magnitude surveys

Geophysical Survey Report

Land at Yarnton

Oxfordshire

For

Oxford Archaeology

Magnitude Surveys Ref: MSSP773

October 2020

Unit 17, Commerce Court

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Abstract

Magnitude Surveys was commissioned to assess the subsurface potential of c.55ha of land at Yarnton, Oxfordshire. A fluxgate gradiometer survey was successfully completed across the survey area, with unsurveyable areas totalling c.0.8ha. Historical agricultural activity, possibly relating to a nearby early medieval settlement, has been interpreted as ridge and furrow and former mapped and unmapped field boundaries. Modern agricultural activity has been recorded as plough scarring, a drain, and a spread of probable 'green waste'. Modern interference has been limited to field edges and magnetic haloes relating to services. A palaeochannel or former meander has been detected, along with a separate band of enhanced geological deposits, and zones of soil variations.

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1. Introduction

1.1. Magnitude Surveys Ltd (MS) was commissioned by Oxford Archaeology to undertake a geophysical survey across a c.55ha area of land near to the village of Yarnton, Oxford, Oxfordshire (SP472131).

1.2. The geophysical survey comprised quad-towed GNSS-positioned fluxgate gradiometer survey. Magnetic survey is the standard primary geophysical method for archaeological applications in the UK for its ability to detect a range of different features. The technique is particularly suited for detecting fired or magnetically enhanced features, such as ditches, pits, kilns, sunken earth houses, and industrial activity (David *et al*., 2008).

1.3. The survey was conducted in line with the current best practice guidelines produced by Historic England (David et al., 2008), the Chartered Institute for Archaeologists (CIfA, 2014) and the European Archaeological Council (Schmidt et al., 2015).

1.4. It was conducted in line with a WSI produced by MS (Salmon, September 2020).

1.5. The survey commenced on 12th October 2020 and took four days to complete.

2. Quality Assurance

2.1. Magnitude Surveys is a Registered Organisation of the Chartered Institute for Archaeologists (CIfA), the chartered UK body for archaeologists, and a corporate member of ISAP (International Society of Archaeological Prospection).

2.2. The directors of MS are involved in the cutting edge of research and the development of guidance/policy. Specifically, Dr. Chrys Harris has a PhD in archaeological geophysics from the University of Bradford, is a Member of CIfA and is the Vice-Chair of the International Society for Archaeological Prospection (ISAP); Finnegan Pope-Carter has an MSc in archaeological geophysics and is a Fellow of the London Geological Society, as well as a member of GeoSIG (CIfA Geophysics Special Interest Group); Dr. Kayt Armstrong has a PhD in archaeological geophysics from Bournemouth University, is a Member of CIfA, the Editor of ISAP News, and is the UK Management Committee representative for the COST Action SAGA; Dr. Paul Johnson has a PhD in archaeology from the University of Southampton, has been a member of the ISAP Management Committee since 2015, and is currently the nominated representative for the EAA Archaeological Prospection Community to the board of the European Archaeological Association.

2.3. All MS managers have relevant degree qualifications to archaeology or geophysics. All MS field and office staff have relevant archaeology or geophysics degrees and/or field experience.

2.4. Data collection was repeated over the same traverses to demonstrate the consistency and reliability of the geophysical survey. These are presented below:

Traverse 57:

Traverse 63:

3. Objectives

3.1. The objective of this geophysical survey was to assess the subsurface archaeological potential of the survey area.

4. Geographic Background

4.1. The survey area was located c.700m west of the centre of Yarnton (Figure 1). Gradiometer survey was undertaken across eight fields under arable and pastural land use. The survey area was bounded by further agricultural land to the north and south, Begbroke Wood to the west, and to the east by Woodstock Road (A44) and Yarnton (Figure 2). Three areas measuring c.0.3ha, c.0.3ha, and c.0.2ha were unsurveyable due to poor ground conditions and overgrowth, totalling 0.8ha.

4.2. Survey considerations:

Survey Area	Ground Conditions	Further Notes
1	The pasture field sloped gently down to the southwest.	The area was bounded to the north and west by ditches, trees and hedgerow, and to the south and east by trees and hedgerow. The north east and south west corners were too boggy to be surveyed.
2	The arable field sloped gently down to the southwest.	The area was bounded to the north by hedgerows and ditches, to the north-east by hedgerows and gardens, and to the south-east by trees. There was no physical boundary to the south or west. The south-eastern corner was unsurveyable due to overgrowth.
3	The area consisted of a flat arable field with maize stubble of varying height.	The area was bounded to the south, east and north by hedgerow and trees. The northern and southern extents of the eastern boundary consisted of hedgerows and trees, and housing/gardens respectively.
4	The area consisted of a flat arable field with maize stubble of varying height.	The area was bounded to the north, south, east, and west by hedgerows and trees and to the south-east by housing/gardens.
5	The area consisted of a flat pasture field.	The area was bounded to the north, east and south by hedgerow, to the north-west by woodland, and to the southwest by a change in land to arable. The area was traversed by a public footpath and overhead electricity line, both running approximately north-west to south-east. A second overhead electricity line

		also coincided with a portion of the north-western boundary.
6	The area consisted of a flat arable field with maize stubble of varying height	The area was bounded on all sides by hedgerow and trees.
7	The area consisted of a flat pasture field.	The area was bounded to the north, east and south by hedgerow and to the west by woodland. An overhead electricity line ran approximately north-south from the most northerly corner to the most southerly corner.
8	The area consisted of a flat pasture field.	The area was bounded to the west, south east, and north-east by an electric fence inside hedgerow and tree boundary. There was no physical boundary to the north-west.

4.3. The underlying geology comprises undifferentiated mudstones of the Oxford Clay Formation and West Walton Formation, in all areas except for the north-eastern corner of the survey area which is underlain by interbedded sands and silts of the Kellaways Sand Member. There are no recorded superficial deposits (British Geological Survey, 2020).

4.4. The soils consist of slowly permeable, seasonally wet, slightly acidic but base-rich, loamy, and clayey soils. A band of freely draining, slightly acidic but base-rich soils runs approximately northeast-south-west through the centre of the survey area and through the survey area's most westerly extent (Soilscapes, 2020).

5. Archaeological Background

5.1. The following archaeological background has been written using a desk-based assessment produced and provided by Oxford Archaeology (Oxford Archaeology, 2019). This section synthesises information obtained related to the survey area and a wider 1km search area. No intrusive archaeological investigations have been recorded within the survey area. Other investigations include field walking which identified various scatters of prehistoric flint and Roman to medieval pottery.

5.2. The lithic evidence demonstrates seasonal occupation and exploitation of the floodplains around Yarnton during the Palaeolithic and Mesolithic periods. Other early prehistoric activity within the 1km search area and survey area itself is limited. Approximately 548m to the south of the site, remains of a Neolithic or Bronze Age 'U' shaped enclosure with associated pits, a beaker inhumation and a log coffin were identified (MOX11181). Numerous other Neolithic finds have been recorded approximately 1km to the south of the survey area including a Neolithic – Bronze age mortuary enclosure with associated inhumations (MOX11187), a domestic area of a similar age (MOX3905) and a Neolithic post structure.

