



Flaxlands Solar, Wiltshire

Gradiometer Survey Report

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Contents

Summary	ii
Acknowledgements.....	ii
1 INTRODUCTION	1
1.1 Project background.....	1
1.2 Scope of document.....	1
1.3 The site.....	1
2 ARCHAEOLOGICAL BACKGROUND.....	1
2.1 Introduction.....	1
2.2 Summary of the archaeological resource	2
2.3 Recent investigations in the immediate vicinity	2
3 METHODOLOGY	3
3.1 Introduction.....	3
3.2 Aims and objectives.....	3
3.3 Fieldwork methodology	3
3.4 Data processing.....	3
4 GEOPHYSICAL SURVEY RESULTS AND INTERPRETATION	4
4.1 Introduction.....	4
4.2 Gradiometer survey results and interpretation	4
5 DISCUSSION	6
REFERENCES	7
APPENDICES	8
Appendix 1 Survey equipment and data processing.....	8
Appendix 2 Geophysical interpretation.....	10
Appendix 3 OASIS form.....	11

List of Figures

Figure 1	Site location
Figure 2	Gradiometer survey results – greyscale overview
Figure 3	Gradiometer survey results – interpretation overview
Figure 4	Gradiometer survey results – greyscale north-west
Figure 5	Gradiometer survey results – interpretation north-west
Figure 6	Gradiometer survey results – greyscale west
Figure 7	Gradiometer survey results – interpretation west
Figure 8	Gradiometer survey results – greyscale north
Figure 9	Gradiometer survey results – interpretation north
Figure 10	Gradiometer survey results – greyscale east
Figure 11	Gradiometer survey results – interpretation east
Figure 12	Gradiometer survey results – greyscale south
Figure 13	Gradiometer survey results – interpretation south
Figure 14	Gradiometer survey results – greyscale south-east
Figure 15	Gradiometer survey results – interpretation south-east



Summary

A gradiometer survey was conducted over land at Flaxlands Solar, Royal Wootton Bassett, Wiltshire (centred on NGR 406619 185035). The project was commissioned by AECOM with the aim of establishing the presence, or otherwise, and nature of detectable archaeological features in support of a planning application for a solar development.

The site comprises arable fields located 185 m north-west of the village/town of Hook and 1.2 km north of Royal Wootton Bassett, in Wiltshire, covering an area of 83.55 ha. The survey was undertaken between 18 November and 3 December 2024. The gradiometer survey has been successful in detecting anomalies of possible archaeological origin sporadically across the site. The survey has also produced evidence of historic and modern cultivation practices, drainage, extraction, and modern services, as well as variation in the geology.

Evidence of possible archaeological activity is attributed to three ring features, a spread of linear features across the site, and three sets of possible pit alignments. The rings have been interpreted as either Romano-British roundhouse gullies or possible barrow ditches, with the linear features inferring boundary ditch features. The pit alignments could be prehistoric and infer further landscape delineation. However, they could all equally be attributable to modern agricultural practices or natural variation.

Features interpreted as potential extraction activity are apparent in a broad swathe from the northern portion to the south-eastern portion of the site. These may infer quarrying activity noted in the previous excavations to the south of the site. However, they may instead imply the positions of former feeding troughs and variation in the local geology.

Variation in the local geology is prevalent in the data. The geological and geomorphological activity presented likely corresponds to the natural drainage of the site as many of the features align LiDAR topography.

Modern activity across the site includes drainage, ploughing, trackways, overhead power lines, and modern services.

Acknowledgements

Wessex Archaeology would like to thank AECOM for commissioning the geophysical survey. The assistance of Orlando Prestidge is gratefully acknowledged in this regard.

The fieldwork was undertaken by Callum Jervis, Max McShane, and Andrew Marke. Charlotte Gibbons processed the data. Brett Howard interpreted the geophysical data, wrote the report, and prepared illustrations. The geophysical work was quality controlled by Tom Richardson. The project was managed on behalf of Wessex Archaeology by Tom Richardson.



Flaxlands Solar, Wiltshire

Gradiometer Survey Report

1 INTRODUCTION

1.1 Project background

- 1.1.1 Wessex Archaeology was commissioned by AECOM to carry out a geophysical survey at Flaxlands Solar, Royal Wootton Bassett, Wiltshire (centred on NGR 406619 185035) (**Figure 1**). The survey forms part of an ongoing programme of archaeological works being undertaken in support of a planning application for a solar development.

1.2 Scope of document

- 1.2.1 This report presents a brief description of the methodology followed by the detailed survey results and the archaeological interpretation of the geophysical data.

1.3 The site

- 1.3.1 The site is located 185 m north-west of the village/town of Hook and 1.2 km north of Royal Wootton Bassett, in Wiltshire.
- 1.3.2 The survey comprises 83.5 ha of agricultural land, currently utilised for pasture and arable crop. The site is bounded by woodland to the west and north-west; by agricultural fields to the north; by further agricultural fields, woodland, and the village of Hook to the east; and by the M4 to the south.
- 1.3.3 The site is on a slight incline from 110 m above Ordnance Datum (aOD) at the south-west edge to 150 m aOD at the northern edge.
- 1.3.4 The solid geology comprises a band of mudstone of the Oxford Clay Formation in the western most portion of the site, with a band of sandstone, siltstone and mudstone of the Hazelbury Bryan Formation and Kingstone Formation next, and an area of limestone of the Stanford Formation through the centre of the site; Mudstone of the Amphill Clay Formation and Kimmeridge Clay Formation are prevalent across the eastern portion of the site. No overlying superficial geological deposits are recorded, except across the south-east of the site, where there are superficial deposits of gravel, sand, silt and clay (BGS 2024).
- 1.3.5 The soils underlying the site are likely to consist of slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils across the majority of the site, with a band of shallow lime-rich soils over chalk or limestone in the centre (Soilscapes 2024).

2 ARCHAEOLOGICAL BACKGROUND

2.1 Introduction

- 2.1.1 The archaeological and historical background was assessed in a prior Written Scheme of Investigation (WSI) (AECOM 2024), which considered the recorded historic environment resource within a 1 km study area of the proposed development. The WSIs used information from the Wiltshire Historic Environment Record (HER) and the National Heritage List for England (NHLE). Additional sources of information are referenced, as appropriate.

2.2 Summary of the archaeological resource

Listed Buildings

- 2.2.1 There are a total of eight listed buildings within 1 km of the site, all listed at Grade II. The closest comprises Manor Farmhouse (NHLE 1199833), an 18th century brick building replacing one of earlier construction, located 130 m south-west of the site's eastern land parcel. Lydiard Park is a Registered Park and Garden (NHLE 1001238), located 960 m east of the site.

Prehistoric

- 2.2.2 Evidence of Neolithic and Bronze Age activity is limited to chance finds including that of a Neolithic Cornish greenstone axe, found at Lydiard Millicent, 760 m to the north-west of the site and a Bronze Age Arrowhead, recorded 860 m to the south of the site.

Iron Age

- 2.2.3 The excavations at the Royal Wootton Bassett Sports Hub, 350 m to the south of the site identified an Iron Age Roundhouse, field boundary, and other structures.

Romano-British

- 2.2.4 Roman activity was identified at the Sports Hub site including a Roman building, pits, quarries, and enclosures. A Romano-British grave was also recorded during the excavation.

Medieval

- 2.2.5 Later excavations at the Sports Hub site by Thames Valley Archaeological Services identified medieval settlement and agricultural activity including postholes, a field boundary, a linear system, and an enclosure. Further evidence of medieval settlement is recorded at Ballards Ash to the south-west of the 1 km study area and at Hook, 190 m to the east of the site. The location of a medieval deer park known as Vastern Great Park is recorded 550 m to the south of the site.

Post-medieval and modern

- 2.2.6 A post-medieval quarry and field boundary were recorded during the works at the Sports Hub by Thames Valley Archaeological Services. The post-medieval (19th century) farmstead of Godwin's Farm is recorded 780 m north-east of the site. A concentration of Second World War (WWII) anti-invasion infrastructure is recorded between Ballards Ash, to the south-west of the site on the opposing side of the M4 Motorway, and Hook Street, on the eastern edge of the 1 km study area. A total of 18 assets are recorded in total, largely identified through analysis undertaken by the Pillbox Study Group.

2.3 Recent investigations in the immediate vicinity

Archaeological Excavations

- 2.3.1 An evaluation and subsequent excavation at Royal Wootton Bassett Sports Hub in 2014 (AC Archaeology 2014), 350 m south of the site, identified both Iron Age and Romano-British activity. A further excavation undertaken by Thames Valley Archaeological Services in 2015 and 2020 revealed medieval settlement and agricultural activity, along with a post-medieval quarry.

3 METHODOLOGY

3.1 Introduction

3.1.1 The geophysical survey was undertaken by Wessex Archaeology's in-house geophysics team between 18 November – 3 December 2024. Field conditions were dry throughout the period of survey. An overall coverage of 78.2 ha was achieved, with reductions in coverage attributed to above ground obstructions such as natural hollows, trees, pig pens, and piles of waste material.

3.1.2 The methods and standards employed throughout the geophysical survey conform to current best practice, and guidance outlined by the Chartered Institute for Archaeologists' (CIfA 2014a; revised 2020) and Europae Archaeologiae Consilium (Schmidt *et al.* 2015).

3.2 Aims and objectives

3.2.1 The aims of the survey comprise the following:

- To determine, as far as is reasonably possible, the nature of the detectable archaeological resource within a specified area using appropriate methods and practices; and
- To inform either the scope and nature of any further archaeological work that may be required; or the formation of a mitigation strategy (to offset the impact of the development on the archaeological resource); or a management strategy.

