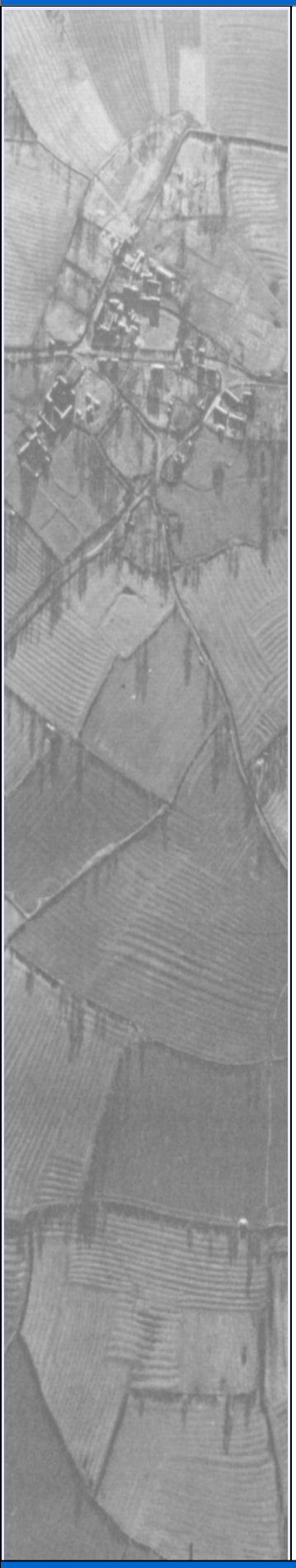

Denton Lodge
Denton
Northamptonshire

MAGNETOMETER SURVEY REPORT

for

CgMs Consulting

David Sabin and Kerry Donaldson

January 2015

Ref. no. 582

Northamptonshire HER Event UID: ENN107840

OASIS ID: archaeol20-209815

ARCHAEOLOGICAL SURVEYS LTD

Denton Lodge
Denton
Northamptonshire

Magnetometer Survey Report

for

CgMs Consulting

Fieldwork by David Sabin
Report by David Sabin BSc (Hons) MIFA and Kerry Donaldson BSc (Hons)

Survey date – 12th December 2014
Ordnance Survey Grid Reference – **SP 82978 56999**

Northamptonshire HER Event UID: ENN107840
OASIS ID: archaeol20-209815

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SUMMARY

A detailed magnetometry survey was carried out at Denton Lodge, Denton near Northampton, by Archaeological Surveys Ltd at the request of CgMs Consulting. The survey covered a 1ha block centred on the proposed location of a single wind turbine. An approximately 30m wide corridor was also surveyed over accessible areas of the proposed access track. The results reveal a small number of weakly positive anomalies that lack definition and cannot be confidently interpreted as cut features. A number of series of parallel linear anomalies relate to ridge and furrow and land drainage.

1 INTRODUCTION

1.1 Survey background

1.1.1 Archaeological Surveys Ltd was commissioned by CgMs Consulting, on behalf of Capture Energy, to undertake a magnetometer survey of an area of land at Denton Lodge near Denton in Northamptonshire. The site has been outlined for a proposed development of a single wind turbine and associated access track, and the survey forms part of an archaeological assessment of the site.

1.1.2 The geophysical survey was carried out in accordance with a Written Scheme of Investigation (WSI) produced by Archaeological Surveys (2014) and approved by Liz Mordue, Assistant Archaeological Advisor for Northamptonshire County Council. Northamptonshire Historic Environment Record Event UID ENN107840 has been issued for the survey.

1.2 Survey objectives and techniques

1.2.1 The objective of the survey was to use magnetometry to locate geophysical anomalies that may be archaeological in origin so that they may be assessed prior to development of the site. The methodology is considered an efficient and effective approach to archaeological prospection.

1.2.2 The survey and report generally follow the recommendations set out by: English Heritage (2008) *Geophysical survey in archaeological field evaluation;* and Institute for Archaeologists (2002) *The use of Geophysical Techniques in Archaeological Evaluations*. The work has been carried out to the Institute for Archaeologists (2011) *Standard and Guidance for Archaeological Geophysical Survey.*

1.3 Site location, description and survey conditions

1.3.1 The site is located at 1km south west of Denton and 4km south east of Northampton. The wind turbine is centred on Ordnance Survey National Grid

Reference (OS NGR) SP 82978 56999, see Figures 01 and 02.

1.3.2 The geophysical survey covers approximately 2.5ha, with 1ha centred on the turbine and an approximately 30m wide strip leading to the north east and east along the proposed route of the access track. The most eastern extent of the track was not suitable for survey as the ground was very boggy and waterlogged.

1.3.3 The ground conditions across the site were variable and frequently poor due to heavy rainfall prior to and during the survey period. The presence of sheep and cattle had produced localised zones of very boggy ground, particularly in the vicinity of gateways and feeding areas along the route of the access track.

1.4 Site history and archaeological potential

1.4.1 The turbine location lies close to a number cropmark sites recorded on the Northamptonshire Historic Environment Record (HER). These include a number of Iron Age/Roman enclosures and settlements within a 650m radius. Extant ridge and furrow is located within a separate field 100m to the south of the turbine and within another field to the north of the eastern extent of the access track.

1.4.2 The location of several Iron Age/Romano-British sites within the vicinity may indicate potential for the site to also contain archaeological remains. Former ridge and furrow is also likely.

1.5 Geology and soils

1.5.1 The underlying solid geology across the site is Blisworth Limestone Formation overlain by Diamicton (poorly sorted chalky till) from the Oadby Member (BGS, 2014).

1.5.2 The overlying soil across the survey area is from the Ashley association and is a stagnogleyic argillic brown earth. It consists of a fine, loamy over clayey soil with slowly permeable subsoil (Soil Survey of England and Wales, 1983).

1.5.3 Magnetometry survey carried out across similar soils has produced good results, although there can be at times poor contrast between the fill of cut features and the material into which they are cut. The underlying geology and soils are therefore considered acceptable for magnetic survey.

2 METHODOLOGY

2.1 Technical synopsis

2.1.1 Magnetometry survey records localised magnetic fields that can be associated

with features formed by human activity. Magnetic susceptibility and magnetic thermoremnance are factors associated with the formation of localised fields. Additional details are set out below and within Appendix A.

