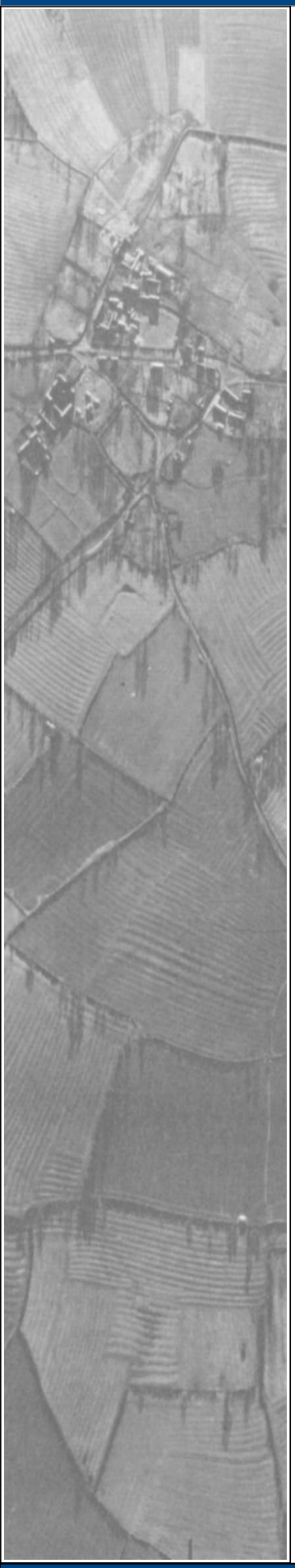

Land at Victoria Road West
Littlestone-on-Sea
New Romney
Kent

MAGNETOMETER SURVEY REPORT

for

Cotswold Archaeology

on behalf of

Legal & General Modular Homes

Kerry Donaldson & David Sabin

August 2021

Ref. no. J853

ARCHAEOLOGICAL SURVEYS LTD

Land at Victoria Road West
Littlestone-on-Sea
New Romney
Kent

MAGNETOMETER SURVEY REPORT

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Cotswold Archaeology

on behalf of

Legal & General Modular Homes

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

Survey date – 18th August 2021
Ordnance Survey Grid Reference – **TR 07850 24335**

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SUMMARY

Detailed magnetometry was carried out by Archaeological Surveys Ltd within an area of land at Littlestone-on-Sea, Kent ahead of a proposed residential development. The results relate to the widespread naturally silted up as well as deliberately infilled tidal inlets that are recorded on mapping and aerial photographs within the site. Other anomalies could relate to more recent land drainage features. Widespread magnetic debris is evident along with a number of buried services. In the south eastern corner of the site are a small number of discrete positive responses. While some appear to be associated with a linear zone of magnetic debris associated with the tidal flats and dumped material, a single, isolated response appears to relate to a magnetically enhanced feature. However, it is not possible to determine the date or origin of the magnetic enhancement.

1 INTRODUCTION

1.1 Survey background

1.1.1 Archaeological Surveys Ltd was commissioned by Cotswold Archaeology, on behalf of Legal & General Modular Homes, to undertake a magnetometer survey of an area of land at Littlestone-on-Sea, New Romney in Kent. The site has been outlined for a proposed residential development for up to 80 dwellings (Folkestone & Hythe District Council Application No. Y18/0768/FH). The survey was carried out under condition of planning approval in order to ensure that features of archaeological interest are properly examined and recorded.

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 Casper Johnson, Senior Archaeological Officer for Kent County Council, prior to commencing the survey.

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) *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 west of Victoria Road West, south of Queen's Road and north of the New Romney Caravan Park in Littlestone-on-Sea, New Romney, Kent. It is centred on Ordnance Survey National Grid Reference (OS NGR) TR 07840 24332, see Figs 01 and 02.

1.4.2 The geophysical survey covers approximately 6.2ha within a single grassland field which contains a number of fossilised creeks associated with former tidal inlets or drainage channels, at the time of survey most contained stagnant water, see Plate 1. The ground cover across most of the survey area was of variable height and density, it included rushes, nettles, ragwort, thistles and numerous other wild plants. Several small trees and bushes are also located within the survey area as well as a large steel trough and raised inspection chambers. The ground surface contained numerous undulations and low earthworks relating to drainage dykes, sewers and former flood defences as well as the naturally formed channels and other features of unknown origin.

