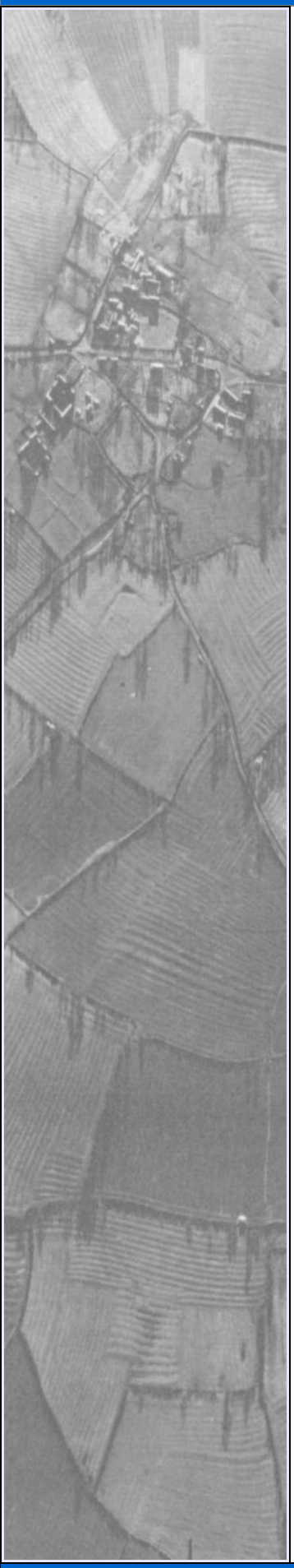

Land west of Avon Dassett Road
Fenny Compton
Warwickshire

MAGNETOMETER SURVEY REPORT

for

Hamlin Estates Ltd

Kerry Donaldson & David Sabin

July 2017

Ref. no. J722

ARCHAEOLOGICAL SURVEYS LTD

Land west of Avon Dassett Road
Fenny Compton
Warwickshire

Magnetometer Survey Report

for

Hamlin Estates Ltd

Fieldwork by David Sabin BSc (Hons) MCIfA
Report by Kerry Donaldson BSc (Hons)
Report checked by David Sabin
Primary archive location - Archaeological Surveys Ltd, Yatesbury, Wiltshire

Survey date – 11th July 2017
Ordnance Survey Grid Reference – **SP 41438 51987**

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It is a Registered Organisation with the Chartered Institute for Archaeologists.

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SUMMARY

A magnetometer survey was carried out by Archaeological Surveys Ltd over 1.6ha at Fenny Compton in Warwickshire. The results indicate the presence of a number of cut, linear features and pits that appear to have been partially truncated by the furrows of the extant ridge and furrow earthworks. This partial truncation is often characteristic of features that pre-date the ridge and furrow and may infer that they have archaeological potential. Other positive anomalies are either weak and indistinct or lack a coherent morphology preventing confident interpretation.

1 INTRODUCTION

1.1 Survey background

1.1.1 Archaeological Surveys Ltd was commissioned by Hamlin Estates Ltd to undertake a magnetometer survey of an area of land to the west of Avon Dassett Road, Fenny Compton in Warwickshire. The eastern part of the site has been outlined for a proposed residential development, 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 (2017). The WSI considers the requirements of a Brief for geophysical survey issued by Warwickshire County 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;* European Archaeological Council (2015) *Guidelines for the Use of Geophysics in Archaeology;* 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 located on the south western edge of Fenny Compton in Warwickshire. It is centred on Ordnance Survey National Grid Reference (OS NGR) 41438 51987, see Figs 01 and 02.

1.3.2 The geophysical survey covers approximately 1.6ha of pasture land containing extant ridge and furrow. The area is split into two by a hedgerow running west north west to east south east with the smaller southern part approximately 0.5ha. The southern boundary is formed by post and wire netting with all other boundaries consisting of hedgerows combined with wire netting. The land dips into a shallow valley along the north eastern periphery and tends to slope down towards the north west also. Only the eastern half of the site has been outlined for residential development, with the western half outlined for public open space; however, the entire site was surveyed in order to ascertain the archaeological potential of the land.