2.1.2 Iron minerals within the soil may become altered by burning and the break down of biological material; effectively the magnetic susceptibility of the soil is increased, and the iron minerals become magnetic in the presence of the Earth's magnetic field. Accumulations of magnetically enhanced soils within features, such as pits and ditches, may produce magnetic anomalies that can be mapped by magnetic prospection.

2.1.3 Magnetic thermoremnance can occur when ferrous minerals have been heated to high temperatures such as in a kiln, hearth, oven etc. On cooling, a permanent magnetisation may be acquired due to the presence of the Earth's magnetic field. Certain natural processes associated with the formation of some igneous and metamorphic rock may also result in magnetic thermoremnance.

2.1.4 The localised variations in magnetism are measured as sub-units of the Tesla, which is a SI unit of magnetic flux density. These sub-units are nano Teslas (nT), which are equivalent to 10^{-9} Tesla (T).

2.2 Equipment configuration, data collection and survey detail

2.2.1 The detailed magnetic survey was carried out using a SENSYS MAGNETO®MXPDA 5 channel cart-based system. The instrument has 5 fluxgate gradiometers spaced 0.5m apart with readings recorded at 20 Hz. The gradiometers have a range of recording data between 0.1nT and 10,000nT. They are linked to a Leica GS10 RTK GPS with data recorded by SENSYS MAGNETO®MXPDA software on a rugged PDA computer system.

2.2.2 Data are collected along a series of parallel survey transects wherever possible. The length of each transect is variable and relates to the size of the survey area and other factors including ground conditions. A visual display allows accurate placing of transects and helps maintain the correct separation between adjacent traverses.

2.3 Data processing and presentation

2.3.1 Magnetic data collected by the MAGNETO®MXPDA cart-based system are initially prepared SENSYS MAGNETO®DLMGPS software. Georeferenced raw data are then exported in ASCII format for further analysis and display using TerraSurveyor.

2.3.2 The data are collected at ±10000nT and clipped for display at ±10nT. A zero median traverse is applied to balance the readings between the 5 sensors. Data are resampled to a resolution of effectively 0.5m between tracks and 0.15m along each survey track. Appendix C contains specific information concerning the survey and data attributes and is derived directly from

TerraSurveyor. Reference should be made to Appendix B for further information on any processes carried out on the data.

2.3.3 A TIFF file (OSGB36) is produced by TerraSurveyor software along with an associated world file (.TFW) that allows automatic georeferencing when using GIS or CAD software. The main form of data display used in the report is the minimally processed greyscale plot.

2.3.4 The raster images are combined with base mapping using ProgeCAD Professional 2014 and AutoCAD LT 2007, creating DWG file formats. All images are externally referenced to the CAD drawing in order to maintain good graphical quality.

2.3.5 An abstraction and interpretation is offered for all geophysical anomalies located by the survey. A brief summary of each anomaly, with an appropriate reference number, is set out in list form within the results (Section 3) to allow a rapid and objective assessment of features within each survey area. Anomalies are abstracted using colour coded points, lines and polygons. All plots are scaled to landscape A3 for paper printing.

2.3.6 A digital archive is produced with this report, see Appendix D below. The main archive is held at the offices of Archaeological Surveys Ltd.

3 RESULTS

3.1 General assessment of survey results

3.1.1 The detailed magnetic survey was carried out over approximately 2.5ha. Approximately 1ha was centred on the turbine with 1.5ha surveyed within a 30m wide corridor extending to the north east and east along the proposed access route.

3.1.2 Magnetic anomalies located can be generally classified as: positive anomalies of an uncertain origin, anomalies associated with land management, linear anomalies of an agricultural origin, areas of magnetic debris and strong discrete dipolar anomalies relating to ferrous objects. Anomalies located within each survey area have been numbered and are described in 3.4 below.

3.2 Statement of data quality

3.2.1 Data are considered representative of the magnetic anomalies present within the site. There are no significant defects within the dataset.

3.3 Data interpretation

3.3.1 The list of sub-headings below attempts to define a number of separate

categories that reflect the range and type of features located during the survey. A basic explanation of the characteristics of the magnetic anomalies is set out for each category in order to justify interpretation, a basic key is indicated to allow cross referencing to the abstraction and interpretation plot. CAD layer names are included to aid reference to associated digital files (.dwg/.dxf). Sub-headings are then used to group anomalies with similar characteristics.

Report sub-heading CAD layer names and plot colour	Description and origin of anomalies
Anomalies with an uncertain origin AS-ABST MAG POS LINEAR UNCERTAIN AS-ABST MAG POS DISCRETE UNCERTAIN 	The category applies to a range of anomalies where there is not enough evidence to confidently suggest an origin. Anomalies in this category may well be related to archaeologically significant features, but equally relatively modern features, geological/pedological features and agricultural features should be considered. Positive anomalies are indicative of magnetically enhanced soils that may form the fill of 'cut' features or may be produced by accumulation within layers or 'earthwork' features; soils subject to burning may also produce positive anomalies.
Anomalies relating to land management AS-ABST MAG LAND DRAIN 	Land drains can appear in a classic herringbone pattern of interconnected linear anomalies, or as parallel linear anomalies.
Anomalies with an agricultural origin AS-ABST MAG RIDGE AND FURROW 	The anomalies are often linear and form a series of parallel responses or are parallel to extant land boundaries. Where the response is broad, former ridge and furrow is likely; narrow response is often related to modern ploughing.
Anomalies associated with magnetic debris AS-ABST MAG DEBRIS AS-ABST MAG STRONG DIPOLAR 	Magnetic debris often appears as areas containing many small dipolar anomalies that may range from weak to very strong in magnitude. It often occurs where there has been dumping or ground make-up and is related to magnetically thermoremnant materials such as brick or tile or other small fragments of ferrous material. This type of response is occasionally associated with kilns, furnace structures, or hearths and may therefore be archaeologically significant. It is also possible that the response may be caused by natural material such as certain gravels and fragments of igneous or metamorphic rock. Strong discrete dipolar anomalies are responses to ferrous objects within the topsoil.
Anomalies with a modern origin AS-ABST MAG DISTURBANCE 	The magnetic response is often strong and dipolar indicative of ferrous material and may be associated with extant above surface features such as wire fencing, cables, pylons etc.. Often a significant area around such features has a strong magnetic flux which may create magnetic disturbance; such disturbance can effectively obscure low magnitude anomalies if they are present. Fluxgate sensors may respond erratically and with hysteresis adjacent to strong magnetic sources. Buried services may produce characteristic multiple dipolar anomalies dependant upon their construction.

