EX HS066B

magnitude surveys

Geophysical Survey Report

of

Land at Manor Farm

Great Baddow, Chelmsford

For

CgMs Heritage

(Part of RPS Group PLC)

On Behalf Of

Hopkins Homes Ltd

Magnitude Surveys Ref: MSTL278

April 2018

magnitude surveys

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Abstract

Magnitude Surveys was commissioned to assess the subsurface archaeological potential of a c.24.7ha area of land at Manor Farm, Great Baddow, Chelmsford. A fluxgate magnetometer survey was successfully completed and a clear area of potential archaeological activity has been identified at the north-west of the site, including a ring ditch and other ditch-like anomalies, as well as an another more ambiguous ring ditch feature, isolated to the south. These features follow a distinct alignment along the top of a natural spur overlooking the Chelmer valley. The known Bronze Age ringwork at Manor Farm Shop also follows this alignment, but could not successfully be identified against a background of magnetic interference arising from the farm shop building and boundary fence. Several relict field boundaries, documented in historic maps, have been confirmed in the geophysical data, along with buried modern services. An area of broad magnetic anomalies resulting from variation in geology and natural erosion processes has been identified, centred around steeper slopes at the southern end of the site. Two distinct areas of anomalies have been identified towards the east of the site, the potential origins of which could not be confidently determined.

Contents

Abstract 2
List of Figures 4
1. Introduction 5
2. Quality Assurance 5
3. Objectives 5
4. Geographic Background 6
5. Archaeological Background 7
6. Methodology 8
6.1. Data Collection 8
6.2. Data Processing 9
6.3. Data Visualisation and Interpretation 9
7. Results 10
7.1. Qualification 10
7.2. Discussion 10
7.3. Interpretation 11
7.3.1. General Statements 11
7.3.2. Magnetic Results - Specific Anomalies 11
8. Conclusions 14
9. Archiving 15
10. Copyright 15
11. References 15

List of Figures

Figure 1:	Site Location	1:25,000 @ A4
Figure 2:	Location of Survey Areas	1:5,000 @ A3
Figure 3:	Magnetic Total Field	1:2,500 @ A3
Figure 4:	Magnetic Gradient	1:2,500 @ A3
Figure 5:	Magnetic Interpretation	1:2,500 @ A3
Figure 6:	Magnetic Interpretation Over Satellite Imagery	1:2,500 @ A3
Figure 7:	Magnetic Interpretation Over Historic Maps	1:2,500 @ A3
Figure 8:	Magnetic Interpretation Over LiDAR (composite DSM) and 1m Contours	1:2,500 @ A3
Figure 9:	XY Trace Plot	1:2,500 @ A3

1. Introduction

1.1. Magnitude Surveys Ltd (MS) was commissioned by CgMs Heritage (part of RPS Group PLC) on behalf of Hopkins Homes Ltd to undertake a geophysical survey on a c.24.7ha area of land at Manor Farm, near Great Baddow, Chelmsford, Essex (centre approximately at TL 7355 0554).

1.2. The geophysical survey comprised hand-pulled, cart-mounted, GNSS-positioned fluxgate magnetometer survey.

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. The survey commenced on 17/04/2018 and took three 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. Director Graeme Attwood is a Member of CIfA, as well as the Secretary of GeoSIG, the CIfA Geophysics Special Interest Group. Director Finnegan Pope-Carter is a Fellow of the London Geological Society, the chartered UK body for geophysicists and geologists, as well as a member of GeoSIG, the CIfA Geophysics Special Interest Group. Director Chrys Harris has a PhD in archaeological geophysics from the University of Bradford and is the Vice-Chair of the International Society for Archaeological Prospection.

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.

3. Objectives

3.1. The geophysical survey aimed to assess the subsurface archaeological potential of the survey area.

4. Geographic Background

4.1. The site is located on agricultural land c.3km south-east of the centre of Chelmsford, Essex, and c.1km north-east of the centre of Great Baddow (Figure 1). The survey area is bounded by woodland and Essex Yeomanry Way to the west, Maldon Road to the south, Sandford Mill Lane to the East, Manor Farm to the north-east, and an unpaved access road to the north (Figure 2).

4.2. Survey was undertaken over a contiguous area comprising a series of agricultural fields, which were separated by tracks and hedgerows. The majority of the survey area was covered in a young wheat crop, c. 18 inches tall, with firm, even soil underfoot. A steep north-facing slope occupied the south of the survey area, overlooking the Chelmer valley. Towards the west this slope turns into a north-west facing spur, and to the east it rises to a flat plateau (see 4.3).

4.3. Survey considerations:

Survey Area	Ground Conditions	Further Notes
1	Firm, even soil, planted with young wheat crop, c. 18 in high. Sloped consistently downward from south to north.	Bounded by hedgerows and woodland with wire fencing to the west; hedgerows with wooden post-and rail fencing to the south (Maldon Road); hedgerows to the east, and an access track to the north. A public footpath ran along the southern edge of this area. Multiple raised manholes were extant across the area.
2	Firm, even soil, planted with young wheat crop, c. 18 in high. Sloped consistently downward from south to north.	Bounded by hedgerows to the west; hedgerows with wooden post-and-rail fencing to the south; a concrete trackway to the east; and an access track to the north. A public footpath ran along the southern edge of this area. Multiple raised manholes were extant across the area.
3	Firm, even soil, planted with young wheat crop, c. 18 in high. Sloped consistently downward from south to north.	Bounded by a concrete trackway to the west; hedgerows with wooden post-and-rail fencing to the south; hedgerows to the east; and an access track to the north. A line of mature trees and a pond extended north into the centre of the area from the southern boundary. The eastern half of this area was crossed by multiple overhead power lines mounted on telegraph poles. Multiple raised manholes were extant across the area.
4	Firm, even soil, planted with young wheat crop, c. 18 in high. Flat terrain.	Bounded by hedgerows to the west; hedgerows with wooden post-and-rail fencing to the south and east; and access track to the north.