5.3. Bronze Age heritage assets have been recorded within the wider study area. A series of enclosures c.550m to the east of the survey area (MOX3952) have been identified, initially from crop mark remains of burial mounds, excavated in 2011. Two Bronze Age settlement areas have been identified (MOX11182, c.700m and MOX23435, c.1.6km) south of the survey area.

5.4. Iron Age assets recorded within the wider study area include further lithic scatters thought to be late prehistoric. These were identified c. 97m to the east of the survey area. At Bladon Heath, c.875m to the west of the site the scheduled Bladon Camp Hill Fort (MOX260) is recorded, consisting of concentric oval ramparts and outer ditches. Other remaining Iron Age remains are located in excess of 700m to the south of the site, within the floodplains, comprising settlements (MOX:260, 11176 and 23430), field systems, pits (MOX3896) and scatters of finds (MOX: 11196, 23431).

5.5. Within the study area a number of Romano-British assets are identified. Located c.872m to the east of the survey area is a settlement (MOX3909) area immediately adjacent to an Iron Age hut circle (MOX3908). The Romano-British settlement consisted of pits and a ditch containing Roman Pottery, spindle and whorl, a quernstone and a Roman brooch (HER 2018). Further evidence of Roman settlement is located outside the 1km wider search area; however, various field systems (MOX: 11177, 11178 and 3999), enclosures (MOX11183), pottery stray finds, tile and coins (MOX3804 - 3989) are noted across within the search area.

5.6. The closest early medieval settlement to the survey area is c. 730m to the south, comprising wooden framed buildings, grubenhaus, postholes and a ditched enclosure (MOX11184). Later medieval activity across the search area exists in the form of fishponds (MOX3947, 3947, 3963), the base of a cross (MOX3948) stray pottery finds (MOX3927) and ridge and furrow earthworks (MOX11185).

6. Methodology

6.1. Magnetometer surveys are generally the most cost effective and suitable geophysical technique for the detection of archaeology in England. Therefore, a magnetometer survey should be the preferred geophysical technique unless its use is precluded by any specific survey objectives or the site environment. For this site, no factors precluded the recommendation of a standard magnetometer survey. Geophysical survey therefore comprised the magnetic method as described in the following section.

6.2. Data Collection

6.2.1. Geophysical prospection comprised the magnetic method as described in the following table.

6.2.2. Table of survey strategies:

Method	Instrument	Traverse Interval	Sample Interval
Magnetic	Bartington Instruments Grad-13 Digital Three-Axis Gradiometer	1m	200Hz reprojected to 0.125m

6.2.3. The magnetic data were collected using MS' bespoke quad-towed, GNSS-positioned system cart system.

6.2.3.1. MS' cart system was comprised of Bartington Instruments Grad 13 Digital Three-Axis Gradiometers. Positional referencing was through a multi-channel, multi-constellation GNSS Smart Antenna RTK GPS outputting in NMEA mode to

ensure high positional accuracy of collected measurements. The RTK GPS is accurate to 0.008m + 1ppm in the horizontal and 0.015m + 1ppm in the vertical.

6.2.3.2. Magnetic and GPS data were stored on an SD card within MS' bespoke datalogger. The datalogger was continuously synced, via an in-field Wi-Fi unit, to servers within MS' offices. This allowed for data collection, processing and visualisation to be monitored in real-time as fieldwork was ongoing.

6.2.3.3. A navigation system was integrated with the RTK GPS, which was used to guide the surveyor. Data were collected by traversing the survey area along the longest possible lines, ensuring efficient collection and processing.

6.3.Data Processing

6.3.1. Magnetic data were processed in bespoke in-house software produced by MS. Processing steps conform to Historic England's standards for "raw or minimally processed data" (see sect 4.2 in David et al., 2008: 11).

Sensor Calibration – The sensors were calibrated using a bespoke in-house algorithm, which conforms to Olsen et al. (2003).

Zero Median Traverse – The median of each sensor traverse is calculated within a specified range and subtracted from the collected data. This removes striping effects caused by small variations in sensor electronics.

Projection to a Regular Grid – Data collected using RTK GPS positioning requires a uniform grid projection to visualise data. Data are rotated to best fit an orthogonal grid projection and are resampled onto the grid using an inverse distance-weighting algorithm.

Interpolation to Square Pixels – Data are interpolated using a bicubic algorithm to increase the pixel density between sensor traverses. This produces images with square pixels for ease of visualisation.

6.4.Data Visualisation and Interpretation

6.4.1. This report presents the gradient of the sensors' total field data as greyscale images, as well as the total field data from the lower sensors. The gradient of the sensors minimises external interferences and reduces the blown-out responses from ferrous and other high contrast material. However, the contrast of weak or ephemeral anomalies can be reduced through the process of calculating the gradient. Consequently, some features can be clearer in the respective gradient or total field datasets. Multiple greyscale images of the gradient and total field at different plotting ranges have been used for data interpretation. Greyscale images should be viewed alongside the XY trace plot (Figures 7, 10, 13, 16 & 19). XY trace plots visualise the magnitude and form of the geophysical response, aiding in anomaly interpretation.

6.4.2. Geophysical results have been interpreted using greyscale images and XY traces in a layered environment, overlaid against open street maps, satellite imagery, historic maps, LiDAR data, and soil and geology maps. Google Earth (2020) was consulted as well, to compare the results with recent land usages.

6.4.3. Geodetic position of results - All vector and raster data have been projected into OSGB36 (ESPG27700) and can be provided upon request in ESRI Shapefile (.SHP) and Geotiff (.TIF) respectively. Figures are provided with raster and vector data projected against OS Open Data.

7. Results

7.1.Qualification

7.1.1. Geophysical results are not a map of the ground and are instead a direct measurement of subsurface properties. Detecting and mapping features requires that said features have properties that can be measured by the chosen technique(s) and that these properties have sufficient contrast with the background to be identifiable. The interpretation of any identified anomalies is inherently subjective. While the scrutiny of the results is undertaken by qualified, experienced individuals and rigorously checked for quality and consistency, it is often not possible to classify all anomaly sources. Where possible an anomaly source will be identified along with the certainty of the interpretation. The only way to improve the interpretation of results is through a process of comparing excavated results with the geophysical reports. MS actively seek feedback on their reports as well as reports of further work in order to constantly improve our knowledge and service.

7.2.Discussion

7.2.1. A fluxgate gradiometer survey was carried out over c.55ha of land at Yarnton, Oxfordshire. The geophysical results are presented in consideration with historic maps and satellite imagery (Figure 4).