1.3.3 The ground conditions across the site were generally considered to be acceptable for the collection of magnetometry data. Ground cover was variable and in places consisted of tall patches of thistles and nettles, although it was possible to push the magnetometer cart through them without degrading the data. Several steel sheep feeding troughs in the centre of the site were moved temporarily to avoid high magnitude magnetic disturbance. Close to the south eastern corner of the site a narrow zone was avoided due to the presence of steel gates etc. used for penning. Weather conditions were mainly fine, with heavy rain moving in towards the end of the survey.

Plate 1: Northern part of site looking north east

Plate 2: Southern part of site looking south west towards Gredenton Hill

1.4 Site history and archaeological potential

1.4.1 The site lies close to the nucleated medieval settlement of Fenny Compton, but extant ridge and furrow within the site continues to the south as a reversed 'S' shape to the south indicating that it originates from between the medieval period and period of enclosures in 1779. A later hedge extends across the ridge and furrow and is an enclosure boundary that separates the site into two.

1.4.2 Within the wider vicinity a scheduled hill fort, Gredenton Hill Camp (List entry no. 1005762), is situated 570m to the south west. Iron Age settlement at Church Hill, Burton Dassett included pits and elongated features, and excavations at Granslet Farm, 1.2km to the west of the site, have identified evidence for a Late Iron Age and Romano-British settlement including pits, postholes, gullies, cobbled surfaces and building remains. There is also some evidence for later Bronze Age occupation, and also re-use of the Roman buildings and a shallow grave inhumation dating to the 6th century (Spackman, 2011).

1.4.3 The extant ridge and furrow indicates that the site has undergone arable cultivation for a prolonged period; however, the location of a number of Iron Age and Romano-British sites within the wider vicinity indicates that there is some potential for there to be further occupation elsewhere. There is always potential for the geophysical survey to locate previously unrecorded archaeological features should they be present within the site.

1.5 Geology and soils

1.5.1 The underlying solid geology across the site is from the Charmouth Mudstone Formation (Lower Lias Clay) (BGS, 2017). Elevated land to the south of the site contains ferruginous material belonging to the Marlstone Rock Formation.

1.5.2 The overlying soil across the survey area is from the Denchworth association and is a pelo-stagnogley soil. It consists of a slowly permeable, seasonally waterlogged, clayey soil (Soil Survey of England and Wales, 1983).

1.5.3 Magnetometry survey carried out across similar soils has produced good results. Surveys carried out below the escarpment containing the Marlstone Rock Formation tend to produce very good results relating to elevated levels of iron minerals that have weathered into the more clayey soils overlying the Charmouth Mudstone Formation. In addition, the latter can be associated with very low levels of magnetic susceptibility and where features that are cut into this become filled with magnetically enhanced topsoil, very good contrast can be formed. 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 (FGM650) spaced 0.5m apart with readings recorded at 20 Hz. The cart is pushed at walking speed and not towed. Each sensor is not zeroed in the field as the vertical axis alignment is precisely fixed leaving sensor offsets that are removed during data processing. The fixing of the vertical alignment ensures the sensors are not unduly influenced by localised magnetic fields and that the vertical component of a magnetic anomaly is measured. 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 Due to the fixed offsets within the fluxgate sensors, as a result of the manufacturing and tensioning process, the survey data do not provide a visually useful dataset until a zero median traverse algorithm is applied. It is recognised that this has the potential to affect some anomalies detrimentally by removing linear features orientated parallel to survey transects. However, this has not been noted as a particular problem with the system due to the high resolution data collection, generally long length of traverses and variability within the magnetic characteristics of a linear anomaly.

2.2.3 Data are collected along a series of parallel survey transects to achieve 100% coverage of the surveyable land. 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. 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).

