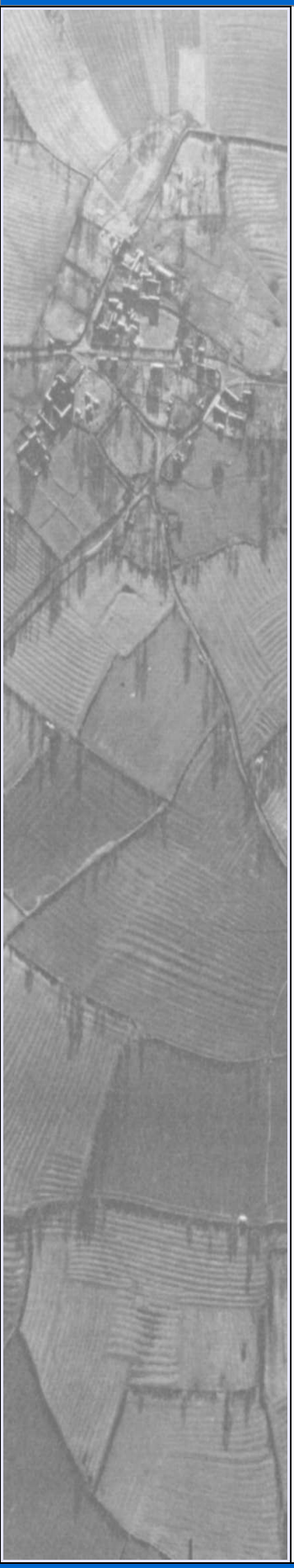

Land south of Tamworth Road
Polesworth
Warwickshire

MAGNETOMETER SURVEY REPORT

for

Taylor Wimpey UK Limited

Kerry Donaldson & David Sabin

October 2017

Ref. no. J723

ARCHAEOLOGICAL SURVEYS LTD

Land south of Tamworth Road
Polesworth
Warwickshire

Magnetometer Survey Report

for

Taylor Wimpey UK Limited

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 dates – 9th & 10th October 2017
Ordnance Survey Grid Reference – **SK 24815 02225**

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SUMMARY

A detailed magnetometer survey was undertaken by Archaeological Surveys Limited, at the request of Taylor Wimpey UK Limited, within a single arable field at Polesworth in North Warwickshire. The survey located a number of mapped and unmapped field boundaries with a possible trackway extending east-west across the site which appears to continue westwards as an existing track. A number of discrete positive responses also appear to be distributed at fairly regular intervals within two lines in the central part of the site and which indicate two lines of possible pits, although their date and function cannot be determined. Other pit-like anomalies have also been located and may also have an anthropogenic origin. A number of positive linear anomalies can be seen in the results and while some may relate to cut features, they are generally weak and poorly defined. A former quarry in the northern part of the site contains very highly magnetic material within the fill.

1 INTRODUCTION

1.1 Survey background

1.1.1 Archaeological Surveys Limited was commissioned by Taylor Wimpey UK Limited to undertake a magnetometer survey of an area of land to the south of Tamworth Road in Polesworth, North Warwickshire. The site has been outlined for a potential 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) and approved by John Robinson, Planning Archaeologist for Warwickshire County Council. The survey represents part of a first phase of archaeological evaluation within the site and the results will be used to inform the scope of a subsequent programme of trial trenching.

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 to the south of Tamworth Road within the parish of Polesworth in Warwickshire. It is centred on Ordnance Survey National Grid Reference (OS NGR) SK 24815 02225, see Figs 01 and 02.

1.3.2 The geophysical survey covers approximately 6ha within a single arable field that had just been sown with winter wheat when the survey took place. It is bounded to the north by the B5000 Tamworth Road and a sports ground, to the east by the M42 motorway, to the west by a cycle path and beyond that residential dwellings on the edge of Tamworth and to the south by agricultural land. The site tends to slope down towards the south from a ridge of higher ground at its northern end.