5	Soft, loose, dry, recently tilled soil. Sloped downward at western end from east to west.	Bounded by an access track to the south, hedgerows to the west, and conifer trees to the north.

4.4. The underlying geology across the entire site comprises London Clay. The superficial geology on the higher slopes to the south of the site consists of glaciofluvial sands and gravels. Lower down to the north lies an area of washed-out head deposits. To the east, across the majority of Areas 4 and 5, the superficial geology consists of river terrace deposits of sand and gravel (British Geological Survey, 2018).

4.5. The soils across the entirety of the site are described as freely draining, slightly acid loamy soils (Soilscapes, 2018).

5. Archaeological Background

5.1. The following description summarises selected information from an archaeological desk-based assessment (DBA) provided by CgMs Heritage (Flitcroft and Gillard 2017). The DBA examined existing archaeological evidence for the site and a surrounding 1km search area, by consulting the Essex Historic Environment Record, historic maps, and other sources.

5.2. The landscape surrounding the site is extensively populated with cropmarks, many of which have been interpreted as ring ditches, barrows and field systems, likely of prehistoric, and possibly Middle Bronze Age, date.

5.3. A non-designated heritage asset has been recorded within the site, located at the southern edge of the site at the Manor Farm Shop. A large circular 'ringwork' type enclosure, c. 67m across and dated to the Late Bronze Age, was initially identified from cropmarks visible in aerial photographs, and later partly archaeologically excavated in 1987. A section of 2m V-shaped ditch was excavated, Along with a possible Late Neolithic pit in the interior of the enclosure. Additionally, three post-pits located outside the ditch were identified, leading to an entranceway in the ditch. This enclosure has been compared in the DBA to an excavated example nearby at Springfield Lyons, to which it bears many similarities and may have been contemporary.

5.4. Other excavated prehistoric features within the DBA search area included:

5.4.1. Three urns and a hearth, recorded c.120m south of the site at Baddow Crescent, of Bronze age or Iron Age date.

5.4.2. Field systems, pits, post holes, ditches, an oven and two separate groups of cremation burials, spanning a period from the Late Bronze Age to the Middle Iron Age, recorded c.540m east of the site at Sandon Park & Ride.

5.4.3. A possible middle Bronze Age cemetery with hearth, found in 1930 and recorded c.340m west of the site.

5.5. There is little evidence of Roman activity recorded within the site and its landscape. Several Roman bricks, found incorporated within the walls of the Church of St Mary at Great Baddow (c.580m south-west of the site), and the Church of St Andrew at Sandon (c.730m south-east of the site), as well as a small area of re-used Roman tesserae found at Ladywell Lane (c.960m south of the site), all hint at the presence of at least one Roman building in the area.

5.6. No evidence of Anglo-Saxon or Early Medieval activity is recorded within the site or search area.

5.7. There is no recorded evidence of Medieval activity within the site. The site would have been situated in the agricultural hinterland of the Medieval cores of Great Baddow (c.550m to the south-west) and Sandon (c.850m to the south-east).

5.8. Map regression shows that in 1799 the site was subdivided into a number of large, straight-sided fields. 19th Century Ordnance Survey (OS) mapping marks a small farmstead at the eastern end of the site, labelled 'Foxhole Farm', with a pond, currently extant. 20th Century OS mapping shows gradual loss of these internal boundaries and joining of adjacent fields, leading to the current configuration of large fields. The 1972 OS map labels an electricity substation in the southern part of the site, no longer extant. A 1990 edition marks the creation of the triangular plot and building which are now occupied by the current Manor Farm Shop at the southern boundary of the site.

6. Methodology

6.1. Data Collection

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

6.1.2. 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

6.1.3. The magnetic data were collected using MS' bespoke hand-pulled, GNSS-positioned cart system.

6.1.3.1. MS' cart system was comprised of Bartington Instruments Grad 13 Digital Three-Axis Gradiometers. Positional referencing was through a Hemisphere S321 GNSS Smart Antenna RTK GPS outputting in NMEA mode to ensure high positional accuracy of collected measurements. The Carlson BRx6 GNSS Smart Antenna is accurate to 0.008m + 1ppm in the horizontal and 0.015m + 1ppm in the vertical.

6.1.3.2. 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.

6.1.3.3. 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.

6.2. Data Processing

6.2.1. 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.

6.3. Data Visualisation and Interpretation

6.3.1. This report presents the gradient of the sensors' total field data as greyscale images, as well as the total field data from the upper and/or 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 at different plotting ranges have been used for data interpretation. Greyscale images should be viewed alongside the XY trace plot (Figure 9). XY trace plots visualise the magnitude and form of the geophysical response, aiding in anomaly interpretation.

6.3.2. 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 (2018) was consulted as well, to compare the results with recent land usages.

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. The geophysical results are presented in consideration with satellite imagery (Figure 6), historic maps (Figure 7), LiDAR data (Figure 8) and XY Traces (Figure 9).

7.2.2. The fluxgate magnetometer survey has responded well to the survey area's environment. Weak and strong anomalies have successfully been identified against a consistent magnetic background, occasionally punctuated by natural changes in the superficial geology.

