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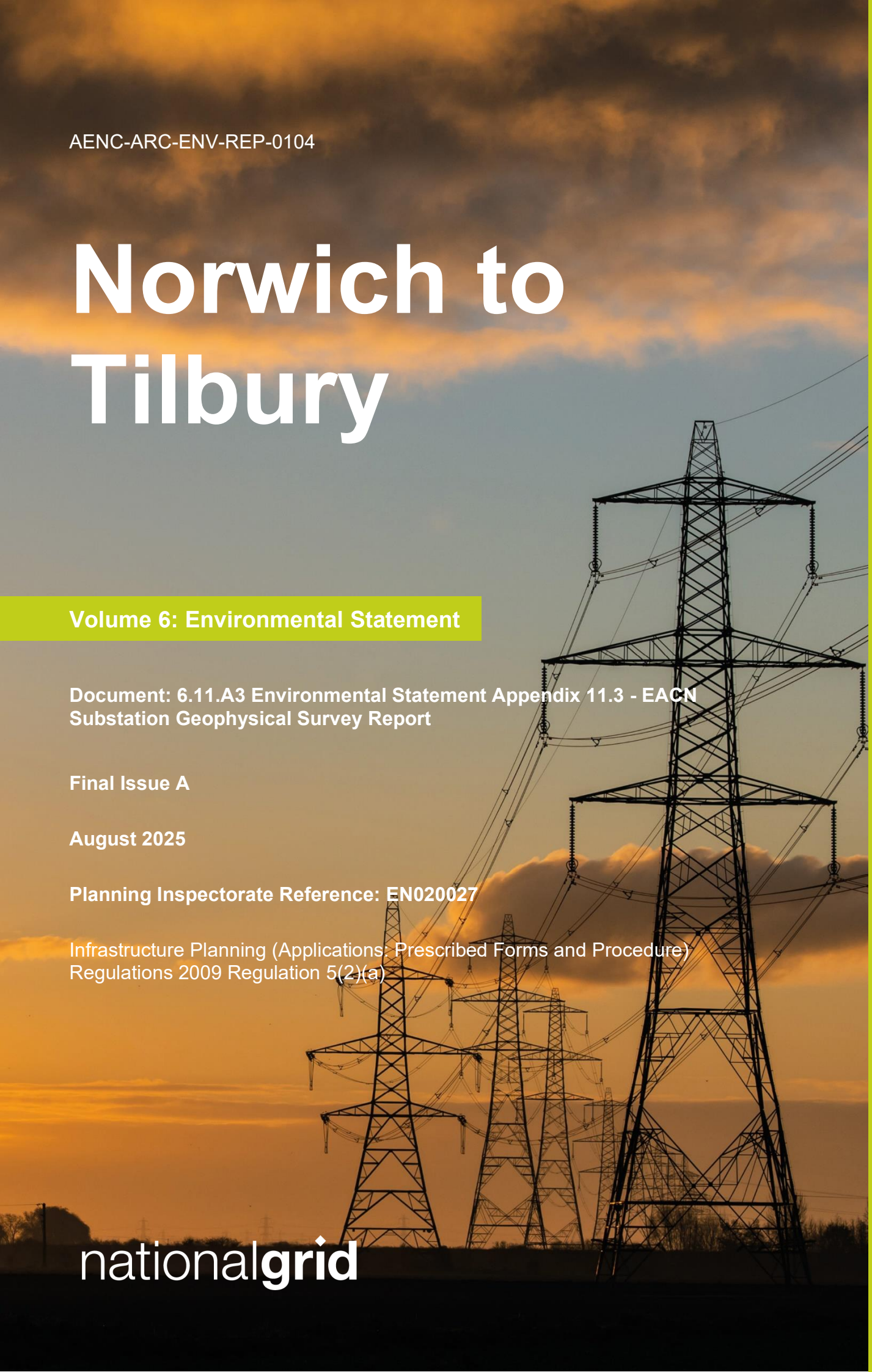

nationalgrid

ARDL23

Norwich to Tilbury, Ardleigh, Essex

GEOPHYSICAL SURVEY REPORT

PLANNING REF. n/a

Headland Archaeology Yorkshire & North
Units 23–25 & 15 | Acorn Business Centre | Balme Road | Cleckheaton BD19 4EZ

Commissioned by Arcadis Consulting (UK) Ltd on behalf of National Grid

18/10/2023

HEADLAND ARCHAEOLOGY

PROJECT INFORMATION:

PROJECT NAME	Norwich to Tilbury, Ardleigh, Essex
TYPE OF WORK	Geophysical Survey
PLANNING REF.	n/a
PARISH NO.	n/a
CONSULTANT/AGENT	Arcadis Consulting (UK) Ltd
CLIENT	National Grid
PROJECT CODE	ARDL23
NGR	NGR TM 07332 29021
PARISH	Ardleigh, St Mary the Virgin
LOCAL AUTHORITY	Ardleigh Parish Council
FIELDWORK DATES	07/06/2023, 29/08/2023 – 31/-8/2023, 14/09/2023
OASIS REF.	headland1-521299
ARCHIVE REPOSITORY	Headland Archaeology

PROJECT SUMMARY

Headland Archaeology (UK) Ltd was commissioned by Arcadis Consulting Ltd (the Consultant) on behalf of National Grid (the Client) to undertake a geophysical (magnetometer) survey on land covering 39 hectares approximately 1.5km east of Ardleigh, Essex. This geophysical survey report will be submitted in support of a Development Consent Order (DCO) and may also inform future archaeological strategy at the site, if required.

Anomalies primarily of geological and recent agricultural origin have been identified by the survey, including one former field boundary recorded on first edition historic mapping; several other former boundaries are not recorded by the survey.

No anomalies of probable archaeological interest are identified. This is in contrast to the findings of a review of historic environment data, which revealed a plethora of cropmarks, indicative of prehistoric and Roman activity in the surrounding landscape but also within the GSA. Those cropmark features within the GSA include a Roman road, and several rectilinear and linear features. It is considered that the most likely reason for the apparent inability of the survey to detect these cropmark features (assuming they haven't been ploughed away since the air photographs were taken) is due to a lack of magnetic contrast between the fill of the features and the surrounding soils, the homogenous sandy nature of the soils possibly accounting for the apparent lack of visibility.

Based solely on the results of the geophysical survey, the archaeological potential of the GSA is assessed as low. However, due to the likely poor magnetic contrast on this site, the overall potential should be considered to be uncertain.

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GEOPHYSICAL SURVEY REPORT

1. INTRODUCTION

Headland Archaeology (UK) Ltd was commissioned by Arcadis Consulting Ltd (the Consultant) on behalf of National Grid (the Client) to undertake a geophysical (magnetometer) survey on a block of land approximately 1.5km east of Ardleigh, Essex (Illus 1). This geophysical survey report will be submitted in support of a Development Consent Order (DCO) for the scheme and may also inform future archaeological strategy, if required.

The scheme of work was undertaken in accordance with the requirements of the National Planning Policy Framework (DLUHC 2023) and with the Written Scheme of Investigation for Geophysical Survey (WSI) (Headland Archaeology 2023).

The WSI was produced to the standards laid down in the European Archaeological Council's guideline publication, EAC Guidelines for the Use of Geophysics in Archaeology (Europae Archaeologia Consilium 2016) and the Chartered Institute for Archaeologists' (CIfA) Standard and Guidance for Archaeological Geophysical Survey (CifA 2014b). The survey was also carried out in line with the same best practice guidelines.

The survey was carried out in three mobilisations; on June 7th 2023, August 29th to August 31st 2023, and on September 14th 2023. This was to allow for the harvest of mature crops, which once harvested, allowed for suitable ground conditions.

1.1. SITE LOCATION, TOPOGRAPHY AND LAND-USE

The geophysical survey area (GSA) covers approximately 39 hectares and comprises six fields (F1 to F6 inclusive) under arable cultivation, centred at NGR TM 07332 29021. The GSA is bisected by Hungerdown Lane, with two fields (F1 and F2) to the west of the lane, and four (F3 to F6) to the east. Little Bromley Road borders the GSA to the south with Grange Road to the east and fields extending beyond to all sides. Moorehouse Farm and its outbuildings are situated between F2 and F4. There are three electricity pylons in F5 and F6.

All fields had been harvested prior to survey (Illus 2 to Illus 4 inclusive) although a strips of bird cover prohibited survey around the eastern and western sides of F6.

Topographically the land within the GSA is generally level, with a gentle slope downwards from north to south from approximately 37m to approximately 35m Above Ordnance Datum (AOD).

1.2. GEOLOGY AND SOILS

The underlying bedrock comprises Thames Group - clay, silt and sand, a sedimentary bedrock formed between 56 and 33.9 million years ago during the Palaeogene period. This is overlain by Cover Sand – clay, silt and sand, sedimentary superficial deposits formed between 2.588 million years ago and the present during the Quaternary period (UKRI 2023).