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 overcast but dry.

Plate 1: Survey area looking south

1.4 Site history and archaeological potential

1.4.1 The northern part of the site contains a former quarry, marked as *Old Quarry* on the Ordnance Survey map of 1883 (MWA6536), with another former quarry 220m to the north-west (MWA6537) and the site of Birch Coppice Colliery No 1, approximately 300m to the south (MWA6504). Situated 380m north-west is the findspot of two Roman 1st to 2nd century hinged dolphin brooches (02807-MST2794). The possible site of a medieval chapel associated with a nunnery built above a well dedicated to St Edith is located at The Hermitage, 150m to the east (MWA13159). A turnpike road is also listed at Chiltern Road,

approximately 300m to the west (MWA4800). Situated approximately 900m to the north-west, within the grounds of the Tamworth Municipal Golf Course, a geophysical survey located a number of anomalies that relate to ridge and furrow (58489-MST22355) and possible ditches and pits that may date from the later prehistoric to medieval periods (58485-MST22351,58486-MST22352, 58487-MST22353 & 58490-MST22356). Ordnance Survey mapping from the late 19th and early 20th centuries show that the site was originally separated into four fields, with the quarry along the northern edge.

1.4.2 The location of the quarry within the northern part of the site indicates the likelihood of it containing highly magnetic material within its infill which will result in a very strong magnetic response. It is also possible that former field boundaries will be located by the survey. There is always potential for the survey to locate previously unrecorded archaeological features, should they be present within the site.

1.4.3 The surface conditions within the site were suitable for the observation of cultural material during the course of the survey. No significant scatters were noted.

1.5 Geology and soils

1.5.1 The underlying solid geology across the site is predominantly Carboniferous sandstone from the Halesowen Formation with mudstone, siltstone and sandstone extending in a band from north-west to south-east within the central part of the site (BGS, 2017).

1.5.2 The overlying soil across the survey area is from the Rivington 1 association and is a typical brown earth. It consists of a well drained, coarse, loamy soil over sandstone (Soil Survey of England and Wales, 1983).

1.5.3 Magnetometry carried out over similar geology and soil has produced good results. The site is, therefore, considered suitable 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 ±5nT. 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 (Fig 04). 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. 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 GNSS height data automatically logged during the survey. The GNSS heights are converted from the ETRS89 ellipsoid using the National Geoid Model OSGM02 to obtain ODN (Ordnance Datum Newlyn) + the GNSS antenna height (approximately 1.5M). 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 approximately 6ha within a single arable field.

3.1.2 Magnetic anomalies located can be generally classified as positive anomalies of an uncertain origin, anomalies associated with land management, linear anomalies of an agricultural origin, areas of magnetic debris and disturbance and strong discrete dipolar anomalies relating to ferrous objects.

3.1.3 Anomalies located 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. High magnitude magnetic anomalies were located in the northern part of the site and represent ferrous debris filling a former quarry. Several traverses crossing this area contain banding after compensation which is a common problem caused by the very high magnetic values recorded over a wide area. To minimise the banding data were processed with a high pass filter which results in clearer information in the vicinity of the quarry. Data are analysed before and after processing to ensure that no significant anomalies have been removed.

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 an uncertain origin AS-ABST MAG POS LINEAR UNCERTAIN AS-ABST MAG POS DISCRETE UNCERTAIN 	The category applies to a range of anomalies where there is not enough evidence to confidently suggest an origin. Anomalies in this category may well be related to archaeologically significant features, but equally relatively modern features, geological/pedological features and agricultural features should be considered. Positive anomalies are indicative of magnetically enhanced soils that may form the fill of 'cut' features or may be produced by accumulation within layers or 'earthwork' features; soils subject to burning may also produce positive anomalies. Negative anomalies are produced by material of comparatively low magnetic susceptibility such as stone and subsoil.
Anomalies relating to land management AS-ABST MAG BOUNDARY 	Anomalies are mainly linear and may be indicative of the magnetically enhanced fill of cut features (i.e. ditches). The anomalies may be long and/or form rectilinear elements and they may relate to topographic features or be visible on early mapping.
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 DEBRIS AS-ABST MAG STRONG DIPOLAR 	Magnetic debris often appears as areas containing many small dipolar anomalies that may range from weak to very strong in magnitude. It often occurs where there has been dumping or

