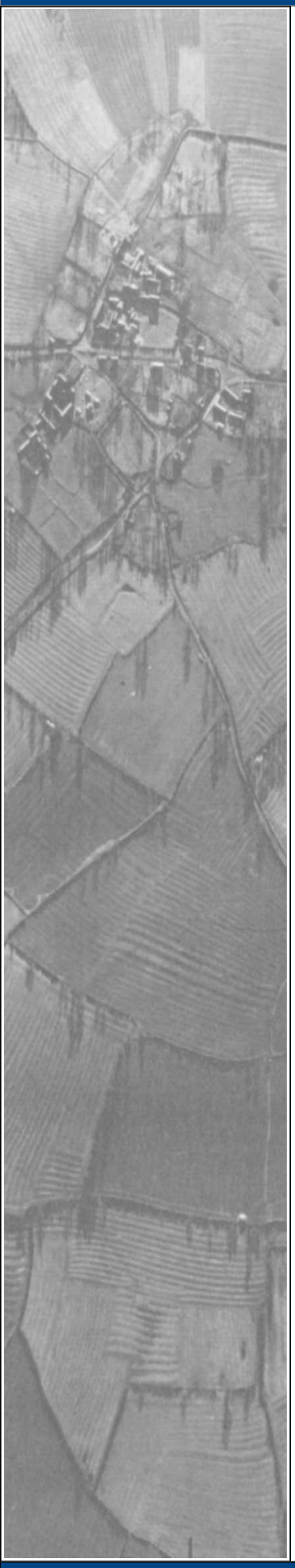

Faringdon to Blunsdon Phase 2 New Water Main Oxfordshire/Swindon

UPDATED MAGNETOMETER SURVEY REPORT

for

Stantec UK Ltd

Kerry Donaldson & David Sabin

January 2021

Ref. no. J815

ARCHAEOLOGICAL SURVEYS LTD

Faringdon to Blunsdon Phase 2 New Water Main Oxfordshire/Swindon

UPDATED MAGNETOMETER SURVEY REPORT

for

Stantec UK Ltd

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Primary archive location - Archaeological Surveys Ltd, Yatesbury, Wiltshire

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SUMMARY

A geophysical survey, comprising 104ha of detailed magnetometry, was carried out within two sections of corridor outlined for a proposed new water main near Faringdon in Oxfordshire and Blunsdon in Swindon. Within the Faringdon section, to the south of Oldfield Farm, a number of linear anomalies indicating ditch-like features with archaeological potential were located. Further west, to the south of the copse at Gorse Hill, at least twenty ring ditches, possibly indicative of an Iron Age settlement site, have been located. Several negative linear and rectilinear anomalies were located to the north east of Oldfield Farm, and although their origin is uncertain, they could indicate structural remains.

Within the Blunsdon section, near to Staplers Farm, the survey has located a total of seventeen circular enclosures belonging to a group monuments known as the Highworth Circles. Of these, six have been previously recorded from aerial photographs within the survey area, along with three others to the north outside of the survey area. At least a further eleven previously unrecorded circles were located. Although the Highworth Circles exist generally as circular enclosures formed by a low, broad outer bank and shallow, broad internal ditch with a flat interior, the magnetic response indicates a positive curvilinear anomaly caused by enhanced soil mainly within the ditch fill with fragments of the outer bank evident on a small number of the circles.

Also within the vicinity of Staplers Farm, the survey located anomalies relating to features that include ring ditches associated with former round houses, enclosures, trackways and structural remains. These indicate the presence of an Iron Age and Romano-British settlement that underlies the Highworth Circles.

Elsewhere within the Blunsdon section, the survey has located evidence of former quarrying, which may be of some antiquity, and a number of discrete pit-like features, which could also be of archaeological significance.

The majority of the survey areas contain evidence for ridge and furrow, later cultivation and also some land drainage. Many areas contain discrete and linear anomalies which are generally weak and/or lack a coherent morphology preventing confident interpretation.

1 INTRODUCTION

1.1 Survey background

1.1.1 Archaeological Surveys Ltd was commissioned by Stantec UK Ltd, on behalf Thames Water, to undertake a magnetometer survey ahead of construction of a new water main in Oxfordshire and Swindon. The survey comprises a survey corridor of various widths, with one section extending westwards from the Faringdon Water Booster Station to Snowswick Lane in Oxfordshire and

another section extending westwards from Swanborough Road, near Hannington, to the Blunsdon Reservoir, Swindon. The survey is a second phase to replace an existing glass-reinforced plastic (GRP) pipe, which has been subject to metallic bolt corrosion causing joint failures, with a new 1200mm high density polyethylene (HDPE) water main. The existing infrastructure, which also includes an asbestos cement (AC) pipe, interconnected in several places with the GRP pipe, runs from Faringdon Water Booster Station to the Blunsdon Reservoir and forms a strategic component of the water transmission system to Swindon. This current survey within the two areas near Faringdon and Blunsdon are part of Phase 2 of the water main replacement, with the central section between them previously surveyed under Phase 1 of the scheme in 2018 (Archaeological Surveys, 2018).

1.1.2 The geophysical survey was carried out in accordance with a Written Scheme of Investigation (WSI) produced by Archaeological Surveys (2020b) and issued to county archaeologists Melanie Pomeroy-Kellinger for Wiltshire Council, representing Swindon Borough, and Richard Oram, for Oxfordshire County Council.

1.2 Survey objectives and techniques

1.2.1 The aim of the geophysical survey is to help inform an outline mitigation strategy to guide the future approach to the archaeological risk reduction and impact mitigation along the route. The objectives are to use detailed magnetometry along the route to locate anomalies of archaeological potential.

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.* Note: currently Historic England (2018) no longer support the guidelines set out in English Heritage (2008) *Geophysical survey in archaeological field evaluation* and there are currently no plans to update the document.

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 comprises two sections of survey corridor of various widths; 5.9km between the Faringdon Water Booster Station and Snowswick Lane in Oxfordshire and over 4.4km between Swanborough Road and the Blunsdon Reservoir in Swindon. It lies between Ordnance Survey National Grid Reference (OS NGR) SU 27680 96607 to SU 22800 95085 in Oxfordshire (Areas 1-23) see Figs 02 & 03 and SU 18190 92135 to SU 14840 90373 in Swindon (Areas 24-41), see Figs 04 & 05.

1.4.2 The geophysical survey covers approximately 104ha within 46 survey areas (see Table 1 below). In total 46.7ha was surveyed in Oxfordshire within survey Areas 1-23 and 57.3ha in Swindon within Areas 24-41. During progression of the survey, a number of re-routes were needed and Areas 25a, 27a, 27b, 28a, 28b and 30a were added. Area 36 was not surveyed as it had been previously subject to archaeological geophysical survey and evaluation.

1.4.3 The ground conditions across the site were generally considered to be favourable for the collection of magnetometry data. Weather conditions during the survey were variable with periods of heavy rain and high winds as well as hot and dry conditions.

Area no.	Fig no.	Grid reference	Local authority	Geology	Soil Associations	Ground cover	Survey dates	Area coverage	Notes & Observations
1	06 & 07	427680 196607 to 427476 196798	Oxfordshire	Oxford Clay Formation	Denchworth (pelo-stagnogley)	Grassland	01/05/20	3.4ha	
2	06 & 07	427445 196815 to 427272 196945	Oxfordshire	Oxford Clay	Denchworth	Grassland	02/05/20	3.5ha	
3	08 & 09	427265 196945 to 427100 197064	Oxfordshire	Oxford Clay	Denchworth	Grassland	8/5/20	1.4ha	
4	08 & 09	427100 197066 to 426877 197130	Oxfordshire	Oxford Clay	Denchworth	Grassland	8/5/20	1.6ha	
5	10	426851 197101 to 426666 197055	Oxfordshire	Oxford Clay	Denchworth	Grassland	8/5/20	1.4ha	
6	11	426652 197052 to 426330 197006	Oxfordshire	Oxford Clay	Denchworth	Grassland	10/05/20	1.6ha	
7	11	426318 197015 to 426132 197041	Oxfordshire	Oxford Clay	Denchworth	Grassland	10/5/20	1ha	
8	12 & 13	426135 196930 to 425748 196740	Oxfordshire	Oxford Clay	Denchworth	Grassland	18/5/20 & 21-23/12/20	8.4ha	
9	14 & 15	425783 196704 to	Oxfordshire	Oxford Clay	Denchworth	Grassland	14/05/20 &	3.1ha	

		425369 196616					21/12/20		
10	14 & 15	425555 196599 to 425386 196414	Oxfordshire	Oxford Clay	Denchworth	Grassland	14/05/20	1.1ha	
11	16 & 17	4253313 196578 to 425286 196202	Oxfordshire	Oxford Clay	Denchworth	Grassland	12/05/20 & 22/12/20	2.8ha	Negative rectilinear anomalies of uncertain origin. Pits of probable natural origin
12	17	425287 196157 to 425287 196041	Oxfordshire	Oxford Clay	Denchworth	Grassland	12/05/20	0.8ha	
13	18	425287 195999 to 425286 196941	Oxfordshire	Oxford Clay	Denchworth	Grassland	08/06/20	0.4ha	
14	18	425285 195937 to 425086 195744	Oxfordshire	Oxford Clay	Denchworth	Arable - cultivated	11/05/20	2.4ha	Linear/rectilinear anomalies of archaeological potential
15	19	425075 195700 to 424756 195613	Oxfordshire	Oxford Clay	Denchworth	Arable - short crop	11/05/20	1.5ha	
16	19	424710 195602 to 424650 195575	Oxfordshire	Oxford Clay	Denchworth	Grassland	11/5/20	0.3ha	
17	20	424641 195579 to 424364 195496	Oxfordshire	Oxford Clay	Denchworth	Arable - short crop	6/5/20	2.2ha	
18	21	424355 195490 to 423981 195466	Oxfordshire	Oxford Clay	Denchworth	Arable - short crop	05/05/20	3ha	20 ring ditches relating to prehistoric settlement
19	22	423974 195460 to 423804 195430	Oxfordshire	Oxford Clay	Denchworth	Arable - short crop	05/05/20	0.9ha	
20	22 & 23	423797 195426 to 424480 195351	Oxfordshire	Oxford Clay	Denchworth	Arable - short crop	05/05/20	1.5ha	
21	24	423467 195354 to 423131 195248	Oxfordshire	Oxford Clay	Denchworth	Arable - short crop	05/05/20	1.8ha	
22	25	423114 195240 to 422912 195142	Oxfordshire	Oxford Clay	Denchworth	Arable - short crop	4/5/20	1.6ha	
23	25	422897 195134 to 422800 195085	Oxfordshire	Oxford Clay	Denchworth	Arable - short crop	04/05/20	0.8ha	
24	26	418190 192135 to 417681 192173	Swindon	Stanford Formation - Limestone with Hazelbury Bryan Formation & Kingston Formation - sandstone, siltstone & mudstone at the NE corner	Sherborne - shallow, well drained, brashy, calcareous clayey soils over the Stanford Formation Limestone (Brown rendzina) & Evesham 2 - slowly permeable, calcareous clay soil over the Hazelbury Bryan and Kingston Formations (typical calcareous pelosol)	Arable - short crop	02/06/20	2.2ha	
25	27 & 28	417750 192100 to 417690 191960	Swindon	Stanford Formation - Limestone, Hazelbury Bryan Formation & Kingston Formation - sandstone, siltstone & mudstone, Highworth Limestone Member	Sherborne over the Stanford Formation & Evesham 2 over the Hazelbury Bryan and Kingston Formations	Arable - short crop and rough ploughed	2/6/20 & 19/10/20	2.3ha	
25a	27 & 28	418033 192056 to 417844 191902	Swindon	Mainly Stanford Formation with bands of E-W Hazelbury Bryan Formation & Highworth Limestone Formation	Sherborne over the Stanford Formation & Evesham 2 over the Hazelbury Bryan and Kingston Formations	Grassland	24/12/20 & 30/12/20	4.3ha	
26	29 & 30	417653 192057 to 417494 191915	Swindon	Oxford Clay	Denchworth	Grassland	11/06/20 & 9/10/20	2.9ha	
27	29 & 30	417472 191906 to 417402 191765	Swindon	Oxford Clay	Denchworth	Grassland	27/08/20	2.6ha	Previously unrecorded Highworth Circle
27a	29 & 30	417698 191947 to 417532 191553	Swindon	Highworth Limestone, Hazelbury Bryan Formation in N,Oxford Clay in S	Sherborne over the Stanford Formation & Evesham 2 over the Hazelbury Bryan and Kingston Formations Denchworth over clay	Rough ploughed	19/10/20	1.7ha	Previously unrecorded Highworth Circle
27b	27 & 28	417837 191888 to 417656 191738	Swindon	Highworth Limestone, Hazelbury Bryan Formation in N,Oxford Clay in S	Sherborne, Evesham 2 & Denchworth	Arable – rough ploughed waterlogged	30/12/20	1ha	Linear anomalies of uncertain origin, could relate to cut features with archaeological potential
28	31 & 32	417400 191756 417300 191693	Swindon	Oxford Clay	Denchworth	Grassland	27/08/20 & 28/08/20	2ha	Edge of circle adjoining Area 29

									Roman Rectilinear enclosures
28a	31 & 32	417644 191730 to 417545 191553	Swindon	Oxford Clay	Denchworth	Grassland	08/10/20 & 07/01/21	1.6ha	Anomalies of archaeological potential
28b	33 & 34	417520 191546 to 417320 191368	Swindon	Oxford Clay	Denchworth	Grassland	08/10/20 & 07/01/21	5.7ha	Two Highworth Circles
29	35 & 36	417280 191675 to 417075 191494	Swindon	Oxford Clay	Denchworth	Grassland - fallow	04/05/20, 05/05/20 & 10/07/20	7.5ha	Area contains 6 mapped "Highworth Circles". Results show 9 circles. Roman buildings and enclosures underlie the north western circle. IA ring ditches in SW corner
30	37 & 38	417080 191481 to 416995 191377	Swindon	Oxford Clay	Denchworth	Grassland	27/08/20	2ha	Previously unrecorded Highworth Circles, IA ring ditches
30a	37 & 38	417296 191352 to 417047 191266	Swindon	Oxford Clay	Denchworth	Grassland	20/10/20	2.3ha	Previously unrecorded Highworth Circle and other linear ditches
31	41 & 42	416987 1911376 to 416681 191187	Swindon	Oxford Clay	Denchworth	Grassland	13/07/20 &	5.3ha	
32	43 & 44	416673 191170 to 416561 190956	Swindon	Oxford Clay at E end, Hazelbury Bryan Formation & Kingston Formation - sandstone, siltstone & mudstone,	Denchworth & Evesham 2	Grassland - fallow	15/06/20 & 15/10/20	3ha	
33	43 & 44	416542 190952 to 416318 190823	Swindon	Hazelbury Bryan Formation & Kingston Formation - at E end, Stanford Formation - Limestone at W end	Evesham 2 & Sherborne	Arable - short crop Maize stubble	05/06/20 & 15/10/20	1.6ha	Longer section done as part of original route. Linear anomalies located at eastern end
34	45 & 46	416512 190836 to 416351 190600	Swindon	Hazelbury Bryan Formation & Kingston Formation - to E, Stanford Formation - to W	Evesham 2 & Sherborne	Horse paddock	10/6/20 & 2/9/20	3.3ha	
35	45 & 46	416342 190595 416260 190492	Swindon	Stanford Formation - to N Hazelbury Bryan Formation & Kingston Formation - to S	Sherborne & Evesham 2	Horse paddock	10/6/20 & 2/9/20	2ha	
37	47	415995 190210 to 415761 190067	Swindon	Hazelbury Bryan Formation & Kingston Formation - to N, Oxford Clay to S	Evesham 2 & Sherborne	Long, overgrown grassland	09/06/20 &	1ha	
38	47	415712 190077 to 415655 190066	Swindon	Hazelbury Bryan Formation & Kingston Formation	Evesham 2	Short grass	01/09/20	0.3ha	
39	48	415523 190085 to 415377 190040	Swindon	Stanford Formation - Limestone	Sherborne	Arable stubble	01/09/20	1.5ha	
40	48	415352 190030 to 415047 190150	Swindon	Stanford Formation	Sherborne	Grassland	18/0619	1.3ha	Contains a number of pit-like anomalies of archaeological potential
41	49	414895 190240 to 414840 190373	Swindon	Stanford Formation	Sherborne	Horse paddock	31/08/20	0.4ha	

Table 1: Survey area information

1.5 Site history and archaeological potential

1.5.1 At the Faringdon end the survey corridor lies close to the site of a post medieval brickworks and claypit, now located within a small coppice to the north of Lechlade Road, and a number of brickworks sheds to the south of Lechlade Road. The corridor extends through farmland within the Buscot Estate and within the woodland to the east a number of clay pits are recorded. Several earthworks are also located within the woodland, many are ancient field boundaries, two are oval enclosures and they probably date to the Iron Age or Roman periods, pre-dating the early medieval woodland. A watching brief carried out during soil stripping of a previous water main in 2004, led to

the excavation of a medieval site at Pennyswick Farm, near Snowswick Lane, Coleshill. This consisted of a sub-rectangular enclosure, 50m long and 8m wide, with a layer of limestone flooring overlain by accumulations of sheep/goat bone. Minety roof ridge tiles and nails were also located indicating that it relates to a possible 14th century sheepfold (Cotswold Archaeology, 2012). This lies immediately north of the current survey corridor (Area 23).

1.5.2 At the Blunsdon end the pipeline route crosses a field containing an undated trackway and field system, identified from aerial photographs, close to the lane to Hannington. The site of Stapler's Barn, a demolished 19th century outfarm and also the line of a former Roman road or trackway are listed to the north of Staplers Farm. At the Blunsdon end of the survey corridor, in the area around Staplers Farm, there are a number of "Highworth Circles" recorded from aerial photography from the 1930s onwards. These are a collection of earthworks, generally, but not always circular in form, and a typical example is described by Allen & Passmore (1935, p114) as "*a perfect circle about 100 yards in diameter confined by a low bank never more than a yard high. Inside this is a wide and shallow ditch from ten to thirty-five feet wide, sometimes divided into two parts by a ridge in the middle" .* The centrally enclosed area is generally flat and the outer banks have no entrances. There are several clusters of these enclosures around Highworth and the surrounding area, with over forty known examples. Within the survey corridor, Area 29 contains six recorded examples and a further three are known within the field to the north. One of the circles within the survey area was partially excavated by Major G.W.G Allen and A.D Passmore (1935) and they encountered a Roman building as well as pottery in the ditch, leading them to surmise that the circles were of Roman date; however, they are generally believed to relate to stock enclosures from the medieval period (Gingell & Gingell, 1981).

1.5.3 To the north of the B4019 and Stubbs Hill Farm, east of Blunsdon, the survey corridor partially extends through an area which previously recorded Anglo-Saxon quarry pits, a possible Anglo-Saxon sunken building and a Roman boundary ditch (Cotswold Archaeology, 2012), located prior to construction of a previous water main in 2004. This has been included within Area 33 of the present survey. Several sherds of Romano-British pottery and tile fragments located to the south of the B4019 around Stubbs Hill Farm. Recent geophysical surveys near the western end of the survey corridor and included in this report as Area 40, have located a number of undated pits of archaeological potential (Archaeological Surveys, 2020a).

1.5.4 During the course of the survey several survey areas contained soil with no ground cover and were suitable for the observation of surface finds. To the west of Staplers Farm, near the eastern end of Area 29, a Neolithic petit tranchet arrowhead made from a very dense dark flint was located. The object was considered likely to be an isolated find as no other evidence of flint scatters or debitage was observed within the field. The same area did, however, contain widespread Romano-British pottery fragments with spreads of stone relating to structural remains in the north western and central parts of the site in particular. In addition, widespread burnt clay fragments were visible

as small irregular lumps of terracotta coloured material with dense concentrations in the central northern part of the area. It is possible that the material is of archaeological potential, perhaps representing former industrial activity, although it could relate to tree clearance.

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 range of recording data between ±0.1nT and ±3000nT. 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 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. Low pass filtering has also been carried out in order to remove high frequency variation along a traverse that has been caused by uneven ground and associated vibration. 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 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 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 each survey area. Where further interpretation is possible, or where a number of possible origins should be considered, more

subjective discussion is set out in Section 4.

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

3 RESULTS

3.1 General assessment of survey results

3.1.1 The detailed magnetic survey was carried out over a total of 46 survey areas covering approximately 104ha.

3.1.2 Magnetic anomalies located can be generally classified as positive and negative responses of archaeological potential, positive and negative anomalies of an uncertain origin, anomalies associated with land management, anomalies associated with quarrying, linear anomalies of an agricultural origin, 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.

3.1.3 A brief description of results has been included for areas with minimal anomalies but within areas with complex anomalies, or those with archaeological potential, they have been numbered and are described in 3.4 to 3.49 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 survey areas. There are no significant defects within the datasets.

3.2.2 The results along the survey corridor demonstrate the presence of useful magnetic contrast allowing the location of anomalies relating to the fill of former cut features. The pelo-stagnogley soil (Denchworth association) within the majority of the survey areas is generally associated with low to moderate levels of magnetic susceptibility, and as a consequence magnetic contrast between the natural and fill of archaeological features may be weak, particularly on permanently damp ground. However, the soil is known to enhance readily and form clear anomalies where former settlement occurs.

3.2.3 Interpretation can always be limited by the constraints of a site boundary, particularly within linear corridors associated with pipelines.

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 archaeological potential	Anomalies have the characteristics (mainly morphological) of a range of archaeological features such as pits, ring ditches, enclosures, etc. The category is used where there is a high level of confidence which may be due to additional supporting information where morphology is unclear or uncharacteristic.
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.
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.
Anomalies associated with quarrying	Magnetically variable anomalies which may be negative indicating a response to geology/drift deposits and/or positive indicating an increased depth of topsoil. Very strongly magnetic anomalies are a response to highly magnetic material of modern origin which can be used to infill a quarry depression. It should be considered that former quarry pits may be of archaeological potential.

Table 2: List and description of interpretation categories

3.4 List of anomalies - Area 1 (Oxfordshire)

Area centred on OS NGR 427680 196607 to 427476 196798, see Figs 06 & 07.

3.4.1 Area 1 contains a number of linear anomalies that could relate to agricultural activity and a number of discrete, pit-like anomalies of uncertain origin. Ridge and furrow and a number of services are also evident.

3.5 List of anomalies - Area 2 (Oxfordshire)

Area centred on OS NGR 427445 196815 to 427272 196945, see Figs 06 & 07.

3.5.1 Area 2 contains a small number of discrete, pit-like anomalies of uncertain origin. Ridge and furrow and magnetic debris are also present with services towards the south eastern corner.

3.6 List of anomalies - Area 3 (Oxfordshire)

Area centred on OS NGR 427265 196945 to 427100 197064, see Figs 08 & 09.

3.6.1 Area 3 contains a fragmented positive linear anomaly that appears to have been truncated by ridge and furrow and, therefore, pre-date it. Other short positive linears and discrete responses are also evident, but lacking a coherent morphology.

3.7 List of anomalies - Area 4 (Oxfordshire)

Area centred on OS NGR 427100 197066 to 426877 197130, see Figs 08 & 09.

3.7.1 Area 4 contains short, possibly fragmented, linear anomalies, curvilinear anomalies and discrete responses. They generally lack a coherent morphology preventing confident interpretation.

3.8 List of anomalies - Area 5 (Oxfordshire)

Area centred on OS NGR 426851 197101 to 426666 197055, see Fig 10.

3.8.1 Area 5 contains an L-shaped positive anomaly in the eastern part of the survey area and two positive anomalies towards the centre. It is not clear if the ridge and furrow truncates them.

3.9 List of anomalies - Area 6 (Oxfordshire)

Area centred on OS NGR 426652 197052 to 426330 197006, see Figs 10 & 11.

3.9.1 A small number of positive linear anomalies can be seen within the western part of the survey area. Although they lack a coherent morphology, similar anomalies can be seen within Area 7 to the west and it is possible that they relate to cut features. Other anomalies are associated with land drainage and ridge and furrow.

3.10 List of anomalies - Area 7 (Oxfordshire)

Area centred on OS NGR 426318 197015 to 426132 197041, see Fig 11.

3.10.1 Area 7 contains a small number of positive linear anomalies. In the western

part of the survey area is a fragmented positive linear anomaly, and although it is not clear if it relates to a cut feature, it is on a similar orientation to a northern projection of anomaly (1) within Area 8, situated 80m to the south.

3.11 List of anomalies - Area 8 (Oxfordshire)

Area centred on OS NGR 426135 196930 to 425748 196740, see Figs 12 & 13.

Anomalies with an uncertain origin

(1 & 2) - A fragmented positive linear anomaly is located in the northern part of the survey area (1). A second, more sinuous, fragmented positive linear anomaly (2) can be seen in the southern part of the survey area. It is not clear if these anomalies relate to cut, ditch-like features, or if they have a natural origin.

(3) - The survey area contains a number of short or fragmented positive linear and discrete positive responses. It is not possible to determine if they relate to cut features.

(4) - Two parallel positive linear anomalies in the south western part of the survey area could relate to agricultural activity, or possibly a former field boundary.

Anomalies associated with magnetic debris

(5) – A large zone of magnetic debris in the north western corner of the survey area relates to demolition material associated with former buildings, mapped in the late 19th century. Other patches of magnetic debris in the southern part of the site may relate to dumped material.

3.12 List of anomalies - Area 9 (Oxfordshire)

Area centred on OS NGR 425783 196704 to 425369 196616, see Figs 14 & 15.

3.12.1 Area 9 contains a small number of positive linear anomalies and discrete positive responses of uncertain origin. Some of the anomalies appear to have been truncated by ridge and furrow. There is a pipe or service at the western end.

3.13 List of anomalies - Area 10 (Oxfordshire)

Area centred on OS NGR 425555 196599 to 425386 196414, see Figs 14 & 15.

3.13.1 Area 10 contains a small number of positive linear and discrete anomalies and ridge and furrow.

3.14 List of anomalies - Area 11 (Oxfordshire)

Area centred on OS NGR 4253313 196578 to 425286 196202, see Fig 16 & 17.

Anomalies with an uncertain origin

(6) - Negative rectilinear and possible curvilinear anomalies with some associated positive response are situated at the southern end of Area 11. The negative anomalies could indicate structural remains and an archaeological origin should be considered.

(7) - The survey area contains a number of discrete positive responses. While such responses can relate to archaeological features, they can also relate to naturally formed features, such as episodes of waterlogging and drying or tree throw pits. The widespread and numerous extent of the anomalies, and bean-shaped formation of many of them, would tend to suggest that they are of natural origin and likely to be associated with tree throws and/or the removal of trees.

(8) - Two negative linear anomalies extend through the eastern part of the survey area. They are parallel with the eastern boundary and this type of response could relate to two adjacent services, or the edges of a former easement.

Anomalies with a modern origin

(9) - A strong, multiple dipolar, linear anomaly extends along the eastern edge of the survey area and relates to a buried service.

3.15 List of anomalies - Area 12 (Oxfordshire)

Area centred on OS NGR 425287 196157 to 425287 196041, see Fig 17.

Anomalies with an uncertain origin

(10 & 11) - A positive linear anomaly (10) could relate to a former field boundary, although none has been mapped in this position. It appears to have been truncated by anomaly (11).

(12) - The survey area contains a number of short or fragmented positive linear anomalies of uncertain origin.

Anomalies associated with land management

(13 & 14) - Two fragmented positive linear anomalies correspond to former field boundaries mapped during the 19th century.

(15) - A series of land drains are located to the south of, and parallel to anomaly (13).

3.16 List of anomalies - Area 13 (Oxfordshire)

Area centred on OS NGR 425287 195999 to 425286 196941, see Fig 18.

3.16.1 Area 13 contains a small number of short positive linear anomalies and discrete positive responses of uncertain origin as well as ridge and furrow and a buried service at the south western corner. A concrete base from a former barn or other agricultural feature was evident within the north western part of the survey corridor.

3.17 List of anomalies - Area 14 (Oxfordshire)

Area centred on OS NGR 425285 195937 to 425086 195744, see Fig 18.

Anomalies of archaeological potential

(16) - The survey area contains a number of positive linear anomalies with archaeological potential. They are fragmented, but appear to relate to cut, ditch-like features and possible enclosures.

Anomalies with an uncertain origin

(17) - A number of weakly positive linear and discrete anomalies appear to be situated within the confines of L-shaped anomaly (16). They are poorly defined, but it is possible that they relate to further cut features and possible occupation debris with archaeological potential.

(18) - Fragmented positive anomalies could relate to further features associated with (16); however, they appear to be contained within two parallel negative linear anomalies. The positive response could relate to disturbed occupational material. The negative responses could relate to non-magnetic services or be associated with an easement. A parallel positive linear anomaly is situated 16m to the east and could be associated.

(19) - The survey area contains a number of positive linear and discrete anomalies with no coherent morphology. It is possible that they relate to cut, ditch-like and pit-like features.

Anomalies with a natural origin

(20) - A zone of magnetically variable responses relates to variations in the make-up

and depth of the soils. Such patterning is usually related to periglacial processes.

Anomalies with a modern origin

(21) - The survey area contains a number of buried services. Those in the northern part of the survey area are highly magnetic, two water pipes cross the central southern part and are either weakly or non-magnetic.

3.18 List of anomalies - Area 15 (Oxfordshire)

Area centred on OS NGR 425075 195700 to 424756 195613, see Fig 19.

Anomalies with an uncertain origin

(22) - Positive linear anomalies at the eastern end of the survey area could relate to a continuation of those with archaeological potential within Area 14 immediately to the east.

(23) - The survey area contains a number of positive linear anomalies, some are oriented almost north to south, parallel with anomaly (24) and could relate to agricultural activity.

Anomalies associated with land management

(24) - Positive linear anomalies appear to relate to a former field boundary.

3.19 List of anomalies - Area 16 (Oxfordshire)

Area centred on OS NGR 424710 195602 to 424650 195575, see Fig 20.

3.19.1 Area 16 contains a small number of positive linear anomalies, some of which are oriented north to south and could relate to cultivation. Others are oriented north west to south east and are also of uncertain origin.

3.20 List of anomalies - Area 17 (Oxfordshire)

Area centred on OS NGR 424641 195579 to 424364 195496, see Fig 20.

3.20.1 Area 17 contains two positive linear anomalies with a north west to south east orientation. Anomalies with a similar orientation can be seen to the west within Area 18 and it is possible that they are associated. They appear to have been truncated by the ridge and furrow cultivation and given the proximity of the archaeological features within Area 18 to the west, their archaeological potential should be considered.

3.21 List of anomalies - Area 18 (Oxfordshire)

Area centred on OS NGR 424355 195490 to 423981 195466, see Fig 21.

Anomalies of archaeological potential

(25 & 26) - The survey area contains evidence for over twenty ring ditches. Some are partial and some have a more square appearance. The are situated in two groups with a 95m gap, but there are no surrounding large enclosure or boundary ditches. Several of anomalies (25) can be seen as positive curvilinear anomalies with some complexity including entrances, possibly conjoined ring ditches and also an associated negative response. The positive response would indicate the magnetically enhanced fill of a ditch or gulley, a negative response indicates material with low magnetic susceptibility, such as subsoil or stone. No cultural material was observed despite good visibility of the soil surface.

Anomalies with an uncertain origin

(27) - Two positive linear anomalies are situated in the eastern part of the survey area and appear to extend through anomalies (26). They could relate to cut features, but their date and function is uncertain.

3.22 List of anomalies - Area 19 (Oxfordshire)

Area centred on OS NGR 423974 195460 to 423804 195430, see Fig 22.

3.22.1 Area 19 contains a small number of positive linear anomalies and also several discrete positive responses with some in clusters. They cannot be confidently characterised as cut features, but it is possible that they have archaeological potential.

3.23 List of anomalies - Area 20 (Oxfordshire)

Area centred on OS NGR 423797 195426 to 424480 195351, see Figs 22 & 23.

3.23.1 Area 20 contains a small amount of weakly positive linear and discrete responses of uncertain origin.

3.24 List of anomalies - Area 21 (Oxfordshire)

Area centred on OS NGR 423467 195354 to 423131 195248, see Fig 24.

3.24.1 Area 21 contains two positive linear anomalies. One appears to be truncated by ridge and furrow the other by the existing water main. Discrete positive responses may be natural in origin.

3.25 List of anomalies - Area 22 (Oxfordshire)

Area centred on OS NGR 423114 195240 to 422912 195142, see Fig 25.

3.25.1 Area 22 contains positive linear anomalies. Two appear to join and it is possible that they relate to land drains.

3.26 List of anomalies - Area 23 (Oxfordshire)

Area centred on OS NGR 422897 195134 to 422800 195085, see Fig 25.

3.26.1 Area 23 contains a small number of short, positive linear and discrete responses. The northern part of the site had been subject to ground disturbance by vehicles.

3.27 List of anomalies - Area 24 (Swindon)

Area centred on OS NGR 418090 192135 to 417681 192173, see Fig 26.