The soils are described as slightly acid loams and clays with impeded drainage, as classified in the Soilscape 8 Association (Cranfield University 2023).

2. ARCHAEOLOGICAL BACKGROUND

The information in this section has been abstracted from Essex Historic Environment Record (EHER) data and provided by Arcadis Consulting.

Numerous cropmarks are recorded within and surrounding the GSA. Covering much of the GSA, HER polygon (MEX9188) records linear cropmarks (probable field divisions) at right angles to the Roman road which links Mistley with Colchester (MEX9020), which is aligned north-east/south-west, across the south of the GSA, and which is identified as a double-ditched cropmark on air photographs.

Also recorded as part of the same asset, are two possible ring ditches located north-east and east of Bradley Hall respectively.

In close proximity to (but just outside) the GSA to the immediate north-west, cropmarks indicative of a ring ditch, pits and a length of probable undated road are recorded, in addition to other linear features (MEX8391).

Other cropmarks interpreted as a double-ditched enclosure, trackways, and other linear features (MEX43488) are recorded to the immediate east of the GSA.

Approximately 240m east of the GSA, a group of three ring ditches is recorded, all with a diameter of 25m (MEX9394).

Approximately 260m east of the GSA, the HER records a double-ditched 'D' shaped enclosure, rectilinear enclosure, and linear ditch, prehistoric in date (MEX9430). North of this, approximately 150m east of the GSA, is a cropmark rectilinear enclosure, of likely prehistoric date (MEX43490). Further north still, 210m north-east of the GSA, are cropmarks indicative of a partial curvilinear enclosure, 40m in diameter, of unknown date (MEX1041356).

In the wider landscape, approximately 1km south-east of the GSA, cropmarks (MEX8620) covering a large area and including field systems, trackways, enclosures, ring ditches and a possible henge are present. At least 16 ring-ditches are recorded to the east of the possible henge.

The GSA is clearly located within a landscape of high archaeological potential.

3. AIMS, METHODOLOGY & PRESENTATION

3.1. AIMS AND OBJECTIVES

The principal aim of the geophysical survey was to gather information to establish the presence/absence, character, and extent of any archaeological remains within the GSA. This will enable an assessment to be made of the impact of the proposed development on any sub-surface archaeological remains if present, and thereby inform any further investigation strategies, as appropriate.

The specific archaeological objectives of the geophysical survey were:

- to provide information about the nature and possible interpretation of any magnetic anomalies identified,
- to therefore determine the likely presence/absence and extent of any buried archaeological features, and
- to prepare a report summarising the results of the survey.

3.2. METHODOLOGY

Magnetic survey methods rely on the ability of a variety of instruments to measure very small magnetic fields associated with buried archaeological remains. A feature such as a ditch, pit or kiln can act like a small magnet, or series of magnets, that produce distortions (anomalies) in the earth's magnetic field. In mapping these slight variations detailed plans of sites can be obtained, as buried features often produce reasonably characteristic anomaly shapes and strengths (Gaffney & Gater 2003). Further information on soil magnetism and the interpretation of magnetic anomalies is provided in Appendix 1.

Magnetometry is the most widely used geophysical survey technique in archaeology as it can quickly evaluate large areas and, under favourable conditions, identify a wide range of archaeological features including infilled cut features such as large pits, gullies and ditches, hearths, and areas of burning, and kilns and brick structures. It is therefore good at locating settlements of all periods, prehistoric field systems and enclosures, and areas of industrial or modern activity, amongst others. It is

less successful in identifying smaller features such as post-holes and small pits (except when using a non-standard sampling interval), unenclosed (prehistoric) settlement sites and graves/burial grounds. However, magnetometry is by far the single most useful technique and was assessed as the best non-intrusive evaluation tool for this site.

The survey was undertaken using four Bartington Grad601 sensors mounted at 1m intervals (1m traverse interval) onto a rigid frame. The system was programmed to take readings at a frequency of 10Hz (allowing for a 10-15cm sample interval) on roaming traverses (swaths) 4m apart (Illus 6). These readings were stored on an external weatherproof laptop and later downloaded for processing and interpretation. The system was linked to a Trimble R12 Real Time Kinetic (RTK) differential Global Positioning System (dGPS) outputting in NMEA mode to ensure a high positional accuracy for each data point.

MLGrad601 and MultiGrad601 (Geomar Software Inc.) software was used to collect and export the data. Anomaly GeoSurvey v1.12.5 (Lichenstone Geoscience) and QGIS v.3.28.5 software was used to process and present the data respectively.

3.3. DATA PRESENTATION AND TECHNICAL DETAIL

A general site location plan is shown in Illus 1 at a scale of 1:10,000. Illus 2 to Illus 5 inclusive are site condition photographs. Illus 6 shows the GPS swaths, and the location and direction of the site condition photographs, at 1:7,000. Illus 6 and Illus 7 show overviews of the processed magnetometer data and interpretation respectively, also at a scale of 1:7,000, as well as known heritage assets within or adjacent to the GSA. Fully processed (greyscale) data, minimally processed data (XY trace plot) data and interpretative plans are presented by Sector, also at 1:2,500, in Illus 9 to Illus 17 inclusive.

Technical information on the equipment used, data processing and magnetic survey methodology is given in Appendix 1. Appendix 2 details the survey location information and Appendix 3 describes the composition and location of the site archive. Data processing details are presented in Appendix 4. A copy of the OASIS entry (Online Access to the Index of Archaeological Investigations) is reproduced in Appendix 5.

The survey methodology, report and any recommendations comply with the Written Scheme of Investigation (Headland Archaeology 2023), guidelines outlined by Europae Archaeologia Consilium (EAC 2016) and by the Chartered Institute for Archaeologists (CIfA 2014b). All illustrations from Ordnance Survey (OS) mapping are reproduced with the permission of the controller of His Majesty's Stationery Office (© Crown Copyright).

The Illustrations in this report have been produced following analysis of the data in 'raw' (minimally processed) and processed formats and over a range of different display levels. All illustrations are presented to display and interpret the data to best effect. The interpretations are based on the experience and knowledge of Headland management and reporting staff.

4. RESULTS & DISCUSSION

4.1. SITE CONDITIONS

Magnetometer survey is generally recommended over any sedimentary bedrock but the 'average response' on Thames Group clay, silt and sand may be variable and can be poor (English Heritage 2008; Table 4). The overlying superficial deposits of Cover Sand may also reduce the effectiveness of the technique. Nevertheless, magnetometry was still the most appropriate non-intrusive geophysical technique for evaluating the GSA, taking account of the limitations noted in Section 3.2 and above.

Surface conditions were generally good (Illus 2 to Illus 4 inclusive) and data quality was also good with only minimal post-processing required. No problems were encountered during the fieldwork, although two strips along the east and west edges of F6, were unsuitable for survey due to bird cover (Illus 5).

The magnetic background is generally fairly uniform although there are broader areas of low magnitude enhancement, particularly in the north of F5, as well as more clearly defined sinuous anomalies forming irregular patterning at several locations, notably in F5 and F6 (see Section 4.5).

Against this magnetic background, anomalies of geological, agricultural, modern, and uncertain origin have been recorded (Illus 8). No anomalies of likely archaeological origin have been identified.

The fact that these anomalies were recorded suggests that there was sufficient magnetic contrast, for the detection of some types of features, notwithstanding the limitations of magnetometer survey to identify the types, sizes, and period of

archaeological features as described in Section 3.2. However, the generally average to poor response to magnetometer survey on Thames Group clay, silt, and sand, combined with the presence of the overlying superficial deposits, may indicate that the magnetic contrast across the GSA is likely to be low such that certain types of features, particularly those that may be small and/or shallow, may not be detectable on this site. It is therefore not certain whether the survey is giving a true indication of the extent of sub-surface archaeological features.

The anomalies are discussed below according to their interpreted origin.

4.2. FERROUS AND MODERN ANOMALIES

Ferrous anomalies, characterised as individual 'spikes', are typically caused by ferrous (magnetic) material, either on the ground surface or in the plough-soil. Little importance is normally given to such anomalies, unless there is any supporting evidence for an archaeological interpretation, as modern ferrous debris is common on most sites, often being introduced into the topsoil during manuring or tipping/infilling.

Bands or small areas of magnetic disturbance recorded along the field edges are likely to be due to the accumulation of ferrous debris around field margins or to ferrous material in the boundary itself. Examples of this are recorded in the centre of F2, where two bands of disturbance are caused by fencing around two small copses.

Three 'halos' of magnetic disturbance recorded in F5 and F6 are due to the proximity of electricity pylons.