3.2.2 In order to achieve the above aims, the objectives of the geophysical survey are:

- To conduct a geophysical survey covering as much of the specified area as possible, allowing for on-site obstructions;
- To clarify the presence/absence of anomalies of archaeological potential; and
- Where possible, to determine the general nature of any anomalies of archaeological potential.

3.3 Fieldwork methodology

3.3.1 The cart-based gradiometer system used a Carlson BRX-7 RTK GNSS instrument, which receives corrections from a network of reference stations operated by the OS. Such instruments allow positions to be determined with a precision of 0.02 m in real-time and therefore exceeds Europae Archaeologiae Consilium recommendations (Schmidt *et al.* 2015).

3.3.2 The survey was conducted using eight Sensys FGM650/3 magnetic gradiometers spaced at 0.5 m intervals and mounted on a non-magnetic cart towed by an All-terrain Vehicle (ATV). Data were collected with an effective sensitivity of $\pm 8 \mu\text{T}$ over $\pm 1000 \text{ nT}$ range at a rate of 100 Hz, producing intervals of 0.02 m along transects spaced 4 m apart.

3.4 Data processing

3.4.1 Data from the survey were subjected to minimal correction processes. These comprise a 'Destripe' function ($\pm 5 \text{ nT}$ thresholds), applied to correct for any variation between the sensors, and an interpolation used to grid the data and discard overlaps where transects have been collected too close together.

3.4.2 Further details of the geophysical and survey equipment, methods and processing are described in **Appendix 1**.

4 GEOPHYSICAL SURVEY RESULTS AND INTERPRETATION

4.1 Introduction

- 4.1.1 Results are presented as a series of greyscale plots and archaeological interpretations at a scale of 1:6000 (**Fig. 2** and **3**) and at a scale of 1:2000 (**Fig. 4** to **17**). The data are displayed at -2 nT (white) to +3 nT (black) for the greyscale image.
- 4.1.2 The interpretation of the datasets highlights the presence of potential archaeological anomalies, ferrous responses, burnt or fired objects, and magnetic trends (**Fig. 3, 5, 7, 9, 11, 13, 15, and 17**). Full definitions of the interpretation terms used in this report are provided in **Appendix 2**.
- 4.1.3 Numerous ferrous anomalies are visible throughout the dataset. These are presumed to be modern in provenance and are not referred to, unless considered relevant to the archaeological interpretation.
- 4.1.4 It should be noted that small, weakly magnetised features may produce responses that are below the detection threshold of magnetometers. It may therefore be the case that more archaeological features may be present than have been identified through geophysical survey.
- 4.1.5 Gradiometer survey may not detect all services present on site. This report and accompanying illustrations should not be used as the sole source for service locations and appropriate equipment (e.g., CAT and Genny) should be used to confirm the location of buried services before any trenches are opened on site.

4.2 Gradiometer survey results and interpretation

- 4.2.1 A strong positive partial ring anomaly is evident in the west of the site, at **4000**, (**Fig. 5** and **7**). The anomaly is 9 m in diameter, has a ring width of 2 m, and has a 6 m break in the southern portion. This anomaly has been interpreted as a possible archaeological ditch feature inferring the gully of a round house or the ditch of a barrow. Excavations 350 m south of the site revealed the presence of a Romano-British roundhouse and field boundaries, of which this feature may be another example. However, the feature is incomplete and no further anomalies in the immediate area can provide further context, so this may instead be evidence of later activity such as extraction or variation in geology.
- 4.2.2 A similar positive partial ring anomaly has been identified in the eastern portion of the site, at **4001** (**Fig. 11, 13, and 15**). The anomaly is 6 m – 7 m in diameter, has a ring width of 2 m, and has a 2 m break in the south-eastern portion. This anomaly has been interpreted as a possible archaeological ditch feature inferring the gully of another round house or ditch of a barrow. As discussed above, excavations 350 m south of the site revealed the presence of a Romano-British roundhouse and field boundaries, of which this feature may be another example. However, the feature is also incomplete and no further anomalies in the immediate area can provide further context, so this also may instead be evidence of later activity such as extraction or variation in geology.
- 4.2.3 Another weak positive ring anomaly has been identified in the eastern portion of the site, at **4002** (**Fig. 13** and **15**). The anomaly is 7 m in diameter, has a ring width of 1 m – 2 m, and has a 1 m break in the north-eastern portion. This anomaly has been interpreted as a possible archaeological ditch feature inferring the gully of yet another round house or ditch of a barrow. As discussed previously, this may relate to a Romano-British roundhouse or be evidence of later activity such as extraction or variation in geology.
- 4.2.4 A group of linear and sinuous positive anomalies have been identified in the western portion of the site, at **4003 – 4007** (**Fig. 5** and **7**). The anomaly at **4003** is an inverted Y shape covering an area of 28 m by 28 m and an anomaly width of 2 m; the anomalies at **4004** and

4005 may be fragments of the same singular anomaly, with **4004** 8 m long north-east to south-west, a gap of 25 m, then **4005** is 48 m long north-east to south-west, with both 2 m in width; the anomaly at **4006** is 19 m long north – south by 2 m wide; **4007** is 11 m long by 2 m wide, and presents as a right-angle. These anomalies have been interpreted as possible archaeological ditch features, likely pertaining to boundary ditches of an unknown origin. These features may represent an extension of the excavated Romano-British field system 350 m south of the site. However, these features are fragmented which may suggest they instead pertain to later drainage ditches or variation in the natural geological drainage as seen elsewhere in the site.

- 4.2.5 Further linear and sinuous positive and negative anomalies have been noted sporadically across the site, at **4008 – 4015 (Fig. 5, 7, 9, 11, 13, and 15)**. The anomaly at **4008** is 11 m long in the form of a right angle from west through to south and is 1 m wide; the anomaly at **4009** is 33 m long NNE – SSW and is 1 m wide; the anomaly at **4010** is 70 m long from south-east to north-west and is 2 m wide; the anomaly at **4011** is 44 m long in the form of a right angle from north through to west and is 1 m wide; the anomaly at **4012** is 33 m long north-east to south-west and 2 m wide; the anomaly at **4013** is 23 m long east – west and 2 m wide; the anomaly at **4014** is 25 m long north-east to south-west and 2 m wide; the anomaly at **4015** is 125 m long south-east to north-west and 2 m wide. These anomalies have been interpreted as possible archaeological ditch features, inferring potential boundary ditches of an unknown origin. The anomalies are sporadic and often extremely weak which may suggest they instead pertain to later drainage ditches or variation in the natural geological deposits.
- 4.2.6 Three sets of positive discrete anomalies arranged linearly, are noted in the western portion of the site at **4016 – 4018 (Fig. 5 and 7)**. All anomalies are 4 m – 7 m in diameter, spaced relatively regularly, and are all aligned broadly east – west. These anomalies have been interpreted as possible archaeological pit features and may relate to prehistoric pit alignments. However, they appear to be parallel to current field boundaries and the area is resplendent with land drains and natural geological drainage, so these may instead be associated with drainage works.
- 4.2.7 Numerous areas characterised by positive and negative linear or curving parallel anomalies are noted across the site at **4019 – 4027 (Fig. 5, 7, 9, 11, 13, and 15)**. These anomalies are on a wide variation of orientations, lengths, and spacings. Given the relatively uniform character, they have been interpreted as evidence of post-medieval ridge and furrow cultivation.
- 4.2.8 Numerous circular or oval, strong and weak, positive anomalies have been identified across the northern and eastern portions of the site, at **4028 – 4054 (Fig. 5, 9, 11, 13, and 15)**. The anomalies range in size between 11 m and 80 m in diameter. These anomalies have been interpreted as evidence of possible extraction activity, such as quarrying which is known in the local landscape. The anomaly at **4037** presents as more regularly square and may infer demolition material from a former building, though there is no evidence on satellite imagery or historical mapping. Alternatively, the smaller of these features may instead be attributable to former feeding trough locations; while the larger of these features may instead be variation in local geology.
- 4.2.9 A swathe of increased magnetic variation is noted in the south-western portion of the site, at **4055 – 4057 (Fig. 7)**. This is interference caused by overhead powerlines. The interference is unlikely to have significantly impacted interpretation of the underlying data in these areas.
- 4.2.10 A strong linear anomaly of increased magnetic response is noted at **4058 (Fig. 9 and 11)**. The anomaly is 44 m long ESE to WNW by 13 m wide. This has been interpreted as a modern service possibly linking with the drainage system in this field.

- 4.2.11 Linear areas of increased magnetic response are noted in the south-eastern portion of the site, at **4059 – 4061 (Fig. 11, 13, and 15)**. These anomalies have been interpreted as portions of trackways visible in satellite imagery.
- 4.2.12 Strong dipolar linear anomalies have been identified across the site at **4062 – 4069 (Fig. 5, 9, 11, 13, and 15)**. These anomalies have been interpreted as modern services.
- 4.2.13 Extensive variation in magnetic response is visible across much of the site. This has been attributed to changes in the local geology and geomorphology, likely pertaining to the natural drainage of the area and water movement through the soils creating contrast.
- 4.2.14 Parallel positive and negative, weak and strong, anomalies are noted across the site. These have been attributed to extensive drainage – visible on satellite imagery regression – and modern agricultural ploughing practices.

