



**Geophysical Survey Report  
Main Road, Brailsford,  
Ashbourne, Derbyshire**

**For  
Armour Heritage Limited**

**Magnitude Surveys Ref: MSSK1908**

**April 2025**



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**Issue Date:**

20 June 2025

## **Abstract**

Magnitude Surveys was commissioned to assess the subsurface archaeological potential of a 120ha site off Main Road, Brailsford, Ashbourne, Derbyshire. A fluxgate gradiometer was successfully undertaken across the survey area. Several anomalies of probable archaeological origins were detected, with some potentially representing annular enclosures. Anomalies of possible archaeological origins were also detected. Agricultural activity was evidenced in the form of historical field boundaries, Medieval ridge and furrow, and modern ploughing trends. Anomalies of undetermined origins were detected across the site, for which archaeological origins cannot be discounted.

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## 1. Introduction

- 1.1. Magnitude Surveys Ltd (MS) was commissioned by Armour Heritage to undertake a geophysical survey over a c. 120 ha area of predominantly agricultural land at Main Road, Brailsford, Ashbourne, Derbyshire (SK 27036 41991).
- 1.2. The geophysical survey comprised quad-towed and hand-carried GNSS-positioned fluxgate gradiometer survey. Magnetic survey is the standard primary geophysical method for archaeological applications in the UK due to 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 featured buildings (SFBs) 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, 2020) and the European Archaeological Council (Schmidt *et al.*, 2015).
- 1.4. It was conducted in line with a WSI produced by MS (Stead, 2024).
- 1.5. The survey commenced on 04/11/2024 and took three weeks to complete. A second deployment to complete the survey commenced on 03/04/25 and took two 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 for Archaeological Prospection).
- 2.2. The directors of MS are involved in cutting edge 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 was 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 Paul Johnson has a PhD in archaeology from the University of Southampton, is a Fellow of the Society of Antiquaries of London and a Member of CIfA, has been a member of the ISAP Management Committee since 2015, and is currently the chair for the EAA Archaeological Prospection Community to the board of the European Archaeological Association.
- 2.3. All MS managers, field and office staff have degree qualifications relevant to archaeology or geophysics and/or field experience.

## 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. 850m east of Brailsford, Derbyshire (Figure 1). A fluxgate gradiometer survey was successfully undertaken across 21 fields under arable cultivation and pasture conditions totalling c. 120 ha. The survey area bordered the A52 dual carriageway in the south, the Wildpark and Little Woods to the east, and Top House and Hazlehurst Farms to the northeast and northwest (Figure 2).

4.2. Survey considerations:

| Survey Area | Ground Conditions           | Further Notes                                                                                                                                                                                                                                                                                                                                            |
|-------------|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1           | Sloped arable field.        | The survey area was bordered to the east, north and south by hedgerows, with treeline to the west.                                                                                                                                                                                                                                                       |
| 2           | Sloped arable field.        | The survey area was bordered to the east, south and north by hedgerows and to the west by trees. Two pylons with overhead power cables crossed the western end of the survey area. Two telegraph poles with overhead cables crossed the northwest corner of the survey area.                                                                             |
| 3           | Sloped arable field.        | The survey area was bordered to the north, east and south by hedgerows and to the west by hedgerows and trees.                                                                                                                                                                                                                                           |
| 4           | Sloped arable field.        | The survey area was bordered to the north, west and south by hedgerows and trees, and to the west by hedgerows.                                                                                                                                                                                                                                          |
| 5           | Sloped arable field.        | The survey area was bordered to the north by trees and by hedgerows to the east, south and west.                                                                                                                                                                                                                                                         |
| 6           | Sloped grassland – pasture. | The survey area was bordered to the north, south, and west by hedgerows and trees, with treeline to the east. Overhead power cables ran across the middle of the survey area from northwest to the southeast.                                                                                                                                            |
| 7           | Sloped arable field.        | The survey area was bordered to the east, north, and south by hedgerows and trees, and to the west by a farm track. A metal gate present along the northern boundary. A pylon with overhead cables ran along the southern boundary.                                                                                                                      |
| 8           | Sloped grassland – pasture. | The survey area was surrounded by hedgerows, trees, and wooden fences with barbed wire. A telegraph pole and overhead cables crossed the area from northwest to southeast with an offshoot from the centre to the southwest. In the middle of the southern boundary, there was a metal gate. A building was located to the southwest of the survey area. |
| 9           | Undulating arable field.    | The survey area was surrounded by hedgerows and trees, with wooden fences and barbed wire situated in the middle of the western boundary.                                                                                                                                                                                                                |

|    |                                                                             |                                                                                                                                                                                                                                                                                                                                 |
|----|-----------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    |                                                                             | Several telegraph poles with overhead cables crossed the area from northwest to southeast.                                                                                                                                                                                                                                      |
| 10 | Sloped arable field (centre), sloped pastureland (north, southwest).        | The survey area was bordered on all sides by hedgerows and trees. An overhead cable ran across the northwest corner of the survey area.                                                                                                                                                                                         |
| 11 | Majority sloped arable field, sloped pastureland (small northwest section). | The survey area was bordered on all sides by hedgerows and trees. A ditch ran near and parallel to the eastern boundary.                                                                                                                                                                                                        |
| 12 | Majority sloped arable field, sloped pastureland (small northern section).  | The survey area was bordered on all sides by hedgerows and trees. A pylon was situated in the centre of the area with power lines running approximately north-south.                                                                                                                                                            |
| 13 | Flat grassland – pasture.                                                   | The survey area was bordered to the east, west, and south by hedgerows and trees, and to the north by overgrown bushes. Several trenches occupied the centre of the survey area trending north-south. The western section of the area falls under a local wildlife scheme and was therefore not available for survey.           |
| 14 | Flat grassland – pasture.                                                   | The survey area was bordered to the north, west, and south by hedgerows and trees with a metal fence to the east. Livestock (sheep) were present in the north of the survey area during survey works.                                                                                                                           |
| 15 | Sloped arable field (west), sloped pastureland (east).                      | The survey area was bordered on all sides by hedgerows and trees. A pond was located in the northeast corner of the field.                                                                                                                                                                                                      |
| 16 | Flat grassland – pasture.                                                   | The survey area was bordered on all sides by hedgerows and trees. A feeding trough was located in the southwest corner.                                                                                                                                                                                                         |
| 17 | Flat arable field.                                                          | The survey area was bordered on all sides by hedgerows, bushes and fences. The ground was heavily rutted along the northern and southern boundaries.                                                                                                                                                                            |
| 18 | Flat grassland – pasture.                                                   | The survey area was bordered to the west and south by hedgerows and wire fences with open boundary to the east and north. An overhead cable crossed the centre of the area. Livestock (sheep) were present during survey works.                                                                                                 |
| 19 | Flat grassland – pasture.                                                   | The survey area was bordered on all sides by hedgerows. An overhead cable ran along the northern boundary. The ground was heavily rutted near the southern boundary.                                                                                                                                                            |
| 20 | Sloped arable field (west) and sloped grassland – pasture (east and south)  | The survey area was bordered to the north by Allen Lane. Treeline bordered survey area in the northeast and southwest directions and hedgerow formed the remaining borders. Overhead cables present across the north area of survey area running northeast to west. Several large trees present in middle of the field. An area |

|    |                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|----|--------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    |                                                  | near the western boundary was un-surveyed due to tree line and heavily rutted ground conditions.                                                                                                                                                                                                                                                                                                                                                               |
| 21 | Majority flat arable field, flat pasture (south) | The survey area was bordered on all sides by trees. A pylon was present near the southern border with overhead cables running northwest to southeast. Telegraph poles were present with overhead cables running from south to northeast across the survey area. Two large trees were present in the centre of the survey area. One area of the field extending from the northern boundary to the southeastern was unable to be surveyed due to heavy ploughing |

- 4.3. The majority of the site is underlain by mudstone and siltstone of the Tarporley Siltstone Formation. The southwestern section of the site (Areas 2, 3 and 5) is underlain by outcropping interbedded mudstone and limestone of the Widmerpool Formation and Pebbly (Gravelly) Sandstone of the Chester Formation in the north of Area 17 and the east of Area 18. Superficial deposits in the survey area comprise mid-Pleistocene till (Diamicton), recorded under Areas 1-3, 11 and 12 (British Geological Survey, 2025).
- 4.4. The soils in the survey area consist of freely draining slightly acid sandy soil in the north of Area 17 and the east of Area 18, slightly acid loamy and clayey soils with impeded drainage in the centre of the survey area and slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils in the northwest of the survey area (Areas 1, 11, 12, 21 and parts of Areas 2, 10, 13 and 14). (Soilscapes, 2025).

## 5. Archaeological Background

- 5.1. The following is a summary of an Archaeological Impact Assessment (AIA) produced and provided by Armour Heritage Limited (Chelu, 2025), of Heritage assets within a 1km radius.
- 5.2. There are no known recorded Heritage assets within the survey area.
- 5.3. There is no evidence of prehistoric, Bronze Age or Iron Age activity recorded within the survey area or wider environs.
- 5.4. There are no recorded Romano-British activity within the survey area. Activity in the wider environs has been recorded as findspots of pottery sherds (MDR2776), located c. 150m southwest of the survey area.
- 5.5. There is no evidence of Early Medieval activity recorded within the survey area. In the wider environs, a manor at Brailsford was first recorded in the Domesday book of 1086, comprising a small area of two carucates. A Scheduled monument of three fishpond earthworks (HER 1020944), located c. 120m west of the survey area, that are potentially associated with the proposed deserted medieval village at Mercaston (MDR2787), located c. 350m northeast of the survey area. Two further sites of deserted medieval villages one as a Conservation Area at Brailsford, located c. 700m southwest of the survey area, and the Scheduled monument at Mugginton of earthworks, abandoned settlements and field system (HER 1020945), c. 950m northeast of the survey area.

