

**Land at Dairy Farm
Ashton Keynes
Wiltshire**

MAGNETOMETER SURVEY REPORT

for

Partridge Homes (Cotswolds) Ltd

Kerry Donaldson & David Sabin

May 2016

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ARCHAEOLOGICAL SURVEYS LTD

**Land at Dairy Farm
Ashton Keynes
Wiltshire**

Magnetometer Survey Report

for

Partridge Homes (Cotswolds) Ltd

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Primary archive location - Archaeological Surveys Ltd, Yatesbury, Wiltshire

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Ordnance Survey Grid Reference – **SU 02455 94075**



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SUMMARY

Detailed magnetometry was carried out by Archaeological Surveys Ltd on land at Dairy Farm, Ashton Keynes, Wiltshire. The survey located a number of very short, weakly positive and negative linear anomalies. It is not possible to determine if they are associated with anthropogenic activity or if they relate to natural features. In the south-eastern part of the site are small number of discrete positive anomalies. While such responses may indicate pit-like features, there are several in a row which may indicate a linear feature that has been fragmented by ridge and furrow. As well as ridge and furrow the site also contains magnetic debris and disturbance associated with modern ferrous material. Natural features can also be seen in the south-eastern part of the site.

1 INTRODUCTION

1.1 Survey background

- 1.1.1 Archaeological Surveys Ltd was commissioned by Partridge Homes (Cotswolds) Ltd to undertake a magnetometer survey of an area of land at Dairy Farm, Ashton Keynes, Wiltshire. The site has been outlined for a proposed residential development and the survey forms part of an archaeological assessment.
- 1.1.2 The geophysical survey was carried out in accordance with a Written Scheme of Investigation (WSI) produced by Archaeological Surveys (2016) and approved by Melanie Pomeroy-Kellinger, county archaeologist for Wiltshire Council.

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 Chartered Institute for Archaeologists (2014) *Standard and Guidance for Archaeological Geophysical Survey*.

1.3 Site location, description and survey conditions

- 1.3.1 The site is situated on the western edge of Ashton Keynes at Ordnance Survey National Grid Reference (OS NGR) SU 04255 94080, see Figs 01 and 02. It lies to the north of Dairy Farm and Gosditch, to the east of the B4696 Ashton Road, to the west of school playing fields and to the south of the River Thames.
- 1.3.2 The geophysical survey covers approximately 2.4ha within an "L" shaped area of pasture split by post and wire fencing into two land parcels. The area is generally flat and contained sheep at the time of survey. A series of undulations and waterlogged ground in the south-western part of the site may relate to several water pipes that cross the area.
- 1.3.3 The ground conditions across the site were generally considered to be favourable for the collection of magnetometry data. Weather conditions during the survey were mainly fine.



Plate 1: Survey area looking north-east

1.4 Site history and archaeological potential

- 1.4.1 The Wiltshire Historic Environment Record lists that the site does not contain any designated or non-designated heritage assets. Just to the north of the survey area and the River Thames there is a Scheduled Monument (No. 1013356), *Moated Site at Church Farm*. The survey area lies to the south and west of the medieval core of Ashton Keynes (MWI9642) and 500m south west of Scheduled Monument (No. 1013197) *Hall's Close, a ringwork and bailey 100m west of Kentend Farm*. To the south of the site is Dairy Farm, which dates from the 17th century and less than 100m to the east is the former location of a ditch system associated with a possible post-medieval kiln site (SU09SW614 - MWI9667). In the wider vicinity a number of cropmarks on the

gravels have been recorded from aerial photographs (SU09NW616 - MWI9540, SU09SW617 - MWI9669) which appear to relate to field systems and drainage ditches.

- 1.4.2 The location of a number of archaeological sites and findspots in the wider vicinity may indicate that there is potential for the site to contain previously unrecorded features.

1.5 *Geology and soils*

- 1.5.1 The underlying solid geology across the site is Oxford Clay with overlying deposits of Northmoor Sands and Gravels (BGS, 2016).
- 1.5.2 The overlying soil across the survey area is from the Badsey 2 association and is a typical brown calcareous earth consisting of a well drained, calcareous, fine loamy soil over limestone gravel (Soil Survey of England and Wales, 1983).
- 1.5.3 Soils formed from Jurassic limestone gravels can produce enhanced magnetic susceptibility when subject to human activities such as burning and manuring. These enhanced soils often contrast well with the surrounding natural soil, subsoil or gravel when forming the fill of a cut feature of archaeological potential. Magnetometry is, therefore, considered an appropriate and efficient technique for archaeological prospection. Gravels may be associated with anomalies of natural origin.

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 20Hz. The gradiometers have a range of recording data between 0.1nT and 10,000nT. The sensors are not zeroed in the field, as the vertical axis alignment is fixed using a tension band system. In order to produce visible, useful greyscale images a zero median traverse process can be undertaken in TerraSurveyor. The system is linked to a Leica GS10 RTK GPS with data recorded by SENSYS MAGNETO®MXPDA software on a rugged computer.
- 2.2.2 Data are collected along a series of parallel survey tracks wherever possible. The length of each track is variable and relates to the size of the survey area and other factors including ground conditions. A visual display aids accurate placing of tracks and their separation.
- 2.2.3 Data are not collected within fixed grids and data points are considered to be random even though the data are collected in a systematic manner covering all accessible areas (Aspinall, Gaffney and Schmidt, 2009).

