THAMES VALLEY

ARCHAEOLOGICAL

SERVICES

Land adjacent to Dukes Meadow Drive, Banbury, Oxfordshire

Geophysical Survey (Magnetic)

by Daniel Bray and Tim Dawson

Site Code: DMB14/255

(SP 4378 4264)

Land adjacent to Dukes Meadow Drive, Banbury, Oxfordshire

Geophysical Survey (Magnetic) Report

For Mr and Mrs Donger

by Daniel Bray and Tim Dawson

Thames Valley Archaeological Services Ltd

Site Code DMB 14/255

January 2015

Summary

Site name: Land adjacent to Dukes Meadow Drive, Banbury, Oxfordshire

Grid reference: SP 4378 4264

Site activity: Magnetometer survey

Date and duration of project: 12th – 21st January 2015

Project manager: Steve Ford

Site supervisor: Daniel Bray

Site code: DMB 14/255

Area of site: 7.42ha

Summary of results: The geophysical survey identified several magnetic anomalies that may represent buried cut features of archaeological origin. These were clearest in Area 4 with a range of linear and curvilinear anomalies possibly indicating the presence of two phases of occupation: a field system and group of ring ditches. The eastern half of the site is also noted for the presence of an array of positive anomalies which indicate that the area was farmed using the ridge-and-furrow method although the earthworks associated with this appear to have been since levelled.

Location of archive: The archive is presently held at Thames Valley Archaeological Services, Reading in accordance with TVAS digital archiving policies.

Report edited/checked by:	Steve Ford✓ 04.02.15
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Land adjacent to Dukes Meadow Drive, Banbury Oxfordshire
A Geophysical Survey (Magnetic)

by Daniel Bray and Tim Dawson

Report 14/255

Introduction

This report documents the results of a geophysical survey (magnetic) carried out at land adjacent to Dukes Meadow Drive, Banbury Oxfordshire SP 4378 4264 (Fig. 1). The work was commissioned by Mr Neil Roe of Amber Developments Ltd, 12 Eton Court, Colmworth Business Park, St. Neots, Cambridgeshire, PE19 8ER on behalf of Mr and Mrs Donger.

Outline planning permission (app. no. 14/00066/OUT) has been gained from Cherwell District Council for the construction of up to 160 dwellings with associated infrastructure and open space. The consent includes conditions (22 and 23) relating to archaeology. A geophysical (magnetic) survey has been requested. The results of which will be used to provide targets for any subsequent trenching. This is in accordance with the Department for Communities and Local Government's *National Planning Policy Framework* (NPPF 2012) and the District's policies on archaeology. The field investigation was carried out to a specification approved by Mr Richard Oram Planning Archaeologist at Oxfordshire County Archaeology Service and based on a brief prepared by him (Oram 2014). The fieldwork was undertaken by Daniel Bray, Kyle Beaverstock, Matthew Cano, Rebecca Constable and Sophie Frampton from 12th to 21st January 2015 with the site code is DMB 14/255.

The archive is presently held at Thames Valley Archaeological Services, Reading in accordance with TVAS digital archiving policies.

Location, topography and geology

The site is located in northern Banbury on the northern side of Dukes Meadow Drive 3km north of the town centre and 1km south of Hanwell. The site itself totals 7.42ha and is divided into six irregular parcels of land. Area 1 is furthest west and is 0.96ha in total, comprising short grass and numerous trees gently sloping to the south. The field is bounded by a wooden post and rail fence to the north and the field is split from a pond to the south by a metal fence. Directly east is Area 2 which comprises of a paddock totally 0.74ha with grass left short. The northern boundary is defined by dense trees and a wooden post and rail fence defines the southern boundary dividing it from Area 3 to the south. This thin rectangular parcel of land is used as a footpath to access Area 4 and is bounded by wooden post and rail fencing to then north and south. A large drain defines the eastern

boundary. Area 4 is the largest of the survey area totally 3.46ha and triangular in shape comprising scrub land of long grass and bramble bushes used by local dog walkers. Areas of dense trees to the north and west had been recently cleared prior to the survey. The field rises gently north before falling gently towards the northern boundary. Area 5 to the south is a thin, irregular roadside verge divided from Area 4 by wooden post and rail fencing with short mowed grass. The southern boundary is Dukes Meadow Drive. Area 6 is the eastern most survey area and consists of short mowed grass and wooded areas bounded by wooden post and rail fencing to the north and Dukes Meadow Drive to the south.

The site lies at a height of between 140.7m and 147.8m above Ordnance Datum. The underlying geology is recorded as Marlstone Rock Bed except Areas 2 and 3 which are recorded as Upper Lias (BGS 1982). The conditions at the time of survey were initially overcast later becoming wet and on the final days a heavy frost was present in the morning before becoming sunny.

Site history and archaeological background

The archaeological potential of the site area has been highlighted in a detailed brief prepared by Mr. Richard Oram (Oram 2014) of Oxfordshire County Archaeological Service. In summary the site lies within an area of some archaeological potential, but where little formal investigation has occurred. Immediately to the south of the site were found a number of undated linear ditches and a pit, which may continue into the site. Immediately to the north a geophysical survey and evaluation found features dating to the late prehistoric and Roman periods. 500m to the north is a shrunken medieval village and Saxon site.

Methodology

Sample interval

Data collection required a temporary grid to be established across the survey area using wooden pegs at 20m intervals with further subdivision where necessary. Readings were taken at 0.25m intervals along traverses 1m apart. This provides 1600 sampling points across a full 20m × 20m grid (English Heritage 2008), providing an appropriate methodology balancing cost and time with resolution. Grids were laid out aligned to the long axes of the six survey areas (Fig. 2). There were several obstructions encountered that hindered the surveying of each area in its entirety. The southern tip of Area 1 was found to be occupied by a pond (the semi-circular feature on the Ordnance Survey map) while the eastern end was covered with dense trees and the remainder of the area with scattered trees (Pl. 1). Similarly, Area 2 had dense woodland along the northern edge of the site and a thick

hedgerow along the western edge (Pl. 2). There was a cluster of hutches, poultry coops and sheds in the south-western corner which prevented survey in this part of the field. As with Area 1, Area 4 was covered in scattered young trees and bushes which impeded survey progress (Pl. 4) and the field's northern and western edges were lined with dense woodland. Larger obstructions within the field itself included the remains of a large bonfire in the northern corner (Pl. 5) and two thick clumps of bramble bushes in the centre and on the south-eastern edge. The only obstruction in the Area 5 survey was a large tree in the centre of the strip approximately 45m from the south-western end (Pl. 6).

The Grad 601-2 has a typical depth of penetration of 0.5m to 1.0m. This would be increased if strongly magnetic objects have been buried in the site. Under normal operating conditions it can be expected to identify buried features >0.5m in diameter. Features which can be detected include disturbed soil, such as the fill of a ditch, structures that have been heated to high temperatures (magnetic thermoremnance) and objects made from ferro-magnetic materials. The strength of the magnetic field is measured in nano Tesla (nT), equivalent to 10^{-9} Tesla, the SI unit of magnetic flux density.

Equipment

The purpose of the survey was to identify geophysical anomalies that may be archaeological in origin in order to inform a targeted archaeological investigation of the site prior to development. The survey and report generally follow the recommendations and standards set out by both English Heritage (2008) and the Institute *for* Archaeologists (2002, 2011).