4.3. AGRICULTURAL ANOMALIES

One low magnitude linear anomaly (Illus 8 - FB1) recorded in the south-west corner of F5 correlates with a field boundary recorded on the OS 1888 first edition mapping. However, several other boundary features also depicted on the first edition mapping are not visible in the data.

Throughout the GSA, a series of low magnitude linear trend anomalies record the orientation of modern ploughing regimes, while more broadly spaced dipolar anomalies, such as those in F2, locate modern field drains.

4.4. ANOMALIES OF GEOLOGICAL ORIGIN

The geological background across the GSA is largely homogenous but with broad, vague, and amorphous areas of geological variation and more numerous irregular linear and curvilinear anomalies recorded, particularly in F5 and F6 (see Section 4.1, para. 3).

4.5. ANOMALIES OF UNCERTAIN ORIGIN

Within the centre-north of F5, and the east of F6, several very low magnitude sinuous anomalies are recorded (Illus 14 and Illus 17 – U1 and U2). These anomalies are interpreted as of uncertain origin, as they form a more regular but discontinuous pattern that could be indicative of archaeological activity. However, these anomalies lack any definite pattern or morphology that would allow for a more certain interpretation. On balance it is considered most likely that these anomalies are also natural in origin although an archaeological origin cannot be completely discounted, especially in light of the density of archaeological features in the surrounding landscape.

4.6. ANOMALIES OF POSSIBLE OR PROBABLE ARCHAEOLOGICAL ORIGIN

Despite the density of archaeological remains surrounding the GSA and cropmarks interpreted as archaeological features within the GSA, no anomalies of likely archaeological origin have been identified by the survey.

The most probable reason for this is a lack of magnetic contrast in the homogenous sandy soils and geology of the GSA, a factor which may not impact the visibility of cropmarks.

5. CONCLUSION

Anomalies primarily of geological and recent agricultural origin have been identified by the survey, including one former field boundary recorded on first edition mapping; several other former boundaries have not recorded by the survey.

No anomalies of probable archaeological potential have been identified. This contrasts with the findings of a review of historic environment data, which revealed a plethora of cropmarks, indicative of prehistoric and Roman activity not only in the surrounding landscape but also within the GSA. Those cropmark features within the GSA include a Roman road, and several rectilinear and linear features. It is considered that the most likely reason for the apparent inability of the survey to detect these cropmark features (assuming they haven't been ploughed away since the air photographs were

taken) is due to a lack of magnetic contrast between the fill of the features and the surrounding soils, the homogenous sandy nature of the soils possibly accounting for the apparent lack of visibility.

Based solely on the results of the geophysical survey, the archaeological potential of the GSA is assessed as low. However, due to the likely poor magnetic contrast on this site, the overall potential should be considered to be uncertain.

6. REFERENCES

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7. APPENDICES

APPENDIX 1 MAGNETOMETER SURVEY

Magnetic susceptibility and soil magnetism

Iron makes up about 6% of the earth's crust and is mostly present in soils and rocks as minerals such as maghaemite and haematite. These minerals have a weak, measurable magnetic property termed magnetic susceptibility. Human activities can redistribute these minerals and change (enhance) others into more magnetic forms so that by measuring the magnetic susceptibility of the topsoil, areas where human occupation or settlement has occurred can be identified by virtue of the attendant increase (enhancement) in magnetic susceptibility. If the enhanced material subsequently comes to fill features, such as ditches or pits, localised isolated and linear magnetic anomalies can result whose presence can be detected by a magnetometer (fluxgate gradiometer).

In general, it is the contrast between the magnetic susceptibility of deposits filling cut features, such as ditches or pits, and the magnetic susceptibility of the topsoil, subsoil, and rock, into which these features have been cut, which causes the most recognisable responses. This is primarily because there is a tendency for magnetic ferrous compounds to become concentrated in the topsoil, thereby making it more magnetic than the subsoil or the bedrock. Linear features cut into the subsoil or geology, such as ditches, that have been silted up or have been backfilled with topsoil will therefore usually produce a positive magnetic response relative to the background soil levels. Discrete feature, such as pits, can also be detected.

The magnetic susceptibility of a soil can also be enhanced by the application of heat. This effect can lead to the detection of features such as hearths, kilns, or areas of burning.

Types of magnetic anomaly

In most instances anomalies are termed 'positive'. This means that they have a positive magnetic value relative to the magnetic background on any given site. However, some features can manifest themselves as 'negative' anomalies that, conversely, means that the response is negative relative to the mean magnetic background.

Where it is not possible to give a probable cause of an observed anomaly a '?' is appended.

It should be noted that anomalies interpreted as modern in origin might be caused by features that are present in the topsoil or upper layers of the subsoil. Removal of soil to an archaeological or natural layer can therefore remove the feature causing the anomaly.

The types of response mentioned above can be divided into five main categories that are used in the graphical interpretation of the magnetic data:

Isolated dipolar anomalies (iron spikes)

These responses are typically caused by ferrous material either on the surface or in the topsoil. They cause a rapid variation in the magnetic response giving a characteristic 'spiky' trace. Although ferrous archaeological artefacts could produce this type of response, unless there is supporting evidence for an archaeological interpretation, little emphasis is normally given to such anomalies, as modern ferrous objects are common on rural sites, often being introduced into the topsoil during manuring.

Areas of magnetic disturbance

These responses can have several causes often being associated with burnt material, such as slag waste or brick rubble or other strongly magnetised/fired material. Ferrous structures such as pylons, mesh or barbed wire and buried pipes can also cause the same disturbed response. A modern origin is usually assumed unless there is other supporting information.

Lightning-induced remnant magnetisation (LIRM)

LIRM anomalies are thought to be caused in the near surface soil horizons by the flow of an electrical current associated with lightning strikes. These observed anomalies have a strong bipolar signal which decreases with distance from the spike point and often appear as linear or radial in shape.

Linear trend

This is usually a weak or broad linear anomaly of unknown cause or date. These anomalies are often caused by agricultural activity, either ploughing or land drains being a common cause.

Areas of magnetic enhancement/positive isolated anomalies

Areas of enhanced response are characterised by a general increase in the magnetic background over a localised area whilst discrete anomalies are manifest by an increased response (sometimes only visible on

an XY trace plot) on two or three successive traverses. In neither instance is there the intense dipolar response characteristic exhibited by an area of magnetic disturbance or of an 'iron spike' anomaly (see above). These anomalies can be caused by infilled discrete archaeological features such as pits or post-holes or by kilns. They can also be caused by pedological variations or by natural infilled features on certain geologies. Ferrous material in the subsoil can also give a similar response. It can often therefore be very difficult to establish an anthropogenic origin without intrusive investigation or other supporting information.

Linear and curvilinear anomalies

Such anomalies have a variety of origins. They may be caused by agricultural practice (recent ploughing trends, earlier ridge and furrow regimes or land drains), natural geomorphological features such as palaeochannels or by infilled archaeological ditches.

APPENDIX 2 SURVEY LOCATION INFORMATION

An initial survey base station was established using a Trimble VRS differential Global Positioning System (dGPS). The magnetometer data was georeferenced using a Trimble RTK differential Global Positioning System (Trimble R10 model).

Temporary sight markers were laid out using a Trimble VRS differential Global Positioning System (Trimble R8s model) to guide the operator and ensure full coverage. The accuracy of this dGPS equipment is better than 0.01m.

The survey data were then super-imposed onto a base map provided by the client to produce the displayed block locations. However, it should be noted that Ordnance Survey positional accuracy for digital map data has an error of 0.5m for urban and floodplain areas, 1.0m for rural areas and 2.5m for mountain and moorland areas. This potential error must be considered if coordinates are measured off hard copies of the mapping rather than using the digital coordinates.

Headland Archaeology cannot accept responsibility for errors of fact or opinion resulting from data supplied by a third party.

APPENDIX 3 GEOPHYSICAL SURVEY ARCHIVE

The geophysical archive comprises an archive disk containing the raw data in XYZ format, a raster image of each greyscale plot with associate world file, and a PDF of the report.

The project will be archived in-house in accordance with recent good practice guidelines (http://guides.archaeologydataservice.ac.uk/g2gp/Geophysics_3). The data will be stored in an indexed archive and migrated to new formats when necessary.

APPENDIX 4 DATA PROCESSING

The gradiometer data has been presented in this report in processed greyscale and minimally processed XY trace plot format.