7.2.3. Broad natural geological features, particularly prevalent at the southern end of the site, have been identified from the magnetic total field and gradient plots (Figure 3 and 4). These are likely the result of natural erosion and deposition processes on steeper slopes.

7.2.4. A number of modern services run across large sections of the site, and minimal interference from metallic wire fencing has been identified at the edges of fields. Magnetic interference from the building and boundary at the Manor Farm Shop has obscured a 'halo' area of c.20m along the perimeter of the site, which may have incorporated and masked the any weaker responses resulting from archaeological features associated with the known Bronze Age ringwork. The location of a recent electricity substation has been identified as well.

7.2.5. A circular anomaly at the western end of the site has been identified and interpreted as probably archaeological in origin, along with a number of small linear anomalies nearby. This circular anomaly likely represent a buried ring-ditch feature; the enhanced magnetic response is indicative of magnetic enhancement during the infilling of negative cut features in the landscape. A smaller, isolated, less enhanced circular anomaly has been identified c.200m to the south-east. This has been more tentatively classified as possible archaeology, given its size, shape, less enhanced signal, which is similar in to natural geological activity nearby. These anomalies and the known Bronze Age ringwork at the present-day Manor Farm Shop follow a prominent alignment along

the top of broad sand-and-gravel spur overlooking lower head deposits and the Chelmer valley below (Figure 8).

7.2.6. The locations of several former field boundaries, documented in historic mapping, have been identified within the magnetic data. These include field boundaries that once subdivided the current configuration of larger fields, and a pair of parallel boundaries that once continued north from the pond at Foxhole Farm. A number of weak linear anomalies at field margins, resulting from repeated modern tractor movement, have also been identified.

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. **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.

7.3.1.3. **Ferrous (Discrete/Spread)** – Discrete ferrous-like, dipolar anomalies are likely to be the result of modern metallic disturbance on or near the ground surface. A ferrous spread refers to a concentrated deposition of these discrete, dipolar anomalies. Broad dipolar ferrous responses from modern metallic features, such as fences, gates, neighbouring buildings and services, may mask any weaker underlying archaeological anomalies should they be present.

7.3.2. Magnetic Results - Specific Anomalies

7.3.2.1. **Archaeology (Probable and Possible)** – A circular anomaly has been identified in the north-west of area 1, measuring c.14m across externally [**1c**]. The shape and signal of this anomaly is indicative of a buried ring-ditch feature, which may have formed the outer ditch of a round barrow. Such a feature would likely be prehistoric in date and may be tentatively dated more specifically to the Late Neolithic or Bronze Age. Within the interior of this circular anomaly are two small, discrete anomalies. One of these is dipolar in nature and sits close to the western side of the circular feature, while the other is a weaker positive anomaly closer to the centre. These may represent pit-like features, though it is difficult to confidently separate these from the natural distribution of discrete anomalies prevalent across the site, so they have been classified here as 'possible' archaeological features.

7.3.2.2. **Archaeology (Probable and Possible)** – A number of short linear anomalies [**1d**] adjacently to the south-east of the circular feature [**1c**] may represent associated ditch-like features, while similar anomalies further to away the

north-east [**1e**] have been more tentatively interpreted as being possibly archaeological in origin.

7.3.2.3. **Archaeology (Possible)** – A second isolated circular anomaly has been identified at the southern end of Area 1 [**1f**]. This anomaly is weaker in magnitude, more elliptical in shape, and smaller than anomaly [**1c**], at c.12m across externally, with no discernable internal responses or associated anomalies identified nearby. It is also located in an area populated with responses that have been interpreted as natural in origin. As such, it has been classified as 'possible archaeology'. Based on its weaker magnetic response, it may represent a more ephemeral buried feature than the ring-ditch to the north, being either less enhanced with archaeological and environmental material, or more heavily degraded by more recent ploughing activity.

7.3.2.4. **Agricultural (Strong, Weak, Spread) –** At the western end of Area 3, a weak linear anomaly running E-W has been identified, which collocates with a known field boundary recorded in 19th Century OS mapping (Flitcroft and Gillard 2017: Figure 5). A pair of parallel linear spreads of discrete magnetic responses extending north from the pond in Area 3 also correspond with a pair of linear boundaries recorded in the same map, associated with Foxhole Farm (Figure 7). This spread type of response is indicative of mixed ferrous and other highly magnetic material, rather than a ditch feature which has been naturally in-filled.

7.3.2.5. **Agricultural (Trend)** – Along the northern margins of Areas 1 and 3, and the southern margin of Area 3, pairs of linear magnetic trends have been identified. These run parallel with the boundary of the fields, and likely result from repeated tractor movement.

7.3.2.6. **Natural (Strong, Weak) –** A number of broad bands of magnetic enhancement have been identified towards the southern end of Areas 2 and 3. These are most clearly visible in the total field greyscale plot (Figure 3). Many of these are curving and 'chevron' shaped. Their location corresponds with the area of recorded superficial sand and gravel deposits on the steepest slopes at the southern end of the site (Figure 8). The chevron-shaped anomalies are all oriented the same way, 'pointing' downslope to the north. Therefore, it is likely that these anomalies were created by natural variation in geology and the downhill erosion of soils and superficial deposits.

7.3.2.7. **Natural (weak) –** At the southern end of Area 1, a number of weak, broken linear anomalies have been identified, many of which join in a 'branching' pattern and follow multiple orientations. Based on their random distribution and orientation, these are most likely representative of natural variation in the local geology. Alternatively, they may represent a unique pattern of weathering, erosion or deposition of natural material.