Magnetometry was chosen as a survey method as it offers the most rapid ground coverage and responds to a wide range of anomalies caused by past human activity. These properties make it ideal for fast yet detailed survey of an area.

The detailed magnetometry survey was carried out using a dual sensor Bartington Instruments Grad 601-2 fluxgate gradiometer. The instrument consists of two fluxgates mounted 1m vertically apart with a second set positioned at 1m horizontal distance. This enables readings to be taken of both the general background magnetic field and any localised anomalies with the difference being plotted as either positive or negative buried features. All sensors are calibrated to cancel out the local magnetic field and react only to anomalies above or below this base line. On this basis, strong magnetic anomalies such as burnt features (kilns and hearths) will give a high response as will buried ferrous objects. More subtle anomalies such as pits and ditches, can be seem from their infilling soils containing higher proportions of humic material, rich in ferrous oxides, compared to the

undisturbed subsoil. This will stand out in relation to the background magnetic readings and appear in plan following the course of a linear feature or within a discrete area.

A Trimble Geo7x handheld GPS system with sub-decimetre real-time accuracy was used to tie the site grid into the Ordnance Survey national grid. This unit offers both real-time correction and post-survey processing; enabling a high level of accuracy to be obtained both in the field and in the final post-processed data.

Data gathered in the field was processed using the TerraSurveyor software package. This allows the survey data to be collated and manipulated to enhance the visibility of anomalies, particularly those likely to be of archaeological origin. The table below lists the processes applied to this survey, full survey and data information is recorded in Appendix 1.

Process	**Effect**
Clip from -10.00 to 10.00 nT	Enhance the contrast of the image to improve the appearance of possible archaeological anomalies.
De-stripe: median, all sensors	Removes the striping effect caused by differences in sensor calibration, enhancing the visibility of potential archaeological anomalies.
Search & Replace: from: ±30 nT to: ±1000 nT with: dummy	Removes extreme values resulting from magnetic interference caused by near-by ferromagnetic objects.
De-stagger: all grids, both by -1 intervals	Cancels out effects of site's topography on irregularities in the traverse speed.

Once processed, the results are presented as a greyscale plot shown in relation to the site (Fig. 3), followed by a second plan to present the abstraction and interpretation of the magnetic anomalies (Fig. 4). Anomalies are shown as colour-coded lines, points and polygons. The grid layout and georeferencing information (Fig. 2) is prepared in EasyCAD v.7.58.00, producing a .FC7 file format, and printed as a .PDF for inclusion in the final report.

The greyscale plot of the processed data is exported from TerraSurveyor in a georeferenced portable network graphics (.PNG) format, a raster image format chosen for its lossless data compression and support for transparent pixels, enabling it to easily be overlaid onto an existing site plan. The data plot is combined with grid and site plans in QGIS 2.6.1 Brighton and exported again in .PNG format in order to present them in figure templates in Adobe InDesign CS5.5, creating .INDD file formats. Once the figures are finalised they are exported in .PDF format for inclusion within the finished report.

Results

Area 1 (Figs. 5 and 6)

The magnetic data recorded during the survey of Area 1 was affected along its northern and southern boundaries by the fencing and hedgerow that bordered the site in these areas as well as across the whole area by the presence of scattered small trees. Despite these, two sets of positive magnetic anomalies were identified. The first of these **[Fig. 6: 1]**, appears as a weaker positive anomaly encircling a stand of trees. The strength of the anomaly and its irregular shape may indicate the presence of a now in-filled pond. A short distance to the east a series of three positive linear anomalies **[2]** cross the area on an approximate north-south orientation. The defined nature of the anomalies suggest that they represent buried cut features such as sections of ditch, possibly archaeological in origin.

Area 2 (Figs. 5 and 6)

Further positive linear anomalies were located in the north-eastern half of Area 2. A linear anomaly **[3]** extends from the south-eastern boundary towards the north-western corner but, approximately half way along its length, it becomes a lot less well defined, suggesting that it may represent a ditch which becomes eroded or ploughed out towards its north-western end. Crossing this anomaly is a second, much weaker, positive linear anomaly **[4]**, again possibly representing a buried gully or ditch of archaeological origin. In the eastern corner of the area the survey detected a short length of a curvilinear positive anomaly **[5]**, also possibly archaeological in origin. The final set of anomalies recorded for this area are a pair of converging, well-defined positive/negative linear anomalies **[6]** that are most likely caused by a buried services.

Area 3 (Figs. 5 and 6)

This roadside area is only some 10m wide with fences around its borders. The resulting magnetic interference masked all but the central 5m strip making any further anomalies difficult to interpret.

Area 4 (Figs. 7 and 8)

The largest of the six areas surveyed contained several magnetic anomalies which may be of archaeological origin. The first group of these area a series of curvilinear positive anomalies which together form three circular features. The southernmost **[7]** comprises four short stronger anomalies linked by a weaker curvilinear anomaly, the central one **[8]** is a more complete circle similar in nature to **[7]** while the northernmost **[10]** is the most well defined with a strong southern element which becomes weaker around the northern side. These three sets of anomalies most likely represent buried ring ditches with diameters ranging from 10m to 25m. The central ring appears to have a short section of weak positive linear anomaly **[9]** leading from just to the west of its centre out

through its south-western quadrant. All would have been infilled before the agricultural activity disturbed the subsoil at these locations. A second set of positive linear anomalies **[11]** runs perpendicular to **[9]** cutting across curvilinear **[10]** just to the south of its centre point and stretching across the width of Area 4 at this point. Two further positive linear anomalies, again probably representing buried ditches, **[12, 13]** are aligned parallel to **[11]** some 30m to the north, appearing to curve around to the south at their eastern end. Another positive linear anomaly **[14]** cuts across **[13]** at right-angles and runs into the site's northern boundary with several shorter lengths perpendicular to the west **[15]**. The entire eastern half of the site is characterised by a series of parallel positive linear anomalies *c.*10m apart **[16]** which run NNE-SSW across the whole area. These most likely represent infilled linear features, perpendicular and underlying the levelled ridge-and-furrow farming system.

Area 5 (Figs. 7 and 8)

In addition to the positive linear anomalies indicating a continuation of the ridge-and-furrow **[18]**, the survey of Area 5 also recorded a set of curvilinear positive anomalies **[17]**. These are almost aligned with circular anomalies **[7, 8 and 10]** in Area 4 to the north and may well indicate the presence of another buried ring ditch. Large patches of magnetic interference were detected along the area's south-eastern boundary reflecting the presence of lampposts and their connecting cables which lined the road at this point.

Area 6 (Figs. 7 and 8)

The data gathered in Area 6 only revealed the continuation of the ridge-and-furrow **[19]** with no further anomalies of interest identified.

Conclusion

The geophysical survey of the site was undertaken across the majority of the development area although several obstructions were encountered which reduced the area accessible. Despite this, several magnetic anomalies were identified that may represent buried cut features of archaeological origin. These were clearest in Area 4 with a range of linear and curvilinear anomalies possibly indicating the presence of two phases of occupation: a field system and group of ring ditches. The eastern half of the site is also noted for the presence of an array of positive anomalies which indicate that the area was farmed using the ridge-and-furrow method although the earthworks associated with this appear to have been since levelled. A high level of magnetic disturbance was detected along the fence-lines in the areas bordering the road which forms the site's southern boundary. These may have a masking effect on any other anomalies in these locations, particularly Areas 5 and 6.

