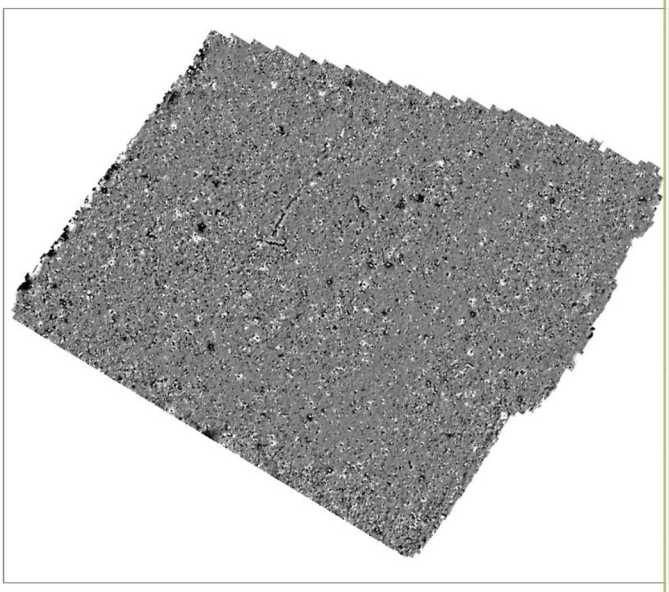
Northamptonshire Archaeology

Archaeological geophysical survey of land off Howes Lane, Bicester, Oxfordshire November - December 2012



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Report 13/3

January 2013

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OASIS REPORT FORM

PROJECT DETAILS	**OASIS No: 139962**	
Project name	Archaeological geophysical survey of land off Howes Lane, Bicester, Oxfordshire	
Short description	Northamptonshire Archaeology was commissioned to carry out a detailed magnetometer survey of land to the west of Howes Lane, Bicester, Oxfordshire. The survey identified a group of boundary and enclosure ditches of probable Iron Age or Romano-British date, and other features of less certain archaeological significance. The findings were in broad agreement with the results from a previous programme of archaeological cropmark interpretation.	
Project type	Geophysical survey	
Site status	None	
Previous work	Cropmark interpretation and mapping (Cox 2010)	
Current Land use	Arable	
Future work	Trial trenching	
Monument type/ period	Iron Age or Romano-British ditches and enclosures	
Significant finds		
PROJECT LOCATION		
County	Oxfordshire	
Site address	Howes Lane, Bicester	
Study area	*c* 20ha	
OS grid reference	SP 564 231	
Height OD	*c 8*5 m AOD	
PROJECT CREATORS		
Organisation	Northamptonshire Archaeology (NA)	
Project brief originator	Richard Oram, Oxfordshire County Archaeological Services	
Project Design originator	NA	
Director/Supervisor	Ian Fisher	
Project Manager	Mark Holmes	
Sponsor or funding body	Albion Land Ltd	
PROJECT DATE		
Start date	26 November 2012	
End date	9 January 2013	
ARCHIVES	Location	Content
Physical	N/A	
Paper	NA	Site survey records
Digital	NA	Geophysical survey & GIS data
BIBLIOGRAPHY	Journal/monograph, published or forthcoming, or unpublished client report	
Title	Archaeological geophysical survey of land off Howes Lane, Bicester, Oxfordshire , November - December 2012	
Serial title & volume	Northamptonshire Archaeology Reports 13/3	
Author(s)	John Walford	
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Date	9 January 2013	

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ARCHAEOLOGICAL GEOPHYSICAL SURVEY OF LAND OFF HOWES LANE, BICESTER OXFORDSHIRE NOVEMBER - DECEMBER 2012

ABSTRACT

Northamptonshire Archaeology was commissioned to carry out a detailed magnetometer survey of land to the west of Howes Lane, Bicester, Oxfordshire. The survey identified a group of boundary and enclosure ditches of probable Iron Age or Romano-British date, and other features of less certain archaeological significance. The findings were in broad agreement with the results from a previous programme of archaeological cropmark interpretation.

1 INTRODUCTION

Northamptonshire Archaeology (NA) was commissioned by Albion Land Ltd to conduct a geophysical survey in advance of a proposed development on land to the west of Howes Lane, Bicester, Oxfordshire (NGR SP 564 231; Fig 1). The survey formed one stage in a programme of archaeological evaluation, seeking to determine the presence, extent and nature of any archaeological remains which might be affected by the proposed development.

The fieldwork was conducted from 26 November to 6 December 2012, and comprised the detailed magnetometer survey of *c* 18.5ha of land.

2 TOPOGRAPHY AND GEOLOGY

The proposed development area consists of three arable fields located on the west side of Bicester, bounded to the east by the A4095 Howes Lane and to the south by the B4030 Middleton Stoney Road. It lies within the south-eastern corner of the area proposed for the 'Bicester Eco Town' development.