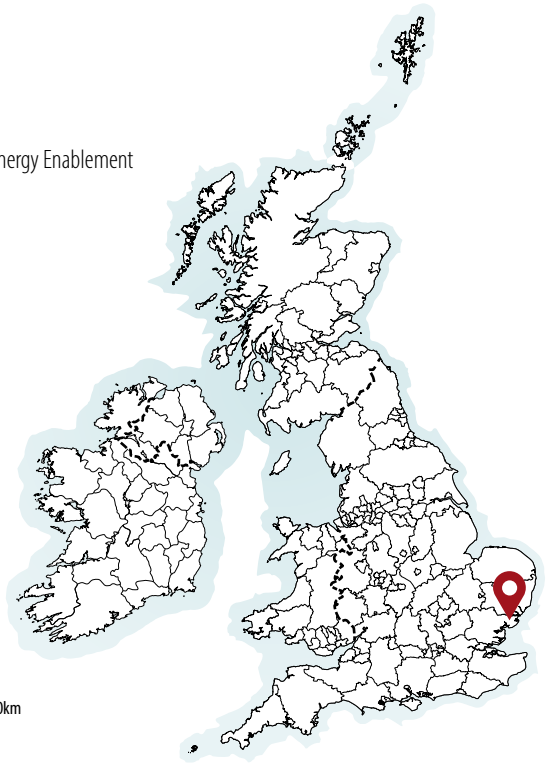
Data collected using RTK GPS-based methods cannot be produced without minimal processing of the data. The minimally processed data has been interpolated to project the data onto a regular grid and de-striped to correct for slight variations in instrument calibration drift and any other artificial data.

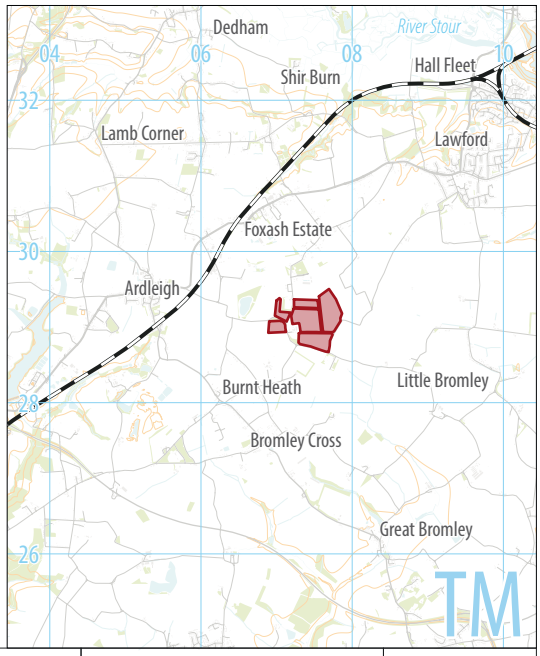
A high pass filter has been applied to the greyscale plots to remove low frequency anomalies (relating to survey tracks and modern agricultural features) to maximise the clarity and interpretability of the archaeological anomalies.

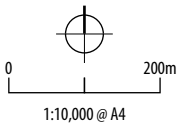
The data has also been clipped to remove extreme values and to improve data contrast.

APPENDIX 5 OASIS ARCHIVE

East Anglia GREEN Energy Enablement
Ardleigh
Essex







geophysical survey area

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e yorkshireandnorth@headlandarchaeology.com
w www.headlandarchaeology.com

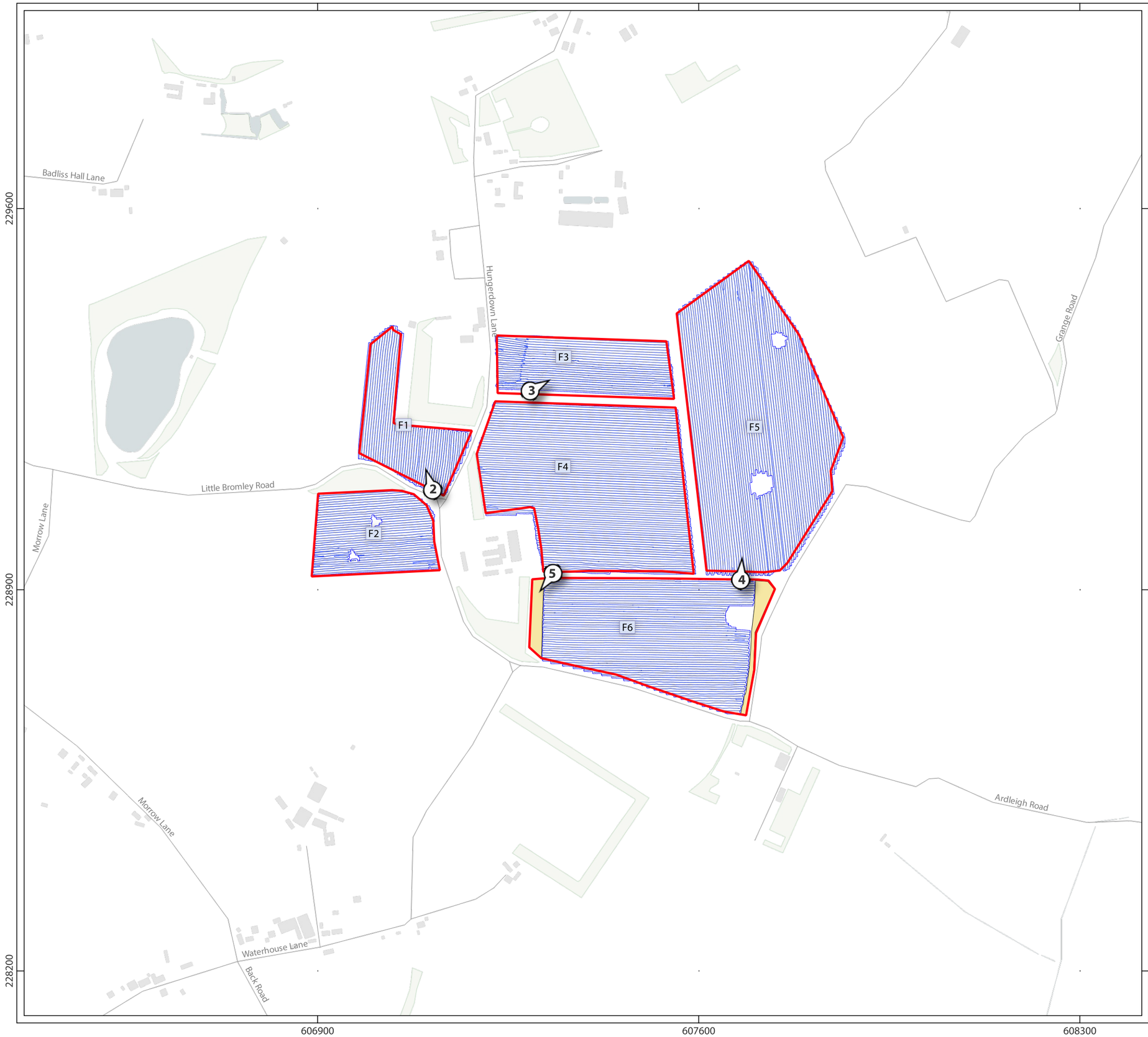
ILLUS 1 Site location

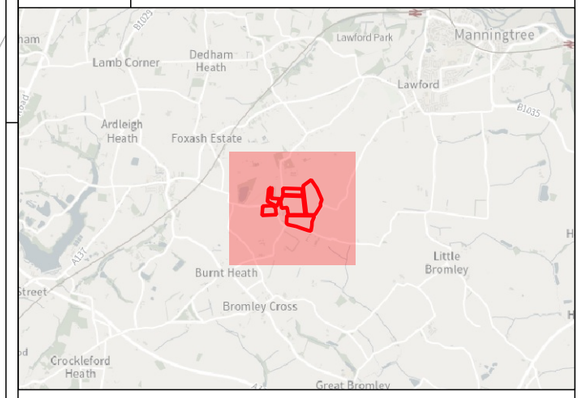
Illus 2 F1, looking north-west

Illus 3 F3, looking north-east

Illus 4 F5, looking north

Illus 5 F6, unsuitable for survey, looking south-west





Key

- Geophysical Survey Area
- Survey Extent
- Location and Direction of Illus 02-05
- GPS Swaths
- Unsuitable Survey Area