References

BGS, 1982, *British Geological Survey*, 1:50000, Sheet 201, Solid and Drift Edition, Keyworth

English Heritage, 2008, *Geophysical Survey in Archaeological Field Evaluation*, English Heritage, Portsmouth (2nd edn)

IFA, 2002, *The Use of Geophysical Techniques in Archaeological Evaluation*, IFA Paper No. 6, Reading

IFA, 2011, *Standard and Guidance: for archaeological geophysical survey*, Reading

NPPF, 2012, *National Planning Policy Framework*, Dept Communities and Local Government, London

Oram, R, 2014, 'Land North of Hanwell Fields, Warwick Road, Banbury: Design Brief for Archaeological Field Evaluation', Oxford

Appendix 1. Survey and data information

Programme
Name: TerraSurveyor
Version: 3.0.25.0

Area 1
Raw data
Survey corner coordinates (X/Y):
Northwest corner: 443391.22, 242512.55 m
Southeast corner: 443471.22, 242292.55 m
Direction of 1st Traverse: 352.9075 deg
Collection Method: ZigZag
Sensors: 2 @ 1.00 m spacing.
Dummy Value: 2047.5

Dimensions
Composite Size (readings): 320 x 220
Survey Size (meters): 80 m x 220 m
Grid Size: 20 m x 20 m
X Interval: 0.25 m
Y Interval: 1 m

Stats
Max: 100.00
Min: -100.00
Std Dev: 22.28
Mean: -9.25
Median: -5.94
Composite Area: 1.76 ha
Surveyed Area: 0.7313 ha

Source Grids: 31
1 Col:0 Row:4 grids\31.xgd
2 Col:0 Row:5 grids\32.xgd
3 Col:1 Row:1 grids\21.xgd
4 Col:1 Row:2 grids\22.xgd
5 Col:1 Row:3 grids\23.xgd
6 Col:1 Row:4 grids\24.xgd
7 Col:1 Row:5 grids\25.xgd
8 Col:1 Row:6 grids\26.xgd
9 Col:1 Row:7 grids\27.xgd
10 Col:1 Row:8 grids\28.xgd
11 Col:1 Row:9 grids\29.xgd
12 Col:1 Row:10 grids\30.xgd
13 Col:2 Row:0 grids\09.xgd
14 Col:2 Row:1 grids\10.xgd
15 Col:2 Row:2 grids\11.xgd
16 Col:2 Row:3 grids\12.xgd
17 Col:2 Row:4 grids\13.xgd
18 Col:2 Row:5 grids\14.xgd
19 Col:2 Row:6 grids\15.xgd
20 Col:2 Row:7 grids\16.xgd
21 Col:2 Row:8 grids\18.xgd
22 Col:2 Row:9 grids\19.xgd
23 Col:2 Row:10 grids\20.xgd
24 Col:3 Row:0 grids\01.xgd
25 Col:3 Row:1 grids\02.xgd
26 Col:3 Row:2 grids\03.xgd
27 Col:3 Row:3 grids\04.xgd
28 Col:3 Row:4 grids\05.xgd
29 Col:3 Row:5 grids\06.xgd
30 Col:3 Row:6 grids\07.xgd
31 Col:3 Row:7 grids\08.xgd

Processed data
Stats
Max: 10.00
Min: -10.00
Std Dev: 5.39
Mean: 0.11
Median: 0.01

Processes: 6
1 Base Layer
2 Search & Replace From: 30 To: 1000 With: Dummy
3 Search & Replace From: -1000 To: -30 With: Dummy
4 DeStripe Median Sensors: All
5 De Stagger: Grids: All Mode: Both By: -1 intervals
6 Clip from -10.00 to 10.00 nT

Area 2
Raw data
Survey corner coordinates (X/Y):
Northwest corner: 443656.7, 242559.52 m
Southeast corner: 443736.7, 242439.52 m
Direction of 1st Traverse: 345.8305 deg
Collection Method: ZigZag
Sensors: 2 @ 1.00 m spacing.
Dummy Value: 2047.5

Dimensions
Composite Size (readings): 320 x 120
Survey Size (meters): 80 m x 120 m
Grid Size: 20 m x 20 m
X Interval: 0.25 m
Y Interval: 1 m

Stats
Max: 100.00
Min: -100.00
Std Dev: 13.43
Mean: -3.79
Median: -3.01
Composite Area: 0.96 ha
Surveyed Area: 0.4985 ha

Source Grids: 20
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2 Col:0 Row:1 grids\02.xgd
3 Col:0 Row:2 grids\03.xgd
4 Col:0 Row:3 grids\04.xgd
5 Col:0 Row:4 grids\05.xgd
6 Col:0 Row:5 grids\06.xgd
7 Col:1 Row:0 grids\07.xgd
8 Col:1 Row:1 grids\08.xgd
9 Col:1 Row:2 grids\09.xgd
10 Col:1 Row:3 grids\10.xgd
11 Col:1 Row:4 grids\11.xgd
12 Col:1 Row:5 grids\12.xgd
13 Col:2 Row:0 grids\13.xgd
14 Col:2 Row:1 grids\14.xgd
15 Col:2 Row:2 grids\15.xgd
16 Col:2 Row:3 grids\16.xgd
17 Col:2 Row:4 grids\17.xgd
18 Col:3 Row:1 grids\18.xgd
19 Col:3 Row:2 grids\19.xgd
20 Col:3 Row:3 grids\20.xgd

Processed data
Stats
Max: 10.00
Min: -10.00
Std Dev: 4.03
Mean: 0.06
Median: 0.00

Processes: 6
1 Base Layer
2 Search & Replace From: -4000 To: -30 With: Dummy
3 Search & Replace From: 30 To: 4000 With: Dummy
4 DeStripe Median Sensors: All
5 De Stagger: Grids: All Mode: Both By: -1 intervals
6 Clip from -10.00 to 10.00 nT

Area 3

Raw data

Survey corner coordinates (X/Y):
Northwest corner: 443789.28, 242613.27 m
Southeast corner: 443829.28, 242513.27 m
Direction of 1st Traverse: 165.2764 deg
Collection Method: ZigZag
Sensors: 2 @ 1.00 m spacing.
Dummy Value: 2047.5

Dimensions
Composite Size (readings): 160 x 100
Survey Size (meters): 40 m x 100 m
Grid Size: 20 m x 20 m
X Interval: 0.25 m
Y Interval: 1 m

Stats
Max: 100.00
Min: -100.00
Std Dev: 38.38
Mean: -28.26
Median: -11.85
Composite Area: 0.4 ha
Surveyed Area: 0.0912 ha

Source Grids: 7
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3 Col:1 Row:0 grids\02.xgd
4 Col:1 Row:1 grids\04.xgd
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6 Col:1 Row:3 grids\06.xgd
7 Col:1 Row:4 grids\07.xgd