Table 1: List and description of interpretation categories

3.4 List of anomalies

Turbine centred on OS NGR 482978 256999, see Figures 03 & 04.

Anomalies with an uncertain origin

(1) – A small group of weakly positive linear and possible curvilinear anomalies are located in the south western part of the survey area. Their weak (<1nT) and indistinct response prevents confident interpretation.

(2) – A weakly positive linear anomaly is located to the east of anomalies (1) and may be associated. It is not generally parallel with any of the linear anomalies associated with land drainage (5) or ridge and furrow (6-8) and it is possible that it relates to a cut, ditch-like feature.

(3) – A weakly positive linear anomaly is located to the south west of anomalies (1). Although it may relate to a cut, ditch-like feature, it is parallel with ridge and furrow (8) to the north and an agricultural origin should be considered.

(4) – The survey area contains a small number of discrete positive responses that may indicate isolated pit-like features.

Anomalies associated with land management

(5) – Parallel positive linear anomalies are oriented north west to south east and can be seen within the 1ha block centred on the turbine. They are not parallel with any former ridge and furrow and are likely to relate to land drains.

Anomalies with an agricultural origin

(6) – A series of parallel linear anomalies are located in the far western part of the survey area and are oriented north to south. These relate to former ridge and furrow.

(7) – A series of parallel linear anomalies, oriented west north west to east south east are located in the south eastern part of the 1ha turbine block and also relate to ridge and furrow.

(8) – A series of parallel linear anomalies located in the northern part of the 1ha turbine block and into the north western part of the access route relate to ridge and furrow.

(9) – Located in the central part of the access route are a number of linear anomalies parallel with the northern field boundary that are also associated with former ridge and furrow.

(10) – In the eastern section of the access route are a number of parallel linear anomalies oriented east to west which relate to former ridge and furrow.

Anomalies associated with magnetic debris

(11) – A zone of magnetic debris is evident in within the easternmost part of the

survey area and this is a response to magnetically thermoremnant material used to consolidate the existing access track. This material has also been dumped away from the main line of the track.

(12) – A patch of magnetic debris is located at the northern edge of the north western part of the access route. It is possible that it also relates to consolidation material.

(13) – The site contains numerous and widespread strong, discrete, dipolar anomalies which are a response to ferrous and other magnetically thermoremnant objects within the topsoil.

Anomalies with a modern origin

(14) – A zone of magnetic disturbance is evident along the northern edge of the survey area. It is possible that this is a response to adjacent ferrous material within fencing, or possibly an adjacent buried service.

4 CONCLUSION

4.1.1 The detailed magnetometer survey located a small number of weak and indistinct positive linear anomalies in the southern part of the survey area. Due to their low magnitude response and poor definition it is not possible to determine if they relate to cut features. A large number of parallel linear anomalies, with various orientations, relate to ridge and furrow cultivation.

5 REFERENCES

Archaeological Surveys, 2014. *Denton Lodge, Denton, Northamptonshire, Geophysical Survey Written Scheme of Investigation.* Unpublished typescript document.

British Geological Survey, 2014. *Geology of Britain viewer, 1:50 000 scale [online]* available from http://mapapps.bgs.ac.uk/geologyofbritain/home.html [accessed 2/12/2014].

English Heritage, 2008. *Geophysical survey in archaeological field evaluation. Research and Professional Service Guideline No.1.* 2nd ed. Swindon: English Heritage.

Institute for Archaeologists, 2002. *The use of Geophysical Techniques in Archaeological Evaluations*. IfA Paper No. 6. IfA, University of Reading.

Institute for Archaeologists, 2011. *Standard and Guidance for archaeological geophysical survey*. IfA, University of Reading.

Soil Survey of England and Wales, 1983. *Soils of England and Wales, Sheet 5 South West England.*

Standards Working Party of Northamptonshire Archaeological Archives Working Group, 2014. *Northamptonshire Archaeological Archives Standard.*

Appendix A – basic principles of magnetic survey

Iron minerals are always present to some degree within the topsoil and enhancement associated with human activity is related to increases in the level of magnetic susceptibility and thermoremnant material.

Magnetic susceptibility is an induced magnetism within a material when it is in the presence of a magnetic field. This can be thought of as effectively permanent due to the presence of the Earth's magnetic field.

Thermoremnant magnetism occurs when ferrous material is heated beyond a specific temperature known as the Curie Point. Demagnetisation occurs at this temperature with re-magnetisation by the Earth's magnetic field upon cooling.

Enhancement of magnetic susceptibility can occur in areas subject to burning and complex fermentation processes on biological material; these are frequently associated with human settlement. Thermoremnant features include ovens, hearths, and kilns. In addition thermoremnant material such as tile and brick may also be associated with human activity and settlement.

Silting and deliberate infilling of ditches and pits with magnetically enhanced soil can create an area of enhancement compared with surrounding soils and subsoils into which the feature is cut. Mapping enhanced areas will produce linear and discrete anomalies allowing an assessment and characterisation of hidden subsurface features.

It should be noted that areas of negative enhancement can be produced from material having lower magnetic properties compared to the topsoil. This is common for many sedimentary bedrocks and subsoils which were often used in the construction of banks and walls etc. Mapping these 'negative' anomalies may also reveal archaeological features.

Magnetic survey or magnetometry can be carried out using a fluxgate gradiometer and may be referred to as gradiometry. The SENSYS gradiometer is a passive instrument consisting of two fluxgate sensors mounted vertically 65cm apart. The instrument is carried about 10-20cm above the ground surface and the upper sensor measures the Earth's magnetic field as does the lower sensor but this is influenced to a greater degree by any localised buried field. The difference between the two sensors will relate to the strength the magnetic field created by the buried feature.

There are a number of factors that may affect the magnetic survey and these include soil type, local geology and previous human activity. Situations arise where magnetic disturbance associated with modern services, metal fencing, dumped waste material etc., obscures low magnitude fields associated with archaeological features.

Appendix B – data processing notes

Clipping

Minimum and maximum values are set and replace data outside of the range with those values. Extreme values are removed improving colour or greyscale contrast associated with data values that may be archaeologically significant. It has been found that clipping data to ranges between ±20nT and ±10nT often improves the appearance of features associated with archaeology. Different ranges are applied to data in order to determine the most suitable for anomaly abstraction and display.