5 DISCUSSION

- 5.1.1 The gradiometer survey has detected areas of ridge and furrow as the only anomalies that can confidently be interpreted as archaeology. The survey has also been successful in detecting anomalies of possible archaeological origin sporadically across the site.
- 5.1.2 Evidence of possible archaeological activity is attributed to three ring features, a spread of linear features across the site, and three sets of possible pit alignments. The rings have been interpreted as either Romano-British roundhouse gullies or possible barrow ditches, with the linear features inferring boundary ditch features. The pit alignments could be prehistoric and infer further landscape delineation. Previous excavations to the south of the site provided evidence of Romano-British settlement activity including roundhouses, field boundaries, and a grave. The features identified in the survey may form a part of a wider landscape use during this period. However, they could all equally be attributable to modern agricultural practices or natural variation.
- 5.1.3 Features interpreted as potential extraction activity are apparent in a broad swathe from the northern portion to the south-eastern portion of the site. These may infer quarrying activity noted in the previous excavations to the south of the site. However, they may instead imply the positions of former feeding troughs and variation in the local geology.
- 5.1.4 Variation in the local geology is prevalent in the data. The geological and geomorphological activity presented likely corresponds to the natural drainage of the site as many of the features align LiDAR topography.
- 5.1.5 Modern activity across the site includes drainage, ploughing, trackways, overhead power lines, and modern services.
- 5.1.6 The data contains a large number of artefacts caused by sensor tilt over extensive extant earthworks associated with modern and historical ploughing. While this is seen across the majority of data it is considered unlikely to have impacted the ability to interpret the presence of any archaeological anomalies. Best efforts have been made to differentiate between these artefacts and anomalies associated with ploughing or ridge and furrow.

REFERENCES

- ADS 2015 Guidelines for Depositors,
[http://archaeologydataservice.ac.uk/advice/FilelevelMetadata.xhtml#Geophysics and Remote Sensing](http://archaeologydataservice.ac.uk/advice/FilelevelMetadata.xhtml#Geophysics_and_Remote_Sensing) (accessed December 2024)
- AECOM 2024. Flaxlands Solar Farm. Written Scheme of Investigation for Geophysical Survey. Project Number: 60727989. Date: September 2024.
- British Geological Survey 2024. *Geology of Britain Viewer*
<http://mapapps.bgs.ac.uk/geologyofbritain/home.html> (accessed November 2024).
- Chartered Institute for Archaeologists [CIfA] 2014a; revised 2020 *Standards and guidance for archaeological geophysical survey*. Reading, CIfA
- Google Earth. <https://earth.google.com/web> (accessed December 2024)
- Heritage Gateway. <https://www.heritagegateway.org.uk/gateway/> (accessed November 2024)
- Historic England Map Search. <https://historicengland.org.uk/listing/the-list/map-search> (accessed 2024)
- Historic England 2015 *Management of Research Projects in the Historic Environment: The MoRPHE Project Manager's Guide. Version 1.0*
- National Library of Scotland, Georeferenced Maps <https://maps.nls.uk/geo/explore>, accessed November 2024
- Rainbird, P. and Passmore, A. 2014. Royal Wootton Bassett Sports Hub, Royal Wootton Bassett, Wiltshire. AC Archaeology (2014.202).
- Schmidt, A., Linford, P., Linford, N., David, A., Gaffney, C., Sarris, A. and Fassbinder, J. 2015. *Guidelines for the use of geophysics in archaeology: questions to ask and points to consider*. EAC Guidelines 2, Belgium: European Archaeological Council.
- Soilscapes 2024. Cranfield University
<http://www.landis.org.uk/soilscapes/> (accessed November 2024).

APPENDICES

Appendix 1 Survey equipment and data processing

Survey methods and equipment

The magnetic data for this project were acquired using a non-magnetic hand-pushed cart fitted with four SenSys FGM650/3 magnetic gradiometers.

The instrument has four sensor assemblies fixed horizontally 1 m apart allowing four traverses to be recorded simultaneously. Each sensor contains two fluxgate magnetometers arranged vertically with a 0.6 m separation and measures the difference between the vertical components of the total magnetic field within each sensor array. This arrangement of magnetometers suppresses any diurnal or low frequency effects.

The gradiometers have an effective resolution of $\pm 8 \mu\text{T}$ over $\pm 1000 \text{ nT}$ range. All of the data will be then relayed to a CS35 tablet, running the MONMX program, which is used to record the survey data from the array of FGM650/3 probes at a rate of 100 Hz. The program also receives measurements from a GPS system, which is fixed to the cart at a measured distance from the sensors, providing real time locational data for each data point.

The cart-based system relies upon accurate GPS location data which is collected using a Carlson BRX-7 RTK system. This receives corrections from a network of reference stations operated by the Ordnance Survey, allowing positions to be determined with a precision of 0.02 m in real-time and therefore exceed the level of accuracy recommended by European Archaeologiae Consilium (Schmidt *et al.* 2015).

Post-processing

The magnetic data collected during the detail survey are downloaded from the Bartington system for processing and analysis using both commercial and in-house software. This software allows for both the data and the images to be processed in order to enhance the results for analysis; however, it should be noted that minimal data processing is conducted so as not to distort the anomalies.

As the scanning data are not as closely distributed as with detailed survey, they are georeferenced using the GPS information and interpolated to highlight similar anomalies in adjacent transects. Directional trends may be removed before interpolation to produce more easily understood images.

Typical data and image processing steps may include:

- Destripe – Applying a zero-mean traverse in order to remove differences caused by directional effects inherent in the magnetometer;
- Destagger – Shifting each traverse longitudinally by a number of readings. This corrects for operator errors and is used to enhance linear features;
- Despike – Filtering isolated data points that exceed the mean by a specified amount to reduce the appearance of dominant anomalous readings (generally only used for earth resistance data)

Typical displays of the data used during processing and analysis:



- Greyscale – Presents the data in plan view using a greyscale to indicate the relative strength of the signal at each measurement point. These plots can be produced in colour to highlight certain features but generally greyscale plots are used during analysis of the data.

Appendix 2 Geophysical interpretation

The interpretation methodology used by Wessex Archaeology separates the anomalies into four main categories: archaeological, modern, agricultural, and uncertain origin/geological.

The archaeological category is used for features when the form, nature and pattern of the anomaly are indicative of archaeological material. Further sources of information such as aerial photographs may also have been incorporated in providing the final interpretation. This category is further sub-divided into three groups, implying a decreasing level of confidence:

- Archaeology – used when there is a clear geophysical response and anthropogenic pattern.
- Possible archaeology – used for features which give a response, but which form no discernible pattern or trend.

The modern category is used for anomalies that are presumed to be relatively modern in date:

- Ferrous – used for responses caused by ferrous material. These anomalies are likely to be of modern origin.
- Modern service – used for responses considered relating to cables and pipes; most are composed of ferrous/ceramic material although services made from non-magnetic material can sometimes be observed.

The agricultural category is used for the following:

- Former field boundaries – used for ditch sections that correspond to the position of boundaries marked on earlier mapping.
- Ridge and furrow – used for broad and diffuse linear anomalies that are considered to indicate areas of former ridge and furrow.
- Ploughing – used for well-defined narrow linear responses, usually aligned parallel to existing field boundaries.
- Drainage – used to define the course of ceramic field drains that are visible in the data as a series of repeating bipolar (black and white) responses.

The uncertain origin/geological category is used for features when the form, nature and pattern of the anomaly are not sufficient to warrant a classification as an archaeological feature. This category is further sub-divided into:

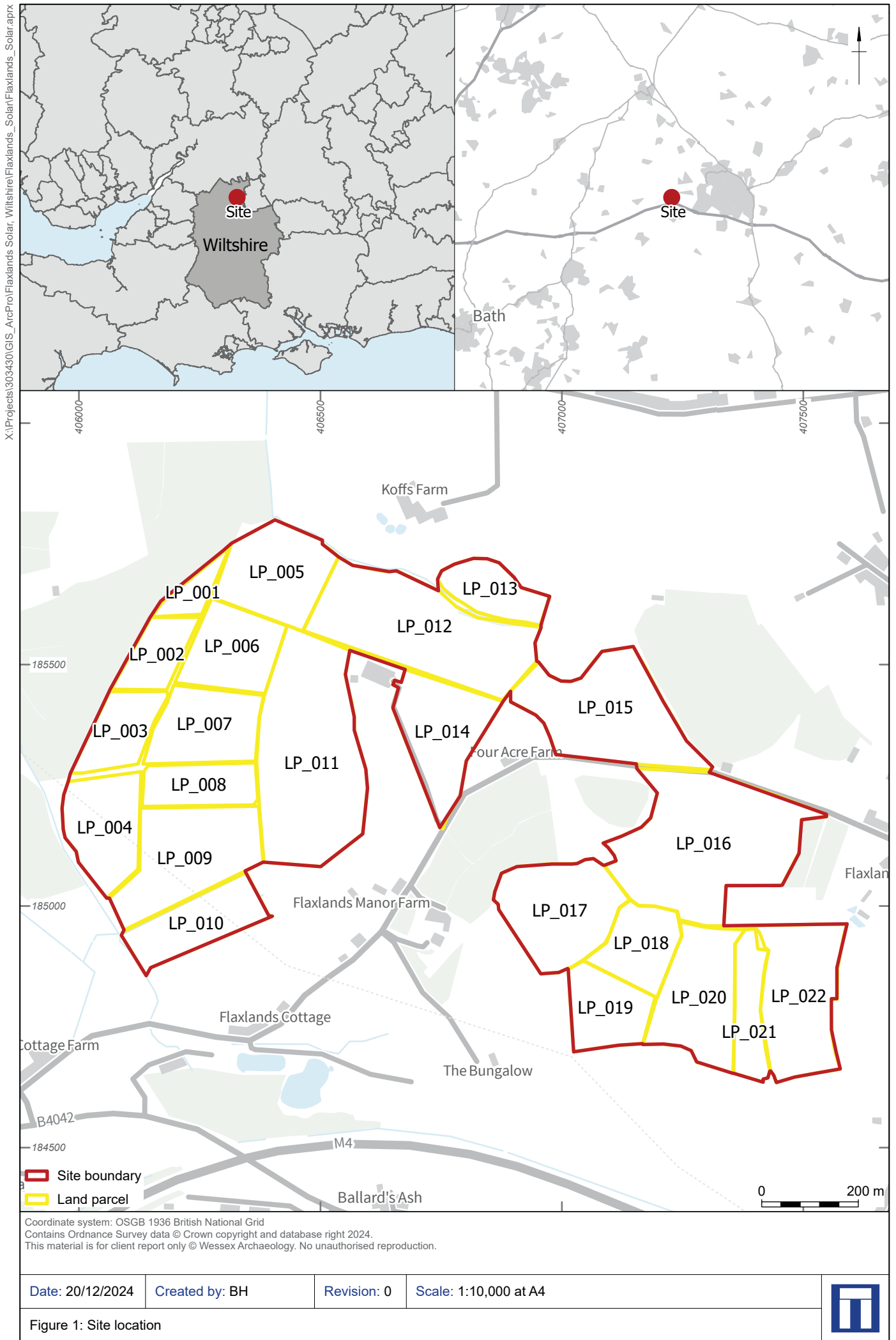
- Increased magnetic response – used for areas dominated by indistinct anomalies which may have some archaeological potential.
- Trend – used for low amplitude or indistinct linear anomalies.
- Superficial geology – used for diffuse edged spreads considered to relate to shallow geological deposits. They can be distinguished as areas of positive, negative, or broad bipolar (positive and negative) anomalies.