1.4.3 The ground conditions across the site were generally considered to be

suitable for the collection of magnetometry data although traversing was difficult due to the height and density of vegetation. Survey was not possible within former creeks and drainage dykes that contained stagnant water of unknown depth and/or very boggy ground. Survey was also avoided in the vicinity of modern above surface steel objects due to the associated magnetic disturbance. Several other small unsurveyed zones within the site relate clumps of tall nettles and thistles and small trees or thorn bushes. Weather conditions during the survey were fine.

Plate 1: Survey area looking south west along a waterlogged former tidal creek

1.5 Site history and archaeological potential

1.5.1 An Archaeological Desk-Based Assessment has been prepared for the site (CgMs, 2017) which outlines that there are no designated or non-designated heritage assets within the site. It lay beneath the sea until the early 19th century, where a process of marine regression and longshore drift led to the formation of Romney Sands, later known as Romney Hoy and then Romney Marsh with flood defence earthworks also leading to the reclamation of the land. It has remained as a pasture field since the early 20th century with a braided channel relating to a tidal inlet and late 19th century flood defence earthworks extending across part of the site.

1.5.2 The site of a 19th century outfarm is situated 200m north west of the survey area and the site of two possible post-medieval ponds are located 350m to the west. A number of Second World War sites are situated within 500m of the survey area including the site of a light anti-aircraft Diver battery LL31, 375m

to the south west.

1.6 Geology and soils

1.6.1 The underlying solid geology across the site is Cretaceous sandstone, siltstone and mudstone from the Hastings Beds (subgroup) with overlying tidal flat deposits (BGS, 2017).

1.6.2 The overlying soil across the survey area is from the Sandwich association and is a typical sand pararendzina. It consists of a mainly deep, well drained, calcareous, sandy soil (Soil Survey of England and Wales, 1983).

1.6.3 The underlying geology and soils can be associated with low magnetic susceptibility, although long term settlement or industrial activity can produce good magnetic contrast between features and the surrounding soils. Natural features, such as former channels can also be identified as magnetic anomalies if there is sufficient magnetic contrast.

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 Z31N) 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 Additional data processing has been carried out in the form of high pass filtering. This effectively removes low frequency variation along a traverse that has been caused by large magnetic bodies, cultivation or rapid temperature change. Data treated to additional processing have 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 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.

2.3.7 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.

2.3.8 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.

2.3.9 A brief summary of each anomaly, with an appropriate reference number, is set out in list form within the results (Section 3) to allow a rapid and objective assessment of features within the survey area.

2.3.10 The abstraction and interpretation procedure has been supported by analysis of a digital terrain model plot derived from the Environment Agency's LiDAR data. Shaded relief plots and contours are created using Surfer 15 (Azimuth:135, Altitude:45, Z factor:10), (Fig 07).

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 within a single land parcel of approximately 6.2ha. The site contained several natural drainage channels, some contained water and/or tall vegetation growth which prevented survey.

3.1.2 Magnetic anomalies located can be generally classified as discrete positive anomalies of an uncertain origin, anomalies associated with land management, anomalies with a natural origin, areas of magnetic debris and disturbance, strong discrete dipolar anomalies relating to ferrous objects and strong multiple dipolar linear anomalies relating to buried services or pipelines. 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. Additional high pass filtering has been carried out in order to remove some small areas that contain bands caused by high magnitude magnetic anomalies of modern origin. Both unfiltered and filtered data are assessed to ensure that no significant anomalies are removed or altered by the additional processing.

3.2.2 Although the survey has located numerous anomalies, the majority are likely

to be of relatively recent origin and relate to magnetic debris associated with soil dumping, landscaping or drainage works and high magnitude magnetic linear anomalies relating to underground pipes. There are a very small number of discrete positive anomalies that may relate to former pit-like features, and other weak anomalies relating to natural features, but it is not possible to make a confident assessment of the suitability of the soil for magnetic survey with regard to the location of former cut features of anthropogenic origin.

