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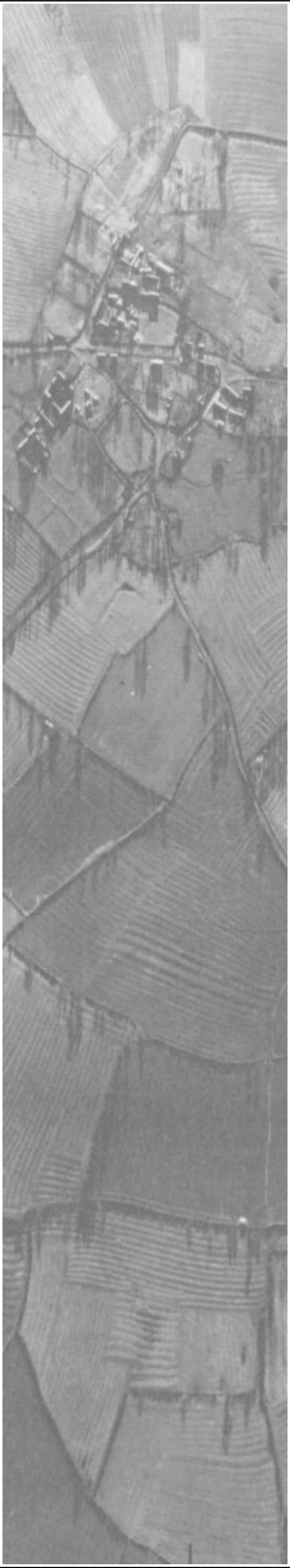

Land off Minsmere Road
Keynsham
Bath and North East Somerset

MAGNETOMETER SURVEY REPORT

for

Cotswold Archaeology

Kerry Donaldson & David Sabin

December 2021

Ref. no. J889

ARCHAEOLOGICAL SURVEYS LTD

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Keynsham
Bath and North East Somerset

MAGNETOMETER SURVEY REPORT

for

Cotswold Archaeology

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

Survey date – 1st December 2021
Ordnance Survey Grid Reference – **ST 66515 67585**

BaNES HER PRN: 68533

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SUMMARY

Detailed magnetometry was carried out to the east of Keynsham in Bath & North East Somerset. The results indicate the presence of a number of positive linear and discrete responses that although lacking in a clearly defined morphology, could relate to cut features with archaeological potential. A zone of magnetic enhancement appears to have been truncated by ridge and furrow, although the source of the enhancement is uncertain. Negative linear anomalies could be associated with land drainage and magnetic debris indicates widespread dumping and/or burning primarily in the northern and western parts of the site.

1 INTRODUCTION

1.1 Survey background

1.1.1 Archaeological Surveys Ltd was commissioned by Cotswold Archaeology to undertake a magnetometer survey of an area of land off Minsmere Road on the eastern edge of Keynsham, Bath and North East Somerset (BaNES). The site has been outlined for a proposed residential development and the survey forms part of an archaeological assessment.

1.1.2 The geophysical survey was carried out in accordance with a Written Scheme of Investigation (WSI) produced by Archaeological Surveys (2021) and approved by Steve Membery, Senior Historic Environment Officer, South West Heritage Trust, prior to commencing the survey. The fieldwork has been issued with the BaNES HER PRN: 68533.

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 Geophysical survey can provide useful information on the archaeological potential of a site; however, the outcome of any survey relies on a number of factors and as a consequence results can vary. The success in meeting the aims and objectives of a survey is, therefore, often impossible to predetermine.

1.3 Standards, guidance and recommendations for the use of this report

1.3.1 The survey and report follow the recommendations set out by: 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) (updated 2020) *Standard and Guidance for Archaeological Geophysical Survey.*

1.3.2 Archaeological Surveys Ltd provide a detailed geophysical survey report and it is recommended that where possible the contents should be considered in full. The Summary provides a brief overview of the results with more detail available in the Discussion and/or Conclusion. The *List of anomalies* within the Results provides a detailed assessment of the anomalies within separate categories which can be useful in inferring a level of confidence to the interpretation. Quality and factors influencing the interpretation of anomalies is also set out within the results.

1.3.3 It is recommended that the full report should always be considered when using data and interpretation plots; where this is not possible, in the field for example, the abstraction and interpretation plots should retain their colour coding and be used with a corresponding legend.