2.2.4 Fluxgate sensors are highly sensitive to temperature change and this is manifest as drift during the course of a survey. This can be particularly noticeable during the morning as temperatures rise and the equipment warms or cools. Sensor drift within the course of a traverse will appear as a line trending from negative to positive after processing with a zero median traverse algorithm. To remove the potential for temperature drift data were collected after a 20 minute stabilisation period and traverses were limited to a time of generally <100s.

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. The software effectively allocates a geographic position for each data point and can compensate for fixed offsets present within the FGM650 sensors. The offsets are positive or negative values present on all fluxgate gradiometer sensors. Some systems use manual or electronic balancing to effectively zero the sensors; however, this is a short term measure that is prone to drift

through temperature changes and vibration and can easily be incorrectly set due to localised magnetic fields. The FGM650 sensors are very accurately aligned to the vertical magnetic gradient and are highly stable showing negligible drift on long traverses. The offset values are removed using TerraSurveyor software.

2.3.2 Survey tracks are analysed and georeferenced raw data (UTM Z30N) are then exported in ASCII format for further analysis and display within TerraSurveyor. The removal of offset values (compensation) of the sensors is also carried out in TerraSurveyor using a zero median traverse function. Data are then considered to be minimally processed. Note: without the zero median traverse function it is not possible to create a meaningful data plot as all sensors have a different offset value. 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 The minimally processed data are collected between limits of ±10000nT and clipped for display at ±3nT. Data are interpolated to a resolution of effectively 0.5m between tracks and 0.15m along each survey track.

2.3.4 Additional data processing has been carried out in the form of high pass filtering. This effectively removes low frequency variation along a traverse that has been caused by large magnetic bodies, cultivation, rapid temperature change. Data treated to additional processing has been compared to unprocessed data to ensure that no significant anomalies have been removed.

2.3.5 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 processing.

2.3.6 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. With regard to the Sensys MXPDA, minimally processed data is considered by the manufacturer to be data that is compensated by SENSYS MAGNETO DLMGPS software, see 2.3.1 and 2.3.2. Note: traceplots are not considered to be appropriate as they do not provide an accurate or useful assessment of the magnetic anomalies due to very high density of data collection.

2.3.7 The raster images are combined with base mapping using ProgeCAD Professional 2016, 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.

2.3.8 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.

2.3.9 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 the survey area. Where further interpretation is possible, or where a number of possible origins should be considered, more subjective discussion is set out in Section 4.

2.3.10 The abstraction and interpretation procedure has been supported by analysis of a digital terrain model derived from the Environment Agency's LiDAR 1m data (Fig 06). Shaded relief plots and contours are created using Surfer 10.

2.3.11 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 1.6ha. Both parts of the site will be considered as a whole.

3.1.2 Magnetic anomalies located can be generally classified as positive linear and discrete positive responses of archaeological potential, positive and negative anomalies of an uncertain origin, linear anomalies of an agricultural origin, areas of magnetic debris and disturbance and strong discrete dipolar anomalies relating to ferrous objects.

3.1.3 Anomalies located within each survey area have been numbered and are described in 3.4 below with subsequent discussion in Section 4.

3.2 Statement of data quality and factors influencing the interpretation of anomalies

3.2.1 Data are considered representative of the magnetic anomalies present within the site. There are no significant defects within the dataset. The results indicate moderately strong magnetic contrast similar to previous surveys carried out further to the south west over similar locations below the iron rich Marlstone Rock Formation.

3.2.2 The site contains well developed ridge and furrow earthworks that are associated with parallel positive and negative bands representing the ridges and furrows respectively. The results indicate that there is a high potential that features of archaeological potential have been truncated within the furrows but may survive within the ridges.

3.2.3 A localised zone of magnetic debris is related to ground consolidation adjacent to the entrance to the site (anomaly 11) and has the potential to obscure weak anomalies should they exist within this area.