The proposed development area lies on a very shallow east-facing slope, straddling the 85m contour line. Its geology is mapped as Cornbrash limestone (BGS 2012).

3 ARCHAEOLOGICAL BACKGROUND

The archaeology of the proposed development area has previously been investigated by a programme of cropmark mapping and interpretation (Cox 2010). This lead to the identification of "*a complex of very clearly defined ditches, possible double ditched boundary, track way and enclosures*", and two other groups of features of possible, though less certain, archaeological significance (Fig 2). Traces of ploughed-out medieval ridge and furrow were also noted.

To the north and west of the proposed development area, across the site of the proposed 'Bicester Eco Town', further groups of enclosures and boundary ditches have been identified through cropmark interpretation and geophysical survey (Cox 2010; Butler and Walker 2012). Although none of these features has been closely dated, the majority probably relate Iron Age or Romano-British settlement and agricultural activity.

Approximately 1.5km to the south east of the proposed development area, excavations at the Whitelands Farm site have identified extensive archaeological remains, including prehistoric ring ditches and settlement remains of Iron Age, Roman and Anglo-Saxon date (Martin 2011).

4 METHODOLOGY

The survey was conducted with Bartington Grad 601-2, twin sensor array, vertical component fluxgate gradiometers (Bartington and Chapman 2003). These are standard instruments for archaeological survey and can resolve magnetic variations as slight as 0.1 nanoTesla (nT).

An independent system of 30m grids was established within each of the fields to be surveyed. The grids were established with a tape measure and optical square and were tied in to the Ordnance Survey National Grid by measurement to field boundaries and other points of detail. The gradiometers were carried at a brisk but steady pace through each grid square, collecting data along 1m spaced traverse lines. Measurements were automatically triggered every 0.25m along the traverses, giving a total of 3600 measurements per square.

All fieldwork methods complied with the guidelines issued by English Heritage and by the Institute for Archaeologists and with the agreed method statement for this project (EH 2008; IfA 2011; NA 2012).

The survey data were processed using Geoplot 3.00v software. Striping, caused by slight mismatches in sensor balance, was removed using the 'Zero Mean Traverse' function and destaggering of the data was performed as necessary.

The processed data is presented in this report in the form of grey-tone plots, at a scale of +/- 4nT black/white. The plots have been scaled, rotated and resampled (georectified) for display against the Ordnance Survey base mapping (Fig 3). An interpretative overlay has been produced and is shown in Figure 4. Grey-tone and X-Y trace plots of the unprocessed survey data are presented in Figures 5 to 7.

5 SURVEY RESULTS

5.1 Field 1

There are two irregular, magnetically positive, linear anomalies located towards the centre of this field and a third, much weaker linear anomaly to their south. All three correlate with parts of an ambiguous cropmark feature (Fig 2), which could represent either a very irregular ditched enclosure, or a pattern of fissures in the underlying geology. Some very small and weak linear anomalies, located close to the eastern field boundary, could similarly represent ditches or natural fissures.

The small ferrous anomalies present across this field probably relate to small pieces of iron debris within the ploughsoil. The large ferrous anomaly along the southern edge of the field could be due to a small pipe, or a wire fence concealed within the hedgeline.

5.2 Field 2

A magnetically positive linear anomaly crosses the northern end of the field from north-west to south-east. It has a distinctive 'reversed-S' curve, which is very characteristic of medieval ridge and furrow. However, the absence of any other ridge and furrow anomalies in this field suggests that it is not a furrow, *per se*, that has been detected, but some later feature, such as a boundary ditch or a field drain, laid out along the line of pre-existing furrow.

To the south, there is a short, and much more weakly positive, linear anomaly which probably represents a section of ditch. There are also two small positive anomalies which might represent pits. The northern of these is a fairly typical 'pit' anomaly, but the southern one is more ambiguous in character. It attains a maximum intensity of *c* 60nT, which would be equally consistent with a pit containing a substantial quantity of ceramic material or burnt soil, and with a large but deeply buried ferrous object.

Like Field 1, this field contains a fairly dense scatter of small ferrous anomalies, indicating the presence of scrap metal objects within the ploughsoil.

5.3 Field 3

In the north-western quadrant of this field, there is a group of disjointed, weakly positive, linear anomalies, mostly arranged in a rectilinear configuration. These correlate well with the previously mapped cropmarks (Fig 2), and seem to indicate part of a network of boundary and enclosure ditches, probably defining part of a settlement or field system of Iron Age or Romano-British date.

To the east of the ditches, there are a few widely dispersed small positive anomalies. Some of these may represent pits, but the evidence is not conclusive, and it is also possible that they could represent natural hollows or other geological features.