Processed data

Stats
Max: 10.00
Min: -10.00
Std Dev: 6.22
Mean: 0.23
Median: 0.59

Processes: 6
1 Base Layer
2 Search & Replace From: 30 To: 1000 With: Dummy
3 Search & Replace From: -1000 To: -30 With: Dummy
4 DeStripe Median Sensors: All
5 De Stagger: Grids: All Mode: Both By: -2 intervals
6 Clip from -10.00 to 10.00 nT

Area 4

Raw data

Survey corner coordinates (X/Y):
Northwest corner: 444026.49, 242578.61 m
Southeast corner: 444266.49, 242298.61 m
Direction of 1st Traverse: 277.3969 deg
Collection Method: ZigZag
Sensors: 2 @ 1.00 m spacing.
Dummy Value: 2047.5

Dimensions
Composite Size (readings): 960 x 280
Survey Size (meters): 240 m x 280 m
Grid Size: 20 m x 20 m
X Interval: 0.25 m
Y Interval: 1 m

Stats
Max: 100.00
Min: -100.00
Std Dev: 17.23
Mean: -3.54
Median: -0.55
Composite Area: 6.72 ha
Surveyed Area: 2.705 ha

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94 Col:11 Row:11 grids\10.xgd

Processed data
Stats
Max: 10.00
Min: -10.00
Std Dev: 4.26
Mean: 0.15
Median: 0.00

Processes: 6
1 Base Layer
2 Search & Replace From: 30 To: 1000 With: Dummy
3 Search & Replace From: -1000 To: -30 With: Dummy
4 DeStripe Median Sensors: All
5 De Stagger: Grids: All Mode: Both By: -2 intervals
6 Clip from -10.00 to 10.00 nT

Area 5
Raw data
Survey corner coordinates (X/Y):
Northwest corner: 443783.95, 242573.89 m
Southeast corner: 443823.95, 242373.89 m
Direction of 1st Traverse: 328.4316 deg
Collection Method: ZigZag
Sensors: 2 @ 1.00 m spacing.
Dummy Value: 2047.5

Dimensions
Composite Size (readings): 160 x 200
Survey Size (meters): 40 m x 200 m
Grid Size: 20 m x 20 m
X Interval: 0.25 m
Y Interval: 1 m

Stats
Max: 100.00
Min: -100.00
Std Dev: 38.15
Mean: -29.60
Median: -12.73
Composite Area: 0.8 ha
Surveyed Area: 0.2956 ha

Source Grids: 18
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3 Col:0 Row:2 grids\99.xgd
4 Col:0 Row:3 grids\100.xgd
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6 Col:0 Row:5 grids\102.xgd
7 Col:0 Row:6 grids\103.xgd
8 Col:0 Row:7 grids\104.xgd
9 Col:0 Row:8 grids\105.xgd
10 Col:0 Row:9 grids\106.xgd
11 Col:1 Row:1 grids\107.xgd
12 Col:1 Row:2 grids\108.xgd
13 Col:1 Row:3 grids\109.xgd
14 Col:1 Row:4 grids\110.xgd
15 Col:1 Row:5 grids\111.xgd
16 Col:1 Row:6 grids\112.xgd
17 Col:1 Row:7 grids\113.xgd
18 Col:1 Row:8 grids\114.xgd

Processed data
Stats
Max: 10.00
Min: -10.00
Std Dev: 6.02
Mean: 0.11
Median: 0.03

Processes: 6
1 Base Layer
2 Search & Replace From: 30 To: 1000 With: Dummy
3 Search & Replace From: -1000 To: -30 With: Dummy
4 DeStripe Median Sensors: All
5 De Stagger: Grids: All Mode: Both By: -1 intervals
6 Clip from -10.00 to 10.00 nT

Area 6
Raw data
Survey corner coordinates (X/Y):
Northwest corner: 443987.34, 242567.32 m
Southeast corner: 444127.34, 242367.32 m
Direction of 1st Traverse: 330.7778 deg
Collection Method: ZigZag
Sensors: 2 @ 1.00 m spacing.
Dummy Value: 2047.5

Dimensions
Composite Size (readings): 560 x 200
Survey Size (meters): 140 m x 200 m
Grid Size: 20 m x 20 m
X Interval: 0.25 m
Y Interval: 1 m

Stats
Max: 100.00
Min: -100.00
Std Dev: 30.83
Mean: -16.64
Median: -8.88
Composite Area: 2.8 ha
Surveyed Area: 0.4277 ha

Source Grids: 27
1 Col:0 Row:9 grids\28.xgd
2 Col:1 Row:8 grids\26.xgd
3 Col:1 Row:9 grids\27.xgd
4 Col:2 Row:7 grids\23.xgd
5 Col:2 Row:8 grids\24.xgd
6 Col:2 Row:9 grids\25.xgd
7 Col:3 Row:7 grids\21.xgd
8 Col:3 Row:8 grids\22.xgd
9 Col:4 Row:6 grids\18.xgd
10 Col:4 Row:7 grids\19.xgd
11 Col:4 Row:8 grids\20.xgd
12 Col:5 Row:0 grids\09.xgd
13 Col:5 Row:1 grids\10.xgd
14 Col:5 Row:2 grids\11.xgd
15 Col:5 Row:3 grids\13.xgd
16 Col:5 Row:4 grids\14.xgd
17 Col:5 Row:5 grids\15.xgd
18 Col:5 Row:6 grids\16.xgd
19 Col:5 Row:7 grids\17.xgd
20 Col:6 Row:0 grids\01.xgd
21 Col:6 Row:1 grids\02.xgd
22 Col:6 Row:2 grids\03.xgd
23 Col:6 Row:3 grids\04.xgd
24 Col:6 Row:4 grids\05.xgd
25 Col:6 Row:5 grids\06.xgd
26 Col:6 Row:6 grids\07.xgd
27 Col:6 Row:7 grids\08.xgd