Anomalies with an uncertain origin

(28) - The survey area contains a small number of short positive linear and discrete responses that have no coherent morphology or pattern.

(29) - A weakly positive linear anomaly could be a response to the GRP pipeline.

Anomalies associated with land management

(30) - A broad, positive linear anomaly relates to a formerly mapped field boundary.

Anomalies associated with quarrying

(31) - An amorphous zone of magnetically variable responses along the eastern edge of the survey area relates to the infill of a former quarry pit.

Anomalies with an agricultural origin

(32) - The survey area contains former ridge and furrow.

Anomalies with an agricultural origin

(33) - Two services cross the eastern part of the survey area.

3.28 List of anomalies - Area 25 (Swindon)

Area centred on OS NGR 417725 192107 to 417661 192058, see Figs 27 & 28.

3.28.1 The survey area contains evidence for former small scale quarrying and ridge and furrow as well as a small number of short, positive linear and discrete responses of uncertain origin. Positive and negative responses in the southern part of the survey area are similar to those seen within Area 26 to the west (34).

3.29 List of anomalies - Area 25a (Swindon)

Area centred on OS NGR 418033 192056 to 417844 191902, see Figs 27 & 28.

3.29.1 Area 25a contains former ridge and furrow and variable responses likely to relate to changes in the underlying geology.

3.30 List of anomalies - Area 26 (Swindon)

Area centred on OS NGR 417652 192047 to 417495 191914, see Figs 29 & 30.

Anomalies with an uncertain origin

(34) - A number of positive anomalies, with some associated negative response, can be seen in the survey area. They are sited on the south facing slope and it is not clear if they relate to the increased depth of topsoil within former quarry pits, or if they relate to other anthropogenic activity or natural processes.

(35) - A small number of discrete positive responses can be seen close to the eastern area of magnetic enhancement (34). They too could relate to former quarrying, but an archaeological origin should be considered.

Anomalies associated with land management

(36) - A positive linear anomaly and series of strong, discrete dipolars relate to a former land boundary and fence posts.

3.31 List of anomalies - Area 27 (Swindon)

Area centred on OS NGR 417472 191906 to 417402 191765, see Figs 29 & 30.

Anomalies of archaeological potential

(37) – A positive curvilinear anomaly relates to a narrow, infilled ditch associated with a previously unrecorded Highworth Circle with a diameter of approximately 55m. A small negative response can be seen on the north western side and could relate to a former outer bank. The circle has been partially truncated by later ridge and furrow.

Anomalies with an uncertain origin

(38) – The survey area contains a number of short, weakly positive, linear anomalies and several discrete responses. Although they lack a clear and coherent morphology but could relate to features with archaeological potential.

3.32 List of anomalies - Area 27a (Swindon)

Area centred on OS NGR 417698 191947 to 417542 191749, see Figs 29 & 30.

Anomalies of archaeological potential

(39) – A positive curvilinear anomaly relates to a narrow, infilled ditch associated with a previously unrecorded Highworth Circle with a diameter of approximately 82m. Its western edge can be seen in the south eastern corner of Area 27.

(40) – Situated 20m north of anomaly (39) is a very weak and narrow positive curvilinear anomaly. Although weak and poorly defined, it appears that it could relate to a further, previously unrecorded Highworth Circle, but only the eastern half is visible.

Anomalies with an uncertain origin

(41) – A number of positive curvilinear and linear anomalies can be seen within Area 27a, with a large group in the north western corner. There is a general lack of a coherent morphology, but it is possible that they relate to cut, ditch-like features.

(42) – A positive linear anomaly in the north eastern part of the survey area appears to have been truncated by ridge and furrow and could join former field boundary (36) to the north west. However, a positive linear anomaly can also be seen in Area 27b to the south east, and the archaeological potential should be considered.

3.33 List of anomalies - Area 27b (Swindon)

Area centred on OS NGR 417837 191888 to 417656 191738, see Figs 27 & 28.

3.33.1 A number of positive linear anomalies have been located within the survey area.

One could be a continuation of anomaly (42) seen in Area 27a to the north west. Although the full extent of the anomalies has not been defined, they could relate to cut features with archaeological potential.

3.34 List of anomalies - Area 28 (Swindon)

Area centred on OS NGR 417400 191756 417300 191693, see Figs 31 & 32.

Anomalies of archaeological potential

(43) – The eastern edge of a previously unrecorded Highworth Circle can be seen in the north western corner of the survey area, the majority of which can be seen in Area 29 to the west (61).

(44) – A number of positive linear, rectilinear and discrete anomalies relate to enclosures likely to be associated with settlement dating to the Roman period. The negative response could indicate former structural remains. They have a similar morphology and orientation to enclosures (57) seen within Area 29 between 300m and 500m to the west.

Anomalies with an uncertain origin

(45) – A series of positive and/or negative linear anomalies cross the survey area and may have partially truncated earlier features. This type of response could relate to land drainage, although one of the anomalies appears to extend into the field to the north, and so this is uncertain.

(46) – A positive linear anomaly appears to truncate anomaly (43). This could relate to a former boundary. Other positive anomalies are also evident, although it is not clear if they relate to ridge and furrow and truncation and spreading of material from anomaly (43) or if they relate to cut features.

3.35 List of anomalies - Area 28a (Swindon)

Area centred on OS NGR 417644 191730 to 417545 191553, see Figs 31 & 32.

Anomalies of archaeological potential

(47) – An L-shaped anomaly in the northern part of the survey area appears to relate to a possible enclosure, with a similar orientation to anomalies (44) seen within Area 28, 165m to the west.

(48) – Positive linear and curvilinear anomalies have been truncated by, and therefore pre-date, the ridge and furrow.

(49) – A positive curvilinear anomaly appears to have been truncated by ridge and furrow and could relate to a further Highworth Circle with a small section of the anomaly partially extending into the adjacent field (Area 28). A linear anomaly extends towards it from the south east.

Anomalies of uncertain origin

(50) – Negative rectilinear anomalies are associated with positive responses. These could relate to a former structure and there is a low mound in the field, but it is not clear if it is of archaeological or modern origin.

3.36 List of anomalies - Area 28b (Swindon)

Area centred on OS NGR 417520 191546 to 417320 191368, see Figs 33 & 34.

Anomalies of archaeological potential

(51) – At the western end of Area 28a is a broad negative curvilinear response, associated with adjacent positive curvilinear responses. The internal positive linear anomaly is similar to the narrow curvilinear ditch associated with Highworth Circles in the vicinity, and it appears that this is a further example, with the broad negative response relating to the external bank. It is possible that anomaly (80), seen within Area 30a to the west, could be a continuation of the circle, but this is not certain.

(52) – A positive curvilinear anomaly is located in the south eastern part of the survey area and relates to another previously unrecorded Highworth Circle. There is evidence of some complexity, with several short positive linear anomalies radiating outwards from the circular ditch across or beneath the outer bank.

Anomalies of uncertain origin

(53) – Positive linear anomalies could relate to cut linear ditches. Some appear to have been truncated by ridge and furrow, indicating that they may have some archaeological potential.

Anomalies of agricultural origin

(54) – The survey area contains anomalies associated with land drainage and several series of ridge and furrow with several crossing the circular enclosure (52).

3.37 List of anomalies - Area 29 (Swindon)

Area centred on OS NGR 417280 191675 to 417075 191494, see Figs 35 & 36.

Anomalies of archaeological potential

(55) – Two positive curvilinear anomalies are a response to the fill of cut features forming an enclosure. The outer anomaly appears to be situated in the centre of a low extant embankment which is much wider than the magnetic response, and it may suggest that this relates to an initial marking out trench. The inner anomaly corresponds to an internal ditch and there appears to be an entrance at the south eastern corner. The double ditch, irregular layout and possible entrance is different to all the other circular enclosures seen within the site.

(56) – Within the confines of enclosure (55) there are two zones of magnetic debris. The northernmost response had been previously excavated in the 1930s and found to relate to a Roman building. The southernmost response is also likely to relate to a building and there is a further zone outside of the enclosure on the eastern side. Although it seems that the enclosure contains two of these buildings, it appears that the enclosure ditch deviates to avoid patches of masonry rubble and so are likely to post-date the structures. Stone spreads indicative of building remains were visible in the soil during the survey as well as Romano-British pottery sherds.

(57) – A number of linear, rectilinear and discrete anomalies can be seen in the north western corner and appear to have been truncated by the curvilinear responses (55) and underlie the enclosure. They relate to ditches, pits and enclosures associated with former structures (56) flanking a trackway, and their morphology indicates they date to the Roman period.

(58 - 65) – Positive curvilinear anomalies correspond to further Highworth Circles. Although six have been previously recorded within the survey area from aerial photographs, anomalies (61), (64) & (65) are new discoveries. The anomalies indicate a response to the magnetically enhanced infill of a relatively narrow cut feature (0.7m – 1.5m), rather than a broad ditch or a spread of embanked material, suggesting an initial marking out trench or the magnetically enhanced primary fill of the ditch. In places, some of the circles have a negative response (63) or weakly positive response (61) possibly associated with a response to material spread from a former external bank. While many are circular, several are sub-circular, with anomaly (60) appearing to purposely avoid anomaly (62) and there is no clear evidence for intercutting suggesting that they were all extant features at the time of construction.

(66) – A positive linear anomaly that extends south eastwards into Area 30. It is not clear if it over or underlies ring ditch (67).

(67) – Two positive curvilinear anomalies are situated at the south western corner of the survey area and these are likely to relate to late prehistoric round houses.

Anomalies with an uncertain origin

(68) – The survey area contains a number of short positive linear and discrete anomalies. Some of these appear within the circles, some outside.

Anomalies associated with land management

(69 & 70) – Positive linear anomalies relate to formerly mapped field boundaries. Anomaly (69) appears as two linear anomalies extending north to south through the centre of the survey area that have truncated the earlier circles, anomaly (70) also appears to have truncated one of the circles and the earlier Roman enclosure ditches.

Anomalies associated with magnetic debris

(71) – Two patches of magnetically variable responses contain central positive anomalies. One appears to be situated within one of the circular enclosures (62) although it also lies close to the junction of two former field boundaries (69 & 70), the other situated equidistant between circles (55), (59) and (62).This type of response is indicative of burning, perhaps relating to tree removal, but possibly associated with charcoal production. It not possible to date the anomalies or infer if they are directly associated or contemporary with the enclosures, and although they could be of relatively recent date an archaeological origin is possible. During the survey, observation of the soil surface indicated the widespread presence of fragments of burnt clay (generally <5cm across) with dense concentrations associated with these anomalies. The fragments were present across all parts of the field at much lower densities away from the main patches.

(72) – A patch of strongly magnetic debris in the northern part of the site relates to material within an infilled, formerly mapped pond.

3.38 List of anomalies - Area 30 (Swindon)

Area centred on OS NGR 417080 191481 to 416995 191377, see Figs 37 & 38.

Anomalies of archaeological potential

(73 & 74) – Two previously unrecorded enclosures, the response is to the fill of a cut feature. These anomalies are slightly sub-circular and have been truncated by ridge and furrow. They also appear to be connected. They are similar to the other Highworth Circles seen immediately to the north in Area 29, but it is not clear if anomaly (73) contains ring ditches (76) or whether it truncates, or has been truncated by other cut features (77).

(75) – A positive curvilinear anomaly is located close to the north western corner of Area 30 and although only a partial response, it is possible that it relates to a further Highworth Circle, although if so, it is far smaller, with a diameter of approximately 24m, than all of the other circles and is more elongated in the northern section.

(76 & 77) – A number of positive curvilinear anomalies (76) appear to be contained within anomaly (73) and relate to ring ditches which appear to cut one another. It is not clear if a number of linear and amorphous responses (77) truncate or are truncated by the circular enclosure (73).

Anomalies with an uncertain origin

(78) – A number of weakly positive anomalies, including curvilinear anomalies, lie to the north east of the circular enclosure (73). They could relate to features similar to (77).

3.39 List of anomalies - Area 30a (Swindon)

Area centred on OS NGR 417296 191352 to 417047 191266, see Figs 37 & 38.

Anomalies of archaeological potential

(79) – A positive curvilinear anomaly relates to a previously unrecorded Highworth Circle.

(80) – A positive linear anomaly could relate to the western side of a previously unrecorded Highworth Circle forming the feature with anomaly (51) seen in Area 28a. However, the orientation and position of the anomaly could indicate that it is a south easterly continuation of a positive linear anomaly (77) located 125m to the north west, although it does not continue further south eastwards into Area 28b as a linear feature, which may also indicate that it is more likely to be a return of the circular enclosure.

(81) – Positive linear and possible rectilinear anomalies relate to further cut features with archaeological potential.

3.40 List of anomalies - Area 31 (Swindon)

Area centred on OS NGR 416984 191434 to 416658 191223, see Figs 41 & 42.

3.40.1 Area 31 contains a small number of positive linear anomalies of uncertain origin. One positive linear extends along the eastern edge of the survey area and although it is likely that it is associated with modern agricultural activity, this is not certain and a cut, ditch-like feature is possible. Ridge and furrow, land drains and more modern cultivation are also evident.

3.41 List of anomalies - Area 32 (Swindon)

Area centred on OS NGR 416645 191198 to 416561 190956, see Figs 43 & 44.

3.41.1 Area 32 contains a small number of positive linear anomalies of uncertain origin, although some may be associated with natural features, others could relate to land drainage or agricultural activity. A former field boundary has been removed from the

western end of the survey area and ridge and furrow has also been located.

3.42 List of anomalies - Area 33 (Swindon)

Area centred on OS NGR 416542 190952 to 416318 190823, see Figs 43 & 44.

3.42.1 Area 33 contains evidence of former quarrying as well as a former land boundary. Discrete positive responses appear to relate to pit-like features; however, further quarrying is possible and this could be of some antiquity. Previous archaeological investigation recorded Anglo-Saxon features within this survey area. A linear anomaly extends towards and possibly into Area 32 and this could relate to a linear ditch and an archaeological origin should be considered.

3.43 List of anomalies - Area 34 (Swindon)

Area centred on OS NGR 416512 190836 to 416351 190600, see Figs 45 & 46.

3.43.1 Area 34 contains a small number of weakly positive and discrete anomalies but these cannot be confidently interpreted as cut features. A band of naturally formed anomalies is evident, as well as several services.

3.44 List of anomalies - Area 35 (Swindon)

Area centred on OS NGR 416342 190595 416260 190492, see Figs 45 & 46.

3.44.1 Area 35 contains a small number of weakly positive anomalies, ridge and furrow/lynchet-type responses along the slope.

3.45 List of anomalies - Area 37 (Swindon)

Area centred on OS NGR 415995 190210 to 415761 190067, see Fig 47.

3.45.1 Area 37 lies in the base of a valley and contains a fragmented positive linear anomaly. The majority of the responses are to ridge and furrow, services and magnetic debris, but infilled former archaeological evaluation trenches are also evident.

3.46 List of anomalies - Area 38 (Swindon)

Area centred on OS NGR 415712 190077 to 415655 190066, see Fig 47.

3.46.1 Area 38 contains ridge and furrow and magnetic debris from ground make-up.

3.47 List of anomalies - Area 39 (Swindon)

Area centred on OS NGR 415523 190085 to 415377 190040, see Fig 48.

3.47.1 Area 39 contains evidence for former quarrying. This generally has a non-ferrous content, indicating that it may be of some antiquity. Weakly positive linear anomalies could relate to cut features. Strongly magnetic debris in the western part of the survey area relates to more modern infill of a formerly mapped quarry.

3.48 List of anomalies - Area 40 (Swindon)

Area centred on OS NGR 415352 190030 to 415047 190150, see Fig 48.

3.48.1 Area 40 contains a number of pits that could be of archaeological origin. Similar anomalies have been located in previous surveys in the Blunsdon area and relate to Roman cremation burials. Several other pit-like anomalies are evident, but their archaeological potential is uncertain.

3.49 List of anomalies - Area 41 (Swindon)

Area centred on OS NGR 414895 190240 to 414840 190373, see Fig 49.

3.49.1 Area 41 contains widespread magnetic debris and disturbance.

4 DISCUSSION

4.1 Sites within the Oxfordshire section

4.1.1 Of the twenty three areas surveyed at the Faringdon end of the survey corridor, only two have anomalies that can be confidently interpreted as of archaeological origin, although others have anomalies that could relate to further archaeological features, they lack a coherent morphology.

4.1.2 Area 14, situated between Brimstone and Oldfield Farms, contains a number of positive linear anomalies that may relate to enclosures of archaeological potential. Despite open soil conditions during the survey, no cultural material was observed on the soil surface within this area although some stone rubble was visible.

4.1.3 Within Area 18 to the south of the copse at Gorse Hill, are over twenty ring

ditches which are likely to relate to prehistoric round houses. Some are partial and some have a more square, rather than circular or pennanular appearance. They appear in two clusters with a 95m gap, and vary in diameter between 11m and 19m. No large enclosures or ditches have been located within the survey area. The full extent of the settlement is unknown but likely to spread further to the south and north into an area of woodland. Observation of the soil surface during the course of the survey within Area 18 failed to identify any cultural material that could infer a period of occupation for the settlement; this may indicate an early to mid Iron-Age date. The site lies on the south-facing slope of a low knoll and is intervisible with Badbury Hill Iron Age hill fort that lies less than 2km to the south east. A possible Iron Age hill fort is also located at Bury Hill only 1km to the north west.

4.1.4 Area 8 to the south of the A417 contains fragmented linear anomalies, but it is not clear if they relate to cut, ditch-like features, or are natural in origin. It is possible that (1) extends north of the A417 into Area 7. Within the north western corner is a zone of magnetic debris associated with the spread of demolition material from a number of formerly mapped buildings.

4.1.5 Situated within a low lying area adjacent to a water course, to the north east of Oldfield Farm, Area 11 contains widespread and numerous pit-like anomalies (7). While some appear in linear formations, the large number and widespread distribution of the anomalies would indicate that they are naturally formed features. They could have been caused by episodes of waterlogging and drying within low lying areas; however, many have a characteristic bean-shaped appearance which is often associated with tree throw pits. These are, therefore, likely to be associated with tree throws and/or their deliberate removal. At the southern end of Area 11 there are a number of negative rectilinear anomalies and associated positive responses (6) which could relate to structural remains, although none are recorded on early mapping.

4.2 Sites within the Swindon section

4.2.1 The survey has highlighted evidence for Iron Age and Roman occupation within the area around Staplers Farm (Areas 28-30a) which includes a number of round houses and linear ditches within Areas 29 and 30 and fragmented evidence for a possible Roman ladder settlement, situated either side of a central trackway, with enclosures and structures within Areas 29, 28 and possibly into Area 28a adjacent to the Bydemill Brook. These features have been truncated by the later Highworth Circles and also ridge and furrow.

4.2.2 Also within the area around Staplers Farm, a number of "Highworth Circles" have been recorded from aerial photography from the 1930s onwards. The survey has located anomalies associated with six previously known in Area 29 and another eleven unrecorded circles in the vicinity. When Allen and Passmore (1935) dug the irregular enclosure (55) they found a very broad, double ditch and a broad external bank. Another example, located by Major Allen, was also dug (Passmore,1935) 5.7km to the south in Stratton-St-

Margaret which had a 10ft (3m) wide, 2ft (0.6m) deep ditch and 15ft (4.5m) wide, 1.5ft (0.45m) high outer bank. The Stratton-St-Margaret example was later investigated again and revealed that the ditch was 3-4m wide and up to 0.8m deep with a V-section and irregular hollows running along the bottom. Although there was some primary erosion of the bank, most of the ditch fill was created by slowly deposited lenses of water-borne clay (Gingell & Gingell, 1981). The survey has shown that the magnetic response to all of the circles is due to magnetic enhancement within a cut feature between 0.7-2m across which does not accord with a 3-4m wide ditch. However, if the examples within the survey area have been constructed with a similar method to the Stratton-St-Margaret example, it is likely that the magnetic response is indicative of a relatively narrow curvilinear anomaly, is derived from magnetically enhanced soil within the lower part of a V-shaped ditch.

4.2.3 Regarding date range of the circles, there is evidence that they have been truncated by, and therefore pre-date, ridge and furrow cultivation. However, most of the ridge and furrow is straight, narrow and generally constrained within the 18th/19th century Enclosure Act boundaries that are still generally extant, and so the ridge and furrow is likely to be post-medieval at the earliest. Several of the circles have been overlain by the 18th/19th century boundaries which indicates that the circles were not in use or possibly even visible by this time. When Allen and Passmore investigated the irregular enclosure (55) they found a mortar floor and wall foundation and a second floor which appeared to extend almost to the edge of the inner ditch which contained Roman pottery which made them deduce that this circle, at least, was of Roman date (Allen & Passmore, 1935). However, the geophysical survey has also located an earlier phase of Roman enclosures (57) that have been truncated by the later circle (55), with two areas of debris relating to Roman buildings (56) within the circle and another outside of the south east facing entrance. It appears that the circle ditch was cut and then deviated to avoid the buildings and the Roman pottery ended up being redeposited within the ditch. The anomalies relating to the Roman site do not appear to have any relationship with the circles and form a linear ladder type settlement. During the survey, field observations indicated widespread Roman pottery within the survey area with notable concentrations in the vicinity of rubble spreads within circle (55). When the Stratton-St-Margaret example was re-investigated (Gingell & Gingell, 1981), they found some Roman pottery, but also a number of bones and pottery sherds dating to the 13th and 14th centuries within the bank and ditch and several 17th and 18th century pits had been subsequently dug into the ditch. Allen and Passmore (1935) also put a trench through another example near Picketts Copse, Stanton Fitzwarren, 2.7km south east of the group at Staplers Farm, and located a small number of Roman pottery sherds, but also several of Norman date. It is, therefore, inferred that the circles were generally constructed in the medieval period rather than in the Roman period, where any Roman pottery is likely to be residual. However, no medieval pottery finds were noted during the course of the survey despite good conditions for the observation of cultural material on the soil surface.

4.2.4 The geophysical survey results indicate that the circles may be contemporary

with each other or at least are constructed in adjacent areas to avoid those already extant, while some appear to "contain" Roman or Iron Age features likely to pre-date them. Several of the circles lie within a few metres of each other possibly indicating that they were conjoined or shared an outer bank (62 & 63). There are no clear examples of circle ditches converging or cutting into adjacent circles. There is evidence of one pair of circle ditches (59 & 60) being linked by a linear ditch approximately 6m in length, a second pair may also be linked by a ditch of similar length (73 & 74).

4.2.5 The large number of circles, at least seventeen surveyed examples, together with an additional three immediately north of Area 29 and outside of the surveyed zone, suggest that there was possibly the need for a significant number of separate enclosures to be used at a time. This may infer temporary enclosing of animals, possibly during livestock markets, where separation is required to prevent mixing. Other factors such as proximity to water and routes of communication, as well as topography and land ownership, may be important in understanding the location of the circles.

4.2.6 All of the circles, except for anomaly (55) generally have a single curvilinear response, although there is some complexity to parts of anomalies (59-61). Several of the circles appear to be an incomplete ring with small gaps, but within three of them these appear to have been caused by truncation by later field boundary ditches, others have a very narrow gap or gaps in the data, that could have been caused by more recent agricultural activity. Anomaly (55) is different to all the others, having two concentric curvilinear anomalies and an apparent entrance on the south eastern side. However, immediately to the south east there is an area of disturbance which could relate to Roman structural remains causing a deviation in the circuit. Two internal structures, seen as magnetic debris (56), rather than clearly definable rectilinear anomalies are located just within or adjacent to the inner curvilinear response. The north eastern zone of magnetic debris is likely to relate to the masonry spread and wall foundations located during the Allen and Passmore excavation in the 1930s. The shape and double-ditch layout of this circle indicates that it is not a typical Highworth Circle.

4.2.7 The magnetic response to the circles is generally low with a range of 1-3nT for some with others 4-6.5nT. Although this is somewhat stronger than the underlying Roman features, it is not consistent with industrial activity or long periods of settlement. The weak response to the underlying Roman settlement features is unusually low at generally 0.5-1.5nT. This may infer a low status settlement with no intensive industrial activity, but could also relate to subsequent land use and truncation by ploughing. The higher magnitude anomalies associated with the circle ditches could relate to deeper ditches less affected by truncation, or the presence of a significantly enhanced fill derived from fermentation of biological material, such as animal waste, known to occur particularly in sites subject to frequent alternation between wet and dry conditions. The characteristics of the clay soil, and the topography of the site, may favour this mechanism of enhancement. A number of the circles (51, 52 & 63) are associated with a partial outer negative anomaly, this would be a

response to material with a lower magnetic susceptibility than the surrounding soil relating to an outer bank constructed of subsoil.

4.2.8 Circles adjacent to areas of burning (71), visible as patches of terracotta-coloured burnt clay fragments on the soil surface, do not appear significantly more enhanced than those further away which may indicate the burning is of relatively modern origin or at least has occurred later than the circle ditches have become fully infilled. Analysis of similar clay soils in the region by Archaeological Surveys demonstrates significant enhancement of magnetic susceptibility on baking at high temperatures. Observations during the survey also indicated the presence of burnt clay fragments at a low density over the whole field which may not be related to the patches (71). Although the origin of the material is unclear, a number of processes could result in its formation including the burning of wattle and daub structures, charcoal burning clamps, soil improvement, removal of trees, etc. It is, therefore, unclear whether there is any direct association with the circles or if the material has any archaeological relevance.

4.2.9 Although Allen and Passmore (1935) consider the typical example to be 300 yards or 91.44m in diameter, there is a range of sizes of the surveyed examples. The diameters and areas of the circles are set out in Table 3 below.

Area no.	Anomaly no.	Form	Diameter	Area ha	Area acre	Previously recorded	Notes
27	37	Circular.	55m	0.24	0.5	No	
27a	40	Circular, partial due to survey area restriction.	82m?	0.53?	1.3?	No	Western edge just within Area 27.
27a	41	Circular, partial.	34m	0.09	0.22	No	Very weak response.
28b	51	Circular, partial?	92m?	0.63	1.56	No	Internal ditch, outer bank, could continue into Area 30a
28b	52	Circular	92m	0.63	1.56	No	Strong response, evidence of outer bank and a number of short radial positive linear anomalies either cutting or beneath bank
29	55	Sub-circular, double-ditched, partial.	100m	0.79	1.9	Yes	Underlain by Roman archaeology, structural remains located within enclosure but ditches appear to deviate around them.
29	58	Circular, partial.	45m	0.16	0.39	Yes	
29	59	Circular, partial.	82m	0.53	1.3	Yes	
29	60	Sub-circular, joins 57 appears to avoid 60.	100m by 80m	0.64	1.57	Yes	
29	61	Circular, partial,	85m	0.57	1.4	No	Continues as 43 in Area 28
29	62	Circular	76m	0.45	1.12	Yes	Truncated by later field boundaries. Appears to “contain” area of burning
29	63	Circular, partial	95m	0.71	1.75	Yes	Outer bank on NW edge
29	64	Circular	58m	0.26	0.65	No	Appears to have three gaps, but likely to be caused by truncation by ploughing, rather than entrances.
29	65	Circular	54m?	0.23?	0.57?	No	Truncated by previous water main
30	73	Slightly sub-	71m	0.4	0.98	No	Appears to contain, but likely to post-

		circular, joined to anomaly					date ring ditches and other linear and discrete anomalies. Truncated by ridge and furrow
30	74	Sub-circular, partial	92?	0.64?	1.57	No	Truncated by ridge and furrow and former water main
30a	79	Circular, partial	92m	0.64	1.57	No	Northern edge truncated by water main. Anomaly (80) could be a continuation of (51) seen in Area 28b to the east

Table 3: Highworth Circles diameters and areas

5 CONCLUSION

5.1.1 The geophysical survey was carried out along two separate survey corridors, one to the west of Faringdon in Oxfordshire and the other at the south and east of Blunsdon in Swindon.

5.1.2 Area 11 is situated on the edge of the Buscot Estate and contains a number of negative rectilinear anomalies that could relate to former structural remains, although this is uncertain. Area 14 contains a number of positive linear anomalies that may indicate ditches or enclosures of archaeological potential. Within Area 18, to the south of Gorse Hill further to the west, a group of at least 20 ring ditches relating to prehistoric round houses and small enclosures have also been located.

5.1.3 Within the Blundson section, a zone surrounding Staplers Farm contained a number of enclosures known as the Highworth Circles. The survey has located six previously known circles together with at least another eleven previously unrecorded examples. The geophysical anomalies relate to the magnetically enhanced fill of a ditch, with partial evidence for an external bank on a small number. One large, irregularly shaped enclosure, is unusual in having two ditch-like responses, a possible entrance and it also appears to contain two Roman buildings. However, the results of the survey demonstrate that these are likely to be associated with a Roman settlement with enclosures flanking a trackway and underlying the later Highworth Circles. Prehistoric settlement features have also been located in the vicinity of the circles and may infer a long period of settlement from the Iron Age into the Roman period.

5.1.4 Nearer the western end of the survey corridor survey Area 40 contains a number of discrete anomalies which could relate to pits with archaeological potential. Elsewhere there is evidence for former quarrying, which is likely to be pre-industrial given the lack of strongly magnetic infill material.

5.1.5 The majority of the survey areas contain positive linear and discrete anomalies that generally lack a coherent morphology. Ridge and furrow, modern cultivation, former field boundaries and land drains are also evident.

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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.