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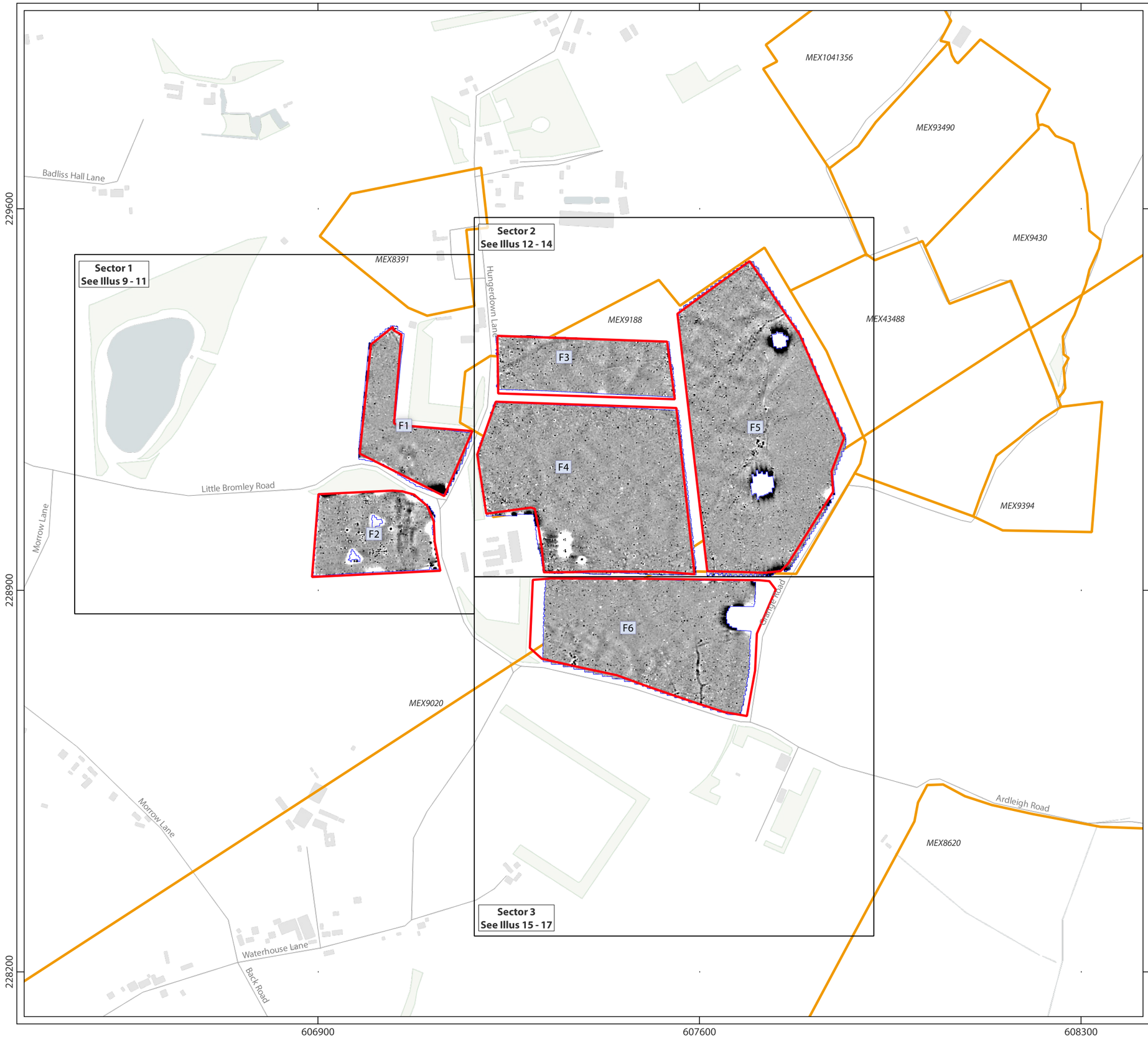
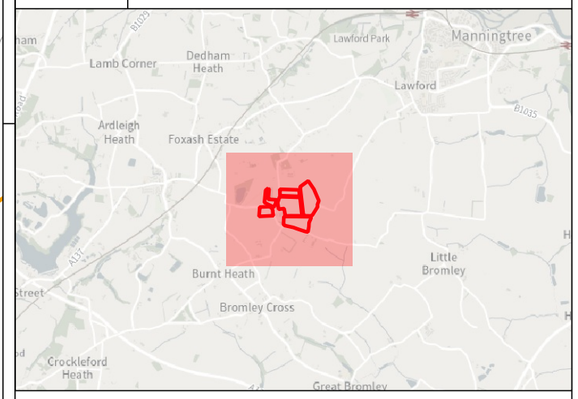
Illus 06 - Survey location showing GPS swaths and photograph locations





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- Survey Extent
- Historic Environment Record Asset Line Data
- Area for Illus 09 - 17

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-1nT

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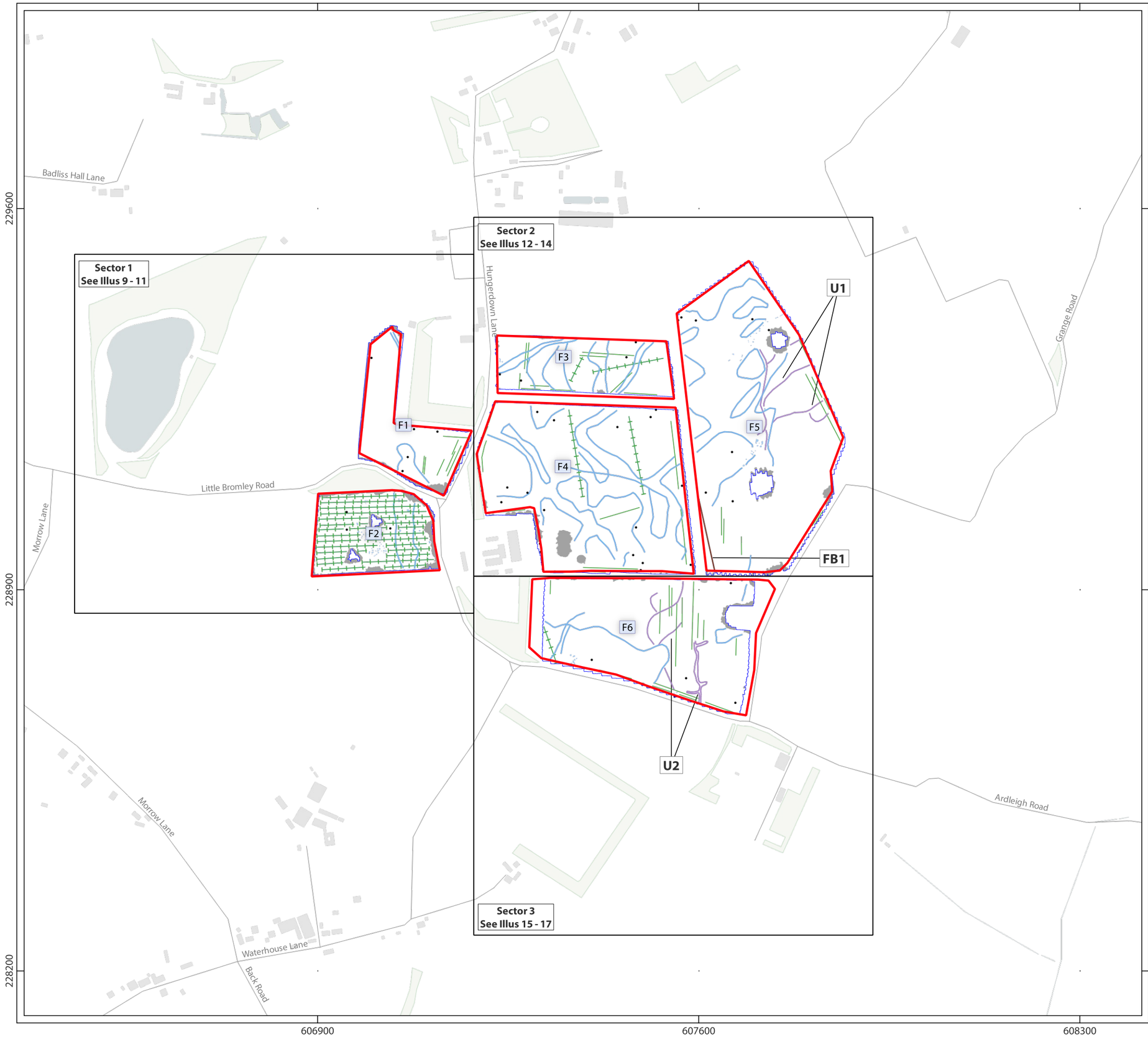
Illus 07 - Overall greyscale plot of processed magnetometer data



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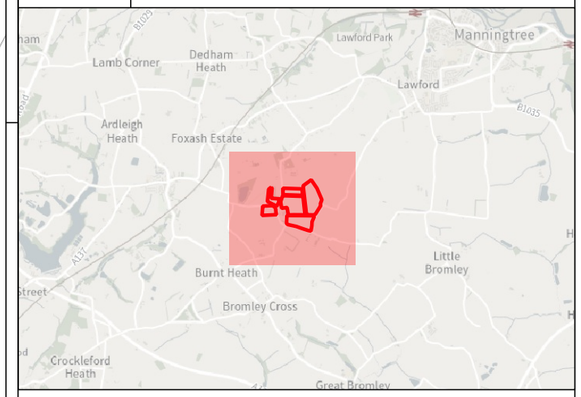
HEADLAND ARCHAEOLOGY
part of the RSK Group



Key

- Geophysical Survey Area
- Survey Extent
- Area for Illus 09 - 17
- Ferrous Objects
- Agriculture
- Field Boundary
- Field Drain
- Natural
- Uncertain
- Magnetic Disturbance
- Natural