As in the previous fields, there are many small ferrous anomalies representing a random scatter of scrap metal within the ploughsoil.

The easternmost part of this field was not covered by the survey, as it was particularly wet, with very soft ground and large areas of standing water. The small gaps in the data also indicate areas of rough, wet or otherwise unsurveyable ground.

6 CONCLUSION

The survey has identified a group of archaeological features, comprising boundary and enclosure ditches with associated pits, located towards the western edge of the proposed development area. These probably represent part of a settlement or field system of Iron Age or Romano-British date. Elsewhere, the survey has detected some ambiguous features which are of possible, but uncertain, archaeological significance.

The survey results are broadly consistent with the previously mapped cropmarks (Fig 2) and, considered together, these two data sets seem likely to provide a good indication of the main areas of archaeological interest within the proposed development area.

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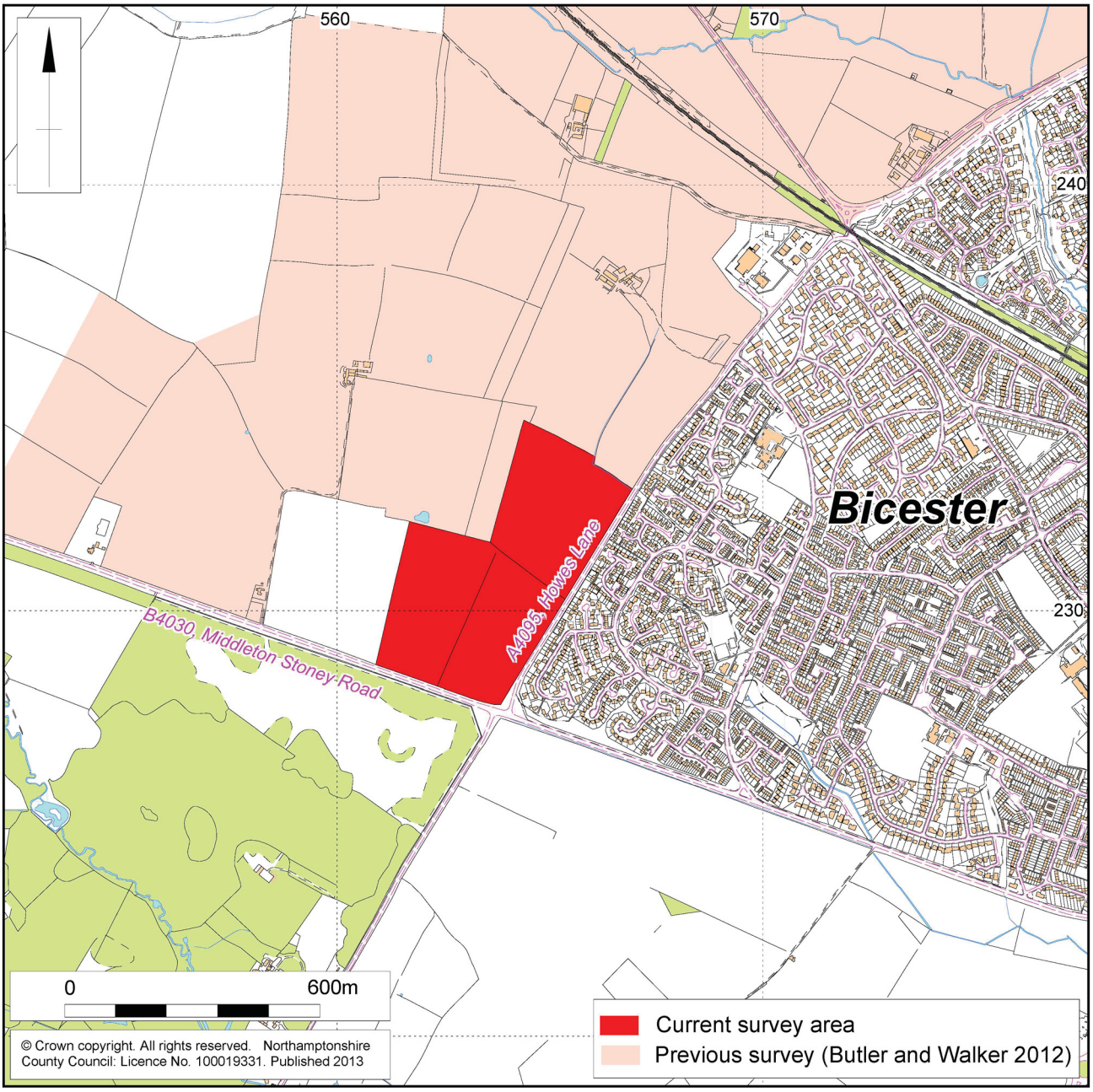


Scale 1:15,000

Site Location Fig 1

Scale 1:5000 (A4)

