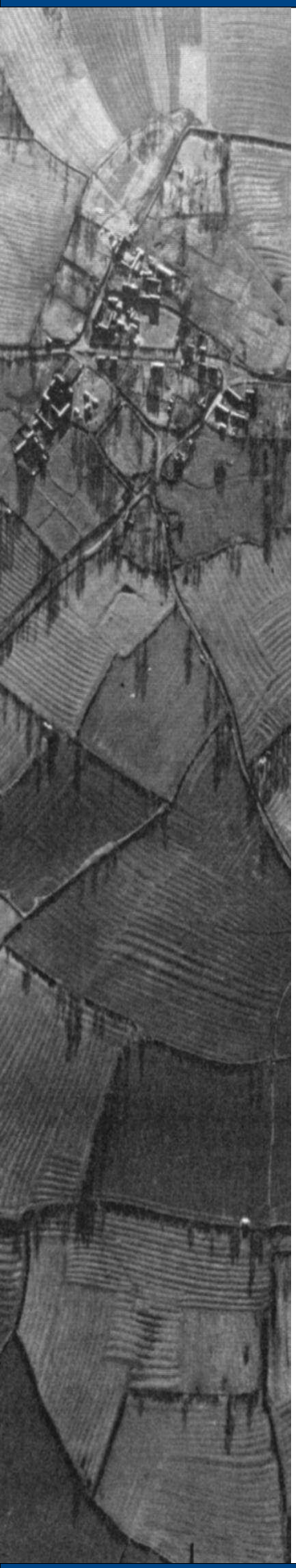

Roves Farm
Sevenhampton, Swindon

MAGNETOMETER SURVEY REPORT

for

Mr R Burr

David Sabin and Kerry Donaldson

November 2010

Ref. no. 342

ARCHAEOLOGICAL SURVEYS LTD

Roves Farm, Sevenhampton, Swindon

Magnetometer Survey

for

Mr R Burr

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

Survey date **- 9th November 2010**
Ordnance Survey Grid Reference - **SU 205 888**

Archaeological Surveys Ltd
PO Box 2862, Castle Combe, Chippenham, Wiltshire, SN14 7WZ
Tel: 01249 782234 Fax: 0871 661 8804
Email: info@archaeological-surveys.co.uk
Web: www.archaeological-surveys.co.uk

CONTENTS

LIST OF FIGURES

LIST OF PLATES

LIST OF TABLES

SUMMARY

A magnetometer survey was commissioned by Mr R Burr on land at Roves Farm, Sevenhampton, near Swindon. The survey was undertaken at the request of the Wiltshire County Archaeologist due to the presence of cropmark evidence for an undated enclosure within the field. The site has been outlined for the proposed development of an array of photovoltaic solar panels.

The survey located the enclosure and revealed evidence for possible phases of construction and use, together with evidence for occupation. Within the enclosure, at least two ring ditches appear to relate to round houses. Cultural material, mainly in the form of pottery sherds visible on the field surface, suggest a period of activity dating from at least the late prehistoric into the early Roman period.

It appears that to the north and south west of the enclosure there are external ditches that may indicate an earlier phase. A funnel-shaped feature appears to extend beyond the enclosure ditch towards the south east and this is also likely to belong to a separate phase of activity.

The enclosure has a 6m wide entranceway in the centre of the western side, and it appears to be associated with other ditch-like features, suggesting additional defensive works at the access point. The high magnitude of the magnetic data recorded across the enclosure ditch indicates the presence of soil that probably contains contains burnt material, most likely derived from activity within the enclosure. In contrast, many anomalies within the enclosure are weak and fragmented suggesting that they are shallow and may have been disturbed by agricultural cultivation. The site may, therefore, be very vulnerable to continuing cultivation.