7.3.2.8. **Service –** A strong negative linear anomaly has been identified extending north-west from the south-east corner of Area 3. This follows the line of a set of powerlines suspended from a line of telegraph poles, and appears to be

negative in polarity from the gradient (Figure 4), but the total field plots of the upper and lower sensors shows that the response is more positively enhanced than the surrounding area. This response is typical of a buried service, which follows the same alignment as the overhead powerlines.

7.3.2.9. **Service –** A weak negative anomaly [**1b**] has been identified at the north end of Area 1, running south-east from a discrete ferrous response collocated with a surface manhole. Many similar manholes are distributed across Areas 2 and 3 ([**2a**] and [**3a**]). This linear anomaly likely represents a non-magnetic service, such as a plastic pipe or buried gravel drain.

7.3.2.10. **Ferrous (Strong) –** A large, discrete ferrous anomaly [**3d**] has been identified which spans across the south-east corner of Area 3 and the south-west corner of Area 4. This anomaly corresponds with the location of an electricity substation marked on a 1972 and 1990 OS map (Flitcroft and Gillard 2017: Figure 7).

7.3.2.11. **Undetermined (Weak) –** At the south-eastern end of Area 3, a weak, U-shaped anomaly has been identified [**3b**]. It bears somewhat of a resemblance to other anomalies identified as naturally-derived (7.3.2.7), but is located further away from these and oriented differently. Therefore, without further additional information, a more precise interpretation cannot be confidently asserted.

7.3.2.12. **Undetermined (Strong, Weak) –** At the centre of Area 5, two short linear positive anomalies have been identified which, if extended, would meet at an acute angle in the south of the area [**5a**]. Based on their clearly-defined linear shape and consistent response, these could be interpreted as either potentially agricultural or archaeological in origin, as they do not correlate with any known or mapped features. In the absence of additional information, it is difficult to confidently classify these anomalies with a specific potential origin.

8. Conclusions

8.1. The fluxgate magnetometer survey has responded well to the survey area. A variety of types of magnetic responses, weak and strong in magnitude, have been successfully identified against their background. Minimal interference from modern services, buildings, field boundaries and overhead powerlines has been identified.

8.2. The location of the known Bronze Age ringwork and any associated features could not be confirmed due to magnetic disturbance from, and its collocation with, the present-day Manor Farm Shop. However, several other previously unknown archaeological features have been identified to the north-west of this, which may aid in expanding on the understanding of the local prehistoric landscape.

8.3. One area of probable archaeological activity has been identified, which comprises a potential ring-ditch feature, possible internal pits, and associated linear anomalies nearby. An additional isolated ring-shaped feature, which is possibly archaeological in origin, has been identified, though it is weaker in magnitude and is located within an area of similar natural responses. These potentially archaeological features are located along a spur-top overlooking the Chelmer valley, as is the known Bronze Age ringwork at the south of the site. The distribution of these features hints at an intentional selection of this prominent location within the landscape.

8.4. Multiple field boundaries recorded in historic mapping have been identified in the geophysical data. These have subsequently been ploughed through, as fields were joined to create their current configuration.

8.5. Modern ploughing activity was identified along the margins of some fields, as were a number of different services running across the site.

8.6. Several areas of anomalies of undetermined activity were identified; whilst they may have been natural or agricultural in origin, an archaeological explanation may be equally likely. This is particularly true in the north-east corner of the site, where two distinct linear anomalies were identified which have no correspondence to features marked on historic maps.

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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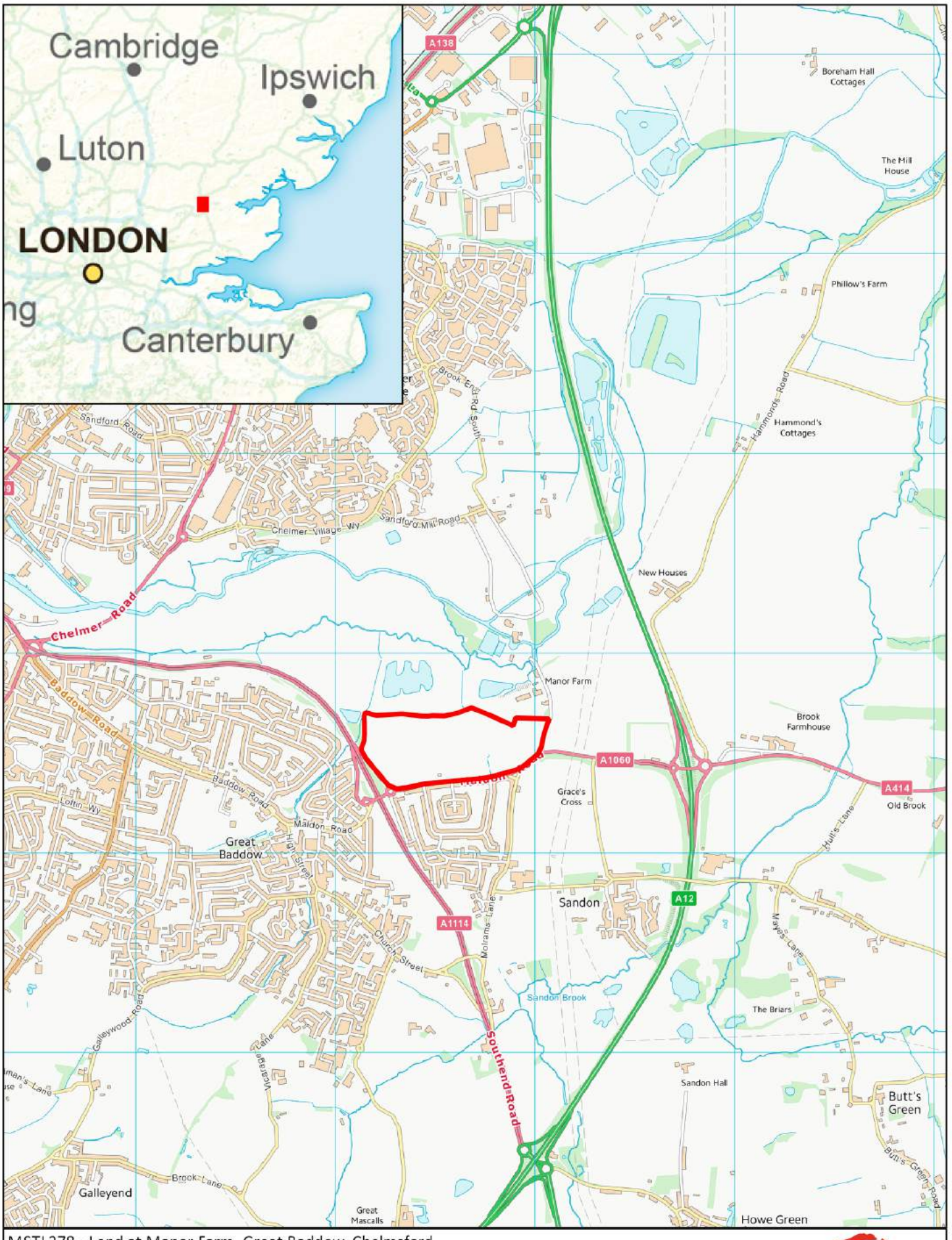