7.2.2. The survey was successfully carried out over the survey area, with a total area of c.0.8ha not surveyed due to ground conditions or the presence of buildings (see Section 4.1). The survey has revealed a relatively quiet magnetic background, with natural variations identified as ‘zones’ of changes in soils relating to colluvial or alluvial processes, and several sinuous anomalies likely relating to fluvial activity and the underlying geology. Although no anomalies suggestive of earlier archaeological features were identified, the presence of anomalies resulting from historical and modern agricultural activities could clearly be seen within the data and it is likely that other substantial cut/filled-features would also have been clear in the data were they present. While a number of anomalies of less-certain identification are present in the dataset, these are also thought to relate to agricultural or modern activity.

7.2.3. Magnetic interference is limited to field edges, following overhead services and magnetic haloes which have been produced by buried services. A spread of ferrous material was also recorded alongside a modern, extant farm track within the survey area. ‘Green waste’ material which has been spread across parts of the southern field has also been detected as a spread of dipolar anomalies. The magnetic disturbance and ‘green waste’ material may have masked weaker anomalies located in their vicinity but are limited to a small proportion of the survey area.

7.2.4. The historical agricultural use of the survey area is evident from the ridge and furrow regimes identified across the majority of the area. These could relate to the nearby early-medieval settlement located less than 1km away from the survey area (see Section 5.6). Both mapped and unmapped former field boundaries have been identified, some of which respect ridge and furrow regimes (Figure 4). More recent agricultural activity has also been recorded in the form of ploughing regimes and a drain.

7.2.5. A series of weak, sinuous anomalies in the western part of the survey area may indicate the former course of a waterway (Figure 4). Further natural variations in the subsurface have been identified as a band of likely iron-rich material crossing the northern end of the survey area. An anomaly with similar geophysical properties located perpendicular to this has been interpreted as 'undetermined' due to the difference in alignment and its presence at the margin of the survey area, which make it difficult to characterise and assess, as the anomaly appears to extend beyond the survey area towards the A44 to the east.

7.3.Interpretation

7.3.1. General Statements

7.3.1.1. Geophysical anomalies will be discussed broadly as classification types across the survey area. Only anomalies that are distinctive or unusual will be discussed individually.

7.3.1.2. **Data Artefact** – Data artefacts usually occur in conjunction with anomalies with strong magnetic signals due to how the sensors respond to very strong point sources. These are usually visible as minor 'streaking' following the line of data collection. While these artefacts can be reduced in post-processing through data filtering, this would risk removing real features. Therefore, these artefacts are indicated as necessary to preserve the data as 'minimally processed'.

7.3.1.3. **Ferrous (Spike)** – Discrete ferrous-like, dipolar anomalies are likely to be the result of isolated modern metallic debris on or near the ground surface.

7.3.1.4. **Ferrous/Debris (Spread)** – A ferrous/debris spread refers to a concentrated deposition of discrete, dipolar ferrous anomalies and other highly magnetic material.

7.3.1.5. **Magnetic Disturbance** – The strong anomalies produced by extant metallic structures along the edges of the field have been classified as 'Magnetic Disturbance'. These magnetic 'haloes' will obscure the response of any weaker underlying features, should they be present, often over a greater footprint than the structure they are being caused by.

7.3.1.6. **Undetermined** – Anomalies are classified as Undetermined when the anomaly origin is ambiguous through the geophysical results and there is no supporting or correlative evidence to warrant a more certain classification. These anomalies are likely to be the result of geological, pedological or agricultural

processes, although an archaeological origin cannot be entirely ruled out. Undetermined anomalies are generally not ferrous in nature.

7.3.2. Magnetic Results - Specific Anomalies

7.3.2.1. **Agricultural (Strong/Weak)** – A series of strong and weak linear anomalies have been detected in Areas 1, 2 and 3. The majority of these anomalies align with former field boundaries depicted on historic mapping (Figure 4), whilst in Area 1 a weak anomaly [**1a**] does not, but does appear to confine the adjacent ridge and furrow regimes (Figure 12).

7.3.2.2. **Ridge and Furrow (Trend)** – Linear and curvilinear anomalies characteristic of ridge and furrow ploughing regimes have been detected throughout the survey area, some of which overlap with one another in differing orientations (Areas 1 and 2, Figure 4). Spacing between the furrows varies between 7–9m. These regimes appear to respect mapped former field boundaries, as well as an unmapped boundary [**1a**] in Area 1 (Figure 12).

7.3.2.3. **Agricultural & Drainage Feature (Trend)** – Linear anomalies relating to modern ploughing activity have been detected across the survey area (Figure 4). These anomalies are more closely spaced than those classified as ridge and furrow. A linear dipolar anomaly likely relating to a drain was also identified in Area 2 (Figure 18). The dipolar magnetic signal may indicate fired material, such as a ceramic drain.

7.3.2.4. **Ferrous/Debris (Spread)** – Following the northern boundary of Area 5, a concentration of dipolar anomalies has been detected (Figure 13). These anomalies indicate the presence of a deposit of magnetic material, located parallel to the extant farm track which is visible on satellite imagery (Figure 4). A second, larger concentration of dipolar anomalies has been detected across the western part of Area 2 (Figures 15 and 18). These anomalies relate to a spread of magnetic material, likely consisting of agricultural 'green waste'.

7.3.2.5. **Natural** – A series of weak, broad and curvilinear anomalies have been identified across Areas 7, 5 and 1 [**7a & 1a**] (Figures 6 and 9). These anomalies appear to form a larger arc between the areas, most visible in the Total Field data (Figure 3). The anomalies cross from the north-western corner of Area 7, then are less defined within Area 5, before reappearing in the north-western corner of Area 1. These anomalies likely indicate the course of a palaeochannel or former meander, with the stronger anomalies likely relating to deposits of enhanced material within the former streambed.

7.3.2.6. **Natural** – Crossing Areas 6 and 8, leading towards the A44, a strong, broad curvilinear anomaly has been identified [**6a**] (Figure 6). The anomaly follows a northwest-southeast orientation for c. 320m, terminating before the eastern boundary of Area 6. This anomaly has a very clear, consistent edge and likely relates to the geological transition in this location within the interbedded

mudstones (see Section 4.3). This is likely to be a layer of iron-rich material within the interbedded geology here.

7.3.2.7. **Undetermined** – At the eastern edge of Area 6, an anomaly exhibiting similar geophysical properties to the band of potentially iron-rich material (see Section 7.3.2.6) has been identified (Figure 5). The recorded length of this anomaly is much shorter at c. 68m and is parallel to the nearby A44. This anomaly could relate to the nearby geology but the context is limited by the proximity to the survey boundary beyond which the anomaly appears to extend.

8. Conclusions

8.1. A fluxgate gradiometer survey has successfully been undertaken across the survey area. The geophysical survey has detected a range of different anomalies relating to agricultural, natural and modern activity. Natural variations have been identified as soil variations, a band of enhanced geological deposits and a palaeochannel or former meander. The survey has revealed a relatively quiet magnetic background, with a concentration of 'green waste' material identified in parts of one area and modern interference otherwise limited to field edges and as magnetic haloes associated with services. These anomalies may have masked weaker anomalies located in their vicinity but are limited to a small proportion of the survey area.