2.3 *Data processing and presentation*

- 2.3.1 Magnetic data collected by the MAGNETO®MXPDA cart-based system are initially prepared using SENSYS MAGNETO®DLMGPS software. Survey tracks are analysed and georeferenced raw data (UTM Z30N) are then exported in ASCII format for further analysis and display using TerraSurveyor.
- 2.3.2 The data are collected between limits of ± 10000 nT and clipped for display at ± 3 nT. Data are interpolated to a resolution of effectively 0.5m between tracks and 0.15m along each survey track. A zero median traverse function is required in order to remove fixed offset values present within the sensors which do not undergo a zeroing procedure in the field. The approach ensures that the gradiometer sensors are very accurately aligned and fixed to the vertical magnetic field and are not influenced by localised magnetic fields or disturbed by vibration. Although a zero median traverse algorithm can remove anomalies aligned with the survey tracks, in practice this rarely occurs due to the use of long traverses, high resolution measurement and variability within the magnetic susceptibility of long linear features.
- 2.3.3 Appendix C contains metadata 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, such as clipping, carried out on the

data. A filtered image is also displayed in Fig 04 where a high pass filter is applied to smooth data and remove slight variations along survey tracks caused by strong magnetic disturbance.

- 2.3.4 A TIF file is produced by TerraSurveyor software along with an associated world file (.TFW) that allows automatic georeferencing (OSGB36 datum) when using GIS or CAD software. The main form of data display used in the report is the minimally processed greyscale plot.
- 2.3.5 The raster images are combined with base mapping using ProgeCAD Professional 2014, creating DWG (2010) file formats. All images are externally referenced to the CAD drawing in order to maintain good graphical quality. The CAD plots are effectively georeferenced facilitating relocation of features using GPS, resection method, etc.
- 2.3.6 An abstraction and interpretation is also drawn and plotted for all geophysical anomalies located by the survey. Anomalies are abstracted using colour coded points, lines and polygons. All plots are scaled to landscape A3 for paper printing.
- 2.3.7 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.
- 2.3.8 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 a total of two survey areas covering approximately 2.4ha. The results of both survey areas are considered together.
- 3.1.2 Magnetic anomalies located can be generally classified as positive anomalies of an uncertain origin, linear anomalies of an agricultural origin, areas of magnetic debris and disturbance, strong discrete dipolar anomalies relating to ferrous objects, strong multiple dipolar linear anomalies relating to buried services or pipelines and anomalies of a natural origin.

3.2 *Statement of data quality*

- 3.2.1 Data are considered representative of the magnetic anomalies present within the site. High magnitude magnetic disturbance was encountered in the south-western part of the site and around the perimeter. High pass filtering was carried out in order to remove slight banding caused by the disturbance.

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 within the survey area.

Report sub-heading CAD layer names and plot colour	Description and origin of anomalies
<p>Anomalies with an uncertain origin</p> <p>AS-ABST MAG POS LINEAR UNCERTAIN  AS-ABST MAG NEG LINEAR UNCERTAIN  AS-ABST MAG POS DISCRETE UNCERTAIN </p>	<p>The category applies to a range of anomalies where <u>there is not enough evidence to confidently suggest an origin</u>. Anomalies in this category <u>may well be related to archaeologically significant features, but equally relatively modern features, geological/pedological features and agricultural features should be considered</u>. 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. Negative anomalies are produced by material of comparatively low magnetic susceptibility such as stone and subsoil.</p>
<p>Anomalies with an agricultural origin</p> <p>AS-ABST MAG RIDGE AND FURROW </p>	<p>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.</p>
<p>Anomalies associated with magnetic debris</p> <p>AS-ABST MAG DEBRIS  AS-ABST MAG STRONG DIPOLAR </p>	<p>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 thermoremanent 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 <u>may therefore be archaeologically significant</u>. 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.</p>
<p>Anomalies with a modern origin</p> <p>AS-ABST MAG DISTURBANCE  AS-ABST MAG SERVICE </p>	<p>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.</p>
<p>Anomalies with a natural origin</p> <p>AS-ABST MAG NATURAL FEATURES </p>	<p>Naturally formed magnetic anomalies are caused by localised variability in the magnetic susceptibility of soils, subsoils and other drift or solid geologies. Anomalies may be amorphous, linear or curvilinear and may appear 'fluvial' or discrete; the latter are <u>almost impossible to distinguished from pit-like anomalies with an anthropogenic origin</u>. Fluvial, glacial and periglacial processes may be responsible for their formation within drift material and subsoil.</p>

Table 1: List and description of interpretation categories

3.4 *List of anomalies*

Area centred on OS NGR 404255 194075, see Figs 03 - 05.

Anomalies with an uncertain origin

(1) - The survey area contains a number of short positive linear and negative curvilinear anomalies. They are very short, weak and are poorly defined. It is not possible to determine if they relate to cut features, or features with low magnetic susceptibility caused by anthropogenic activity, or if they relate to naturally formed features within the underlying gravels.

(2) - Close to the south-eastern edge of the survey area are a number of discrete positive responses. Four of them appear in a linear grouping, possibly indicating that they relate to a linear feature that has been truncated by ridge and furrow. It is possible that some relate to magnetic enhancement within naturally formed pit-like features.

Anomalies with an agricultural origin

(3 & 4) - The site contains two series of linear anomalies relating to ridge and furrow.

Anomalies associated with magnetic debris

(5) - A broad zone of magnetic debris in the northern part of the site relates to magnetically thermoremanent material at the junction of the two ridge and furrow series and may relate to an infilled ditch associated with a former field boundary.

(6) - The survey area contains other zones of magnetically thermoremanent material including a large zone in the south-western part. Soil visible within this part of the site appeared contaminated with burnt material and glass.

(7) - The site contains widespread and numerous strong, discrete, dipolar anomalies relating to ferrous and other magnetically thermoremanent objects within the topsoil.

Anomalies with a modern origin

(8) - Magnetic disturbance is a response to ferrous water pipes in the south-western part of the site and fencing material within and surrounding the site. The water pipes may be associated with some undulations and waterlogging within this part of the field.