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**
Anomalies with archaeological potential AS-ABST MAG POS LINEAR ARCHAEOLOGY AS-ABST MAG POS DISCRETE ARCHAEOLOGY	Anomalies have the characteristics (mainly morphological) of a range of archaeological features such as pits, ring ditches, enclosures, etc.
Anomalies with an uncertain origin AS-ABST MAG POS LINEAR UNCERTAIN AS-ABST MAG NEG LINEAR UNCERTAIN AS-ABST MAG POS DISCRETE UNCERTAIN AS-ABST MAG POS 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. Negative anomalies are produced by material of comparatively low magnetic susceptibility such as stone and subsoil.
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. .

Table 1: List and description of interpretation categories

3.4 List of anomalies

Area centred on OS NGR 441438 251987, see Figs 03 – 05.

Anomalies of archaeological potential

(1) - A fragmented positive linear anomaly can be seen in the southern part of the site. The response can only be seen under the ridges and appears to relate to a cut, linear ditch that has been truncated by the furrows of the extant ridge and furrow (13), therefore pre-dating it.

(2) - Located to the south of anomaly (1) are a group of discrete, positive anomalies that appear to relate to pits containing magnetically enhanced material. They are also mainly apparent beneath the ridges of the ridge and furrow.

(3) - In the northern part of the site are a group of fragmented, weakly positive, linear anomalies and several discrete responses. They appear to relate to cut features that have been truncated by the furrows, with the linear responses 1-2nT and the pit-like features 6-12nT, which again indicates magnetic enhancement.

Anomalies with an uncertain origin

(4) - Located in the southern part of the site is a positive linear anomaly. The response is over 10nT and it is not quite on the same orientation as the ridge and furrow. Although there is a short positive response just to the north of the 18th century field boundary that splits the site, it is much weaker (1nT) and it is not possible to determine if it is a continuation of the anomaly to the south. A cut feature should, however, be considered.

(5) - A positive anomaly is located in the western part of the site. It also has a response of over 10nT, similar to anomaly (4).

(6) - Located in the far north of the site is a fragmented positive linear anomaly with a curving form. While this type of response may indicate the fill of a cut feature, the response could also be associated with land drainage, or a possible former water channel, as it is located beyond the ridge and links into a shallow valley.

(7) - There are a number of short or fragmented, weakly positive, linear anomalies within the site, but they are indistinct and lack a coherent morphology. Many are situated in the vicinity of anomalies (3), which may indicate that they also relate to cut features with archaeological potential.

(8) - Weakly positive, amorphous anomalies (1-2nT) appear to be associated with the ridges of the ridge and furrow. However, it is not possible to determine if they relate to an increased depth of topsoil within the ridges or if they relate to disturbed or buried features beneath.

(9) - A negative linear anomaly is located in the western part of the site. It is not situated within a furrow, but appears to be situated on or beneath a ridge.

Anomalies with an agricultural origin

(10) - A series of extant ridge and furrow exists within the field. The furrows have been abstracted and appear to have truncated earlier cut features.

Anomalies associated with magnetic debris

(11) - A patch of magnetic debris is evident within the gateway to the site and relates to ferrous and other magnetically thermoremnant material that has been used as ground consolidation.

(12) - A number of strong, discrete responses are evident especially within the north eastern and western parts of the site. Although several are grouped it is not possible to determine if they relate to modern or older ferrous objects within the topsoil. The majority of sites contain similar responses which are often associated with modern ferrous material spread through agricultural activity.

Anomalies with a modern origin

(13) - Magnetic disturbance has been caused by ferrous material within surrounding fencing material.

4 DISCUSSION

4.1.1 The site contains a number of weakly positive linear anomalies of archaeological potential. In the southern part of the site a fragmented positive linear anomaly (1) appears to have been truncated by the furrows and preserved beneath the ridges, although the response is generally weak (1-2nT). Although disturbance of the ridge and furrow by a later intervention, such as a pipe or land drain, can cause such a response, the anomaly has a similar orientation and response to anomalies (3) to the north. These do not have a clearly defined morphology, but again appear to be preserved beneath the extant ridges of the ridge and furrow cultivation.

4.1.2 A number of discrete, positive anomalies (2) have also been located in the vicinity of the fragmented linear features. They are often much stronger with a response of 3-15nT, indicating that they may relate to pits containing magnetically enhanced material that could be associated with burning.