Low Pass Filter

Removes high frequency anomalies or 'noise' within datasets and provides a smoother output. A window passes over the data, the mean of all the data within the window is used to replace the centre value. The size of the window is adjusted as is the weighting. 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

Area 1
Filename: J815-mag-Area1-proc-hpf.xcp
Description: Imported as Composite from: J815-mag-Area1.asc/twfb1
Instrument Type: Sensys DLMGPS
Units: nT
UTM Zone: 30U
Survey corner coordinates (X/Y):OSGB36
Northwest corner: 427407.29, 196858.77m
Southeast corner: 427693.04, 196588.32 m
Collection Method: Randomised
Sensors: 5
Dummy Value: 32702
Source GPS Points: 1069400
Dimensions
Composite Size (readings): 1905 x 1803
Survey Size (meters): 286 m x 270 m
Grid Size: 286 m x 270 m
X Interval: 0.15 m
Y Interval: 0.15 m
Stats
Max: 3.32
Min: -3.30
Std Dev: 1.21
Mean: -0.07
Median: 0.00
Composite Area: 7.7281 ha
Surveyed Area: 3.3715 ha
PROGRAM
Name: TerraSurveyor
Version: 3.0.23.0
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: 350
5 Clip from -3.00 to 3.00 nT

Area 2
Filename: J815-mag-Area2-proc.xcp
Description: Imported as Composite from: J815-mag-Area2.asc/twfb2
Northwest corner: 427236.30, 196985.96 m
Southeast corner: 427515.75, 196754.8 m
Source GPS Points: 1069200
Composite Size (readings): 1863 x 1541
Survey Size (meters): 279 m x 231 m
Grid Size: 279 m x 231 m
X Interval: 0.15 m
Y Interval: 0.15 m
Stats
Max: 3.32
Min: -3.30
Std Dev: 0.89
Mean: 0.02
Median: 0.00
Composite Area: 6.4595 ha
Surveyed Area: 3.4615 ha
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to OSGB36).
3 DeStripe Median Traverse:
4 Clip from -3.00 to 3.00 nT

Area 3
Filename: J815-mag-Area3-proc.xcp
Description: Imported as Composite from: J815-mag-Area3.asc/twfb11
Northwest corner: 427085.32, 197079.64 m
Southeast corner: 427302.67, 196903.09 m
Source GPS Points: 494300
Composite Size (readings): 1449 x 1177
Survey Size (meters): 217 m x 177 m
Grid Size: 217 m x 177 m
X Interval: 0.15 m
Y Interval: 0.15 m
Max: 3.32
Min: -3.30
Std Dev: 1.11
Mean: 0.02
Median: 0.01
Composite Area: 3.8373 ha
Surveyed Area: 1.4391 ha
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to OSGB36).
3 DeStripe Median Traverse:
4 Clip from -3.00 to 3.00 nT

Area 4
Filename: J815-mag-Area4-proc.xcp
Description: Imported as Composite from: J815-mag-Area4.asc/twfb12
Northwest corner: 426853.61, 197173.86 m
Southeast corner: 427108.91, 197051.76 m
Source GPS Points: 604600
Composite Size (readings): 1702 x 814
Survey Size (meters): 255 m x 122 m
Grid Size: 255 m x 122 m
X Interval: 0.15 m
Y Interval: 0.15 m
Max: 3.32
Min: -3.30
Std Dev: 0.85
Mean: 0.03
Median: 0.01
Composite Area: 3.1172 ha
Surveyed Area: 1.6026 ha
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to OSGB36).
3 DeStripe Median Traverse:
4 Clip from -3.00 to 3.00 nT

Area 5
Filename: J815-mag-Area5-proc.xcp
Description: Imported as Composite from: J815-mag-Area5.asc/twfb10
Northwest corner: 426644.23, 197163.02 m
Southeast corner: 426888.131, 197034.02 m
Source GPS Points: 499500
Composite Size (readings): 1626 x 860
Survey Size (meters): 244 m x 129 m
Grid Size: 244 m x 129 m
X Interval: 0.15 m
Y Interval: 0.15 m
Max: 3.32
Min: -3.30
Std Dev: 1.04
Mean: 0.06
Median: 0.00
Composite Area: 3.1463 ha
Surveyed Area: 1.4021 ha
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to OSGB36).
3 DeStripe Median Traverse:
4 Clip from -3.00 to 3.00 nT

Area 6
Filename: J815-mag-Area6.-procxcp
Description: Imported as Composite from: J815-mag-Area6.asc/twfb13
Northwest corner: 426330.02, 197072.45 m
Southeast corner: 426681.77, 196984.55 m
Source GPS Points: 488800
Composite Size (readings): 2345 x 586
Survey Size (meters): 352 m x 87.9 m
Grid Size: 352 m x 87.9 m
X Interval: 0.15 m
Y Interval: 0.15 m
Max: 3.32
Min: -3.30
Std Dev: 1.12
Mean: 0.07
Median: -0.01
Composite Area: 3.0919 ha
Surveyed Area: 1.5924 ha
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to OSGB36).
3 DeStripe Median Traverse:
4 Clip from -3.00 to 3.00 nT

Area 7
Filename: J815-mag-Area7-proc.xcp
Description: Imported as Composite from: J815-mag-Area7.asc/twfb14
Northwest corner: 426126.06, 197062.53 m
Southeast corner: 426325.11, 196995.93 m
Source GPS Points: 282400
Composite Size (readings): 1327 x 444
Survey Size (meters): 199 m x 66.6 m
Grid Size: 199 m x 66.6 m
X Interval: 0.15 m
Y Interval: 0.15 m
Max: 3.32
Min: -3.30
Std Dev: 1.01
Mean: -0.01
Median: -0.01
Composite Area: 1.3257 ha
Surveyed Area: 0.91223 ha
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to OSGB36).
3 DeStripe Median Traverse:
4 Clip from -3.00 to 3.00 nT

Area 8
Filename: J815-mag-Area8-proc.xcp
Description: Imported as Composite from: J815-mag-Area8.asc/twfb22
Northwest corner: 425743.60, 196959.16 m
Southeast corner: 426167.95, 196690.36 m
Source GPS Points: 2961200
Composite Size (readings): 2829 x 1792
Survey Size (meters): 424 m x 269 m
Grid Size: 424 m x 269 m
X Interval: 0.15 m
Y Interval: 0.15 m
Max: 3.32
Min: -3.30
Std Dev: 1.02
Mean: 0.02
Median: 0.01
Composite Area: 11.407 ha
Surveyed Area: 8.4288 ha
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to OSGB36).
3 DeStripe Median Traverse:
4 Clip from -3.00 to 3.00 nT

Area 9
Filename: J815-mag-Area9.xcp
Description: Imported as Composite from: J815-mag-Area9.asc/twfb21
Northwest corner: 425368.06, 196704.83 m
Southeast corner: 425821.51, 196572.98 m
Source GPS Points: 1116600
Composite Size (readings): 3023 x 879
Survey Size (meters): 453 m x 132 m
Grid Size: 453 m x 132 m
X Interval: 0.15 m
Y Interval: 0.15 m
Max: 3.32
Min: -3.30
Std Dev: 1.05
Mean: 0.01
Median: 0.00
Composite Area: 5.9787 ha
Surveyed Area: 3.0496 ha
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to OSGB36).
3 DeStripe Median Traverse:
4 Clip from -3.00 to 3.00 nT

Area 10
Filename: J815-mag-Area10-proc.xcp
Description: Imported as Composite from: J815-

mag-Area10.asc/twfb20
Northwest corner: 425385.40, 196561.88 m
Southeast corner: 425589.25, 196387.88 m
Source GPS Points: 328000
Composite Size (readings): 1359 x 1160
Survey Size (meters): 204 m x 174 m
Grid Size: 204 m x 174 m
X Interval: 0.15 m
Y Interval: 0.15 m
Max: 3.32
Min: -3.30
Std Dev: 1.01
Mean: -0.01
Median: 0.00
Composite Area: 3.547 ha
Surveyed Area: 1.095 ha
1 Base Layer.
2 Unit Conversion Layer (to OSGB36).
3 DeStripe Median Traverse:
4 Clip from -3.00 to 3.00 nT

Area 11
Filename: J815-mag-Area11-proc-hpf-lpf.xcp
Description: Imported as Composite from: J815-mag-Area11.asc/twfb19
Northwest corner: 425249.84, 196579.04 m
Southeast corner: 425361.59, 196144.04 m
Source GPS Points: 784200
Composite Size (readings): 745 x 2900
Survey Size (meters): 112 m x 435 m
Grid Size: 112 m x 435 m
X Interval: 0.15 m
Y Interval: 0.15 m
Max: 3.32
Min: -3.30
Std Dev: 0.88
Mean: 0.01
Median: -0.01
Composite Area: 4.8611 ha
Surveyed Area: 2.7792 ha
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 Lo pass Uniform (median) filter: Window dia: 13
6 Clip from -3.00 to 3.00 nT

Area 12
Filename: J815-mag-Area12-proc-lpf.xcp
Description: Imported as Composite from: J815-mag-Area12.asc/twfb18
Northwest corner: 425250.41 196225.39 m
Southeast corner: 425319.26, 196023.49m
Source GPS Points: 241400
Composite Size (readings): 459 x 1346
Survey Size (meters): 68.9 m x 202 m
Grid Size: 68.9 m x 202 m
X Interval: 0.15 m
Y Interval: 0.15 m
Max: 3.32
Min: -3.30
Std Dev: 1.14
Mean: 0.03
Median: 0.00
Composite Area: 1.3901 ha
Surveyed Area: 0.81714 ha
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to OSGB36).
3 DeStripe Median Traverse:
4 Lo pass Uniform (median) filter: Window dia: 13
5 Clip from -3.00 to 3.00 nT

Area 13
Filename: J815-mag-Area13-proc.xcp
Description: Imported as Composite from: J815-mag-Area13.asc/twfb23
Northwest corner: 425253.86, 196004.38 m
Southeast corner: 425315.51, 195938.23m
Source GPS Points: 133800
Composite Size (readings): 411 x 441
Survey Size (meters): 61.7 m x 66.2 m
Grid Size: 61.7 m x 66.2 m
X Interval: 0.15 m
Y Interval: 0.15 m
Max: 5.53
Min: -5.50
Std Dev: 1.93
Mean: -0.06
Median: 0.03
Composite Area: 0.40781 ha
Surveyed Area: 0.35074 ha
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to OSGB36).
3 DeStripe Median Traverse:
4 Clip from -5.00 to 5.00 nT

Area 14
Filename: J815-mag-Area14-proc.xcp
Description: Imported as Composite from: J815-mag-Area14.asc/twfb17
Northwest corner: 425086.19, 195941.00 m
Southeast corner: 425316.89, 195681.65 m
Source GPS Points: 822400
Composite Size (readings): 1538 x 1729
Survey Size (meters): 231 m x 259 m
Grid Size: 231 m x 259 m
X Interval: 0.15 m
Y Interval: 0.15 m
Max: 5.53
Min: -5.50
Std Dev: 1.77
Mean: -0.02
Median: 0.01
Composite Area: 5.9832 ha
Surveyed Area: 2.3279 ha
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to OSGB36).
3 DeStripe Median Traverse:
4 Clip from -5.00 to 5.00 nT

Area 15
Filename: J815-mag-Area15-proc.xcp
Description: Imported as Composite from: J815-mag-Area15.asc/twfb16
Northwest corner: 424701.95, 195723.54 m
Southeast corner: 425076.50, 195609.39 m
Source GPS Points: 506900
Composite Size (readings): 2497 x 761
Survey Size (meters): 375 m x 114 m
Grid Size: 375 m x 114 m
X Interval: 0.15 m
Y Interval: 0.15 m
Max: 3.32
Min: -3.30
Std Dev: 1.36
Mean: 0.06
Median: 0.00
Composite Area: 4.2755 ha
Surveyed Area: 1.4852 ha
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to OSGB36).
3 DeStripe Median Traverse:
4 Clip from -3.00 to 3.00 nT

Area 16
Filename: J815-mag-Area16-proc.xcp
Description: Imported as Composite from: J815-mag-Area16.asc/twfb15
Northwest corner: 424645.44, 195603.76 m
Southeast corner: 424773.84, 195555.46 m
Source GPS Points: 89000
Composite Size (readings): 856 x 322
Survey Size (meters): 128 m x 48.3 m
Grid Size: 128 m x 48.3 m
X Interval: 0.15 m
Y Interval: 0.15 m
Max: 3.32
Min: -3.30
Std Dev: 0.71
Mean: 0.04
Median: -0.01
Composite Area: 0.62017 ha
Surveyed Area: 0.31746 ha
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to OSGB36).
3 DeStripe Median Traverse:
4 Clip from -3.00 to 3.00 nT

Area 17
Filename: J815-mag-Area17-proc.xcp
Description: Imported as Composite from: J815-mag-Area17.asc/twfb9
Northwest corner: 424361.64, 195603.74 m
Southeast corner: 424651.14, 195448.79m
Source GPS Points: 783600
Composite Size (readings): 1930 x 1033
Survey Size (meters): 290 m x 155 m
Grid Size: 290 m x 155 m
X Interval: 0.15 m
Y Interval: 0.15 m
Max: 3.32
Min: -3.30
Std Dev: 0.59
Mean: 0.02
Median: -0.01
Composite Area: 4.4858 ha
Surveyed Area: 2.2212 ha
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to OSGB36).
3 DeStripe Median Traverse:
4 Clip from -3.00 to 3.00 nT

Area 18
Filename: J815-mag-Area18-proc-hpf.xcp
Description: Imported as Composite from: J815-mag-Area18.asc/twfb8
Northwest corner: 423960.51, 195542.08 m
Southeast corner: 424358.01, 195423.13 m
Source GPS Points: 1001300
Composite Size (readings): 2650 x 793
Survey Size (meters): 398 m x 119 m
Grid Size: 398 m x 119 m
X Interval: 0.15 m
Y Interval: 0.15 m
Max: 3.32
Min: -3.30
Std Dev: 0.64
Mean: 0.02
Median: -0.01
Composite Area: 4.7283 ha
Surveyed Area: 2.9146 ha
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to OSGB36).
3 DeStripe Median Traverse:
4 High pass Uniform (median) filter: Window dia: 251
5 Clip from -3.00 to 3.00 nT

Area 19
Filename: J815-mag-Area19-proc-hpf.xcp
Description: Imported as Composite from: J815-mag-Area19.asc/twfb7
Northwest corner: 423799.06, 195484.64 m
Southeast corner: 423978.26, 195406.40 m
Source GPS Points: 225500
Composite Size (readings): 1120 x 489
Survey Size (meters): 179 m x 78.2 m
Grid Size: 179 m x 78.2 m
X Interval: 0.16 m
Y Interval: 0.16 m
Max: 3.32
Min: -3.30
Std Dev: 0.64
Mean: -0.01
Median: -0.02
Composite Area: 1.4021 ha
Surveyed Area: 0.84912 ha
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to OSGB36).
3 DeStripe Median Traverse:
4 High pass Uniform (median) filter: Window dia: 203
5 Clip from -3.00 to 3.00 nT

Area 20
Filename: J815-mag-Area20-proc.xcp
Description: Imported as Composite from: J815-mag-Area20.asc/twfb6
Northwest corner: 423472.59 195448.61 m
Southeast corner: 423803.19, 195330.41 m
Source GPS Points: 471700
Composite Size (readings): 2204 x 788
Survey Size (meters): 331 m x 118 m
Grid Size: 331 m x 118 m
X Interval: 0.15 m
Y Interval: 0.15 m
Max: 3.32
Min: -3.30
Std Dev: 0.64
Mean: -0.02
Median: 0.00
Composite Area: 3.9077 ha
Surveyed Area: 1.5168 ha
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to OSGB36).
3 DeStripe Median Traverse:
4 Clip from -3.00 to 3.00 nT

Area 21
Filename: J815-mag-Area21-proc.xcp
Description: Imported as Composite from: J815-mag-Area21.asc/twfb5
Northwest corner: 423117.02, 195375.16 m
Southeast corner: 423476.87, 195216.61m
Source GPS Points: 516800
Composite Size (readings): 2399 x 1057
Survey Size (meters): 360 m x 159 m
Grid Size: 360 m x 159 m
X Interval: 0.15 m
Y Interval: 0.15 m
Max: 3.32
Min: -3.30
Std Dev: 0.78
Mean: 0.02
Median: -0.01
Composite Area: 5.7054 ha
Surveyed Area: 1.8257 ha
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to OSGB36).
3 DeStripe Median Traverse:
4 Clip from -3.00 to 3.00 nT

Area 22
Filename: J815-mag-Area22-proc.xcp
Description: Imported as Composite from: J815-

mag-Area22.asc/twfb4
Northwest corner: 422894.62, 195273.12 m
Southeast corner: 423127.27, 195106.62m
Source GPS Points: 436700
Composite Size (readings): 1551 x 1110
Survey Size (meters): 233 m x 167 m
Grid Size: 233 m x 167 m
X Interval: 0.15 m
Y Interval: 0.15 m
Max: 3.32
Min: -3.30
Std Dev: 0.79
Mean: 0.02
Median: 0.00
Composite Area: 3.8736 ha
Surveyed Area: 1.5961 ha
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to OSGB36).
3 DeStripe Median Traverse:
4 Clip from -3.00 to 3.00 nT

Area 23
Filename: J815-mag-Area23-proc.xcp
Description: Imported as Composite from: J815-mag-Area23.asc/twfb3
Northwest corner: 422788.85, 195161.86 m
Southeast corner: 422912.60, 195046.96m
Source GPS Points: 257400
Composite Size (readings): 825 x 766
Survey Size (meters): 124 m x 115 m
Grid Size: 124 m x 115 m
X Interval: 0.15 m
Y Interval: 0.15 m
Max: 3.32
Min: -3.30
Std Dev: 0.92
Mean: -0.01
Median: 0.03
Composite Area: 1.4219 ha
Surveyed Area: 0.79156 ha
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to OSGB36).
3 DeStripe Median Traverse:
4 Clip from -3.00 to 3.00 nT

Area 24
Filename: J815-mag-Area24-proc-hpf.xcp
Description: Imported as Composite from: J815-mag-Area24.asc/twfb24
Northwest corner: 417652.94, 192188.04 m
Southeast corner: 418110.44, 192085.44m
Source GPS Points: 653700
Composite Size (readings): 3050 x 684
Survey Size (meters): 458 m x 103 m
Grid Size: 458 m x 103 m
X Interval: 0.15 m
Y Interval: 0.15 m
Max: 3.32
Min: -3.30
Std Dev: 1.08
Mean: 0.05
Median: 0.00
Composite Area: 4.694 ha
Surveyed Area: 2.1685 ha
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 -3.00 to 3.00 nT

Area 25
Filename: J815-mag-Area25-proc-hpf.xcp
Description: Imported as Composite from: J815-mag-Area25.asc/twfb25
Northwest corner: 417660.54, 192121.84 m
Southeast corner: 417836.79, 191948.89 m
Source GPS Points: 527000
Composite Size (readings): 1175 x 1153
Survey Size (meters): 176 m x 173 m
Grid Size: 176 m x 173 m
X Interval: 0.15 m
Y Interval: 0.15 m

Stats
Max: 3.32
Min: -3.30
Std Dev: 0.69
Mean: 0.03
Median: 0.00
Composite Area: 3.0482 ha
Surveyed Area: 2.1378 ha
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to OSGB36).
3 DeStripe Median Traverse:
4 High pass Uniform (median) filter: Window dia: 200
5 Clip from -3.00 to 3.00 nT

Area 25a
Filename: J815-mag-Area25a-proc.xcp
Description: Imported as Composite from: J815-mag-Area25a.asc/twfb48
Northwest corner: 417841.99, 192057.73 m
Southeast corner: 418130.44, 191851.78 m
Source GPS Points: 1253000
Composite Size (readings): 1923 x 1373
Survey Size (meters): 288 m x 206 m
Grid Size: 288 m x 206 m
X Interval: 0.15 m
Y Interval: 0.15 m
Max: 3.32
Min: -3.30
Std Dev: 0.84
Mean: 0.01
Median: 0.01
Composite Area: 5.9406 ha
Surveyed Area: 4.2847 ha
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to OSGB36).
3 DeStripe Median Traverse:
4 Clip from -3.00 to 3.00 nT

Area 26
Filename: J815-mag-Area26-proc.xcp
Description: Imported as Composite from: J815-mag-Area26.asc/twfb35
Northwest corner: 417432.08, 192126.22 m
Southeast corner: 417655.73, 191901.07m
Source GPS Points: 1071200
Composite Size (readings): 1491 x 1501
Survey Size (meters): 224 m x 225 m
Grid Size: 224 m x 225 m
X Interval: 0.15 m
Y Interval: 0.15 m
Max: 3.32
Min: -3.30
Std Dev: 0.90
Mean: 0.03
Median: 0.01
Composite Area: 5.0355 ha
Surveyed Area: 2.8729 ha
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to OSGB36).
3 DeStripe Median Traverse:
4 Clip from -3.00 to 3.00 nT

Area 27
Filename: J815-mag-Area27-proc.xcp
Description: Imported as Composite from: J815-mag-Area27.asc/twfb38
Northwest corner: 417291.82, 191915.14 m
Southeast corner: 417526.57, 191751.79 m
Source GPS Points: 695300
Composite Size (readings): 1565 x 1089
Survey Size (meters): 235 m x 163 m
Grid Size: 235 m x 163 m
X Interval: 0.15 m
Y Interval: 0.15 m
Max: 3.32
Min: -3.30
Std Dev: 1.20
Mean: 0.12
Median: -0.02
Composite Area: 3.8346 ha
Surveyed Area: 2.5225 ha
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to OSGB36).
3 DeStripe Median Traverse:
4 Clip from -3.00 to 3.00 nT

Area 27a
Filename: J815-mag-Area27a-proc-hpf-lpf.xcp
Description: Imported as Composite from: J815-mag-Area27a.asc/twfb47
Northwest corner: 417524.96 191952.12
Southeast corner: 417740.51 191747.67
Source GPS Points: 359800
Composite Size (readings): 1437 x 1363
Survey Size (meters): 216 m x 204 m
Grid Size: 216 m x 204 m
X Interval: 0.15 m
Y Interval: 0.15 m
Max: 2.21
Min: -2.20
Std Dev: 0.46
Mean: 0.01
Median: 0.00
Composite Area: 4.4069 ha
Surveyed Area: 1.7403 ha
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to OSGB36).
3 DeStripe Median Traverse:
4 High pass Uniform (median) filter: Window dia: 203
5 Lo pass Uniform (median) filter: Window dia: 8
6 Clip from -2.00 to 2.00 nT

Area 27b
Filename: J815-mag-Area27b-proc-hpf.xcp
Description: Imported as Composite from: J815-mag-Area27b.asc/twfb49
Northwest corner: 417636.20, 191951.35 m
Southeast corner: 417839.00, 191737.45 m
Source GPS Points: 453600
Composite Size (readings): 1352 x 1426
Survey Size (meters): 203 m x 214 m
Grid Size: 203 m x 214 m
X Interval: 0.15 m
Y Interval: 0.15 m
Max: 3.32
Min: -3.30
Std Dev: 1.01
Mean: 0.02
Median: -0.01
Composite Area: 4.3379 ha
Surveyed Area: 1.017 ha
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 -3.00 to 3.00 nT

Area 28
Filename: J815-mag-Area28-proc.xcp
Description: Imported as Composite from: J815-mag-Area28.asc/twfb39
Northwest corner: 417293.86, 191767.81 m
Southeast corner: 417502.81, 191632.81 m
Source GPS Points: 631500
Composite Size (readings): 1393 x 900
Survey Size (meters): 209 m x 135 m
Grid Size: 209 m x 135 m
X Interval: 0.15 m
Y Interval: 0.15 m
Max: 3.32
Min: -3.30
Std Dev: 1.12
Mean: 0.03
Median: -0.01
Composite Area: 2.8208 ha
Surveyed Area: 1.9421 ha
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to OSGB36).
3 DeStripe Median Traverse:
4 Clip from -3.00 to 3.00 nT

Area 28a

Filename: J815-mag-Area28a-proc-hpf-lpf.xcp
Description: Imported as Composite from: J815-mag-Area28a.asc/,twfb45,twfb46
Northwest corner: 417458.66, 191732.63m
Southeast corner: 417675.56, 191549.78 m
Source GPS Points: 522500
Composite Size (readings): 1446 x 1219
Survey Size (meters): 217 m x 183 m
Grid Size: 217 m x 183 m
X Interval: 0.15 m
Y Interval: 0.15 m
Max: 3.32
Min: -3.30
Std Dev: 1.15
Mean: 0.03
Median: 0.00
Composite Area: 3.966 ha
Surveyed Area: 1.6394 ha
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 Lo pass Uniform (median) filter: Window dia: 13
6 Clip from -3.00 to 3.00 nT

Area 28b
Filename: J815-mag-Area28b-procxcp
Description: Imported as Composite from: J815-mag-Area28a.asc/twfb44
Northwest corner: 417314.71, 191550.03 m
Southeast corner: 417606.16, 191286.93 m
Source GPS Points: 1783400
Composite Size (readings): 1943 x 1754
Survey Size (meters): 291 m x 263 m
Grid Size: 291 m x 263 m
X Interval: 0.15 m
Y Interval: 0.15 m
Max: 3.32
Min: -3.30
Std Dev: 1.24
Mean: 0.03
Median: 0.00
Composite Area: 7.6681 ha
Surveyed Area: 5.6377 ha
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to OSGB36).
3 DeStripe Median Traverse:

4 Clip from -3.00 to 3.00 nT

Area 29
Filename: J815-mag-Area29-proc.xcp
Description: Imported as Composite from: J815-mag-Area29.asc/twfb26
Northwest corner: 416873.70, 191733.35 m
Southeast corner: 417280.50, 191486.60 m
Source GPS Points: 2703900
Composite Size (readings): 2712 x 1645
Survey Size (meters): 407 m x 247 m
Grid Size: 407 m x 247 m
X Interval: 0.15 m
Y Interval: 0.15 m
Max: 3.32
Min: -3.30
Std Dev: 0.77
Mean: 0.01
Median: 0.00
Composite Area: 10.038 ha
Surveyed Area: 7.4793 ha
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to OSGB36).
3 DeStripe Median Traverse:
4 Clip from -3.00 to 3.00 nT

Area 30
Filename: J815-mag-Area30-proc.xcp
Description: Imported as Composite from: J815-mag-Area30.asc/twfb40
Northwest corner: 416986.89, 191485.56 m
Southeast corner: 417165.54, 191289.21 m
Source GPS Points: 571500
Composite Size (readings): 1191 x 1309
Survey Size (meters): 179 m x 196 m
Grid Size: 179 m x 196 m
X Interval: 0.15 m
Y Interval: 0.15 m
Max: 3.32
Min: -3.30
Std Dev: 1.23
Mean: 0.02
Median: 0.02
Composite Area: 3.5078 ha
Surveyed Area: 1.7723 ha
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to OSGB36).
3 DeStripe Median Traverse:
4 Clip from -3.00 to 3.00 nT

Area 30a
Filename: J815-mag-Area30a-proc-hpf-lpf.xcp
Description: Imported as Composite from: J815-mag-Area30a.asc/twfb40
Northwest corner: 417043.44, 191432.84 m
Southeast corner: 417298.44 191258.09m
Source GPS Points: 798900
Composite Size (readings): 1700 x 1165
Survey Size (meters): 255 m x 175 m
Grid Size: 255 m x 175 m
X Interval: 0.15 m
Y Interval: 0.15 m

Stats
Max: 3.32
Min: -3.30
Std Dev: 1.18
Mean: 0.00
Median: -0.01
Composite Area: 4.4561 ha
Surveyed Area: 2.2482 ha
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 -3.00 to 3.00 nT
6 Lo pass Uniform (median) filter: Window dia: 13

Area 31
Filename: J815-mag-Area31-proc.xcp
Description: Imported as Composite from: J815-mag-Area31.asc/twfb37
Northwest corner: 416634.85, 191456.06 m
Southeast corner: 416995.60, 191135.96 m
Source GPS Points: 1894000
Composite Size (readings): 2405 x 2134
Survey Size (meters): 361 m x 320 m
Grid Size: 361 m x 320 m
X Interval: 0.15 m
Y Interval: 0.15 m
Max: 3.32
Min: -3.30
Std Dev: 0.90
Mean: 0.02
Median: 0.00
Composite Area: 11.548 ha
Surveyed Area: 5.2663 ha
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to OSGB36).
3 DeStripe Median Traverse:
4 Clip from -3.00 to 3.00 nT

Area 32
Filename: J815-mag-Area32-proc-hpf.xcp
Description: Imported as Composite from: J815-mag-Area32.asc/twfb36
Northwest corner: 416517.03, 191216.04 m
Southeast corner: 4166724.78, 190926.16 m
Source GPS Points: 1231500
Composite Size (readings): 1385 x 1999
Survey Size (meters): 208 m x 300 m
Grid Size: 208 m x 300 m
X Interval: 0.15 m
Y Interval: 0.15 m
Max: 3.32
Min: -3.30
Std Dev: 0.79
Mean: 0.02
Median: -0.01
Composite Area: 6.2294 ha
Surveyed Area: 3.044 ha
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to OSGB36).
3 DeStripe Median Traverse:
4 High pass Uniform (median) filter: Window dia: 251
5 Clip from -3.00 to 3.00 nT

Area 33
Filename: J815-mag-Area33.xcp
Description: Imported as Composite from: J815-mag-Area33.asc/twfb27
Northwest corner: 416299.16, 191010.528 m
Southeast corner: 416556.71, 190802.38 m
Source GPS Points: 522700
Composite Size (readings): 1717 x 1387
Survey Size (meters): 258 m x 208 m
Grid Size: 258 m x 208 m
X Interval: 0.15 m
Y Interval: 0.15 m
Max: 3.32
Min: -3.30
Std Dev: 0.95
Mean: 0.03
Median: 0.01
Composite Area: 5.3583 ha
Surveyed Area: 1.5775 ha
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to OSGB36).
3 DeStripe Median Traverse:
4 Clip from -3.00 to 3.00 nT

Area 34
Filename: J815-mag-Area34.xcp
Description: Imported as Composite from: J815-mag-Area34.asc/twfb32, twfb33, twfb34
Northwest corner: 416296.61, 190836.21 m
Southeast corner: 416553.86, 190560.96 m
Source GPS Points: 972600
Composite Size (readings): 1715 x 1835
Survey Size (meters): 257 m x 275 m
Grid Size: 257 m x 275 m
X Interval: 0.15 m
Y Interval: 0.15 m
Max: 3.32
Min: -3.30
Std Dev: 1.11
Mean: -0.01
Median: 0.01
Composite Area: 7.0808 ha
Surveyed Area: 3.2599 ha
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to OSGB36).
3 DeStripe Median Traverse:
4 High pass Uniform (median) filter: Window dia: 221
5 Clip from -3.00 to 3.00 nT

Area 35
Filename: J815-mag-Area35.xcp
Description: Imported as Composite from: J815-mag-Area35.asc/twfb31
Northwest corner: 416194.21, 190636.37 m
Southeast corner: 416398.06, 190437.92m
Source GPS Points: 543300
Composite Size (readings): 1359 x 1323
Survey Size (meters): 204 m x 198 m
Grid Size: 204 m x 198 m
X Interval: 0.15 m
Y Interval: 0.15 m
Max: 3.32
Min: -3.30
Std Dev: 0.86
Mean: -0.01
Median: 0.00
Composite Area: 4.0454 ha
Surveyed Area: 1.932 ha
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to OSGB36).
3 DeStripe Median Traverse:
4 High pass Uniform (median) filter: Window dia: 220
5 Lo pass Uniform (median) filter: Window dia: 13
6 Clip from -3.00 to 3.00 nT

Area 37
Filename: J815-mag-Area37-proc.xcp
Description: Imported as Composite from: J815-mag-Area37.asc/twfb29
Northwest corner: 415759.99, 190230.77 m
Southeast corner: 416000.29, 190066.22 m
Source GPS Points: 360200
Composite Size (readings): 1602 x 1097
Survey Size (meters): 240 m x 165 m
Grid Size: 240 m x 165 m
X Interval: 0.15 m
Y Interval: 0.15 m
Max: 5.53
Min: -5.50
Std Dev: 2.15
Mean: -0.01
Median: -0.01
Composite Area: 3.9541 ha
Surveyed Area: 0.98507 ha
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to OSGB36).
3 DeStripe Median Traverse:
4 Clip from -5.00 to 5.00 nT

Area 38
Filename: J815-mag-Area38-proc.xcp
Description: Imported as Composite from: J815-mag-Area38.asc/twfb43
Northwest corner: 415624.63, 190095.42 m
Southeast corner: 415725.73, 190043.22 m
Source GPS Points: 77800
Composite Size (readings): 674 x 348
Survey Size (meters): 101 m x 52.2 m
Grid Size: 101 m x 52.2 m
X Interval: 0.15 m
Y Interval: 0.15 m
Max: 11.05
Min: -11.00
Std Dev: 5.15
Mean: -0.22
Median: -0.06
Composite Area: 0.52774 ha
Surveyed Area: 0.26061 ha
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to OSGB36).
3 DeStripe Median Traverse:
4 Clip from -10.00 to 10.00 nT

Area 39
Filename: J815-mag-Area39.xcp
Description: Imported as Composite from: J815-mag-Area39.asc/twfb42
Northwest corner: 415363.00, 190119.012 m
Southeast corner: 415573.75, 189990.01 m
Source GPS Points: 439700
Composite Size (readings): 1405 x 860
Survey Size (meters): 211 m x 129 m
Grid Size: 211 m x 129 m
X Interval: 0.15 m
Y Interval: 0.15 m
Max: 5.53
Min: -5.50
Std Dev: 1.90
Mean: 0.04
Median: -0.01
Composite Area: 2.7187 ha
Surveyed Area: 1.4135 ha
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to OSGB36).
3 DeStripe Median Traverse:
4 High pass Uniform (median) filter: Window dia: 220
5 Clip from -5.00 to 5.00 nT

Area 40
Filename: J793-mag-proc.xcp
Description: Imported as Composite from: J793-mag.asc
Instrument Type: Sensys DLMGPS
Units: nT
UTM Zone: 30U
Survey corner coordinates (X/Y):OSGB36
Northwest corner: 415132.49, 190165.03m
Southeast corner: 415365.23, 189955.51m
Collection Method: Randomised
Sensors: 5
Dummy Value: 32702
Source GPS Points: 905700
Composite Size (readings): 1293 x 1164
Survey Size (meters): 233 m x 210 m
Grid Size: 233 m x 210 m
X Interval: 0.18 m
Y Interval: 0.18 m

Max: 3.32
Min: -3.30
Std Dev: 0.90
Mean: 0.02
Median: 0.01
Composite Area: 4.8764 ha
Surveyed Area: 2.8939 ha
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to OSGB36).
3 DeStripe Median Traverse:
4 Clip from -3.00 to 3.00 nT

Area 41
Filename: J815-mag-Area41-proc-hpf.xcp
Description: Imported as Composite from: J815-mag-Area41.asc/twfb41
Northwest corner: 414827.81, 190377.90 m
Southeast corner: 414907.31, 190235.55 m
Source GPS Points: 112400
Composite Size (readings): 530 x 949
Survey Size (meters): 79.5 m x 142 m
Grid Size: 79.5 m x 142 m
X Interval: 0.15 m
Y Interval: 0.15 m

Max: 3.32
Min: -3.30
Std Dev: 1.75
Mean: -0.02
Median: 0.02
Composite Area: 1.1317 ha
Surveyed Area: 0.39675 ha
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to OSGB36).
3 DeStripe Median Traverse:
4 High pass Uniform (median) filter: Window dia: 250
5 Clip from -3.00 to 3.00 nT

Appendix D – digital archive

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

A draft copy will be supplied to the Oxfordshire county archaeological officer for comment and the agreed final copy supplied in PDF format to the Oxfordshire Historic Environment Record. The report will also be uploaded to the Online AccesS to the Index of archaeological investigationS (OASIS). A PDF copy will also be supplied to the Wiltshire HER. The georeferenced abstraction layers and/or greyscale images can also be supplied to the HERs on request. The report will also be uploaded to the Online AccesS to the Index of archaeological investigationS (OASIS).