Anomalies relating to natural features

(9) - Amorphous zones appear within the south-eastern part of the site. This type of

response generally relates to naturally formed features within the underlying soils and gravels.

4 CONCLUSION

- 4.1.1 The results of the magnetometer survey demonstrate the presence of a small number of very weakly positive linear and negative curvilinear responses. They are short, weak and lack a coherent morphology preventing confident interpretation. A small number of discrete responses have also been located, and although these may relate to naturally formed pit-like features, there are four in a linear grouping, which may indicate a linear feature that has been truncated by ridge and furrow.
- 4.1.2 Two sets of ridge and furrow were located in the eastern part of the site and these appear to be separated by a linear zone of magnetic debris, possibly indicating an infilled ditch or depression. Widespread magnetic debris was also encountered in the south-western part of the site, and this appears to be associated with a spread of soil containing burnt material, glass and ceramics of relatively modern date.
- 4.1.3 High levels of magnetic disturbance encountered within the south-western part of the site appear to be associated with ferrous pipelines linking to the water treatment works to the north. Undulations in the field and areas of waterlogging were noted in the vicinity and these may well be associated with the water pipes.

5 REFERENCES

Archaeological Surveys, 2016. *Land at Dairy Farm, Ashton Keynes, Wiltshire, Geophysical Survey Written Scheme of Investigation*. Unpublished typescript document.

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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 thermoremanent 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.

Thermoremanent 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. Thermoremanent features include ovens, hearths, and kilns. In addition thermoremanent 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 $\pm 5\text{nT}$ and $\pm 3\text{nT}$ 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 (destripe) Median/Mean Traverse

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 differences between the baseline value of gradiometer sensors.

High Pass Filtering

A mathematical process used to remove low frequency anomalies relating to survey tracks and modern agricultural features.

Appendix C – survey and data information

Area 1 minimally processed data

COMPOSITE
 Path: C:\Business\Jobs\J660 Ashton Keynes\Data\Area 1\comps\
 Filename: J660-mag-Area1-proc.xcp
 Description: Imported as Composite from: J660-mag-Area1.asc
 Instrument Type: Sensys DLMGPS
 Units: nT
 UTM Zone: 30U
 Survey corner coordinates (X/Y): OSGB36
 Northwest corner: 404246.683864219, 194180.003937304 m
 Southeast corner: 404378.383864219, 194055.953937304 m
 Collection Method: Randomised
 Sensors: 5
 Dummy Value: 32702
 Source GPS Points: 325300
 Dimensions
 Composite Size (readings): 878 x 827
 Survey Size (meters): 132 m x 124 m
 Grid Size: 132 m x 124 m
 X Interval: 0.15 m
 Y Interval: 0.15 m
 Stats
 Max: 3.32
 Min: -3.30
 Std Dev: 1.46
 Mean: 0.01
 Median: -0.03
 Composite Area: 1.6337 ha
 Surveyed Area: 1.1699 ha
 PROGRAM
 Name: TerraSurveyor
 Version: 3.0.23.0
 Processes: 1
 1 Base Layer
 GPS based Proce5
 1 Base Layer.
 2 Unit Conversion Layer (to OSGB36).
 3 DeStripe Median Traverse:
 4 Clip from -5.00 to 5.00 nT
 5 Clip from -3.00 to 3.00 nT

Area 1 filtered data

COMPOSITE
 Path: C:\Business\Jobs\J660 Ashton Keynes\Data\Area 1\comps\
 Filename: J660-mag-Area1-proc-hpf.xcp
 Description: Imported as Composite from: J660-mag-Area1.asc
 Instrument Type: Sensys DLMGPS
 Units: nT
 UTM Zone: 30U
 Survey corner coordinates (X/Y): OSGB36
 Northwest corner: 404246.683864219, 194180.003937304 m
 Southeast corner: 404378.383864219, 194055.953937304 m
 Direction of 1st Traverse: 90 deg
 Collection Method: Randomised
 Sensors: 5
 Dummy Value: 32702
 Source GPS Points: 325300
 Dimensions
 Composite Size (readings): 878 x 827
 Survey Size (meters): 132 m x 124 m
 Grid Size: 132 m x 124 m
 X Interval: 0.15 m
 Y Interval: 0.15 m
 Stats
 Max: 3.32
 Min: -3.30
 Std Dev: 1.18
 Mean: 0.06
 Median: 0.01
 Composite Area: 1.6337 ha
 Surveyed Area: 1.1699 ha
 Processes: 1
 1 Base Layer
 GPS based Proce7
 1 Base Layer.
 2 Unit Conversion Layer (to OSGB36).
 3 DeStripe Median Traverse:
 4 Clip from -5.00 to 5.00 nT
 5 Clip from -3.00 to 3.00 nT

6 High pass Uniform (median) filter: Window dia: 300
 7 Clip from -3.00 to 3.00 nT

Area 2 minimally processed data

COMPOSITE
 Path: C:\Business\Jobs\J660 Ashton Keynes\Data\Area 2\comps\
 Filename: J660-mag-Area2-proc.xcp
 Description: Imported as Composite from: J660-mag-Area2.asc
 Instrument Type: Sensys DLMGPS
 Units: nT
 UTM Zone: 30U
 Survey corner coordinates (X/Y): OSGB36
 Northwest corner: 404124.684968012, 194058.973204974 m
 Southeast corner: 404364.684968012, 193979.773204974 m
 Collection Method: Randomised
 Sensors: 5
 Dummy Value: 32702
 Source GPS Points: 353300
 Dimensions
 Composite Size (readings): 1600 x 528
 Survey Size (meters): 240 m x 79.2 m
 Grid Size: 240 m x 79.2 m
 X Interval: 0.15 m
 Y Interval: 0.15 m
 Stats
 Max: 3.32
 Min: -3.30
 Std Dev: 2.02
 Mean: -0.05
 Median: -0.08
 Composite Area: 1.9008 ha
 Surveyed Area: 1.1894 ha
 Processes: 1
 1 Base Layer
 GPS based Proce4
 1 Base Layer.
 2 Unit Conversion Layer (to OSGB36).
 3 DeStripe Median Traverse:
 4 Clip from -3.00 to 3.00 nT