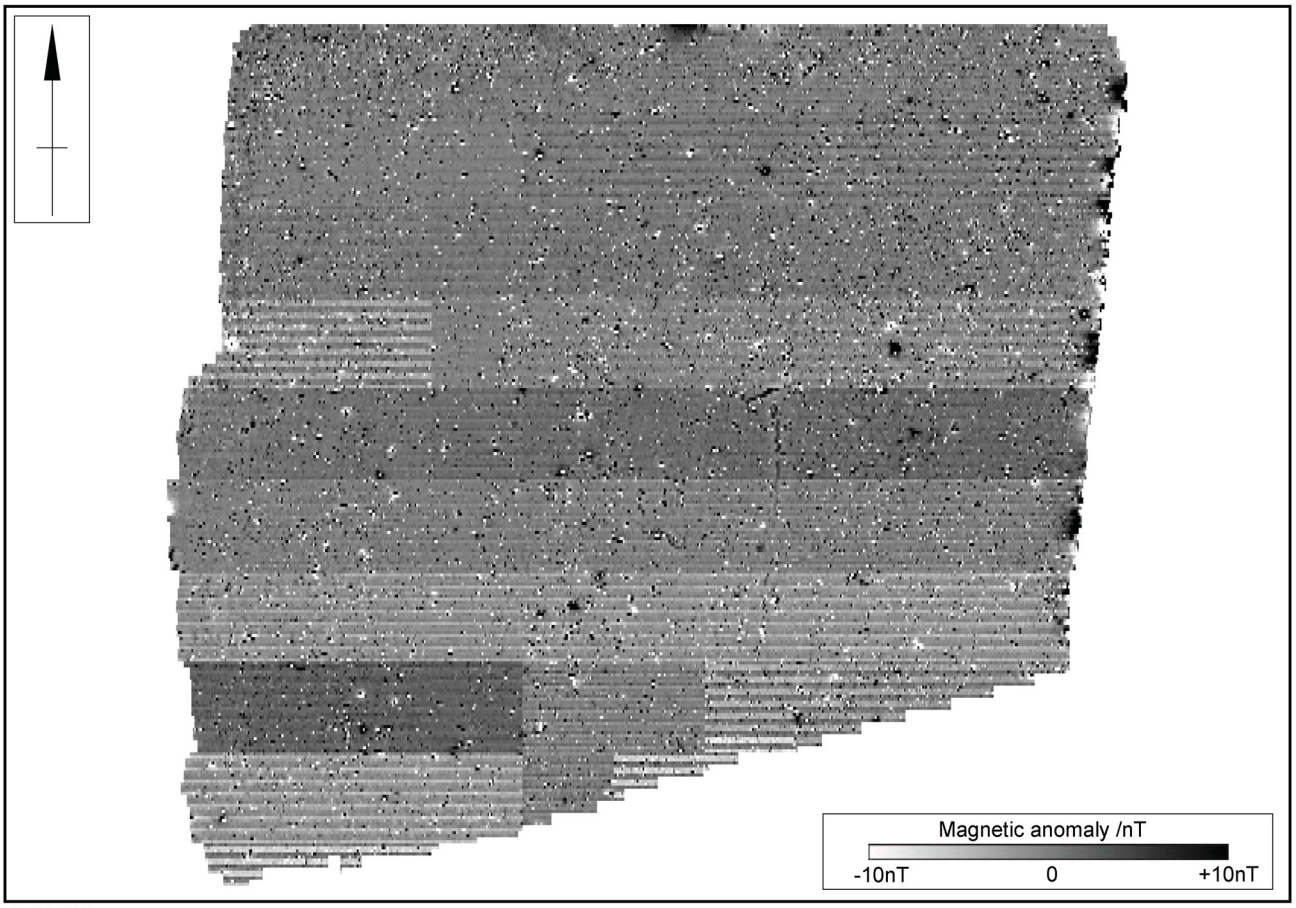
Cropmarks (after Cox 2010) Fig 2

Scale 1:2500 (A3)

Magnetometer survey results Fig 3

Scale 1:2500 (A3)