File type	Naming scheme	Description
Data	J815-mag-**[area number/name]**.asc J815-mag-**[area number/name]**.xcp J815-mag-**[area number/name]**-proc.xcp J815-mag-**[area number/name]**-proc-hpf.xcp	Raw data as ASCII CSV TerraSurveyor raw data TerraSurveyor minimally processed data TerraSurveyor filtered data
Graphics	J815-mag-**[area number/name]**-proc.tif	Image in TIF format
Drawing	J815-**[version number]**.dwg	CAD file in 2010 dwg format
Report	J815 report.odt	Report text in Open Office odt format

Table 4: 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 archaeological potential		
AS-ABST MAG POS DISCRETE ARCHAEOLOGY	Red 255,0,0	Solid donut, point or polygon (solid)
AS-ABST MAG POS ARCHAEOLOGY	Red 255,0,0	Polygon (cross hatched ANSI37)
AS-ABST MAG POS CURVILINEAR RING DITCH	Magenta 255,0,255	Polyline or polygon (solid)
AS-ABST MAG NEG LINEAR ARCHAEOLOGY	127,0,255	Line, polyline or polygon (solid)
AS-ABST MAG POS RECTILINEAR ENCLOSURE DITCH	127,0,255	Line, polyline or polygon (solid)
AS-ABST MAG POS CURVILINEAR ENCLOSURE DITCH	79, 63,127	Line, polyline or polygon (solid)
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)
AS-ABST MAG NEG UNCERTAIN	Blue 0,0,255	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)
AS-ABST MAG LAND DRAIN	Cyan 0,255,255	Line or polyline
Anomalies with an agricultural origin		
AS-ABST MAG AGRICULTURAL	Green 0,255,0	Line or polyline
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)
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)
Anomalies associated with ground disturbance/quarrying		
AS-ABST MAG QUARRYING/ GROUND DISTURBANCE	255, 223,127	Polygon (net)

Table 5: CAD layering

Appendix F – copyright and intellectual property

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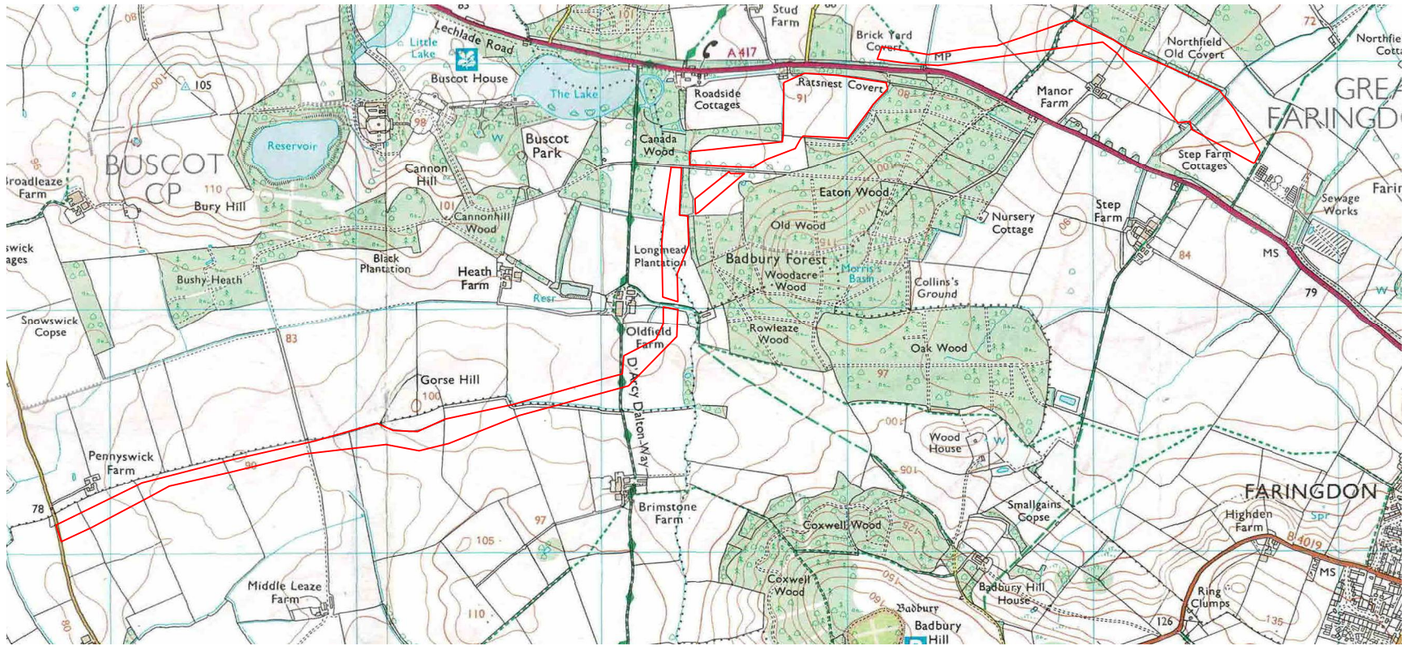
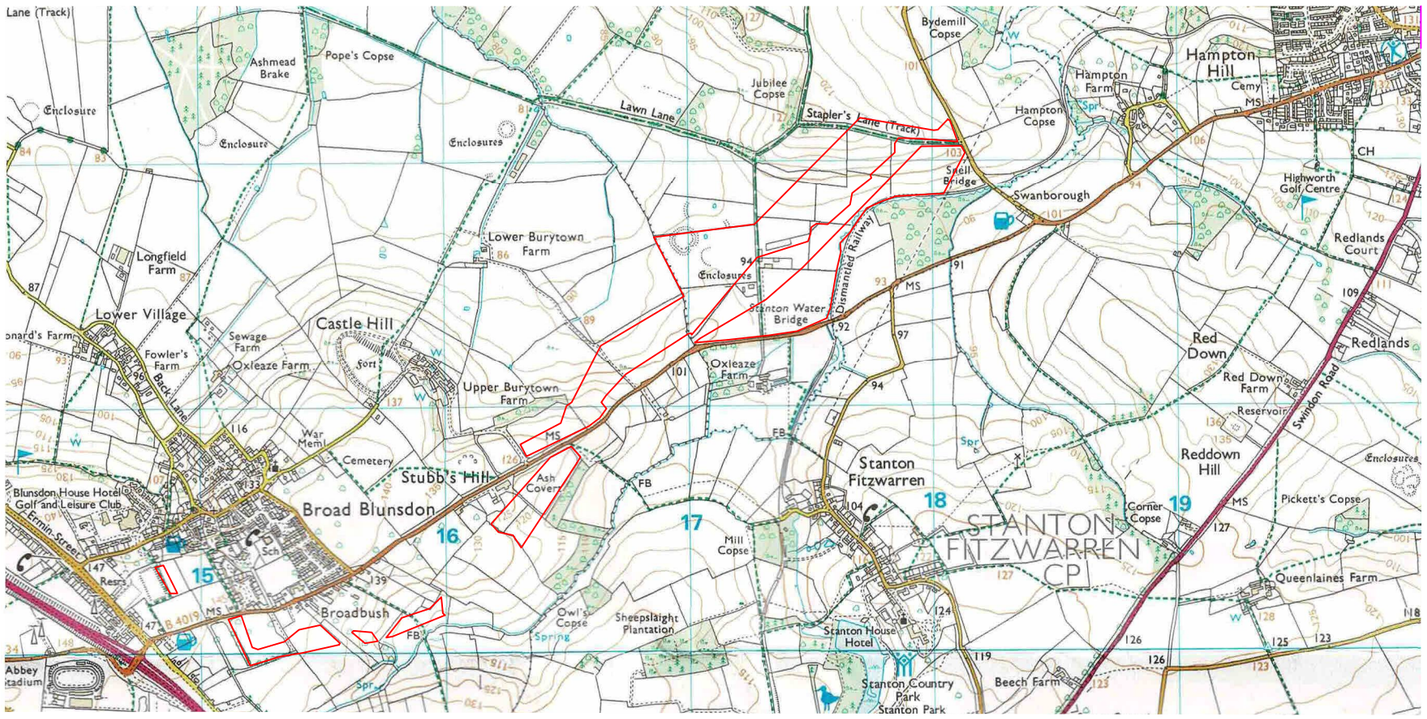
www.archaeological-surveys.co.uk
info@archaeological-surveys.co.uk
Tel: 01249 814 231

Survey location - Faringdon section Oxfordshire



Survey location - Blunsdon section Swindon



Archaeological Surveys
Specialist Geophysical Surveyors

Updated Geophysical Survey Faringdon to Blunsdon Phase 2 New Water Main Oxfordshire/Swindon

Map of survey areas

Faringdon section between OS NGR SU 27680 96607 to SU 22800 95085

● Survey locations

Blunsdon section between OS NGR SU 18190 992135 to SU 14840 90373

SCALE 1:25 000

0m 500m 1000m

SCALE TRUE AT A3

DRAWN BY	CHECKED BY	
KTD	DJS	FIG 01

Archaeological Surveys
Specialist Geophysical Surveyors

Updated Geophysical Survey Faringdon to Blunsdon Phase 2 New Water Main Oxfordshire/Swindon

Referencing information - Faringdon section eastern end (Oxfordshire)

425200 425400 425600 425800 426000 426200 426400 426600 426800 427000 427200 427400 427600

197600 197400 197200 197000 196800 196600 196400 196200 196000 195800 195600

N

Area 1 Area 2 Area 3 Area 4 Area 5 Area 6 Area 7 Area 8 Area 9 Area 10 Area 11 Area 12 Area 13 Area 14

Easton Wood

Badbury Forest

Referencing grid to OSGB36 datum at 200m intervals

Survey tracks

Survey track start

Survey track stop

SCALE 1:8000

0m 80 160 240 320 400m

SCALE TRUE AT A3

DRAWN BY	CHECKED BY	
KTD	DJS	FIG 02

Archaeological Surveys
Specialist Geophysical Surveyors

Updated Geophysical Survey Faringdon to Blunsdon Phase 2 New Water Main Oxfordshire/Swindon

Referencing information - Faringdon section western end (Oxfordshire)

422800 423000 423200 423400 423600 423800 424000 424200 424400 424600 424800 425000 425200

196800 196600 196400 196200 196000 195800 195600 195400 195200 195000 194800

N

Area 12
Area 13
Area 14
Area 15
Area 16
Area 17
Area 18
Area 19
Area 20
Area 21
Area 22
Area 23

Referencing grid to OSGB36 datum at 200m intervals

Survey tracks

Survey track start

Survey track stop

SCALE 1:8000

0m 80 160 240 320 400m

SCALE TRUE AT A3

DRAWN BY	CHECKED BY	
KTD	DJS	FIG 03

Archaeological Surveys
Specialist Geophysical Surveyors

Updated Geophysical Survey Faringdon to Blunsdon Phase 2 New Water Main Oxfordshire/Swindon

Referencing information - Blunsdon section eastern end (Swindon)

415600 415800 416000 416200 416400 416600 416800 417000 417200 417400 417600 417800 418000

192000 191800 191600 191400 191200 191000 190800 190600 190400 190200

Area 24
Area 26
Area 25
Area 27
Area 27a
Area 25a
Area 27b
Area 29
Area 28a
Area 28
Area 28b
Area 30
Area 31
Area 30a
Area 32
Area 33
Area 34
Area 35
Area 36
Previously investigated
Area 38
Area 37

N

Referencing grid to OSGB36 datum at 200m intervals

Survey tracks

Survey track start

Survey track stop

SCALE 1:8000

0m 80 160 240 320 400m

SCALE TRUE AT A3

DRAWN BY	CHECKED BY	
KTD	DJS	FIG 04

414650 414850 415050 415250 415450 415650 415850 416050 416250 416450 416650 416850 417050

191600 191400 191200 191000 190800 190600 190400 190200 190000 189800 189600

Area 29

N

Area 30

Area 31

Area 32

Area 33

Area 34

Area 35

Area 36
Previously investigated

Area 37

Area 38

Area 39

Area 40

Area 41

Previously investigated

Broad Blunsdon

Blunsdon reservoir

Cemetery

Overgroom

Trees

Archaeological Surveys
Specialist Geophysical Surveyors

Updated Geophysical Survey Faringdon to Blunsdon Phase 2 New Water Main Oxfordshire/Swindon

Referencing information - Blunsdon section western end (Swindon)

Referencing grid to OSGB36 datum at 200m intervals

Survey tracks

Survey track start

Survey track stop

SCALE 1:8000

0m 80 160 240 320 400m

SCALE TRUE AT A3

DRAWN BY	CHECKED BY	
KTD	DJS	FIG 05

Area 2

Area 1

N

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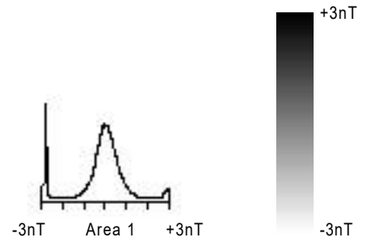
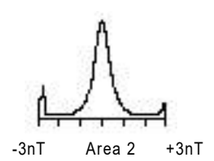
Updated Geophysical Survey
Faringdon to Blunsdon Phase 2
New Water Main
Oxfordshire/Swindon

Greyscale plot of processed magnetometer data - Areas 1 & 2 (Oxfordshire)





SCALE 1:1500

0m 10 20 30 40 50m

KTD	DJS	FIG 06

Area 2

Area 1

Drain

Drain

N

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Updated Geophysical Survey
Faringdon to Blunsdon Phase 2
New Water Main
Oxfordshire/Swindon

Abstraction and interpretation of magnetic anomalies - Areas 1 & 2 (Oxfordshire)

- Positive linear anomaly - possible ditch-like feature
- Negative linear anomaly - material of low magnetic susceptibility
- Linear anomaly - ridge and furrow
- Discrete positive response - possible pit-like feature
- 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 1:1500

0m 10 20 30 40 50m

SCALE TRUE AT A3

DRAWN BY	CHECKED BY	
KTD	DJS	FIG 07

7.2M

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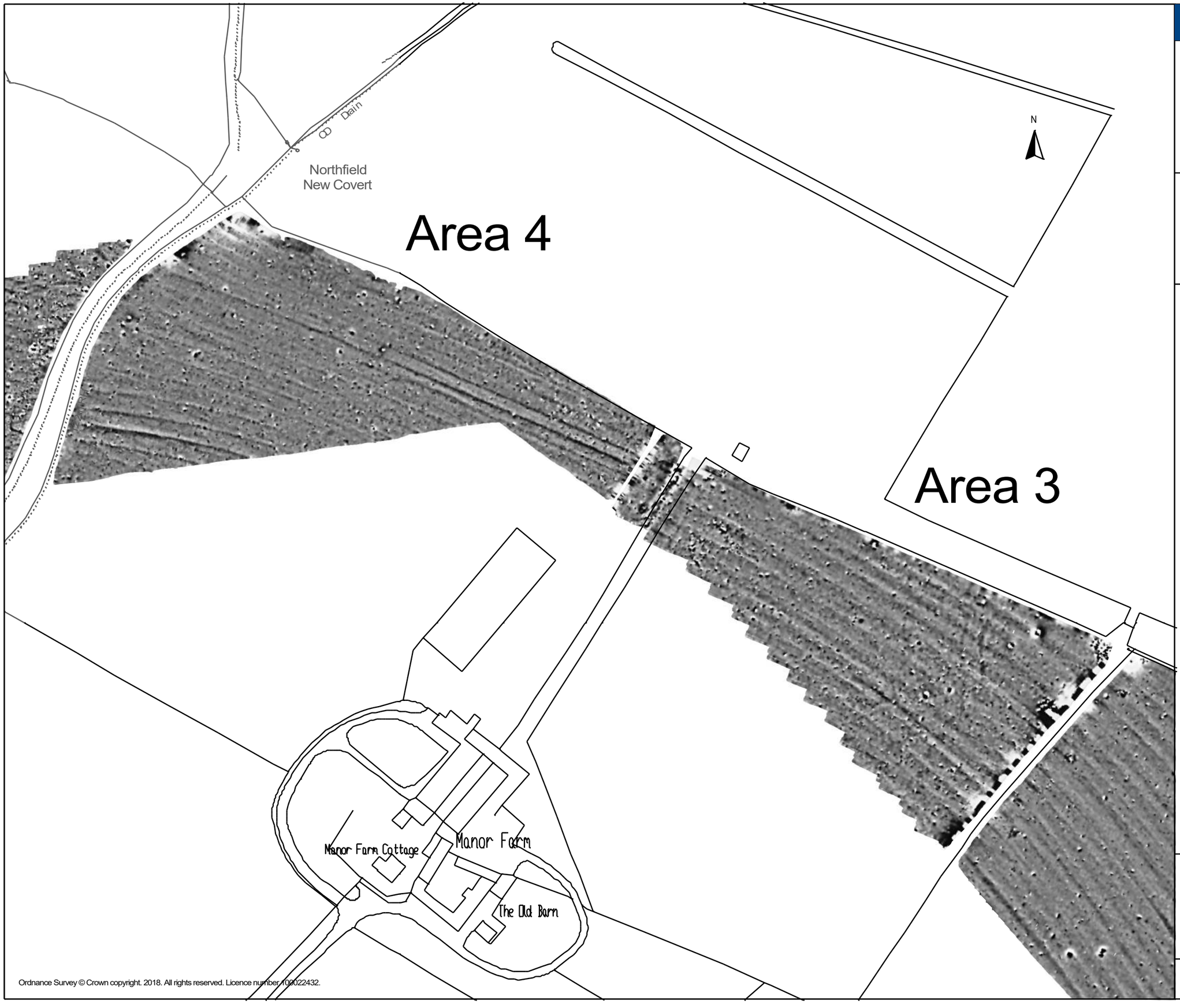
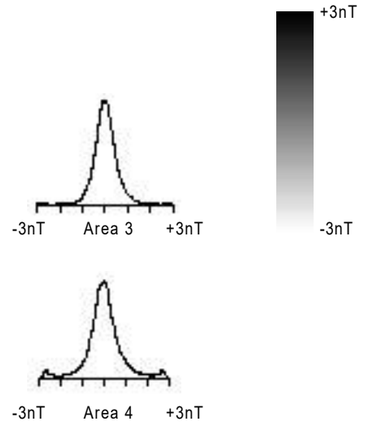
Updated Geophysical Survey Faringdon to Blunsdon Phase 2 New Water Main Oxfordshire/Swindon

Greyscale plot of processed magnetometer data - Areas 3 & 4 (Oxfordshire)





SCALE 1:1500

0m 10 20 30 40 50m

KTD	DJS	FIG 08

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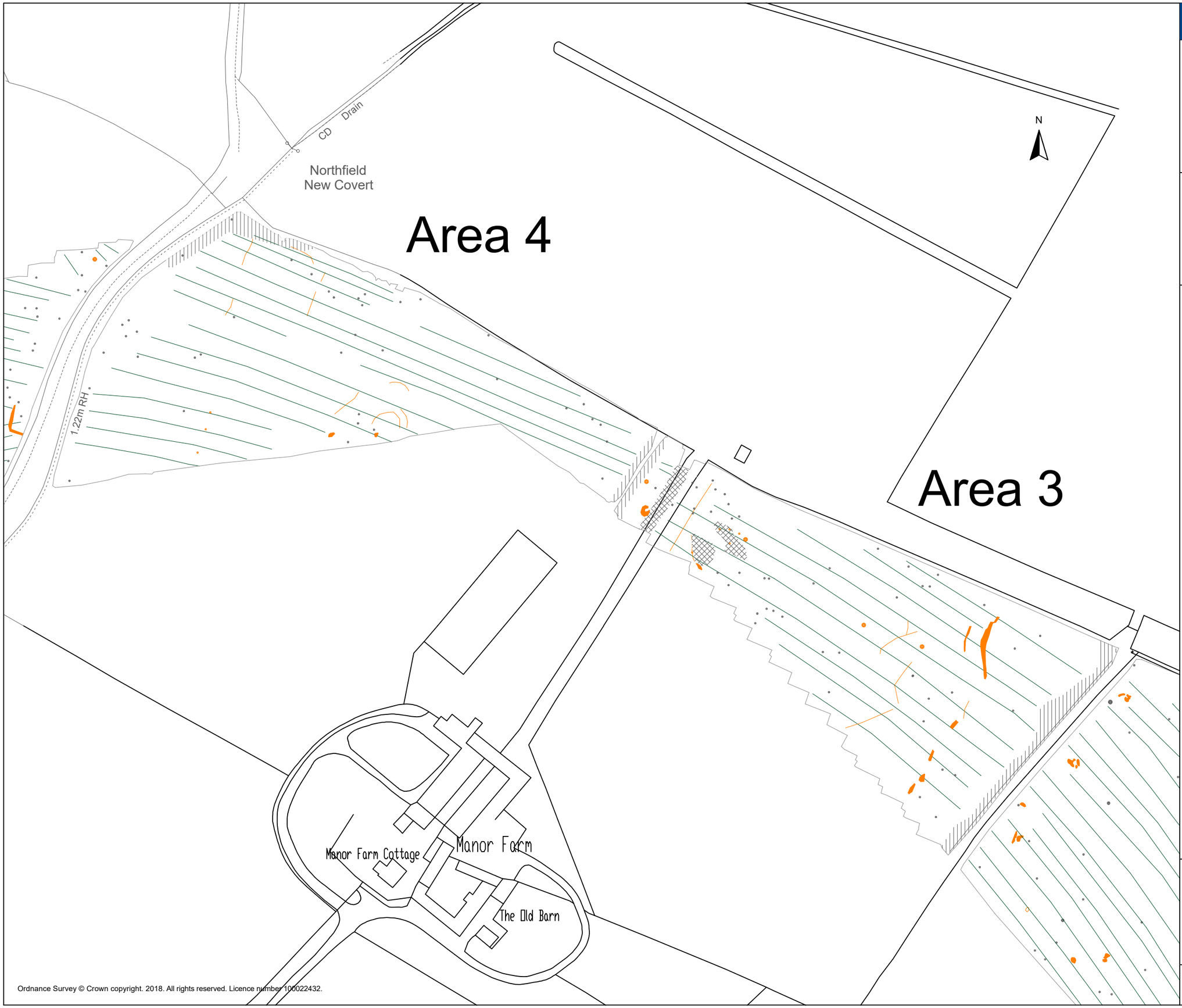
Updated Geophysical Survey Faringdon to Blunsdon Phase 2 New Water Main Oxfordshire/Swindon

Abstraction and interpretation of magnetic anomalies - Areas 3 & 4 (Oxfordshire)



- Positive linear anomaly - possible ditch-like feature
- Linear anomaly - ridge and furrow
- Discrete positive response - possible pit-like feature
- 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

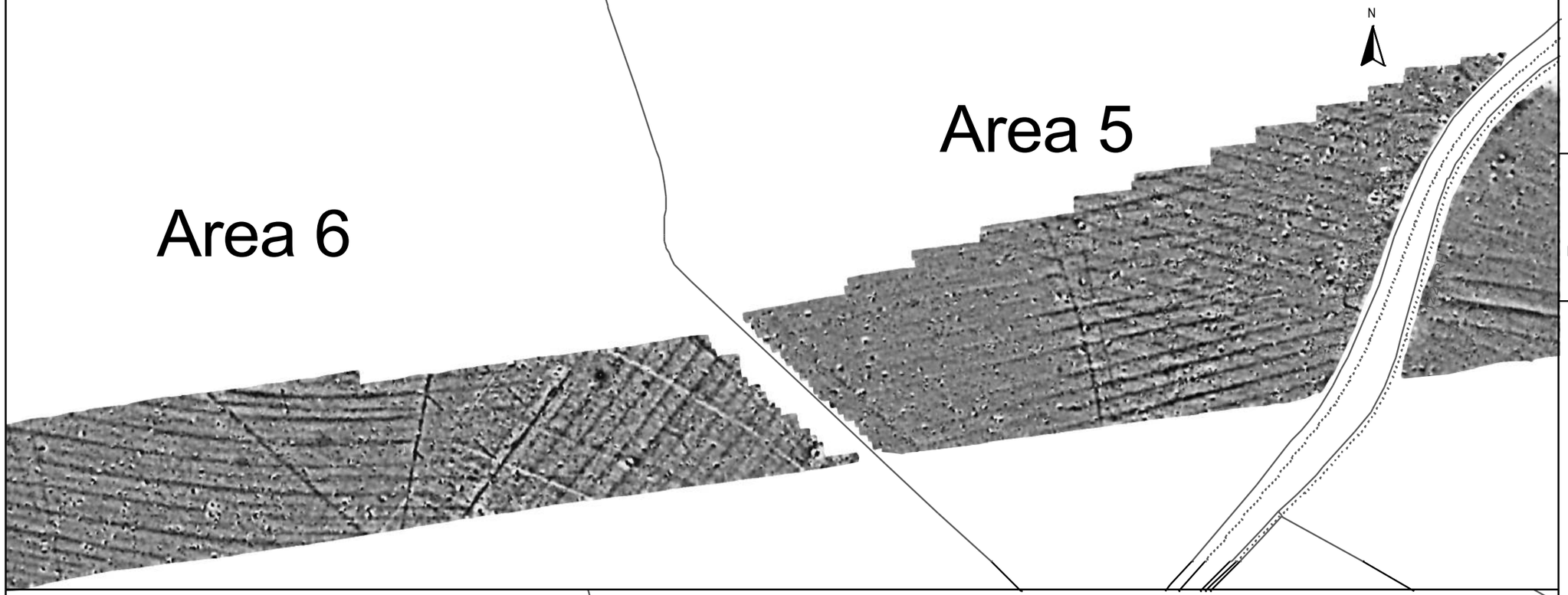
SCALE 1:1500

0m 10 20 30 40 50m

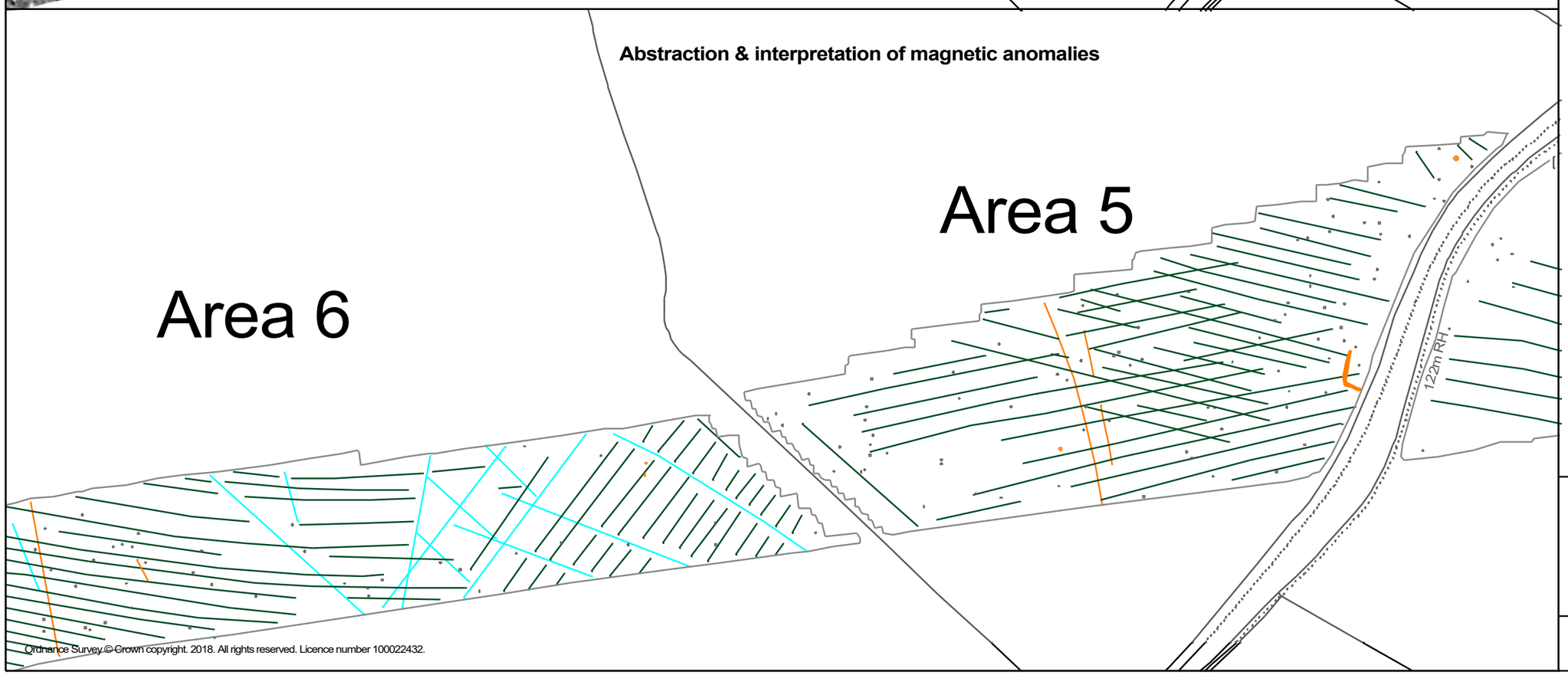
SCALE TRUE AT A3

DRAWN BY	CHECKED BY	
KTD	DJS	FIG 09

Greyscale plot of processed magnetometer data



Abstraction & interpretation of magnetic anomalies



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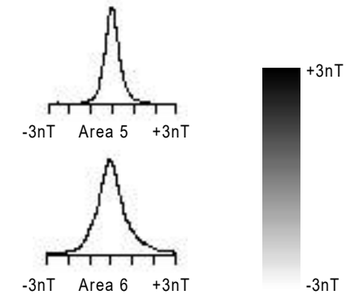
Faringdon to Blunsdon Phase 2
New Water Main
Oxfordshire/Swindon

Greyscale plot of processed magnetometer data & abstraction & interpretation of magnetic anomalies - Areas 5 & 6 (Oxfordshire)



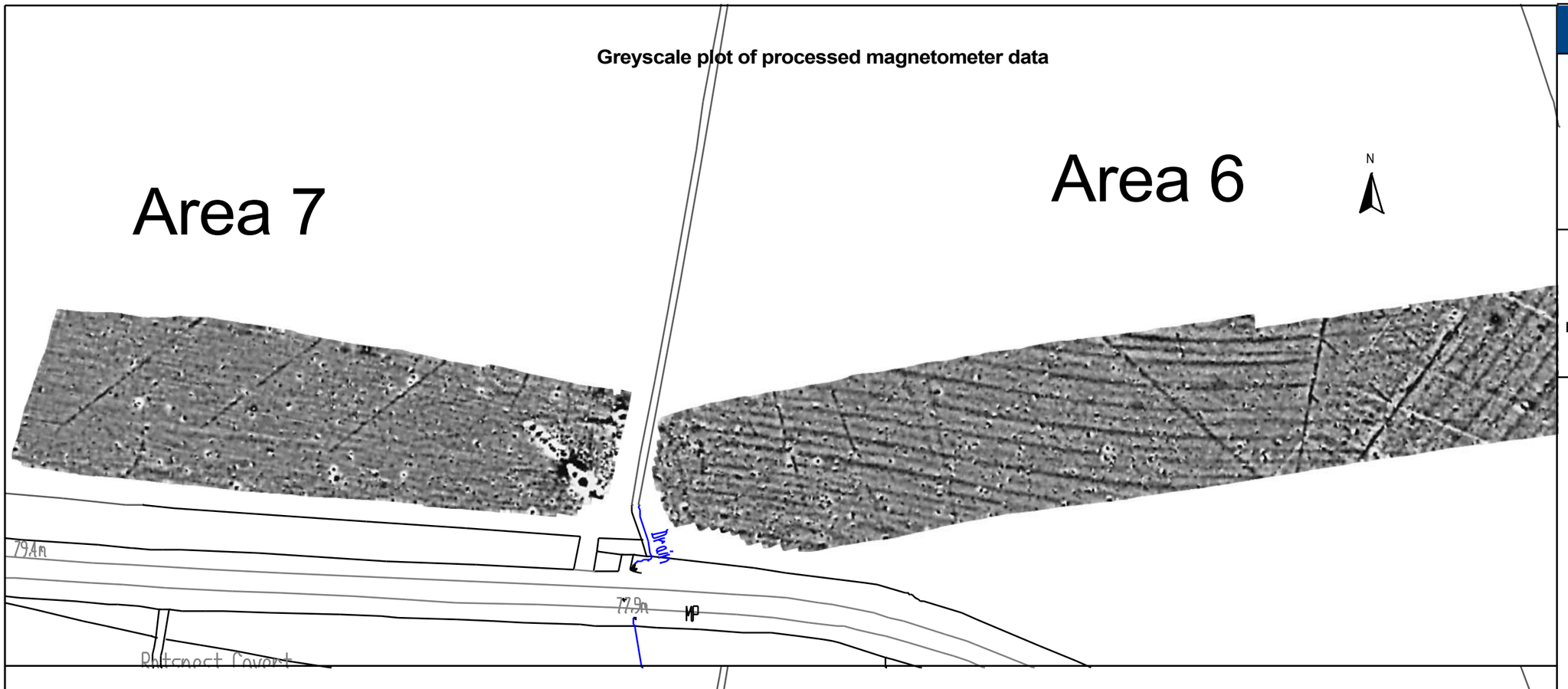
- Positive linear anomaly - possible ditch-like feature
- Linear anomaly - ridge and furrow
- Positive/multiple dipolar linear anomaly - land drain
- Discrete positive response - possible pit-like feature
- Strong dipolar anomaly - ferrous object