5.6. Post-medieval activity consisted of settlement expansion and agricultural opportunities evident as numerous Grade II listed farms, notably Top Wildpark Farm (HER 1311459) located c. 20m beyond the boundaries of the survey area. In the wider environs the Schoolhouse Farm and outbuildings (MDR23209, MDR23210) located c. 530m north of the survey area, Netherfield Farm located c. 850m southwest of the survey area. Various Grade II Listed buildings are recorded as the remodelled Brailsford House (HER 1158246) located c. 550m southwest of the survey area, a bakery (HER 1158191), School House (HER 1335040), and Towns Well (HER 1335042), all located c. 800m west of the survey area. The Scheduled site of the Mercaston Old Mill (MDR7772) located c. 400m northwest of the survey area.

5.7. Modern activity is largely a limited extension of post-medieval development to field systems and settlements.

## 6. Methodology

### 6.1. Data Collection

6.1.1. 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.

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

6.1.3. Table of survey strategies:

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

6.1.4. The magnetic data were collected using MS' bespoke quad-towed or hand-carried, GNSS-positioned system.

6.1.4.1. MS' cart and hand-carried 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.

6.1.4.2. 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.



- 6.1.4.3. 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 the EAC and Historic England guidelines for 'minimally enhanced data' (see Section 3.8 in Schmidt *et al.*, 2015: 33 and Section IV.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 (Figures 15, 18, 21, 24, 27, 30, 33, 36, 39 and 42), as well as the total field data from the lower sensors (Figures 3, 6, 9 and 12). 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 17, 20, 23, 26, 29, 32, 35, 38, 41 and 44). XY trace plots visualise the magnitude and form of the geophysical response, aiding 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, historical maps, LiDAR data, and soil and geology maps. Google Earth (2025) was also consulted, to compare the results with recent land use.

6.3.3. 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 from further work, in order to constantly improve our knowledge and service.

### 7.2.Discussion

7.2.1. The geophysical results are presented as standalone interpretation maps and in combination with satellite imagery and historical maps (Figures 4, 7, 10 and 13).

7.2.2. A fluxgate gradiometer survey was carried out at Main Road, Brailsford, Ashbourne, Derbyshire. The survey responded well to the environment of the survey area and was successfully completed across c. 120ha. The survey has identified anomalies of probable



and possible archaeological origin, alongside other anomalies of agricultural, natural and undetermined origins.

7.2.3. The results include anomalies of probable and possible archaeological origins. Of these a curvilinear probable archaeological anomaly detected in Area 1 has also been identified in aerial imagery, possibly indicating the remains of a ditch or earthwork. Annular anomalies were detected in Areas 3, 7 and 13, possibly representing circular earthworks.

7.2.4. The geophysical survey has detected multiple anomalies indicative of agricultural activity across multiple fields. The linear anomalies likely correspond to former field boundaries that are visible on historic mapping. Historical agricultural trends have been detected across most of the fields in the survey area in the form of ridge and furrow ploughing. Modern ploughing trends were also detected throughout the survey area. A strongly dipolar amorphous anomaly has been identified within Area 20 (Figure 27). This anomaly corresponds to the location of a pond, depicted on historical mapping (Figure 13).

7.2.5. Anomalies of natural origin have been detected across the survey area (Figures 21, 24, 30, 33 36, 39 and 42). These anomalies likely are the result of variations within the underlying geology or geological processes.

7.2.6. Anomalies of undetermined origin were detected across the survey area. Though these are potentially of agricultural or even natural origins, the possibility of them being related to archaeology cannot be discounted.

## 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. **Ferrous (Spike)** – Discrete dipolar anomalies are likely to be the result of isolated pieces of modern ferrous debris on or near the ground surface.

7.3.1.3. **Ferrous/Debris (Spread)** – A ferrous/debris spread refers to a concentration of multiple discrete, dipolar anomalies usually resulting from highly magnetic material such as rubble containing ceramic building materials and ferrous rubbish.

7.3.1.4. **Magnetic Disturbance** – The strong anomalies produced by extant metallic structures, typically including fencing, pylons, vehicles and service pipes, have been classified as ‘Magnetic Disturbance’. These magnetic ‘haloes’ will obscure weaker anomalies relating to nearby features, should they be present, often over a greater footprint than the structure causing them.

7.3.1.5. **Undetermined** – Anomalies are classified as Undetermined when the origin of the geophysical anomaly is ambiguous and there is no supporting contextual

evidence to justify 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 distinct from those caused by ferrous sources.

### 7.3.2. Magnetic Results - Specific Anomalies

- 7.3.2.1. **Probable Archaeology (Strong and Weak)** – A curvilinear collection of anomalies of strong and weak magnetic enhancement were detected in Area 2 [2a] (Figure 31). The morphology of the anomalies suggests a field boundary or ditch was present here, though as none are recorded on historical maps at this location a Medieval origin (or earlier) has been inferred.
- 7.3.2.2. **Probable Archaeology (Strong and Weak)** – Instances of annular and sub-annular anomalies of weak magnetic enhancement ([3a] and [7a], Figure 31), and of weak and strong magnetic enhancement ([13a], Figure 16) have been detected. Two of the anomalies ([3a] and [7a]) are located adjacent to the boundary between Areas 3 and 7, with the third located in the centre of Area 13. All three of the anomalies appear to form partial circular shapes with gaps in the outer edge, and all exhibit internal, irregularly shaped discrete anomalies. These features could potentially represent annular enclosures.
- 7.3.2.3. **Possible Archaeology (Weak)** – Several curvilinear anomalies of weak magnetic enhancement have been detected in Areas 2, 3 and 4 (Figures 31, 40 and 43). Due to similarities in morphology these may be of contemporary origins with the probable archaeological anomalies discussed above, though their magnetic signal characteristics are not consistent. Therefore, these have been classified as being of possible archaeological origin. Additional weakly enhanced linear, curvilinear and partial-rectilinear anomalies have been detected in the northwest corner of Area 14 (Figure 16) and in the north of Area 19 (Figure 19), also classified as of possible archaeological origins due to their morphology.
- 7.3.2.4. **Agricultural (Strong, Weak and Trend)** – Linear and curvilinear anomalies of strong and weak magnetic enhancement have been detected across the site. These anomalies correspond either to field boundaries identified on historical maps or to current divisions in land use and so are interpreted as agricultural. Modern agricultural activity was identified from linear trends aligned with modern ploughing directions observed on satellite imagery. Field drainage systems were also identified from arrangements of linear trends in Areas 2, 5 and 9 (Figures 22, 31, 34, 37, 40 & 43).
- 7.3.2.5. **Agricultural (Spread)** – A zone with a strongly dipolar enhancement was detected in the northwest corner of Area 20 (Figures 13 & 28). Historical mapping depicts a pond located in this area; this anomaly likely represents the infill of this pond with a magnetically enhanced material.
- 7.3.2.6. **Ridge and Furrow** – Linear trends have been detected in Areas 4, 6, 8, 9, 10, 15, 17, 19 & 20 (Figures 16, 19, 22, 25, 28, 31, 34, 37, 40 & 43) that are consistent with Medieval ridge and furrow ploughing regimes.

- 7.3.2.7. **Natural (Weak and Spread)** – Amorphous weakly enhanced anomalies have been detected across the survey area (Figures 21, 24, 30, 33 36, 39 and 42). Where these anomalies are present in the west of the survey area, they could be representative of variations in the underlying sand and gravel deposits. A weakly enhanced curvilinear anomaly has been identified crossing Area 21, it is possible that this anomaly represents a depositional limit of the superficial till deposits.
- 7.3.2.8. **Ferrous Spread** – Area 20 displays a zone of a weakly magnetic enhancement across the majority of the survey area. This is distinct from the background (as evidenced by a clear zone devoid of this enhancement in the south of Area 20). It is likely that this is the result of the deposition of green waste within the area.
- 7.3.2.9. **Undetermined (Strong, Weak and Spread)** – Linear and curvilinear anomalies of weak magnetic enhancement were detected across the site. Three discrete anomalies of undetermined origins were detected in Area 1, with four anomalies detected in Area 2 (Figure 22 & 31) and one each detected in Areas 15 (Figure 16 & 19) and 17 (Figure 19), all of strong enhancement. Three weakly enhanced, discrete anomalies were detected in Area 15 (Figure 16 & 19). A spread of amorphous, weakly enhanced magnetic signal was detected in the northwestern sector of Area 2 (Figure 22 & 31), classed as undetermined. None of the anomalies classed as undetermined are suggestive of significant archaeological activity, though an archaeological provenance cannot be discounted.

## 8. Conclusions

- 8.1. A fluxgate gradiometer was successfully undertaken across the survey areas and the equipment responded well to the environment of the site. Magnetic disturbance was limited to areas in proximity to above ground features such as metallic fences, gates and pylons, and to buried services and green waste in some areas.
- 8.2. Several anomalies of probable archaeological origins were detected, with some potentially representing annular enclosures and a probable ditch or earthwork.
- 8.3. Anomalies of possible archaeological origins were detected, some of similar morphology though of different signal characteristics compared with the potential annular enclosures. Linear, curvilinear and partial rectilinear anomalies of possible archaeological origins were also identified.
- 8.4. Agricultural activity is evident from linear anomalies corresponding with historical field boundaries, a former pond, and trends relating to ridge and furrow ploughing and to modern ploughing trends were observed.
- 8.5. Variations within the underlying geology of the survey area were detected, these are likely to be the result of deposition of different sands and gravels within the survey area or other geological processes.
- 8.6. Anomalies of undetermined origins were detected across the survey areas, for which archaeological origins cannot be discounted.

## 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 any dictated time embargoes.

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## 11. References

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[<http://landis.org.uk>]. Accessed 12/12/2025.