Magnetometer survey interpretation Fig 4



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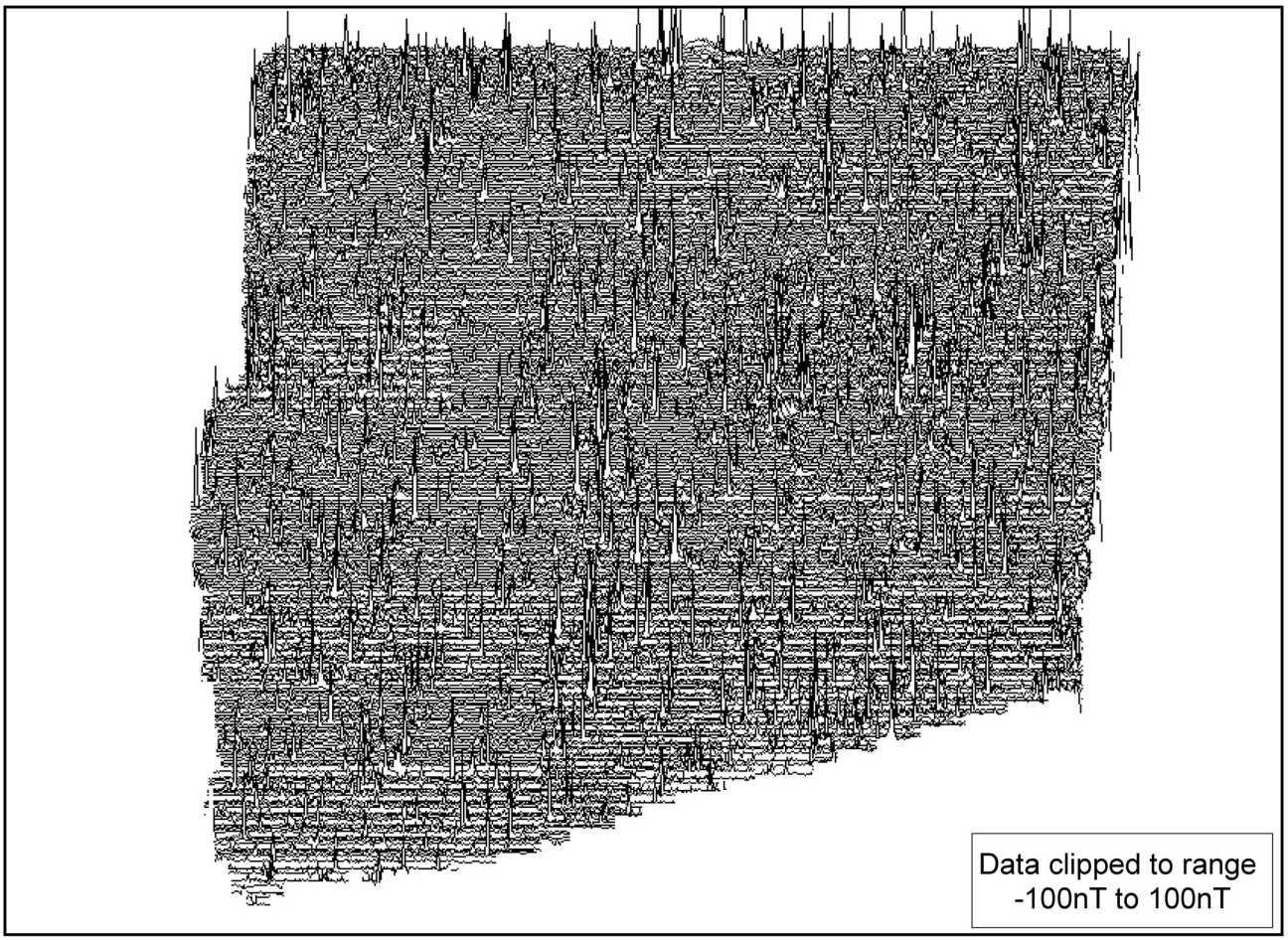