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) or negative anomalies relating to material with low magnetic susceptibility, or extant 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 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.
Anomalies with a modern origin	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 these 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 adjacent to strong magnetic sources. Buried services may produce characteristic multiple dipolar anomalies dependant upon their construction.
Anomalies with a natural origin	Naturally formed magnetic anomalies are caused by localised variability in the magnetic susceptibility of soils, subsoils and other drift or solid geologies. Anomalies may be amorphous, linear or curvilinear and may appear 'fluvial' or discrete; the latter are almost impossible to distinguish from pit-like anomalies with an anthropogenic origin. Fluvial, glacial and periglacial processes may be responsible for their formation within drift material and subsoil. Igneous and metamorphic activity can lead to anomalies within more solid geology.

Table 1: List and description of interpretation categories

3.4 List of anomalies

Area centred on OS NGR 607840 124332, see Figs 03 – 06.

Anomalies with an uncertain origin

(1) – A discrete positive anomaly is located in the south eastern part of the survey area. It has a response of up to 20nT, indicating that it may relate to the magnetically enhanced fill of a cut feature. However, the source of the magnetic enhancement is unknown, and such anomalies could relate to magnetic objects that are deeply buried vertically so that they only display a single pole. Other discrete positive responses can be seen 35m to the east, but these lie within a linear zone that contains magnetic debris.

Anomalies associated with land management

(2) – A negative linear anomaly relates to a linear drainage channel. The linear layout and orientation suggests that this has an anthropogenic, rather than natural origin.

Anomalies with a natural origin

(3) – The survey area contains a number of anomalies that correspond to the naturally formed drainage channels associated with the former tidal inlets that exist within the site.

Anomalies associated with magnetic debris

(4) – Zones of magnetic debris are evident throughout the site. The majority are associated with infilled drainage channels and dumped material.

(5) – The site contains a number of narrow, linear zones of magnetic debris. This type of response could be associated with modern land drainage, or former land boundaries.

(6) – The site contains numerous strong, discrete, dipolar anomalies which are responses to buried ferrous and other magnetically thermoremnant objects within the topsoil.

Anomalies with a modern origin

(7) – The survey area contains a number of multiple dipolar linear anomalies and although these suggest services or pipes, they appear to end abruptly and an association with land drainage is possible.

(8) – Strong, multiple dipolar anomalies related to buried services can be seen within the eastern part of the site.

4 CONCLUSION

4.1.1 The detailed magnetometry survey located numerous anomalies that were associated with the natural drainage channels within the site as well as others that have a relatively modern origin. Some areas of magnetic debris appear to relate to infilling and dumping within the site. In the south eastern part of the area there are a small number of discrete positive responses, some appear to be associated with a linear zone of magnetic debris; however, one single discrete response can be seen as an isolated feature, but it is not possible to confidently determine the origin of the anomaly.

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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.

High Pass Filter

Removes low frequency anomalies within the data that are not considered to be archaeologically significant and may be natural in origin. A window passes over the data, the mean of all the data within the window is subtracted from the centre value. The size of the window is adjusted as is the weighting which may be uniform or Gaussian. The process is used to improve the visibility of anomalies of interest.

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

Minimally processed data clipped at ±5nT
Filename: J853-mag-proc.xcp
Description: Imported as Composite from: J853-mag.asc
Instrument Type: Sensys DLMGPS
Units:
UTM Zone: 31U
Survey corner coordinates (X/Y):OSGB36
Northwest corner: 607696.17, 124501.42 m
Southeast corner: 607998.57, 124172.92 m
Direction of 1st Traverse: 90 deg
Collection Method: Randomised
Sensors: 5
Dummy Value: 32702
Dimensions
Survey Size (meters): 302 m x 329 m
X&Y Interval: 0.15 m
Source GPS Points: Active: 1656182, Recorded: 1656182
Stats
Max: 5.53
Min: -5.50
Std Dev: 2.43
Mean: -0.20
Median: 0.03
Composite Area: 9.9338 ha
Surveyed Area: 5.6543 ha
PROGRAM
Name: TerraSurveyorPre
Version: 3.0.36.24
GPS based Proce4
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to UTM).
3 DeStripe Median Traverse:
4 Clip from -5.00 to 5.00