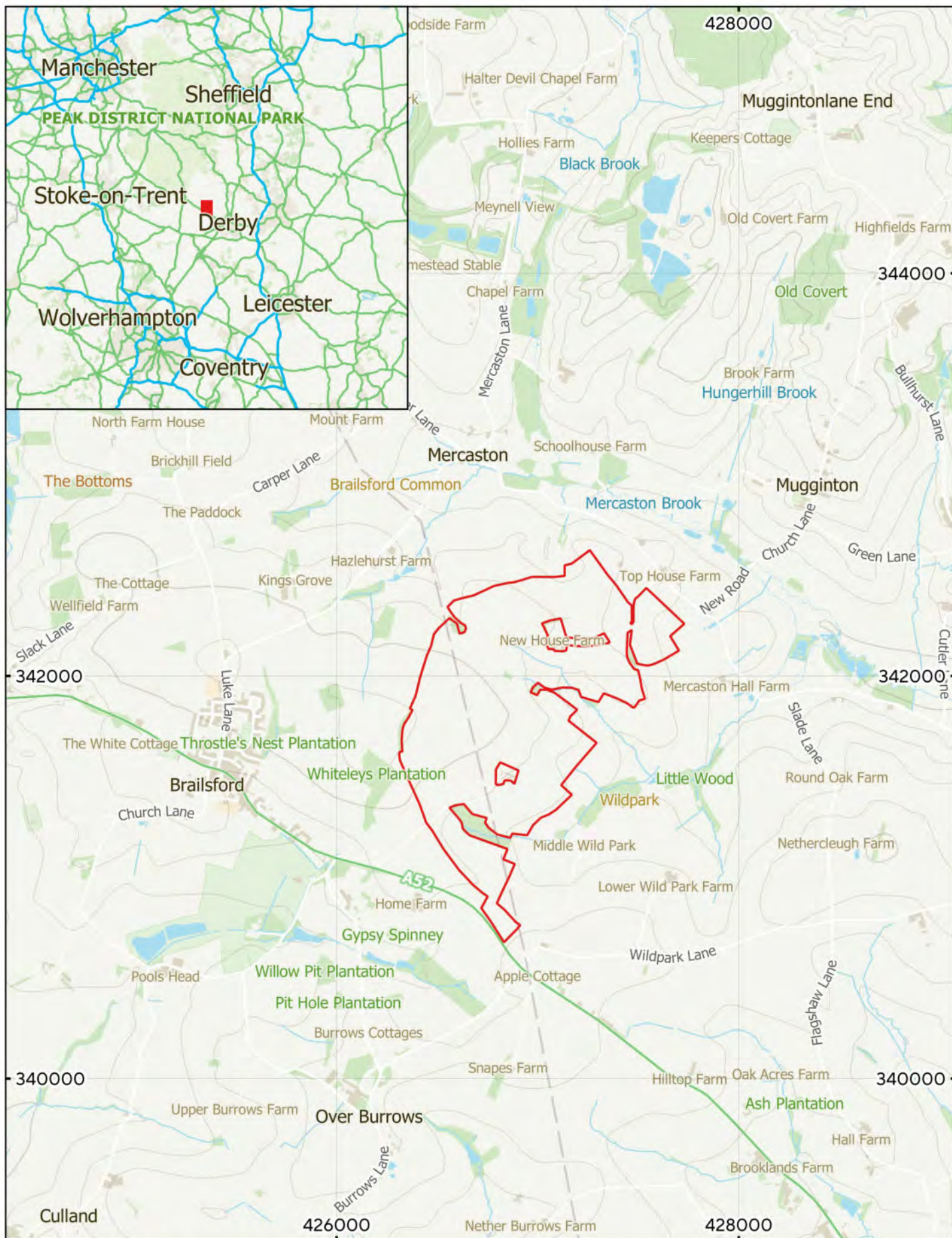
## 12. Project Metadata

|                   |                                                                                              |
|-------------------|----------------------------------------------------------------------------------------------|
| MS Job Code       | MSSK1908                                                                                     |
| Project Name      | Main Road, Brailsford, Ashbourne                                                             |
| Client            | Armour Heritage Limited                                                                      |
| Grid Reference    | SK 27036 41991                                                                               |
| Survey Techniques | Magnetometry,                                                                                |
| Survey Size (ha)  | 120ha                                                                                        |
| Survey Dates      | Initial Deployment: 2024-11-04 to 2024-11-22.<br>Second Deployment: 2025-04-03 to 2025-04-05 |
| Project Lead      | Matthew Stead BA (Hons) MA                                                                   |
| Project Officer   | Matthew Stead BA (Hons) MA                                                                   |
| HER Event No      | N/A                                                                                          |
| OASIS No          | N/A                                                                                          |
| S42 Licence No    | N/A                                                                                          |
| Report Version    | 0.5                                                                                          |

## 13. Document History

| Version | Comments                                 | Author | Checked By | Date             |
|---------|------------------------------------------|--------|------------|------------------|
| 0.1     | Initial draft for Project Lead to Review | CY     | MS         | 12 December 2024 |
| 0.2     | Director Approval                        | DB     | FPC        | 17 December 2024 |
| 0.3     | Client corrections                       | MS     | MS         | 23 January 2025  |
| 0.4     | Update with new survey areas             | AH     | MS/ LAG    | 24 April 2025    |
| 0.5     | Client Corrections                       | NO     | MS         | 20 June 2025     |





MSSK1908 - Main Road, Brailsford, Ashbourne

Figure 1 - Geophysical Survey Location

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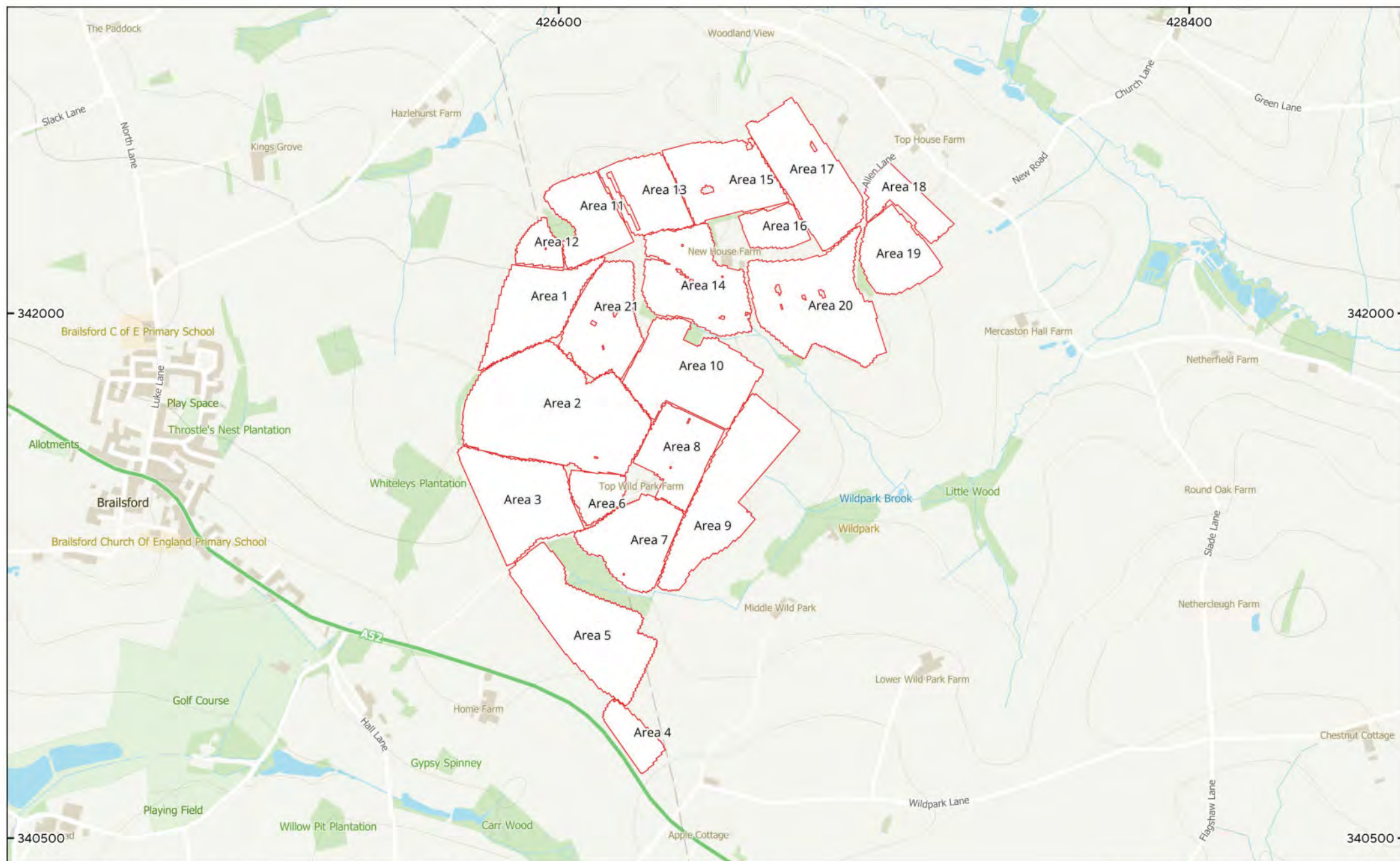
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 Geophysical Survey Area