MSTL278 - Land at Manor Farm, Great Baddow, Chelmsford
Figure 1 - Site Location
1:25,000 @ A4

Site Boundary

N

0 0.5 1 km

magnitude surveys

573000
574000
206000
205000
Manor Farm
Area 1
Area 2
Area 3
Area 4
Area 5
A1
Maldon Road
Baddow Road
Maldon Road
High Street
Great Baddow
Grace's Cross

MSTL278 - Land at Manor Farm, Great Baddow, Chelmsford
Figure 2 - Location of Survey Areas
1:5,000 @ A3

Survey Extent

N

0 100 200 300 m

magnitude surveys

573100 573200 573300 573400 573500 573600 573700 573800 573900 574000

205800 205700 205600 205500 205400 205300

Area 1

Area 2

Area 3

Area 4

Area 5

Maldon Road

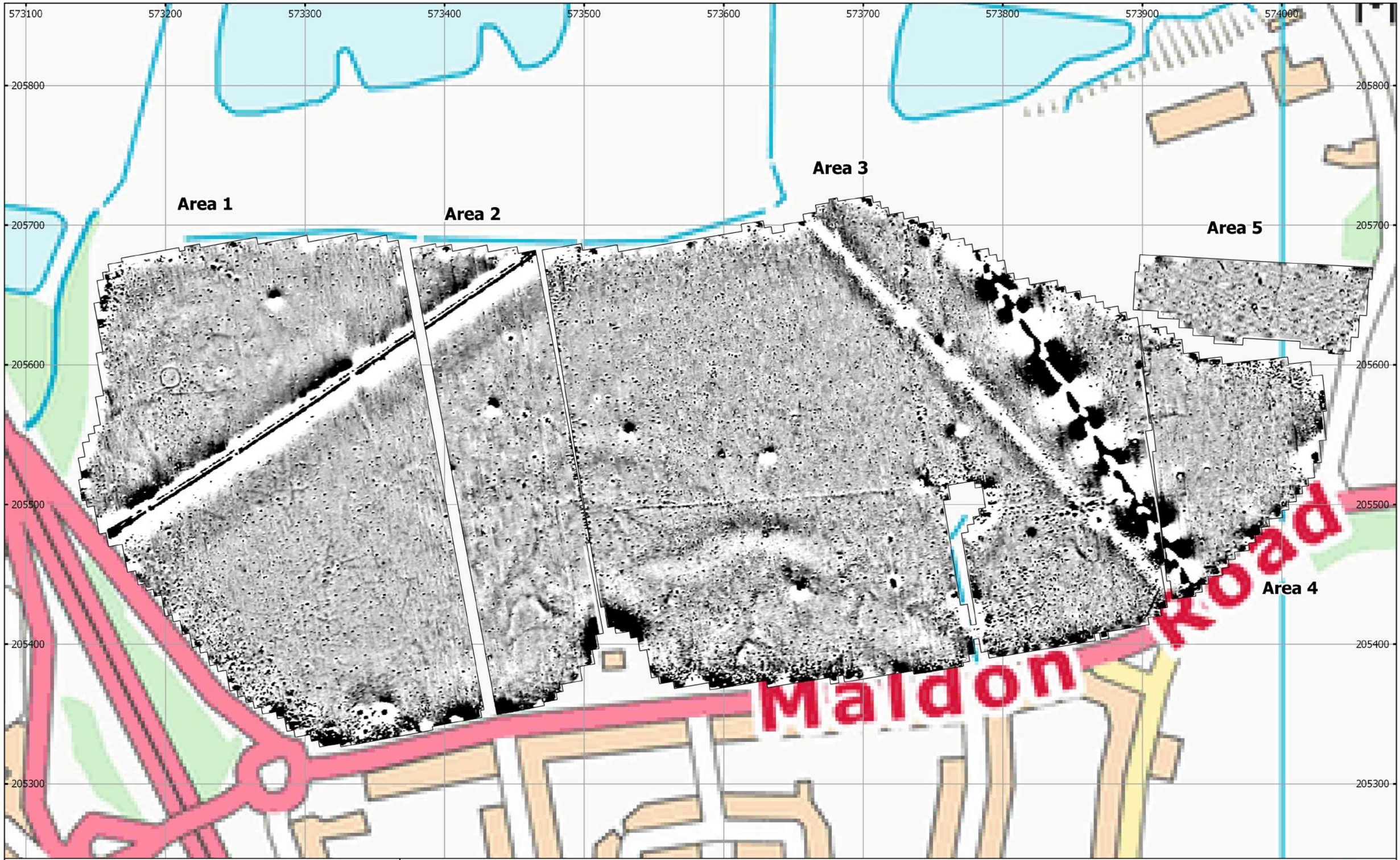
MSTL278 - Land at Manor Farm, Great Baddow, Chelmsford
Figure 3 - Magnetic Total Field (Lower Sensor)
1:2500 @ A3