Zero MedianTraverse

The median (or mean) of each traverse is calculated ignoring data outside a threshold value, the median (or mean) is then subtracted from the traverse. The process is used to equalise slight differences between the 5 gradiometer sensors which cannot be adjusted or balanced in the field.

Appendix C – survey and data information

COMPOSITE
Path: D:\Business\Jobs\J582 Denton Lodge\Data\Mag\comps\
Filename: J582-mag-proc.xcp
Description: Imported as Composite from: J582-mag.asc
Instrument Type: Sensys DLMGPS
Units: nT
UTM Zone: 30U
Survey corner coordinates (X/Y):
Northwest corner: 482896.115149854, 257099.144927962 m
Southeast corner: 483399.815149854, 256920.944927962 m
Direction of 1st Traverse: 90 deg
Collection Method: Parallel
Sensors: 1
Dummy Value: 32702

Source GPS Points: 670500

Dimensions
Composite Size (readings): 3358 x 1188
Survey Size (meters): 504 m x 178 m
Grid Size: 504 m x 178 m
X Interval: 0.15 m
Y Interval: 0.15 m

Stats
Max: 11.05
Min: -11.00
Std Dev: 3.63
Mean: 0.14
Median: -0.04
Composite Area: 8.9759 ha
Surveyed Area: 2.5247 ha

Processes: 1
1 Base Layer

GPS based Proce4
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to OSGB36).
3 DeStripe Median Traverse: Threshold: 1.5 SDs
4 Clip from -10.00 to 10.00 nT

Appendix D – digital archive

Archaeological Surveys Ltd hold the primary digital archive at their offices in Wiltshire (see inside cover for address). Data are backed-up onto an on-site data storage drive and at the earliest opportunity data are copied to CD ROM for storage on-site and off-site. Surveys are reported on in hardcopy (recycled paper) using A4 for text and A3 for plots (all plots are scaled for A3).

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This report has been prepared using the following software on a Windows XP platform:

- TerraSurveyor version 3.0.23.0 (geophysical data analysis),
- SENSYS MAGNETO®ARCH version 1.00-04(geophysical data analysis),
- ProgeCAD Professional 2014 (report graphics),
- AutoCAD LT 2007 (report figures),
- OpenOffice.org 3.0.1 Writer (document text),
- Solid PDF Creator version 8 (PDF archive).

Digital data produced by the survey and report include the following files:

- CSV files for raw data,
- geophysical composite file graphics as tiff images with world file,
- AutoCAD DWG files in 2007 version,
- report text as PDF/A.

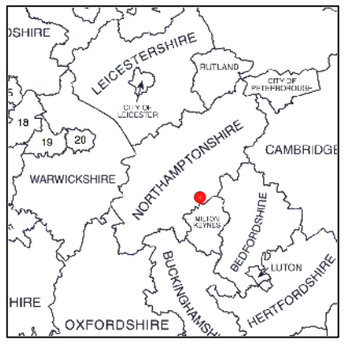
In order to meet the requirements of the Northamptonshire Archaeological Archives Standard (Standards Working Party of Northamptonshire Archaeological Archives Working Group, 2014), the Northamptonshire HER Event UID ENN107840 will prefix all files. A PDF copy will be sent to Northamptonshire County Council Assistant Archaeological Advisor and once approved it will be uploaded to OASIS and archived with the ADS, see below. A hard copy of the report will be sent to the

Northamptonshire HER.

The raw data, CAD and greyscale tiff image with world file will be deposited with the Archaeology Data Service (ADS) and the report uploaded to Online AccesS to the Index of archaeological investigations (OASIS) in the indicative formats stated below for archiving:

- ADS - SENSYS MAGNETO raw composite data files (eg ENN107840_J582_mag_raw.csv)
- ADS - AutoCAD LT 2007 – CAD without OS mapping (eg ENN107840_J582_CAD.dwg)
- ADS - Raster graphic image – minimally processed data greyscale image with world file (eg ENN107840_J582_mag_proc_10nT.tif)
- OASIS – PDF/A copy of the report with plots (eg ENN107840_J582_ Denton_Lodge_report.pdf)