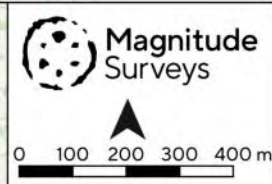




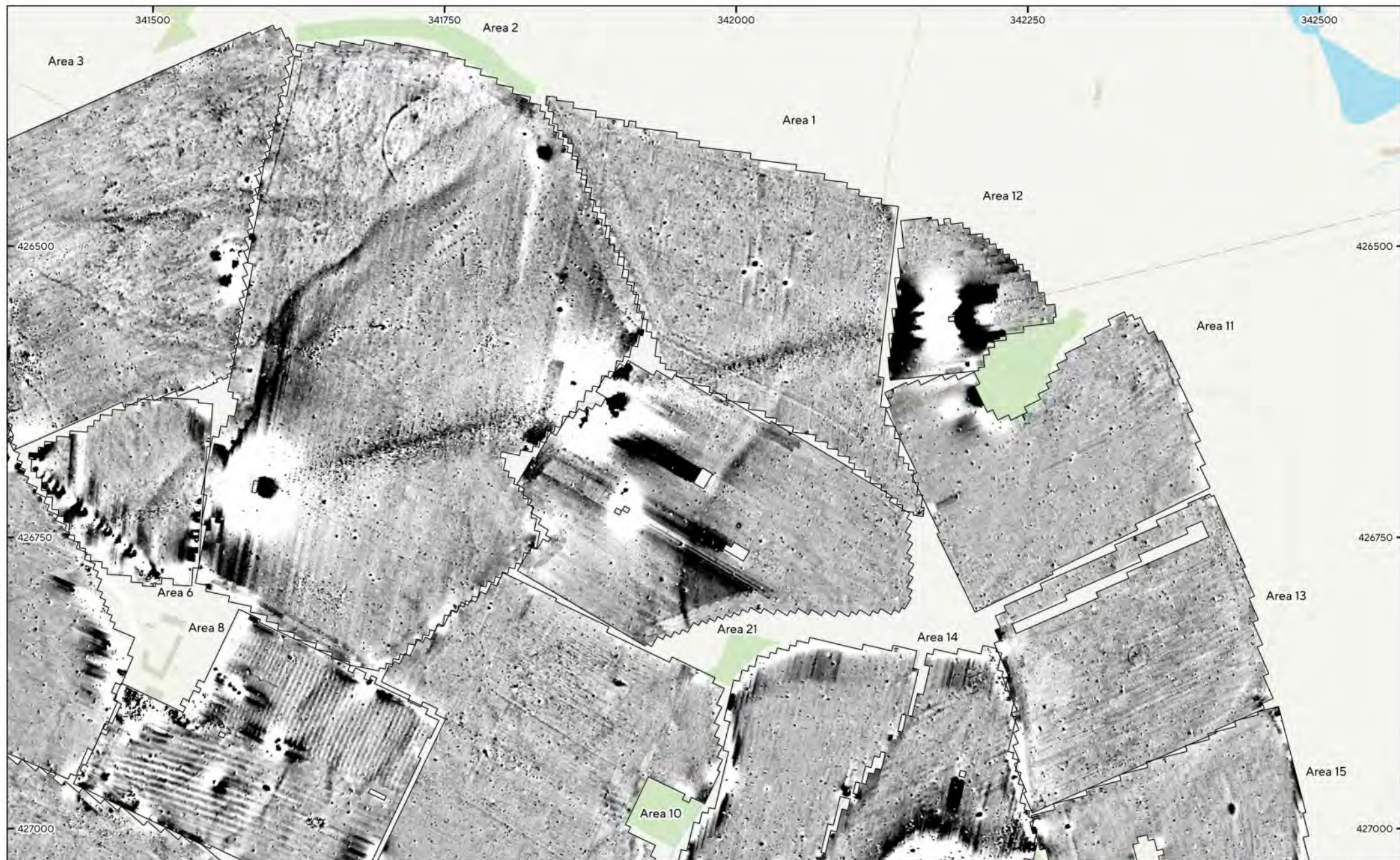


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 Figure 2 - Geophysical Survey Areas  
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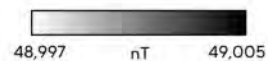
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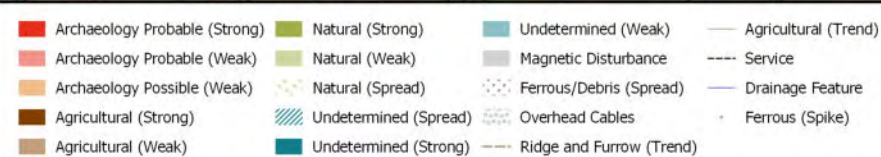
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 Figure 3 - (Areas 1-3, 6, 8-15 & 21)  
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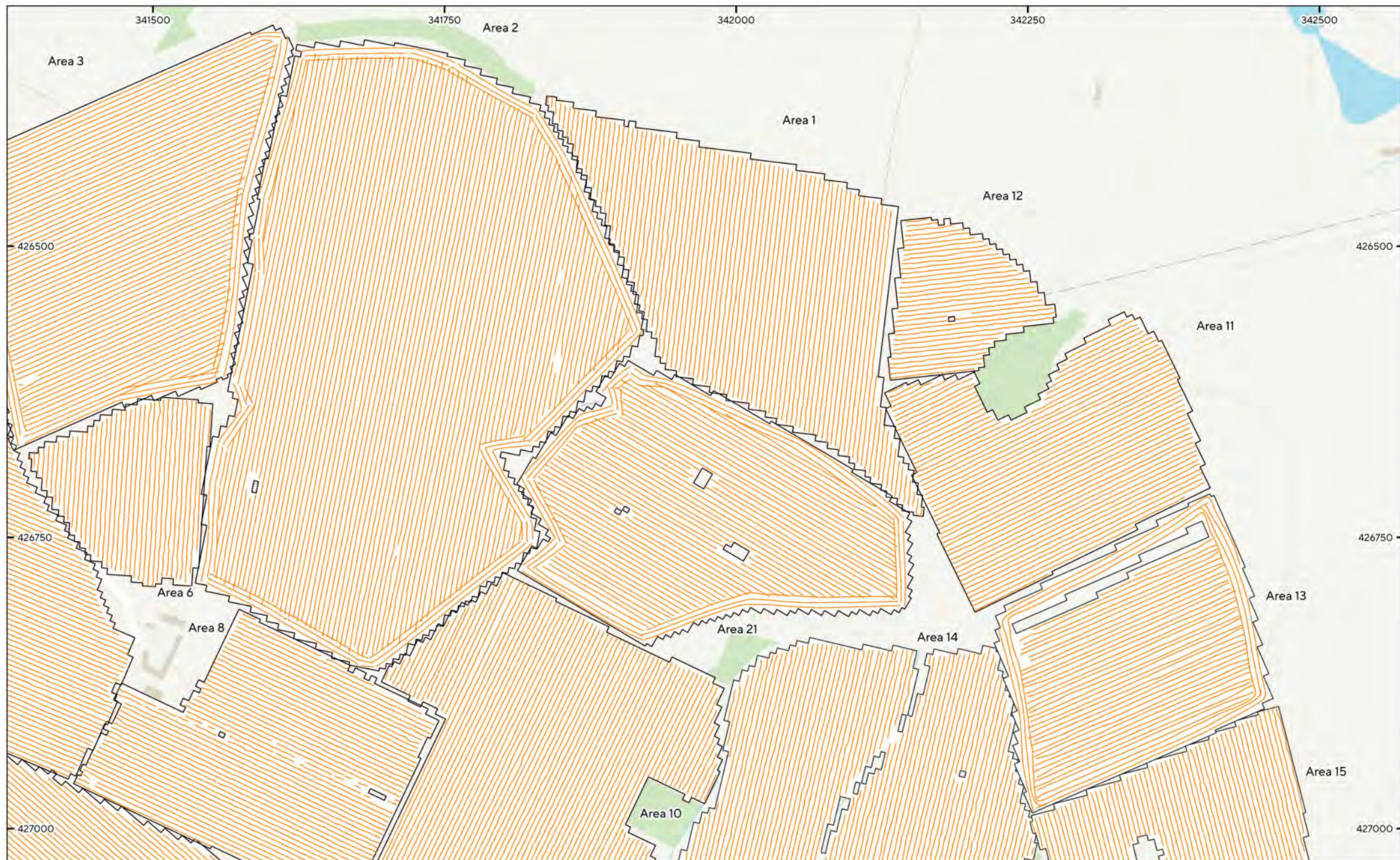




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 Figure 4 - Magnetic Interpretation Over Historical Maps and  
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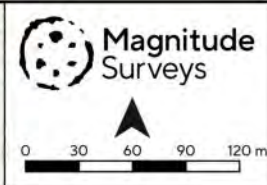
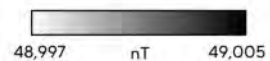
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 Figure 5 - GNSS Survey Lines (Areas 1-3, 6, 8-15 & 21)  
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 Figure 6 - (Areas 2, 3 & 5-10)  
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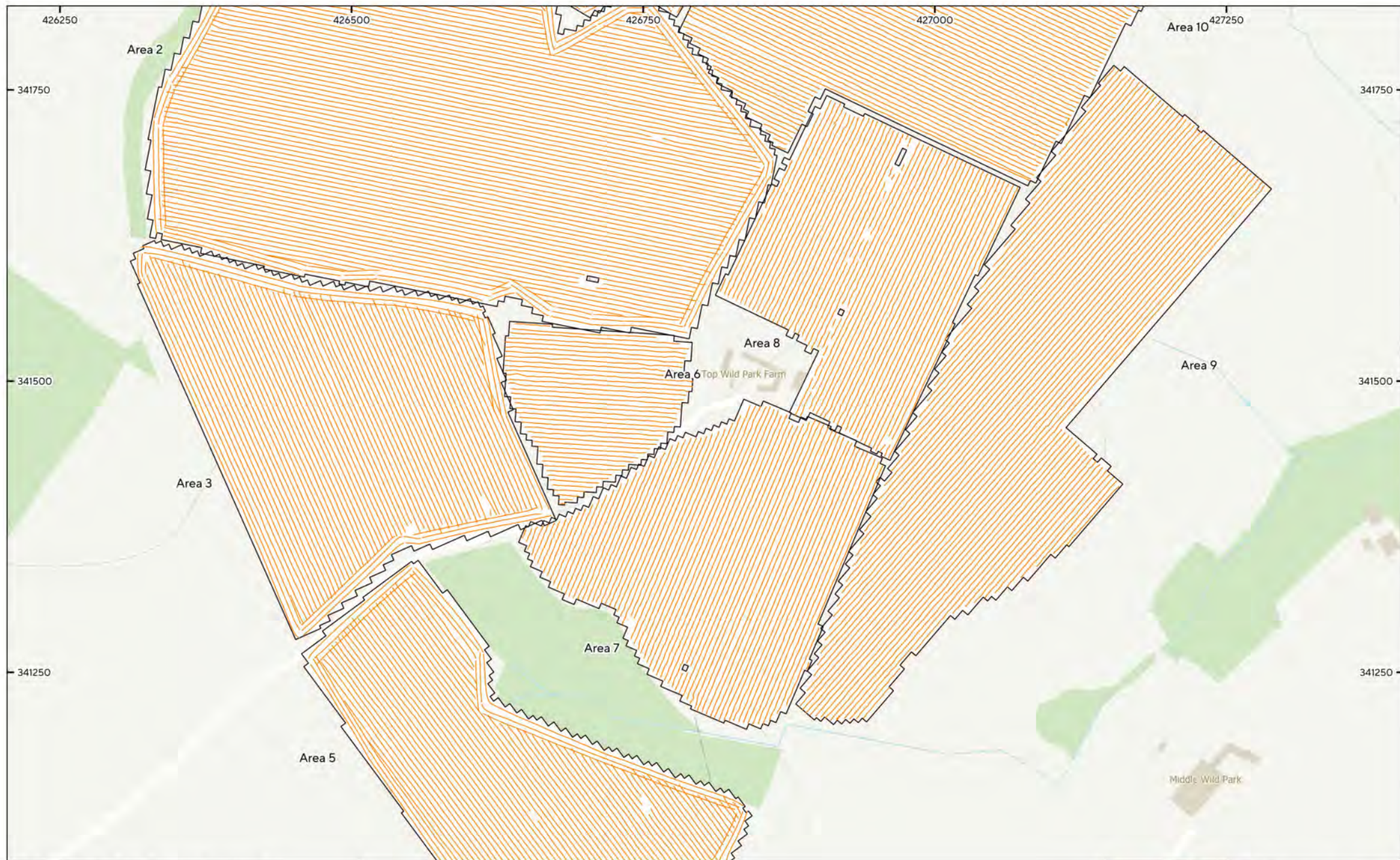




