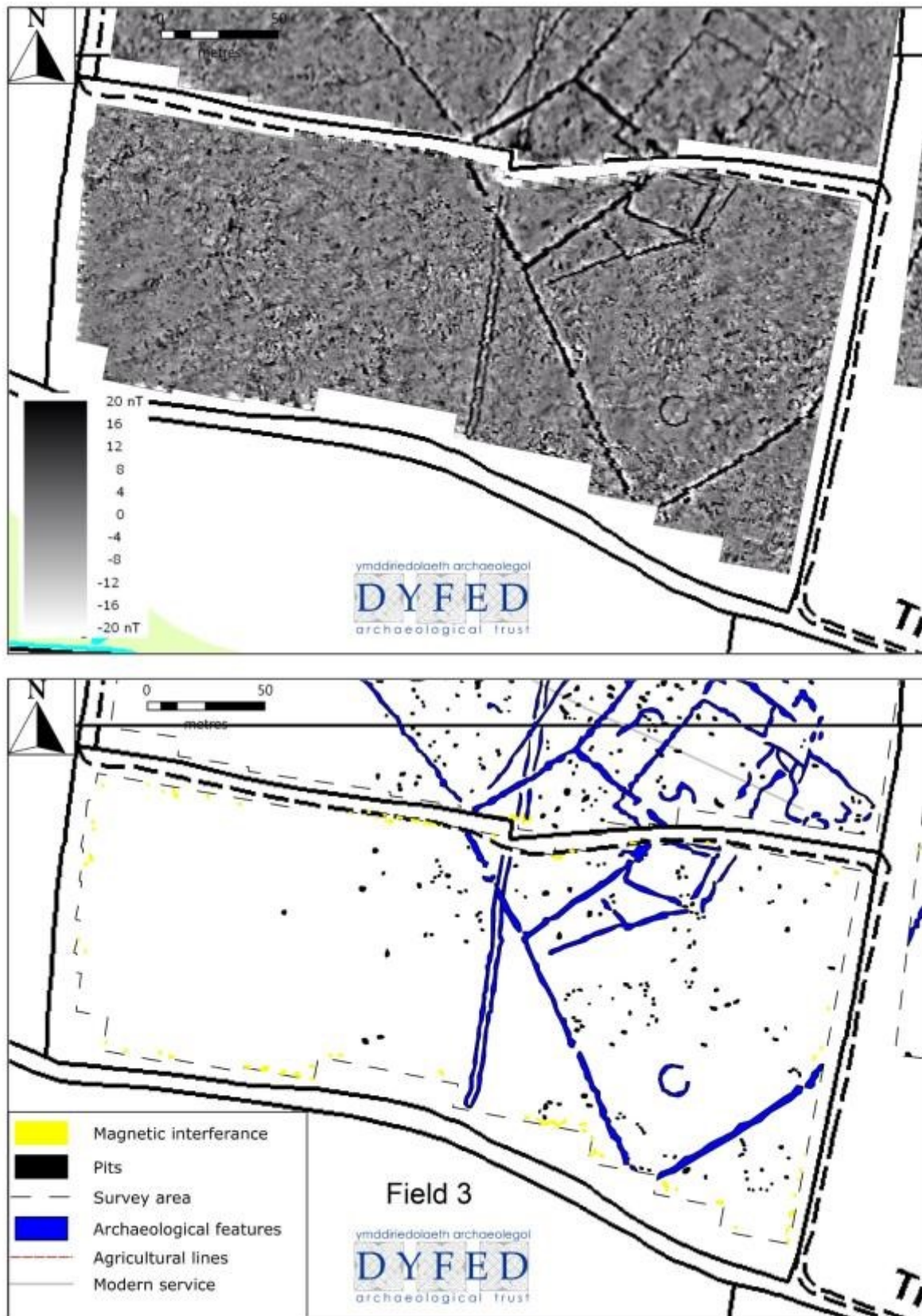


Figure 6: Detail of interpretation of geophysics results from Field 3.