1 INTRODUCTION

1.1 Survey background

1.1.1 Archaeological Surveys Ltd was commissioned by Mr Rupert Burr to undertake a magnetometer survey of an area of land at Roves Farm, Sevenhampton, to the north east of Swindon. The site has been outlined for the proposed development of an array of photovoltaic solar panels. The survey enhances the archaeological knowledge of the site.

1.1.2 The geophysical survey was carried out at the request of Melanie Pomeroy-Kellinger, Wiltshire County Archaeologist, as cropmark evidence for an enclosure was known to exist within the survey area .

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. The specific aim of the survey was to locate the position and extent of a cropmark possibly relating to an enclosure.

1.2.2 The methodology is considered an efficient and effective approach to archaeological prospection. The survey and report generally follow the recommendations set out by: English Heritage, 2008, *Geophysical survey in archaeological field evaluation;* Institute for Archaeologists, 2002, *The use of Geophysical Techniques in Archaeological Evaluations*.

1.3 Site location, description and survey conditions

1.3.1 The site is located at Roves Farm, Sevenhampton, to the north east of Swindon. It is centred on Ordnance Survey National Grid Reference (OS NGR) SU 20546 88804, see Figures 01 and 02.

1.3.2 The geophysical survey covers an area of 1.44ha within an arable field covering approximately 20ha. Immediately to the north and south of the survey area are beetle banks which are low mounds that are left uncultivated. The site slopes down gently towards the south and, at the time of survey, the ground cover was thin and consisted of stubble and patchy grass growth, see Plate 1.

Plate 1: Survey area looking towards the north west

1.3.3 The ground conditions across the site were sticky, but generally considered to be favourable for the collection of magnetometry data. Weather conditions during the survey were mainly dry, cool and overcast.

1.4 Site history and archaeological potential

1.4.1 The survey was targeted on an undated square enclosure visible as a cropmark on aerial photographs and listed within the Wiltshire Sites and Monuments Record as SMR NO. SU28NW602. To the north west of this feature is listed another rectilinear enclosure (SMR NO. SU28NW618), but this now appears to have been planted with trees. The archaeological potential of the enclosure was unknown prior to the survey.

1.5 Geology and soils

1.5.1 The underlying geology is limestone from the Stanford formation, part of the Corallian beds of the Jurassic period (BGS, 2010), with overlying soils from the Sherborne association which are brown rendzinas. These consist of shallow, well-drained, brashy, calcareous, clayey soils formed over limestone (Soil Survey of England and Wales, 1983).

1.5.2 Magnetometer surveys carried out over similar soils in the region have produced good results. There is often a strong contrast between the fill of cut features and the material into which they are cut.

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 Bartington Grad601-2 gradiometer. The instrument effectively measures a magnetic gradient between two fluxgate sensors mounted vertically 1m apart. Two sets of sensors are mounted on a single frame 1m apart horizontally.

2.2.2 The instrument is extremely sensitive and is able to measure magnetic variation to 0.01nanoTesla (nT), with an effective resolution of 0.03nT. The data are limited to ±100nT when surveying with the highest sensitivity. All readings are saved to an integral data logger for analysis and presentation.

2.2.3 The instrument is operated according to the manufacturer's instructions with consideration given to the local conditions. An adjustment procedure is required, prior to collection of data, in order to balance the sensors and remove the effects of the Earth's magnetic field; further adjustment is required during the survey due to instrument drift often associated with temperature change.

2.2.4 The Bartington gradiometer undergoes regular servicing and calibration by the manufacturer. A current assessment of the instrument is shown in Table 1 below.

Sensor type and serial numbers	Bartington Grad - 01 – 1000 Nos. 084, 085
Date of calibration/service	6th August 2010
Bandwidth	12Hz (100nT range) both sensors
Noise	<100pT peak to peak
Adjustable errors	<2nT

Table 1: Bartington fluxgate gradiometer sensor calibration results

The instrument was considered to be in good working order prior to the survey, with no known faults or defects.