48,997 nT 49,005

N

0 50 100 150 m

magnitude surveys



MSTL278 - Land at Manor Farm, Great Baddow, Chelmsford
Figure 4 - Magnetic Gradient
1:2500 @ A3

-1 nT 2

N

0 50 100 150 m

magnitude surveys

573100 573200 573300 573400 573500 573600 573700 573800 573900 574000

205800 205700 205600 205500 205400 205300

Area 1

Area 2

Area 3

Area 4

Area 5

1a 1b 1c 1d 1e 1f

2a

3a 3b 3c 3d

5a

Maldon Road

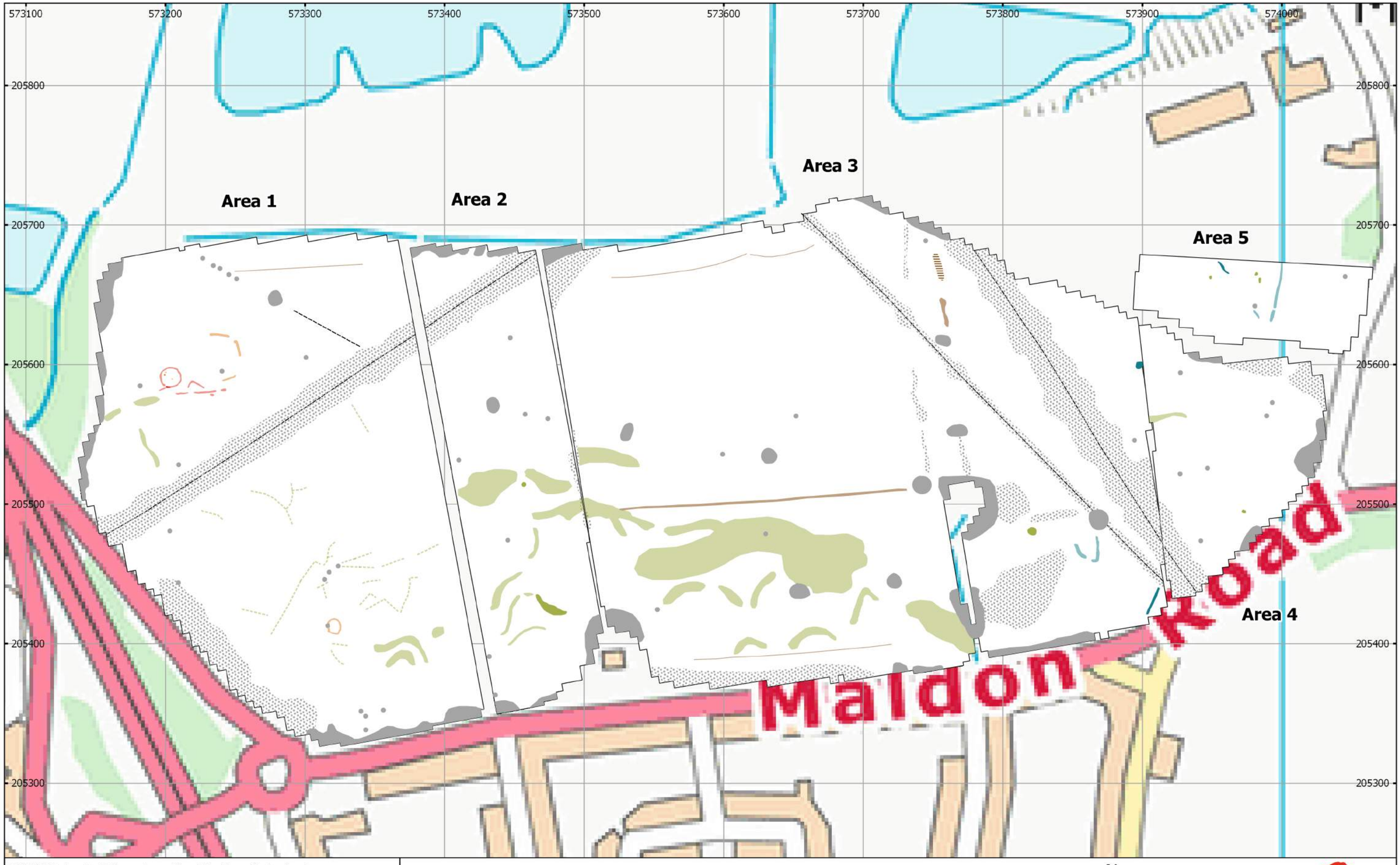
MSTL278 - Land at Manor Farm, Great Baddow, Chelmsford
Figure 5 - Magnetic Interpretation
1:2500 @ A3