4.1.3 A number of further positive responses (4 to 8) and a negative response (9) have also been located within the site, but although some are strong at over 10nT (4 & 5), the majority are weak and short, lacking a coherent form or

pattern for their origin to be interpreted. However, it is possible that they relate to further cut features.

5 CONCLUSION

5.1.1 Detailed magnetometry has located several weakly positive and fragmented linear anomalies within the site. They appear to relate to former ditches that have been truncated by the furrows and preserved beneath the ridges of the extant ridge and furrow. A number of pit-like anomalies with a stronger response than the fragmented linear anomalies, possibly indicating an association with burnt material, have also been located.

6 REFERENCES

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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 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 ±5nT and ±3nT 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, modern agricultural features and other large magnetic bodies within or adjacent to survey areas.

Low Pass Filtering

A mathematical process used to remove high frequency anomalies relating to uneven ground, vibration, etc.

Appendix C – survey and data information

Minimally processed data

Filename: J722-mag-proc.xcp
Description: Imported as Composite from: J722-mag.asc
Instrument Type: Sensys DLMGPS
Units: nT
UTM Zone: 30U
Survey corner coordinates (X/Y): OSGB36
Northwest corner: 441367.529358688, 252090.962846451 m
Southeast corner: 441498.779358688, 251884.862846451 m
Collection Method: Randomised
Sensors: 5
Dummy Value: 32702

Source GPS Points: 470900

Dimensions
Composite Size (readings): 875 x 1374
Survey Size (meters): 131 m x 206 m
Grid Size: 131 m x 206 m
X Interval: 0.15 m
Y Interval: 0.15 m

Stats
Max: 3.32
Min: -3.30
Std Dev: 1.22
Mean: -0.01
Median: -0.02
Composite Area: 2.7051 ha
Surveyed Area: 1.4246 ha

PROGRAM
Name: TerraSurveyor
Version: 3.0.23.0

Processes: 1
1 Base Layer

GPS based Proce4
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to OSGB36).
3 DeStripe Median Traverse:
4 Clip from -3.00 to 3.00 nT

Filtered data

Filename: J722-mag-proc-hpf.xcp
Description: Imported as Composite from: J722-mag.asc

Stats
Max: 3.32
Min: -3.30
Std Dev: 1.17
Mean: -0.01
Median: -0.03

Processes: 1
1 Base Layer

GPS based Proce5
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to OSGB36).
3 DeStripe Median Traverse:
4 High pass Uniform (median) filter: Window dia: 400
5 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.

Three printed copies of the report and a PDF copy will be supplied to the Warwickshire Historic Environment Record. The report will also be uploaded to the Online AccesS to the Index of archaeological investigationS (OASIS). A summary of the survey will also be supplied to *West Midlands Archaeology.*

Should there be a requirement by the local authority for the geophysical survey data to be archived with the Archaeology Data Service (ADS) then this will incur and additional charge to the client to cover the ADS costs.

Archive contents:

Geophysical data - path: J722 Fenny Compton\Data				
Path and Filename	**Software**	**Description**	**Date**	**Creator**
fenny1\MX\ fenny2\MX\ .prm .dgb .disp	Sensys MXPDA	Proprietary data formats representing magnetometer survey traverses logged to a PDA.	11/07/17	D.J.Sabin
fenny2\MX\J722-mag.asc	Sensys DLMGPS	ASCII CSV (tab) file representing survey area in eastings, northings (UTM Z30N), magnetic measurement, traverse file and sensor number.	12/07/17	K.T.Donaldson
Mag\comps\J722-mag.xcp	TerraSurveyor 3.0.23.0	Composite data file derived from ASCII CSV.	12/07/17	K.T.Donaldson
Mag\comps\J722-mag-proc.xcp	TerraSurveyor 3.0.23.0	Processed composite data file (zmt and clipping to ±3nT).	12/07/17	K.T.Donaldson
Mag\comps\J722-mag-proc-hpf.xcp	TerraSurveyor 3.0.23.0	Processed composite data file (zmt, high pass filtering and clipping to ±3nT).	25/07/17	K.T.Donaldson
Graphic data - path: J722 Fenny Compton\Data				
Mag\graphics\ J722-mag-proc.tif	TerraSurveyor 3.0.23.0	TIF file showing a minimally processed greyscale plot clipped to ±3nT.	12/07/17	K.T.Donaldson
Mag\graphics\ J722-mag-proc.tfw	TerraSurveyor 3.0.23.0	World file for georeferencing TIF to OSGB36.	12/07/17	K.T.Donaldson
Mag\graphics\ J722-mag-proc-hpf.tif	TerraSurveyor 3.0.23.0	TIF file showing a high pass filtered greyscale plot clipped to ±3nT.	25/17/17	K.T.Donaldson
Mag\graphics\ J722-mag-proc-hpf.tfw	TerraSurveyor 3.0.23.0	World file for georeferencing TIF to OSGB36.	25/07/17	K.T.Donaldson
CAD data - path: J722 Fenny Compton\CAD				
J722 version 1.dwg	ProgeCAD 2016	CAD file for creating plots of greyscales, abstraction, interpretation and mapping. Grid coordinates as OSGB. AutoCAD 2010 format.	12/07/17	K.T.Donaldson
Text data - path: J722 Fenny Compton\Documentation				
J722 report.odt	OpenOffice.org 3.0.1 Writer	Report text as an Open Office document.	21/07/17	K.T.Donaldson

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N

Survey location

Archaeological Surveys Ltd

Geophysical Survey
Land west of Avon Dassett Road
Fenny Compton
Warwickshire

Map of survey area

Reproduced from OS Explorer map no.206 1:25 000 by permission of Ordnance Survey on behalf of The Controller of Her Majesty's Stationery Office. © Crown copyright. All rights reserved. Licence number 100043739.