2.2.5 Data were collected at 0.25m centres along traverses 1m apart. The survey area was separated into 40m by 40m grids (1600m²) giving 6400 measurements per grid. This sampling interval is very effective at locating archaeological features and is the recommended methodology for archaeological prospection (English Heritage, 2008).

2.2.6 The survey grids were set out to the Ordnance Survey OSGB36 datum using a Penmap RTK GPS. The GPS is used in conjunction with Topcon's TopNet service, where positional corrections are sent via a mobile telephone link. Positional accuracy of around 10 – 20mm is possible using the system. The instrument is regularly checked against the ETRS89 reference framework

using Ordnance Survey ground marker C1ST7784 (Horton).

2.2.7 The survey area was targeted on the area of the cropmark enclosure and carried out between the two beetle belts to the north and south of the enclosure. A square of 120m by 120m was covered during the survey.

2.3 Data processing and presentation

2.3.1 Magnetometry data downloaded from the Grad 601-2 data logger are analysed and processed in specialist software known as ArcheoSurveyor. The software allows greyscale and trace plots to be produced for presentation and display. Survey grids are assembled to form an overall composite of data (composite file) creating a dataset of the complete survey area. Appendix C contains specific information concerning the survey and data attributes and is derived directly from ArcheoSurveyor; this should be used in conjunction with information provided by Figure 02.

2.3.2 Only minimal processing is carried out in order to enhance the results of the survey for display. Raw data are always analysed, as processing can modify anomalies. The following schedule sets out the data and image processing used in this survey:

- clipping of the raw data at ±30nT to improve greyscale resolution,
- clipping of processed data at ±10nT to enhance low magnitude anomalies,
- clipping of trace plots at ±100nT in order to minimise strong readings obscuring low magnitude responses,
- de-stagger is used to enhance linear anomalies,
- zero median/mean traverse is applied in order to balance readings along each traverse.

Reference should be made to Appendix B for further information on the specific processes carried out on the data. Appendix C metadata includes details on the processing sequence used.

2.3.3 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 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.

2.3.4 The main form of data display used in this report is the greyscale plot. Magnetic data are also displayed as a trace plot. Both 'raw' and 'processed' data have been shown followed by an abstraction and interpretation plot. Anomalies are abstracted using colour coded points, lines and polygons. All plots are scaled to landscape A3 for paper printing.

2.3.5 Graphic raster images in bitmap format (.BMP) are initially prepared in

ArcheoSurveyor. Regardless of survey orientation, data captured along each traverse are displayed and processed by ArcheoSurveyor from left to right. Prior to displaying against base mapping, raster graphics require a rotation of 98° anticlockwise to restore north to the top of the image. Greyscale images are rotated by AutoCAD, traceplots are rotated using ArcheoSurveyor. Rotated traceplots are derived from interpolated datasets and can be considered as representative only as the raw data will have been modified to a minor degree.

2.3.6 The raster images are combined with base mapping using ProgeCAD Professional 2009 and AutoCAD LT 2007, creating DWG file formats. All images are externally referenced to the CAD drawing in order to maintain good graphical quality. Quality can be compromised by rotation of graphics in order to allow the data to be orientated with respect to grid north; this is considered acceptable as the survey results are effectively georeferenced allowing relocation of features using GPS, resection method etc.. A digital archive, including raster images, is produced with this report allowing separate analysis if necessary, see Appendix D below.

3 RESULTS

3.1 General overview

3.1.1 The detailed magnetic survey was carried out over 1.44ha. Geophysical anomalies located can be generally classified as positive linear and discrete positive responses of archaeological potential, positive anomalies of an uncertain origin, linear anomalies of an agricultural origin and strong discrete dipolar anomalies relating to ferrous objects Anomalies have been numbered and are described below with subsequent discussion in Section 4.

3.1.2 Data are considered to be of good quality. Some minor positional errors were corrected by data processing, it is likely that these were a consequence of sticky and slippery surface conditions and a slight slope down to the south.