SCALE 1:1500

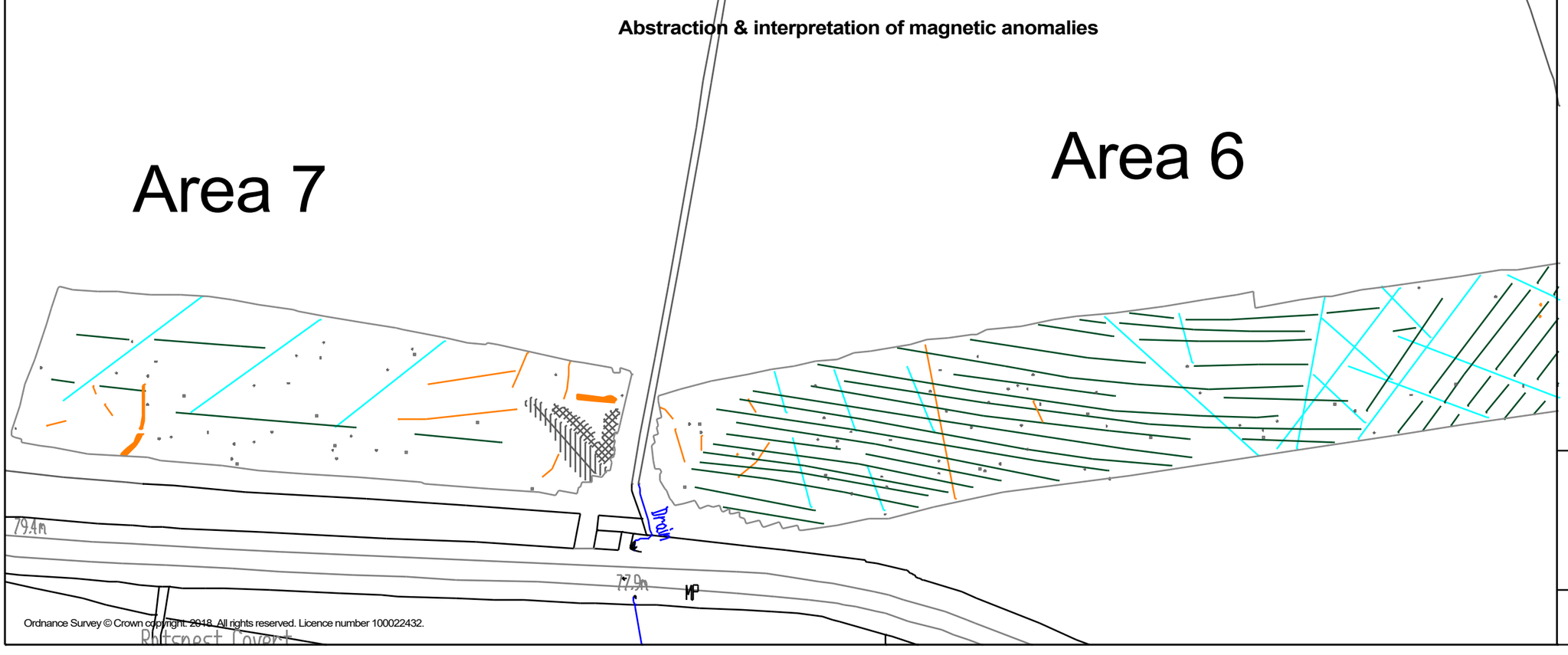
0m 10 20 30 40 50m

KTD	DJS	FIG 10

Greyscale plot of processed magnetometer data



Abstraction & interpretation of magnetic anomalies



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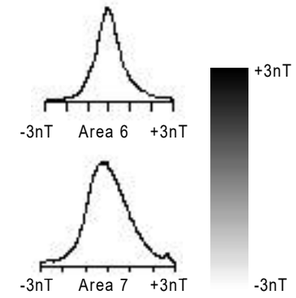
Oxfordshire/Swindon

Greyscale plot of processed magnetometer data & abstraction & interpretation of magnetic anomalies - Areas 6 & 7 (Oxfordshire)



- Positive linear anomaly - possible ditch-like feature
- Linear anomaly - ridge and furrow
- Positive/multiple dipolar linear anomaly - land drain
- Discrete positive response - possible pit-like feature
- Strong dipolar anomaly - ferrous object
- Magnetic debris - spread of magnetically thermoremnant/ferrous material
- Magnetic disturbance from ferrous material
- Strong multiple dipolar linear anomaly - pipeline / cable / service

SCALE 1:1500

0m 10 20 30 40 50m

KTD	DJS	FIG 11

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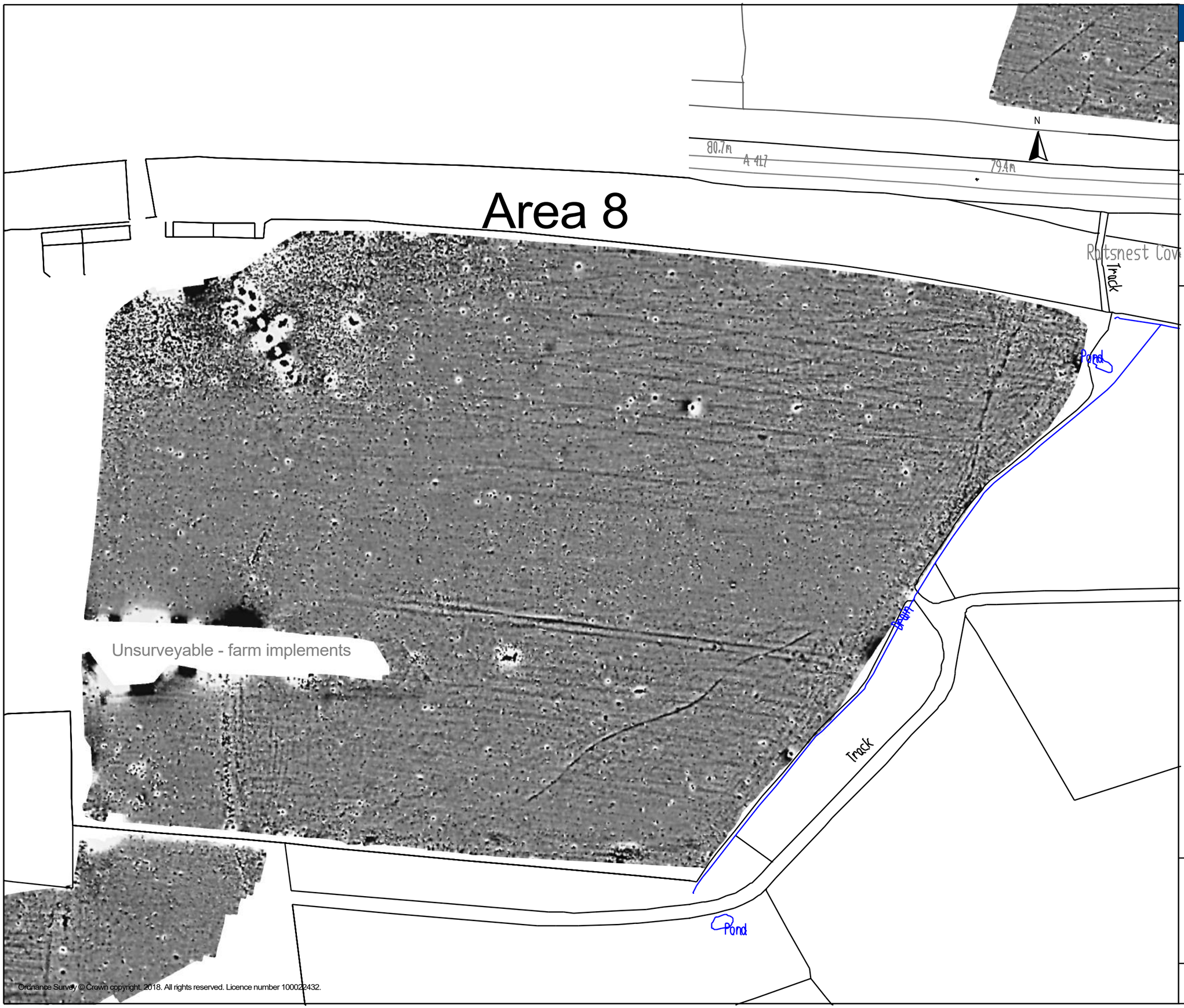
Greyscale plot of processed magnetometer data - Area 8 (Oxfordshire)



+3nT
-3nT
+3nT
-3nT

SCALE 1:1500

0m 10 20 30 40 50m

KTD | DJS | FIG 12

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Updated Geophysical Survey Faringdon to Blunsdon Phase 2 New Water Main Oxfordshire/Swindon

Abstraction and interpretation of magnetic anomalies - Area 8 Oxfordshire

Area 8

N

80.7m

A 417

79.4m

Ratsnest Cov

Track

Pond

1

2

3

4

5

Unsurveyable - farm implements

Drain

Track

Pond

- Positive linear anomaly - possible ditch-like feature
- Linear anomaly - of agricultural origin
- Linear anomaly - ridge and furrow
- Discrete positive response - possible pit-like feature
- Positive anomaly - magnetically enhanced material
- Magnetic debris/positive anomaly - possible former track
- Magnetic debris - spread of magnetically thermoremnant/ferrous material
- Magnetic disturbance from ferrous material
- Strong, multiple dipolar linear anomaly - service/pipe
- Strong dipolar anomaly - ferrous object

SCALE 1:1500

0m 10 20 30 40 50m

SCALE TRUE AT A3

DRAWN BY	CHECKED BY	
KTD	DJS	FIG 13

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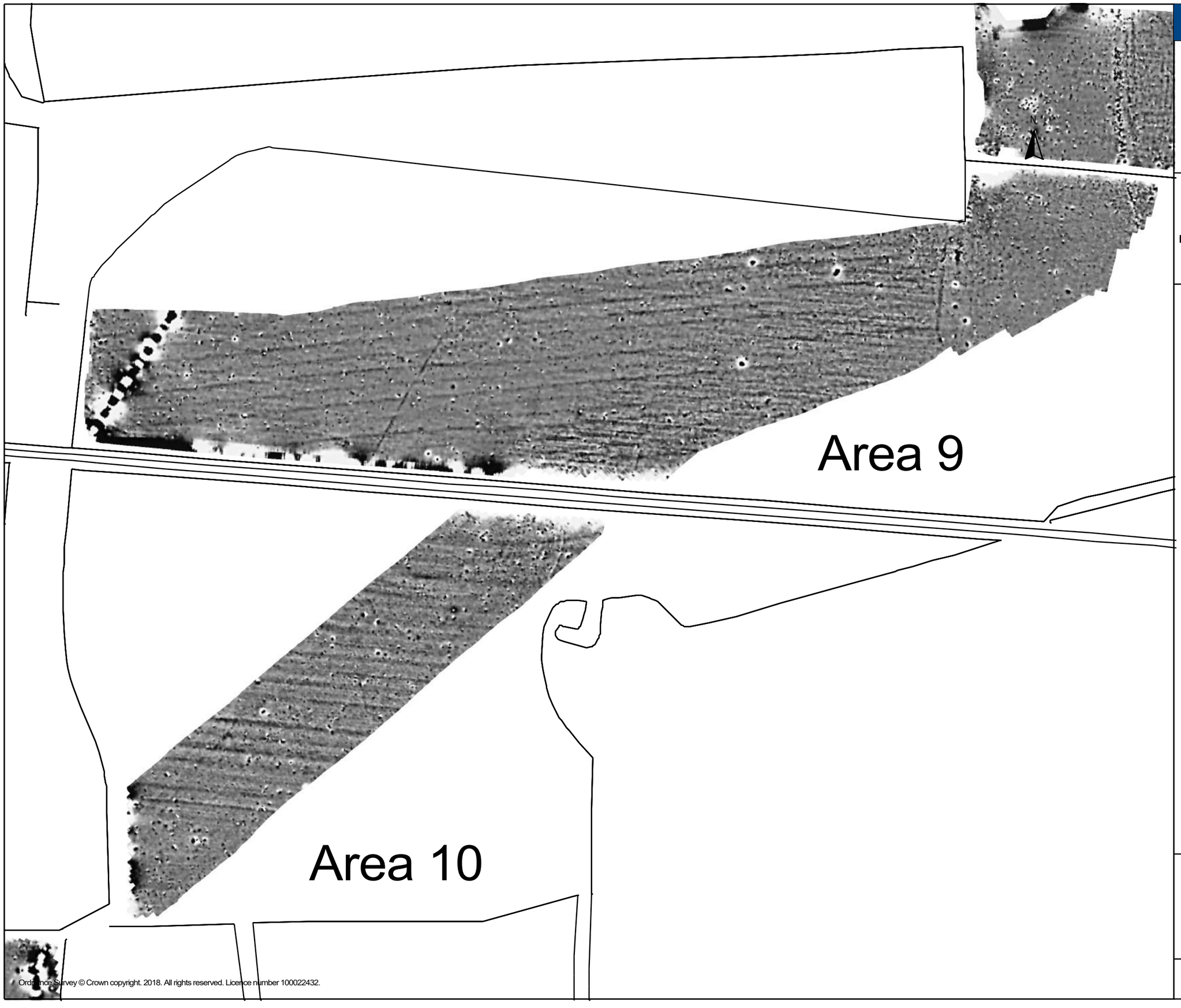
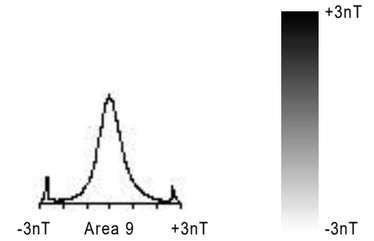
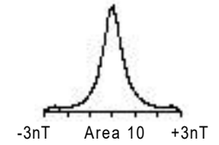
Updated Geophysical Survey Faringdon to Blunsdon Phase 2 New Water Main Oxfordshire/Swindon

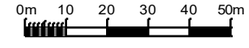
Greyscale plot of processed magnetometer data - Areas 9 & 10 (Oxfordshire)







SCALE 1:1500



KTD	DJS	FIG 14

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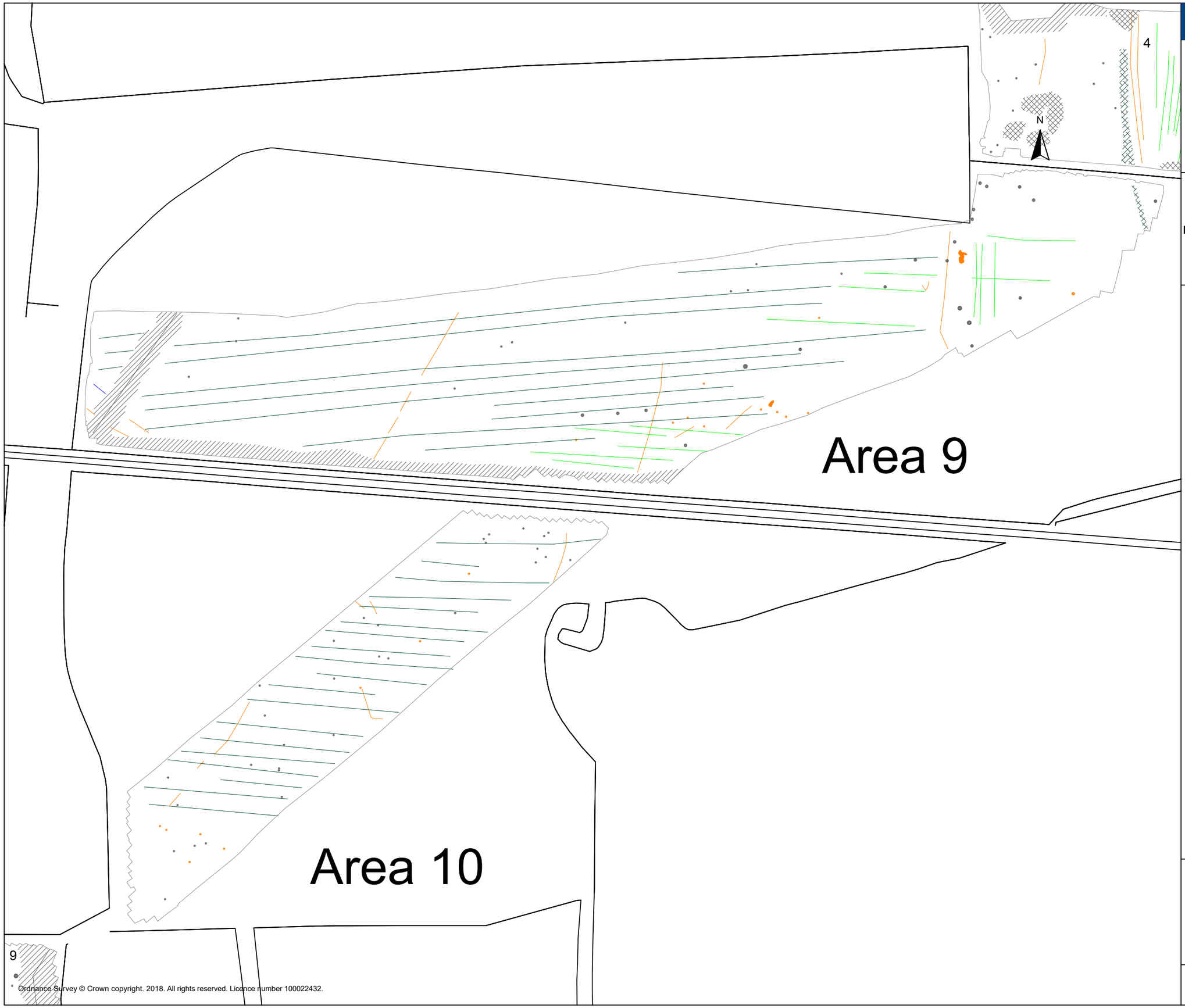
Abstraction and interpretation of magnetic anomalies - Areas 9 & 10 (Oxfordshire)



- Positive linear anomaly - possible ditch-like feature
- Linear anomaly - of agricultural origin
- Linear anomaly - ridge and furrow
- Strong, multiple dipolar linear anomaly - service / pipe
- Discrete positive response - possible pit-like feature
- Strong dipolar anomaly - ferrous object

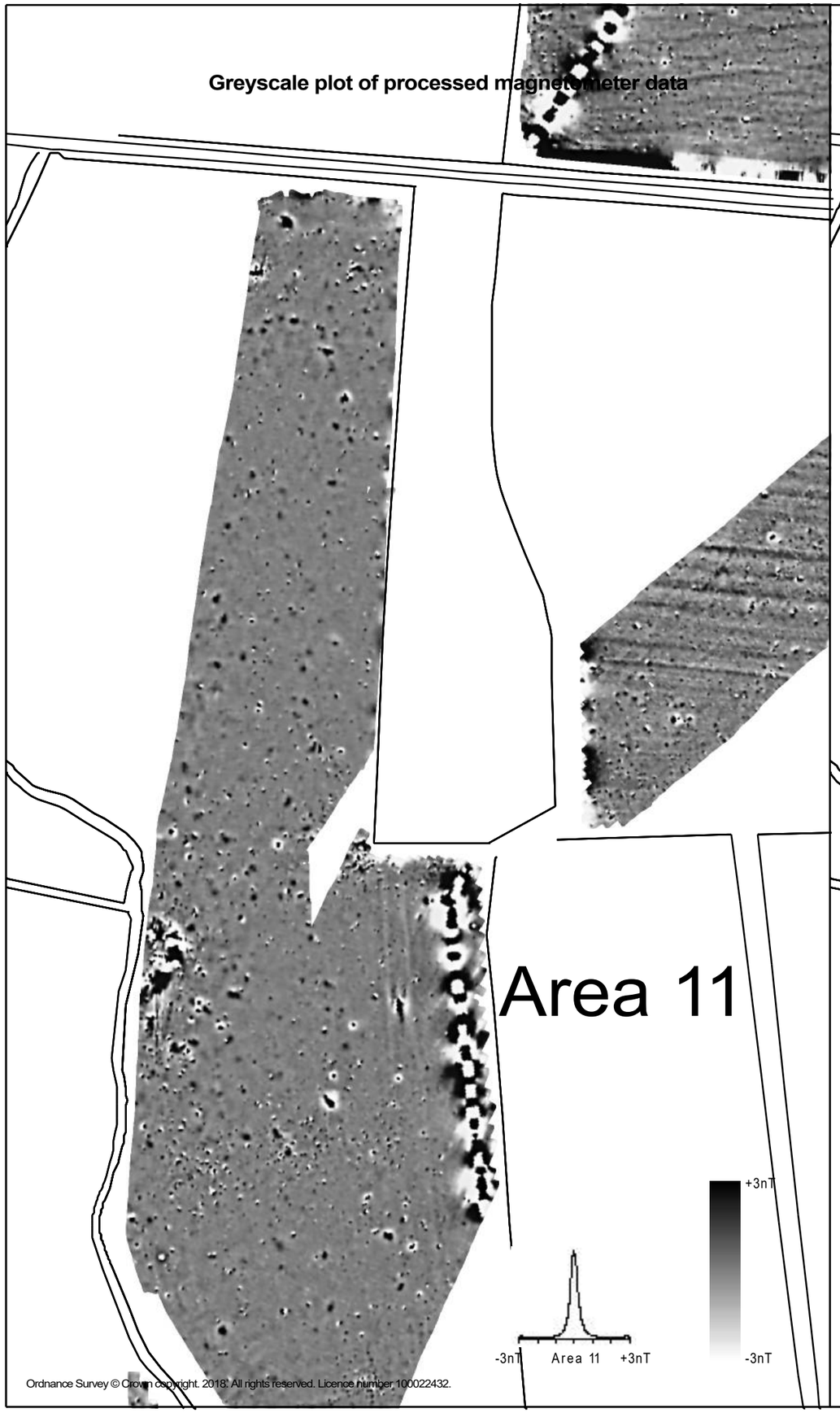
SCALE 1:1500

0m 10 20 30 40 50m

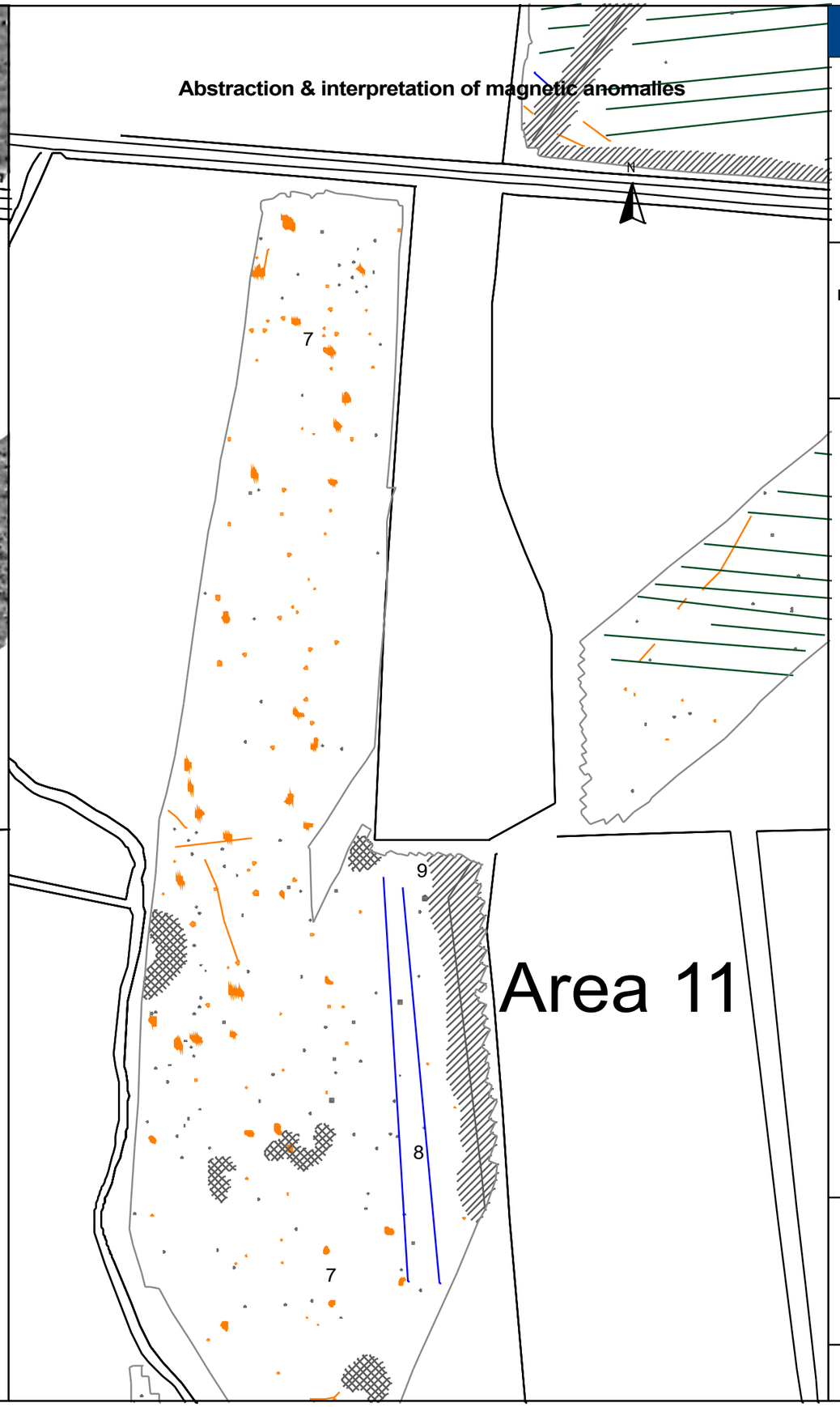
SCALE TRUE AT A3

DRAWN BY	CHECKED BY	
KTD	DJS	FIG 15

Greyscale plot of processed magnetometer data



Abstraction & interpretation of magnetic anomalies



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Updated Geophysical Survey
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New Water Main
Oxfordshire/Swindon

Greyscale plot of processed magnetometer data & abstraction & interpretation of magnetic anomalies - Area 11 north (Oxfordshire)

- Positive linear anomaly - possible ditch-like feature
- Negative linear anomaly - material of low magnetic susceptibility
- Discrete positive response - possible natural pit-like feature
- 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 1:1500

0m 10 20 30 40 50m

KTD	DJS	FIG 16

Greyscale plot of processed magnetometer data

Area 11

Area 12

-3nT Area 11 +3nT

-3nT Area 12 +3nT

+3nT

-3nT

Abstraction & interpretation of magnetic anomalies

N

Area 11

Area 12

9
8
7
6
14
11
10
12
13
15

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Updated Geophysical Survey Faringdon to Blunsdon Phase 2 New Water Main Oxfordshire/Swindon

Greyscale plot of processed magnetometer data & abstraction & interpretation of magnetic anomalies - Areas 11 & 12 (Oxfordshire)

- Positive linear anomaly - possible ditch-like feature
- Negative linear anomaly - material of low magnetic susceptibility
- Positive/multiple dipolar linear anomaly - land drain
- 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 multiple dipolar linear anomaly - pipeline / cable / service
- Strong dipolar anomaly - ferrous object

SCALE 1:1500

0m 10 20 30 40 50m

KTD	DJS	FIG 17

Greyscale plot of processed magnetometer data

Abstraction & interpretation of magnetic anomalies

Area 13

Area 14

-3nT Area 13 +3nT

-3nT Area +3nT

+3nT

-3nT

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Updated Geophysical Survey Faringdon to Blunsdon Phase 2 New Water Main Oxfordshire/Swindon

Greyscale plot of processed magnetometer data & abstraction & interpretation of magnetic anomalies - Areas 13 & 14 (Oxfordshire)

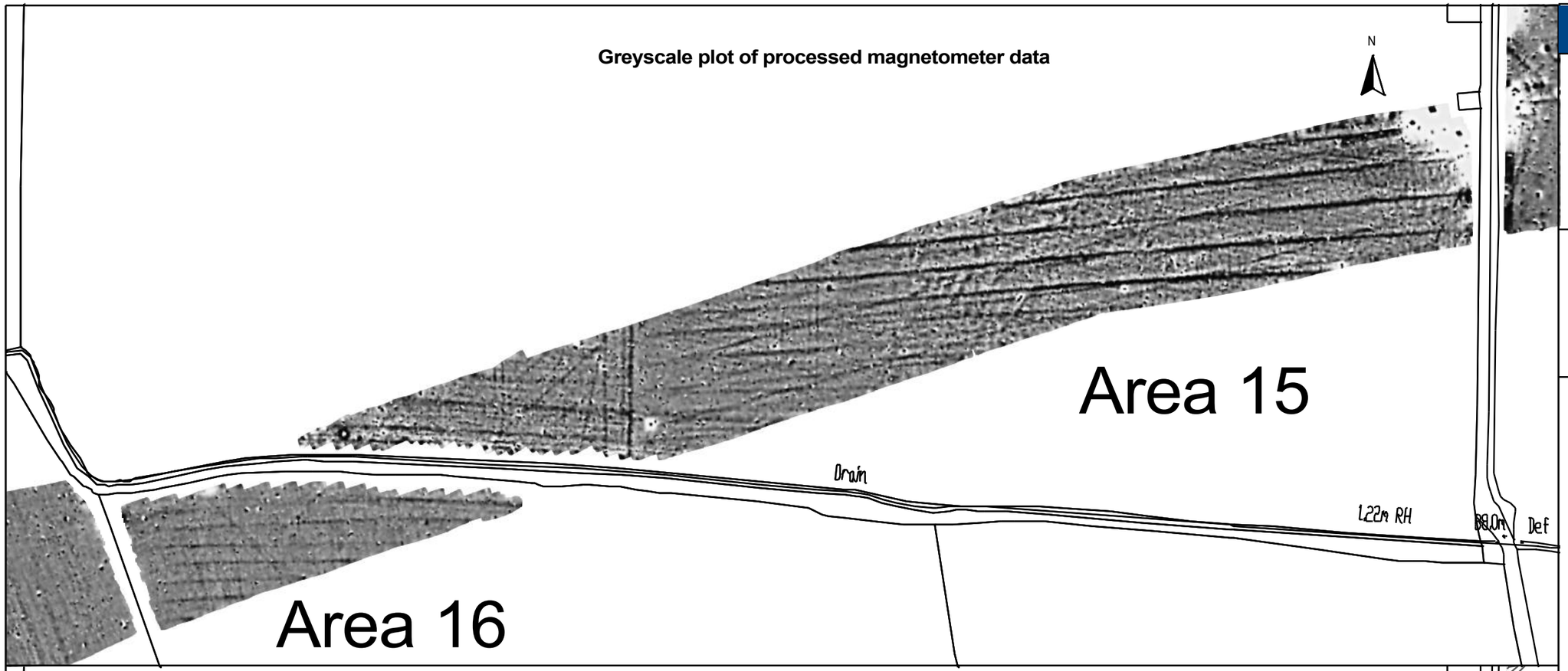
- Positive linear anomaly - cut feature of archaeological potential
- Positive linear anomaly - possible ditch-like feature
- Negative linear anomaly - material of low magnetic susceptibility
- Linear anomaly - ridge and furrow
- Discrete positive response - possible pit-like feature
- Variable magnetic response - 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 1:1500