Survey location

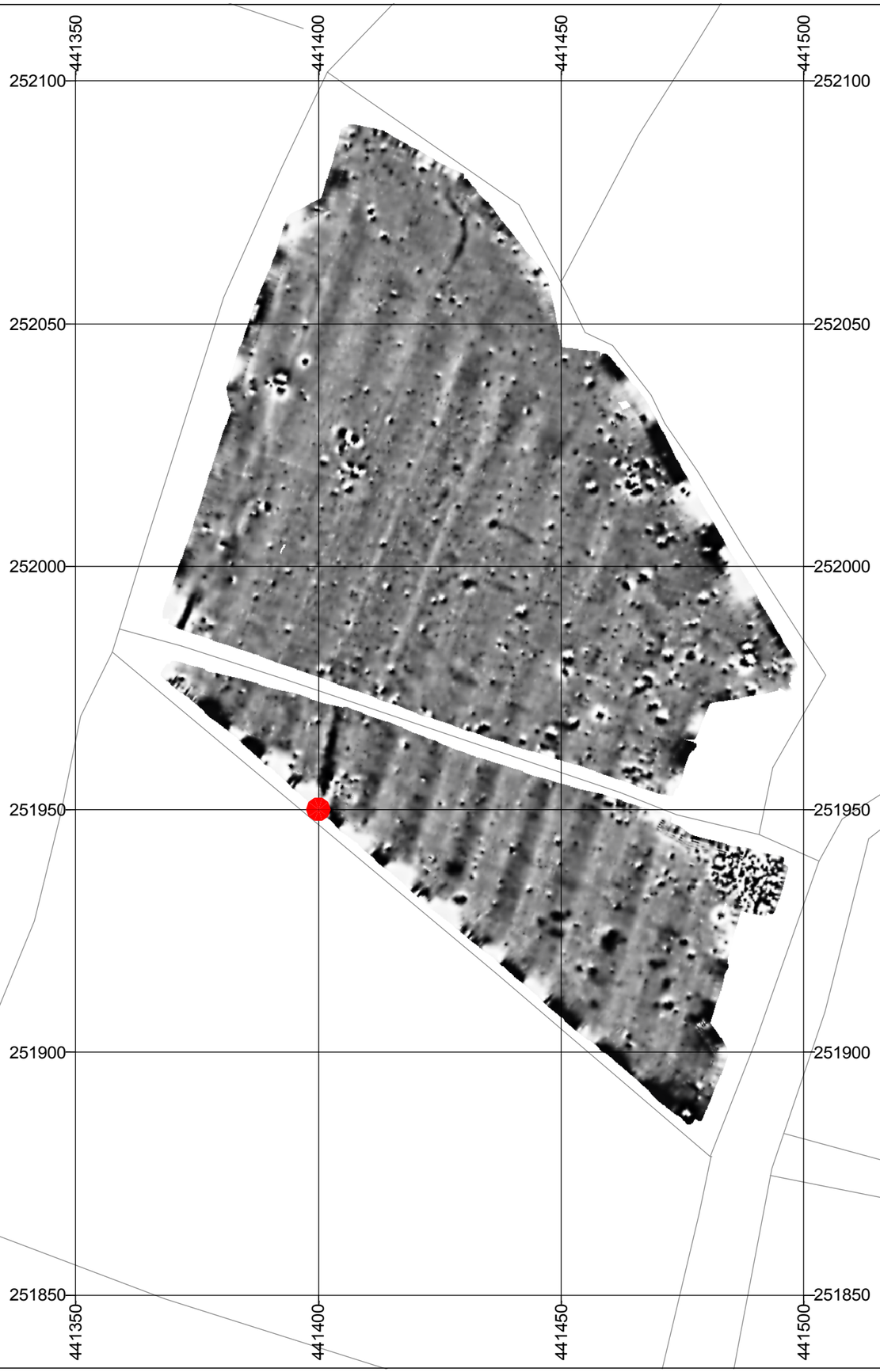
Site centred on OS NGR
SP 41438 51987

SCALE 1:25 000

0m 500m 1000m

SCALE TRUE AT A3

FIG 01



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Geophysical Survey
Land west of Avon Dassett Road
Fenny Compton
Warwickshire

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

441400 251950

SCALE 1:1000

0m 10 20 30 40 50m

SCALE TRUE AT A3

FIG 02

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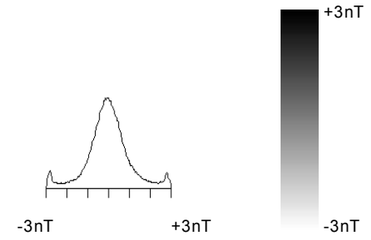
Warwickshire

Greyscale plot of minimally processed magnetometer data



N

SCALE 1:1000

0m 10 20 30 40 50m

SCALE TRUE AT A3

FIG 03

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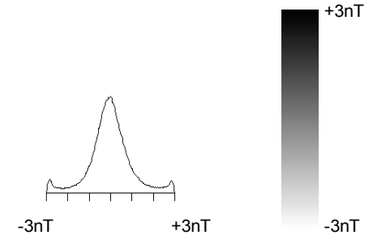
Warwickshire

Greyscale plot of filtered magnetometer data



N

SCALE 1:1000

0m 10 20 30 40 50m

SCALE TRUE AT A3

FIG 04

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Abstraction and interpretation of magnetic anomalies

- Positive linear anomaly - cut feature of archaeological potential
- Positive linear anomaly - possible ditch-like feature
- Negative linear anomaly - furrow
- Negative linear anomaly - material of low magnetic susceptibility
- Discrete positive response - cut feature of archaeological potential
- Discrete positive response - possible pit-like feature
- Positive anomaly - magnetically enhanced material
- Magnetic debris - spread of magnetically thermoremnant/ferrous material
- Magnetic disturbance from ferrous material
- Strong dipolar anomaly - ferrous object