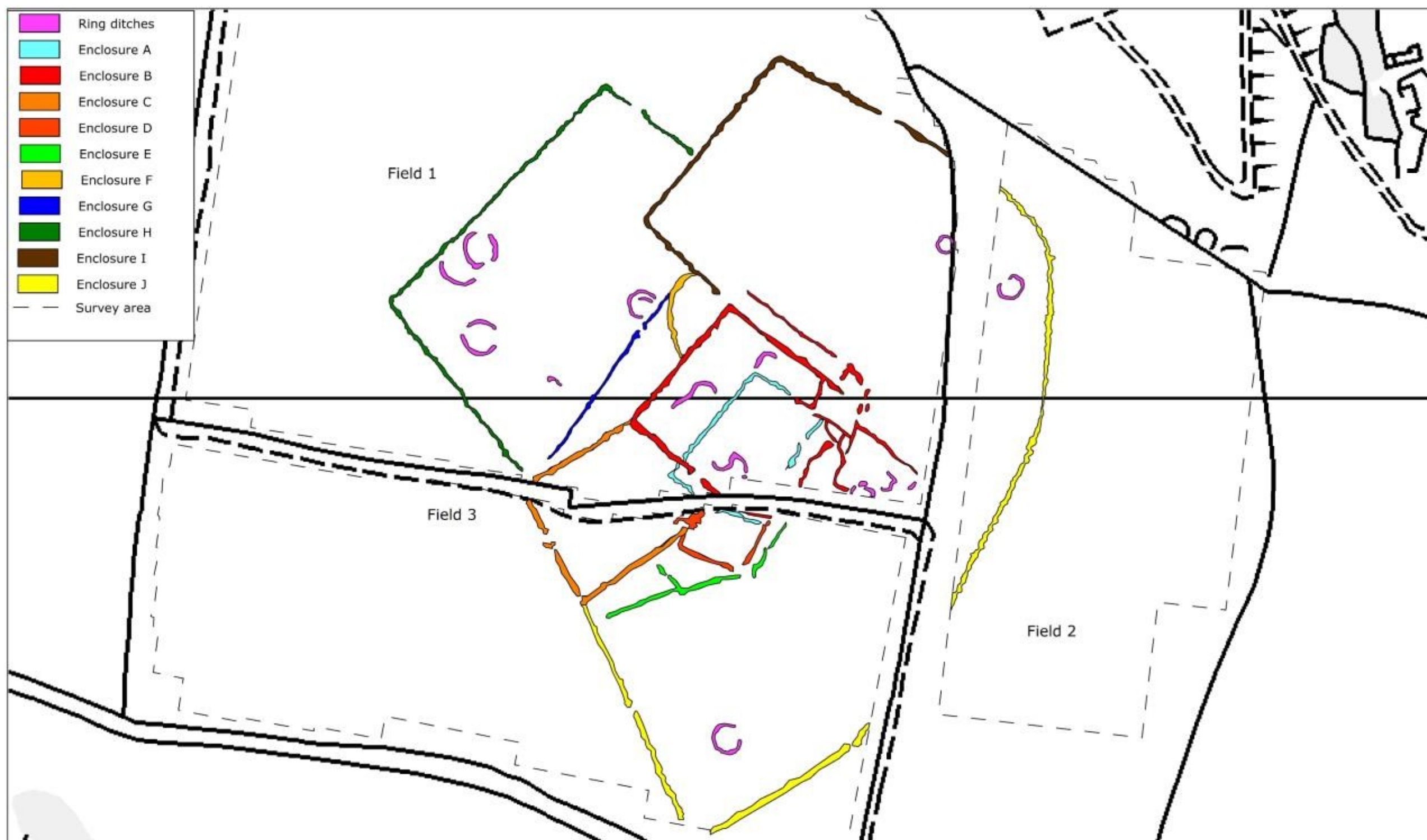


Figure 7: Interpretation of possible phasing of individual enclosures.