8.2. No anomalies suggestive of significant archaeological features have been identified within the survey area. Some anomalies have been identified as 'undetermined' may have anthropogenic origins, though natural or agricultural origins appear more likely.

8.3. Ridge and furrow regimes have been identified across the majority of the survey area, along with evidence of former field boundaries, both mapped and unmapped. These represent the historical agricultural usage of the survey area, some of which may relate to the early-medieval settlement located c. 1km away from the survey area. Modern ploughing, a drain and 'green waste' material indicate the more recent agricultural activity within the survey area.

9. Archiving

9.1. MS maintains an in-house digital archive, which is based on Schmidt and Ernenwein (2013). This stores the collected measurements, minimally processed data, georeferenced and un-georeferenced images, XY traces and a copy of the final report.

9.2. MS contributes reports to the ADS Grey Literature Library upon permission from the client, subject to the any dictated time embargoes.

10. Copyright

10.1. Copyright and the intellectual property pertaining to all reports, figures, and datasets produced by Magnitude Services Ltd. is retained by MS. The client is given full licence to use such material for their own purposes. Permission must be sought by any third party wishing to use or reproduce any IP owned by MS.

11. References

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12. Project Metadata

MS Job Code	MSSP773
Project Name	Land at Yarnton, Oxfordshire
Client	Oxford Archaeology
Grid Reference	SP472131
Survey Techniques	Magnetometry, Ground Penetrating Radar
Survey Size (ha)	55ha (Magnetometry)
Survey Dates	2020-10-12 to 2020-10-15
Project Lead	Frederick Salmon BSc FGS ACIfA
Project Officer	Frederick Salmon BSc FGS ACIfA
HER Event No	TBC
OASIS No	TBC
S42 Licence No	N/A
Report Version	0.3

13. Document History

Version	Comments	Author	Checked By	Date
0.1	Initial draft for Project Lead to Review	LB & AD	FS	27 October 2020
0.2	Corrections from Project Lead, draft for Director Approval	LB	KA	28 October 2020
0.3	Corrections from Director, initial to Client	LB	KA	30 October

MSSP773 - Land at Yarnton, Oxfordshire
Figure 1 - Site Location
1:25,000 @ A4

Survey Boundary

N

0 0.5 1 km

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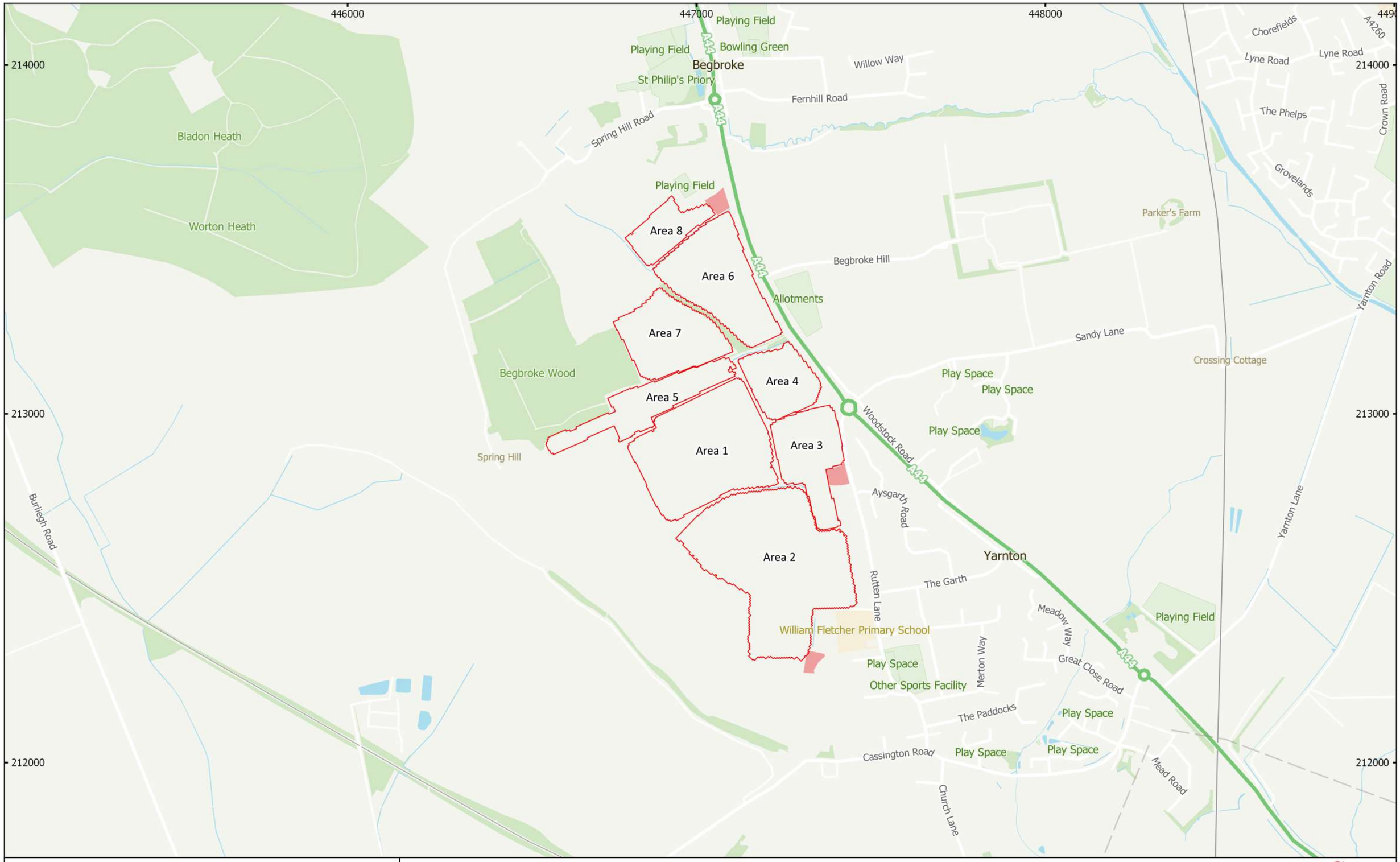

MSSP773 - Land at Yarnton, Oxfordshire
Figure 2 - Location of Survey Areas
1:10,000 @ A3

Survey Extent
Unsurveyable

N

0 200 400 600 m

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MSSP773 - Land at Yarnton, Oxfordshire
Figure 3 - Magnetic Total Field (Lower Sensor)
1:4,000 @ A3