Area 2 filtered data

COMPOSITE
 Path: C:\Business\Jobs\J660 Ashton Keynes\Data\Area 2\comps\
 Filename: J660-mag-Area2-proc-hpf.xcp
 Description: Imported as Composite from: J660-mag-Area2.asc
 Instrument Type: Sensys DLMGPS
 Units: nT
 UTM Zone: 30U
 Survey corner coordinates (X/Y): OSGB36
 Northwest corner: 404124.684968012, 194058.973204974 m
 Southeast corner: 404364.684968012, 193979.773204974 m
 Collection Method: Randomised
 Sensors: 5
 Dummy Value: 32702
 Source GPS Points: 353300
 Dimensions
 Composite Size (readings): 1600 x 528
 Survey Size (meters): 240 m x 79.2 m
 Grid Size: 240 m x 79.2 m
 X Interval: 0.15 m
 Y Interval: 0.15 m
 Stats
 Max: 3.32
 Min: -3.30
 Std Dev: 1.30
 Mean: 0.05
 Median: -0.01
 Composite Area: 1.9008 ha
 Surveyed Area: 1.1894 ha
 Processes: 1
 1 Base Layer
 GPS based Proce6
 1 Base Layer.
 2 Unit Conversion Layer (to OSGB36).
 3 DeStripe Median Traverse:
 4 Clip from -3.00 to 3.00 nT
 5 High pass Uniform (median) filter: Window dia: 300
 6 Clip from -3.00 to 3.00 nT

Appendix D – digital archive

Archaeological Surveys Ltd hold the primary digital archive at their offices in Wiltshire. 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.

A printed copy of the report and a PDF copy will be supplied to the Wiltshire Historic Environment Record. The report will also be uploaded to the Online Access to the Index of archaeological investigations (OASIS).

Archive contents:

Geophysical data Area 1 - path: J660 Ashton Keynes\Data\				
Path and Filename	Software	Description	Date	Creator
akeynes1\MX\ akeynes2\MX\ .prm .dgb .disp	Sensys MXPDA	Proprietary data formats representing magnetometer survey traverses logged to a PDA.	27/04/16	D.J.Sabin
akeynes1\MX\J660-mag-Area1.asc akeynes2\MX\J660-mag-Area2.asc	Sensys DLMGPS	ASCII CSV (tab) file representing survey Area 1 in eastings, northings (UTM Z30N), magnetic measurement, traverse file and sensor number.	27/14/16	D.J.Sabin
Area1\comps\J660-mag-Area1.xcp Area2\comps\J660-mag-Area2.xcp	TerraSurveyor 3.0.23.0	Composite data file derived from ASCII CSV.	27/04/16	D.J.Sabin
Area1\comps\J660-mag-Area1-proc.xcp Area2\comps\J660-mag-Area2-proc.xcp	TerraSurveyor 3.0.23.0	Processed composite data file (zmt and clipping to $\pm 3nT$).	27/04/16	D.J.Sabin
Area1\comps\J660-mag-Area1-proc-hpf.xcp Area2\comps\J660-mag-Area2-proc-hpf.xcp	TerraSurveyor 3.0.23.0	Processed composite data file (zmt, clipping to $\pm 3nT$ and high pass uniform median filter).	27/04/16	D.J.Sabin
Graphic data - path: J660 Ashton Keynes\Data\				
Area1\graphics\J660-mag-Area1-proc.tif	TerraSurveyor 3.0.23.0	TIF file showing a minimally processed greyscale plot clipped to $\pm 3nT$.	27/04/16	D.J.Sabin
Area1\graphics\J660-mag-Area1-proc.tfw	TerraSurveyor 3.0.23.0	World file for georeferencing TIF to OSGB36.	27/04/16	D.J.Sabin
Area2\graphics\J660-mag-Area2-proc.tif	TerraSurveyor 3.0.23.0	TIF file showing a minimally processed greyscale plot clipped to $\pm 3nT$.	27/04/16	D.J.Sabin
Area2\graphics\J660-mag-Area2-proc.tfw	TerraSurveyor 3.0.23.0	World file for georeferencing TIF to OSGB36.	27/04/16	D.J.Sabin
Area1\graphics\J660-mag-Area1-proc-hpf.tif	TerraSurveyor 3.0.23.0	TIF file showing a filtered greyscale plot clipped to $\pm 3nT$.	27/04/16	D.J.Sabin
Area1\graphics\J660-mag-Area1-proc-hpf.tfw	TerraSurveyor 3.0.23.0	World file for georeferencing TIF to OSGB36.	27/04/16	D.J.Sabin
Area2\graphics\J660-mag-Area2-proc-hpf.tif	TerraSurveyor 3.0.23.0	TIF file showing a filtered greyscale plot clipped to $\pm 3nT$.	27/04/16	D.J.Sabin
Area2\graphics\J660-mag-Area2-proc-hpf.tfw	TerraSurveyor 3.0.23.0	World file for georeferencing TIF to OSGB36.	27/04/16	D.J.Sabin
CAD data - path: J660 Ashton Keynes\CAD\				
J660 version 2.dwg	ProgeCAD 2016	CAD file for creating plots of greyscales, abstraction, interpretation and mapping. Grid coordinates as OSGB. AutoCAD 2010 format.	27/04/16	K.T.Donaldson
Text data - path: J660 Ashton Keynes\Documentation\				
J660 report.odt	OpenOffice.org 3.0.1 Writer	Report text as an Open Office document.	04/05/16	K.T.Donaldson