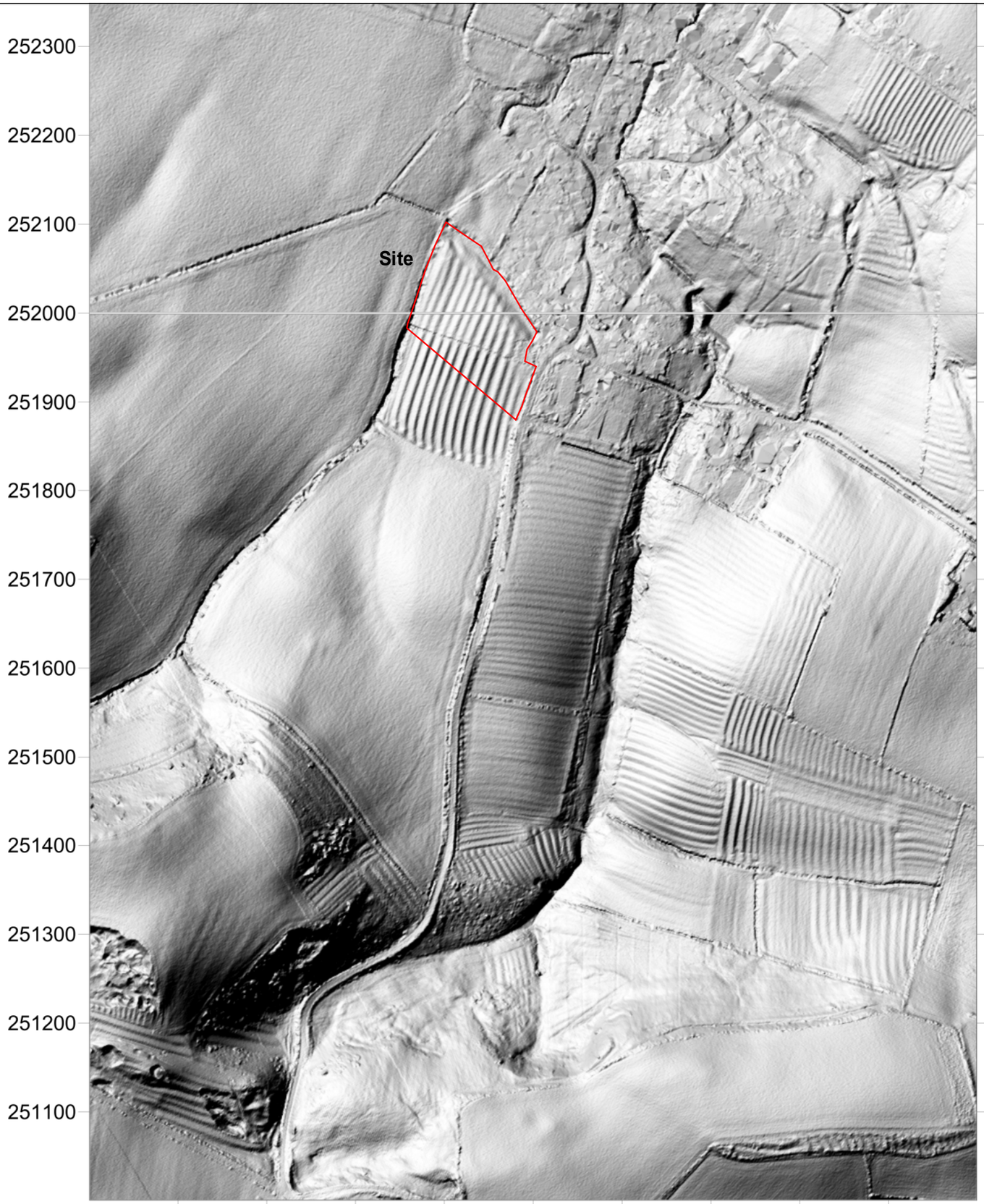
N

SCALE 1:1000

0m 10 20 30 40 50m

SCALE TRUE AT A3

FIG 05



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Warwickshire

Digital Terrain Model

Derived from Environment Agency's LiDAR data 1m resolution

SCALE 1:5000

0m 100 200m

SCALE TRUE AT A3

FIG 06

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