Minimally processed data clipped at ±50nT
Stats
Max: 55.25
Min: -55.00
Std Dev: 12.39
Mean: -0.70
Median: 0.01
GPS based Proce4
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to UTM).
3 DeStripe Median Traverse:
4 Clip from -50.00 to 50.00

Filtered data

Filename: J853-mag-proc-hpf.xcp

Stats
Max: 3.32
Min: -3.30
Std Dev: 1.56
Mean: -0.10
Median: 0.00
Composite Area: 9.9338 ha
Surveyed Area: 5.4029 ha
GPS based Proce6
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to UTM).
3 DeStripe Median Traverse:
4 High pass Uniform (median) filter: Window dia: 300
5 Clip from -5.00 to 5.00
6 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 Kent 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	J853-mag.asc J853-mag.xcp J853-mag-proc.xcp J853-mag-proc-hpf.xcp	Raw data as ASCII CSV TerraSurveyor raw data TerraSurveyor minimally processed dataTerraSurveyor filtered data
Graphics	J853-mag-proc-5nT.tif J853-mag-proc-50nT.tif J853-mag-proc-hpf.tif	Image in TIF format
Drawing	J853-**[version number]**.dwg	CAD file in 2018 dwg format
Report	J853 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)
Anomalies relating to land management			
AS-ABST MAG LAND DRAIN		Cyan 0,255,255	Line or polyline
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)
AS-ABST MAG SERVICE		132, 132, 132	Line or polyline
Anomalies with a natural origin			
AS-ABST MAG NATURAL FEATURES		Yellow 255,255,0	Polygon (cross hatched ANSI37)

Table 3: CAD layering

Appendix F – copyright and intellectual property

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Specialist Geophysical Surveyors