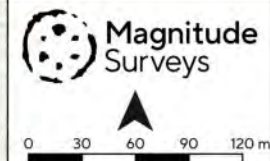
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 Figure 7 - Magnetic Interpretation Over Historical Maps and  
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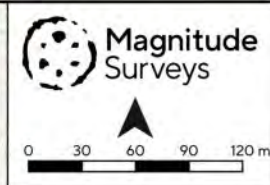
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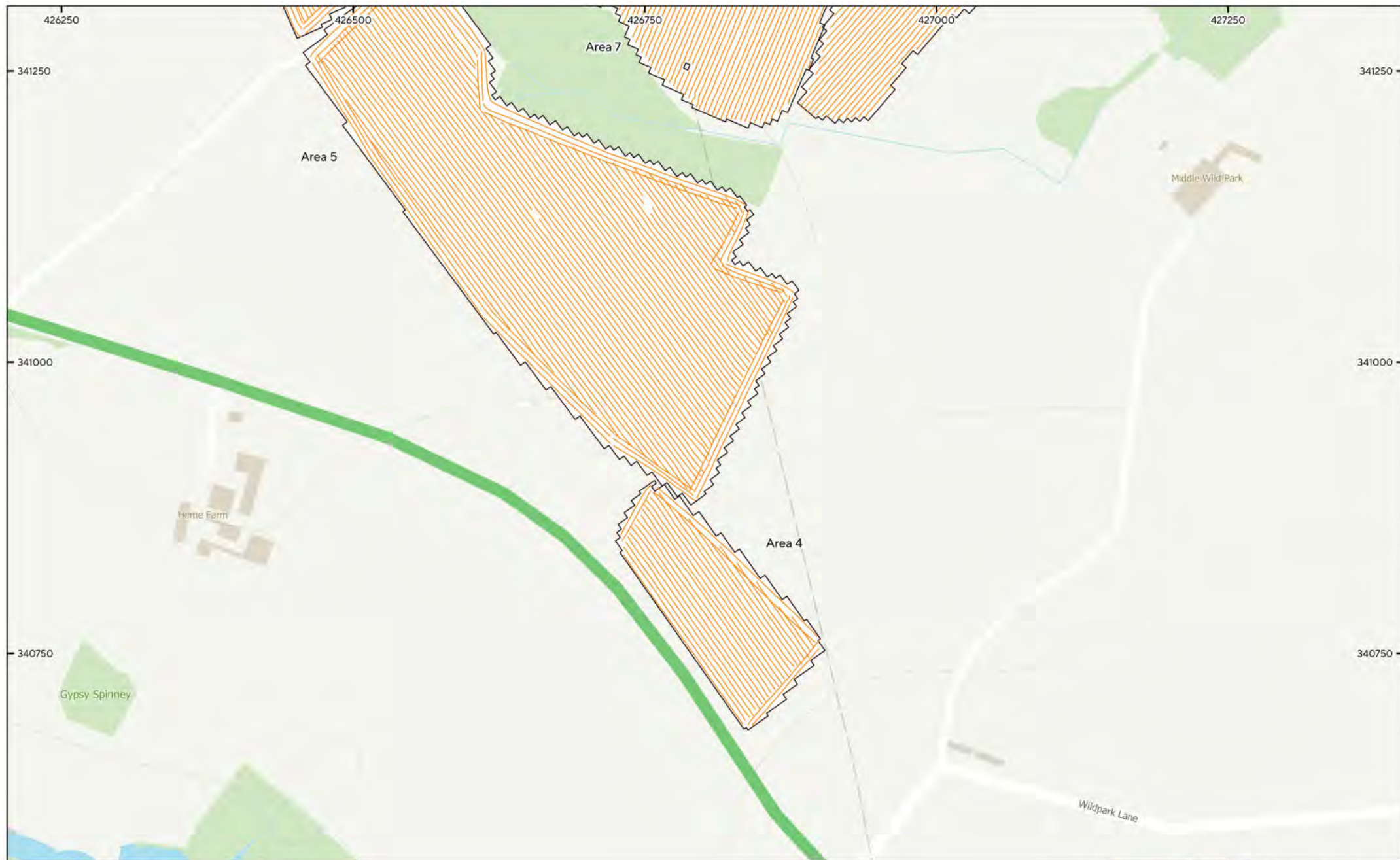


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 Figure 10 - Magnetic Interpretation Over Historical Maps and  
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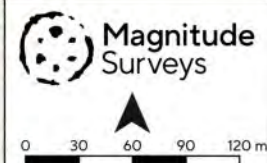
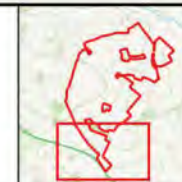
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| Agricultural (Weak)         | Undetermined (Weak)  | Ridge and Furrow (Trend) | Ferrous (Spike)  |
| Natural (Weak)              | Magnetic Disturbance | Agricultural (Trend)     |                  |







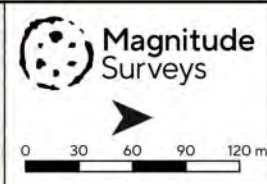
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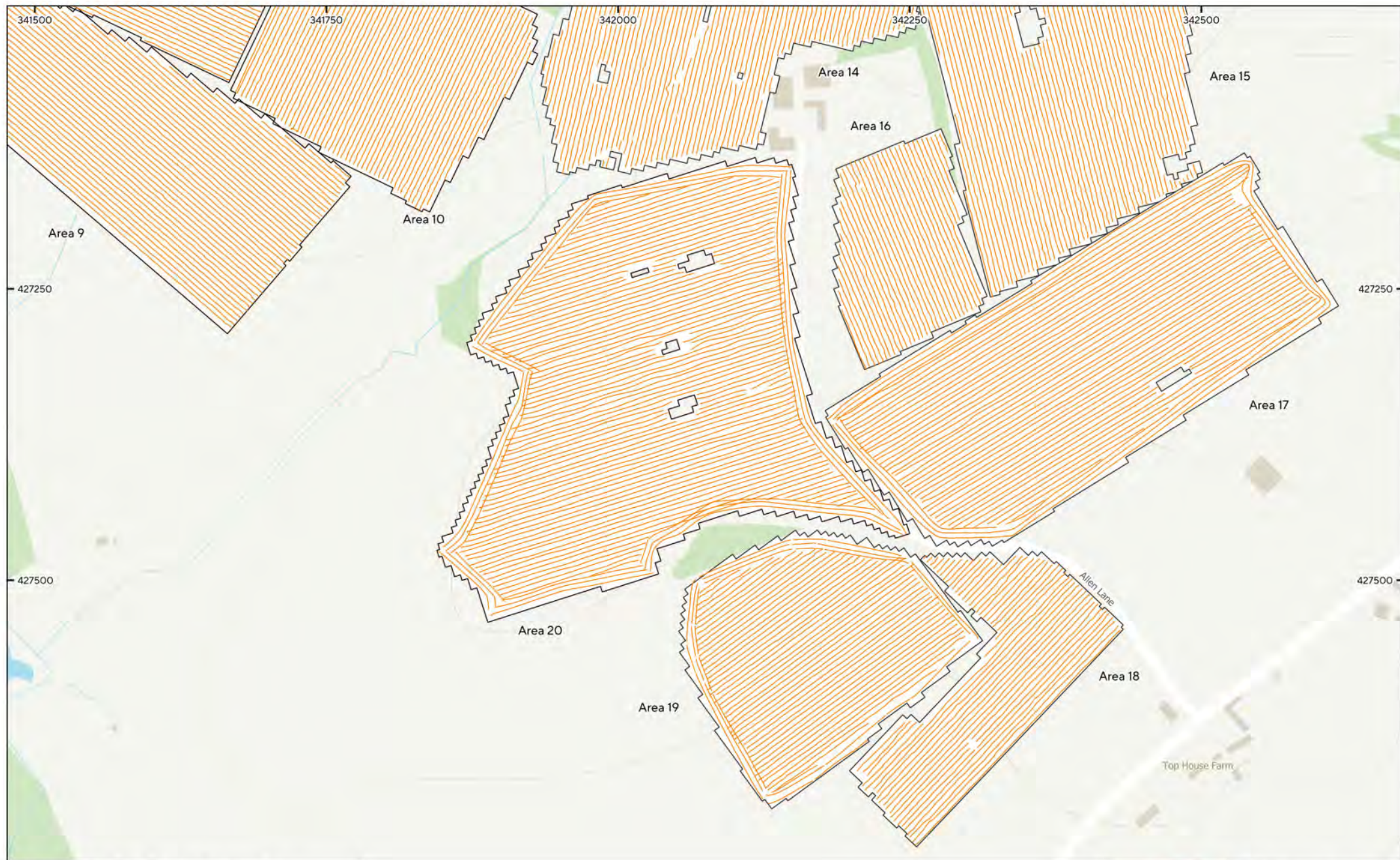