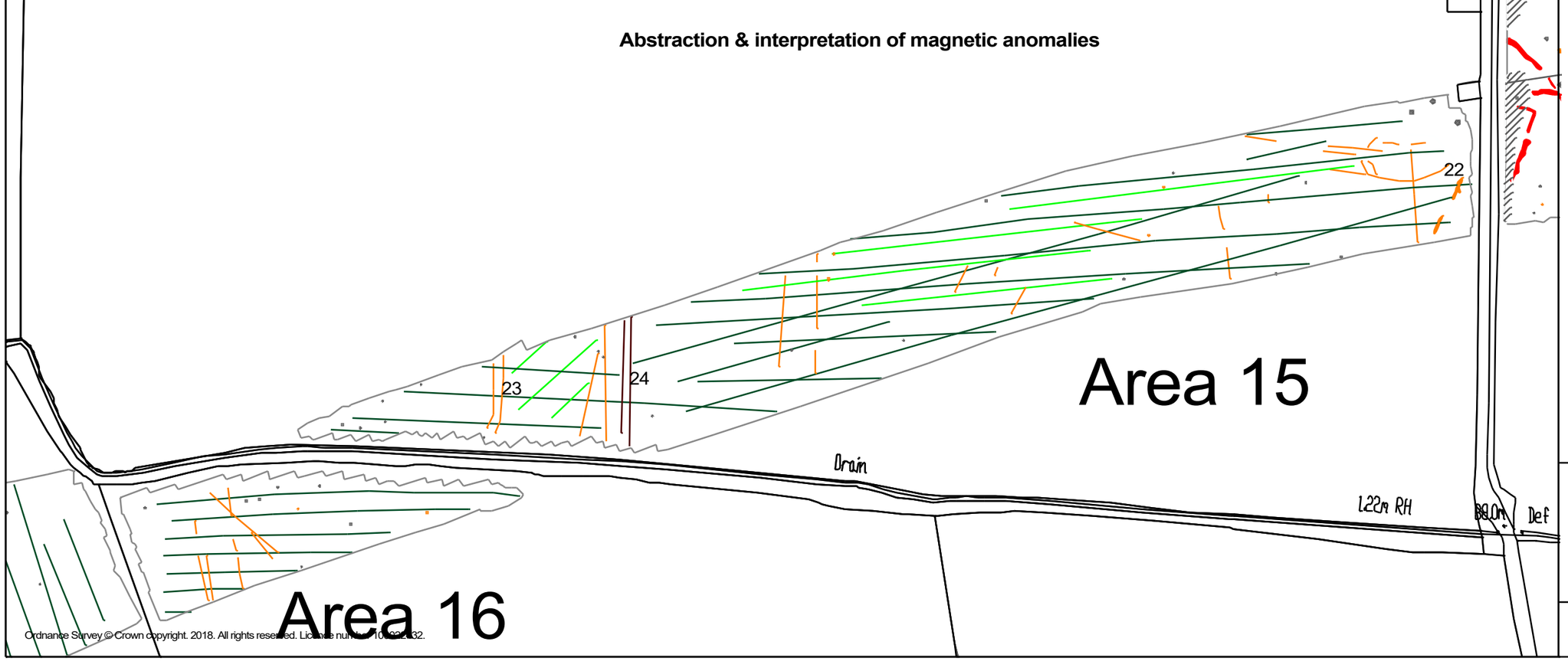
0m 10 20 30 40 50m

KTD	DJS	FIG 18

Greyscale plot of processed magnetometer data



Abstraction & interpretation of magnetic anomalies



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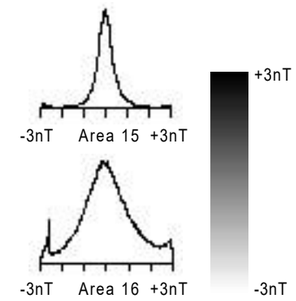
Updated Geophysical Survey Faringdon to Blunsdon Phase 2 New Water Main Oxfordshire/Swindon

Greyscale plot of processed magnetometer data & abstraction & interpretation of magnetic anomalies - Areas 15 & 16 (Oxfordshire)



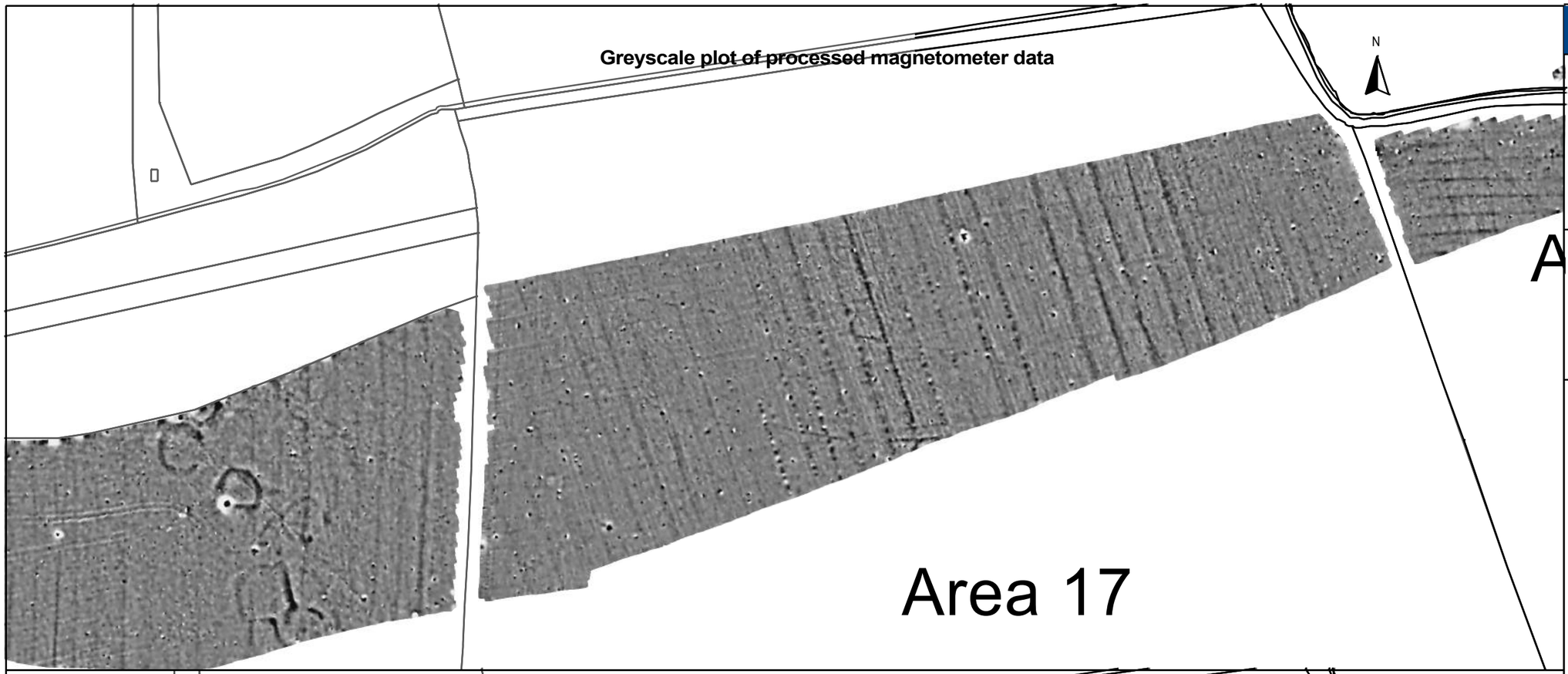
- Positive linear anomaly - possible ditch-like feature
- Linear anomaly - of agricultural origin
- Linear anomaly - ridge and furrow
- Positive linear anomaly - former field boundary
- Discrete positive response - possible pit-like feature
- Strong dipolar anomaly - ferrous object

SCALE 1:1500

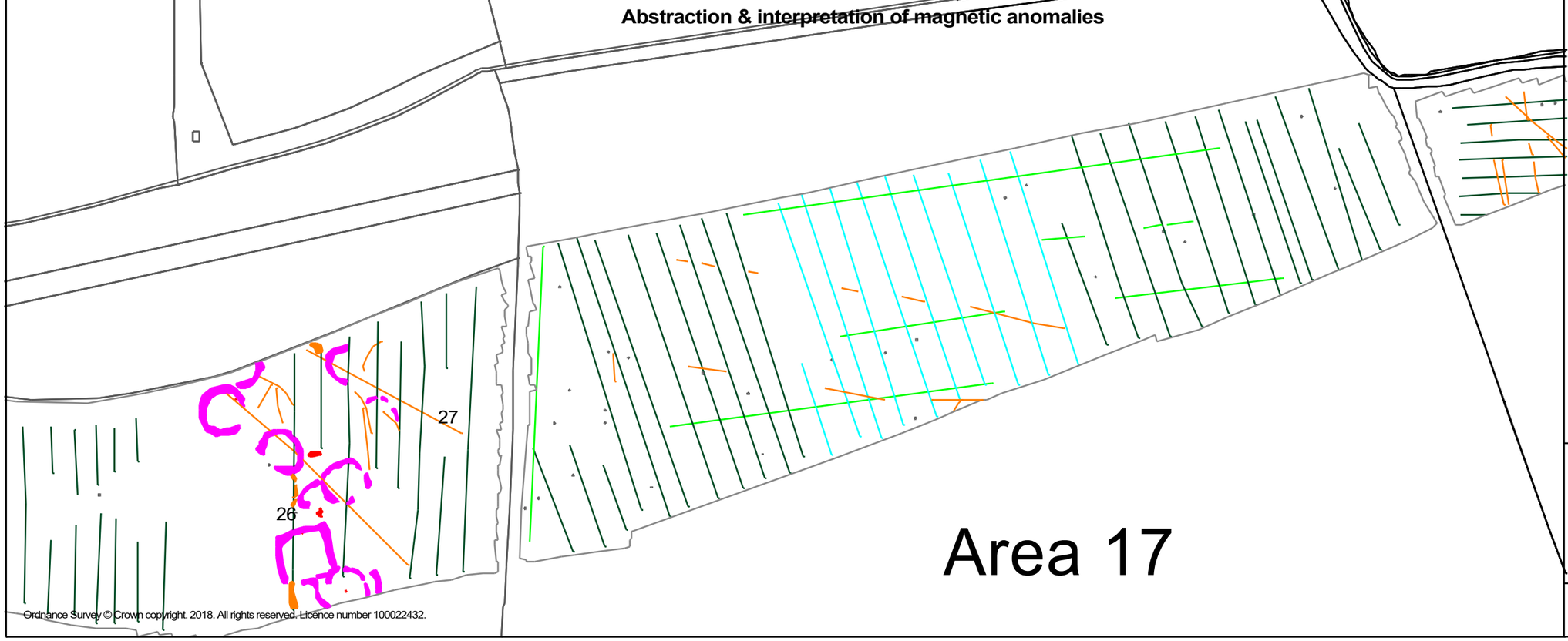
0m 10 20 30 40 50m

KTD	DJS	FIG 19

Greyscale plot of processed magnetometer data



Abstraction & interpretation of magnetic anomalies



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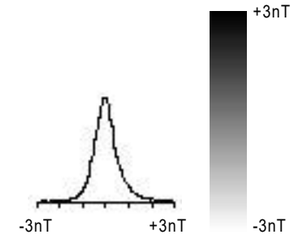
Updated Geophysical Survey Faringdon to Blunsdon Phase 2 New Water Main Oxfordshire/Swindon

Greyscale plot of processed magnetometer data & abstraction & interpretation of magnetic anomalies - Area 17 (Oxfordshire)



- Positive linear anomaly - possible ditch-like feature
- Linear anomaly - of agricultural origin
- Linear anomaly - ridge and furrow
- Positive/multiple dipolar linear anomaly - land drain
- Strong dipolar anomaly - ferrous object

SCALE 1:1500

0m 10 20 30 40 50m

KTD	DJS	FIG 20

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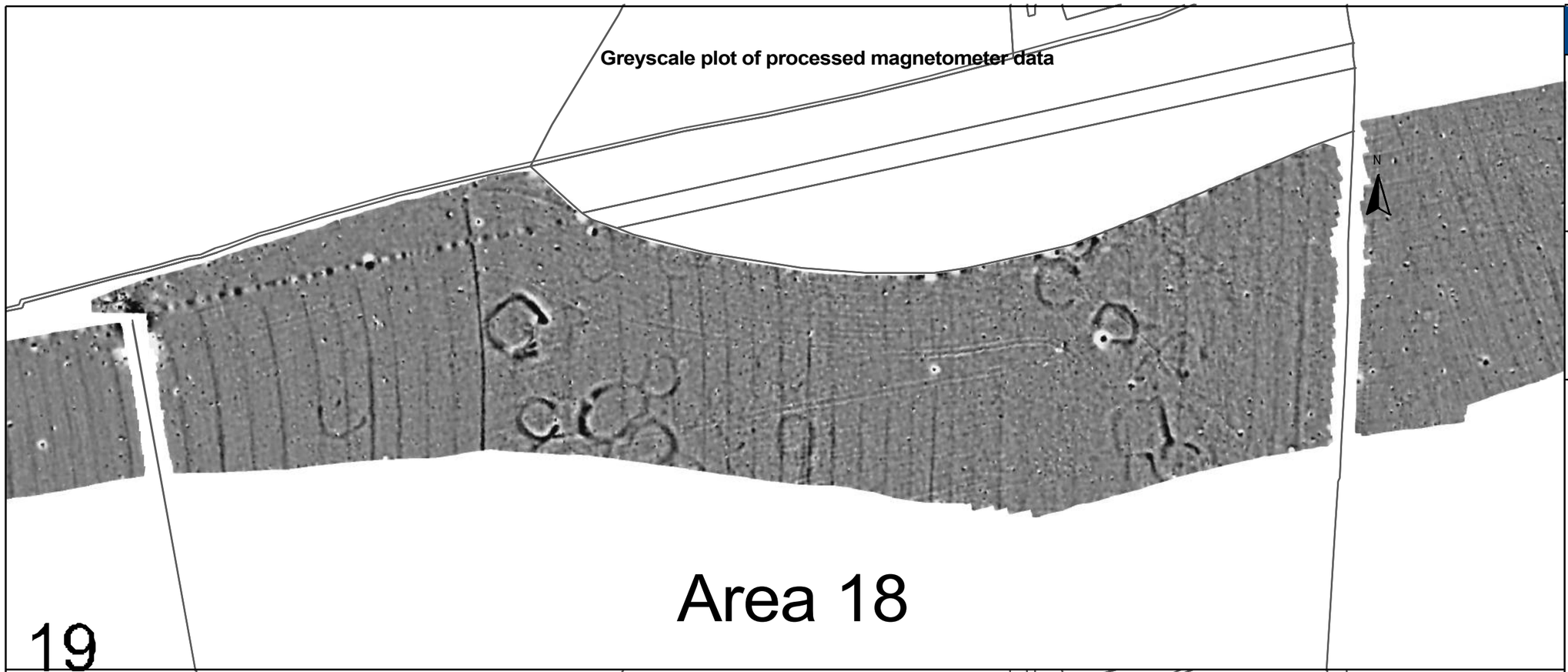
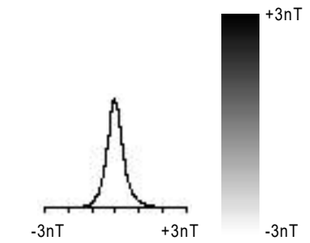
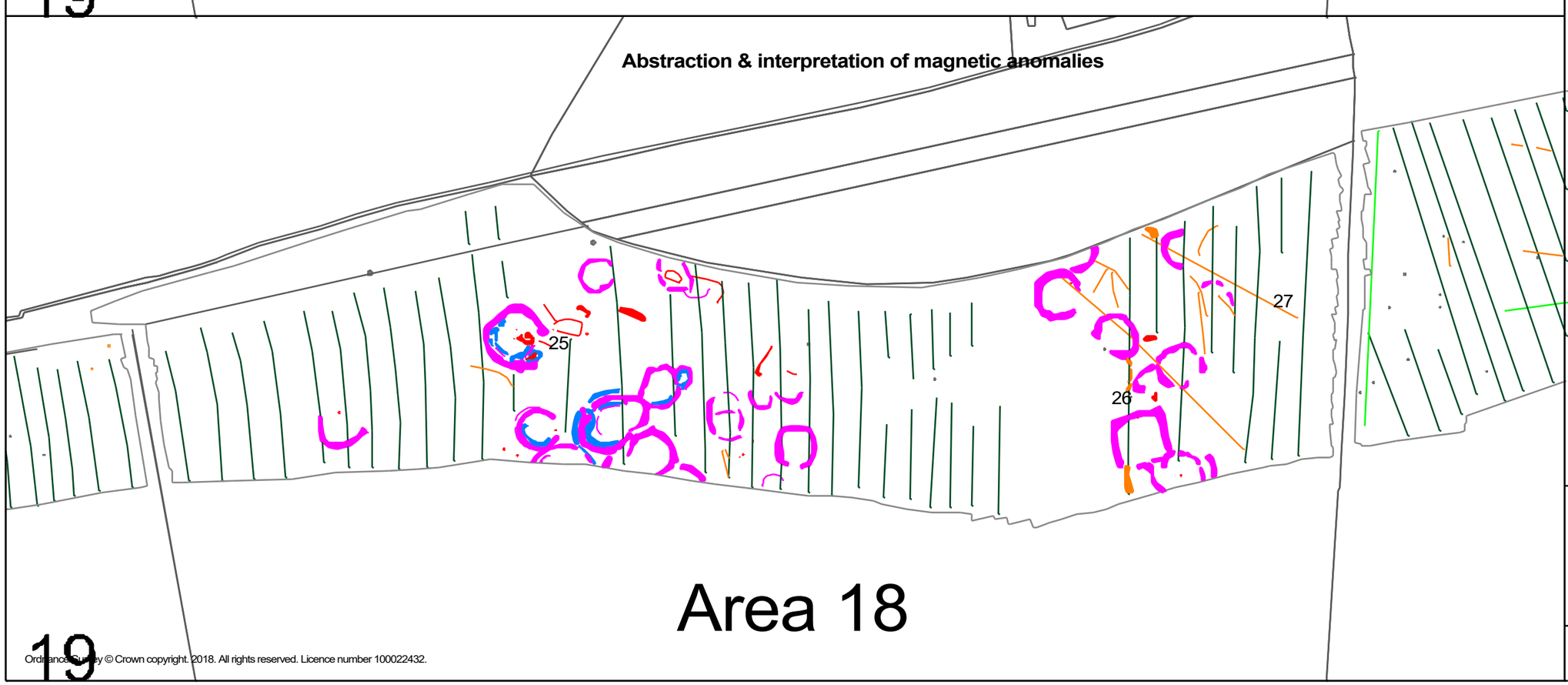
Greyscale plot of processed magnetometer data & abstraction & interpretation of magnetic anomalies - Area 18 (Oxfordshire)

Greyscale plot of processed magnetometer data





Abstraction & interpretation of magnetic anomalies



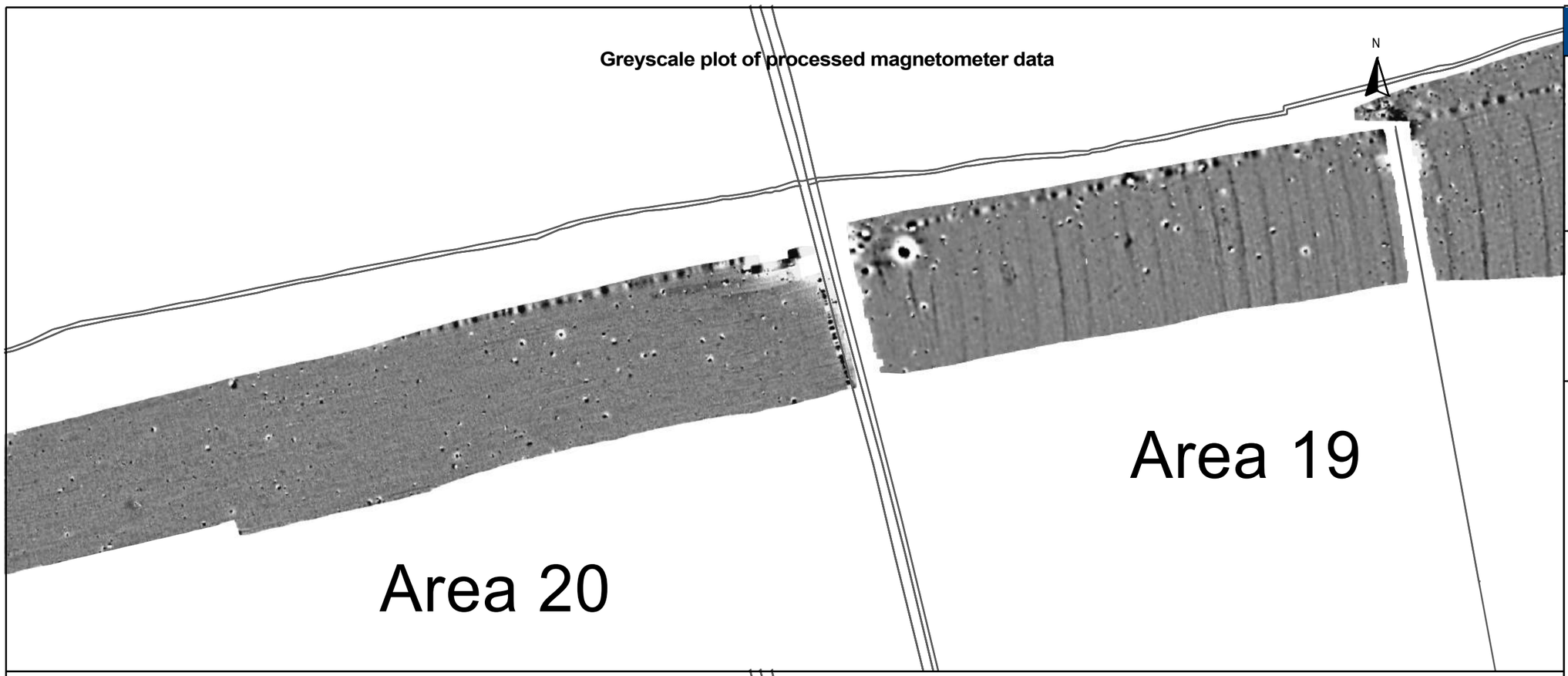
- Positive curvilinear/sub-rectilinear anomaly - ring ditch/square enclosure
- Negative linear anomaly - of archaeological potential
- Positive linear anomaly - cut feature of archaeological potential
- Positive linear anomaly - possible ditch-like feature
- Linear anomaly - ridge and furrow
- Discrete positive response - pit/area of burning
- Discrete positive response - possible pit-like feature
- Strong dipolar anomaly - ferrous object

SCALE 1:1500

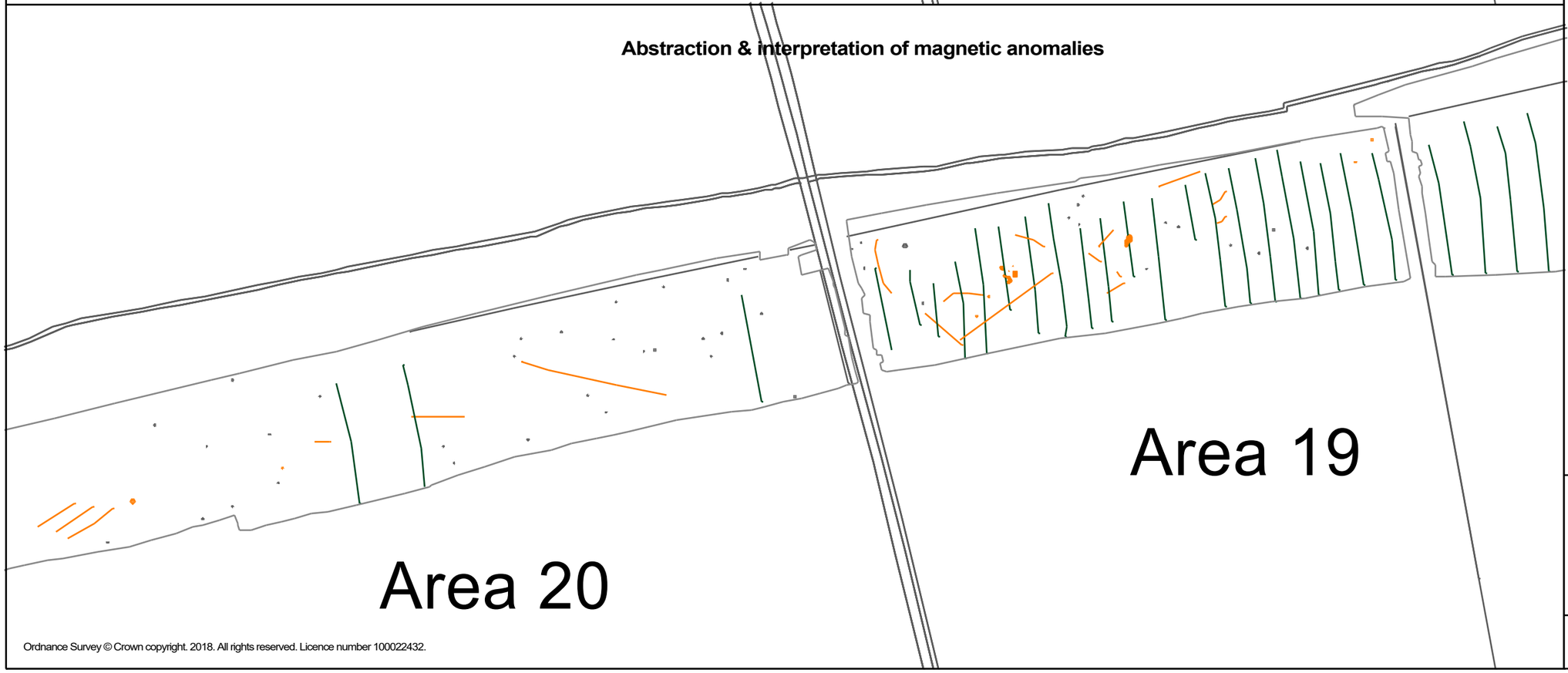
0m 10 20 30 40 50m

KTD	DJS	FIG 21

Greyscale plot of processed magnetometer data



Abstraction & interpretation of magnetic anomalies



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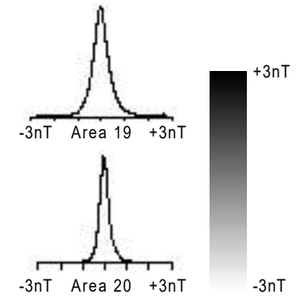
Updated Geophysical Survey Faringdon to Blunsdon Phase 2 New Water Main Oxfordshire/Swindon

Greyscale plot of processed magnetometer data & abstraction & interpretation of magnetic anomalies - Areas 19 & 20 (Oxfordshire)



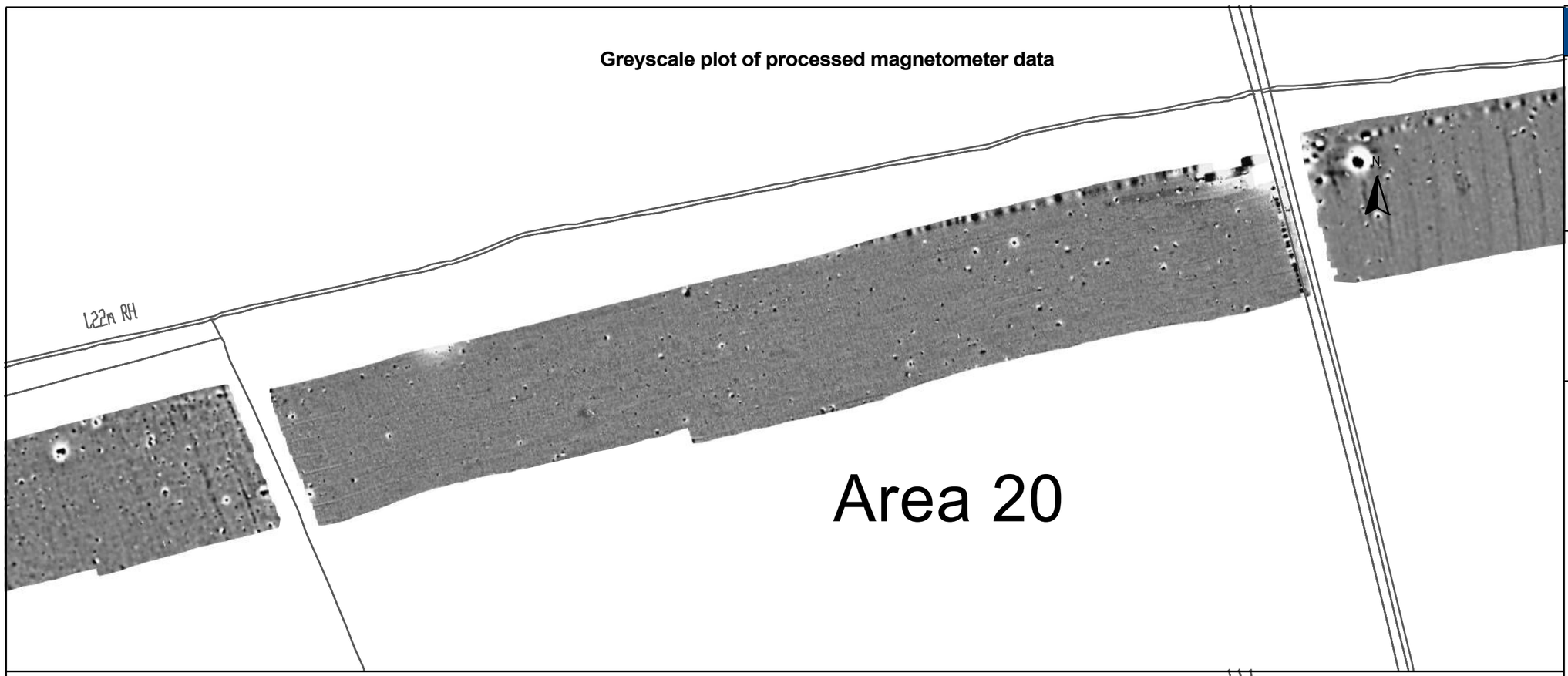
- Positive linear anomaly - possible ditch-like feature
- Linear anomaly - ridge and furrow
- Discrete positive response - possible pit-like feature
- Strong dipolar anomaly - ferrous object

SCALE 1:1500

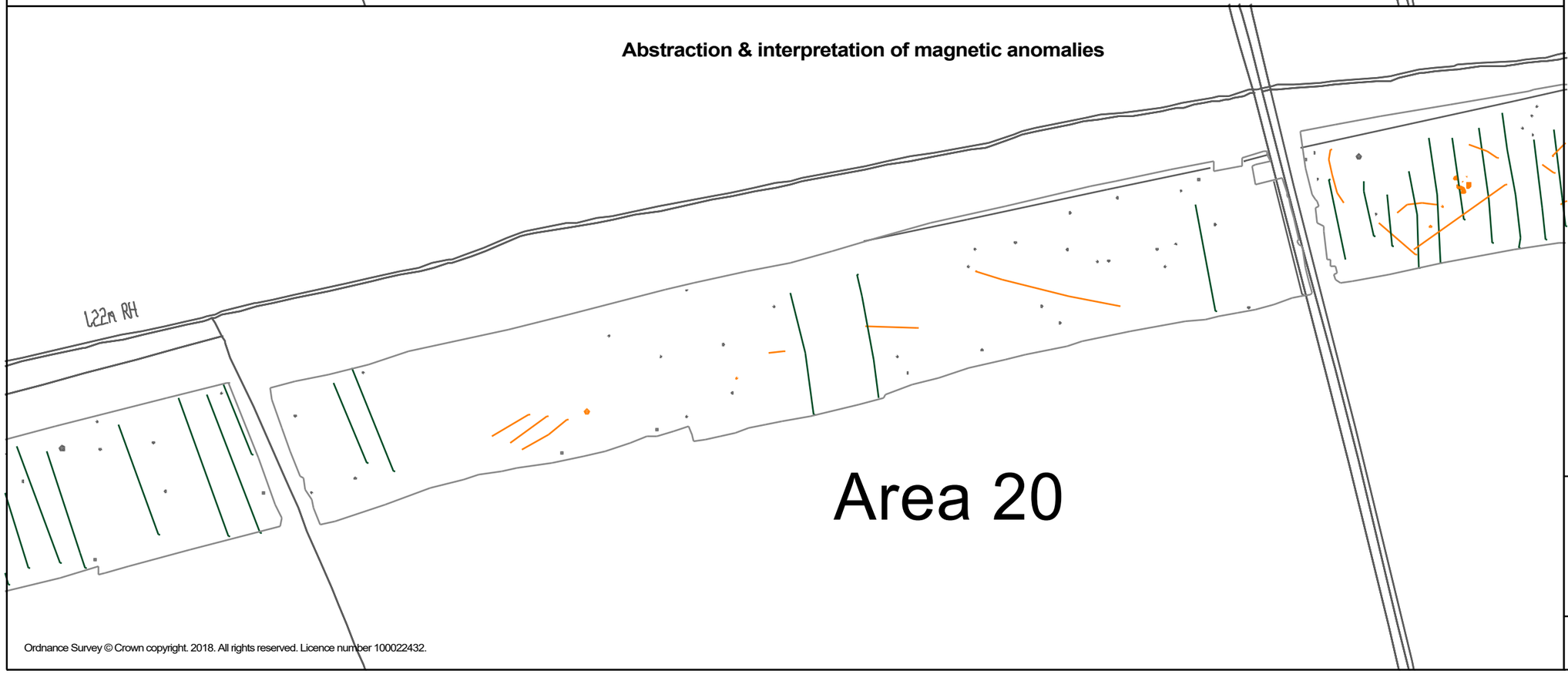
0m 10 20 30 40 50m

KTD	DJS	FIG 22

Greyscale plot of processed magnetometer data



Abstraction & interpretation of magnetic anomalies



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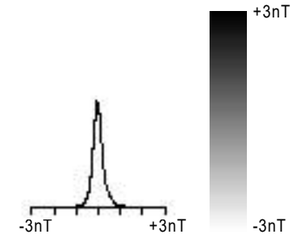
Updated Geophysical Survey Faringdon to Blunsdon Phase 2 New Water Main Oxfordshire/Swindon

Greyscale plot of processed magnetometer data & abstraction & interpretation of magnetic anomalies - Area 20 (Oxfordshire)