48,997 nT 49,005

N

0 100 200 300 m

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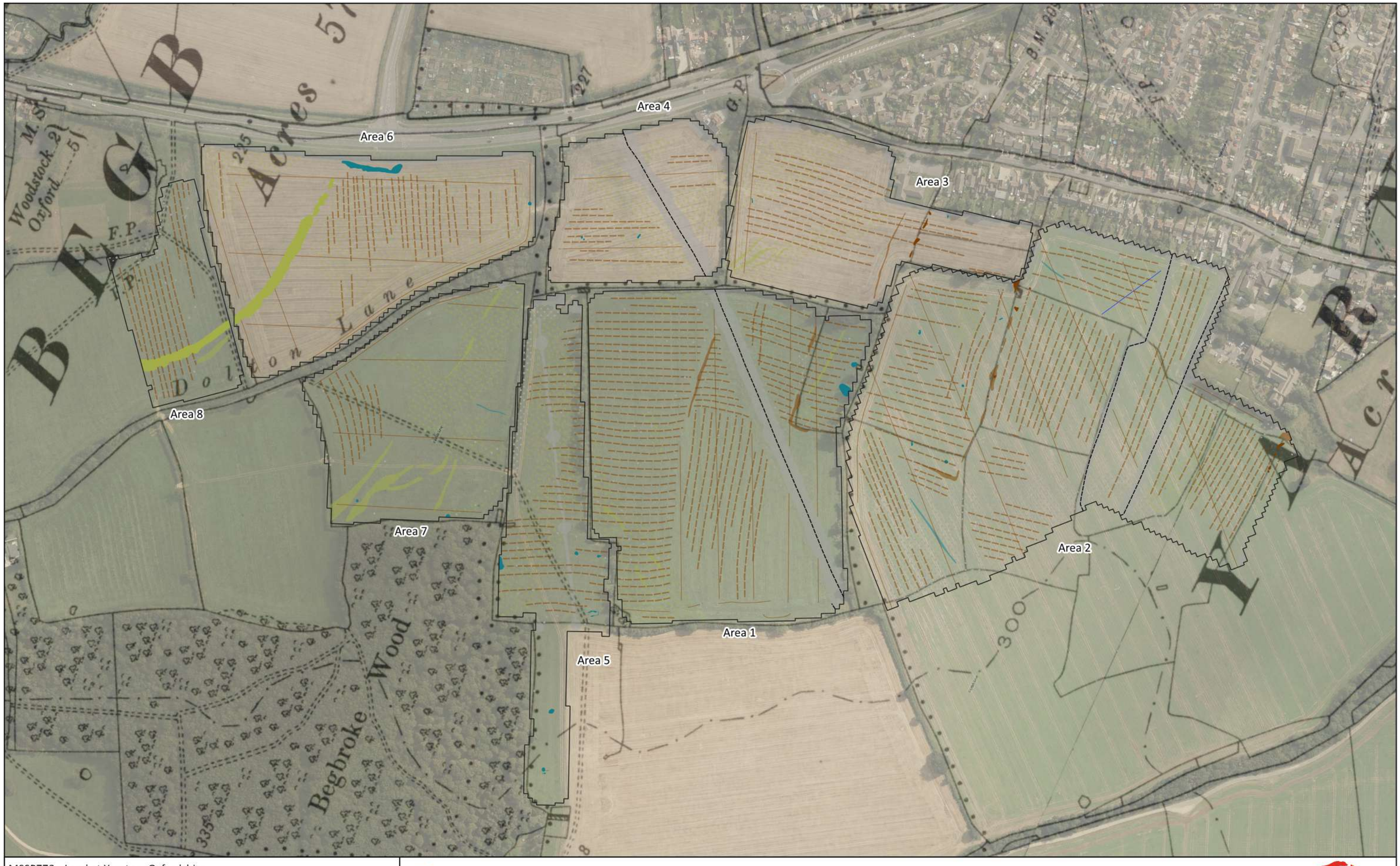

MSSP773 - Land at Yarnton, Oxfordshire
Figure 4 - Magnetic Interpretation Over Historic Maps and Satellite Imagery
1:4,000 @ A3

- Agricultural (Strong)
- Agricultural (Weak)
- Natural (Strong)
- Natural (Weak)
- Natural (Zone)
- Magnetic Disturbance
- Ferrous/Debris (Spread)
- Undetermined (Strong)
- Undetermined (Weak)
- Agricultural (Trend)
- Data Artefact
- Service
- Ridge and Furrow (Trend)
- Drainage Feature
- Ferrous (Spike)

N

0 100 200 300 m

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Area 8

Area 6

Area 7

A44

Begbroke Hill

MSSP773 - Land at Yarnton, Oxfordshire
Figure 5 - Magnetic Gradient (Areas 6, 7 & 8)
1:1,500 @ A3

-1 nT 2

A44

N

0 40 80 120 m

magnitude surveys

Area 8

A44

Area 6

6a

Area 7

6b

Begbroke Hill

7a

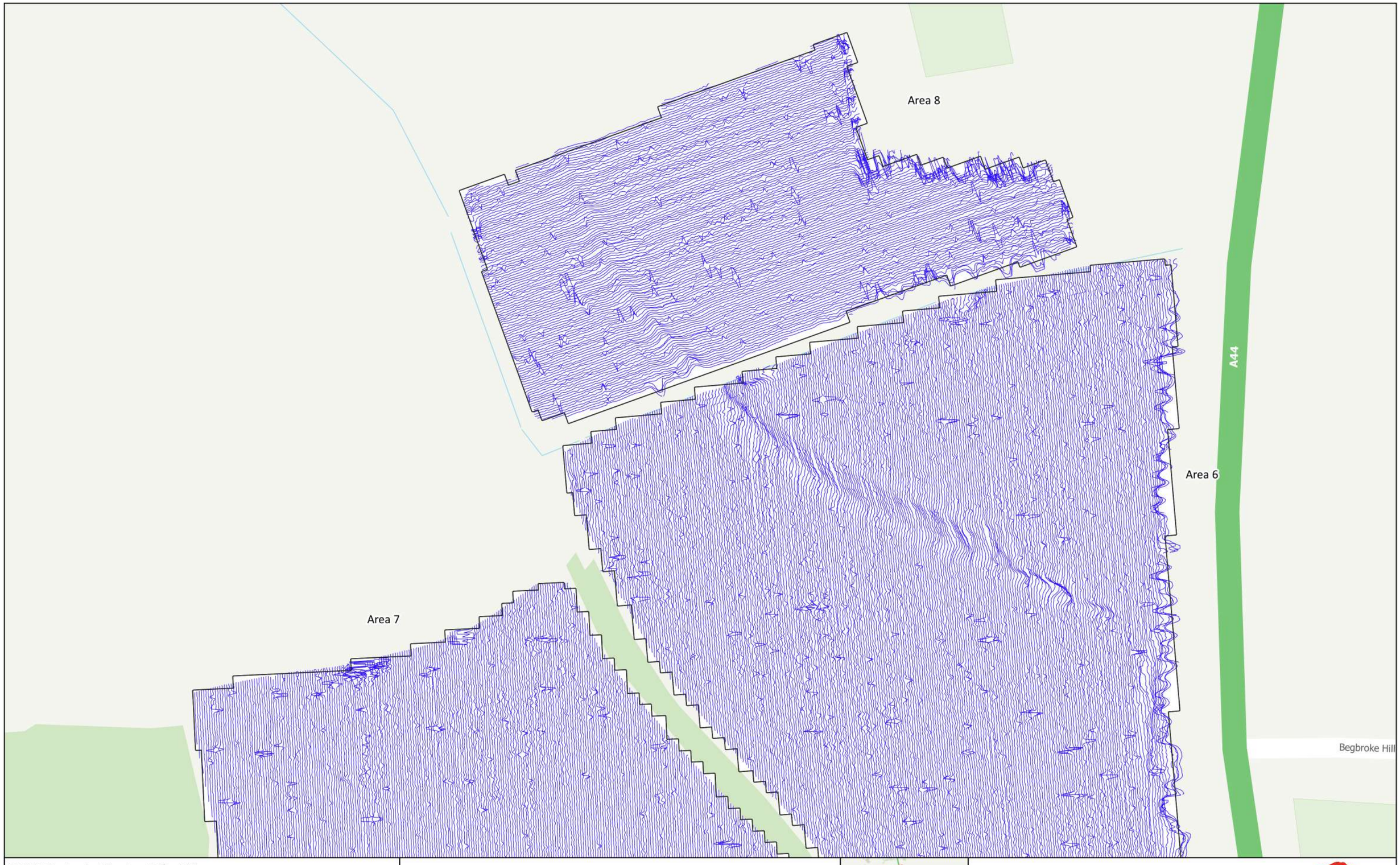
MSSP773 - Land at Yarnton, Oxfordshire
Figure 6 - Magnetic Interpretation (Areas 6, 7 & 8)
1:1,500 @ A3