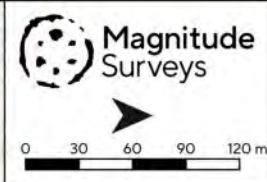
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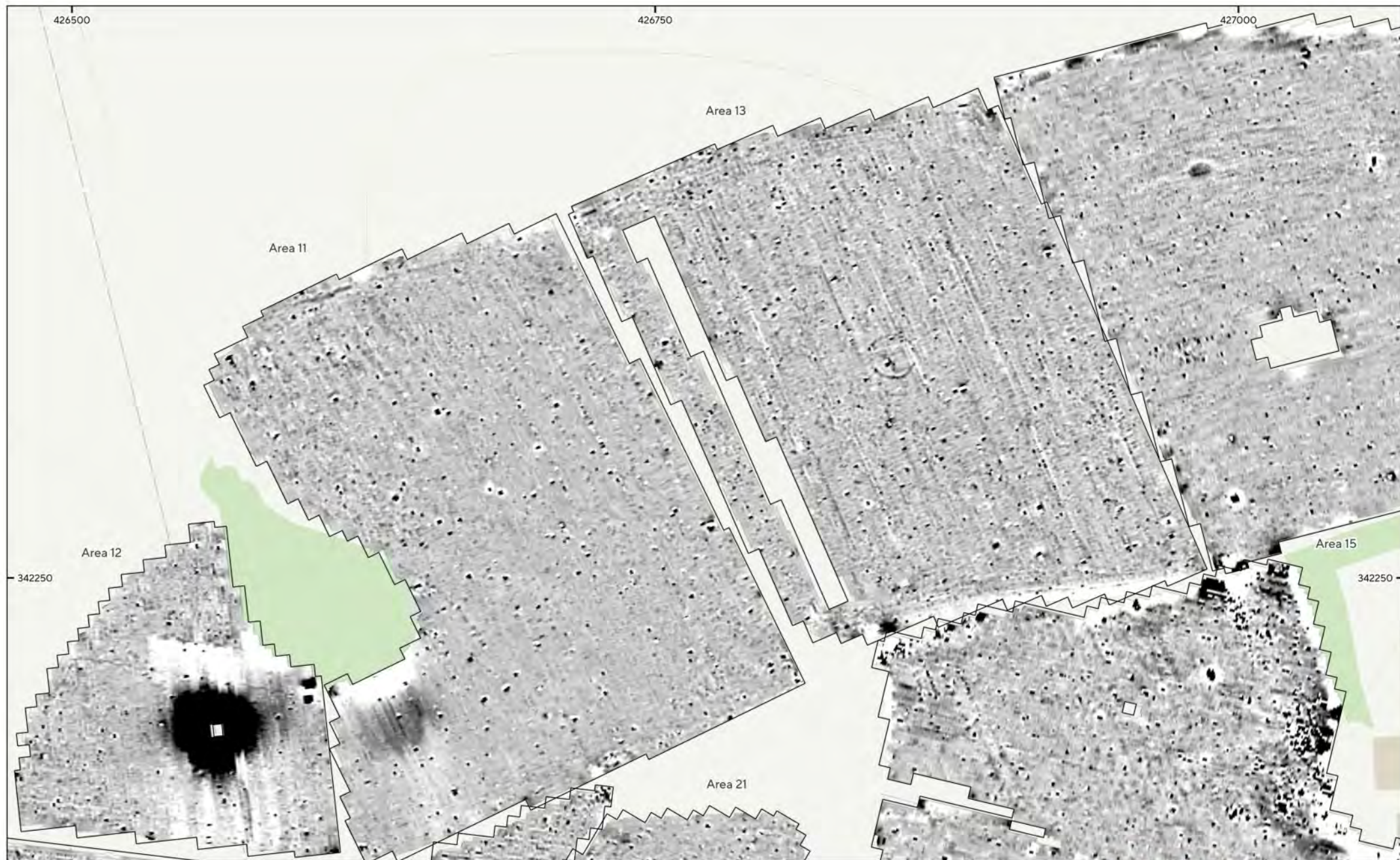




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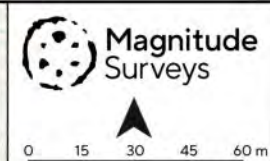




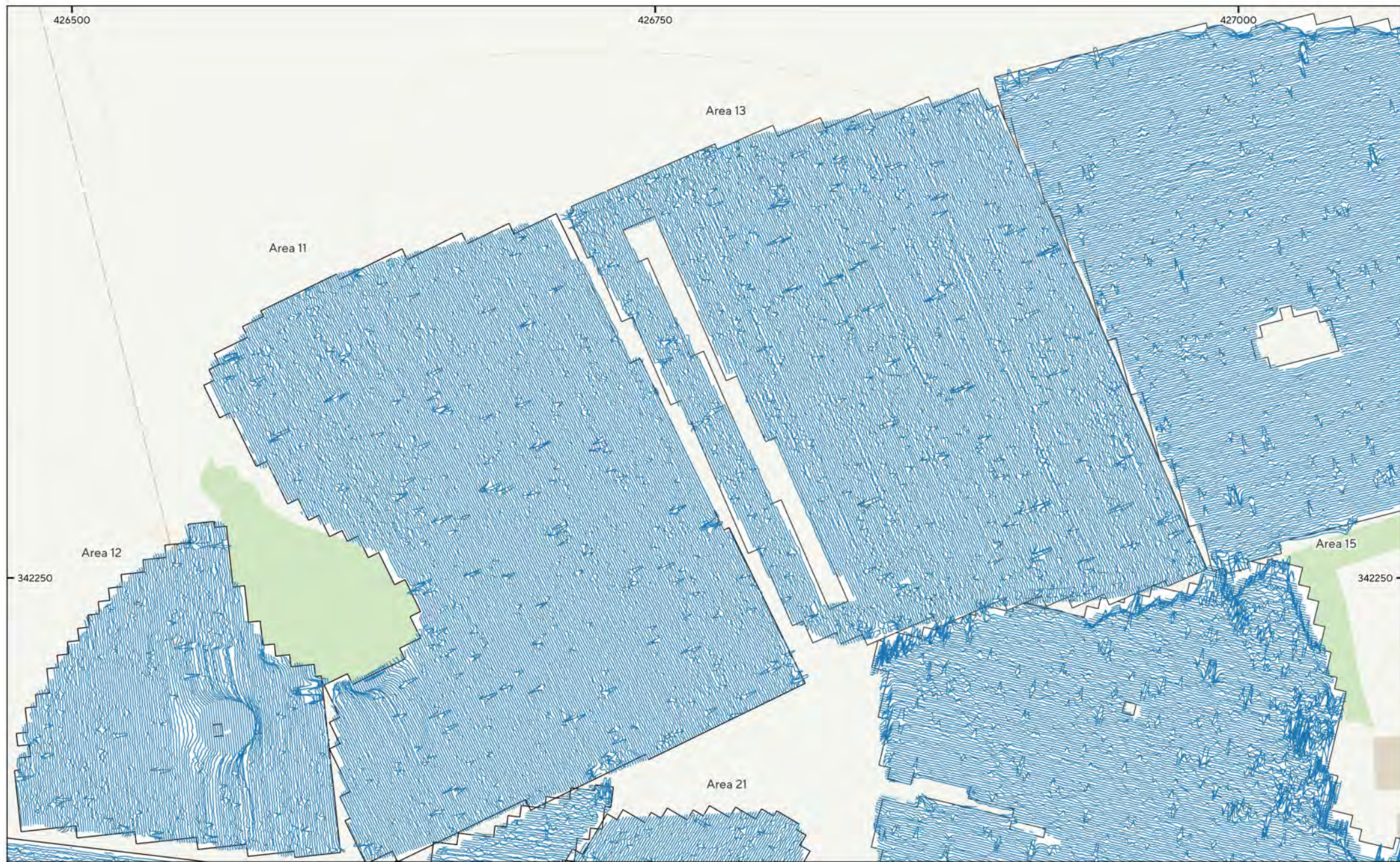


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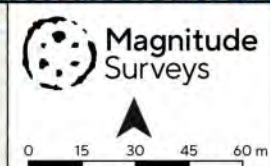
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| ■ Archaeology Probable (Strong) | ■ Agricultural (Weak)  | ■ Ferrous/Debris (Spread)  | — Agricultural (Trend) |
| ■ Archaeology Probable (Weak)   | ■ Undetermined (Weak)  | ■ Overhead Cables          | — Drainage Feature     |
| ■ Archaeology Possible (Weak)   | ■ Magnetic Disturbance | — Ridge and Furrow (Trend) | · Ferrous (Spike)      |