	ground make-up and is related to magnetically thermoremnant materials such as brick or tile or other small fragments of ferrous material. This type of response is occasionally associated with kilns, furnace structures, or hearths and may therefore be archaeologically significant. It is also possible that the response may be caused by natural material such as certain gravels and fragments of igneous or metamorphic rock. Strong discrete dipolar anomalies are responses to ferrous objects within the topsoil.
Anomalies with a modern origin AS-ABST MAG DISTURBANCE	The magnetic response is often strong and dipolar indicative of ferrous material and may be associated with extant above surface features such as wire fencing, cables, pylons etc.. Often a significant area around such features has a strong magnetic flux which may create magnetic disturbance; such disturbance can effectively obscure low magnitude anomalies if they are present. Fluxgate sensors may respond erratically and with hysteresis adjacent to strong magnetic sources. Buried services may produce characteristic multiple dipolar anomalies dependant upon their construction.

Table 1: List and description of interpretation categories

3.4 List of anomalies

Area centred on OS NGR 424815 302225, see Figs 03 – 05.

Anomalies with an uncertain origin

(1) - The survey area contains several discrete positive responses that appear to form two parallel lines of pit-like features. Although their origin is uncertain, the fairly regular spacing between the anomalies within two lines and a moderate response indicates an anthropogenic origin is likely and an archaeological origin should be considered.

(2) - The survey area also contains other discrete positive responses that appear also to relate to pit-like features. Although not having a clearly definable pattern or distribution, these could have a similar origin to anomalies (1) and their archaeological potential should also be considered.

(3) - A number of weakly positive linear anomalies have been located within the survey area. They are generally <2nT and indistinct, and it is not possible to determine their origin.

(4) - A group of weakly positive linear anomalies is located in the central-eastern part of the site. This coincides with a band of mudstone extending north-west to south-east and the anomalies are likely to relate to variations in the underlying geology.

Anomalies associated with land management

(5 & 6) - Positive linear anomalies relating to former field boundaries mapped

between 1849 and 1966, but removed by the mid 1970s.

(7 & 8) - Positive linear anomaly (7) is located in the position of a formerly mapped field boundary, although the eastern extent is different from the mapped position. A fragmented positive linear anomaly (8) lies to the north and appears to form a possible trackway with anomaly (7). A track does extend on a similar orientation immediately to the west and this could be a continuation of it.

(9) - A positive linear anomaly is a westerly extension of anomaly (7) but has not been mapped indicating that it has been removed prior to 1849.

Anomalies with an agricultural origin

(10) - The survey area contains a series of parallel linear anomalies across the whole field. They relate to the modern cultivation trend and not all anomalies have been abstracted.

Anomalies associated with magnetic debris

(11) - Very strongly magnetic responses in the north-eastern corner of the field are related to ferrous material used to infill a former quarry.

(12) - A patch of magnetic debris is evident at the junction of several former field boundaries. It is a response to magnetically thermoremnant material.

4 DISCUSSION

4.1.1 The magnetometer survey located a number of pit-like features (1) that appear to be within two roughly parallel lines, approximately 45-55m between the lines and 40-68m between each pit-like feature. They are also more magnetically enhanced than many of the linear anomalies within the site at 10-20nT, which together with the fairly regular spacing indicates that they are likely to be anthropogenic in origin, although it is not possible to determine their date or function. There are several other discrete positive anomalies (2) elsewhere within the site and these also appear to relate to pits. The positive linear anomalies (3 & 4) are generally weak and indistinct and while some are likely to be associated with variations within the underlying geology, some may relate to cut features.