Natural (Strong)
Natural (Weak)
Natural (Zone)
Magnetic Disturbance
Ferrous/Debris (Spread)
Undetermined (Strong)
Agricultural (Trend)
Ridge and Furrow (Trend)
Ferrous (Spike)

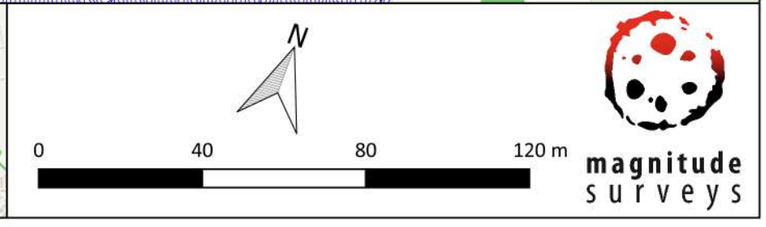
N

0 40 80 120 m

magnitude surveys



MSSP773 - Land at Yarnton, Oxfordshire
Figure 7 - XY Trace Plot (Areas 6, 7 & 8)
30nT/cm at 1:1,500 @ A3



Area 7

Area 6

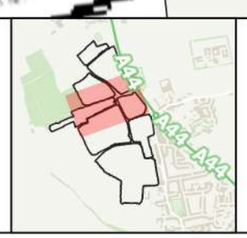
Area 5

Area 4

A44

MSSP773 - Land at Yarnton, Oxfordshire
Figure 8 - Magnetic Gradient (Areas 1, 4, 5, 6 & 7)
1:1,500 @ A3

-1 nT 2



N

0 40 80 120 m

magnitude surveys

Area 7

7a

Area 6

A44

Area 5

Area 4

1a

1a

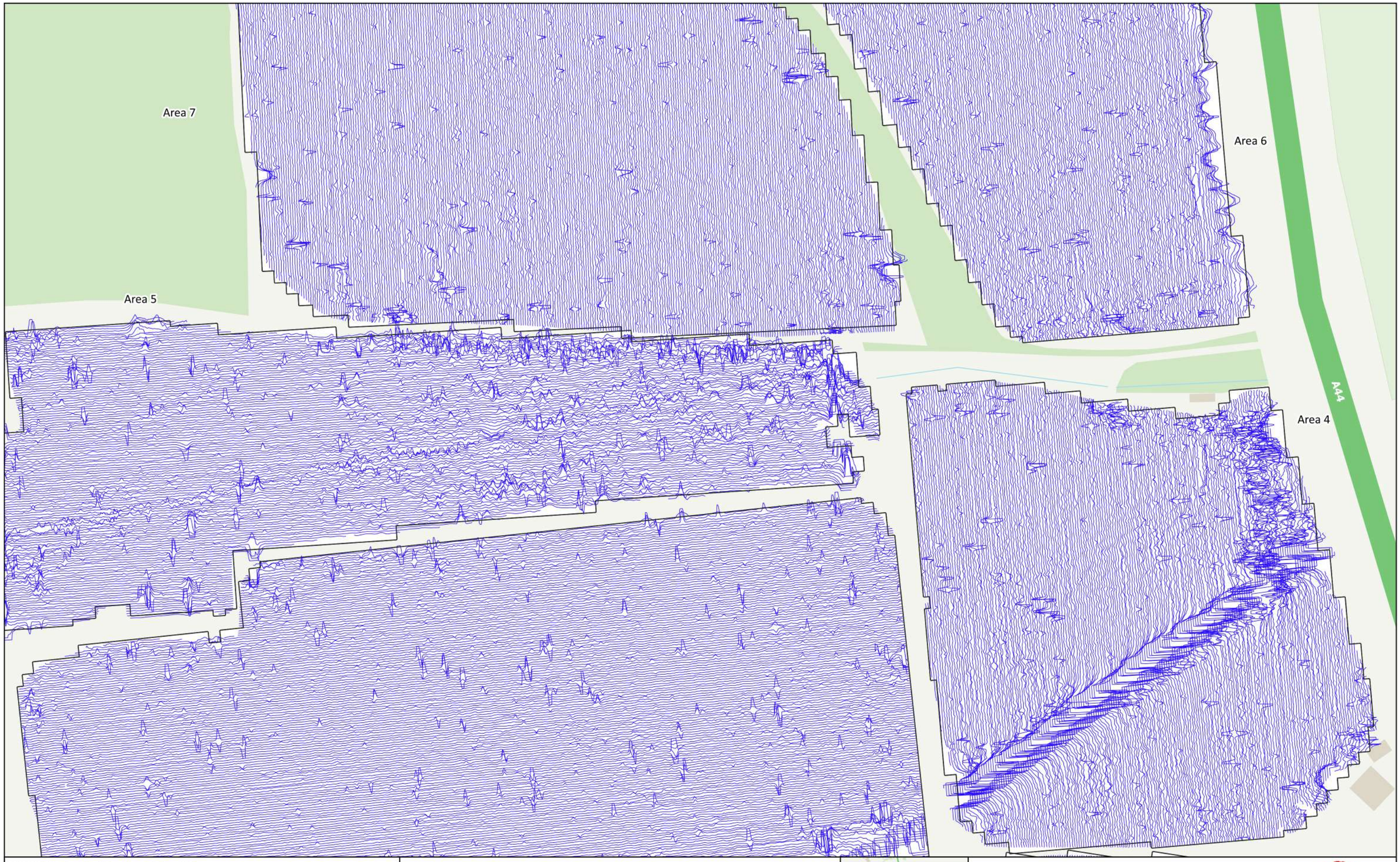
MSSP773 - Land at Yarnton, Oxfordshire
Figure 9 - Magnetic Interpretation (Areas 1, 4, 5, 6 & 7)
1:1,500 @ A3