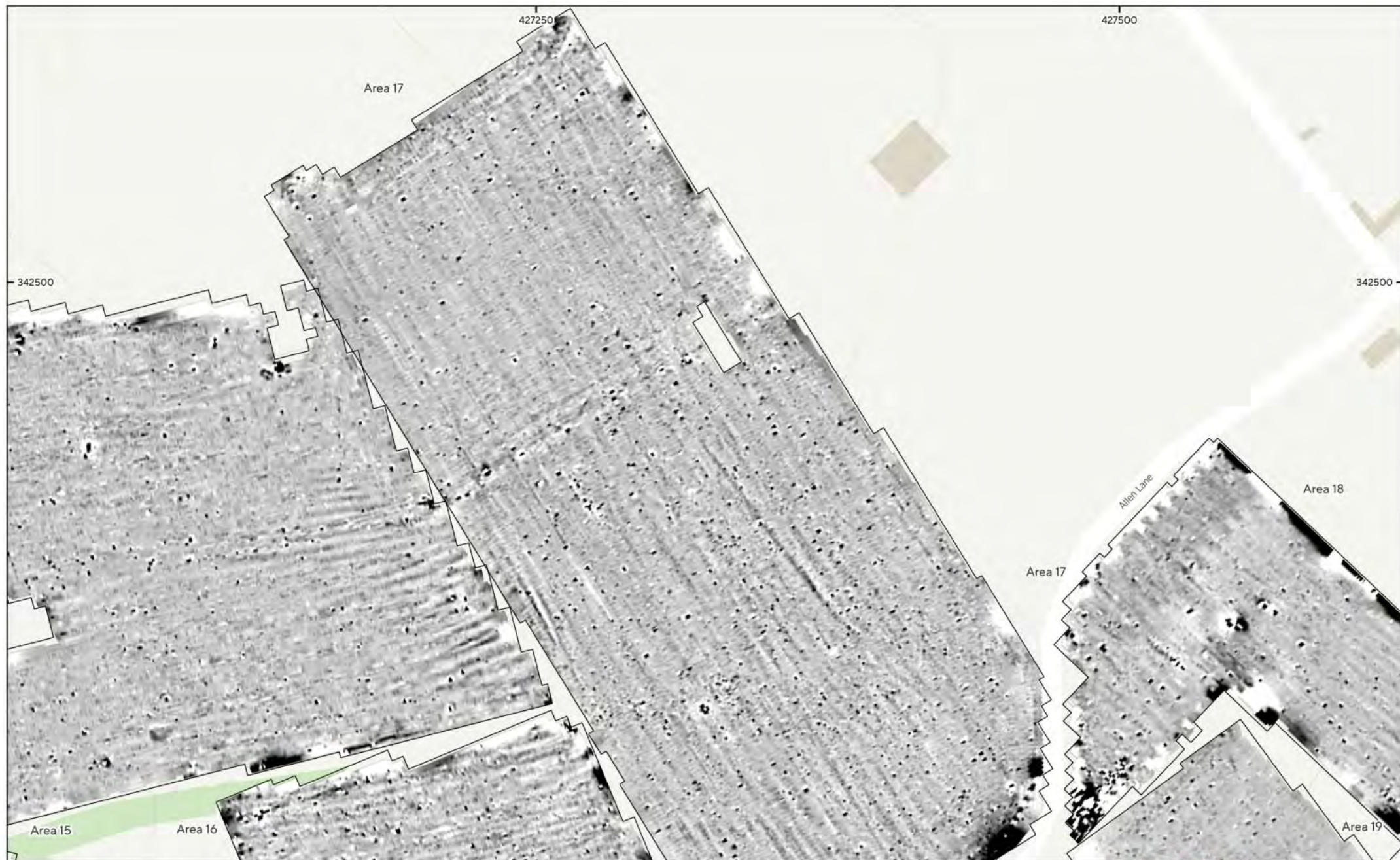




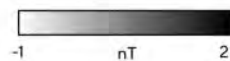
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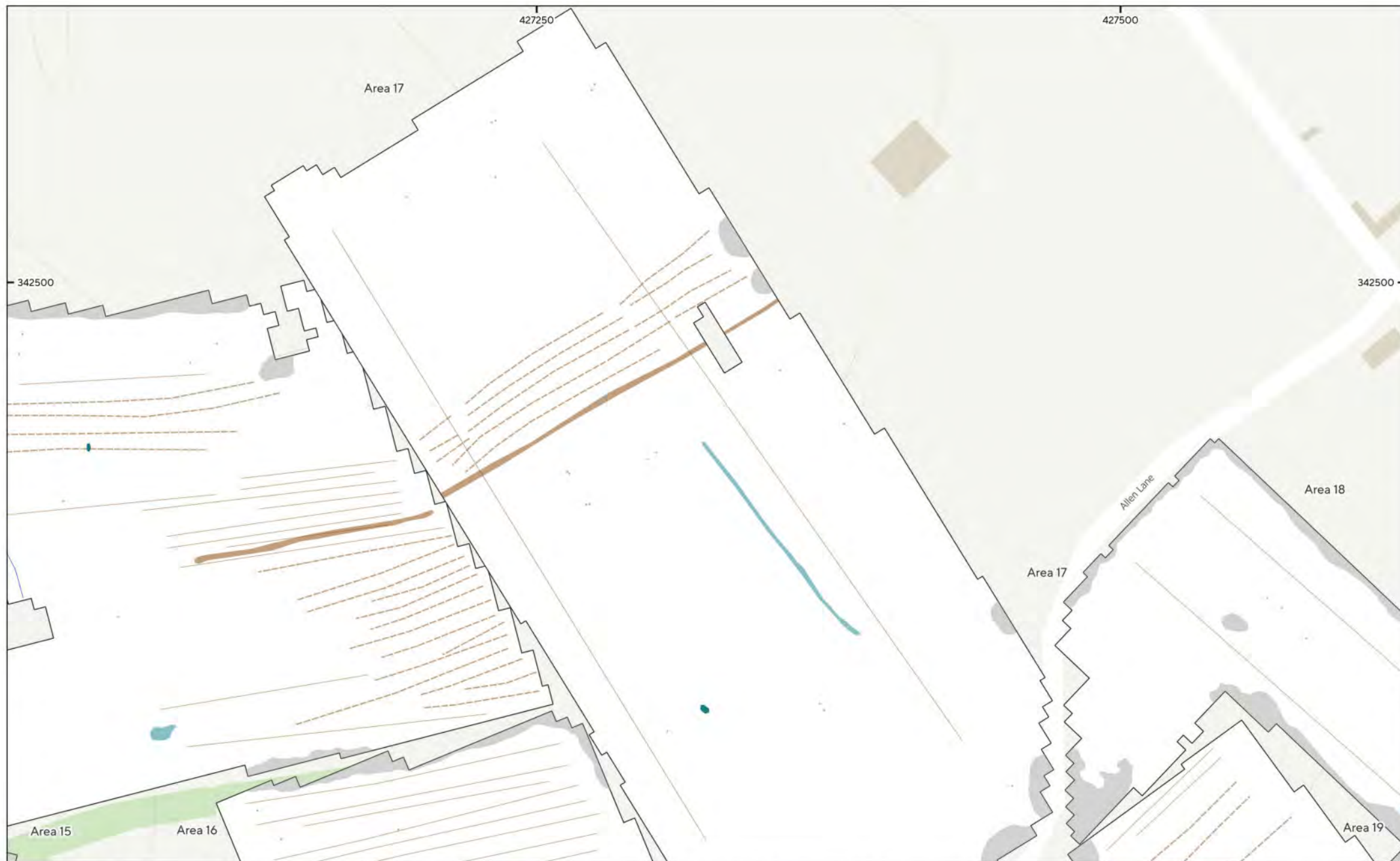






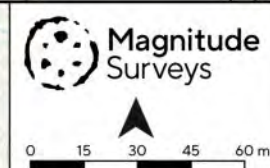
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Figure 18 - Magnetic Gradient (Areas 15-19)  
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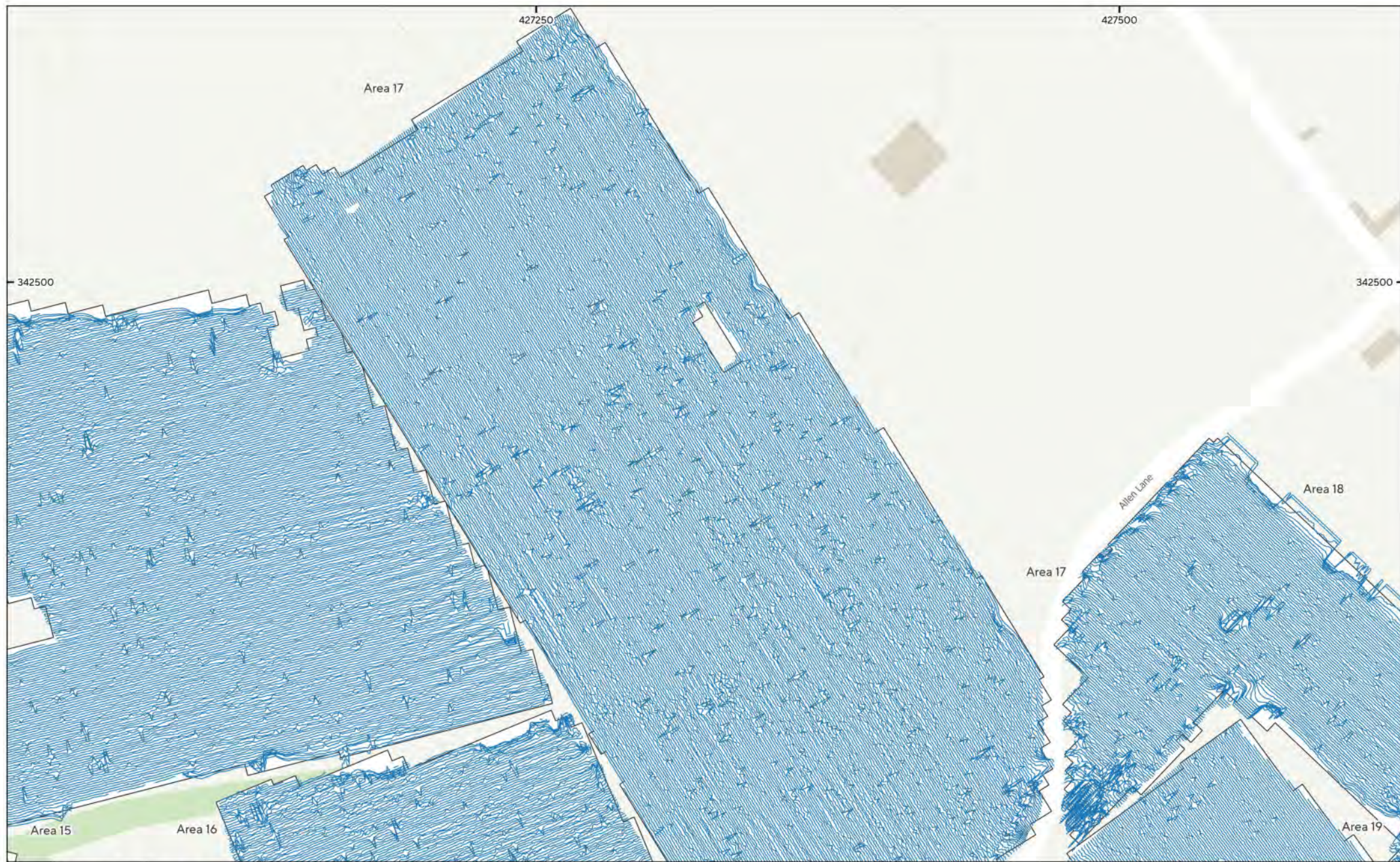