3.1.3 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 for each 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 CURVILINEAR RING DITCH	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 POS AREA 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 AGRICULTURAL	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 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.

Table 2: List and description of interpretation categories

3.2 List of anomalies

Anomalies of archaeological potential

(1) – A positive rectilinear anomaly, is a response to magnetically enhanced material within a ditch, associated with a sub-rectangular enclosure with dimensions of 94m by 77m. There is a 6.5m entrance on the western side and the response to the ditches is approximately 4m wide.

(2) – Positive linear anomalies on the northern, north western and south western sides of anomaly (1). These linear anomalies relate to external ditches and it is possible that they relate to an earlier enclosure.

(3) – Positive linear anomalies extending from beyond anomaly (1) to the south. One linear then extends generally northwards, and the others westwards and north westwards forming a “Y” or funnel shaped feature. It appears to form an elaborate trackway or entranceway that possibly underlies the enclosure.

(4) – Positive linear anomalies appear to be associated with the entrance to the enclosure on the western side. It is possible that they relate to some form of blocking or restricting ditches.

(5) – A positive curvilinear anomaly represents a penannular ring ditch likely to relate to a former round house. The entrance is facing south east and appears to partially extend outwards on the northern edge perhaps indicating a porch-like addition. There is some evidence for internal pits and/or areas of burning.

(6) – A positive curvilinear anomaly represents a penannular ring ditch likely to relate to a former round house. It is possible that it contains an internal pit or area of burning.

(7) – A group of weak positive curvilinear anomalies may relate to the remains of a ring ditch feature.

(8) – Fragmented positive linear and curvilinear anomalies located within anomaly (1). It is likely that they relate to former cut features that have become subsequently eroded through agricultural practices.

(9) – Discrete positive anomalies are likely to relate to pits with an archaeological origin.

(10) – Positive linear and discrete anomalies located predominately to the south and east of anomaly (1). These appear to relate to ditches and pits with archaeological potential, and indicate that archaeological features extend beyond the enclosure.

Anomalies with an uncertain origin

(11) – A broad, curvilinear anomaly located close to the western edge of the survey area. It is not possible to determine if this relates to a cut feature or a natural feature.

(12) – Broad, weakly positive linear anomalies within and to the south of anomaly (1), may relate to cut features. However, it is possible that these have been caused by agricultural activities.

(13) – Two weak, positive linear anomalies extend from the eastern edge of the survey area in a south westerly direction into the confines of anomaly (1). It appears possible that the northernmost anomaly extends towards the northern end of anomaly (3), however an association cannot be determined, and it is possible that these anomalies have an agricultural origin.

Anomalies with an agricultural origin

(14) – A series of parallel linear anomalies, extend across the survey area with a north-north-west to south-south-east orientation. These are likely to have been caused by agricultural activity or relate to land drains and appear to have partially affected or eroded the archaeological features.

Anomalies associated with magnetic debris

(15) – Strong discrete dipolar anomalies indicate the presence of ferrous or other magnetically thermoremnant material within the topsoil.

4 DISCUSSION

4.1.1 The morphology of anomaly (1) indicates that the magnetic response has been caused by ditches associated with a sub-rectangular defended enclosure, possibly dating from the later part of the Iron Age (late 1st century BC to early 1st century AD). The enclosure has an entrance approximately mid-way on the western side which is approximately 6.5m wide. Further evidence for the defensive nature of the site can be seen by the short positive linear anomalies just to the east and west of this entrance, with a larger linear feature further west that may have restricted access (anomaly 4).

4.1.2 The response to the enclosure ditch is generally moderately high, between 10nT and 30nT, indicating that magnetically enhanced ferrous minerals, from burning and the break down of organic material, has been incorporated into the ditches over a period of time. Within these ditches there are at least three strongly enhanced discrete areas, labelled (a), (b) and (c) in Figure 06, which may indicate the locations of comparatively more intense activity and/or burning, although it is possible that they relate to pits within the enclosure ditch. Anomaly (c) has a linear anomaly extending eastwards from it, where it then turns southwards.