- Agricultural (Spread)
- Agricultural (Weak)
- Archaeology Possible (Strong)
- Archaeology Possible (Weak)
- Archaeology Probable (Strong)
- Archaeology Probable (Weak)
- Ferrous (Dipolar)
- Ferrous (Spread)/Magnetic Disturbance
- Natural (Strong)
- Natural (Weak)
- Undetermined (Strong)
- Undetermined (Weak)
- Agricultural (Trend)
- Natural (Trend)
- Service

N

0 50 100 150 m

magnitude surveys



MSTL278 - Land at Manor Farm, Great Baddow, Chelmsford
Figure 5 - Magnetic Interpretation
1:2500 @ A3

N

0 50 100 150 m

magnitude surveys

MSTL278 - Land at Manor Farm, Great Baddow, Chelmsford
Figure 6 - Magnetic Interpretation Over Satellite Imagery
1:2500 @ A3

- Agricultural (Spread)
- Agricultural (Weak)
- Archaeology Possible (Strong)
- Archaeology Possible (Weak)
- Archaeology Probable (Strong)
- Archaeology Probable (Weak)
- Ferrous (Dipolar)
- Ferrous (Spread)/Magnetic Disturbance
- Natural (Strong)
- Natural (Weak)
- Undetermined (Strong)
- Undetermined (Weak)
- Agricultural (Trend)
- Natural (Trend)
- Service

N

0 50 100 150 m

magnitude surveys

573100 573200 573300 573400 573500 573600 573700 573800 573900 574000

205800 205700 205600 205500 205400 205300

Area 1

Area 2

Area 3

Area 4

Area 5

1a 1b 1c 1d 1e 1f

2a

3a 3b 3c 3d

5a

F.P.

W B

△ 116

G.P

B.M.112

Chelmsford 2 } M.S
Maldon 8

116

B.M.120·3

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Figure 7 - Magnetic Interpretation Over Historic Maps
1:2500 @ A3

Contains historic maps: Ordnance Survey, 6" 2nd edition c. 1882-1913 © National Library of Scotland

- Agricultural (Spread)
- Agricultural (Weak)
- Archaeology Possible (Strong)
- Archaeology Possible (Weak)
- Archaeology Probable (Strong)
- Archaeology Probable (Weak)
- Ferrous (Dipolar)
- Ferrous (Spread)/Magnetic Disturbance
- Natural (Strong)
- Natural (Weak)
- Undetermined (Strong)
- Undetermined (Weak)
- Agricultural (Trend)
- Natural (Trend)
- Service