Survey location



Survey location

Turbine centred on OS NGR
SP 82978 56999

SCALE 1:25 000

0m 500m 1000m

SCALE TRUE AT A3

FIG 01

Archaeological Surveys Ltd

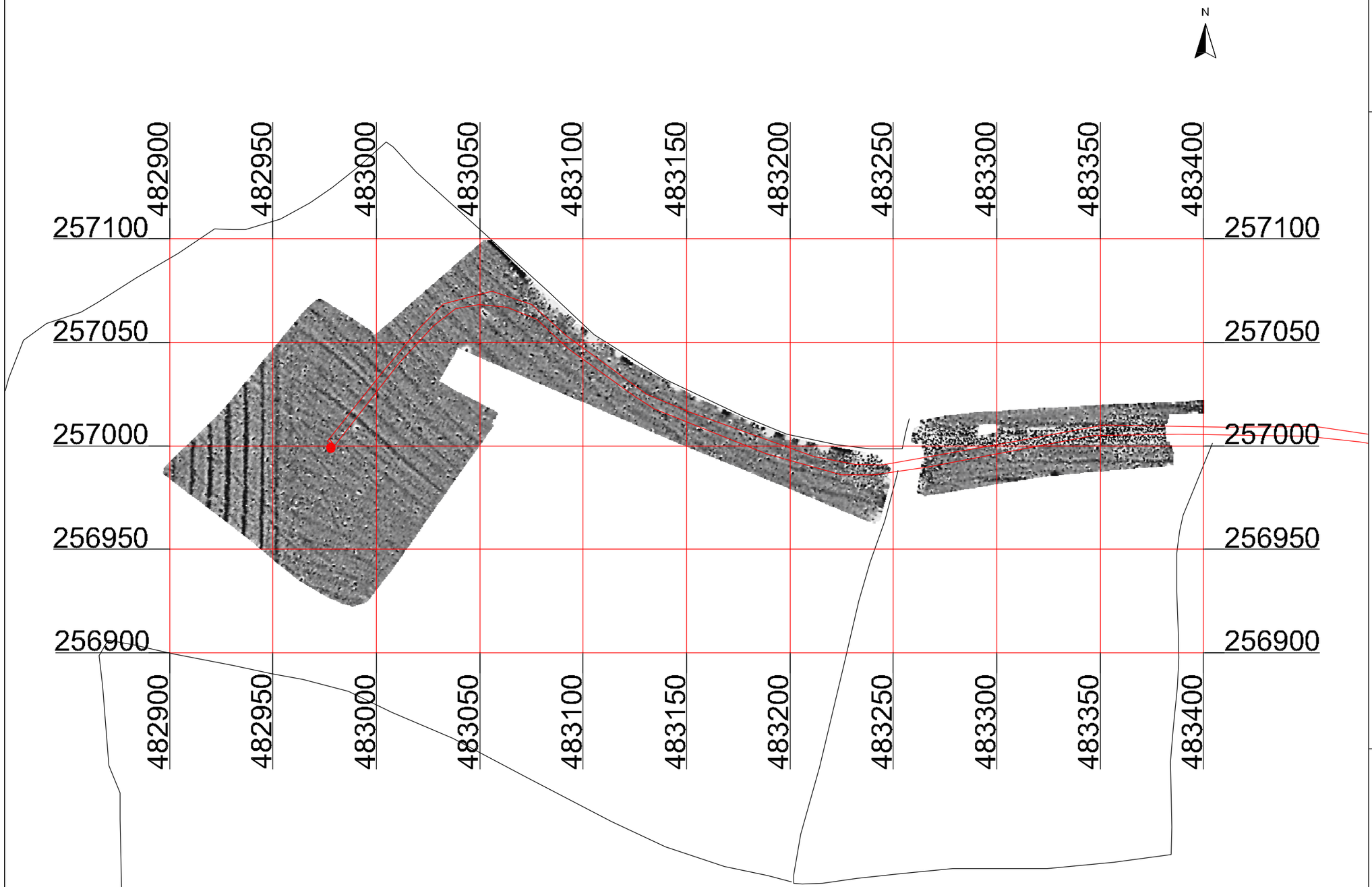
Geophysical Survey
Denton Lodge
Denton
Northamptonshire

Map of survey area

Archaeological Surveys Ltd

Geophysical Survey
Denton Lodge
Denton
Northamptonshire

Referencing information



Referencing grid to OSGB36 datum at 50m intervals

Data collected at 20Hz and georeferenced to ETRS89 zone 30 with conversion to OSGB36 using OSTN02

Turbine centred on 482978 256999

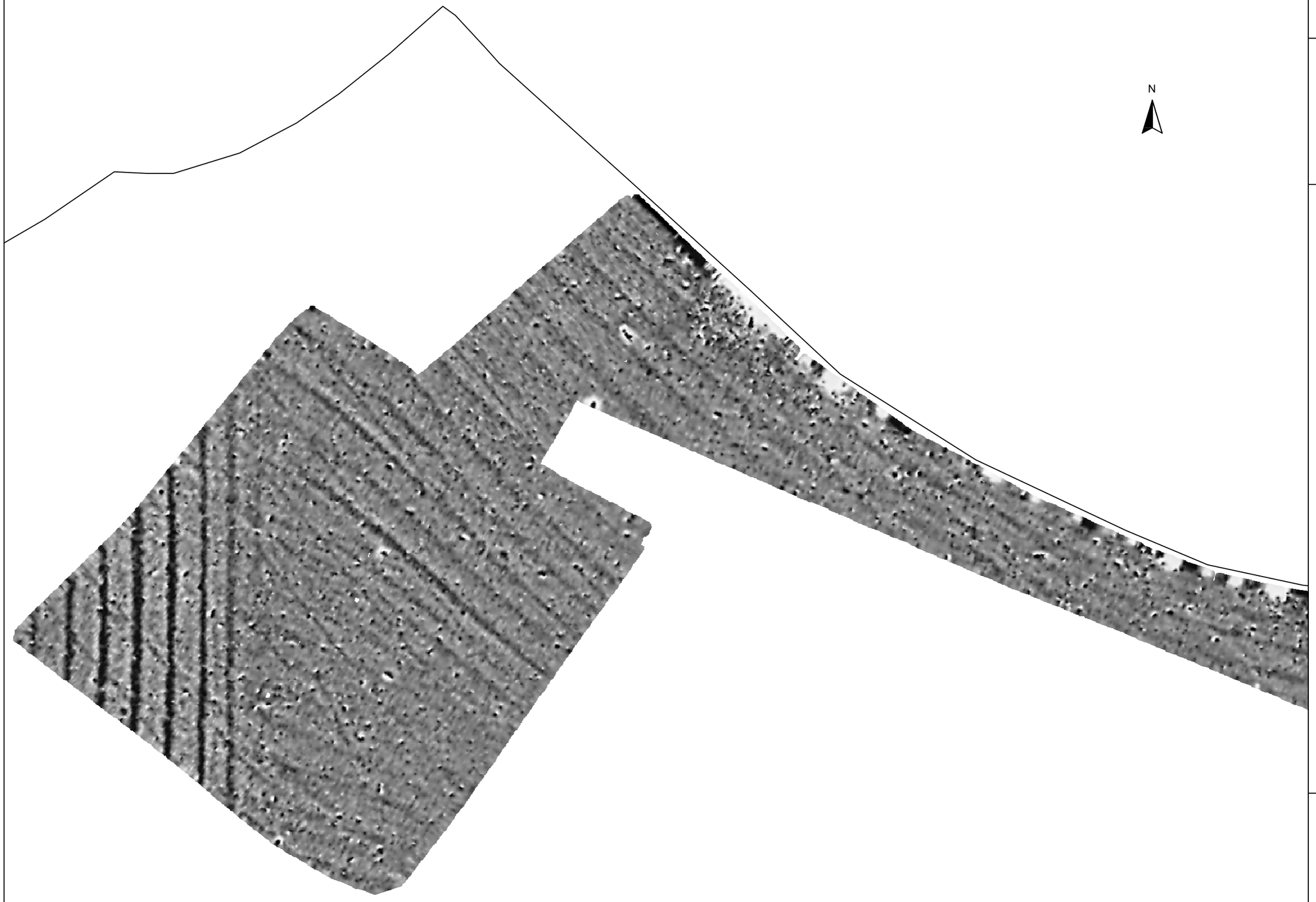
Access track to turbine

SCALE 1:2000

0m 20 40 60 80 100m

SCALE TRUE AT A3

FIG 02



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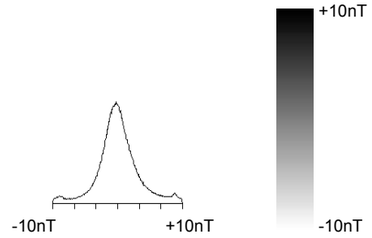
Geophysical Survey
Denton Lodge
Denton
Northamptonshire