4.1.3 Although superimposition cannot be determined from the geophysical survey, there is evidence for different phases of construction of the outer ditch (see anomaly 2). There appears along the northern, north western and south western edges, an external ditch, although whether this pre or post-dates the rectilinear enclosure is uncertain. There are several other positive linear and discrete anomalies, predominately to the south and east of the enclosure that are likely to relate to cut features with an archaeological origin.

4.1.4 Other evidence of phasing may exist, see anomaly (3). This appears as “Y” or funnel shaped feature, extending from beyond the southern edge of (1), to the north and north west. The anomaly appears to relate to a cut feature with a similarly high response to (1), suggesting that burnt material has become incorporated into it over a period of time. It is not possible to determine if it “cuts” or is “cut by” the southern edge of (1).

4.1.5 Within the confines of the enclosure are the remains of at least two ring ditches that appear to relate to round houses and the possible remains of three others. The ring ditches (5) and (6) have internal diameters of 14m and probably represent drainage gullies surrounding the round houses. Ring ditch (5) has an extension to the east that may indicate a former entrance porch. There is also evidence for internal pits or

areas of burning and other weak curvilinear cut features.

4.1.6 During the survey, pottery sherds were frequently observed on the field surface along with burnt limestone fragments, a number of burnt flint fragments and some fragments of sarsen stone. The pottery sherds included many coarseware fragments with Savernake type material probably the most frequently observed; some fragments of this material were very thick and clearly belonged to vessels of a substantial size. Some very coarse fabrics probably belong to other late Iron Age – early Roman industries. Although some finer Roman greyware fabrics were observed, no sherds were observed that could be clearly attributed to Roman fineware fabrics (e.g. Samian ware or colour-coated pottery).

4.1.7 The cultural material supports the geophysical evidence for a small, defended farming settlement of native style dating probably at least to the late prehistoric period extending through into the early Roman period. Unless the settlement remained of very low status, there is no clear evidence for the adoption of Romanised building styles, combined with a lack of later Roman pottery types, it is possible that the settlement did not remain occupied throughout the Roman period, although there may have been a shift in settlement to beyond the area surveyed.

5 CONCLUSION

5.1.1 The magnetometer survey has clearly defined a sub-rectangular enclosure visible as a cropmark on aerial photographs of the site. Internal ring ditches indicative of round houses and cultural material visible on the field surface strongly suggest settlement dating to at least the late prehistoric and continuing into the early Roman period.

5.1.2 Associated anomalies include a second outer enclosure ditch and a funnel -shaped feature extending beyond the enclosure to the south. These anomalies tend to indicate several phases of development, though the sequence cannot be confidently determined. The main sub-rectangular enclosure has an entrance along its western side and an additional linear anomaly to the west of this would suggest some sort of defensive works.

5.1.3 The weak and fragmented nature of a number of anomalies within the enclosure tend to suggest agricultural erosion and disturbance; continued ploughing may completely remove any remaining features within the next few years. The site may provide a useful archaeological resource for the transition from the late Iron Age into the Roman period within the Swindon region.

6 REFERENCES

British Geological Survey, 2010. *Geology of Britain viewer, 1:50 000 scale [online]* available from http://maps.bgs.ac.uk/geologyviewer/ [accessed 16/11/2010].

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.

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

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 gradiometer is a passive instrument consisting of two fluxgate sensors mounted vertically 1m apart. The instrument is carried about 30cm 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. If no enhanced feature is present the field measured by both sensors will be similar and the difference close to zero.

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 ±1nT 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 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 slight differences between the set-up and stability of gradiometer sensors and can remove striping. The process can remove archaeological features that run along a traverse so data analysis is also carried out prior its application.

De-stagger

Compensates for small positional errors within data collection by shifting the position of the readings along each traverse by a specified amount. Data lost at the end of each traverse are extrapolated from adjacent value in the same row.