1.3.4 Where targeting of anomalies by excavation is to be carried out, care should be taken to place trenches over solid lines or features visible on the abstraction and interpretation plots. Archaeological Surveys abstraction and interpretation avoids the use of dashed or dotted line formats, and broken or fragmented lines used in interpretive plots may well correspond closely with truncation of archaeological features.

1.4 Site location, description and survey conditions

1.4.1 The site is located to the east of Minsmere Road on the eastern edge of Keynsham. It is centred on Ordnance Survey National Grid Reference (OS NGR) ST 66515 67585, see Figs 01 and 02.

1.4.2 The geophysical survey covers approximately 2.75ha within two areas of grassland, divided by a fence. The site contains a public footpath running along the northern side of the dividing fenceline, as well as other unofficial footpaths around the site. The grass cover was long in places with rough vegetation around the periphery of the site occasionally impeding data collection. A small pond in the north eastern part of the site was avoided, and an infilled pond located a short distance to the south west of it is visible as a small zone of uneven ground and was surveyed. The area tends to slope down gently towards the north.

1.4.3 The ground conditions across the site were generally considered to be favourable for the collection of magnetometry data. Sources of magnetic disturbance were identified and include a gate and wire mesh along the dividing fenceline and steel inspection chamber covers along the western edge of the survey area. Parked cars and residential dwellings immediately beyond the western boundary may be associated with lower magnitude magnetic disturbance. Weather conditions during the survey were fine.

1.5 Site history and archaeological potential

1.5.1 A Heritage Desk-Based Assessment has been carried out by Cotswold Archaeology (2017) which outlines that there are no designated heritage assets within the site, although post medieval ridge and furrow has been recorded. The line of two Roman roads are purported to extend within 150-300m north of the site, although these and any other significant archaeological features were not recorded during geophysical survey and evaluation on land immediately to the north of the site. Iron Age and Roman pottery has been located approximately 500m south east of the site.

1.6 Geology and soils

1.6.1 The underlying solid geology across the site is interbedded limestone and mudstone from the Blue Lias Formation (BGS, 2017).

1.6.2 The overlying soil across the survey area is from the Sherborne association and is a brown rendzina. It consists of a shallow, well drained, brashy, calcareous soil over limestone (Soil Survey of England and Wales, 1983).

1.6.3 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 (also known as thermoremanence) are factors associated with the formation of localised fields.

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). Additional details are set out in 2.2 below and within Appendix A.

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 20Hz. 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 measurement range of ±8000nT, although the recorded range is ±3000nT, and resolution is around 0.1nT. They are linked to a Leica GS10 RTK GNSS 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 manifests 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 the 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 ±3000nT 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 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.

2.3.5 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 are considered by the manufacturer to be data that are 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 the very high density of data collection. In addition, traceplots cannot be meaningfully plotted against base mapping and in areas of complexity traces may be lost or highly confused. Traceplots may be used to demonstrate characteristic magnetic profiles across discrete features where it is considered beneficial.

2.3.6 The raster images are combined with base mapping using ProgeCAD

Professional 2021, creating DWG (2018) 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 GNSS, resection method, etc.

2.3.7 An abstraction and interpretation is 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. Appendix E sets out CAD layer names with colour and graphic content for each interpretation category, see 3.3.

2.3.8 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.

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

3 RESULTS

3.1 General assessment of survey results

3.1.1 The detailed magnetic survey was carried out over approximately 2.75ha and the results from the two survey areas are considered as a whole.

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

3.1.3 Anomalies located within each survey area have been numbered and are described in 3.4 below.

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.

3.2.2 Small zones of magnetic disturbance are associated with above ground ferrous objects and are considered unlikely to obscure more significant anomalies. The survey also located zones of magnetic debris that are particularly strong within the north western part of the site and have the potential to obscure other weak anomalies should they be present within those zones. The debris is likely to be located in the topsoil and of relatively modern origin.

3.2.3 A visual assessment of the data indicates the presence of useful magnetic contrast between the soil and subsoil or solid geology. Numerous positive and negative linear anomalies relating to former cultivation and ridge and furrow are present. Other linear anomalies demonstrate magnetic contrast between the fill of former ditch-like features and the surrounding soil/subsoil.

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 general explanation of the characteristics of the magnetic anomalies is set out for each category in order to justify interpretation, see Table 1.