Agricultural (Weak)
Natural (Weak)
Natural (Zone)
Magnetic Disturbance
Ferrous/Debris (Spread)
Undetermined (Strong)
Undetermined (Weak)
Agricultural (Trend)
Data Artefact
Service
Ridge and Furrow (Trend)
Ferrous (Spike)

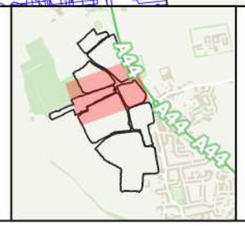
N

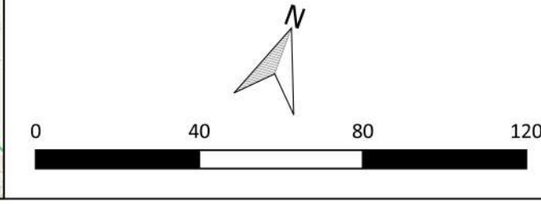
0 40 80 120 m

magnitude surveys



MSSP773 - Land at Yarnton, Oxfordshire
Figure 10 - XY Trace Plot (Areas 1, 4, 5, 6 & 7)
30nT/cm at 1:1,500 @ A3





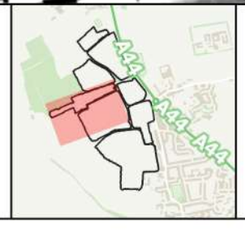
magnitude surveys

Area 5

Area 1

MSSP773 - Land at Yarnton, Oxfordshire
Figure 11 - Magnetic Gradient (Areas 1 & 5)
1:1,500 @ A3

-1 nT 2



N

0 40 80 120 m

magnitude surveys

Area 5

Area 1

1a

1a

MSSP773 - Land at Yarnton, Oxfordshire
Figure 12 - Magnetic Interpretation (Areas 1 & 5)
1:1,500 @ A3

Agricultural (Weak)
Natural (Weak)
Natural (Zone)
Magnetic Disturbance
Ferrous/Debris (Spread)
Undetermined (Strong)
Undetermined (Weak)
Agricultural (Trend)
Service
Ridge and Furrow (Trend)
Ferrous (Spike)

A44
A44-A44

N

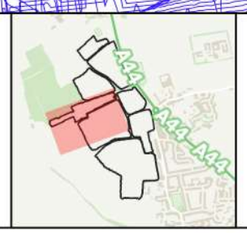
0 40 80 120 m

magnitude surveys

Area 5

Area 1

MSSP773 - Land at Yarnton, Oxfordshire
Figure 13 - XY Trace Plot (Areas 1 & 5)
30nT/cm at 1:1,500 @ A3



N

0 40 80 120 m

magnitude surveys

Area 1

Area 2

Area 3

Rutten Lane

Aysgarth Road

MSSP773 - Land at Yarnton, Oxfordshire
Figure 14 - Magnetic Gradient (Areas 1, 2 & 3)
1:1,500 @ A3

-1 nT 2

A44 A44 A44

N

0 40 80 120 m

magnitude surveys

Area 1

Area 2

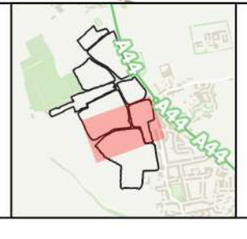
Area 3

Rutten Lane

Aysgarth Road

MSSP773 - Land at Yarnton, Oxfordshire
Figure 15 - Magnetic Interpretation (Areas 1, 2 & 3)
1:1,500 @ A3

Agricultural (Strong)
Agricultural (Weak)
Natural (Weak)
Natural (Zone)
Magnetic Disturbance
Ferrous/Debris (Spread)
Undetermined (Strong)
Undetermined (Weak)
Agricultural (Trend)
Service
Ridge and Furrow (Trend)
Ferrous (Spike)



N

0 40 80 120 m

magnitude surveys

Area 1

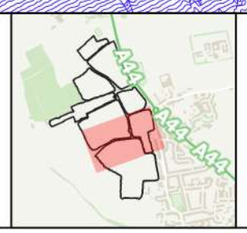
Area 2

Area 3

Rutten Lane

Aysgarth Road

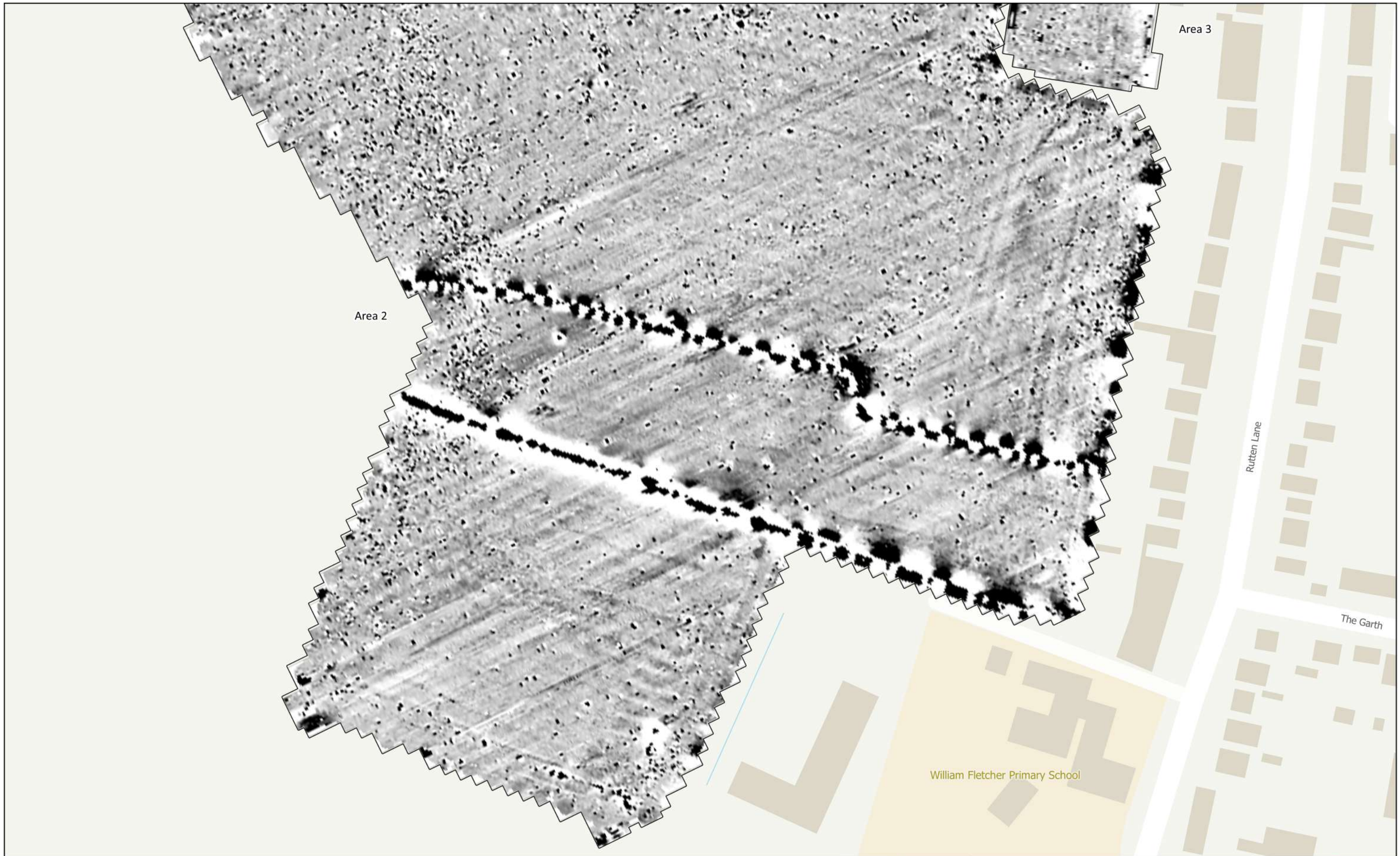
MSSP773 - Land at Yarnton, Oxfordshire
Figure 16 - XY Trace Plot (Areas 1, 2 & 3)
30nT/cm at 1:1,500 @ A3