Geophysical Survey
Land at Victoria Road West
Littlestone-on-Sea
New Romney
Kent

Map of survey area

Survey location

Survey location

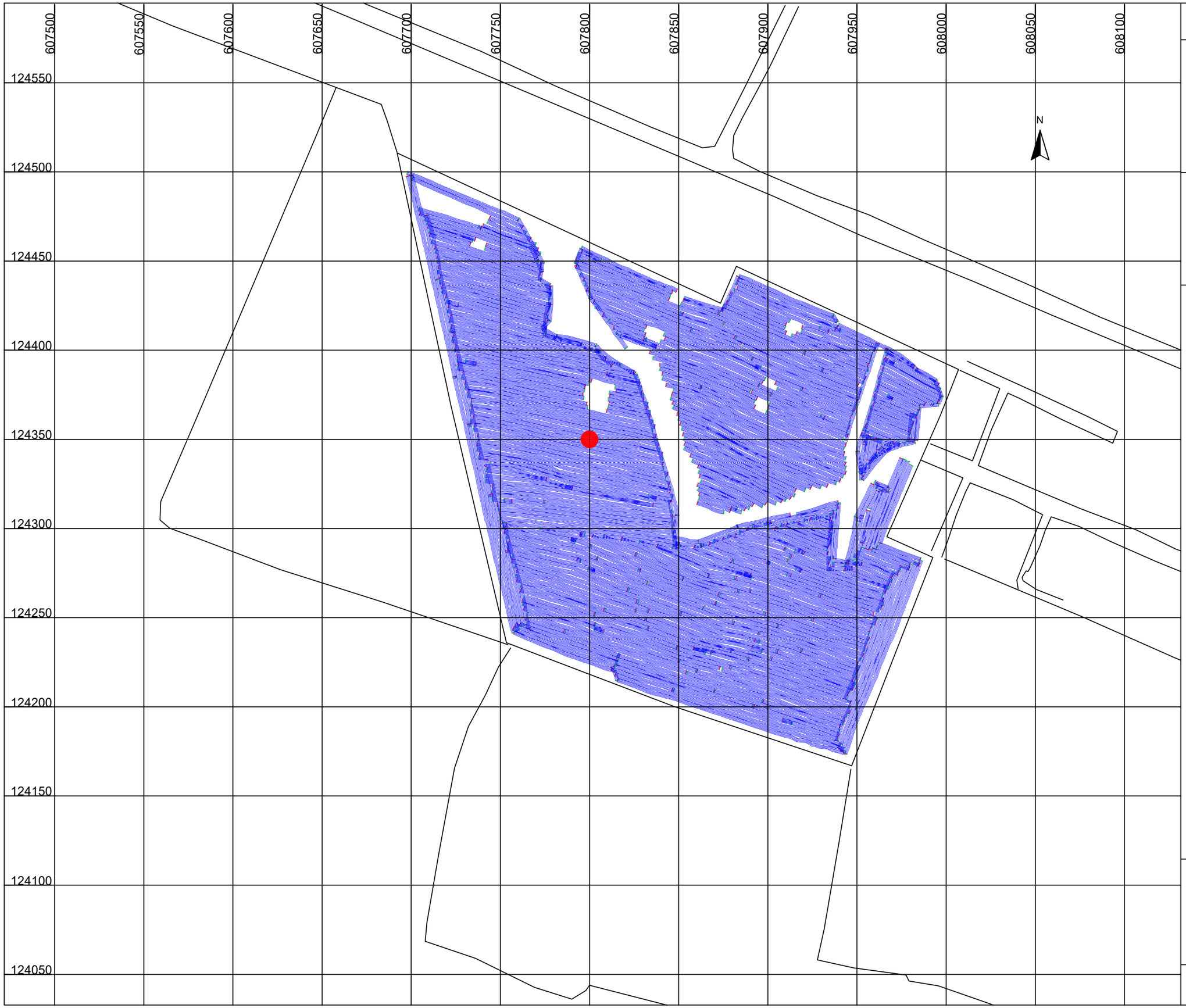
Site centred on OS NGR
TR 07840 24332

SCALE 1:25 000

0m 500m 1000m

SCALE TRUE AT A3

DRAWN BY	CHECKED BY	
KTD	DJS	FIG 01



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Referencing information

Referencing grid to OSGB36 datum at 50m intervals