Interpretation category	Description and origin of anomalies
Anomalies with an uncertain origin	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. Morphology may be unclear or uncharacteristic and there may be a lack of additional supporting information. 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	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. Associated agricultural anomalies (e.g. headlands, plough marks and former ridge and furrow) may support the interpretation. Land drains can appear in a classic herringbone pattern of interconnected multiple dipolar linear anomalies, or as parallel linear anomalies. The multiple dipolar response indicates ceramic land drains.
Anomalies with an agricultural origin	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. This category does not include agricultural features of early date or considered to be of archaeological potential (e.g. animal stockades, enclosures, farmsteads, etc).
Anomalies associated with magnetic debris	Magnetic debris often appears as areas containing many small dipolar anomalies that may range from weak to very strong in magnitude. They often occur where there has been dumping or ground make-up and are 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, hearths and nail spreads from former wooden structures or rooves 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 1: List and description of interpretation categories

3.4 List of anomalies

Area centred on OS NGR 366515 167585, see Figs 03 & 04.

Anomalies with an uncertain origin

(1) – A number of positive linear and discrete responses are located in the western, central part of the survey area. They appear fragmented and are not well defined; however, it is possible that they relate to cut features with archaeological potential.

(2) – A positive linear anomaly with a north east to south west orientation is located in the north eastern part of the site. It appears to relate to a cut, ditch-like feature.

(3) – In the north eastern part of the site are zones of magnetic enhancement that have been truncated by the ridge and furrow (9). The origin of the enhancement is uncertain, it may relate to burnt material or occupation material, but it is not modern as it does not contain ferrous items within the matrix and it does appear to pre-date the ridge and furrow.

(4) – Situated in the southern half of the site are at least two small zones of magnetic enhancement. Although it is not clear from where the material was derived, the anomalies do appear to relate to cut features and it is possible that they have an archaeological origin.

(5) – A number of weakly positive linear anomalies can be seen in the southern part of the site, several have a north to south orientation and they appear to be truncated by ridge and furrow (10), indicating that they may relate to an earlier phase of agricultural activity.

(6) – The southern part of the site contains zones of weak magnetic enhancement, such responses could be caused by infilled quarrying or spreads of enhanced soil, but this is not clear and their origin is uncertain.

(7) – The southern part of the site contains a negative linear anomaly that appears to have truncated the ridge and furrow and can be seen on LiDAR imagery. This indicates it is a relatively modern feature, possibly associated with a pipe or land drain. Two other negative linear anomalies extend towards it in a manner associated with land drainage.

Anomalies associated with land management

(8) – A positive linear anomaly associated with magnetic debris relates to a field boundary mapped on the 1842 tithe map.

Anomalies with an agricultural origin

(9 & 10) – Two series of parallel linear anomalies can be seen within the site. They would have been originally separated into two fields by boundary (8) and relate to ridge and furrow. They appear as a series of parallel positive and negative responses, the negative response has been abstracted and this appears to relate to the furrows.

Anomalies associated with magnetic debris

(11) – A small area of magnetic debris is associated with an infilled pond visible on 19th century mapping. This may have been formerly associated with quarrying.

(12) – Widespread magnetic debris is evident in the northern and western parts of

the site. The strong, dipolar response indicate that it contains a lot of ferrous material.

(13) – Strong, discrete, dipolar anomalies are a response to ferrous and other magnetically thermoremnant objects, such as brick and tile, within the topsoil.

4 CONCLUSION

4.1.1 The geophysical survey located a number of positive linear and discrete responses that although fragmented and lacking a clear morphology, could relate to cut features with archaeological potential. A zone of magnetic enhancement in the north eastern part of the site appears to have been truncated by ridge and furrow. The northern and western parts of the site contains widespread strongly magnetic debris indicative of relatively modern dumping and ground make-up.

5 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 magnetic field. The difference between the two sensors will relate to the strength of 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. 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 data from 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 offset values of the gradiometer sensors. The process can remove archaeological features that run along a traverse but with the high resolution datasets created by the Sensys FGM650 sensors and the method of data collection this has not been a notable problem. In fact, the removal of offsets using software avoids carrying out a balancing procedure on site, which inevitably can never be done in magnetically clean conditions and results in improperly aligned fluxgate sensors and/or electronic adjustment values.