N

0 40 80 120 m

magnitude surveys



MSSP773 - Land at Yarnton, Oxfordshire
Figure 17 - Magnetic Gradient (Area 2)
1:1,500 @ A3

-1 nT 2

N

0 40 80 120 m

magnitude surveys

Area 3

Area 2

Rutten Lane

The Garth

William Fletcher Primary School

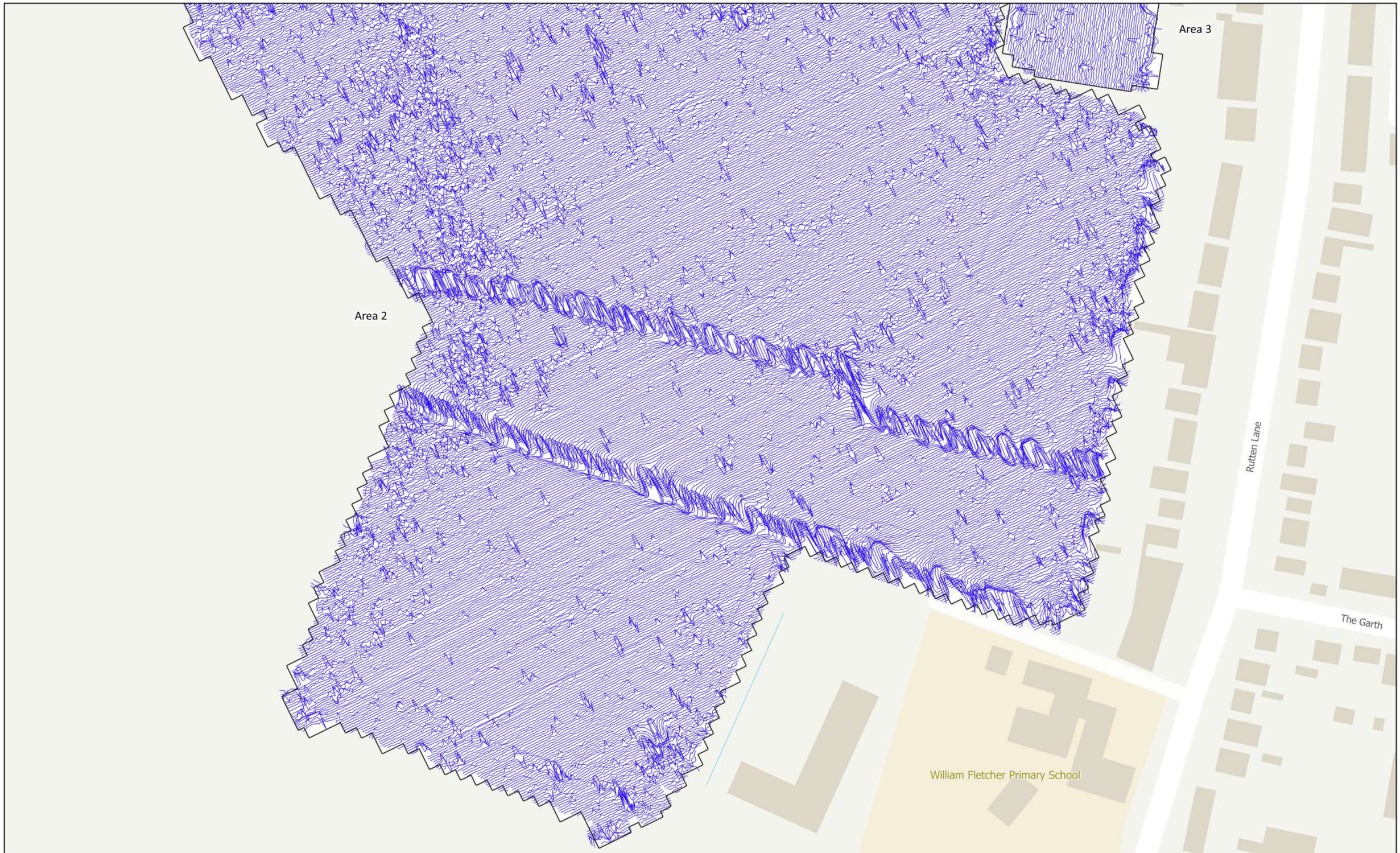
MSSP773 - Land at Yarnton, Oxfordshire
Figure 18 - Magnetic Interpretation (Area 2)
1:1,500 @ A3

Agricultural (Strong)
Agricultural (Weak)
Natural (Zone)
Magnetic Disturbance
Ferrous/Debris (Spread)
Undetermined (Strong)
Undetermined (Weak)
Agricultural (Trend)
Service
Ridge and Furrow (Trend)
Drainage Feature
Ferrous (Spike)

N

0 40 80 120 m

magnitude surveys



MSSP773 - Land at Yarnton, Oxfordshire
Figure 19 - XY Trace Plot (Area 2)
30nT/cm at 1:1,500 @ A3