Abbreviations

U	Uncertain
FB	Former Boundary

0 100 200 m

Site:	ARDL23
Created by:	LD
Checked by:	CA
Version:	v1.0
Date:	16/10/2023
Scale:	1:7,000 @ A3

Illus 08 - Overall interpretation of magnetometer data

N

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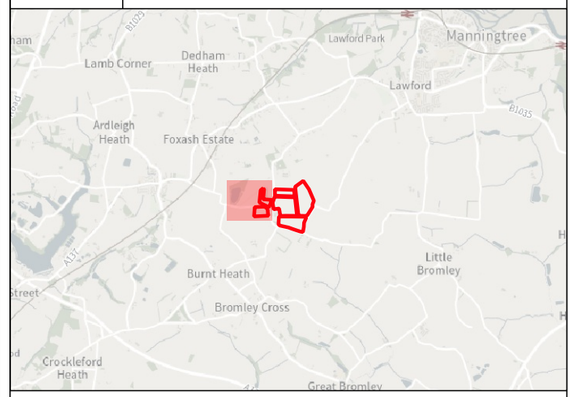

Key

- Geophysical Survey Area
- Survey Extent

+2nT
-1nT

0 60 120 m

Site:	ARDL23
Created by:	LD
Checked by:	CA
Version:	v1.0
Date:	16/10/2023
Scale:	1:2,500 @ A3

Illus - 09 Processed greyscale magnetometer data; Sector 1

N

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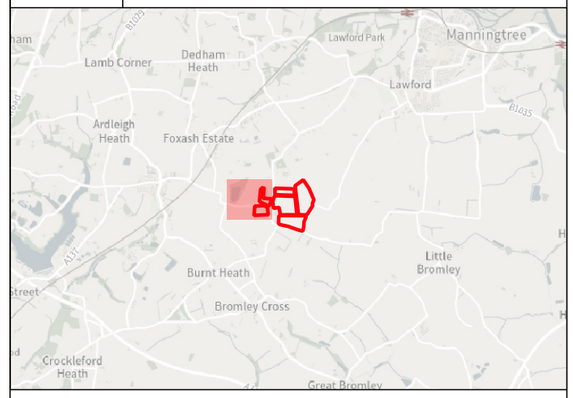

Key

- Geophysical Survey Area
- Survey Extent
- XY Trace (25nT/cm)

0 60 120 m

Site:	ARDL23
Created by:	LD
Checked by:	CA
Version:	v1.0
Date:	16/10/2023
Scale:	1:2,500 @ A3

Illus - 10 XY trace plot of minimally processed magnetometer data; Sector 1

N

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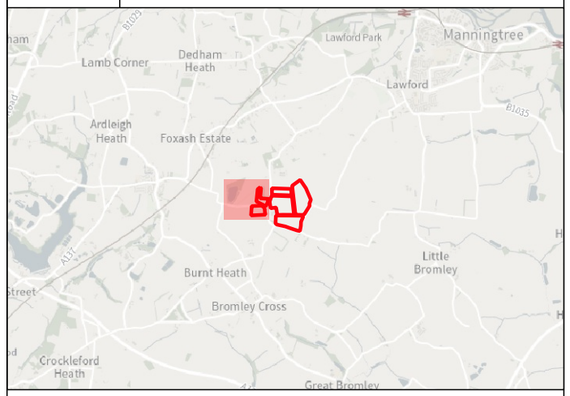


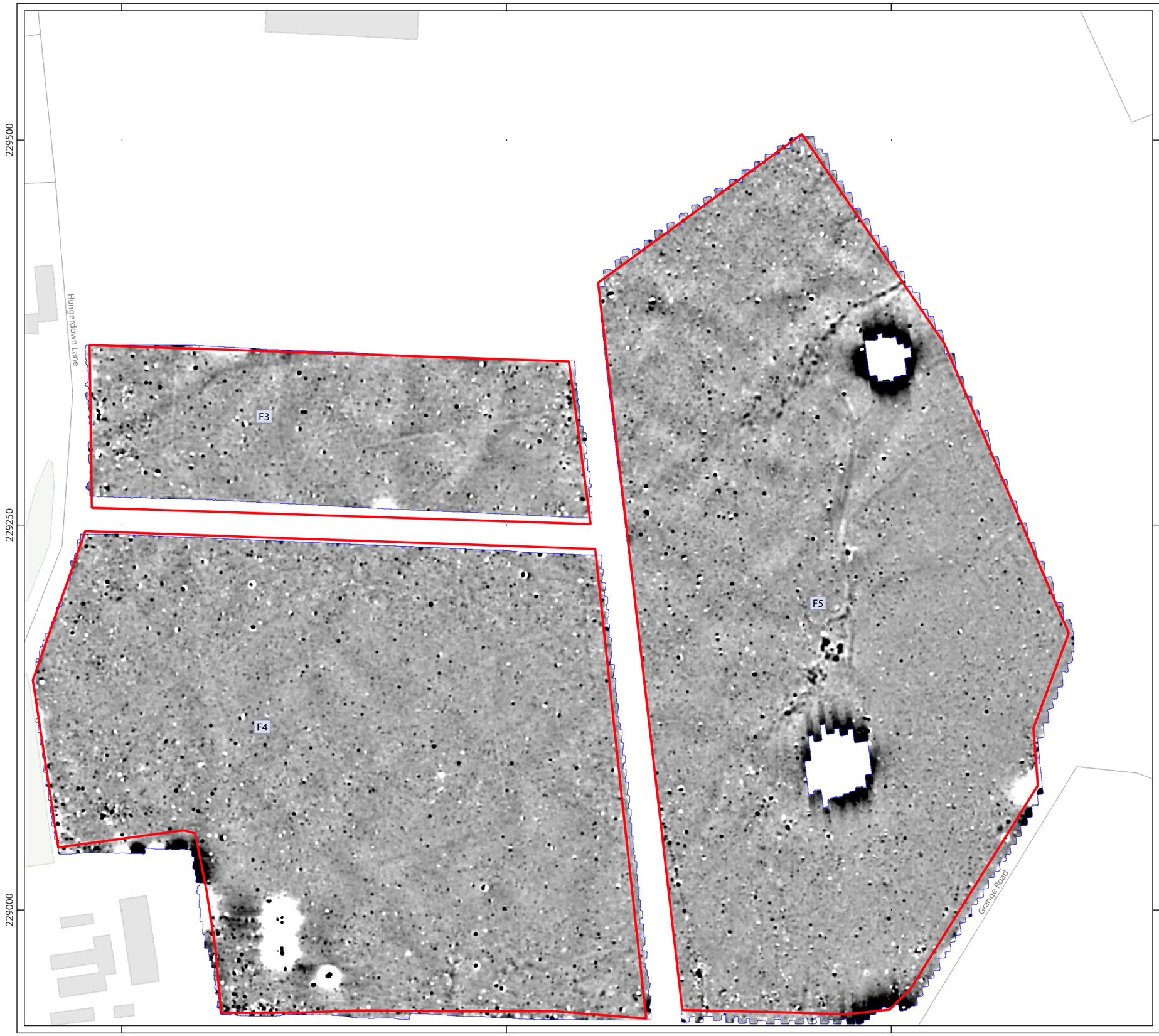
Key

- Geophysical Survey Area
- Survey Extent
- Ferrous Objects
- Agriculture
- Field Drain
- Natural
- Magnetic Disturbance
- Natural

0 60 120 m

Site:	ARDL23
Created by:	LD
Checked by:	CA
Version:	v1.0
Date:	16/10/2023
Scale:	1:2,500 @ A3

Illus - 11 Interpretation of magnetometer data; Sector 1



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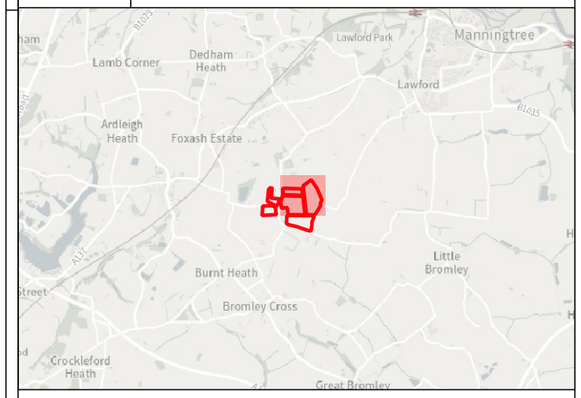