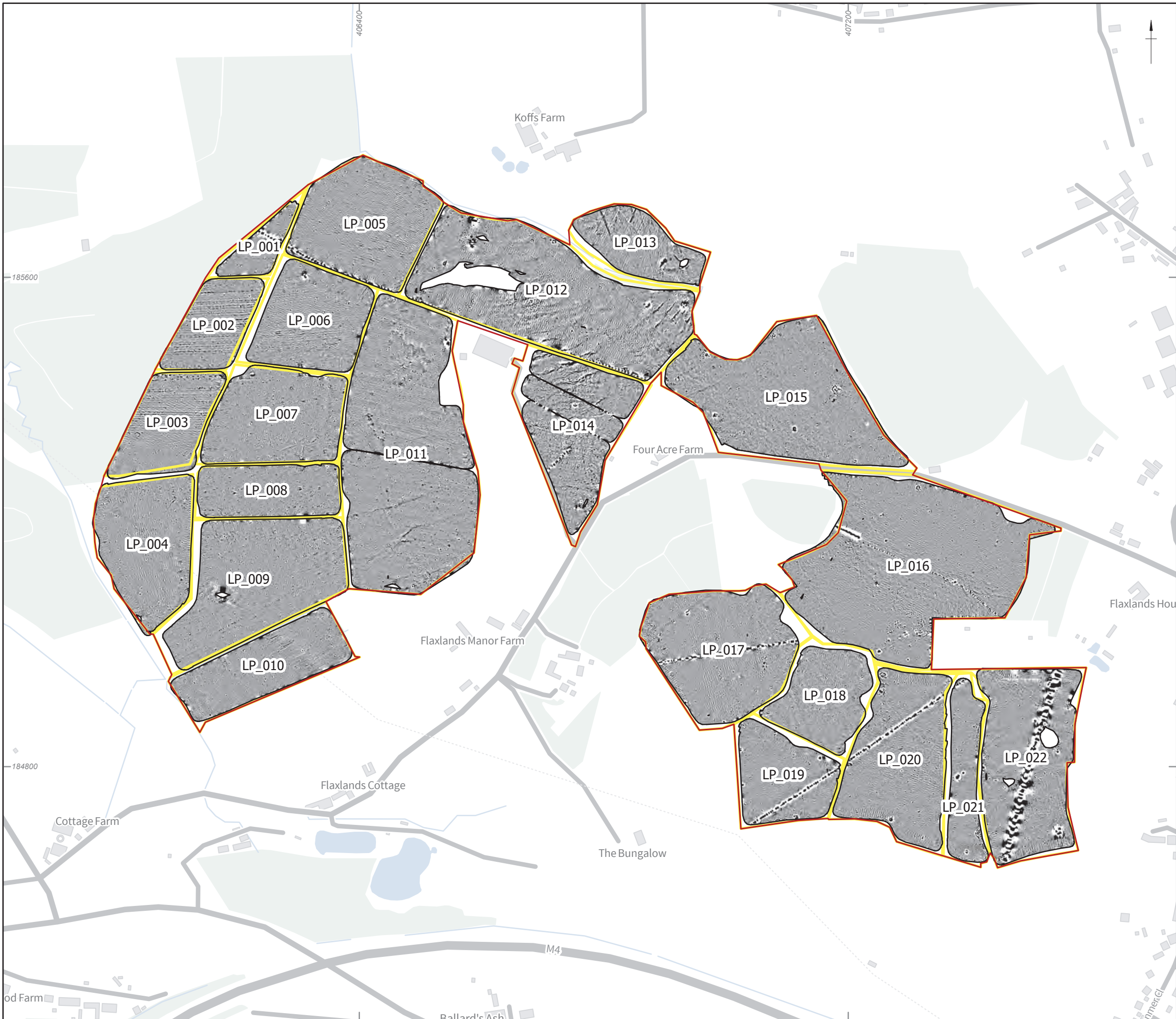


Appendix 3 OASIS form

OASIS ID (UID)	wessexar1-530551
Project Name	Flaxland Solar, Wiltshire
Sitename	Flaxland Solar, Wiltshire
Sitecode	303430
Project Identifier(s)	303430, 303430
Activity type	Geophysical Survey, MAGNETOMETRY SURVEY
Planning Id	
Reason For Investigation	Planning: Pre application
Organisation Responsible for work	Wessex Archaeology
Project Dates	18-Nov-2024 - 03-Dec-2024
Location	Flaxland Solar, Wiltshire NGR : SU 06619 85035 LL : 51.56415405926208, -1.905905880552546 12 Fig : 406619,185035
Administrative Areas	Country : England County/Local Authority : Wiltshire Local Authority District : Wiltshire Parish : Lydiard Tregoze
Project Methodology	The cart-based gradiometer system used a Carlson BRX-7 RTK GNSS instrument, which receives corrections from a network of reference stations operated by the OS. Such instruments allow positions to be determined with a precision of 0.02 m in real-time and therefore exceeds Europae Archaeologiae Consilium recommendations (Schmidt et al. 2015). The survey was conducted using eight Sensys FGM650/3 magnetic gradiometers spaced at 0.5 m intervals and mounted on a non-magnetic cart towed by an All-terrain Vehicle (ATV). Data were collected with an effective sensitivity of $\pm 8 \mu T$ over $\pm 1000 nT$ range at a rate of 100 Hz, producing intervals of 0.02 m along transects spaced 4 m apart.

Project Results	The gradiometer survey has been successful in detecting anomalies of possible archaeological origin sporadically across the site. The survey has also produced evidence of historic and modern cultivation practices, drainage, extraction, and modern services, as well as variation in the geology. Evidence of possible archaeological activity is attributed to three ring features, a spread of linear features across the site, and three sets of possible pit alignments. The rings have been interpreted as either Romano-British roundhouse gullies or possible barrow ditches, with the linear features inferring boundary ditch features. The pit alignments could be prehistoric and infer further landscape delineation. Previous excavations to the south of the site provided evidence of Romano-British settlement activity including roundhouses, field boundaries, and a grave. The features identified in the survey may form a part of a wider landscape use during this period. Extensive evidence of post medieval ridge and furrow cultivation practices are evident across the site, with concentrations in the western portion of the site. Features interpreted as potential extraction activity are apparent in a broad swathe from the northern portion to the south-eastern portion of the site. These may infer quarrying activity noted in the previous excavations to the south of the site. However, they may instead imply the positions of former feeding troughs and variation in the local geology. Modern activity litters the site, exemplified by features corresponding to drainage, ploughing, trackways, overhead power lines, and modern services. Variation in the local geology was prevalent in the data. The geological and geomorphological activity presented likely corresponds to the natural drainage of the site as many of the features align LIDAR topography.
Keywords	
Funder	Private or public corporation AECOM
HER	
Person Responsible for work	Tom Richardson
HER Identifiers	
Archives	





Site boundary

Detailed survey extent

Land parcel

-2 nT

3 nT

0

250 m

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Figure 2: Gradiometer survey results - greyscale overview