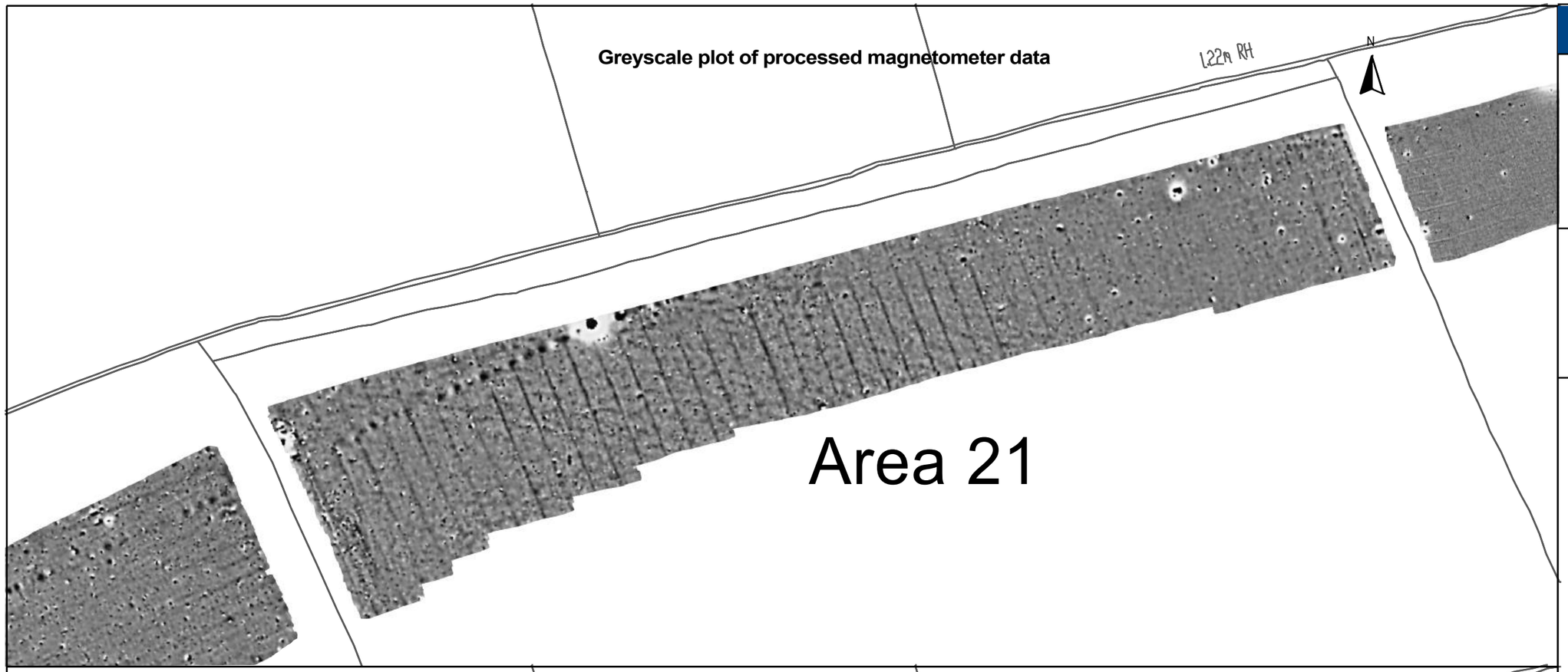
- Positive linear anomaly - possible ditch-like feature
- Linear anomaly - ridge and furrow
- Discrete positive response - possible pit-like feature
- Strong dipolar anomaly - ferrous object

SCALE 1:1500

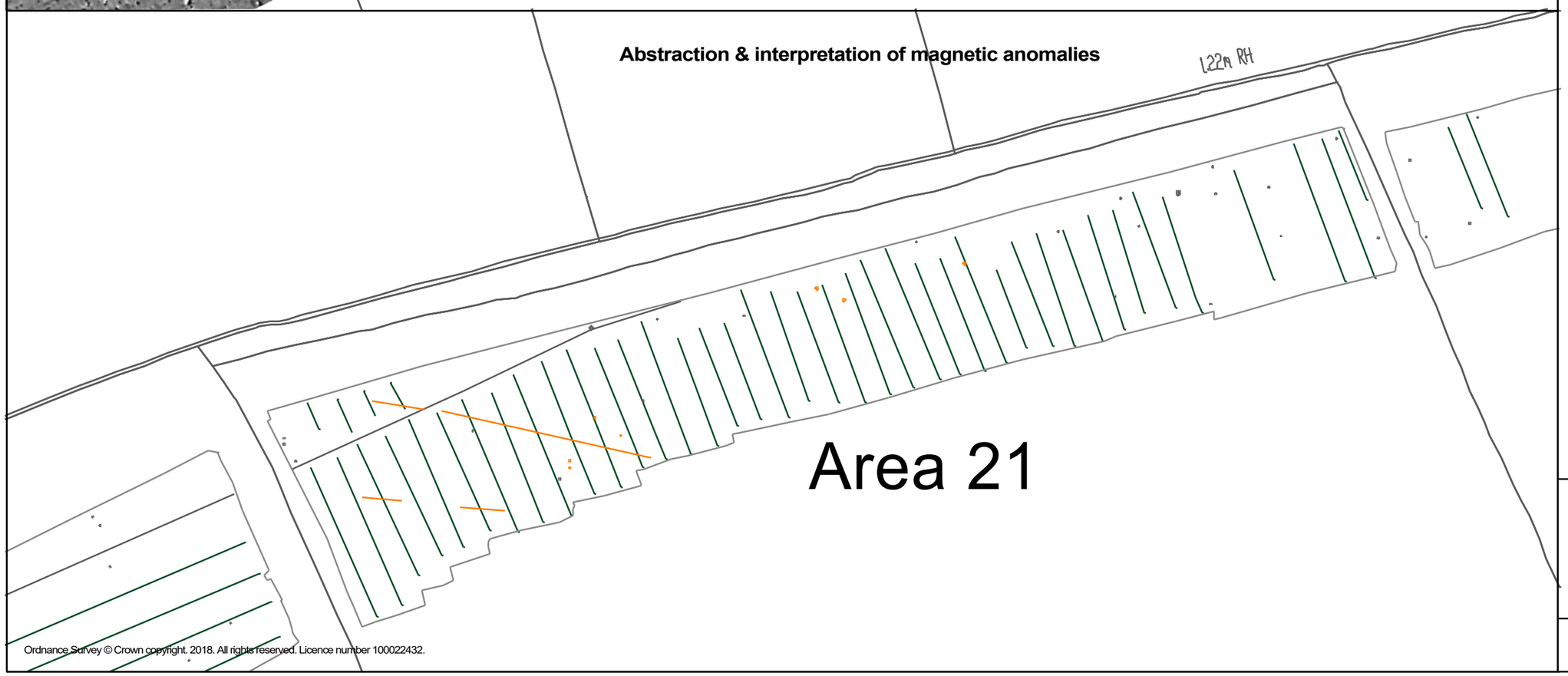
0m 10 20 30 40 50m

KTD	DJS	FIG 23

Greyscale plot of processed magnetometer data



Abstraction & interpretation of magnetic anomalies



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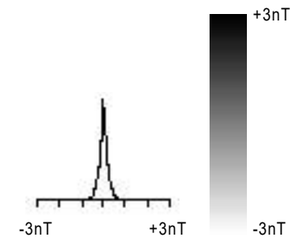
Greyscale plot of processed magnetometer data & abstraction & interpretation of magnetic anomalies - Area 21 (Oxfordshire)



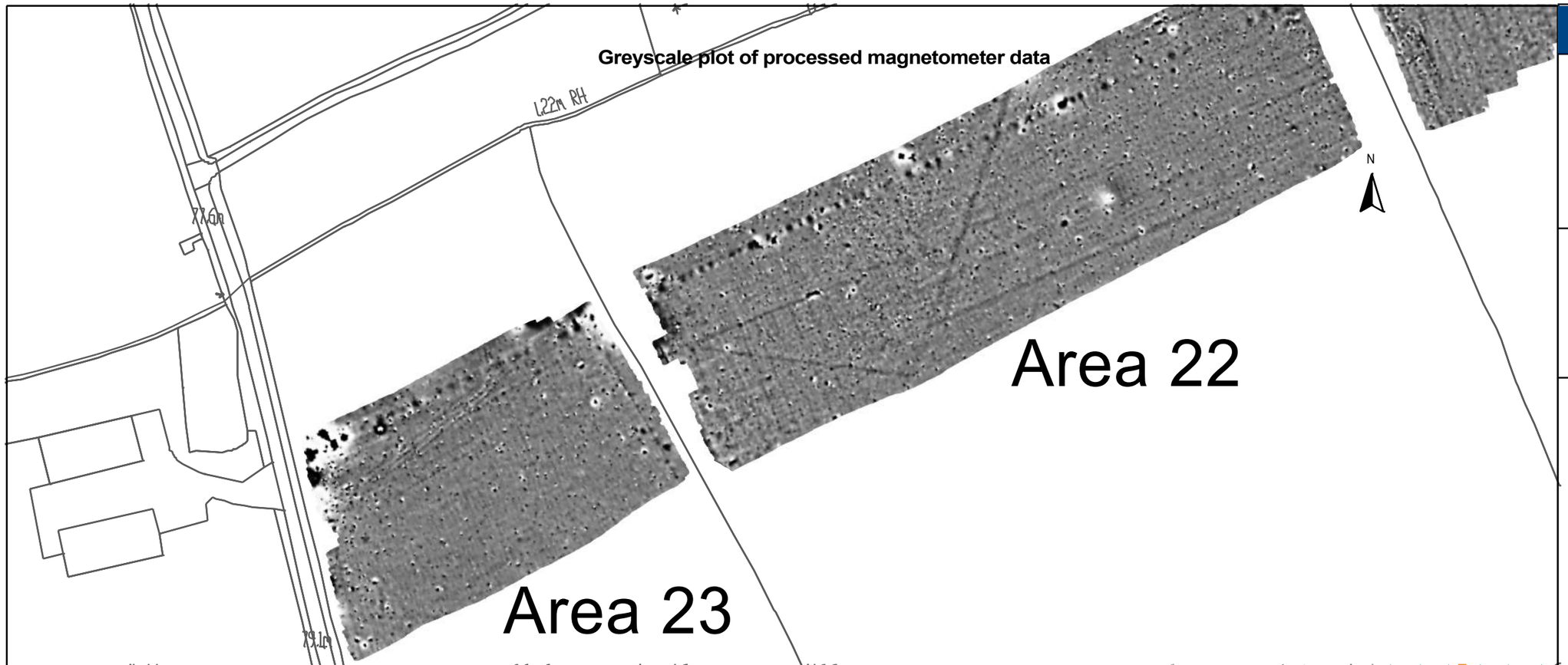
- Positive linear anomaly - possible ditch-like feature
- Linear anomaly - ridge and furrow
- Discrete positive response - possible pit-like feature
- Strong multiple dipolar linear anomaly - pipeline / cable / service
- Strong dipolar anomaly - ferrous object

SCALE 1:1500

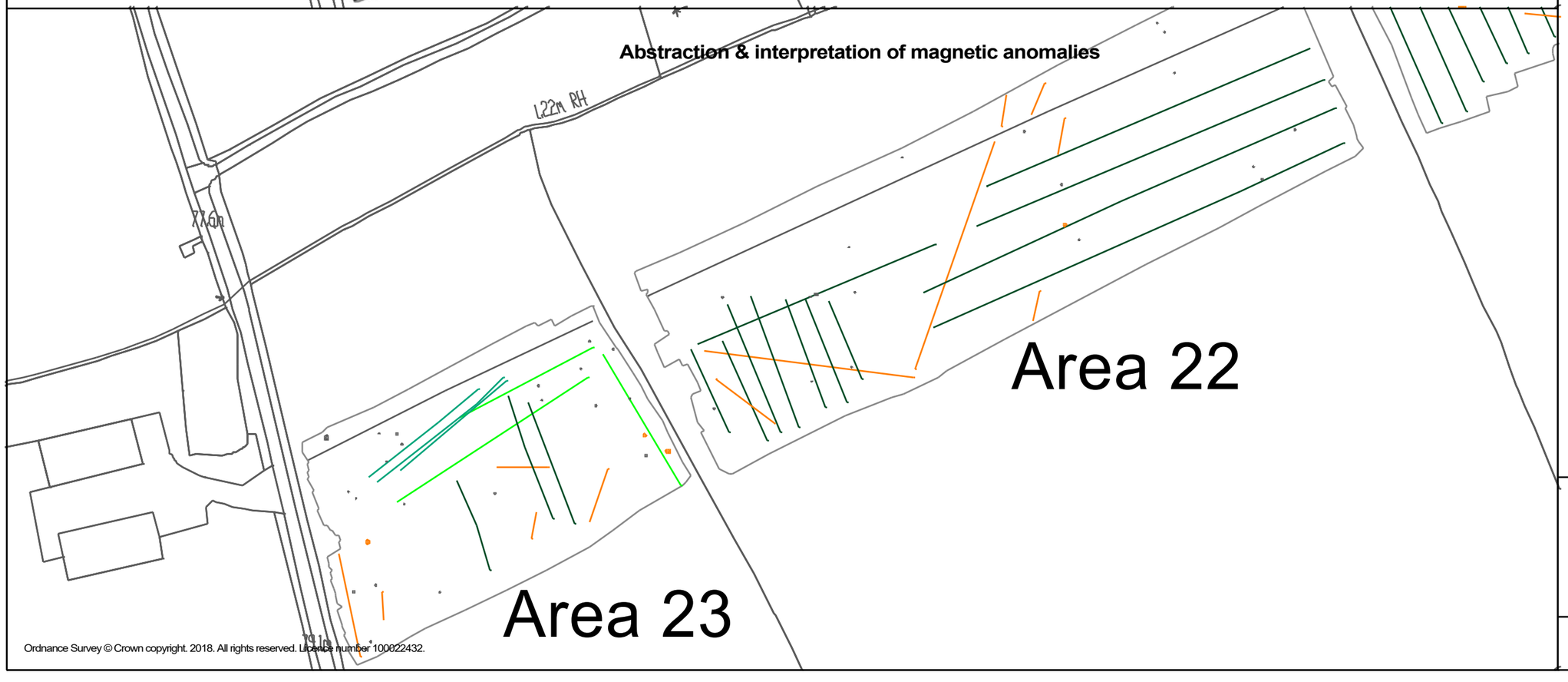
0m 10 20 30 40 50m

KTD	DJS	FIG 24

Greyscale plot of processed magnetometer data



Abstraction & interpretation of magnetic anomalies



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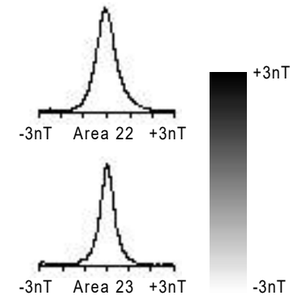
Faringdon to Blunsdon Phase 2
New Water Main
Oxfordshire/Swindon

Greyscale plot of processed magnetometer data & abstraction & interpretation of magnetic anomalies - Areas 22 & 23 (Oxfordshire)



- Positive linear anomaly - possible ditch-like feature
- Linear anomaly - of agricultural origin
- Linear anomaly - ridge and furrow
- Linear anomaly - vehicle track/rut
- Discrete positive response - possible pit-like feature
- Strong multiple dipolar linear anomaly - pipeline / cable / service
- Strong dipolar anomaly - ferrous object

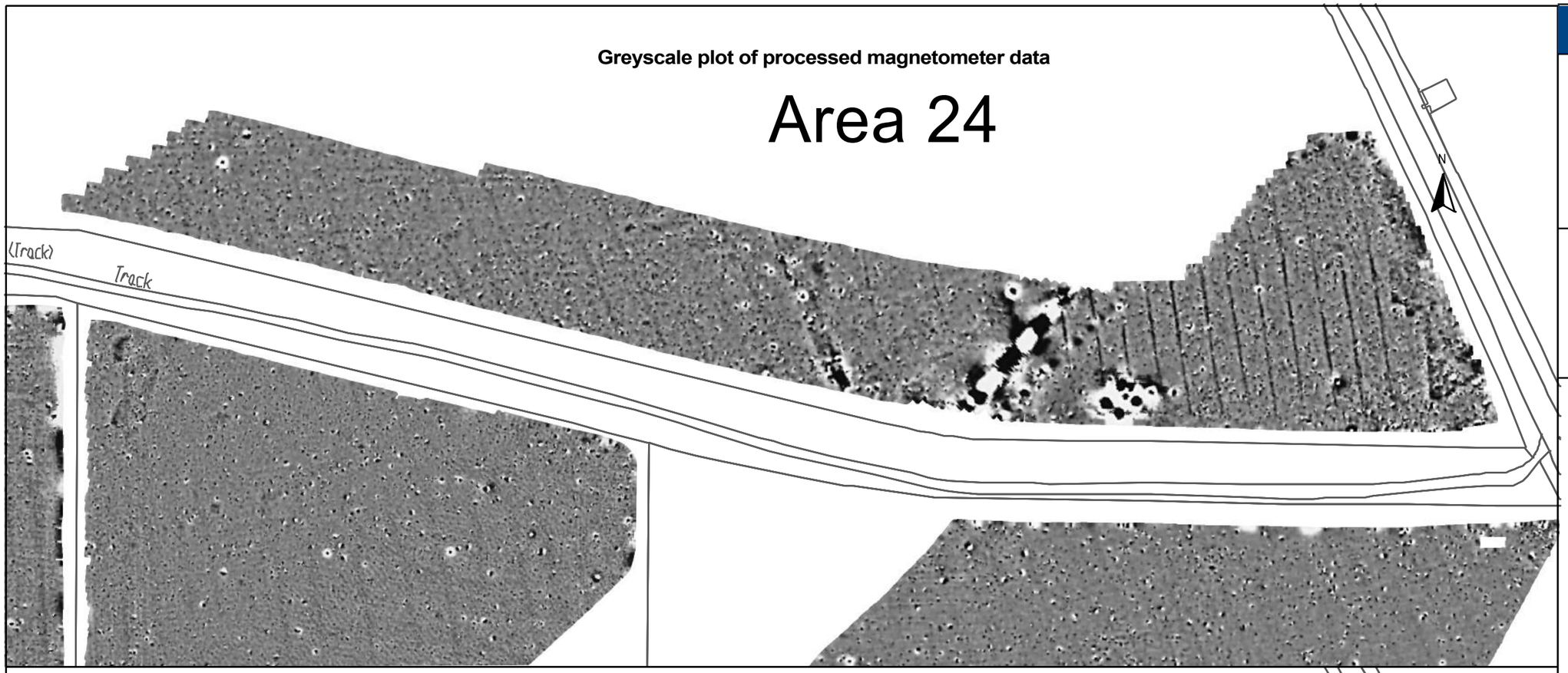
SCALE 1:1500

0m 10 20 30 40 50m

KTD	DJS	FIG 25

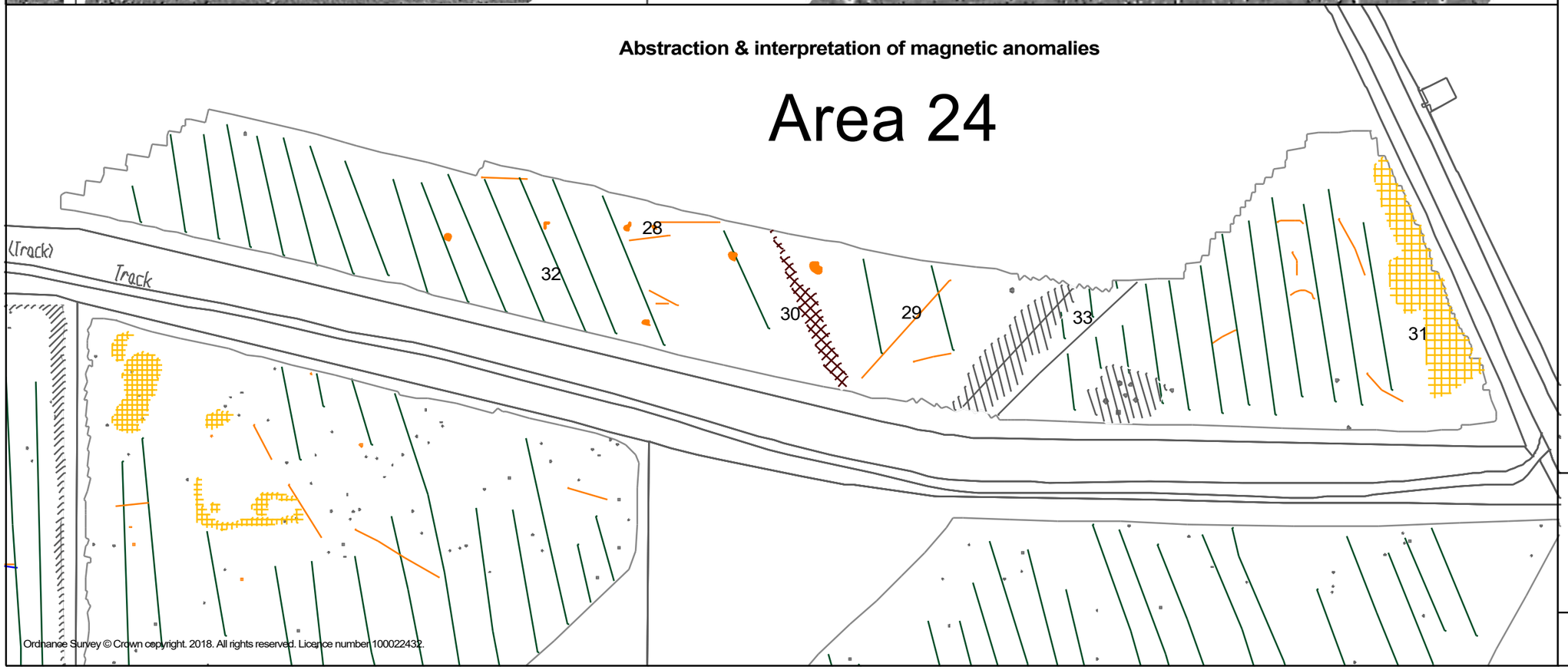
Greyscale plot of processed magnetometer data

Area 24



Abstraction & interpretation of magnetic anomalies

Area 24



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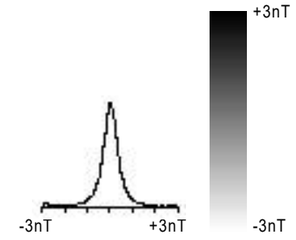
Updated Geophysical Survey
Faringdon to Blunsdon Phase 2
New Water Main
Oxfordshire/Swindon

Greyscale plot of processed magnetometer data & abstraction & interpretation of magnetic anomalies - Area 24 (Swindon)



- Positive linear anomaly - possible ditch-like feature
- Linear anomaly - ridge and furrow
- Discrete positive response - possible pit-like feature
- Positive anomaly - former field boundary
- Variable magnetic response - former quarrying
- Magnetic disturbance from ferrous material
- Strong multiple dipolar linear anomaly - pipeline / cable / service
- Strong dipolar anomaly - ferrous object

SCALE 1:1500

0m 10 20 30 40 50m

KTD	DJS	FIG 26

Area 25

Area 27a

Area 27b

Area 25a

N

ETL

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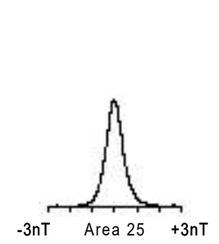
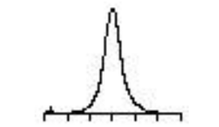
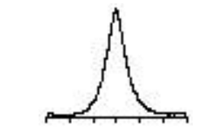
Updated Geophysical Survey
Faringdon to Blunsdon Phase 2
New Water Main
Oxfordshire/Swindon

Greyscale plot of processed magnetometer data -
Areas 25, 25a & 27b (Swindon)







SCALE 1:1500

0m 10 20 30 40 50m

KTD	DJS	FIG 27

Archaeological Surveys
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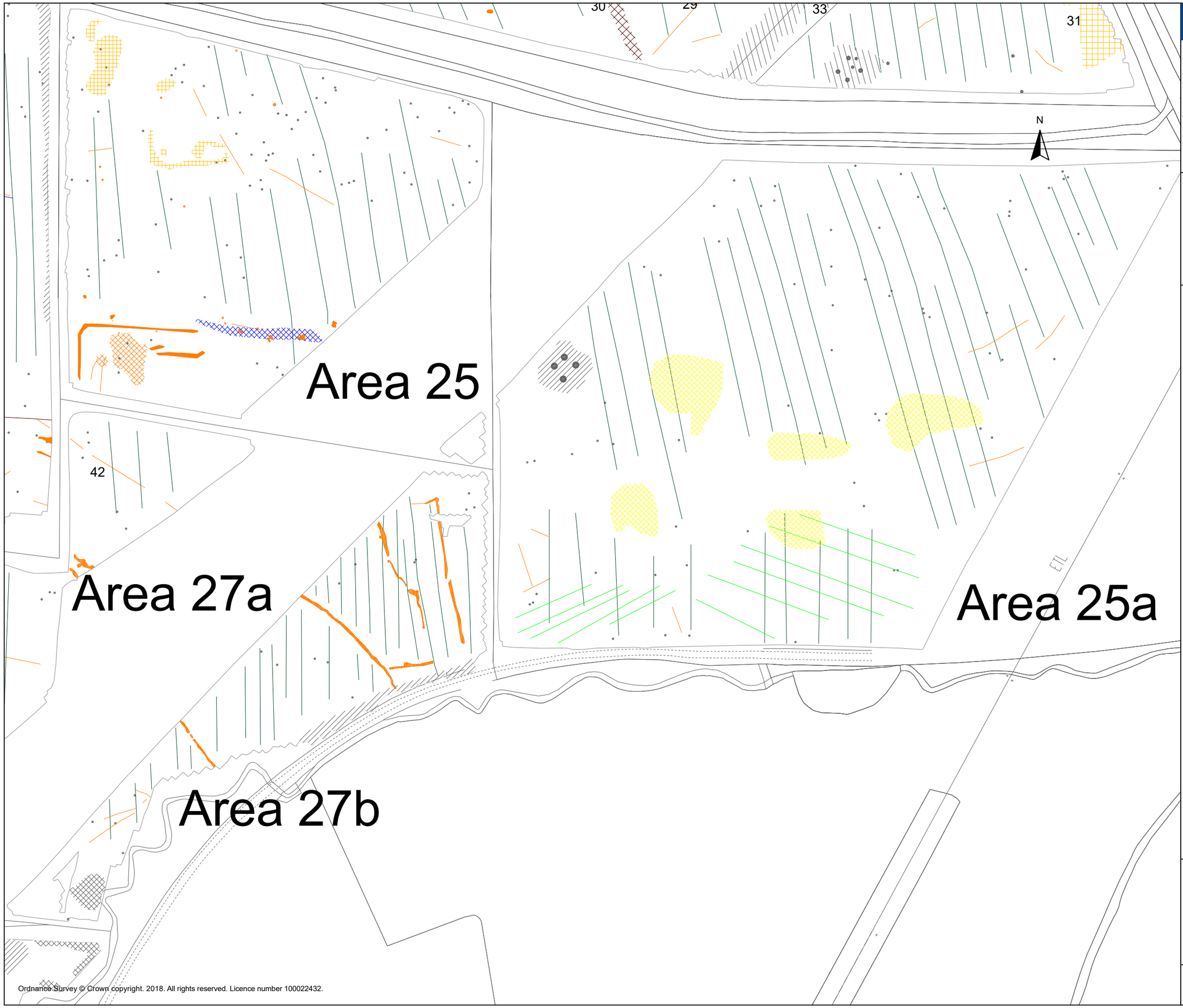
Updated Geophysical Survey Faringdon to Blunsdon Phase 2 New Water Main Oxfordshire/Swindon

Abstraction and interpretation of magnetic anomalies - Areas 25, 25a & 27b (Swindon)



- Positive linear anomaly - possible ditch-like feature
- Linear anomaly - of agricultural origin
- Linear anomaly - ridge and furrow
- Variable magnetic response - of natural origin
- 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

DRAWN BY	CHECKED BY	
KTD	DJS	FIG 28

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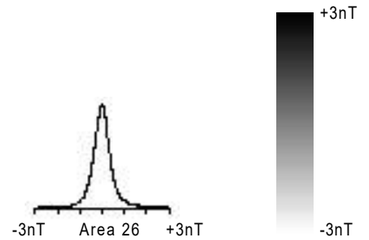
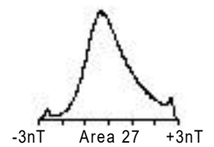
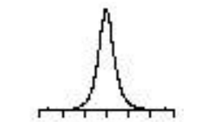
Updated Geophysical Survey Faringdon to Blunsdon Phase 2 New Water Main Oxfordshire/Swindon

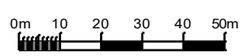
Greyscale plot of processed magnetometer data - Areas 26, 27 & 27a (Swindon)







SCALE 1:1500



KTD	DJS	FIG 29

Archaeological Surveys
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Updated Geophysical Survey Faringdon to Blunsdon Phase 2 New Water Main Oxfordshire/Swindon

Abstraction and interpretation of magnetic anomalies - Areas 26, 27 & 27a (Swindon)

Track

N

Area 26

Area 27

Area 27a

Area 27

Area 28a

34
35
36
37
38
39
40
41
42
43
45
46

- Positive curvilinear anomaly - enclosure ditch ("Highworth Circle")
- Negative linear anomaly - embankment
- Positive linear anomaly - possible ditch-like feature
- Negative linear anomaly - material of low magnetic susceptibility
- Linear anomaly - of agricultural origin
- Linear anomaly - ridge and furrow
- Positive linear anomaly - former field boundary
- Discrete positive response - possible pit-like feature
- Positive anomaly - magnetically enhanced material
- Variable magnetic response - former quarrying
- Magnetic disturbance from ferrous material
- Strong dipolar anomaly - ferrous object

SCALE 1:1500

0m 10 20 30 40 50m

KTD	DJS	FIG 30

Archaeological Surveys
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Updated Geophysical Survey Faringdon to Blunsdon Phase 2 New Water Main Oxfordshire/Swindon

Greyscale plot of processed magnetometer data - Areas 28 & 28a (Swindon)

Area 28a

Area 28

Area 28b

N

Track

Bydemill Brook

Staples Farm

Track

+3nT

-3nT

-3nT Area 28 +3nT

-3nT Area 28a +3nT

SCALE 1:1500

0m 10 20 30 40 50m

KTD | DJS | FIG 31

Archaeological Surveys
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Updated Geophysical Survey Faringdon to Blunsdon Phase 2 New Water Main Oxfordshire/Swindon

Abstraction and interpretation of magnetic anomalies - Areas 28 & 28a (Swindon)

Area 28a

Area 28

Area 28b

39
43
45
46
44
61
68
65
47
50
48
49
53
51
Staples Farm
Track
Bydemill Brook
Track
N

- Positive linear anomaly - cut feature of archaeological potential
- Positive rectilinear anomaly - enclosure ditch
- Positive curvilinear anomaly - enclosure ditch ("Highworth Circle")
- Negative linear anomaly - of archaeological potential
- Positive linear anomaly - possible ditch-like feature
- Negative linear anomaly - material of low magnetic susceptibility
- Linear anomaly - ridge and furrow
- Positive/multiple dipolar linear anomaly - land drain
- Discrete positive response - cut feature of archaeological potential
- 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 1:1500

0m 10 20 30 40 50m

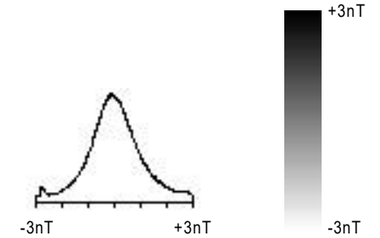
SCALE TRUE AT A3

DRAWN BY	CHECKED BY	
KTD	DJS	FIG 32

Archaeological Surveys
Specialist Geophysical Surveyors

Updated Geophysical Survey Faringdon to Blunsdon Phase 2 New Water Main Oxfordshire/Swindon

Greyscale plot of processed magnetometer data - Area 28b (Swindon)



Area 28

Area 28b

Staples Farm

Track

Bydemill Brook

Track

92.4m

Stanton Water Bridge

Ditch

30

SCALE 1:1500

0m 10 20 30 40 50m

KTD	DJS	FIG 33

Area 28

Area 28b

Staples Farm

Track

Bydemill Brook

Track

Stanton Water Bridge

92.4m

93.6m

Def

48

49

50

51

52

53

54

65

80

30

N

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Updated Geophysical Survey Faringdon to Blunsdon Phase 2 New Water Main Oxfordshire/Swindon

Abstraction and interpretation of magnetic anomalies - Area 28b (Swindon)

- Positive curvilinear anomaly - enclosure ditch ("Highworth Circle")
- Positive linear anomaly - cut feature / magnetic enhancement of archaeological potential
- Positive linear anomaly - possible ditch-like feature
- Linear anomaly - ridge and furrow
- Linear anomaly - possible land drain
- Discrete positive response - possible pit-like feature
- Negative anomaly - embankment
- Magnetic debris - spread of magnetically thermoremnant/ferrous material
- Magnetic disturbance from ferrous material
- Weak multiple dipolar linear anomaly - water main
- Strong dipolar anomaly - ferrous object