Greyscale plot of minimally processed magnetometer data - west



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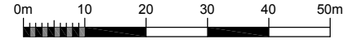

SCALE TRUE AT A3

FIG 03

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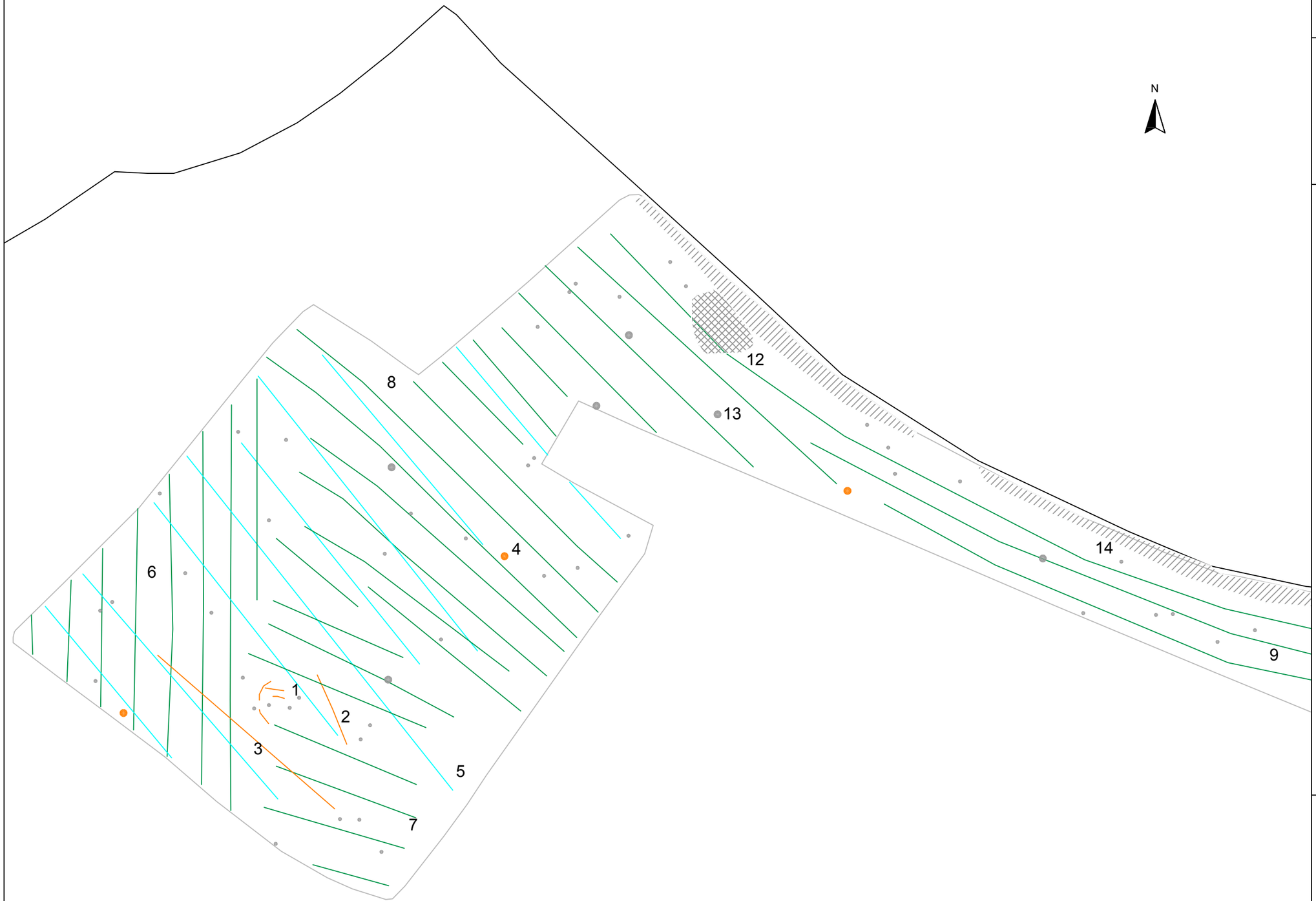
Geophysical Survey
Denton Lodge
Denton
Northamptonshire

Abstraction and interpretation of magnetometer anomalies - west



- Positive linear anomaly - possible ditch-like feature
- Linear anomaly - ridge and furrow
- Positive linear anomaly - possible land drain
- Discrete positive response - possible pit-like feature
- Magnetic debris - spread of magnetically thermoremnant/ferrous material
- Magnetic disturbance from ferrous materia
- Strong dipolar anomaly - ferrous object