0 100
metres



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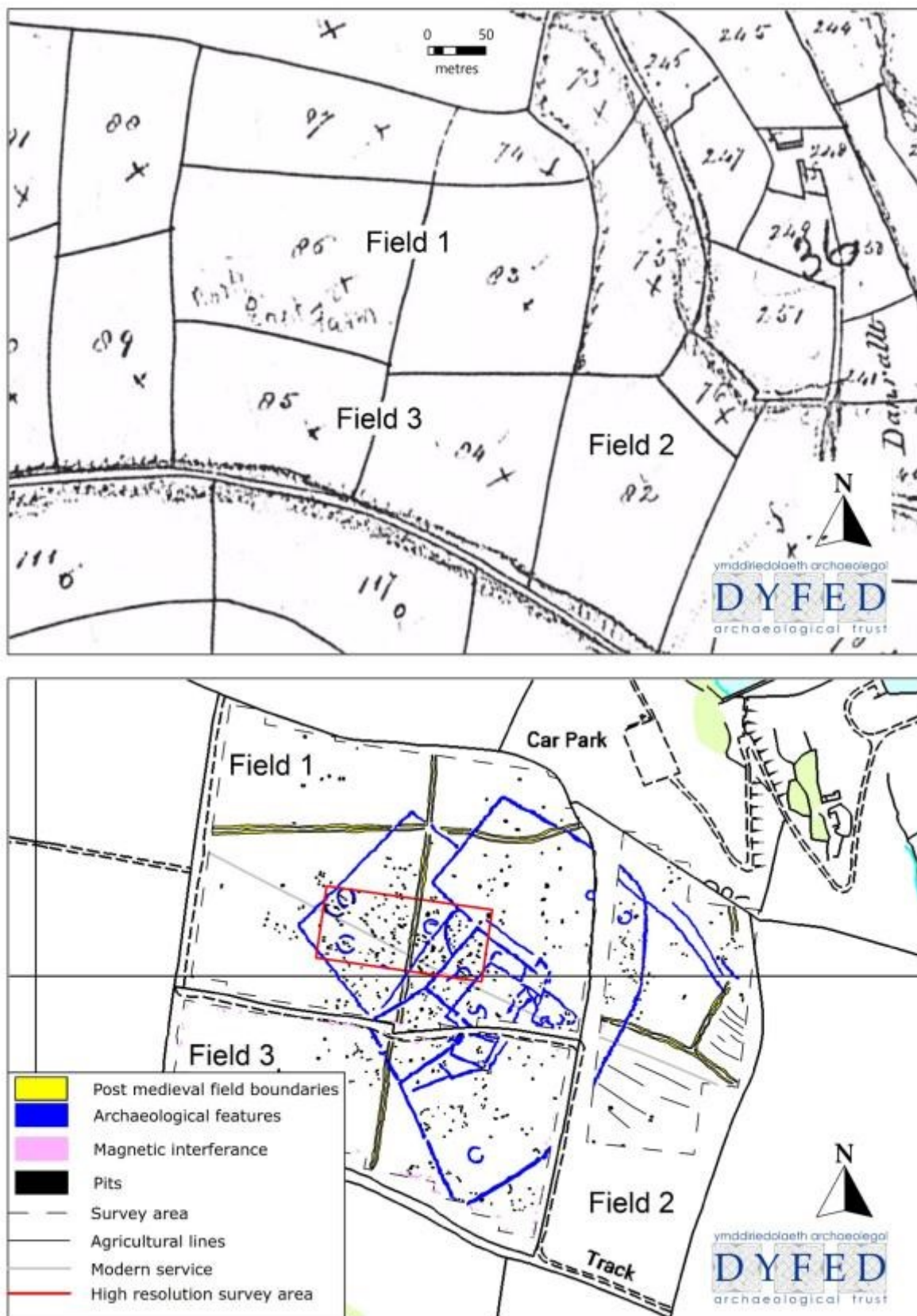


Figure 8: Walton East tithe map of 1839 depicting geophysical survey area and interpretation of results.

6. SOURCES

Publications

Arnold, C, J and Davies, J, L. 2001. *ROMAN AND EARLY MEDIEVAL WALES*. Sutton publishing ltd.

CIFA, 2014 *Chartered Institute of Field Archaeologists Standards and Guidance for Archaeological Field Evaluation*.

National Standard and Guidance for Collecting and Depositing Archaeological Archives in Wales 2017.
<http://www.welshmuseumsfederation.org/en/news-archive/resources-landing/Collections/national-standard-and-guidance-for-collecting-and-depositing-archaeological-archives-in-wales-2017.html>

Cartographic

Walton East parish tithe map published in 1839.

Database

Dyfed Archaeological Trust Historic Environment Record

Online resources

British Geological Survey [online]. Accessed 13/01/20. Available at:
www.bgs.ac.uk.

7. GLOSSARY

Fluxgate Gradiometer

An instrument used to measure magnetism to search for areas of disturbed ground that may be associated with subsurface archaeological features.

nanoTesla (nT)

A unit of measurement of a magnetic field.

Magnetic Disturbance

A high amplitude response typically associated with magnetic interference from modern ferrous objects such as buildings and fences. The response is commonly seen around the perimeter of survey areas.

Ferrous Objects

Metals and alloys that contain iron.

Dipole Anomalies

An anomaly consisting of a single positive response with an associated negative response forming a 'halo effect'. The negative and positive response is of equal magnitude but opposite polarity and are caused by the same feature. Dipole anomalies are very commonly observed across a range of sites, particularly agricultural land. Generally, unless the dipoles form part of a larger pattern or feature they are regarded as not significant. They are usually the result of modern ferrous rich debris such as brick and tile fragments as well as objects such as horseshoes or broken plough shares, which lie within the topsoil.

Polarity

An attribute with two possible values, positive or negative.

LLYS Y FRAN – A POSSIBLE ROMAN VILLA SITE: GEOPHYSICAL SURVEY 2019

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March 2020

This report has been prepared by

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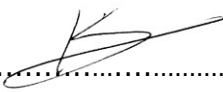
Signature  Date 13/03/2020

This report has been checked and approved by

K Murphy

on behalf of Dyfed Archaeological Trust Ltd.

Position: **Director Dyfed Archaeological Trust**

Signature  Date 24/03/2020

As part of our desire to provide a quality service, we would welcome any comments you may have on the content or presentation of this report