4.1.2 Several field boundaries have also been located, although there is some discrepancy with the mapping at the eastern and western ends of an east-west boundary (7) that extends through the centre of the site. It has a fragmented positive linear anomaly (8) to the north, and it is possible that together they relate to a former trackway. Immediately west of the site is an existing trackway that was mapped from 1849 and continues in an arc for 2.2km as Stonydelph Lane where it joins the original line of the Roman road of

Watling Street at Wilnecote. To the east is the site of The Hermitage and an association with the possible trackway could be considered.

5 CONCLUSION

5.1.1 The results of the geophysical survey reveal a number of formerly mapped and some associated unmapped field boundaries within the site. It appears that an east-west former field boundary is associated with a similar feature to the north forming a possible trackway that still extends westwards beyond the survey boundary.

5.1.2 A number of discrete, positive responses appear at fairly regular spacings within the centre of the site, they appear to relate to pit-like features with an anthropogenic origin. There are also a number of other discrete anomalies throughout the site which also appear pit-like. Several positive linear anomalies can also be seen, but they are weak and indistinct. Some are likely to relate to the underlying geology but others could relate to cut ditch-like features.

5.1.3 The northern part of the site contains a former quarry, marked as Old Quarry on 19th century mapping. The strength of the response indicates a fill that includes highly magnetic ferrous material.

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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 magnetometer data

Filename: J732-mag.xcp
Description: Imported as Composite from: J732-mag.asc
Instrument Type: Sensys DLMGPS
Units: nT
UTM Zone: 30U
Survey corner coordinates (X/Y):OSB36
Northwest corner: 424626.981046799, 302395.448841961 m
Southeast corner: 425022.531046799, 302120.198841961 m
Collection Method: Randomised
Sensors: 5
Dummy Value: 32702

Source GPS Points: 1522700

Dimensions
Composite Size (readings): 2637 x 1835
Survey Size (meters): 396 m x 275 m
Grid Size: 396 m x 275 m
X Interval: 0.15 m
Y Interval: 0.15 m

Stats
Max: 5.53
Min: -5.50
Std Dev: 1.72
Mean: 0.00
Median: 0.01
Composite Area: 10.888 ha
Surveyed Area: 6.0145 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 -5.00 to 5.00 nT

Filtered magnetometer data

Filename: J732-mag-proc-hpf.xcp
Description: Imported as Composite from: J732-mag.asc
Stats
Max: 5.53
Min: -5.50
Std Dev: 1.63
Mean: 0.01
Median: 0.00
Composite Area: 10.888 ha
Surveyed Area: 6.0145 ha

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: 300
5 Clip from -5.00 to 5.00 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 archiving of the data with the Archaeology Data Service (ADS) become a requirement of planning then this shall incur an additional charge to cover the ADS costs.

Archive contents:

Geophysical data - path: J732 Tamworth Rd, Polesworth\Data				
Path and Filename	**Software**	**Description**	**Date**	**Creator**
polesworth1\MX\ .prm .dgb .disp	Sensys MXPDA	Proprietary data formats representing magnetometer survey traverses logged to a PDA.	09/10/17	D.J.Sabin
polesworth1\MX\J732-mag.asc	Sensys DLMGPS	ASCII CSV (tab) file representing survey area in eastings, northings (UTM Z30N), magnetic measurement, traverse file and sensor number.	11/10/17	D.J.Sabin
Mag\comps\J732-mag.xcp	TerraSurveyor 3.0.23.0	Composite data file derived from ASCII CSV.	11/10/17	K.T.Donaldson
Mag\comps\J732-mag-proc.xcp	TerraSurveyor 3.0.23.0	Processed composite data file (zmt and clipping to ±5nT).	11/10/17	K.T.Donaldson
Mag\comps\J732-mag-proc-hpf.xcp		Filtered composite data file (zmt, high pass filter and clipping to ±5nT).	11/10/17	K.T.Donaldson
Graphic data - path: J732 Tamworth Rd, Polesworth\Data				
Mag\comps\J732-mag-proc.tif	TerraSurveyor 3.0.23.0	TIF file showing a minimally processed greyscale plot clipped to ±5nT.	11/10/17	K.T.Donaldson
Mag\comps\J732-mag-proc.tfw	TerraSurveyor 3.0.23.0	World file for georeferencing TIF to OSGB36.	11/10/17	K.T.Donaldson
Mag\comps\J732-mag-proc-hpf..tif	TerraSurveyor 3.0.23.0	TIF file showing a filtered greyscale plot clipped to ±5nT.	11/10/17	K.T.Donaldson
Mag\comps\J732-mag-proc-hpf..tfw	TerraSurveyor 3.0.23.0	World file for georeferencing TIF to OSGB36.	11/10/17	K.T.Donaldson
CAD data - path: J732 Tamworth Rd, Polesworth\CAD				
J732 version 1.dwg	ProgeCAD 2016	CAD file for creating plots of greyscales, abstraction, interpretation and mapping. Grid coordinates as OSGB. AutoCAD 2010 format.	03/10/17	K.T.Donaldson
Text data - path: J732 Tamworth Rd, Polesworth\Documentation				
J732 report.odt	OpenOffice.org 3.0.1 Writer	Report text as an Open Office document.	17/10/17	K.T.Donaldson

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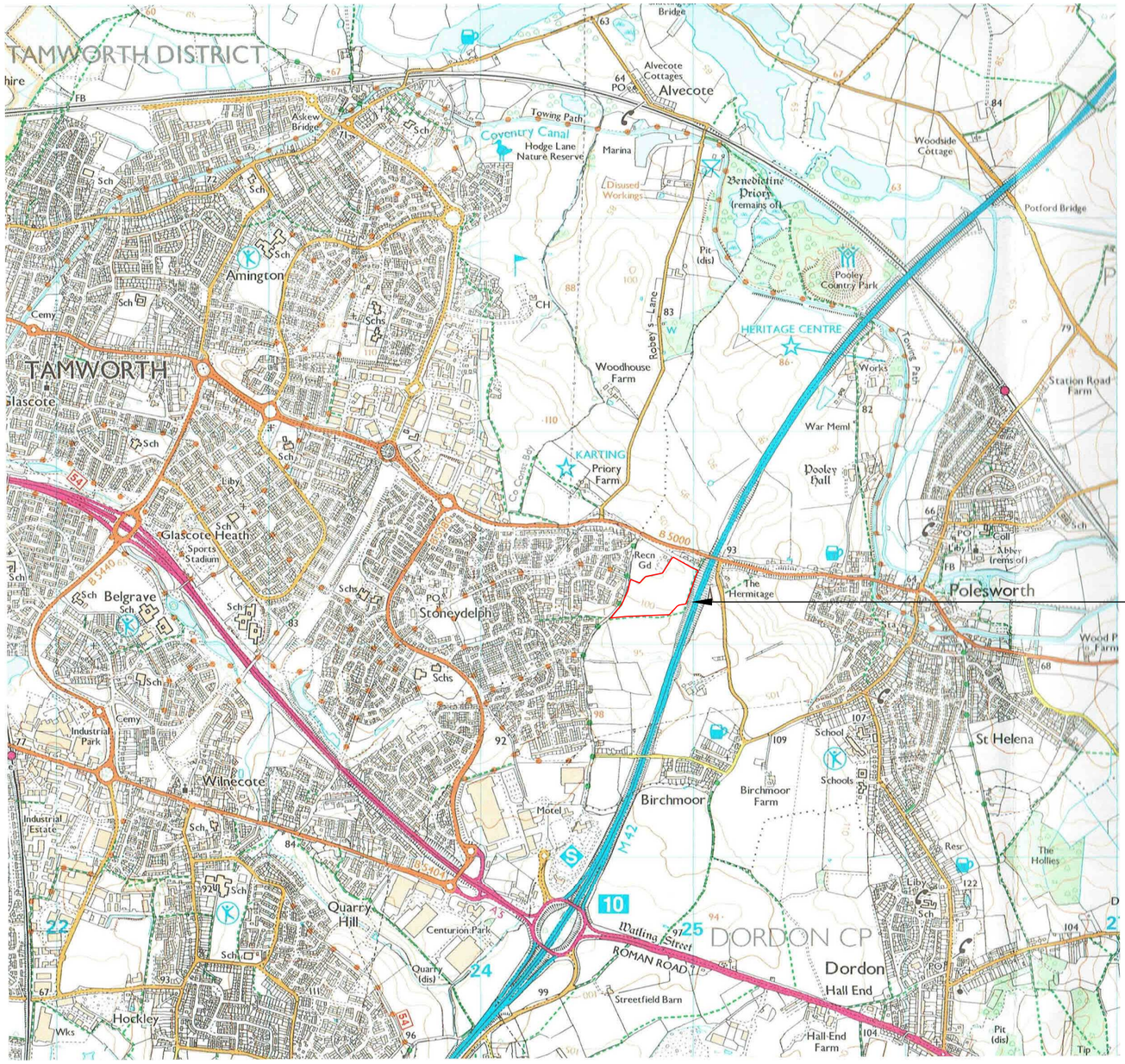