SCALE 1:1000

0m 10 20 30 40 50m

SCALE TRUE AT A3

FIG 04

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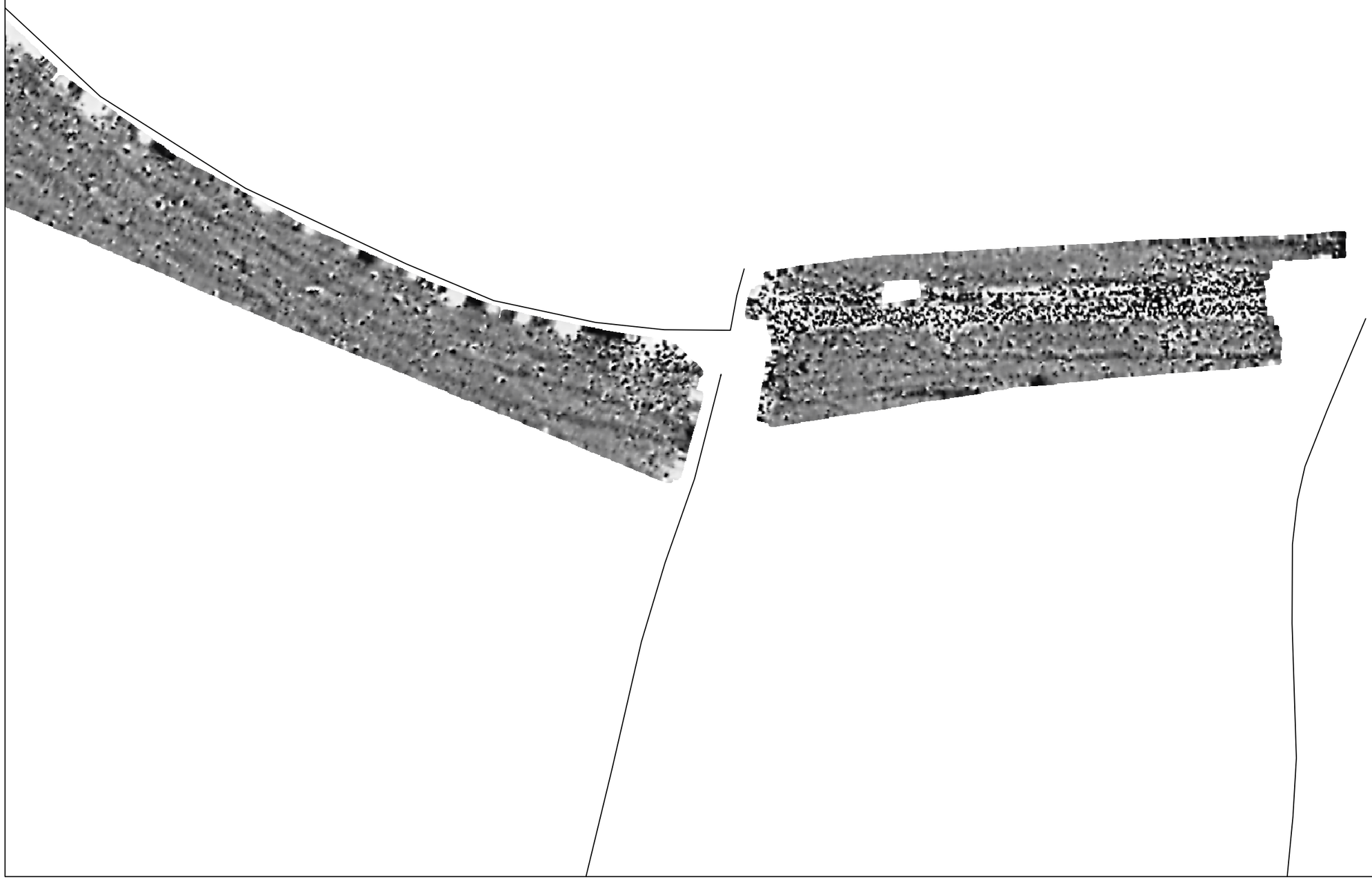
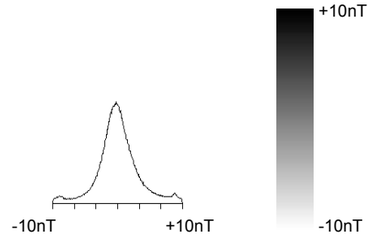
Northamptonshire

N



Greyscale plot of minimally processed magnetometer data - east



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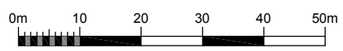

SCALE TRUE AT A3

FIG 05

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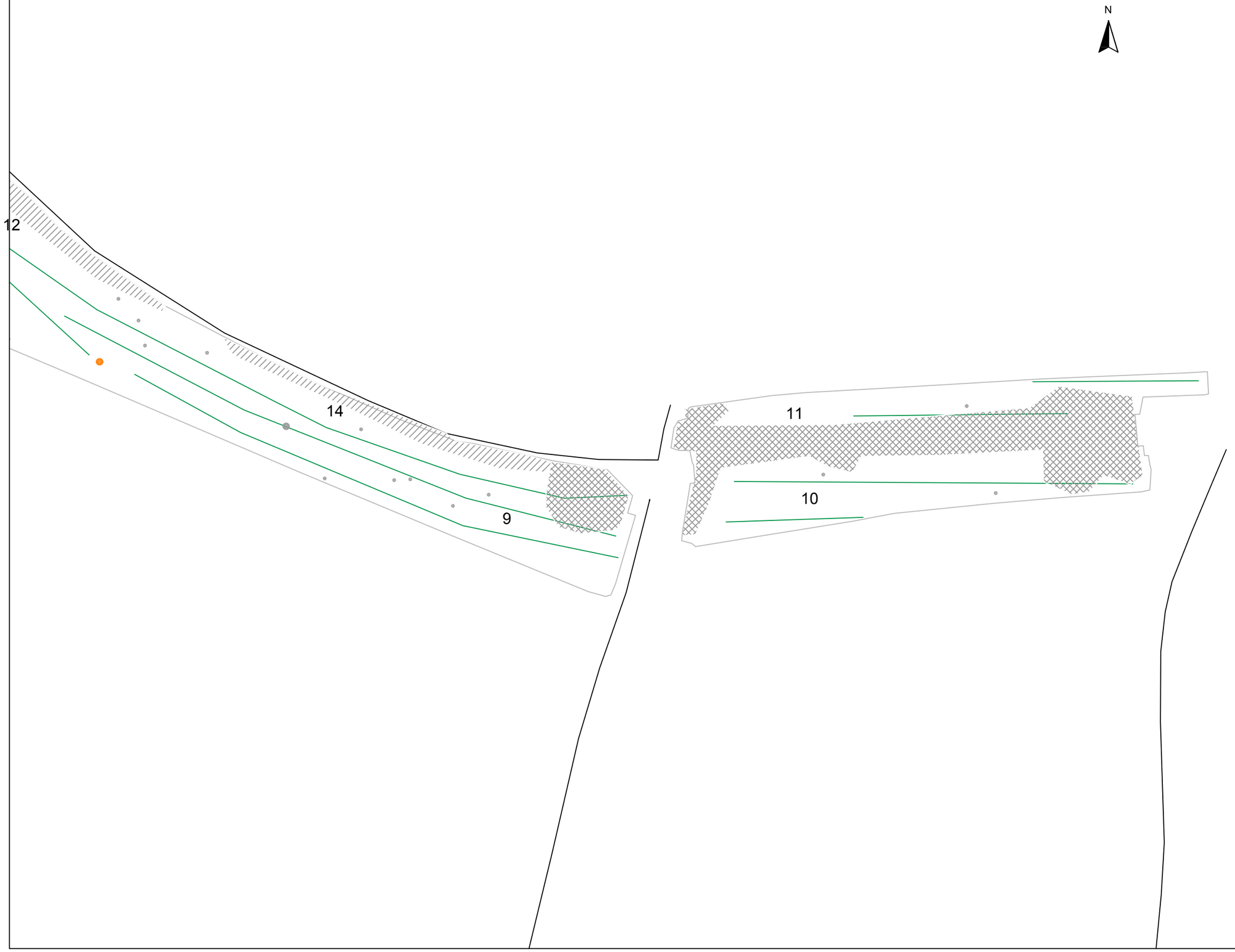
Geophysical Survey
Denton Lodge
Denton
Northamptonshire