Key

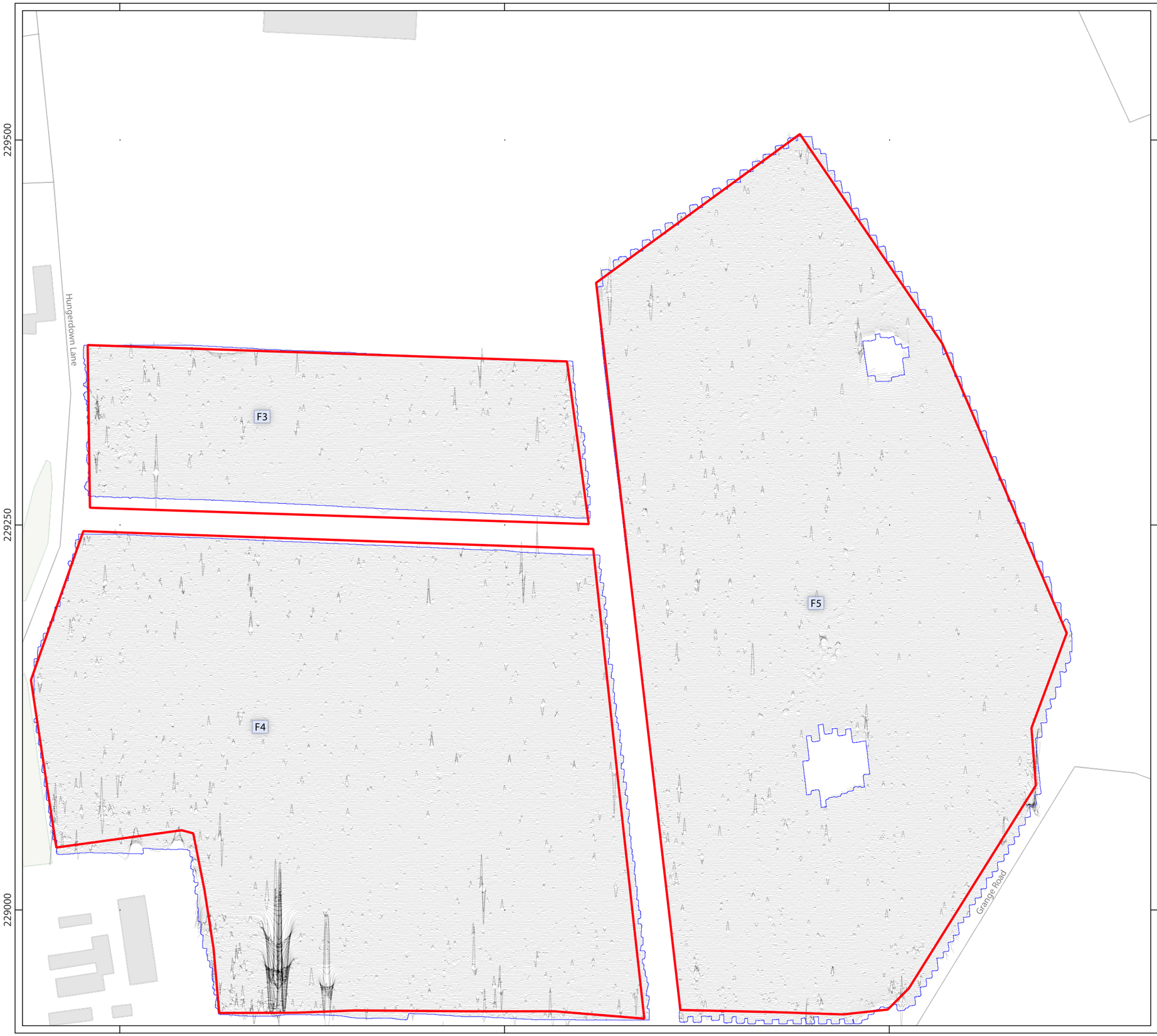
- Geophysical Survey Area
- Survey Extent

+2nT
-1nT

0 60 120 m

Site:	ARDL23
Created by:	LD
Checked by:	CA
Version:	v1.0
Date:	16/10/2023
Scale:	1:2,500 @ A3

Illus - 12 Processed greyscale magnetometer data; Sector 2



N

HEADLAND ARCHAEOLOGY
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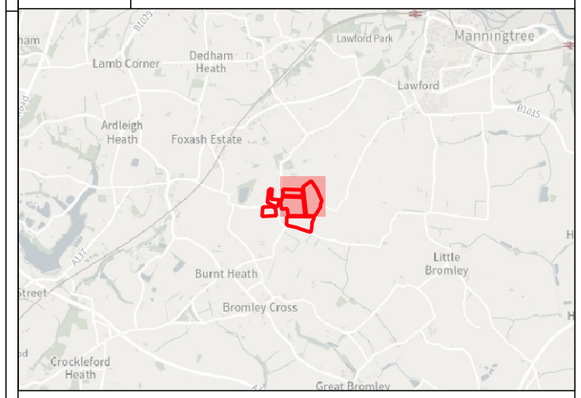

Key

- Geophysical Survey Area
- Survey Extent
- XY Trace (25nT/cm)

0 60 120 m

Site:	ARDL23
Created by:	LD
Checked by:	CA
Version:	v1.0
Date:	16/10/2023
Scale:	1:2,500 @ A3

Illus - 13 XY trace plot of minimally processed magnetometer data; Sector 2

N

HEADLAND ARCHAEOLOGY
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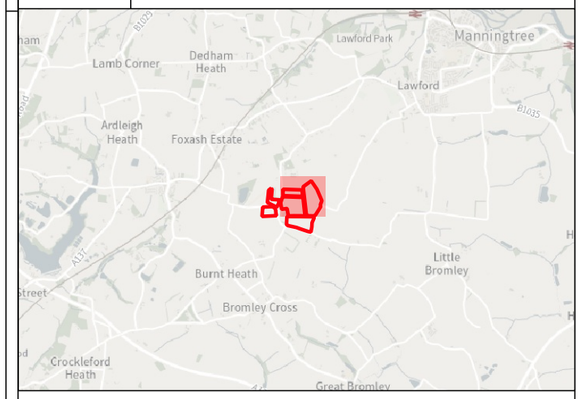

Key

- Geophysical Survey Area
- Survey Extent
- Ferrous Objects
- Agriculture
- Field Boundary
- Field Drain
- Natural
- Uncertain
- Magnetic Disturbance
- Natural

Abbreviations

U	Uncertain
FB	Former Boundary

0 60 120 m

Site:	ARDL23
Created by:	LD
Checked by:	CA
Version:	v1.0
Date:	16/10/2023
Scale:	1:2,500 @ A3

Illus - 14 Interpretation of magnetometer data; Sector 2

N

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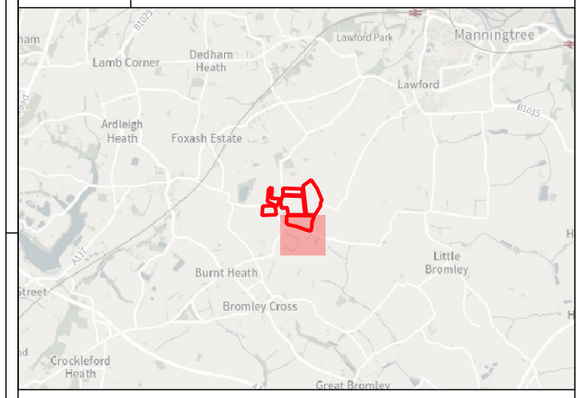