607800 124350

Survey tracks

Survey track start

Survey track stop

SCALE 1:2000

0m 20 40 60 80 100m

SCALE TRUE AT A3

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KTD	DJS	FIG 02

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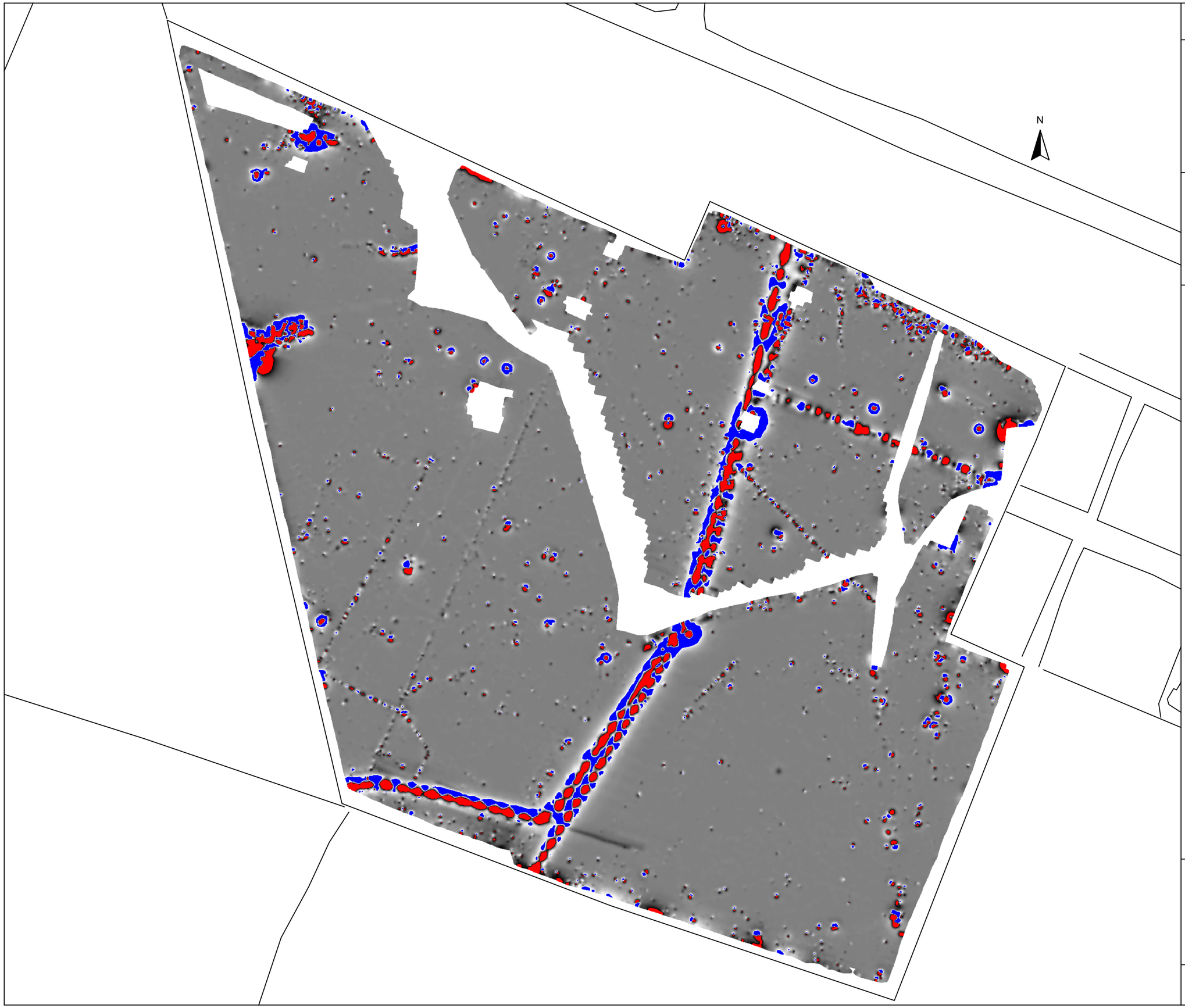
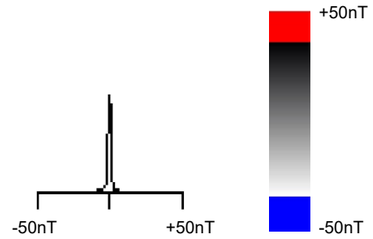
Greyscale plot of minimally processed magnetometer data clipped at ±50nT