Survey location

N

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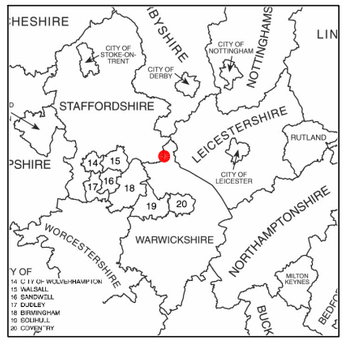
Geophysical Survey
Land south of Tamworth Road
Polesworth
Warwickshire

Map of survey area



Survey location

Site centred on OS NGR
SK 24815 02225

SCALE 1:25 000

0m 500m 1000m

SCALE TRUE AT A3

FIG 01

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Geophysical Survey
Land south of Tamworth Road
Polesworth
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

● 424650 302150

SCALE 1:2000

0m 20 40 60 80 100m

SCALE TRUE AT A3

FIG 02

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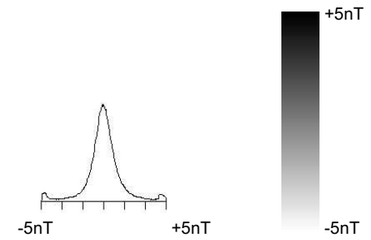
Land south of Tamworth Road
Polesworth
Warwickshire

Greyscale plot of minimally processed magnetometer data



SCALE 1:1250

0m 10 20 30 40 50m

SCALE TRUE AT A3

FIG 03

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Land south of Tamworth Road
Polesworth
Warwickshire

Greyscale plot of filtered magnetometer data

+5nT

-5nT +5nT -5nT

SCALE 1:1250

0m 10 20 30 40 50m

SCALE TRUE AT A3

FIG 04

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Geophysical Survey
Land south of Tamworth Road
Polesworth
Warwickshire

Abstraction and interpretation of magnetic anomalies

- Positive linear anomaly - possible ditch-like feature
- Linear anomaly - of agricultural origin
- Positive linear anomaly - former field boundary
- Discrete positive response - possible pit-like feature
- Magnetic debris - spread of magnetically thermoremnant/ferrous material
- Magnetic disturbance from ferrous material
- Strong dipolar anomaly - ferrous object

SCALE 1:1250

0m 10 20 30 40 50m

SCALE TRUE AT A3

FIG 05