SCALE 1:1500

0m 10 20 30 40 50m

SCALE TRUE AT A3

DRAWN BY	CHECKED BY	
KTD	DJS	FIG 34

Area 29

Area 30

Are

Track

N

Archaeological Surveys
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Updated Geophysical Survey
Faringdon to Blunsdon Phase 2
New Water Main
Oxfordshire/Swindon

Greyscale plot of processed magnetometer data - Area 29 (Swindon)

+3nT
-3nT
+3nT
-3nT

SCALE 1:1500

0m 10 20 30 40 50m

KTD | DJS | FIG 35

Archaeological Surveys
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Updated Geophysical Survey Faringdon to Blunsdon Phase 2 New Water Main Oxfordshire/Swindon

Abstraction and interpretation of magnetic anomalies - Area 29 (Swindon)

Area 29

Area 30

Are

N

1.22m RH

Track

- Positive curvilinear anomaly - ring ditch
- Positive rectilinear anomaly - enclosure ditch
- Positive curvilinear anomaly - enclosure ditch ("Highworth Circle")
- Negative linear anomaly - of archaeological potential
- Positive linear anomaly - cut feature of archaeological potential
- Positive linear anomaly - possible ditch-like feature
- Linear anomaly - ridge and furrow
- Positive linear anomaly - former field boundary
- Discrete positive response - cut feature of archaeological potential
- Discrete positive response - possible pit-like feature
- Magnetic debris - magnetically thermoremnant material of archaeologial potential
- Variable magnetic response - area of burning
- 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 1:1500

0m 10 20 30 40 50m

SCALE TRUE AT A3

DRAWN BY	CHECKED BY	
KTD	DJS	FIG 36

Archaeological Surveys
Specialist Geophysical Surveyors

Updated Geophysical Survey Faringdon to Blunsdon Phase 2 New Water Main Oxfordshire/Swindon

Greyscale plot of processed magnetometer data - Areas 30 & 30a (Swindon)

N

Area 2

Area 30

Area 30a

Track

122m RH

122m RH

97.2m

+3nT

-3nT

-3nT Area 30 +3nT

-3nT Area 30a +3nT

SCALE 1:1500

0m 10 20 30 40 50m

KTD | DJS | FIG 37

Archaeological Surveys
Specialist Geophysical Surveyors

Updated Geophysical Survey Faringdon to Blunsdon Phase 2 New Water Main Oxfordshire/Swindon

Abstraction and interpretation of magnetic anomalies - Area 30 (Swindon)

Area 30

Area 30a

Area 2

N

Staple

Track

1.22m RH

1.22m RH

1.22m RH

97.2m

- Positive curvilinear anomaly - ring ditch
- Positive curvilinear anomaly - enclosure ditch ("Highworth Circle")
- Positive linear anomaly - cut feature of archaeological potential
- Positive linear anomaly - possible ditch-like feature
- Negative linear anomaly - material with low magnetic susceptibility
- Linear anomaly - ridge and furrow
- Discrete positive response - cut feature of archaeological potential
- Positive anomaly - magnetically enhanced material of archaeological potential
- Positive anomaly - magnetically enhanced material
- Magnetic disturbance from ferrous material
- Strong multiple dipolar linear anomaly - pipeline / cable / service
- Strong dipolar anomaly - ferrous object

SCALE 1:1500

0m 10 20 30 40 50m

SCALE TRUE AT A3

DRAWN BY	CHECKED BY	
KTD	DJS	FIG 38

Archaeological Surveys
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Updated Geophysical Survey Faringdon to Blunsdon Phase 2 New Water Main Oxfordshire/Swindon

Greyscale plot of processed magnetometer data - Highworth Circles (Swindon)

+3nT

-3nT

Area 27

Area 29

Area 28a

Area 28

Area 28b

Area 30

Area 30a

Pond

Staples Farm

Track

Bydemill Brook

92.4m

Station Water Bridge

N

SCALE 1:2500

0m 50 100m

KTD	DJS	FIG 39

Archaeological Surveys
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Updated Geophysical Survey Faringdon to Blunsdon Phase 2 New Water Main Oxfordshire/Swindon

Abstraction and interpretation of magnetic anomalies - Highworth Circles (Swindon)

Area 27
Area 28
Area 28a
Area 28b
Area 29
Area 30
Area 30a
Pond
Staples Farm
Bydemill Brook
Track
Stanton Water Bridge
1.22m RH
92.4m
93.6m
97.2m
N

- Positive curvilinear anomaly - ring ditch
- Positive rectilinear anomaly - enclosure ditch
- Positive curvilinear anomaly - enclosure ditch ("Highworth Circle")
- Negative linear anomaly - of archaeological potential
- Positive linear anomaly - cut feature of archaeological potential
- Positive linear anomaly - possible ditch-like feature
- Linear anomaly - ridge and furrow
- Positive linear anomaly - former field boundary
- Discrete positive response - cut feature of archaeological potential
- Discrete positive response - possible pit-like feature
- Negative anomaly - circle embankment
- Magnetic debris - magnetically thermoremnant material of archaeologial potential
- Variable magnetic response - burning of archaeological potential
- 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 1:2500

0m 50 100m

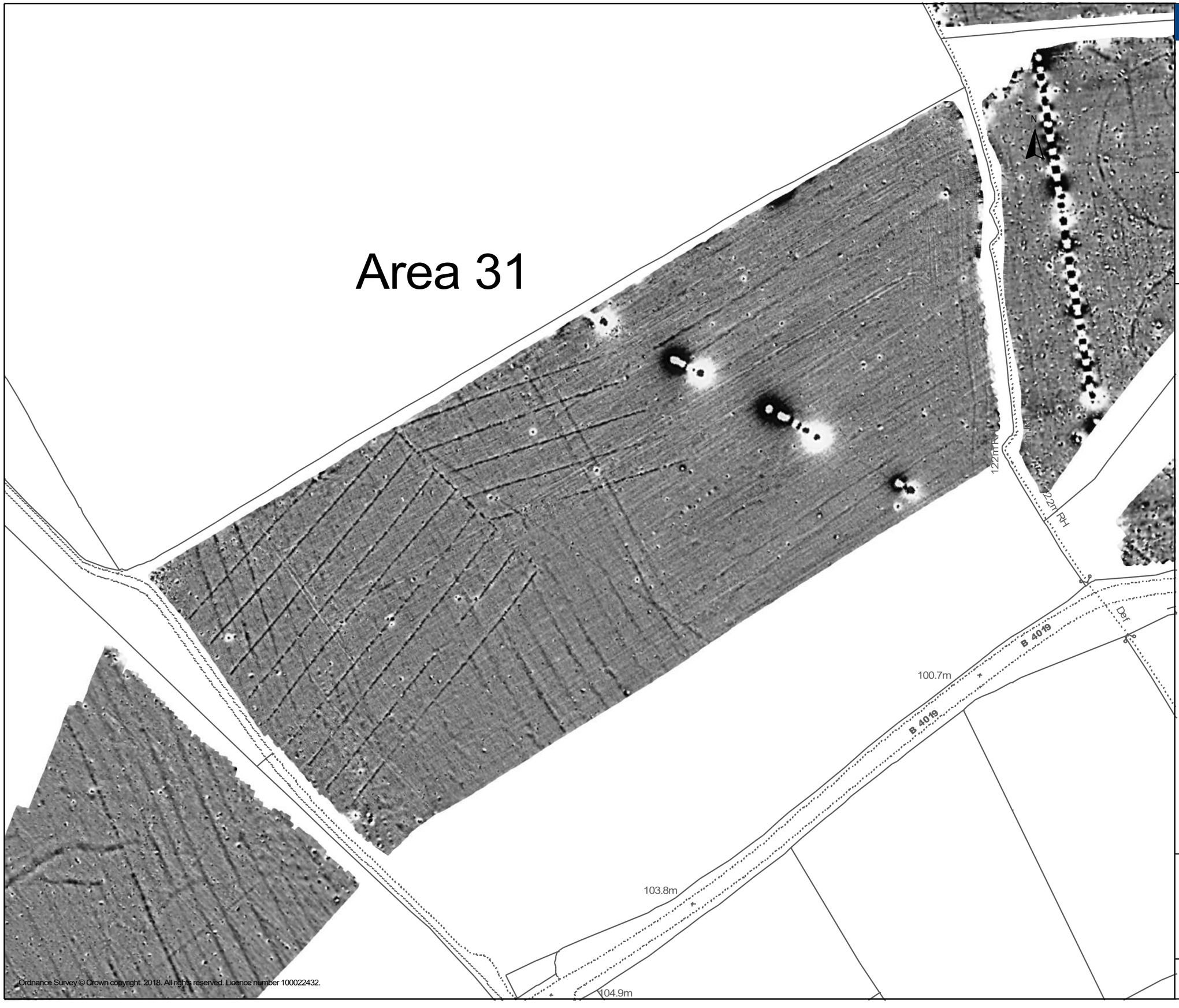
SCALE TRUE AT A3

DRAWN BY	CHECKED BY	
KTD	DJS	FIG 40

Archaeological Surveys
Specialist Geophysical Surveyors

Updated Geophysical Survey Faringdon to Blunsdon Phase 2 New Water Main Oxfordshire/Swindon

Greyscale plot of processed magnetometer data - Area 31 (Swindon)



SCALE 1:1500

0m 10 20 30 40 50m

KTD	DJS	FIG 41

Archaeological Surveys
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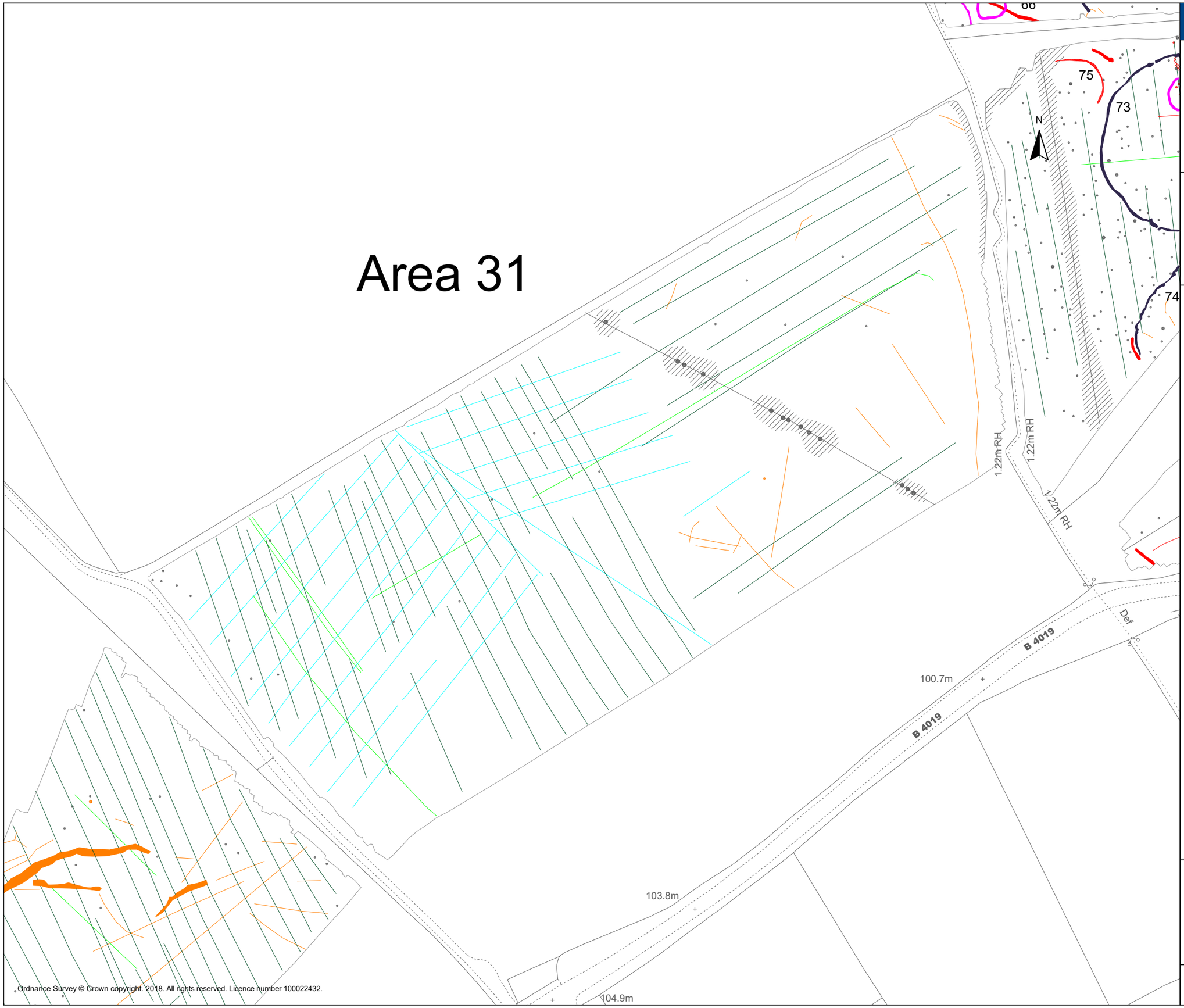
Updated Geophysical Survey Faringdon to Blunsdon Phase 2 New Water Main Oxfordshire/Swindon

Abstraction and interpretation of magnetic anomalies - Area 31 (Swindon)



- Positive linear anomaly - possible ditch-like feature
- Linear anomaly - of agricultural origin
- Linear anomaly - ridge and furrow
- Positive/multiple dipolar linear anomaly - land drain
- Magnetic disturbance from ferrous material
- Strong multiple dipolar linear anomaly - pipeline / cable / service
- Strong dipolar anomaly - ferrous object

SCALE 1:1500

0m 10 20 30 40 50m

SCALE TRUE AT A3

DRAWN BY	CHECKED BY	
KTD	DJS	FIG 42

Archaeological Surveys
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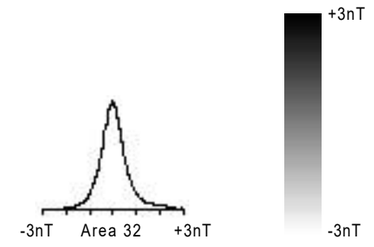
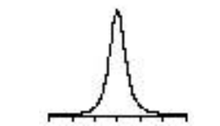
Updated Geophysical Survey Faringdon to Blunsdon Phase 2 New Water Main Oxfordshire/Swindon

Greyscale plot of processed magnetometer data - Areas 32 & 33 (Swindon)





SCALE 1:1500

0m 10 20 30 40 50m

KTD	DJS	FIG 43

Archaeological Surveys
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Updated Geophysical Survey Faringdon to Blunsdon Phase 2 New Water Main Oxfordshire/Swindon

Abstraction and interpretation of magnetic anomalies - Areas 32 & 33 (Swindon)

Pond
Pond
Sinks
Issues
Newmeadow Copse
Newmeadow Copse
B 4019
119.6m
N
Area 32
Area 33

- Positive linear anomaly - possible ditch-like feature
- Negative linear anomaly - material of low magnetic susceptibility
- Linear anomaly - ridge and furrow
- Positive linear anomaly - former field boundary
- Discrete positive response - possible pit-like feature
- Positive anomaly - former quarrying
- Magnetic disturbance from ferrous material
- Strong multiple dipolar linear anomaly - water main
- Strong dipolar anomaly - ferrous object

SCALE 1:1500

0m 10 20 30 40 50m

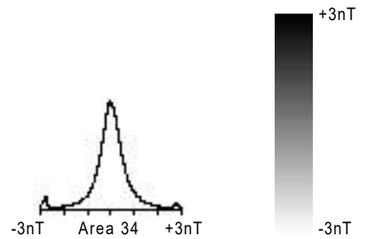
SCALE TRUE AT A3

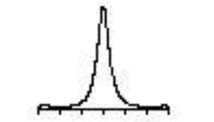
DRAWN BY	CHECKED BY	
KTD	DJS	FIG 44

Archaeological Surveys
Specialist Geophysical Surveyors

Updated Geophysical Survey Faringdon to Blunsdon Phase 2 New Water Main Oxfordshire/Swindon

Greyscale plot of processed magnetometer data - Areas 34 & 35 (Swindon)





SCALE 1:1500

0m 10 20 30 40 50m

KTD	DJS	FIG 45

Archaeological Surveys
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Updated Geophysical Survey Faringdon to Blunsdon Phase 2 New Water Main Oxfordshire/Swindon

Abstraction and interpretation of magnetic anomalies - Areas 34 & 35 (Swindon)

- Positive linear anomaly - possible ditch-like feature
- Negative linear anomaly - material of low magnetic susceptibility
- Linear anomaly - ridge and furrow
- Positive/multiple dipolar linear anomaly - land drain
- Discrete positive response - possible pit-like feature
- Positive anomaly - magnetically enhanced material
- Variable magnetic response - 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 1:1500

0m 10 20 30 40 50m

SCALE TRUE AT A3

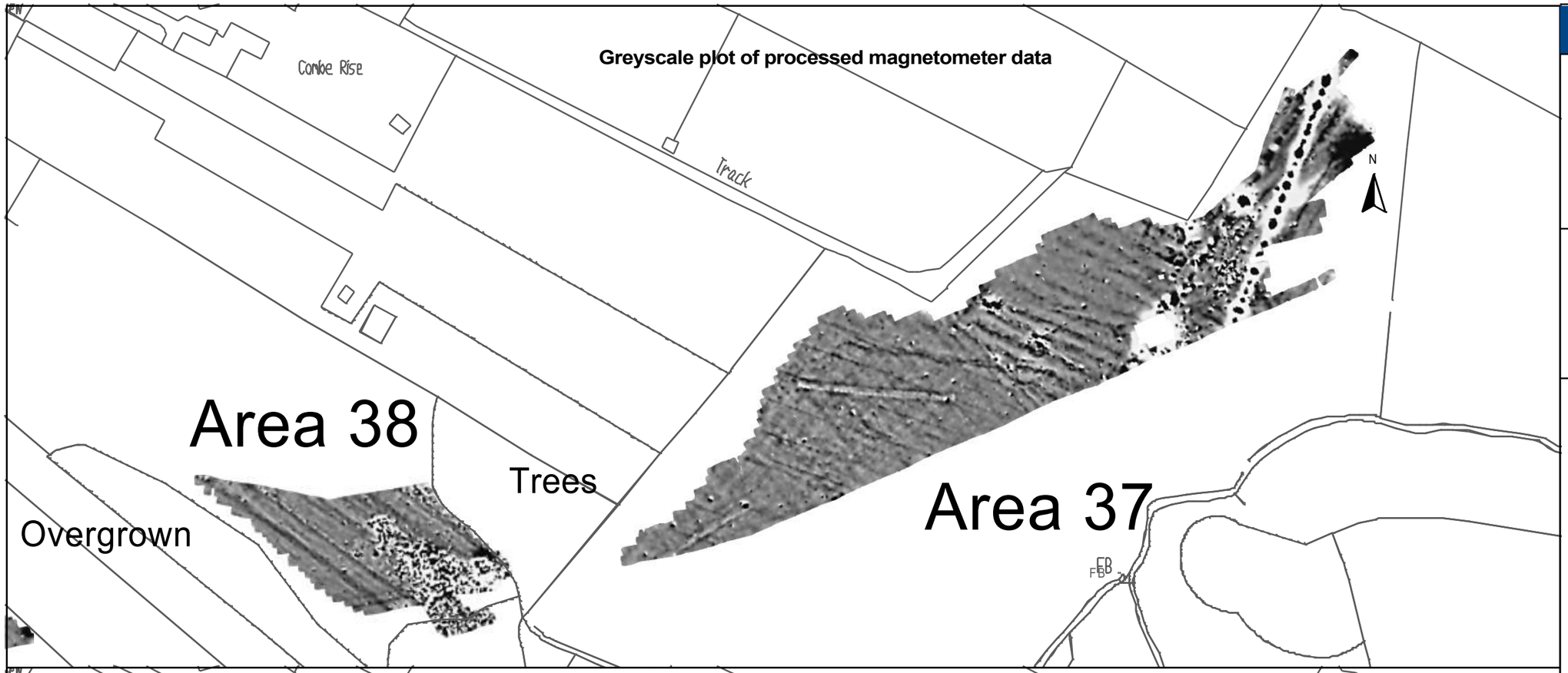
DRAWN BY	CHECKED BY	
KTD	DJS	FIG 46

Archaeological Surveys
Specialist Geophysical Surveyors

Updated Geophysical Survey Faringdon to Blunsdon Phase 2 New Water Main Oxfordshire/Swindon

Greyscale plot of processed magnetometer data & abstraction & interpretation of magnetic anomalies - Areas 37 & 38 (Swindon)

Greyscale plot of processed magnetometer data



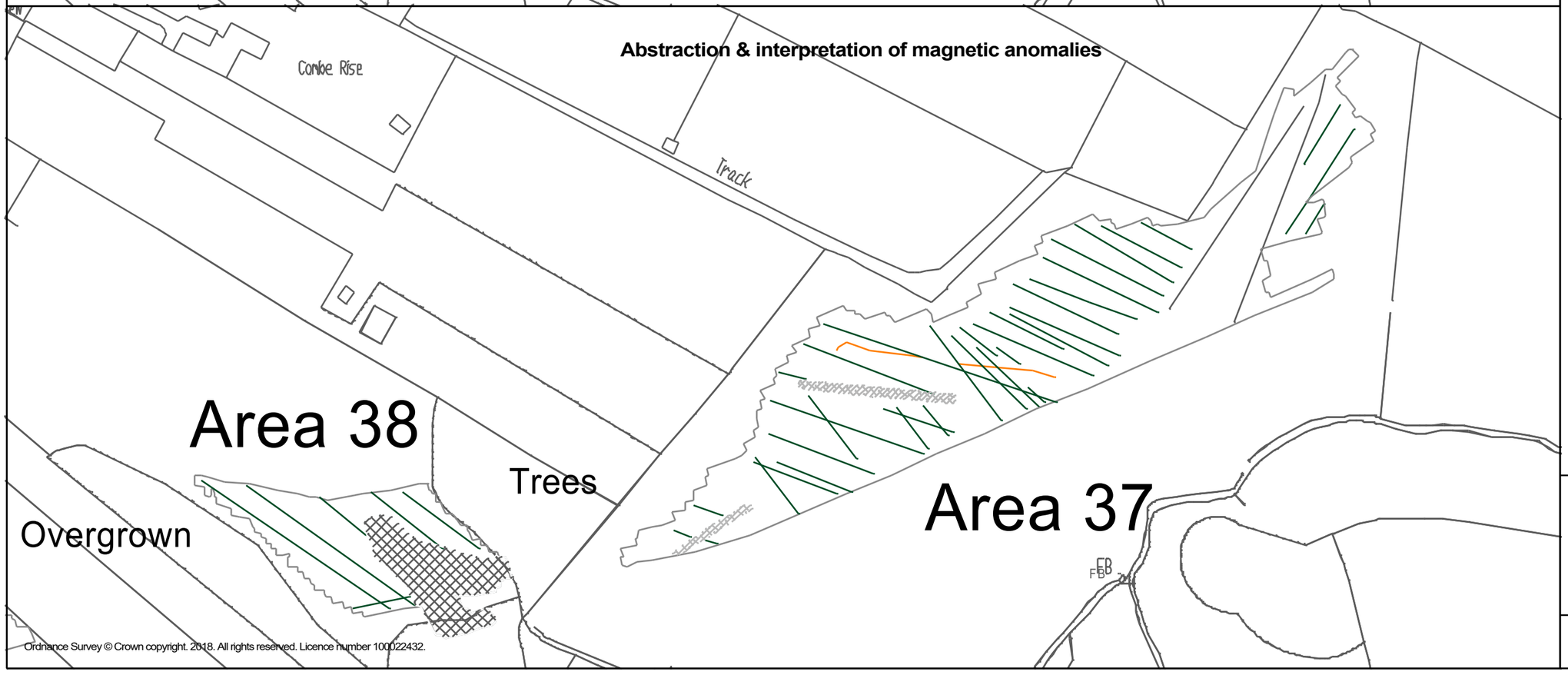
-3nT Area 37 +3nT

-3nT Area 38 +3nT

+3nT

-3nT

Abstraction & interpretation of magnetic anomalies



- Positive linear anomaly - possible ditch-like feature
- Linear anomaly - ridge and furrow
- Negative anomaly - archaeological evaluation trench
- 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 1:1500

0m 10 20 30 40 50m

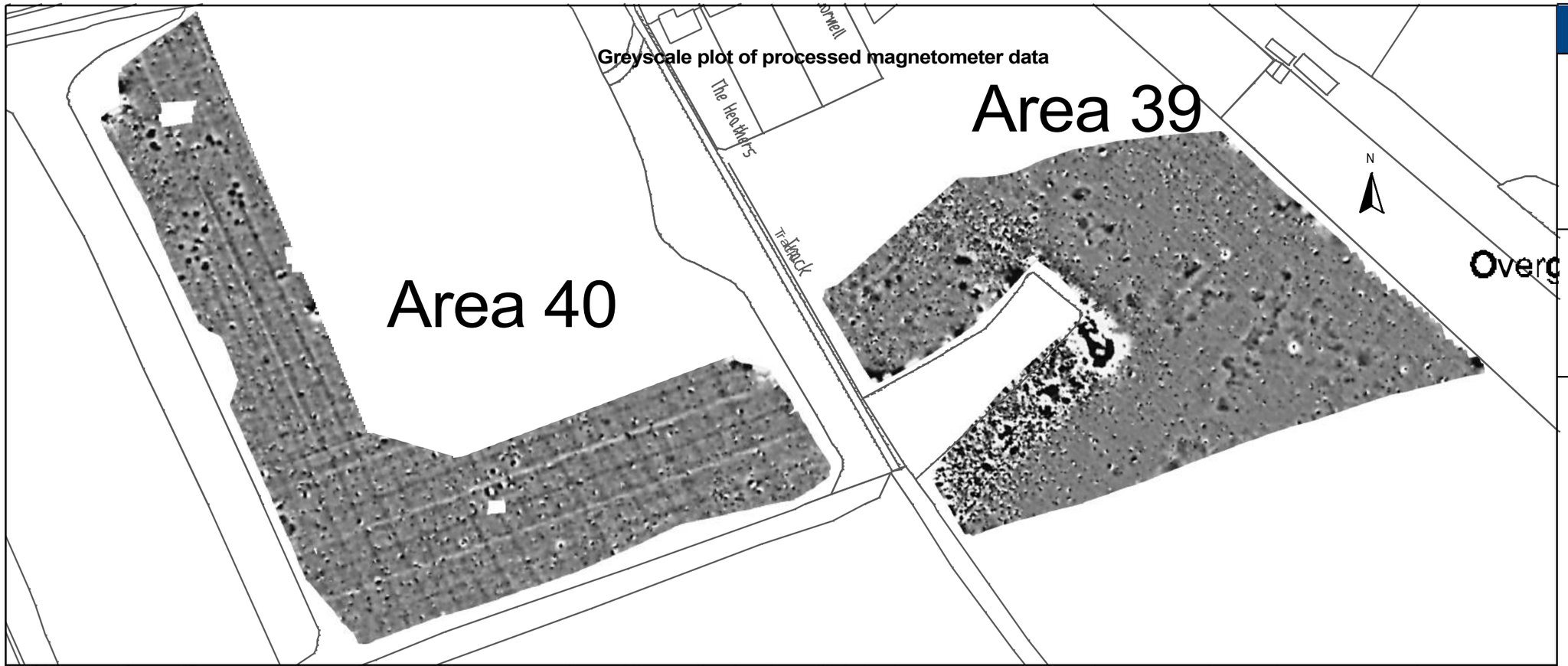
KTD	DJS	FIG 47

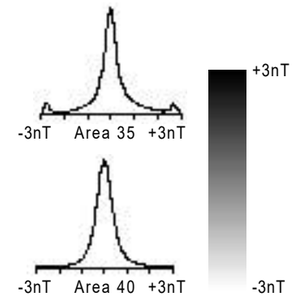
Archaeological Surveys
Specialist Geophysical Surveyors

Updated Geophysical Survey Faringdon to Blunsdon Phase 2 New Water Main Oxfordshire/Swindon

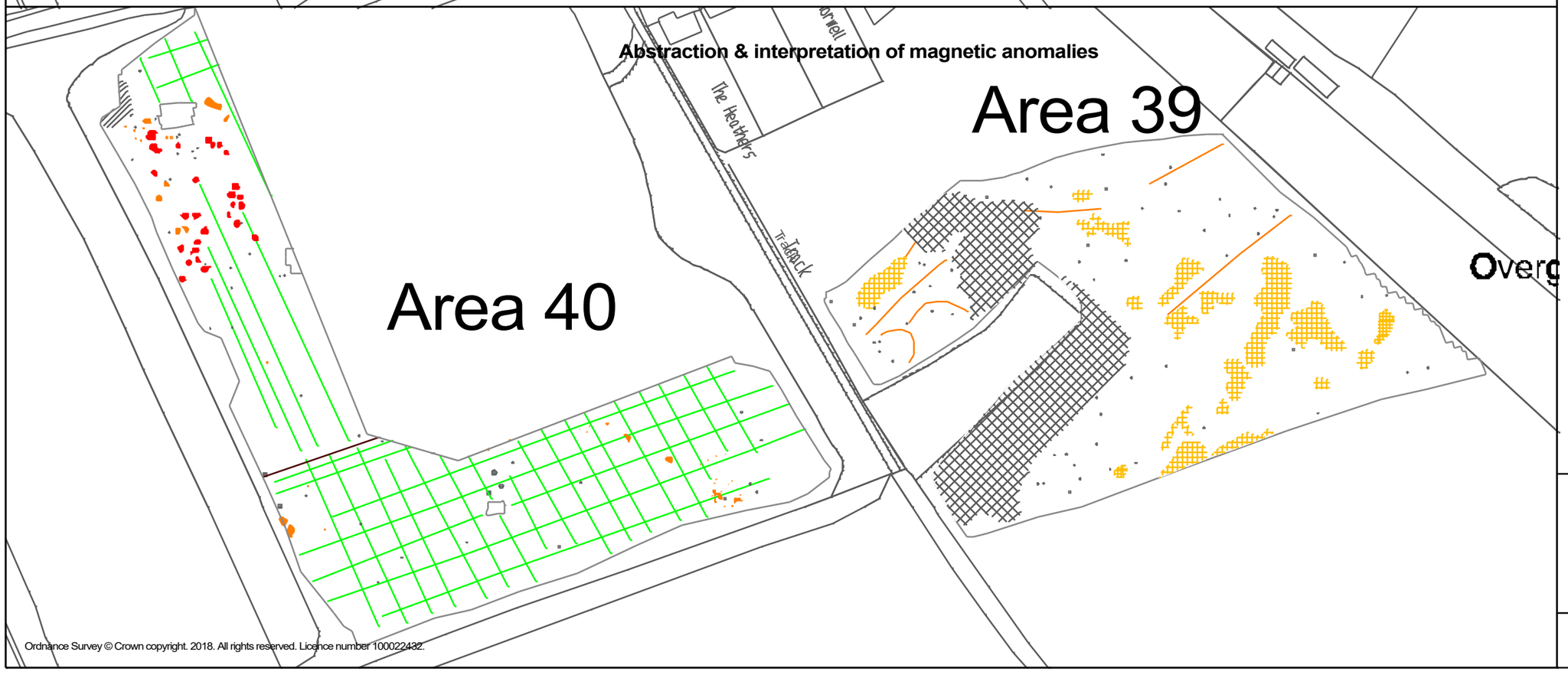
Greyscale plot of processed magnetometer data & abstraction & interpretation of magnetic anomalies - Areas 39 & 40 (Swindon)

Greyscale plot of processed magnetometer data





Abstraction & 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 - cut feature of archaeological potential
- Discrete positive response - possible pit-like feature
- Variable magnetic response - former quarrying
- 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

KTD	DJS	FIG 48

Greyscale plot of processed magnetometer data

Abstraction & interpretation of magnetic anomalies

Inaccessible/unsurveyable

Area 41

Blunsdon reservoir

Previously investigated

B 4019

DEF

+3nT

-3nT

-3nT

+3nT

N

Magnetic debris - spread of magnetically thermoremnant/ferrous material

Magnetic disturbance from ferrous material

Strong dipolar anomaly - ferrous object

Archaeological Surveys

Specialist Geophysical Surveyors

Updated Geophysical Survey Faringdon to Blunsdon Phase 2 New Water Main Oxfordshire/Swindon

Greyscale plot of processed magnetometer data & abstraction & interpretation of magnetic anomalies - Area 41 (Swindon)

SCALE 1:1500

0m 10 20 30 40 50m

SCALE TRUE AT A3

DRAWN BY	CHECKED BY	
KTD	DJS	FIG 49