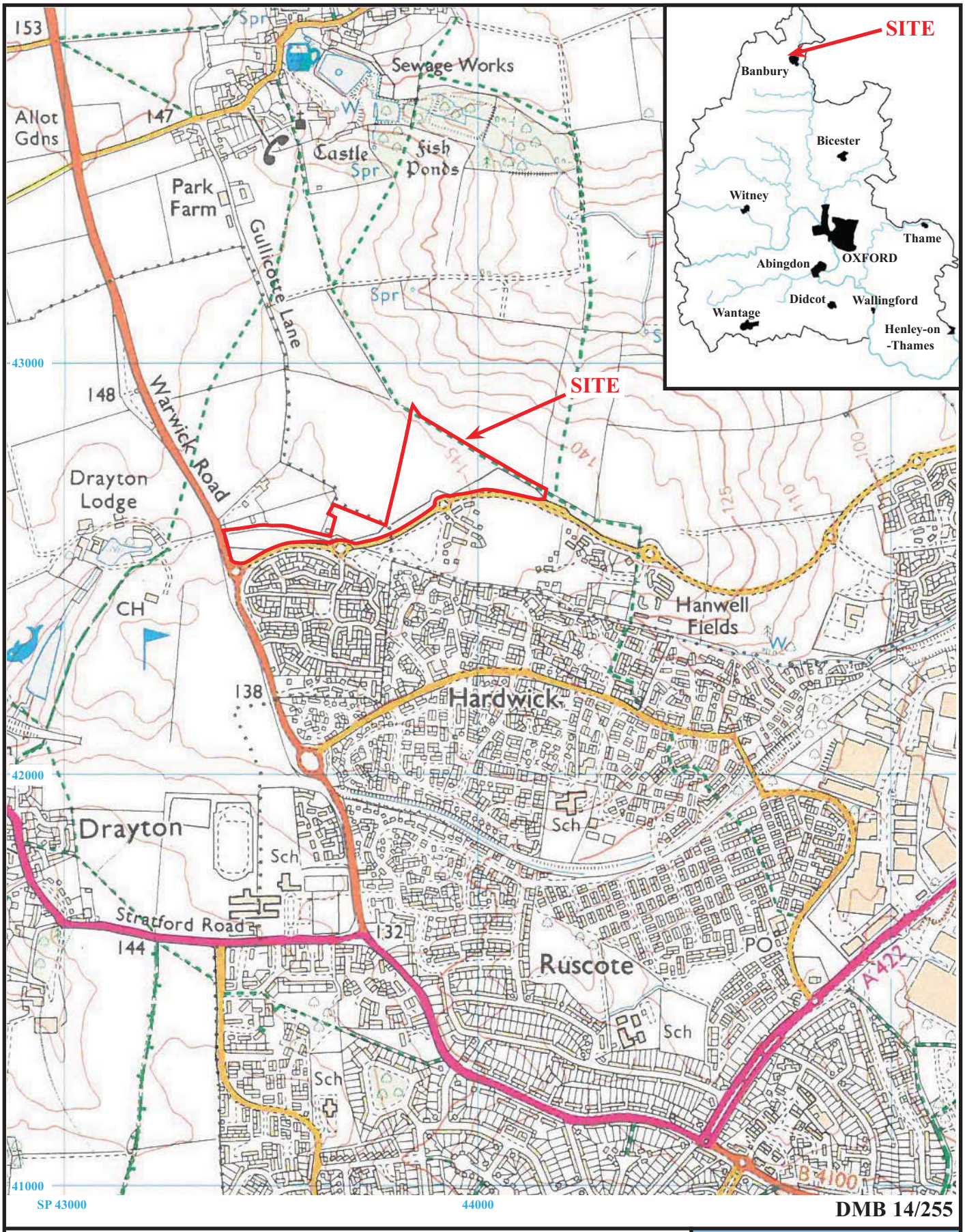
Processed data

Stats

Max:	10.00
Min:	-10.00
Std Dev:	5.12
Mean:	0.07
Median:	0.01

Processes: 6

1 Base Layer
2 Search & Replace From: 30 To: 1000 With: Dummy
3 Search & Replace From: -1000 To: -30 With: Dummy
4 DeStripe Median Sensors: All
5 De Stagger: Grids: All Mode: Both By: -1 intervals
6 Clip from -10.00 to 10.00 nT



DMB 14/255

Land adjacent to Dukes Meadow Drive,
Banbury, Oxfordshire, 2015
Geophysical Survey (Magnetic)

Figure 1. Location of site within Banbury and Oxfordshire

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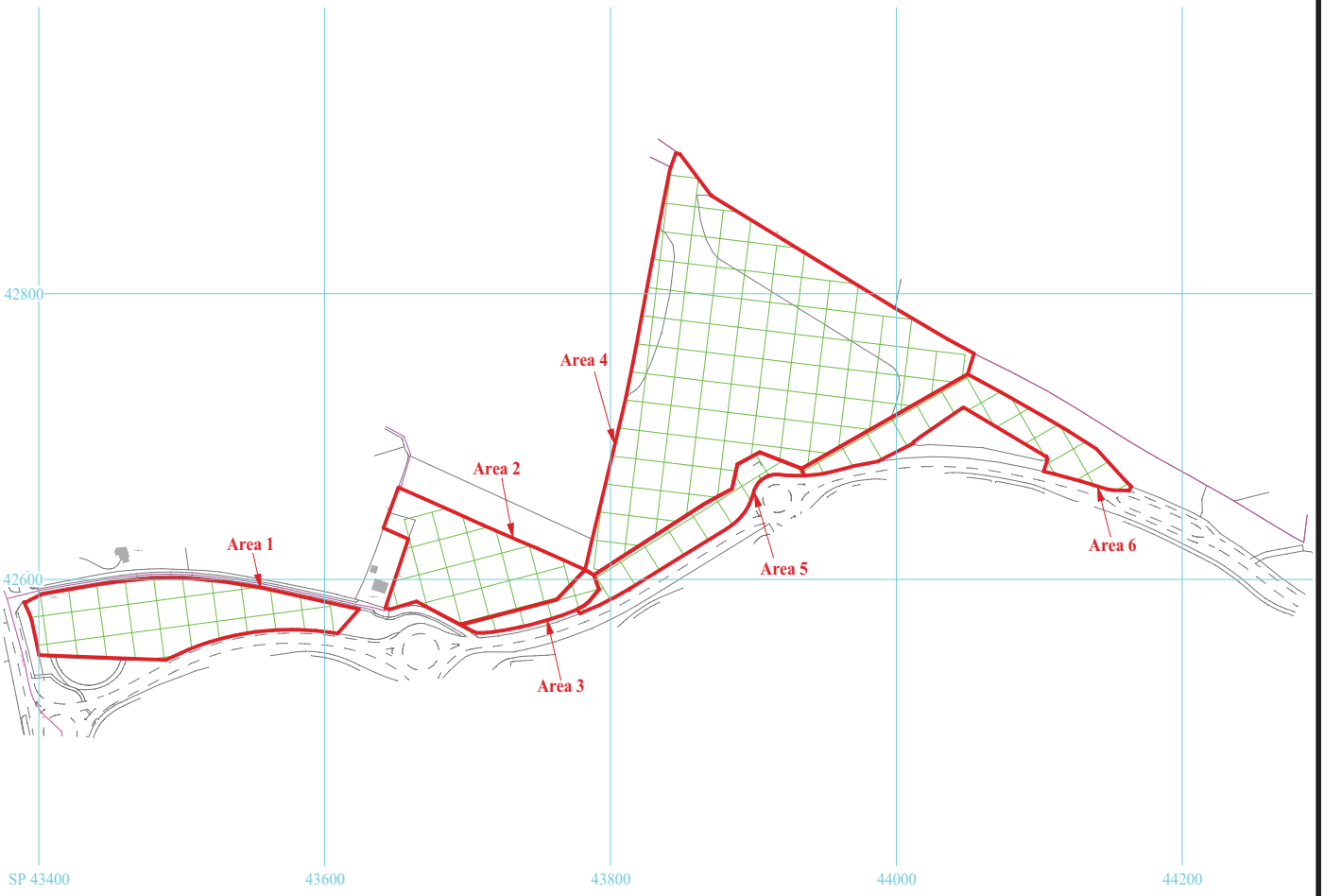

DMB 14/255

N

Land adjacent to Dukes Meadow Drive, Banbury, Oxfordshire, 2015 Geophysical Survey (Magnetic)

Figure 2. Survey grid layout.