N

0 50 100 150 m

magnitude surveys

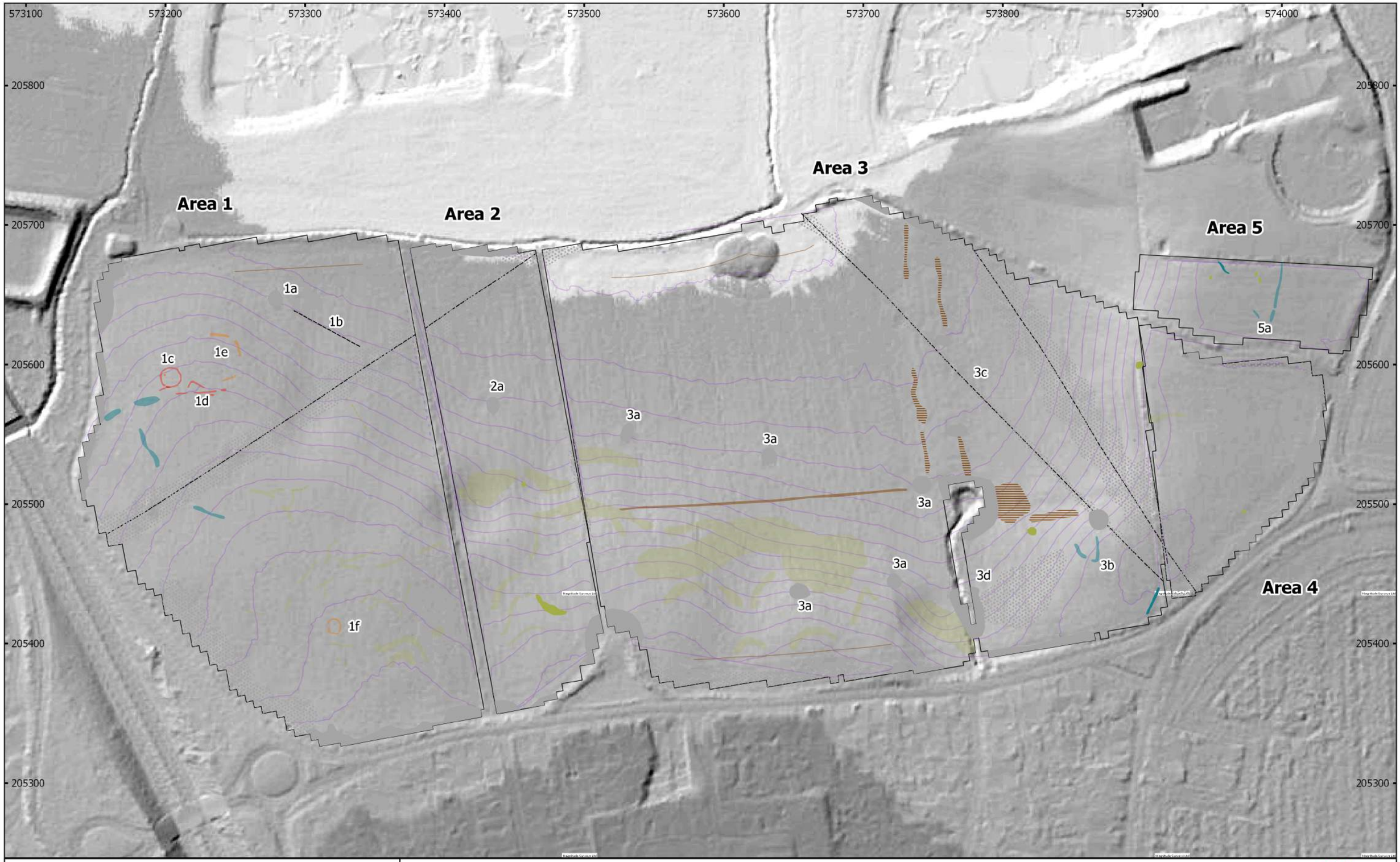

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Figure 8 - Magnetic Interpretation Over LiDAR (Composite DSM) and 1m Contours
1:2500 @ A3

- Agricultural (Spread)
- Agricultural (Weak)
- Archaeology Possible (Strong)
- Archaeology Possible (Weak)
- Archaeology Probable (Strong)
- Archaeology Probable (Weak)
- Ferrous (Dipolar)
- Ferrous (Spread)/Magnetic Disturbance
- Natural (Strong)
- Natural (Weak)
- Undetermined (Strong)
- Undetermined (Weak)
- Agricultural (Trend)
- Natural (Trend)
- Service

N

0 50 100 150 m

magnitude surveys

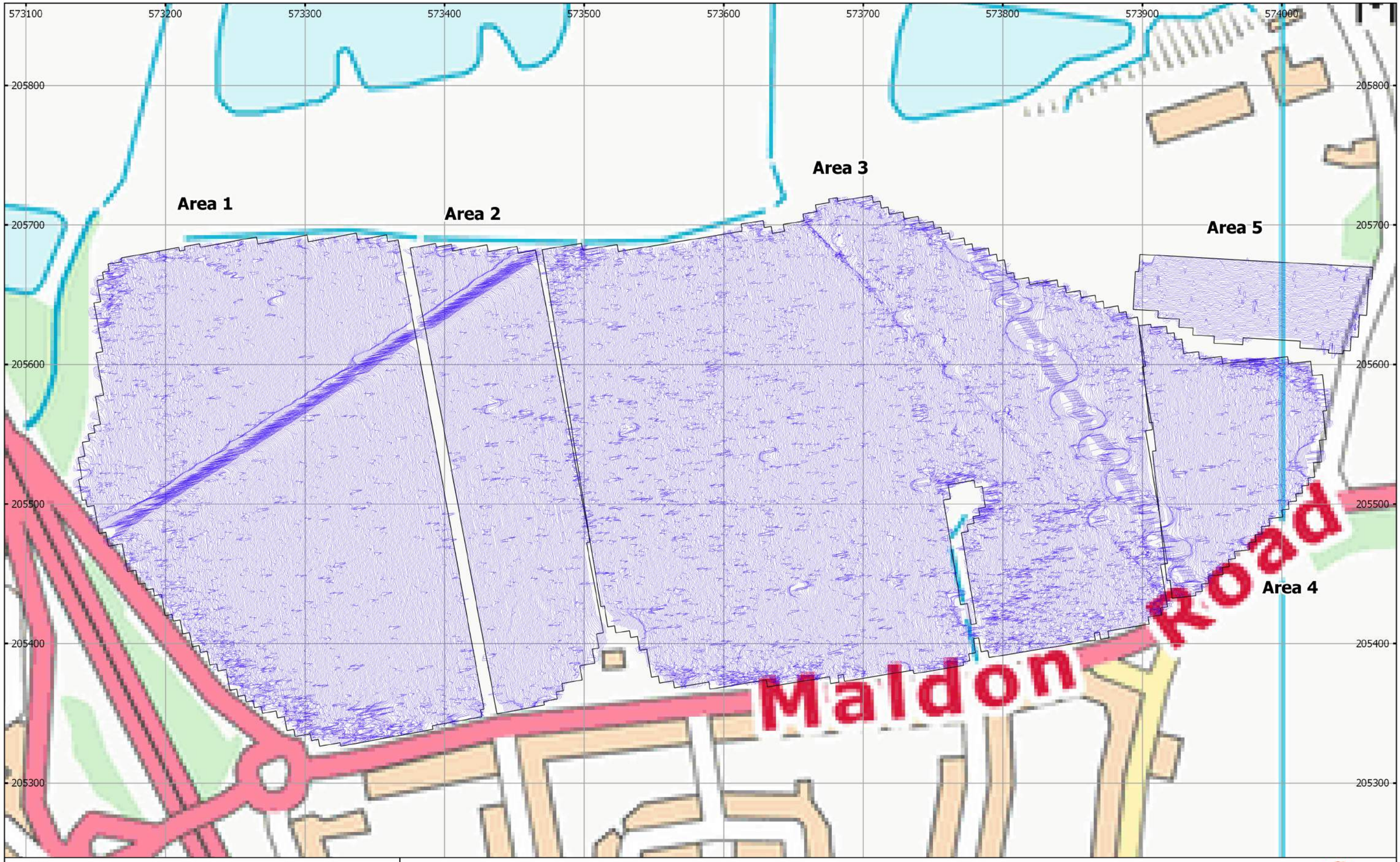

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Figure 9 - XY Trace Plot
50nT/cm at 1:2500 @ A3

N

0 50 100 150 m

magnitude surveys