SCALE 1:1250

0m 10 20 30 40 50m

SCALE TRUE AT A3

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KTD	DJS	FIG 03

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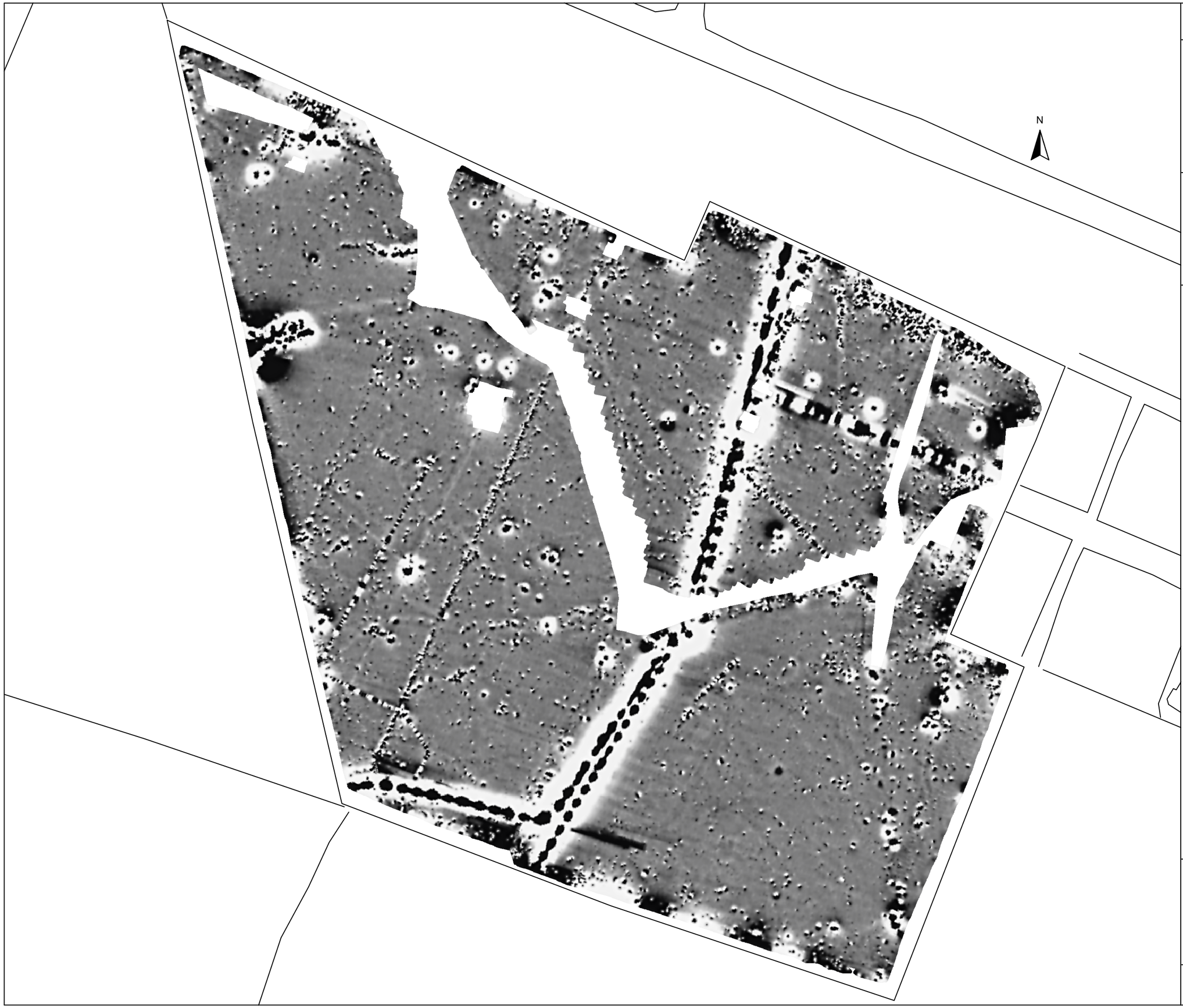
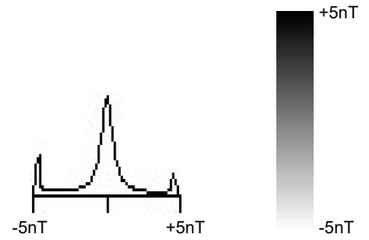
Greyscale plot of minimally processed magnetometer data clipped at ±5nT