0 50m

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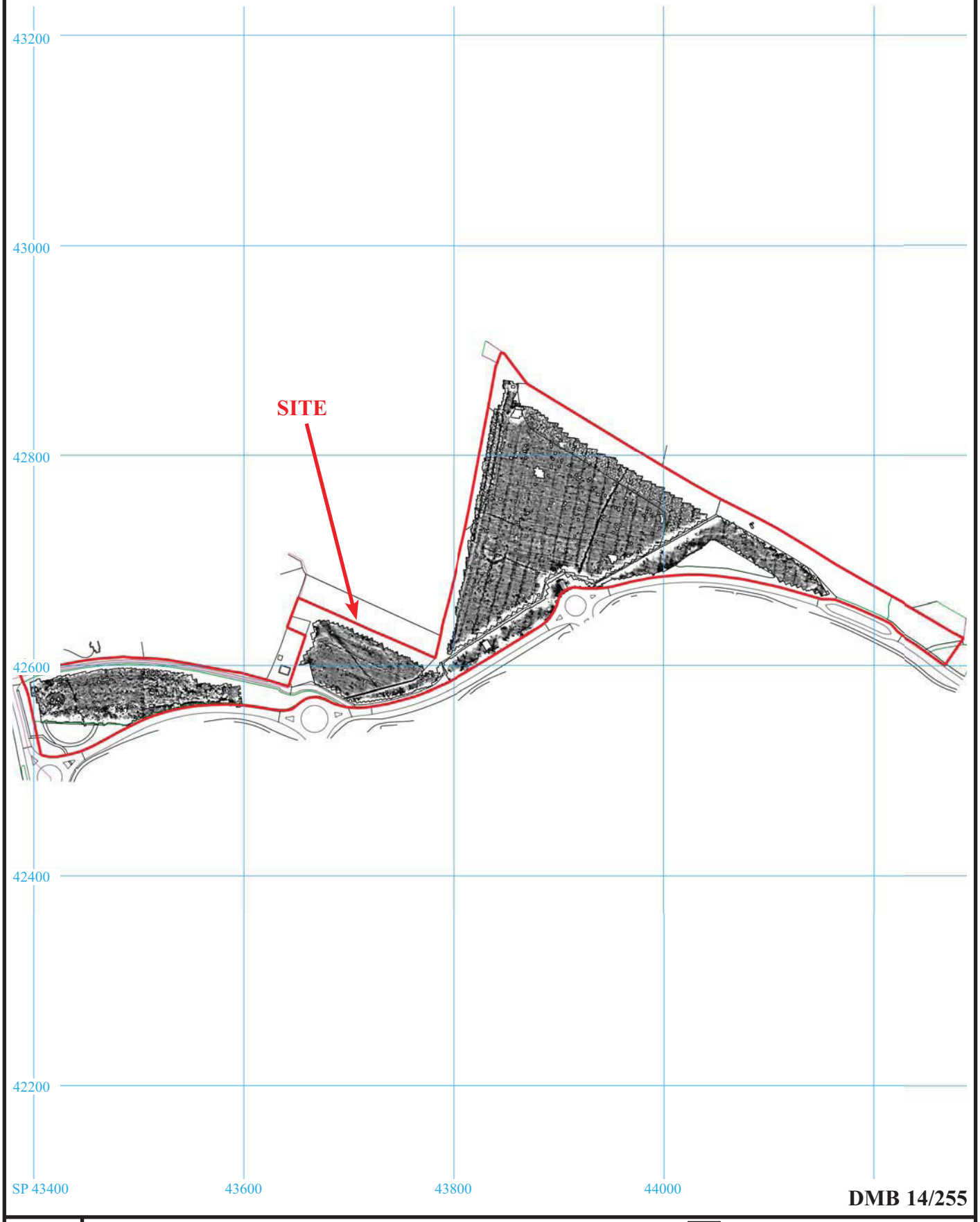

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N

Land adjacent to Dukes Meadow Drive, Banbury, Oxfordshire, 2015
Geophysical Survey (Magnetic)

Figure 3. Plot of minimally processed gradiometer data.

0m 200m

+10 nT

-10 nT

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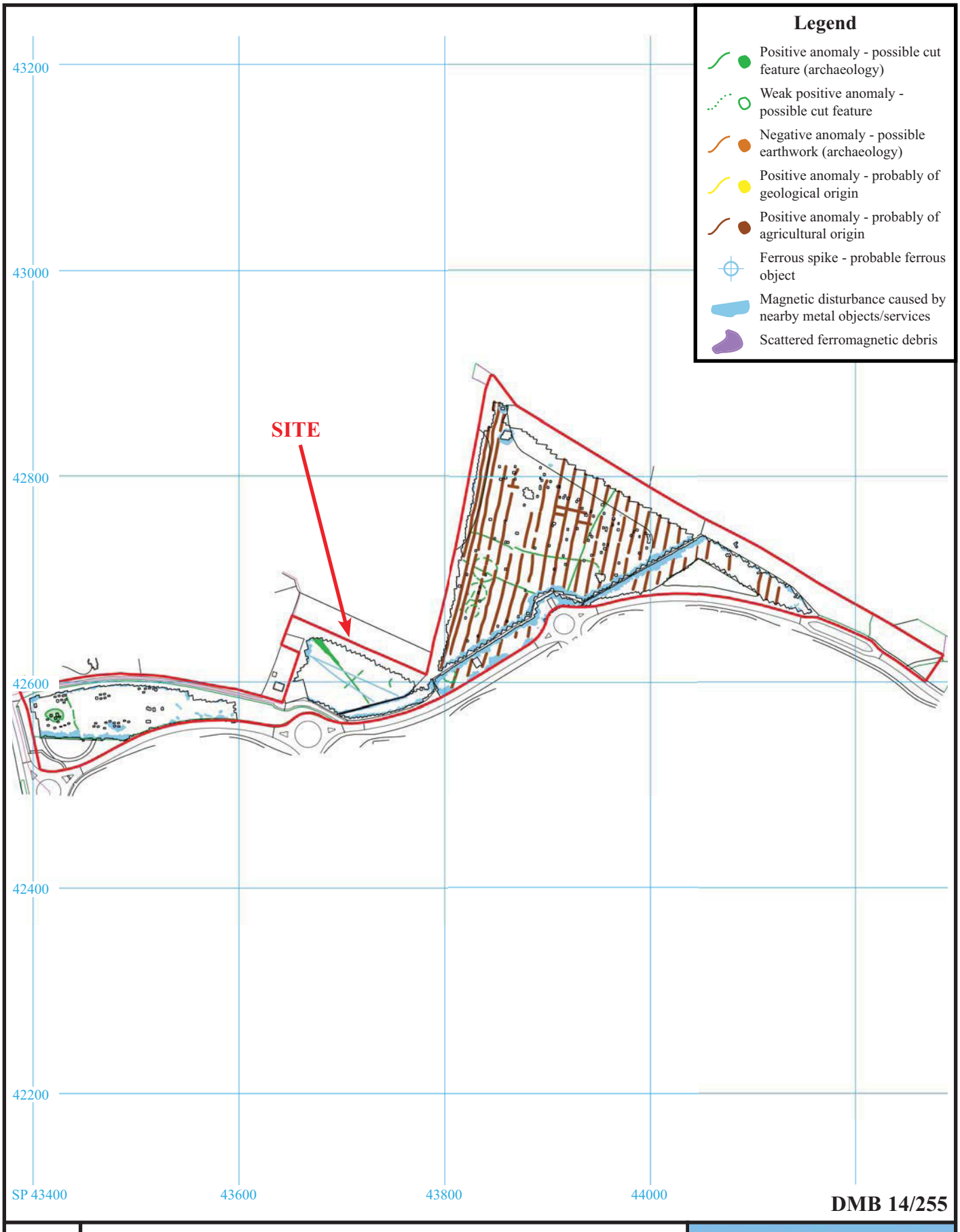

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Geophysical Survey (Magnetic)

Figure 4. Interpretation plot.