Appendix C – survey and data information

Filename: J889-mag-proc.xcp
Instrument Type: Sensys DLMGPS
Units:
UTM Zone: 30U
Survey corner coordinates (X/Y):OSGB36
Northwest corner: 366477.99, 167762.63 m
Southeast corner: 366611.04, 167406.68 m
Direction of 1st Traverse: 90 deg
Collection Method: Parallel
Sensors: 1
Dummy Value: 32702
Dimensions

Survey Size (meters): 133 m x 356 m
X&Y Interval: 0.15 m
Source GPS Points: Active: 661700, Recorded: 661700
Stats
Max: 3.32
Min: -3.30
Std Dev: 1.29
Mean: 0.04
Median: 0.00
Composite Area: 4.7359 ha
Surveyed Area: 2.5437 ha

PROGRAM
Name: TerraSurveyorPre
Version: 3.0.36.24
Processes: 1
1 Base Layer
GPS based Proce4
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to UTM).
3 DeStripe Median Traverse:
4 Clip from -3.00 to 3.00

Appendix D – digital archive

Archaeological Surveys Ltd hold the primary digital archive at their offices in Wiltshire. Data are backed-up onto an on-site data storage drive and at the earliest opportunity data are copied to CD ROM for storage on-site and off-site.

A PDF copy will be supplied to the BaNEs Historic Environment Record with greyscale images and abstraction layers made available on request. The report will also be uploaded to the Online AccesS to the Index of archaeological investigationS (OASIS).

Archive contents:

File type	Naming scheme	Description
Data	J889-mag-**[area number/name]**.asc J889-mag-**[area number/name]**.xcp J889-mag-**[area number/name]**-proc.xcp	Raw data as ASCII CSV TerraSurveyor raw data TerraSurveyor minimally processed data
Graphics	J889-mag-**[area number/name]**-proc.tif	Image in TIF format
Drawing	J889-**[version number]**.dwg	CAD file in 2018 dwg format
Report	J889 report.odt	Report text in LibreOffice odt format

Table 2: Archive metadata

Appendix E – CAD layers for abstraction and interpretation plots

The table below sets out Archaeological Surveys Ltd CAD layer names with associated colours and graphical content. Where CAD files are available layers may be extracted for further CAD/GIS use. Note: hatched polygon boundaries are contained within layers with the RGB colour code 254, 255, 255 (near white) in order to prevent their visibility.

Report sub-heading and associated CAD layer names	Colour with RGB index	Layer content
Anomalies with an uncertain origin		
AS-ABST MAG POS LINEAR UNCERTAIN	255,127,0	Line, polyline or polygon (solid)
AS-ABST MAG NEG LINEAR UNCERTAIN	Blue 0,0,255	Line, polyline or polygon (solid)
AS-ABST MAG POS DISCRETE UNCERTAIN	255,127,0	Solid donut, point or polygon (solid)
AS-ABST MAG POS UNCERTAIN	255,127,0	Polygon (cross hatched ANSI37)
Anomalies relating to land management		
AS-ABST MAG BOUNDARY	127,0,0	Line, polyline or polygon (solid or cross hatched ANSI37)
Anomalies with an agricultural origin		
AS-ABST MAG RIDGE AND FURROW	0,127,63	Line, polyline or polygon (cross hatched ANSI37)

Anomalies associated with magnetic debris			
AS-ABST MAG DEBRIS		132, 132, 132	Polygon (cross hatched ANSI37)
AS-ABST MAG STRONG DIPOLAR		132, 132, 132	Solid donut, point or polygon (solid)
Anomalies with a modern origin			
AS-ABST MAG DISTURBANCE		132, 132, 132	Polygon (hatched ANSI31)

Table 3: CAD layering

Appendix F – copyright and intellectual property

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Archaeological Surveys
Specialist Geophysical Surveyors