Abstraction and interpretation of magnetometer anomalies - east



- Linear anomaly - ridge and furrow
- Discrete positive response - possible pit-like feature
- Magnetic debris - spread of magnetically thermoremnant/ferrous material
- Magnetic disturbance from ferrous materia
- Strong dipolar anomaly - ferrous object

SCALE 1:1000

0m 10 20 30 40 50m

SCALE TRUE AT A3

FIG 06

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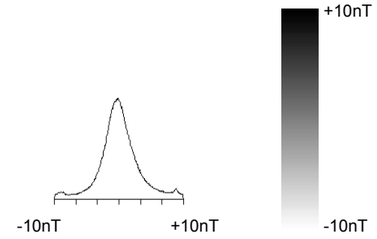
Geophysical Survey
Denton Lodge
Denton
Northamptonshire

Greyscale plot of minimally processed magnetometer data



N

SCALE 1:1500

0m 10 20 30 40 50m

SCALE TRUE AT A3

FIG 07

Archaeological Surveys Ltd

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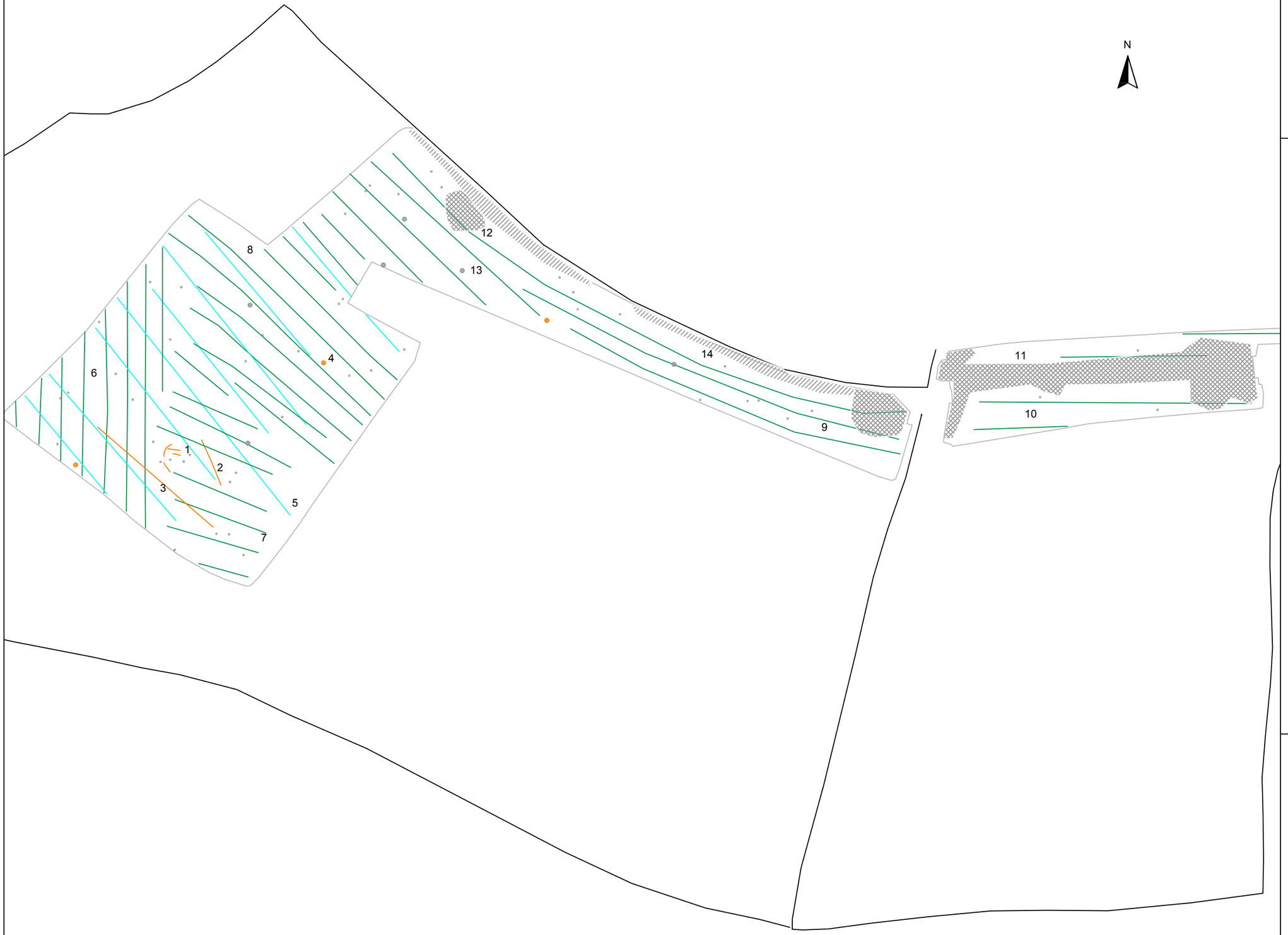
Abstraction and interpretation of magnetometer anomalies



- Positive linear anomaly - possible ditch-like feature
- Linear anomaly - ridge and furrow
- Positive linear anomaly - possible land drain
- Discrete positive response - possible pit-like feature
- Magnetic debris - spread of magnetically thermoremnant/ferrous material
- Magnetic disturbance from ferrous materia
- Strong dipolar anomaly - ferrous object

SCALE 1:1500

0m 10 20 30 40 50m

SCALE TRUE AT A3

FIG 08