0m 200m

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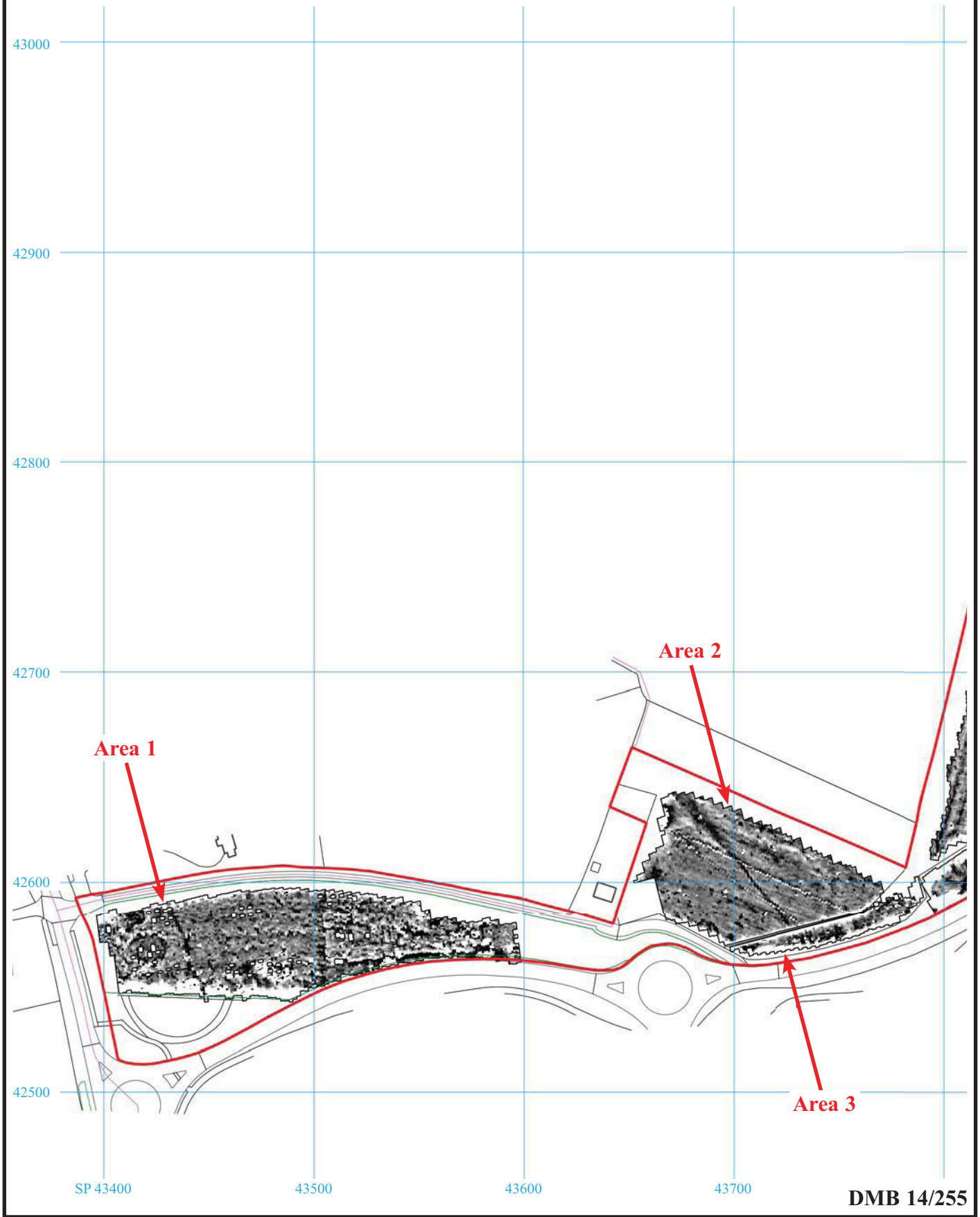

N

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Geophysical Survey (Magnetic)

Figure 5. Plot of minimally processed gradiometer data. Western areas.

0m 100m

+10 nT

-10 nT

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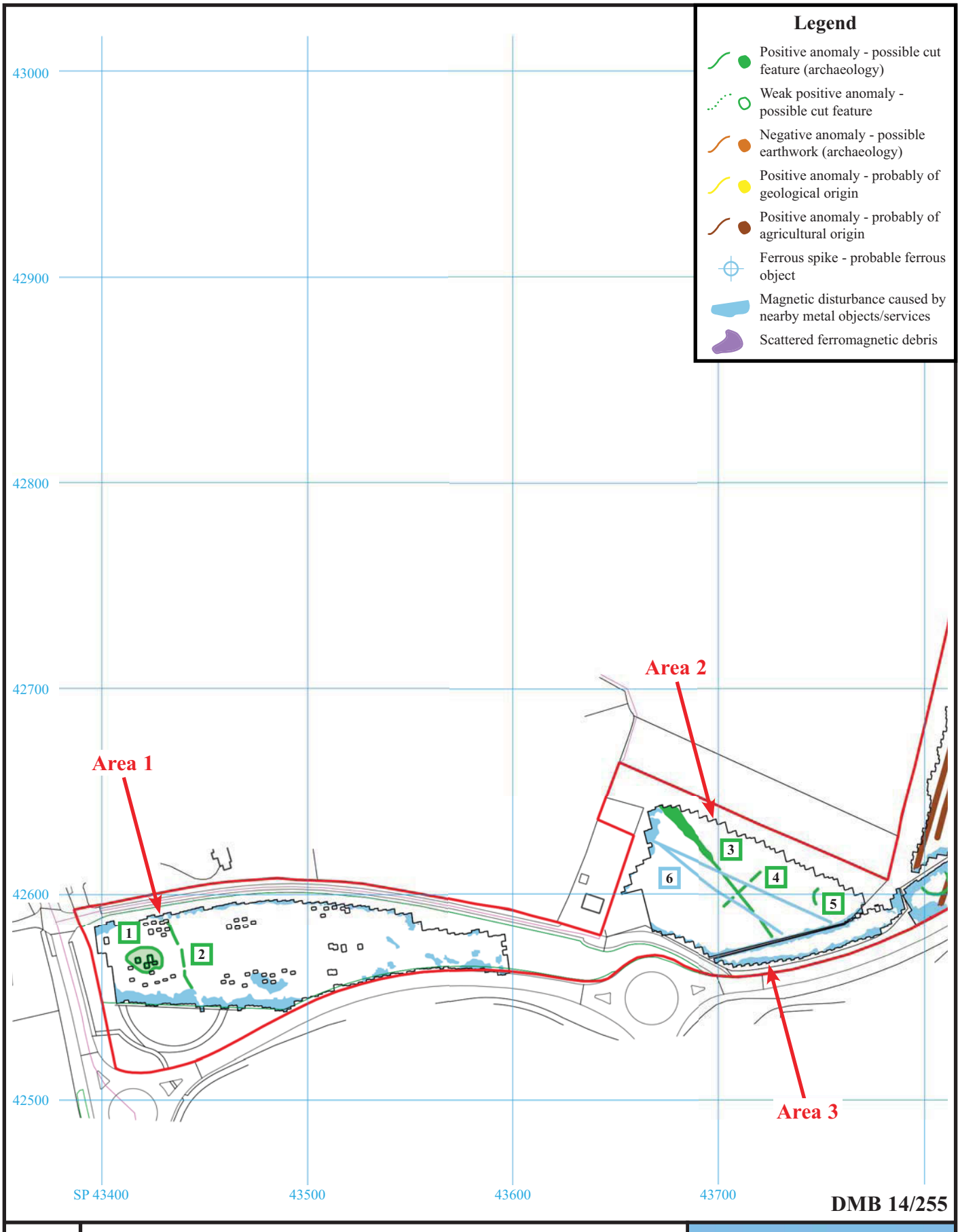

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Geophysical Survey (Magnetic)

Figure 6. Interpretation plot. Western areas.