Site boundary

Detailed survey extent

Land parcel

0250 m

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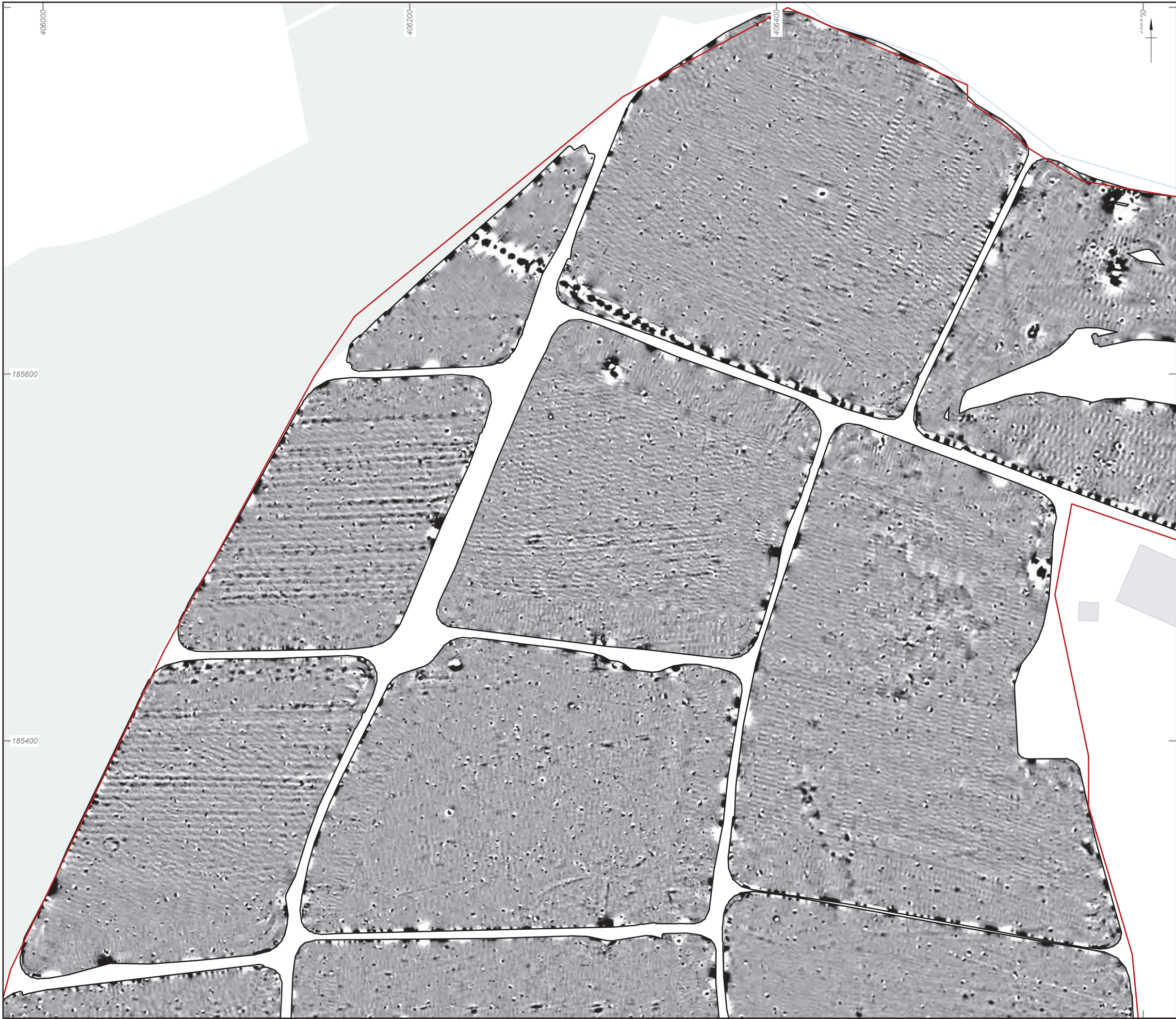
Created by: BH

Scale: 1:6000 at A3

Revision: 0

Figure 3: Gradiometer survey results - interpretation overview





- Site boundary
- Detailed survey extent



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Figure 4: Gradiometer survey results - greyscale north-west



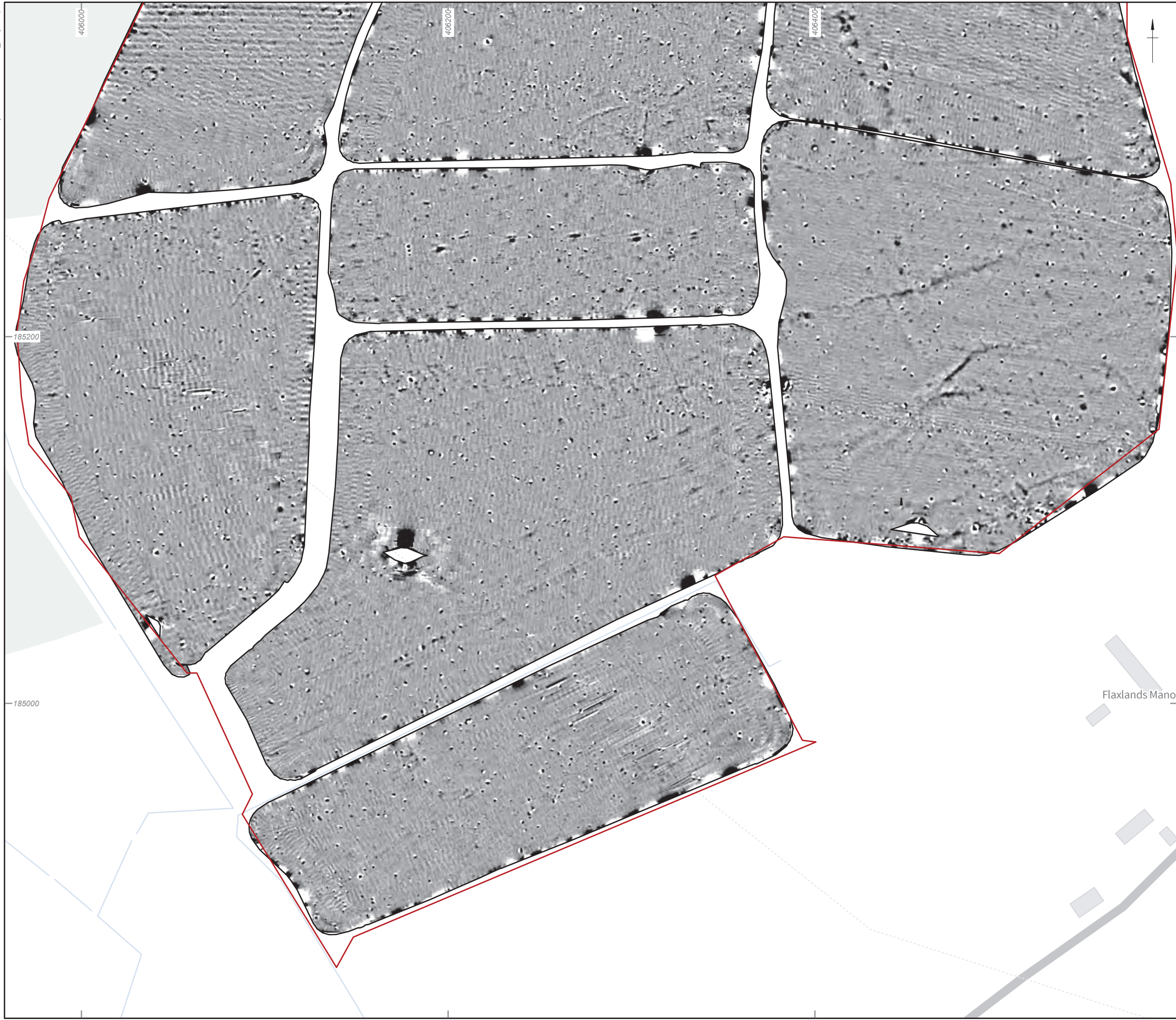
- Site boundary
- Detailed survey extent
- Possible archaeology
- Historic landscape feature
- Historic cultivation
- Geology
- Modern service
- Ferrous
- Agricultural feature
- Drain
- Trend



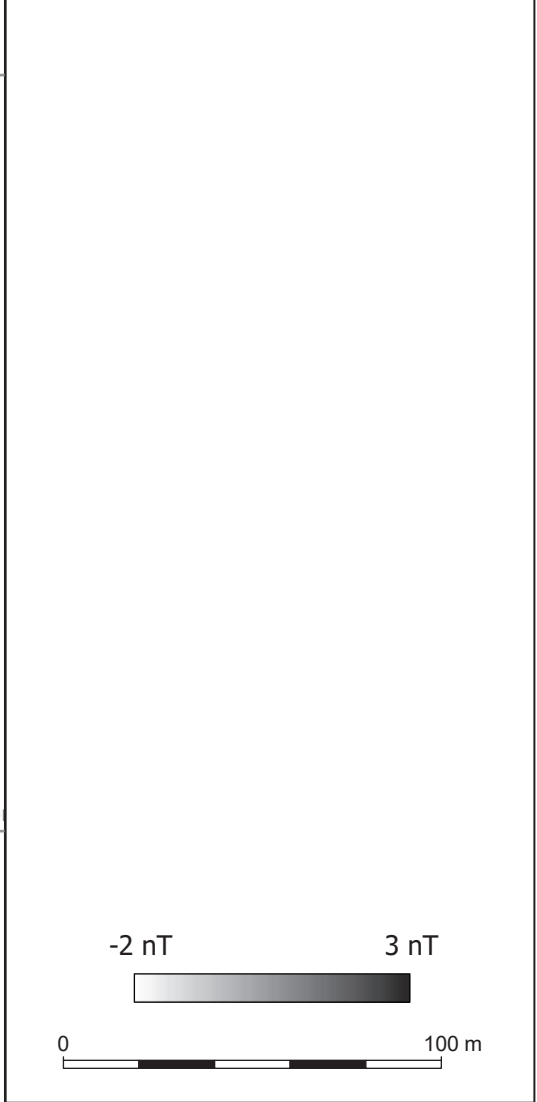
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Figure 5: Gradiometer survey results - interpretation north-west