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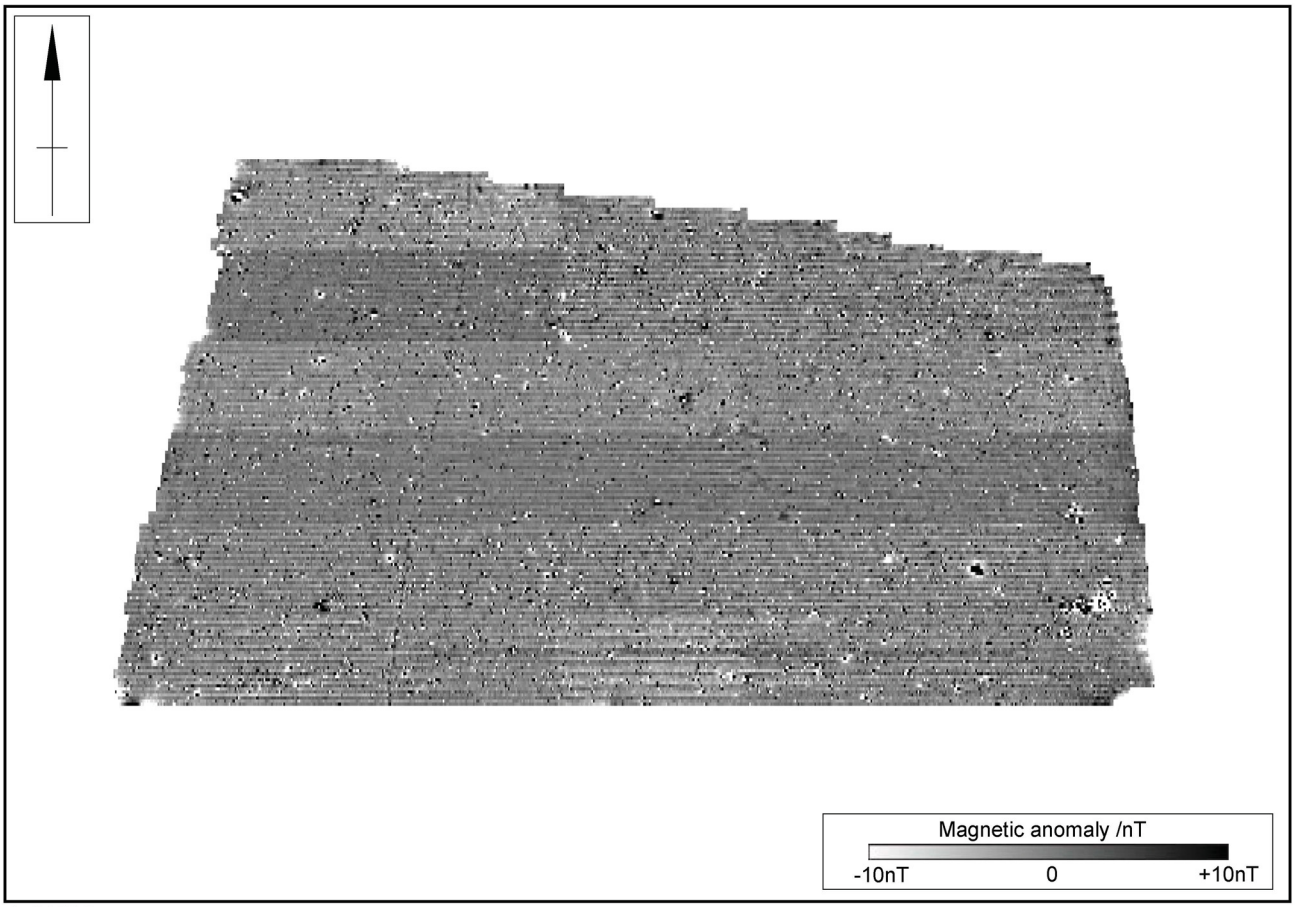
Raw data plots (Field 1) Fig 5



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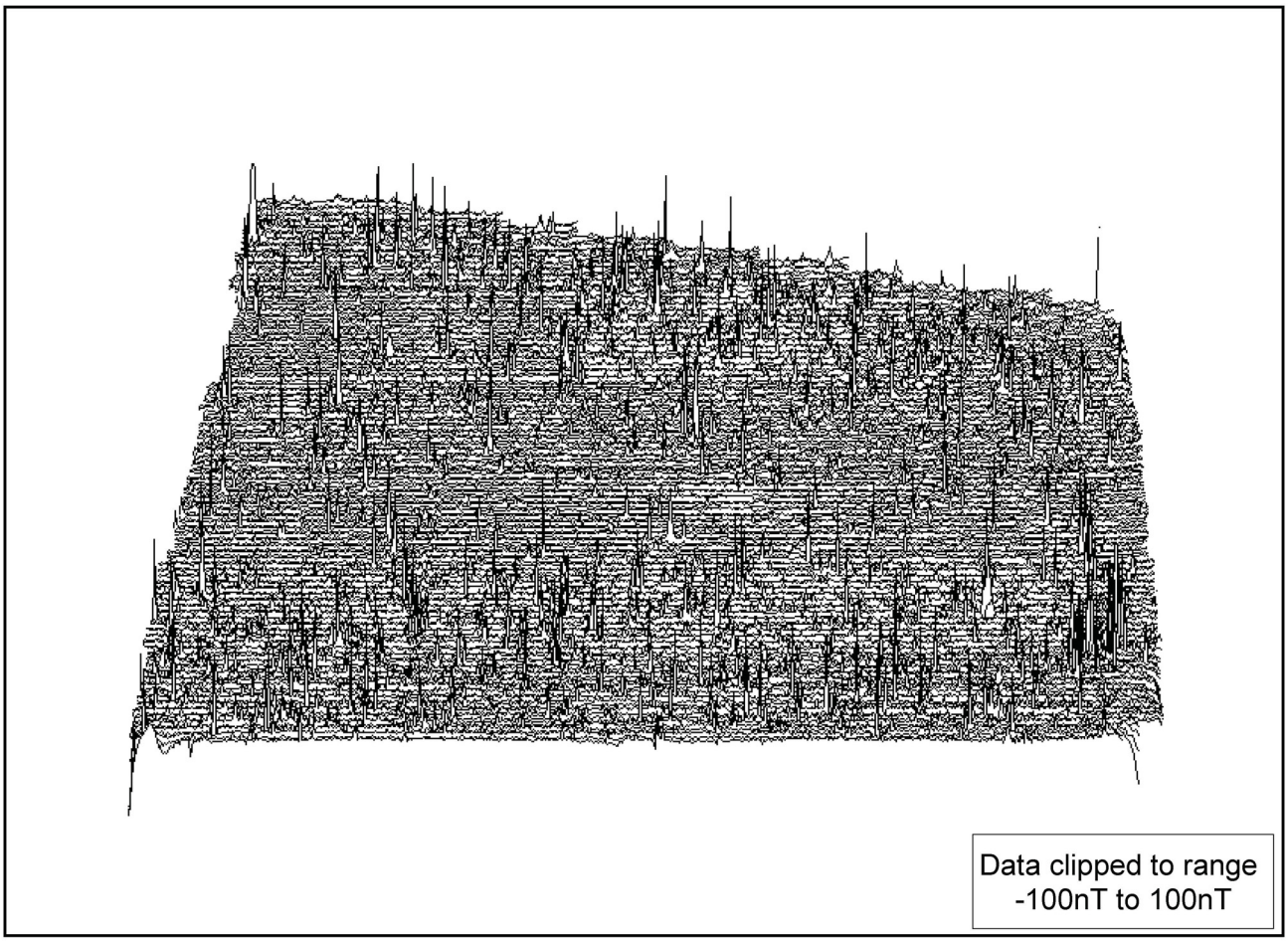