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Geophysical Survey Land at Dairy Farm Ashton Keynes Wiltshire

Map of survey area

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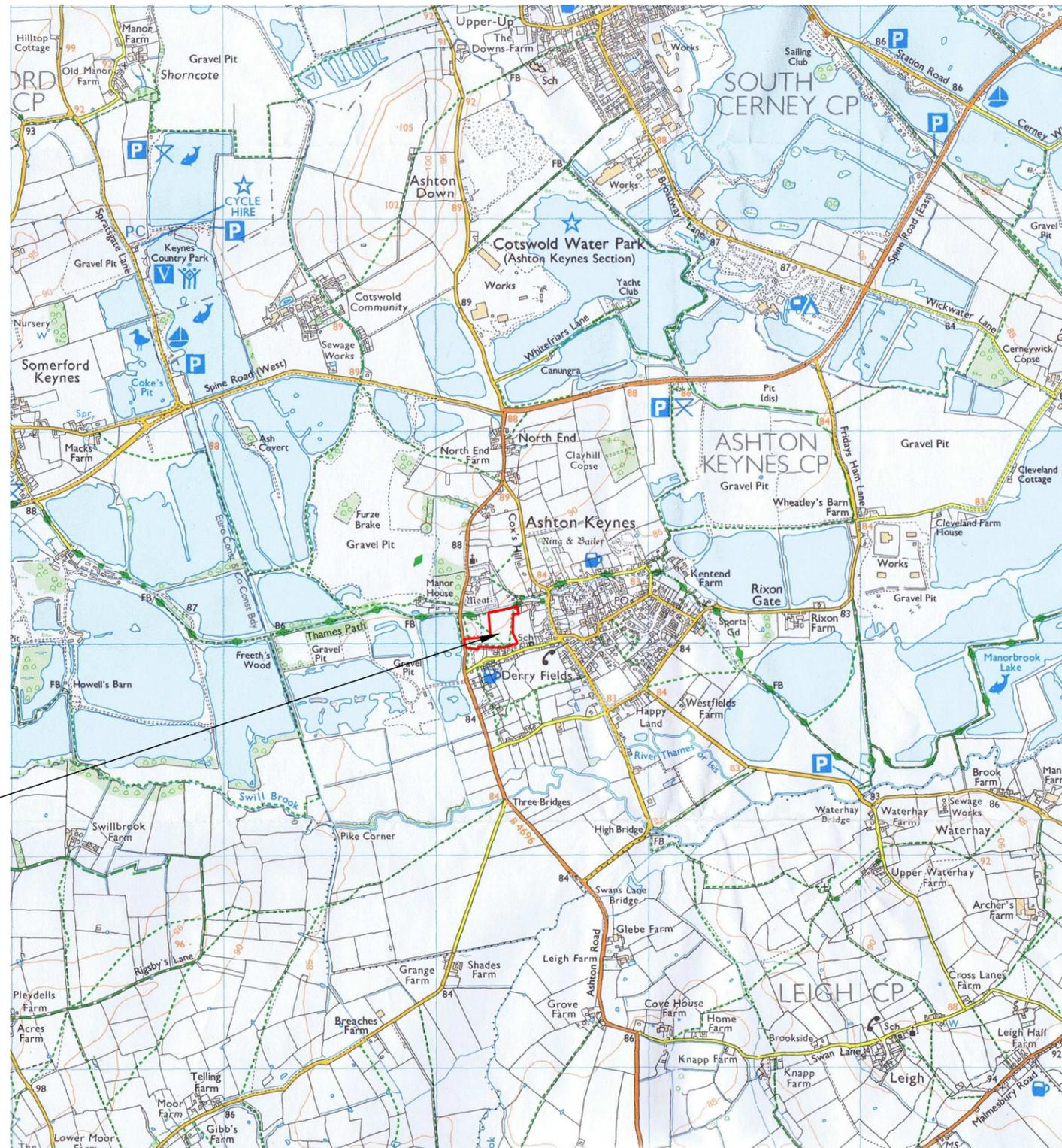
● Survey location