Geophysical Survey
Land off Minsmere Road
Keynsham
Bath & North East Somerset

Map of survey area

N

Survey location

Survey location

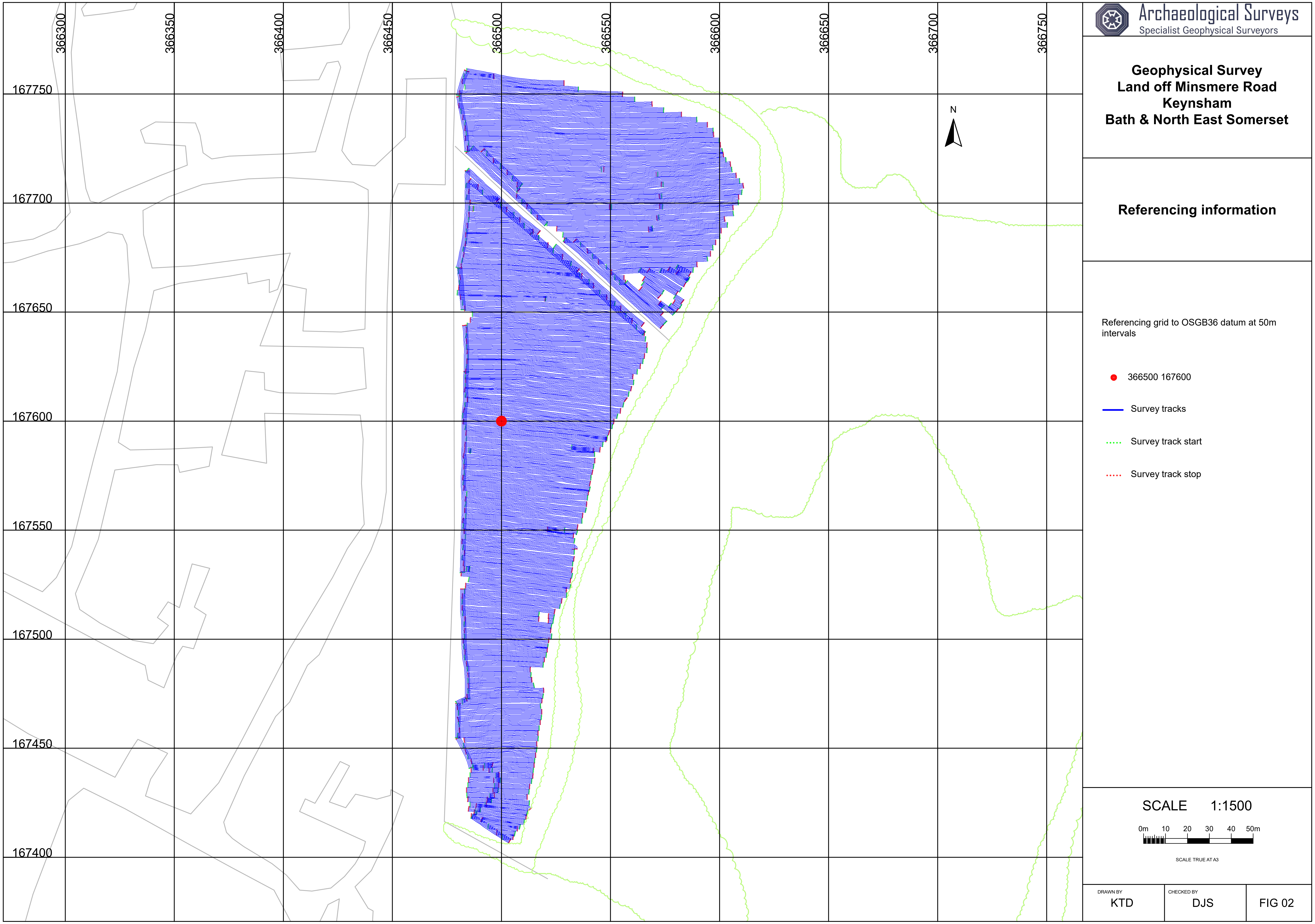
Site centred on OS NGR
ST 66515 67585

SCALE 1:25 000

0m 500m 1000m

SCALE TRUE AT A3

DRAWN BY	CHECKED BY	
KTD	DJS	FIG 01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Archaeological Surveys
Specialist Geophysical Surveyors
Geophysical Survey
Land off Minsmere Road
Keynsham
Bath & North East Somerset
Referencing information
Referencing grid to OSGB36 datum at 50m intervals
366500 167600
Survey tracks
Survey track start
Survey track stop
SCALE 1:1500
0m 10 20 30 40 50m
SCALE TRUE AT A3
DRAWN BY
KTD
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DJS
FIG 02

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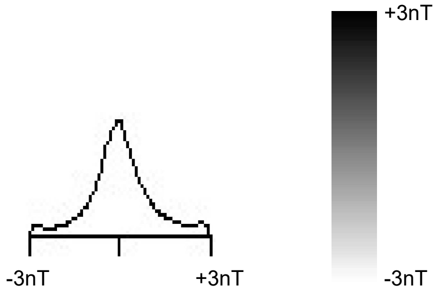
Greyscale plot of minimally processed magnetometer data



SCALE 1:1500

0m 10 20 30 40 50m

SCALE TRUE AT A3

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Abstraction and interpretation of magnetic anomalies

- Positive linear anomaly - possible ditch-like feature
- Linear anomaly - ridge and furrow
- Positive linear anomaly - former field boundary
- Negative linear anomaly - material of low magnetic susceptibility
- 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

SCALE 1:1500

0m 10 20 30 40 50m

SCALE TRUE AT A3

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KTD	DJS	FIG 04