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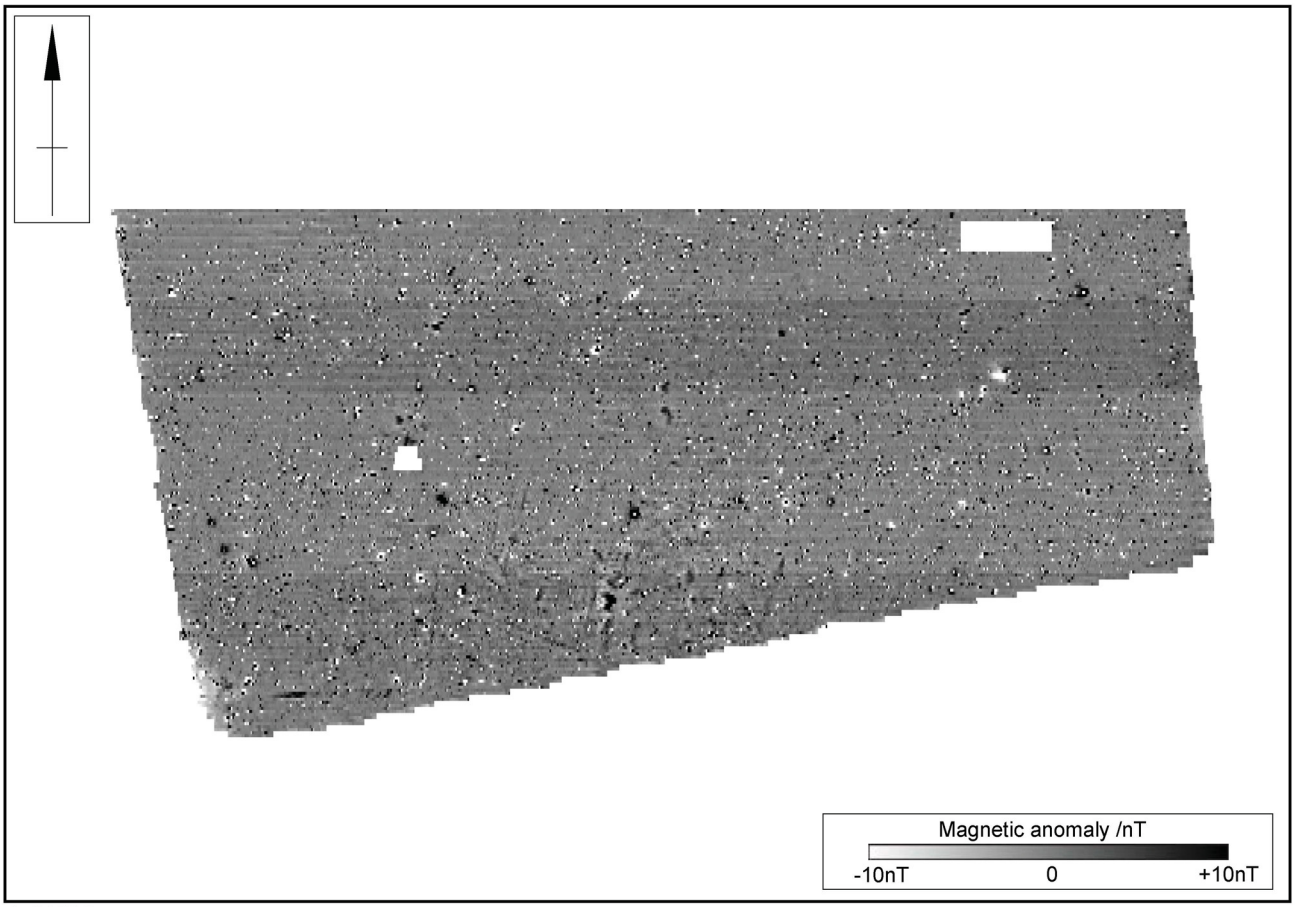
Raw data plots (Field 2) Fig 6