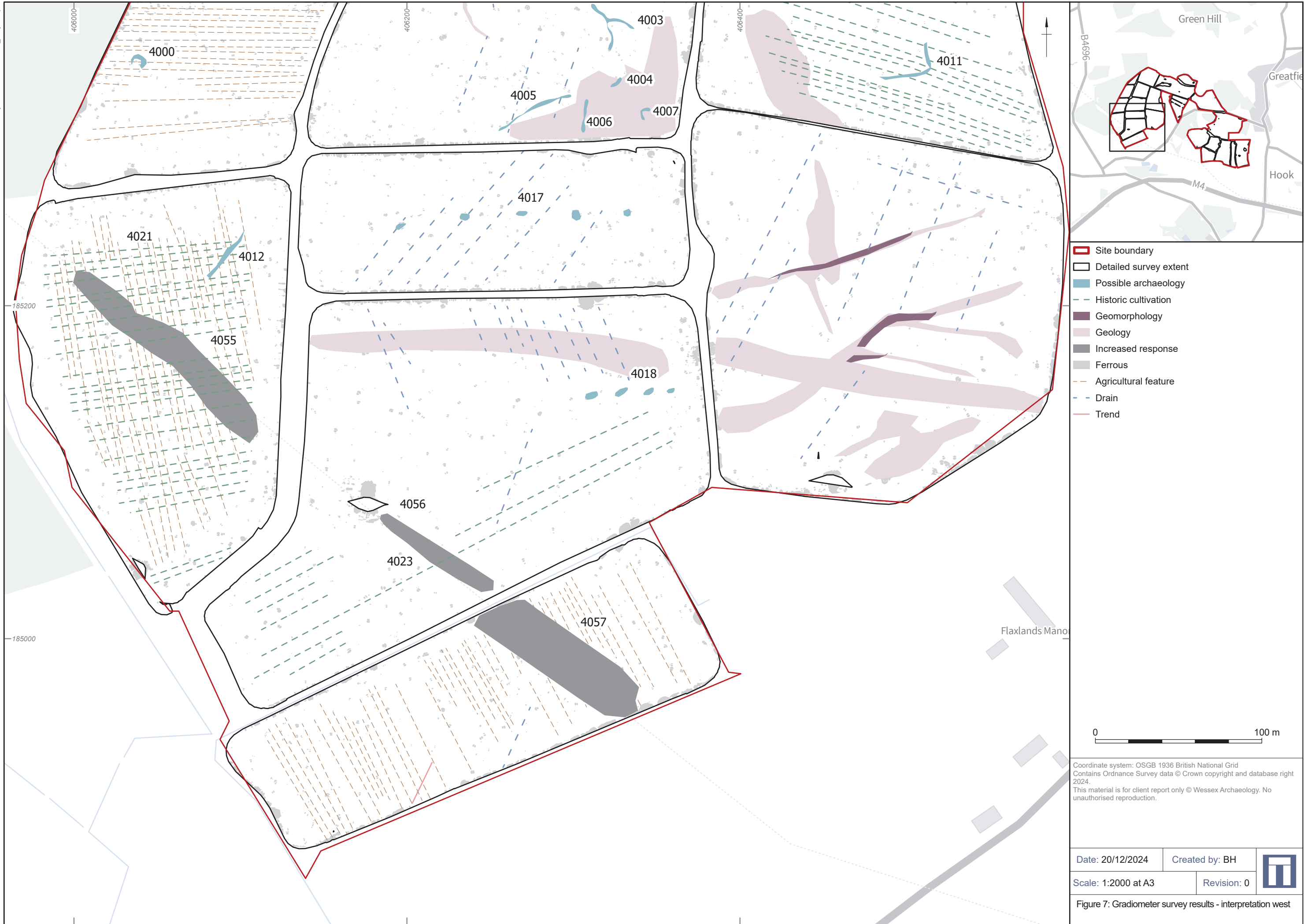


- Site boundary
- Detailed survey extent



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Figure 6: Gradiometer survey results - greyscale west			





- Site boundary
- Detailed survey extent

-2 nT 3 nT



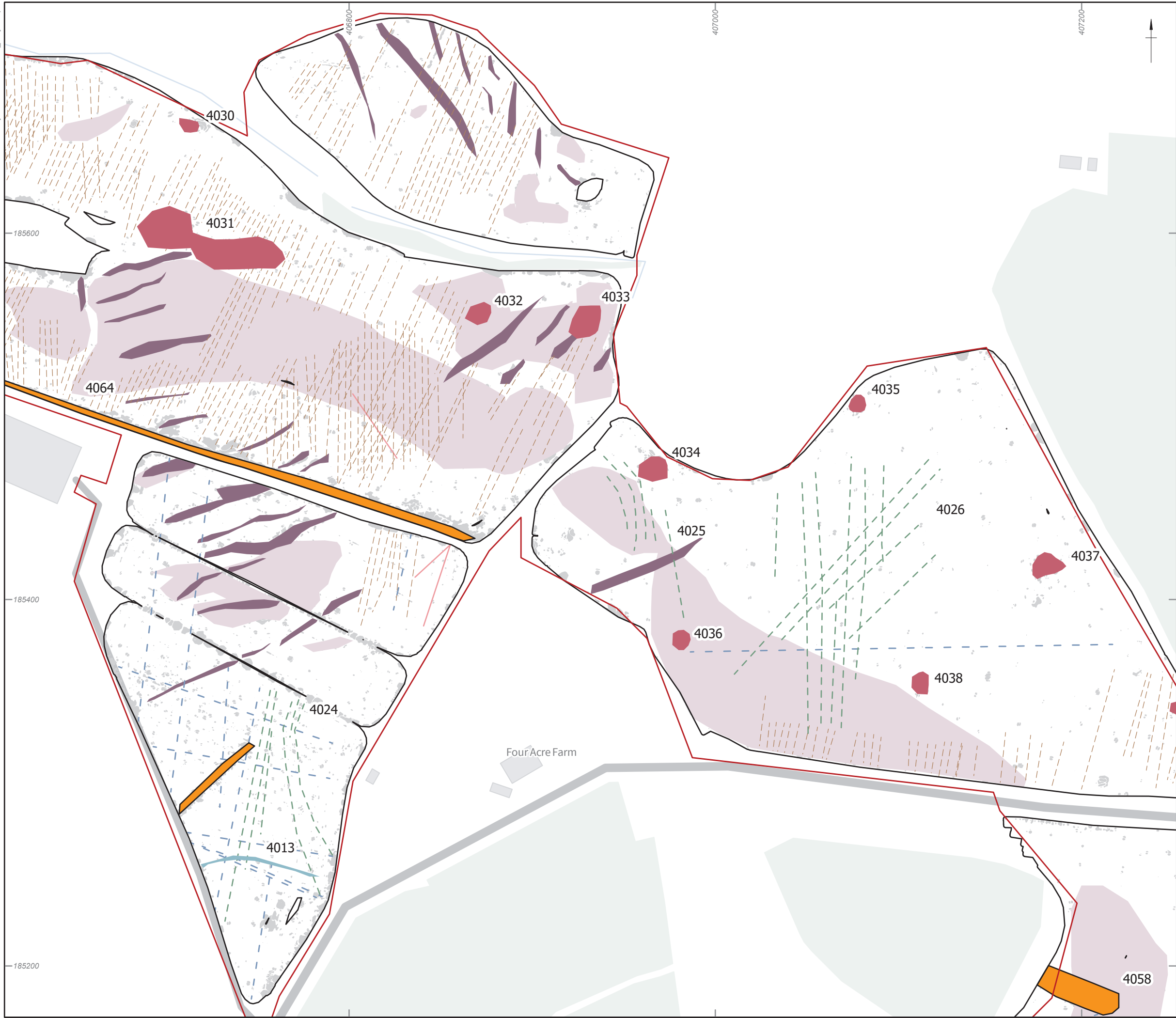
0 100 m

Coordinate system: OSGB 1936 British National Grid
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Figure 8: Gradiometer survey results - greyscale north

C:\Projects\303430\303430_Project.aprx



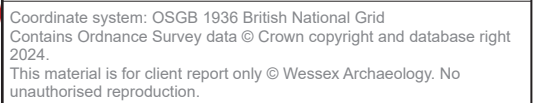
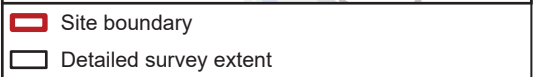
- Site boundary
- Detailed survey extent
- Possible archaeology
- Historic landscape feature
- Historic cultivation
- Geomorphology
- Geology
- Modern service
- Ferrous
- Agricultural feature
- Drain
- Trend