0m 100m

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Geophysical Survey (Magnetic)

Figure 7. Plot of minimally processed gradiometer data. Eastern areas.

0m 100m

+10 nT
-10 nT

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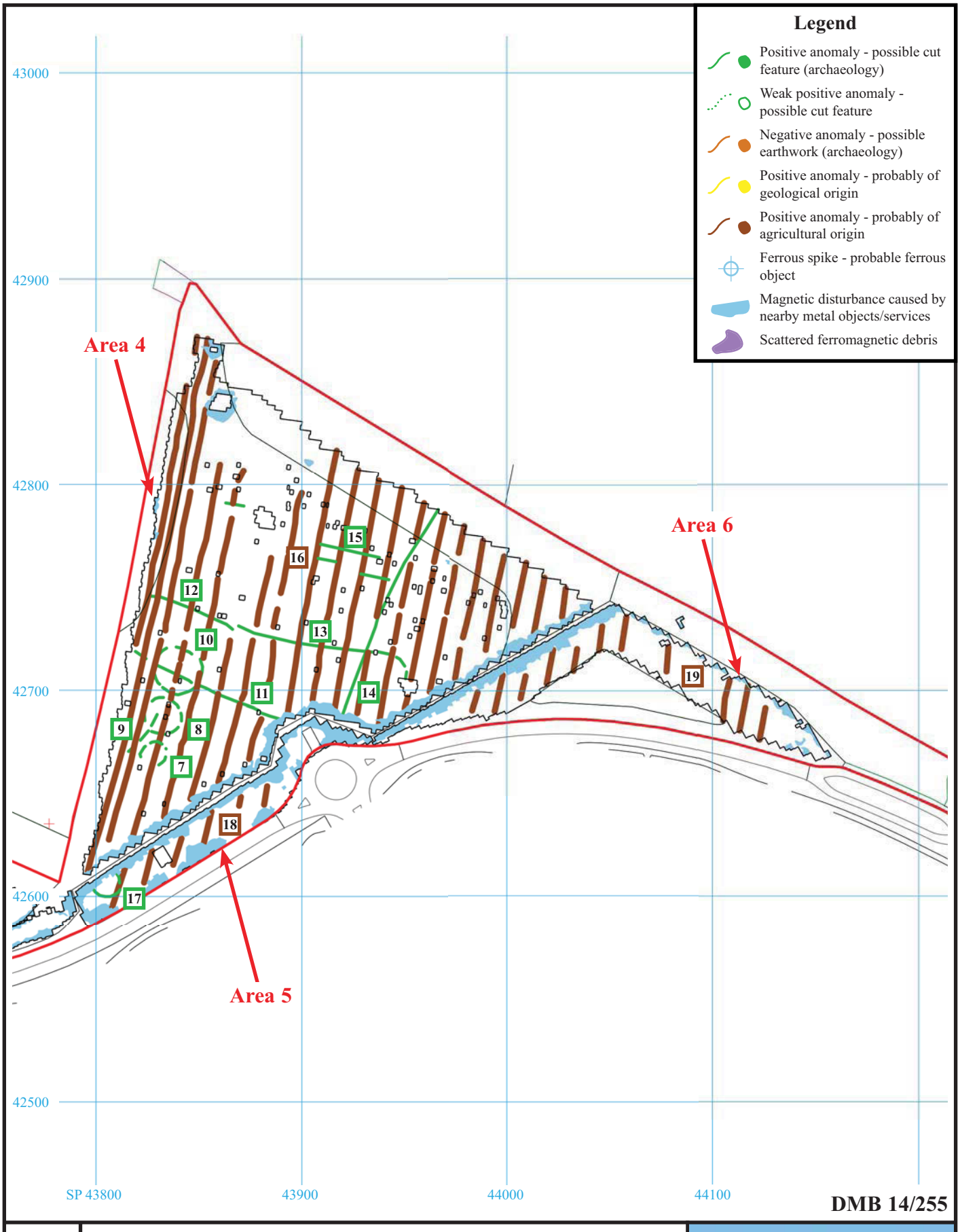

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Figure 8. Interpretation plot. Eastern areas.

0m 100m

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Plate 1. Area 1, looking west towards semi-circular pond.

Plate 2. Area 2, looking east along north-eastern boundary.

Plate 3. Area 3, looking south-west.

Plate 4. Area 4, north-east along south-eastern boundary.

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Land adjacent to Dukes Meadow Drive,
Banbury, Oxfordshire, 2015
Geophysical Survey (Magnetic)
Plates 1 - 4.

THAMES VALLEY
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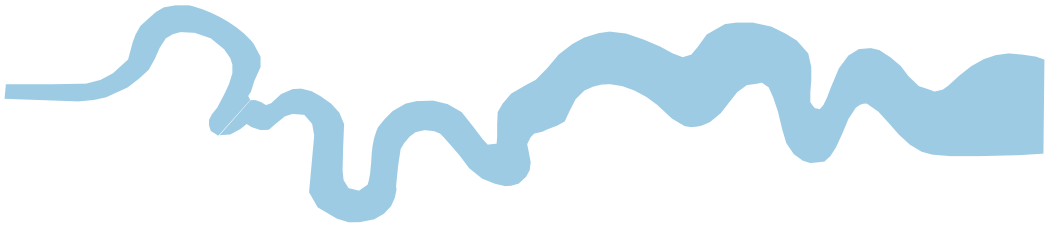
Plate 5. Area 4, looking south-east past the smouldering remains of the bonfire.

Plate 6. Area 5, looking north-east.

Plate 7. Area 6, looking south-west along north-western boundary.

TIME CHART

	Calendar Years
Modern	AD 1901
Victorian	AD 1837
Post Medieval	AD 1500
Medieval	AD 1066
Saxon	AD 410
Roman	AD 43
Iron Age	BC/AD 750 BC
Bronze Age: Late	1300 BC
Bronze Age: Middle	1700 BC
Bronze Age: Early	2100 BC
Neolithic: Late	3300 BC
Neolithic: Early	4300 BC
Mesolithic: Late	6000 BC
Mesolithic: Early	10000 BC
Palaeolithic: Upper	30000 BC
Palaeolithic: Middle	70000 BC
Palaeolithic: Lower	2,000,000 BC



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