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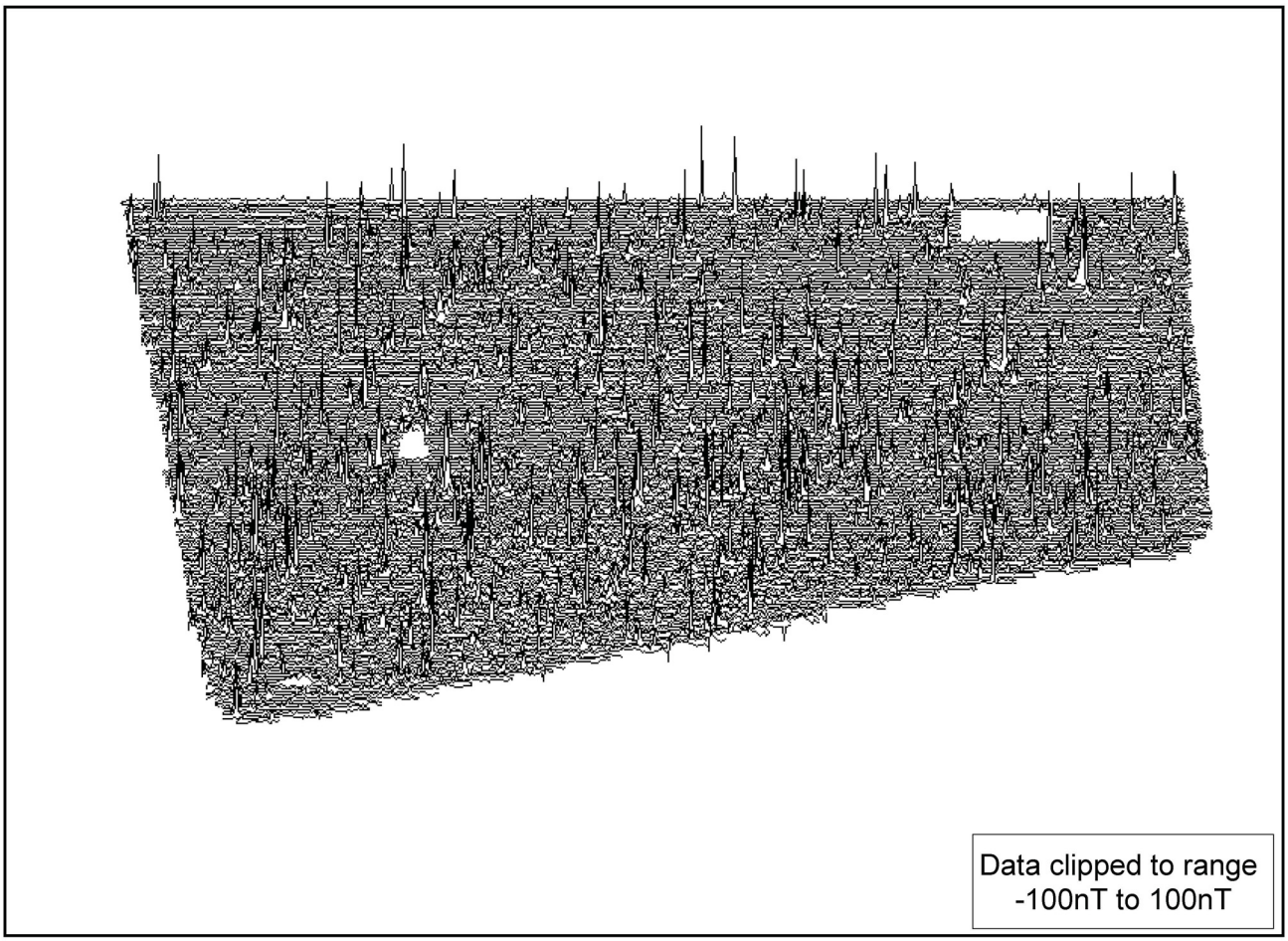

1:2500 (Approximate)

Raw data plots (Field 3) Fig 7

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