0 100 m

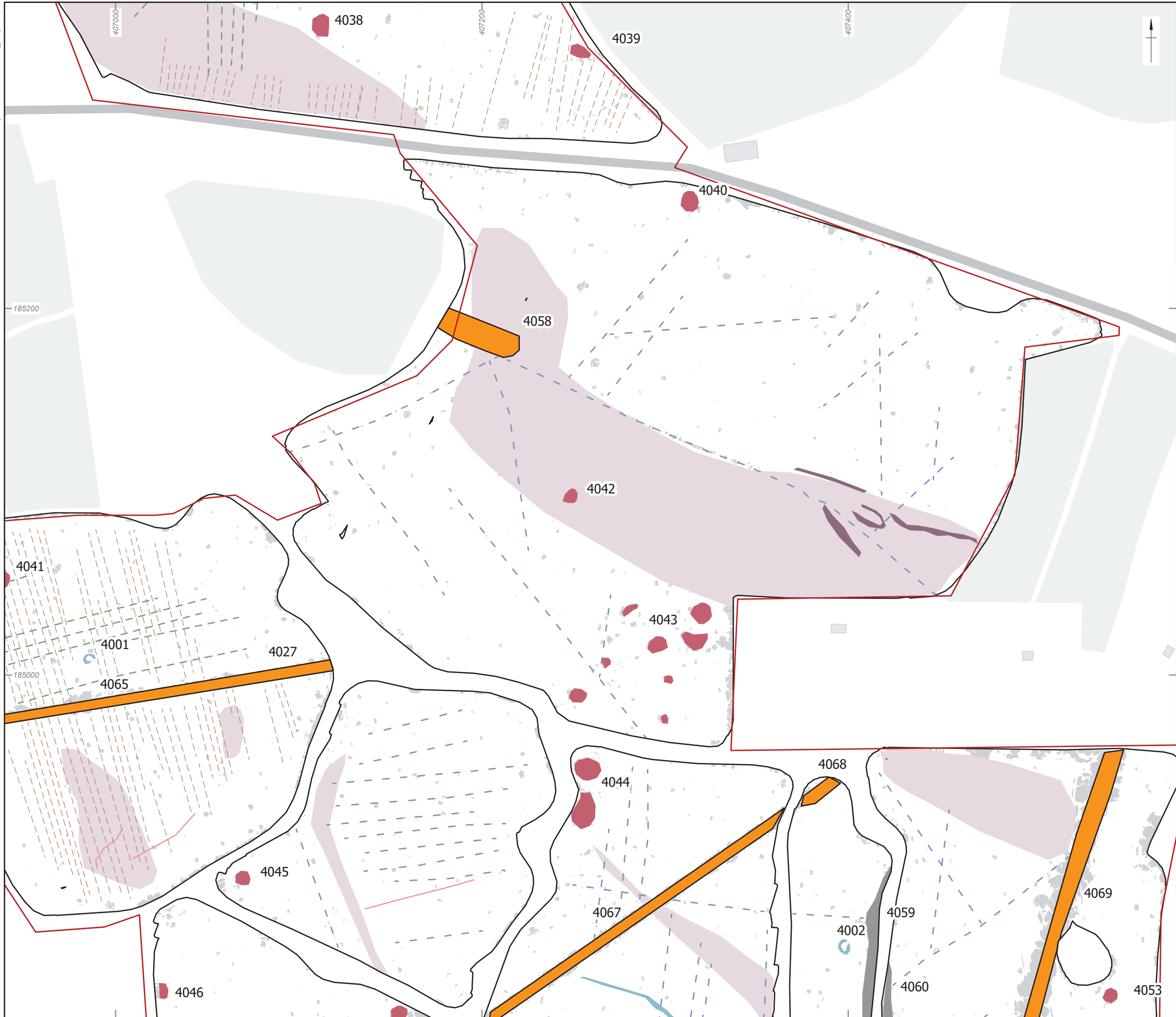
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Figure 9: Gradiometer survey results - interpretation north



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Figure 10: Gradiometer survey results - greyscale east		



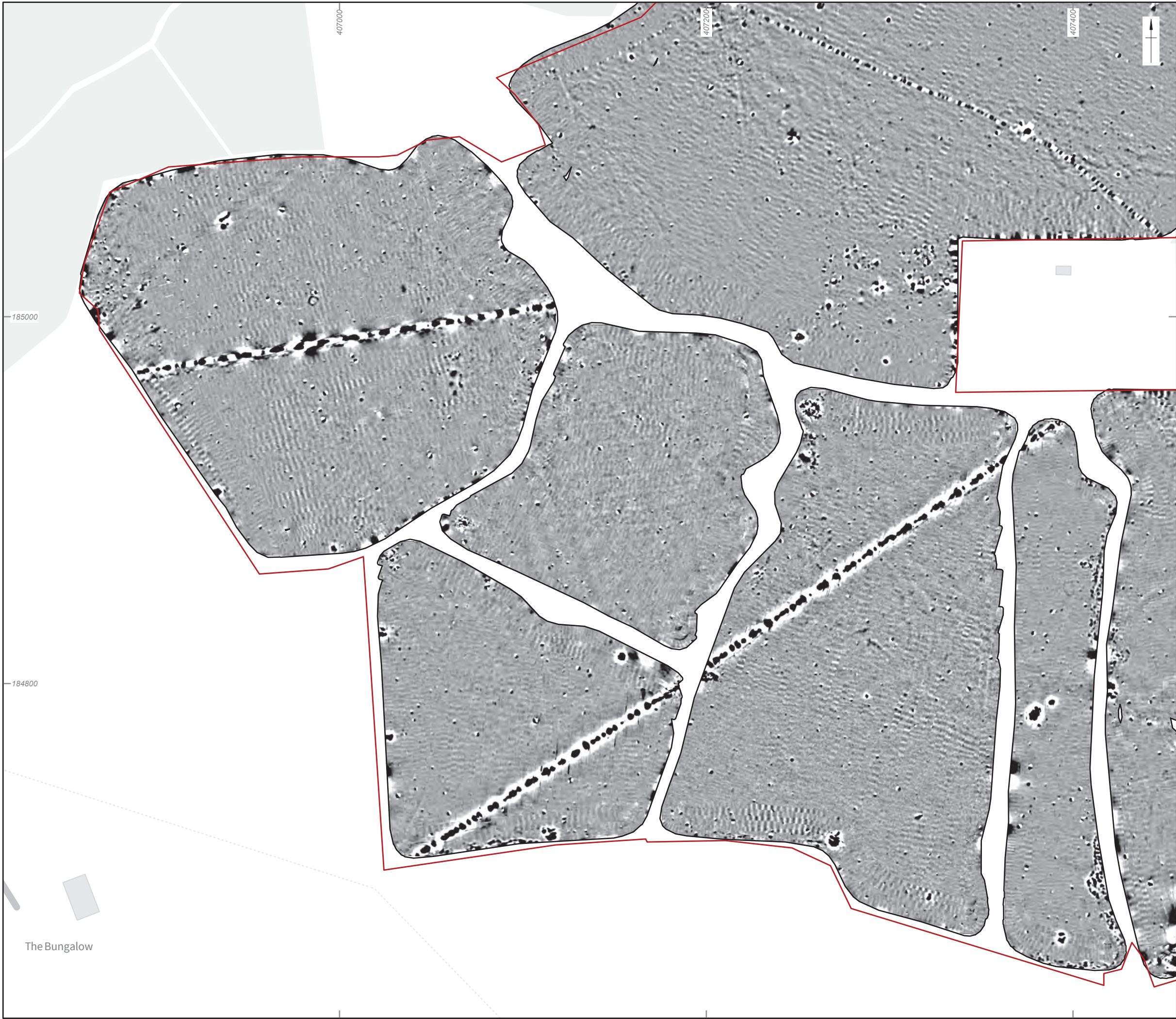
- Site boundary
- Detailed survey extent
- Possible archaeology
- Historic landscape feature
- Historic cultivation
- Geomorphology
- Geology
- Modern service
- Increased response
- Ferrous
- Agricultural feature
- Drain
- Trend



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Figure 11: Gradiometer survey results - interpretation east



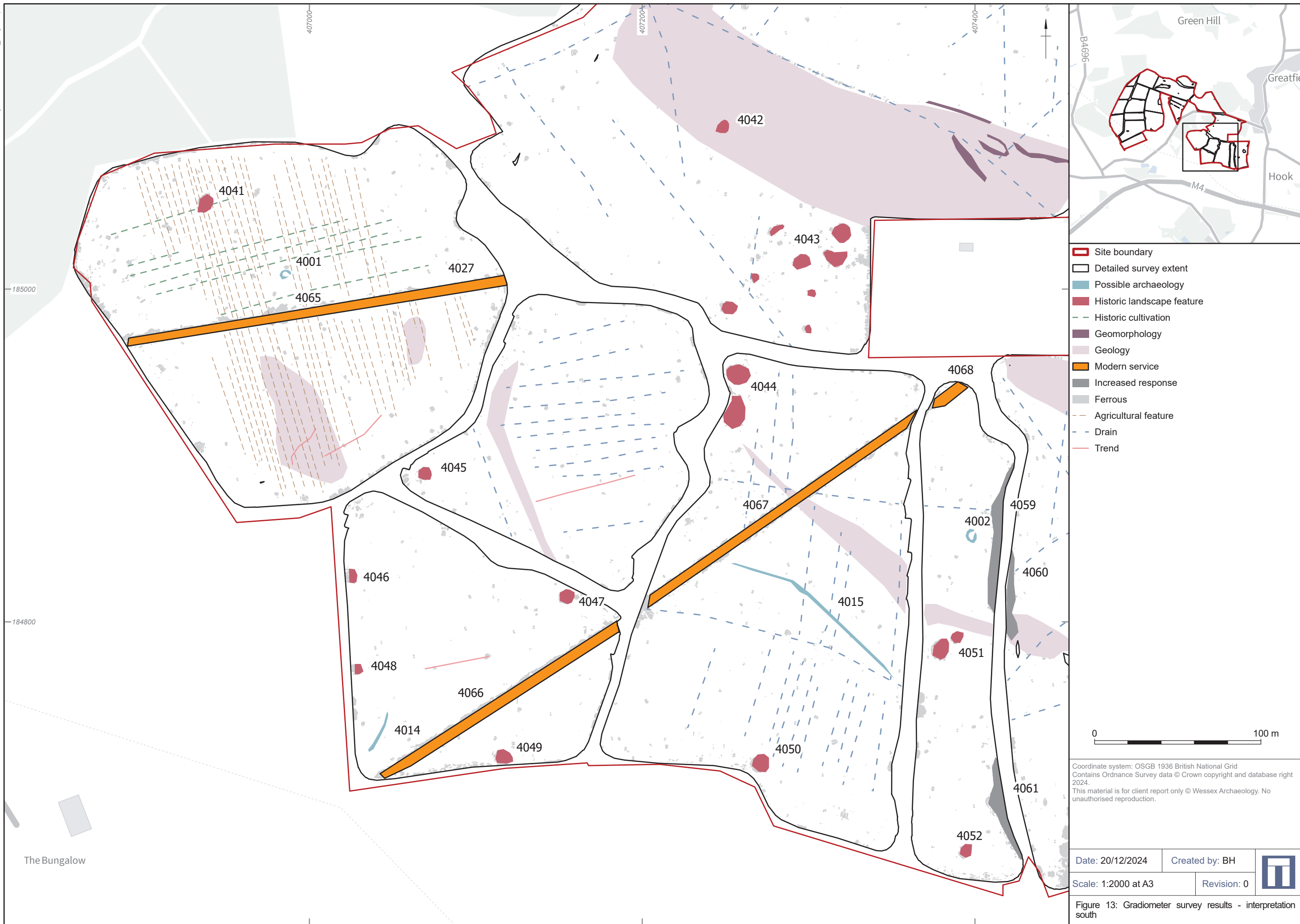
- Site boundary
- Detailed survey extent