Key

Geophysical Survey Area

Survey Extent

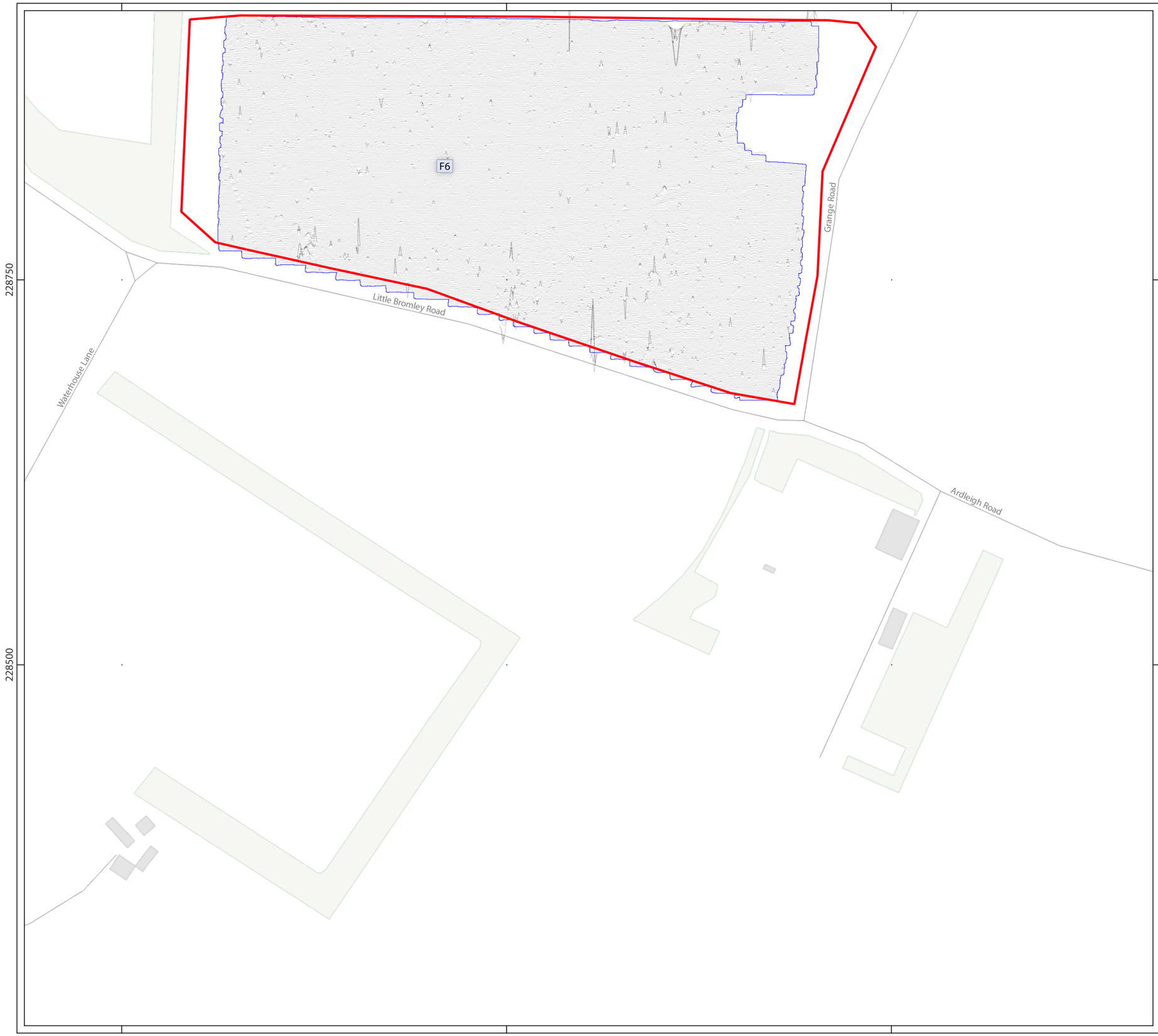
+2nT

-1nT

0 60 120 m

Site:	ARDL23
Created by:	LD
Checked by:	CA
Version:	v1.0
Date:	16/10/2023
Scale:	1:2,500 @ A3

Illus - 15 Processed greyscale magnetometer data; Sector 3



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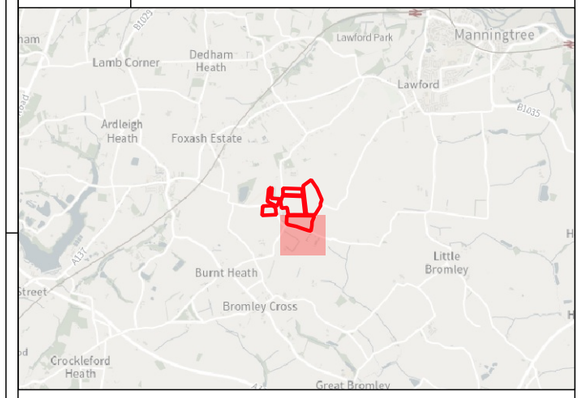


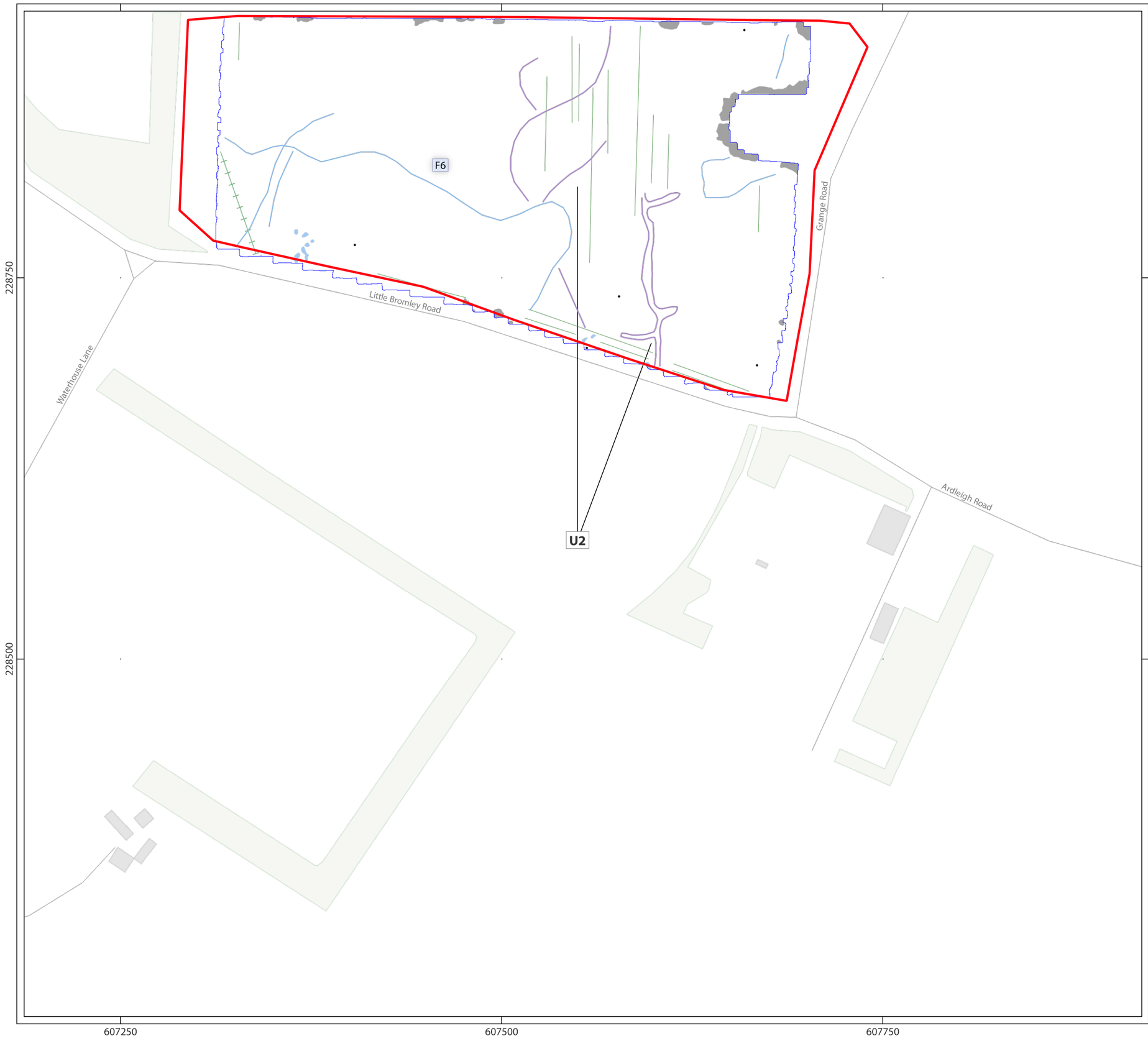
Key

- Geophysical Survey Area
- Survey Extent
- XY Trace (25nT/cm)

0 60 120 m

Site:	ARDL23
Created by:	LD
Checked by:	CA
Version:	v1.0
Date:	16/10/2023
Scale:	1:2,500 @ A3

Illus - 16 XY trace plot of minimally processed magnetometer data; Sector 3



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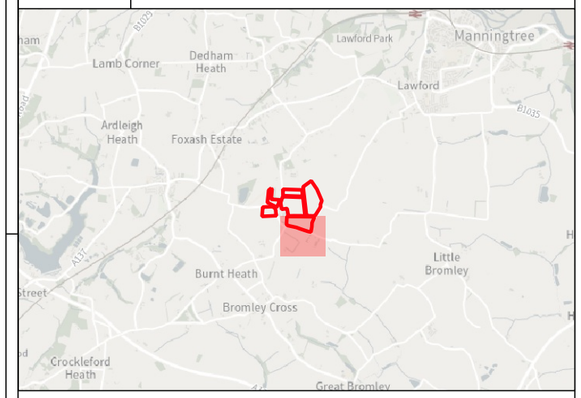

Key

- Geophysical Survey Area
- Survey Extent
- Ferrous Objects
- Agriculture
- Field Drain
- Natural
- Uncertain
- Magnetic Disturbance
- Natural

Abbreviations

U Uncertain

0 60 120 m

Site:	ARDL23
Created by:	LD
Checked by:	CA
Version:	v1.0
Date:	16/10/2023
Scale:	1:2,500 @ A3

Illus - 17 Interpretation of magnetometer data; Sector 3

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