Site centred on OS NGR
SU 04255 94075

SCALE 1:25 000



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Survey location

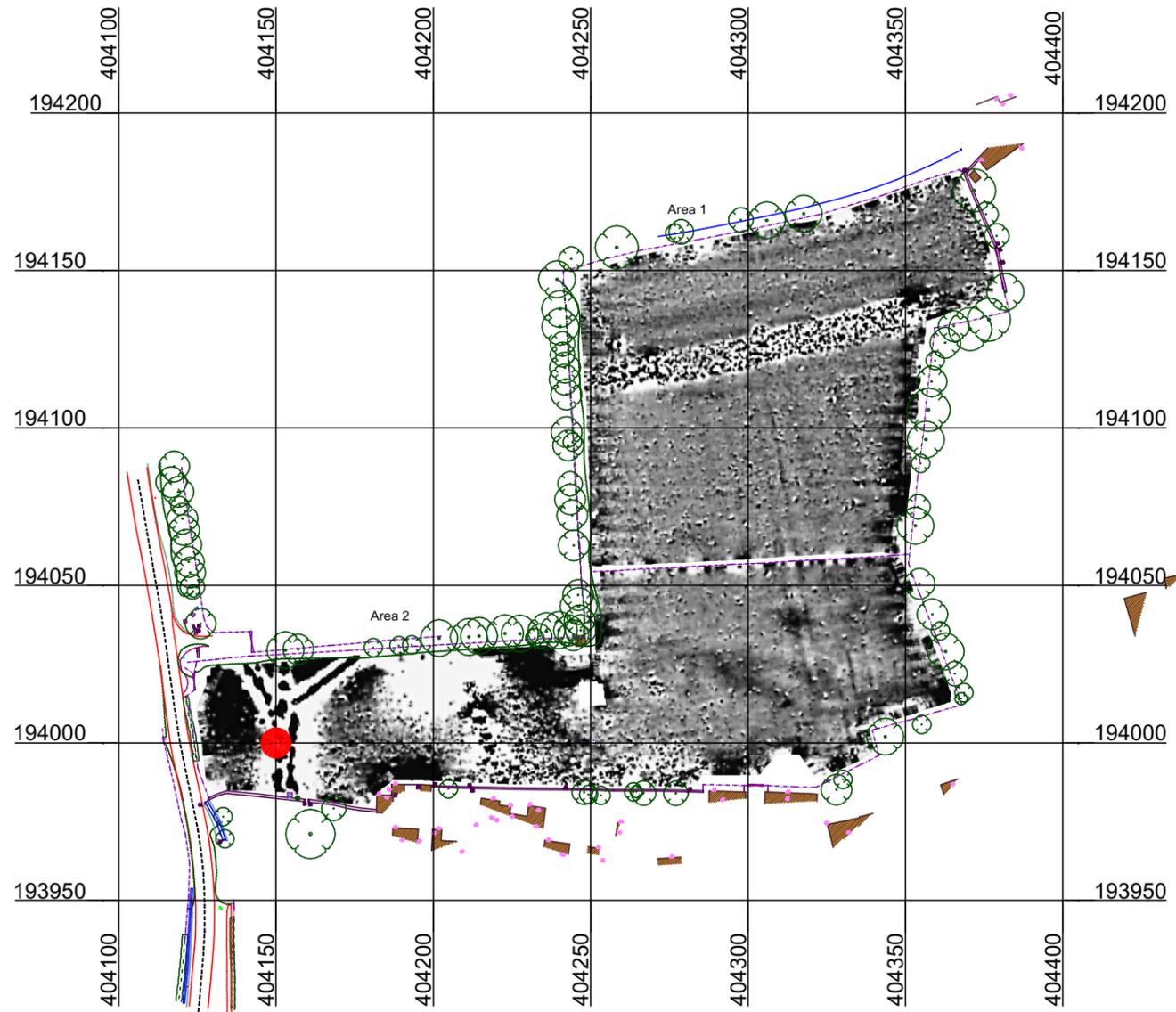
**Geophysical Survey
Land at Dairy Farm
Ashton Keynes
Wiltshire**

Referencing information

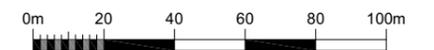
Referencing grid to OSGB36 datum at 50m intervals

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

● 404150 194000



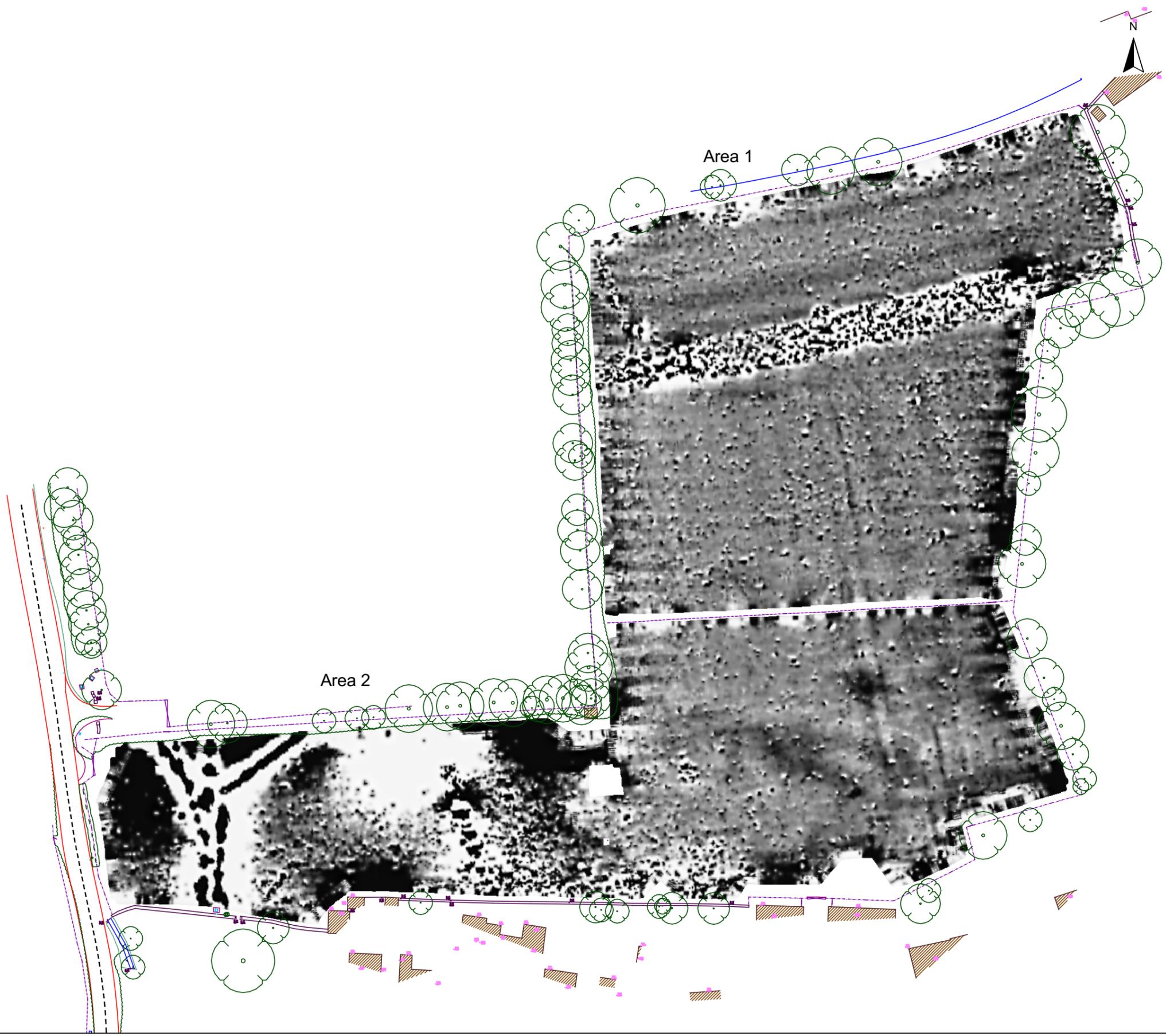
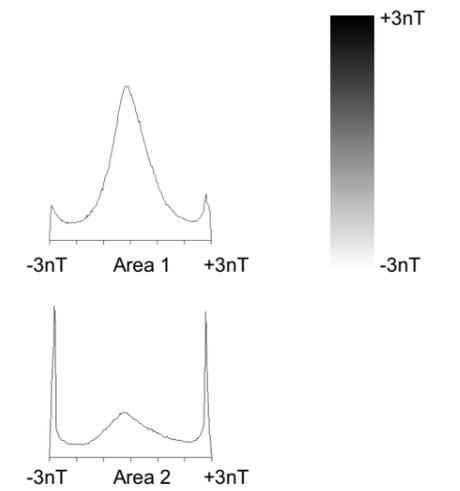
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Wiltshire**