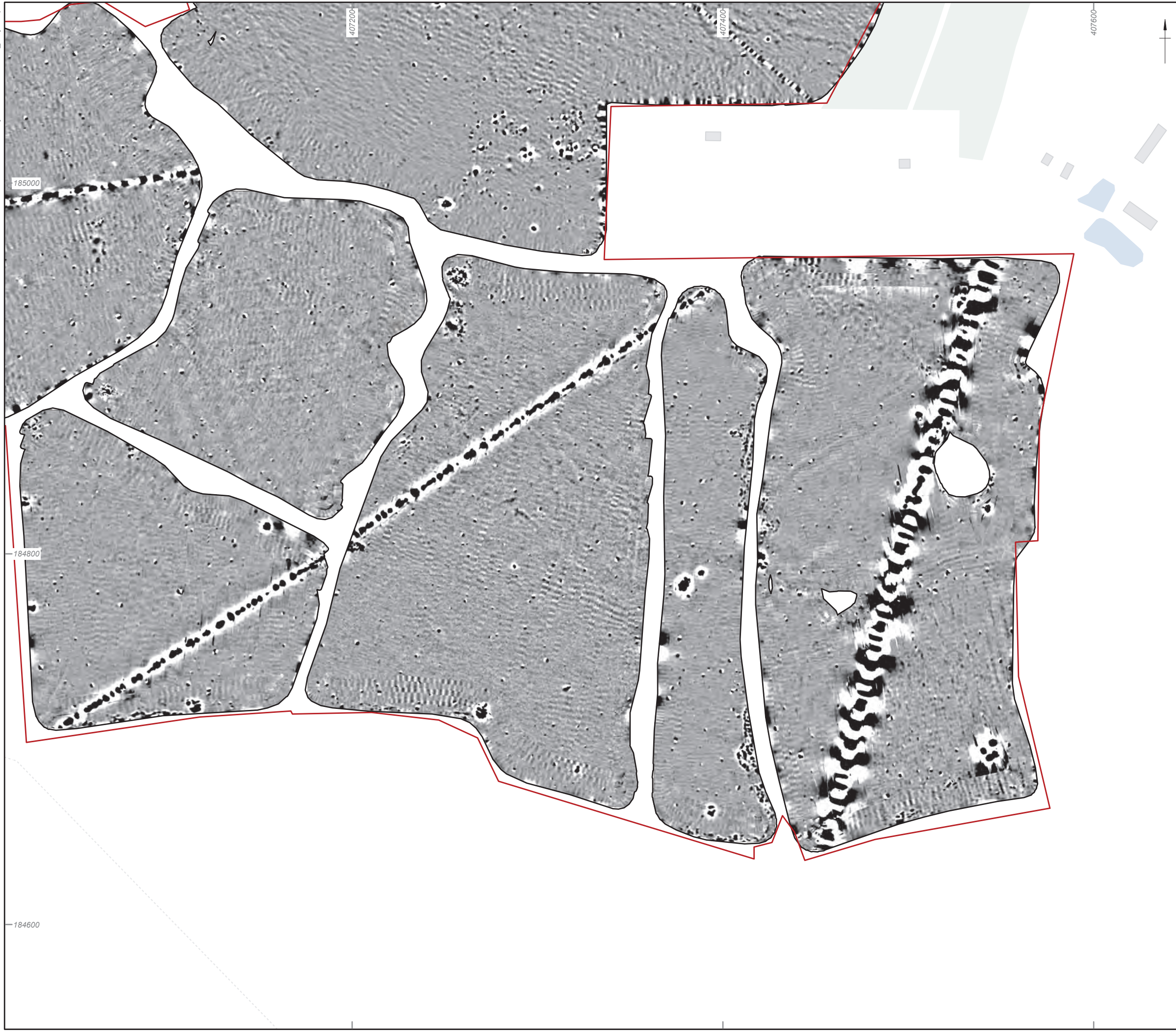


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Figure 12: Gradiometer survey results - greyscale south





Green Hill

Greatfie

Hook

M4

B4696

Site boundary

Detailed survey extent

-2 nT

3 nT

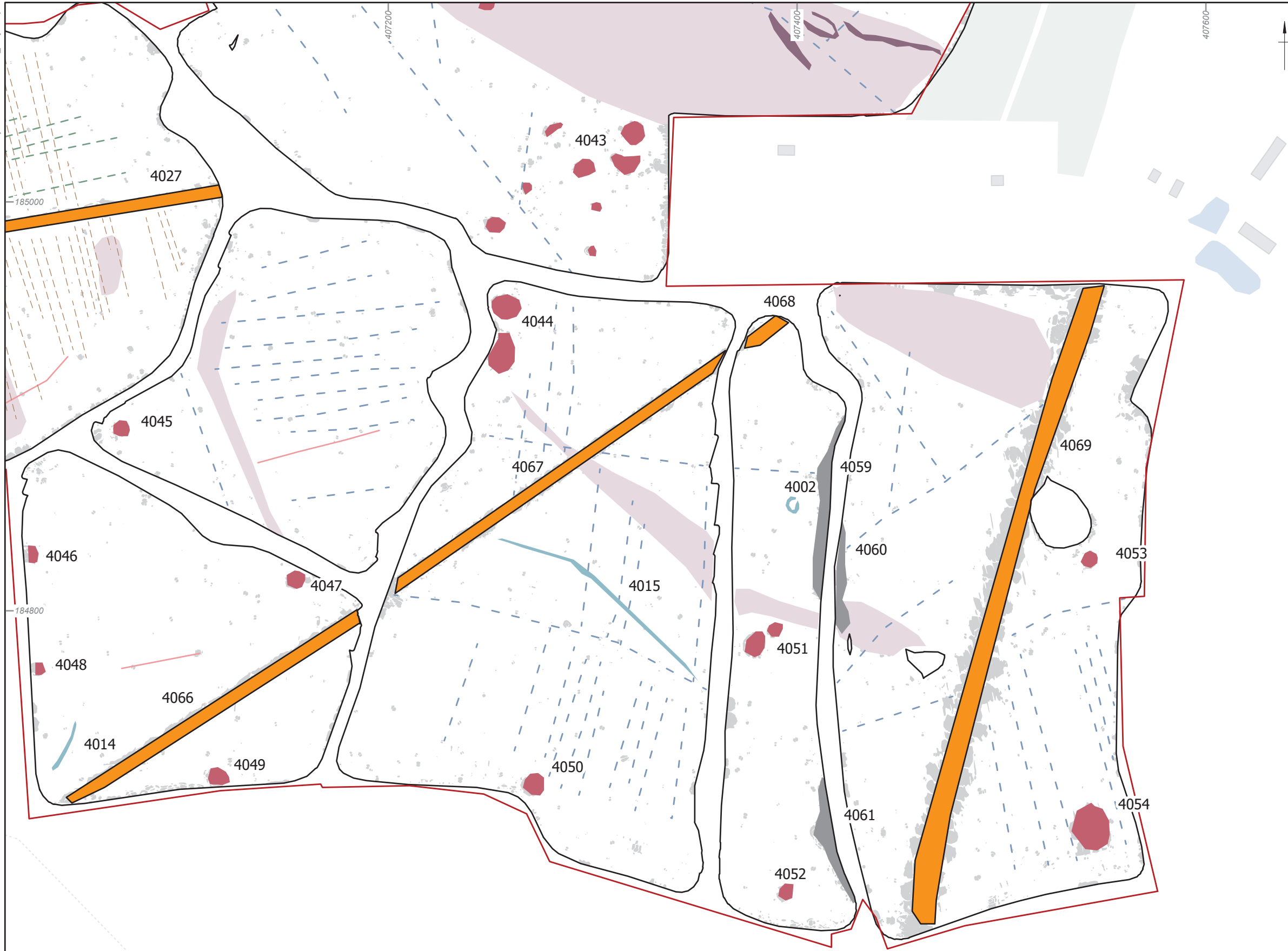
0

100 m

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Figure 14: Gradiometer survey results - greyscale south-east



- Site boundary
- Detailed survey extent
- Possible archaeology
- Historic landscape feature
- Historic cultivation
- Geomorphology
- Geology
- Modern service
- Increased response
- Ferrous
- Agricultural feature
- Drain
- Trend



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Figure 15: Gradiometer survey results - interpretation south-east



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