SCALE 1:1250

0m 10 20 30 40 50m

SCALE TRUE AT A3

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KTD	DJS	FIG 04

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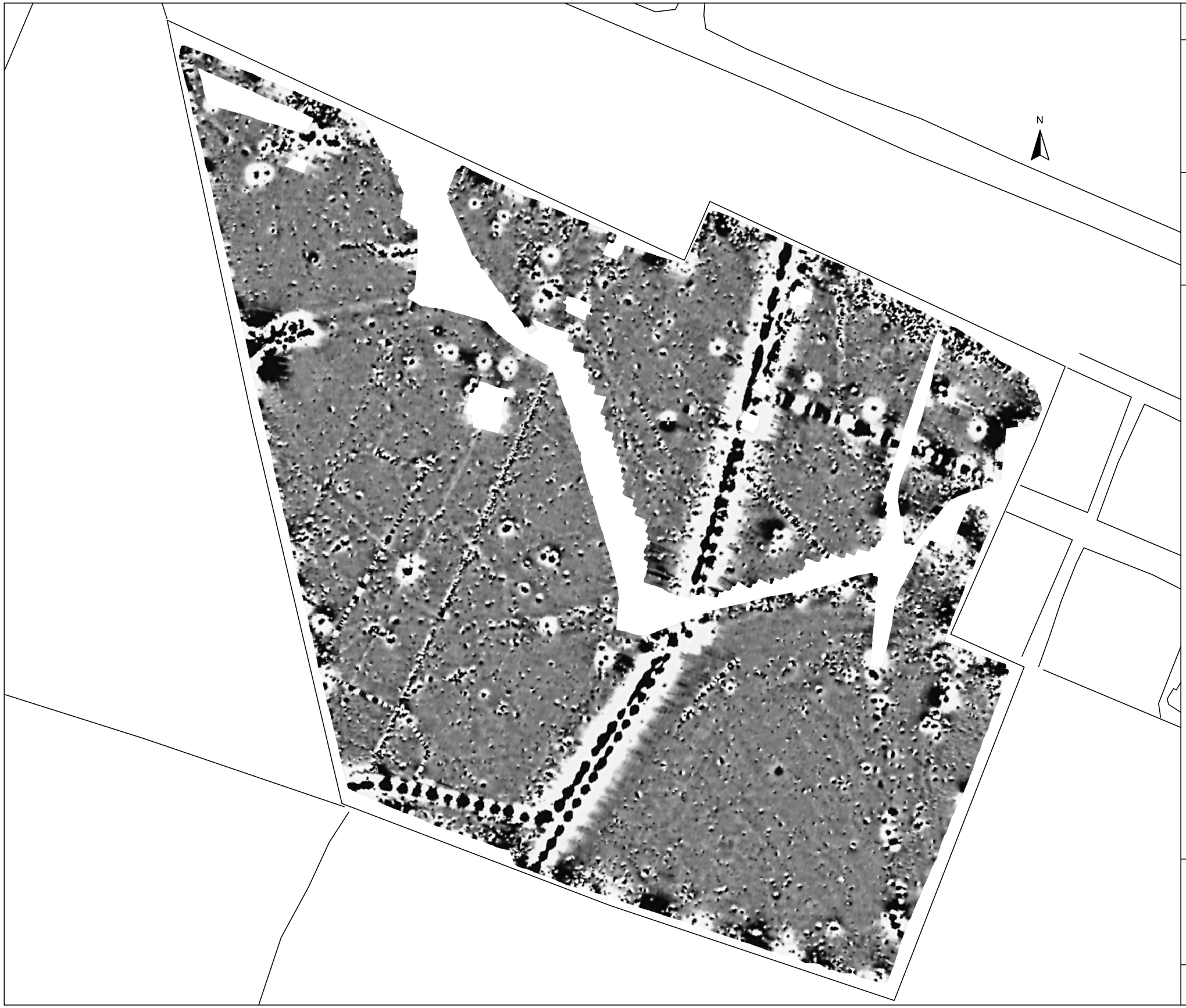
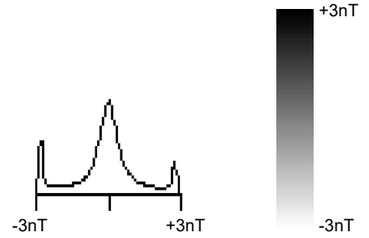
Greyscale plot of filtered magnetometer data





SCALE 1:1250

0m 10 20 30 40 50m

SCALE TRUE AT A3

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KTD	DJS	FIG 05

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Abstraction and interpretation of magnetic anomalies

N

6
4
3
2
8
7
5
1
3
4

- Discrete positive response - possible pit-like feature
- Negative linear anomaly - drain
- Linear anomaly - of natural origin
- Variable magnetic response - drainage channel of natural origin
- Magnetic debris - spread of magnetically thermoremnant/ferrous material
- Magnetic disturbance from ferrous material
- Strong multiple dipolar linear anomaly - pipeline / cable / service
- Strong dipolar anomaly - ferrous object

SCALE 1:1250

0m 10 20 30 40 50m

SCALE TRUE AT A3

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KTD	DJS	FIG 06

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Digital Terrain Model

Derived from Environment Agency's LiDAR data 1m resolution

N

SCALE 1:3000

0m 30 60 90 120 150m

SCALE TRUE AT A3

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KTD	DJS	FIG 07