**Greyscale plot of minimally
processed magnetometer data**



SCALE 1:1000

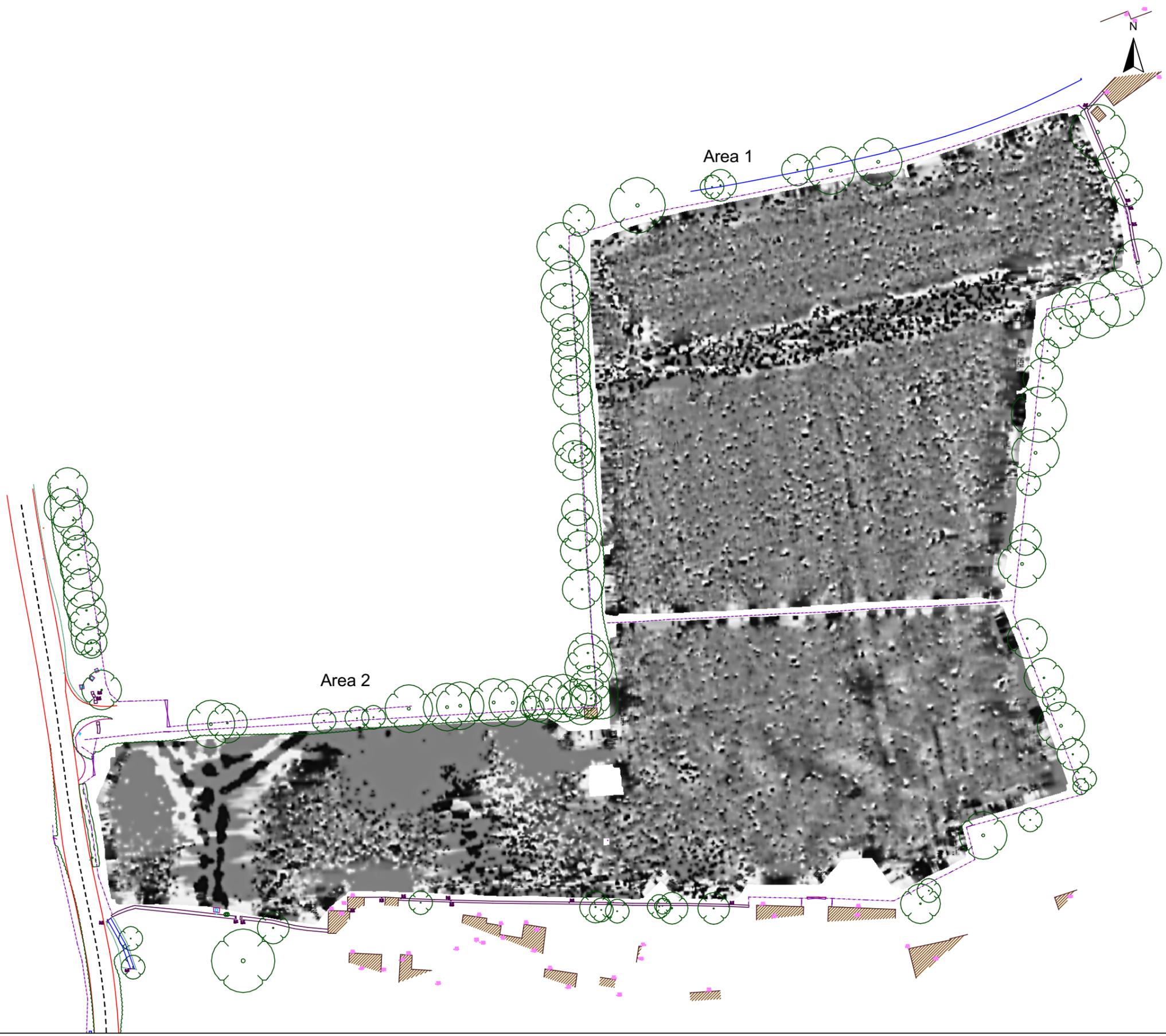
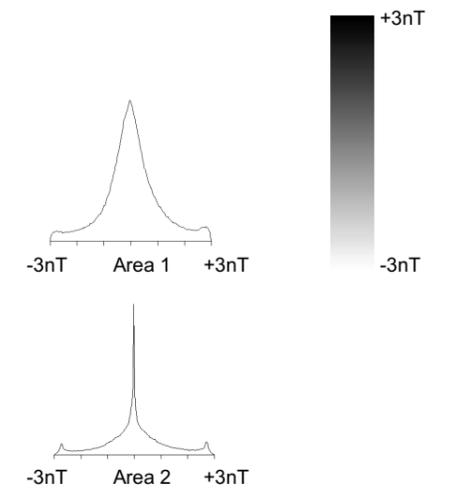