Deslope

Corrects for striping and distortion caused by metal objects/services etc.. The process calculates a curve based on a polynomial best fit mathematical function for each traverse. This curve is then subtracted from the actual data.

FFT (Fast Fourier Transform) spectral filtering

A mathematical process used to determine the frequency components of a traverse. Repetitive features, such as plough marks, produce characteristic spectral zones that can be suppressed allowing greyscale images to appear clearer.

Appendix C – survey and data information

Raw magnetometry data

COMPOSITE
Filename: J342-mag-raw.xcp
Instrument Type: Bartington (Gradiometer)
Units: nT
Surveyed by: on 09/11/2010
Assembled by: on 09/11/2010
Collection Method: ZigZag
Sensors: 2 @ 1.00 m spacing.
Dummy Value: 32702

Dimensions
Composite Size (readings): 480 x 120
Survey Size (meters): 120 m x 120 m
Grid Size: 40 m x 40 m
X Interval: 0.25 m
Y Interval: 1 m

Stats
Max: 30.00
Min: -30.00
Std Dev: 5.77
Mean: -0.21
Median: -0.74
Composite Area: 1.44 ha
Surveyed Area: 1.44 ha

Processes: 2
1 Base Layer
2 Clip from -30.00 to 30.00 nT

Source Grids: 9
1 Col:0 Row:0 grids\11.xgd
2 Col:0 Row:1 grids\12.xgd
3 Col:0 Row:2 grids\09.xgd
4 Col:1 Row:0 grids\04.xgd
5 Col:1 Row:1 grids\05.xgd
6 Col:1 Row:2 grids\06.xgd
7 Col:2 Row:0 grids\01.xgd
8 Col:2 Row:1 grids\13.xgd
9 Col:2 Row:2 grids\03.xgd

Data processing

Filename: J342-mag-proc.xcp

Processes: 4
1 Base Layer
2 DeStripe Mean Traverse: Grids: All Threshold: 0.5 SDs
3 Clip from -10.00 to 10.00 nT
4 De Stagger: Grids: 03.xgd Mode: Outbound By: 1 intervals

Appendix D – digital archive

Archaeological Surveys Ltd hold the primary digital archive at Castle Combe, 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. Digital data are also supplied to the client on CD ROM, see below.

Surveys are reported on in hardcopy (recycled paper) using A4 for text and A3 for plots (all plots are scaled for A3). The distribution of both hardcopy report and digital data is considered the responsibility of the Client unless explicitly stated in the survey Brief, Written Scheme of Investigation or other contractual agreement.

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

- ArcheoSurveyor version 2.5.8.46 (geophysical data analysis),
- ProgeCAD Professional 2009 (report graphics),
- AutoCAD LT 2007 (report figures),
- OpenOffice.org 3.0.1 Writer (document text),
- PDF Creator version 0.9 (PDF archive).

Digital data are supplied on CD ROM which includes the following files:

- ArcheoSurveyor grid and composite files for all geophysical data,
- CSV files for raw and processed composites,
- geophysical composite file graphics as Bitmap images,
- AutoCAD DWG files in 2000 and 2007 versions,
- report text as OpenOffice.org ODT file,
- report text as Word 2000 doc file,
- report text as rich text format (RTF),
- report text as PDF,
- PDFs of all figures,
- photographic record in JPEG format.

The CD ROM structure is formed from a tree of directories under the title J342 Roves Farm – CD. Directory titles include Data, Documentation, CAD, PDFs and Photos. Multiple directories exist under Data and hold Grid, Composite and Graphic files with CSV composite data held in Export.

The CAD file contains externally referenced graphics that are rotated with separate A3 size layouts for each figure. Layouts are fixed using frozen layers and named views allowing straightforward plotting or analysis on screen. (Note – CAD files are prepared using AutoCAD's e Transmit function to produce a directory containing the digital drawing along with any externally referenced graphics which may need reloading).