SCALE TRUE AT A3

FIG 03

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Land at Dairy Farm
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Wiltshire**

**Greyscale plot of filtered
magnetometer data**



SCALE 1:1000

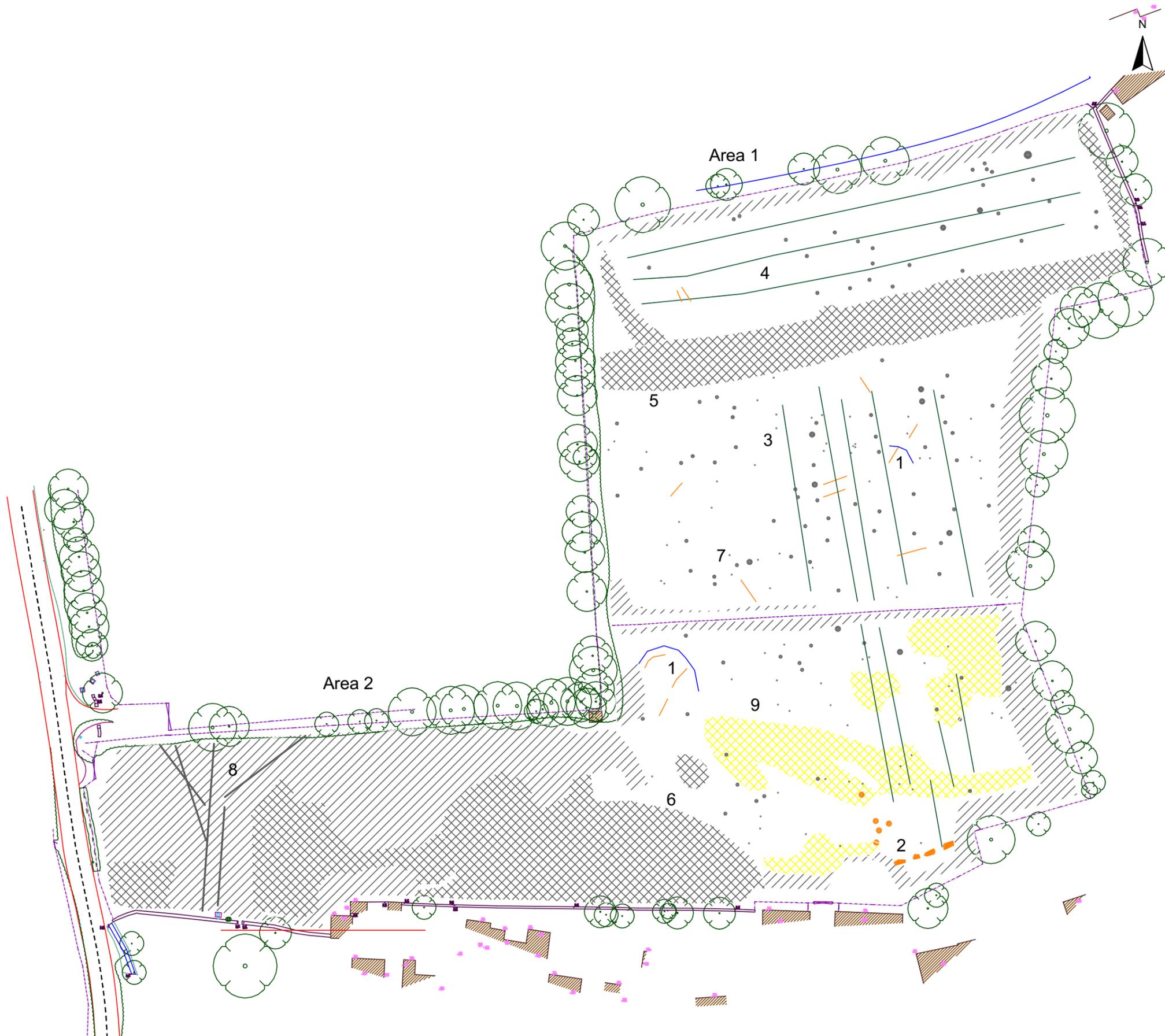


SCALE TRUE AT A3

**Geophysical Survey
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Ashton Keynes
Wiltshire**

**Abstraction and interpretation of
magnetometer anomalies**

-  Positive linear anomaly - possible ditch-like feature
-  Linear anomaly - ridge and furrow
-  Negative linear anomaly - material of low magnetic susceptibility
-  Discrete positive response - possible pit-like feature
-  Variable magnetic response - of natural origin
-  Magnetic debris - spread of magnetically thermoremanent/ferrous material
-  Magnetic disturbance from ferrous material
-  Strong multiple dipolar linear anomaly - water pipe
-  Strong dipolar anomaly - ferrous object



SCALE 1:1000



SCALE TRUE AT A3