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 Figure 19 - Magnetic Interpretation (Areas 15-19)  
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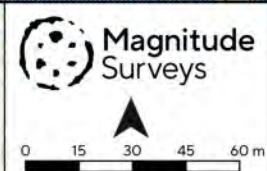
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| Undetermined (Strong) | Magnetic Disturbance | Agricultural (Trend)     | Ferrous (Spike)  |



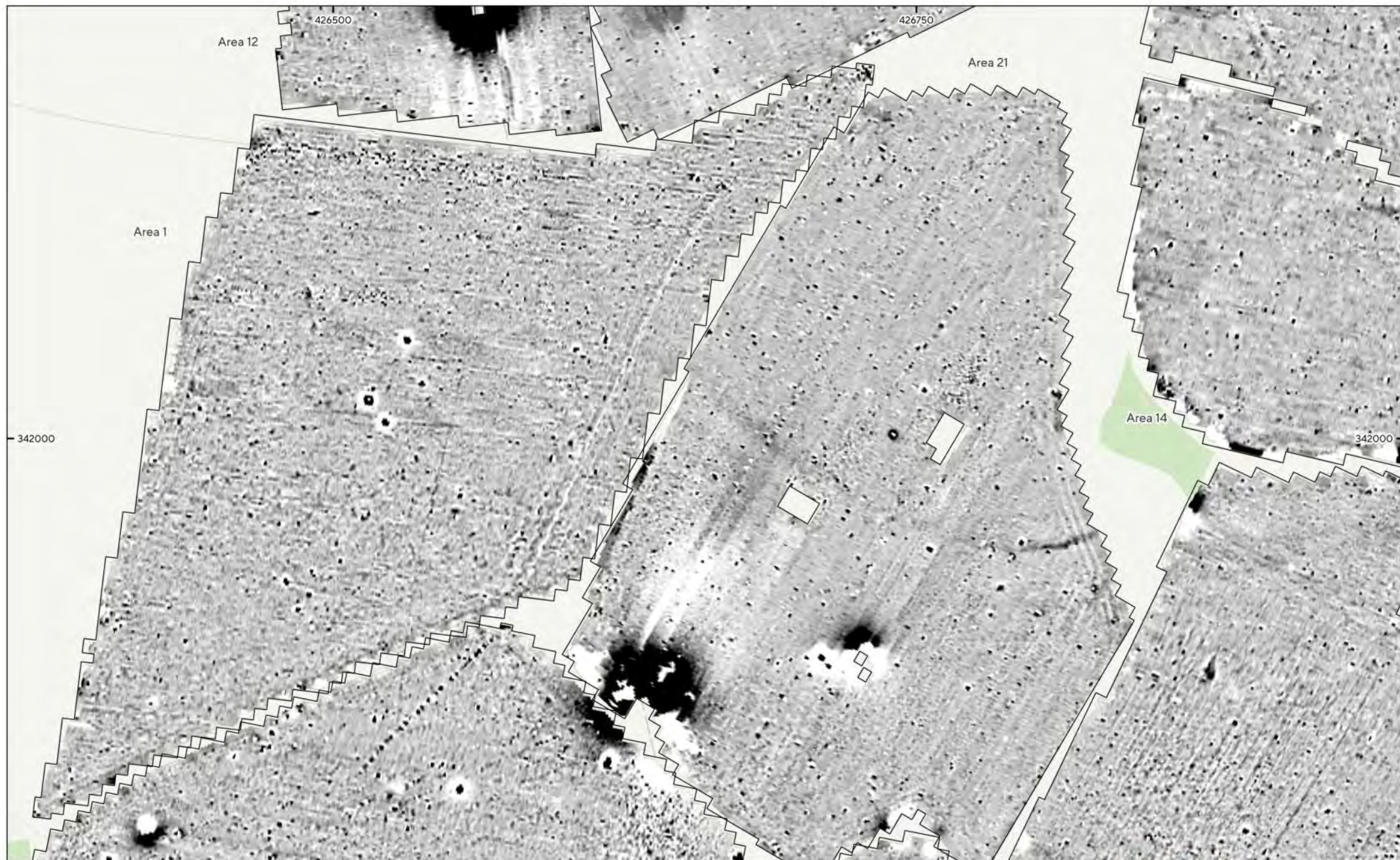




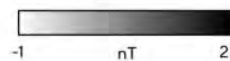
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Figure 20 - XY Trace Plot (Areas 15-19)  
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Figure 21 - Magnetic Gradient (Areas 1, 2, 10-12, 14 & 21)  
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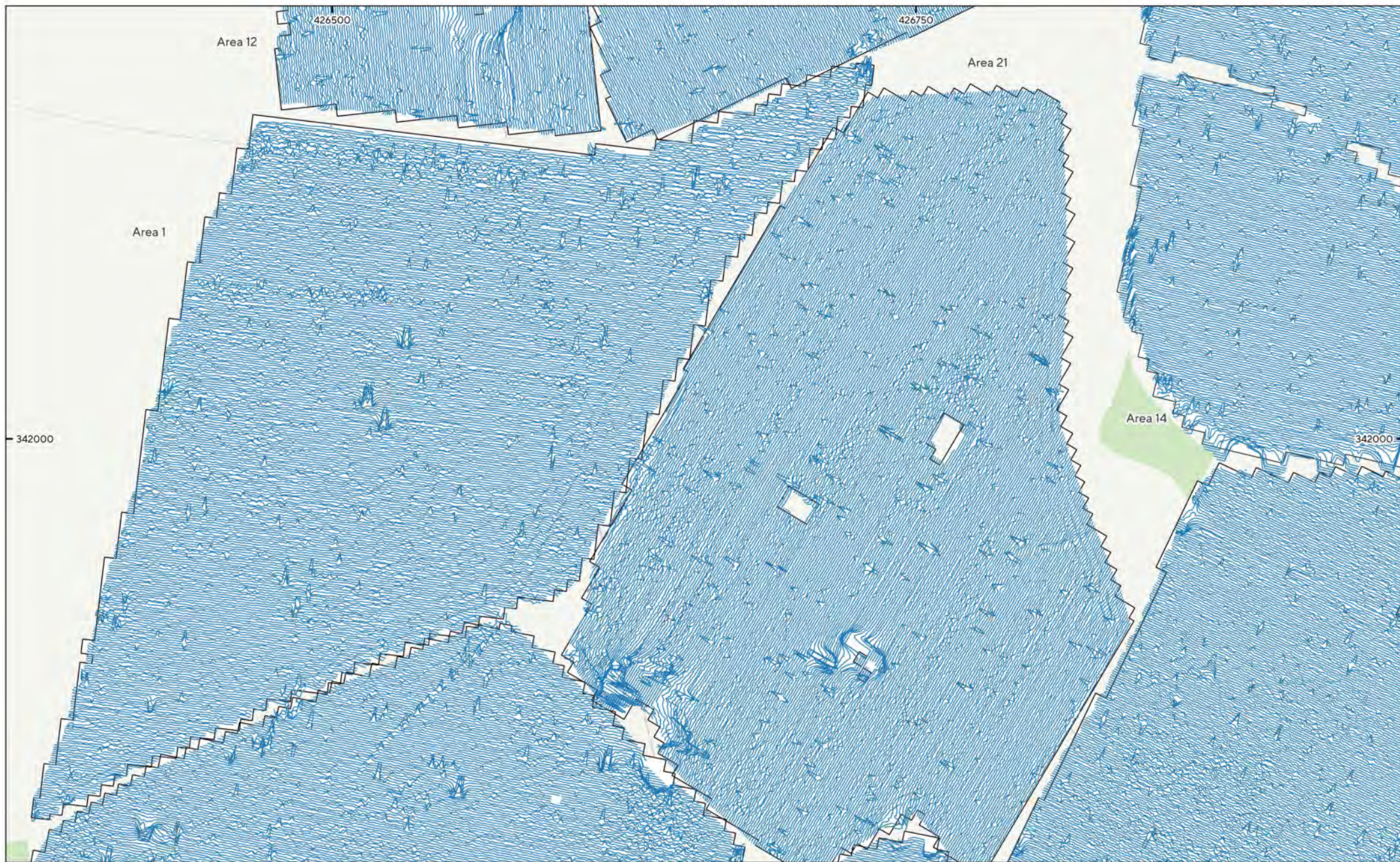


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 Figure 22 - Magnetic Interpretation (Areas 1, 2, 10-12, 14 & 21)  
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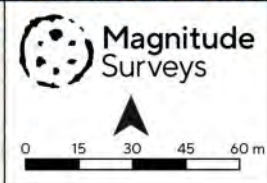
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| Agricultural (Weak)         | Undetermined (Strong) | Overhead Cables          | Ferrous (Spike)  |
| Natural (Strong)            | Undetermined (Weak)   | Ridge and Furrow (Trend) |                  |
| Natural (Weak)              | Magnetic Disturbance  | Agricultural (Trend)     |                  |



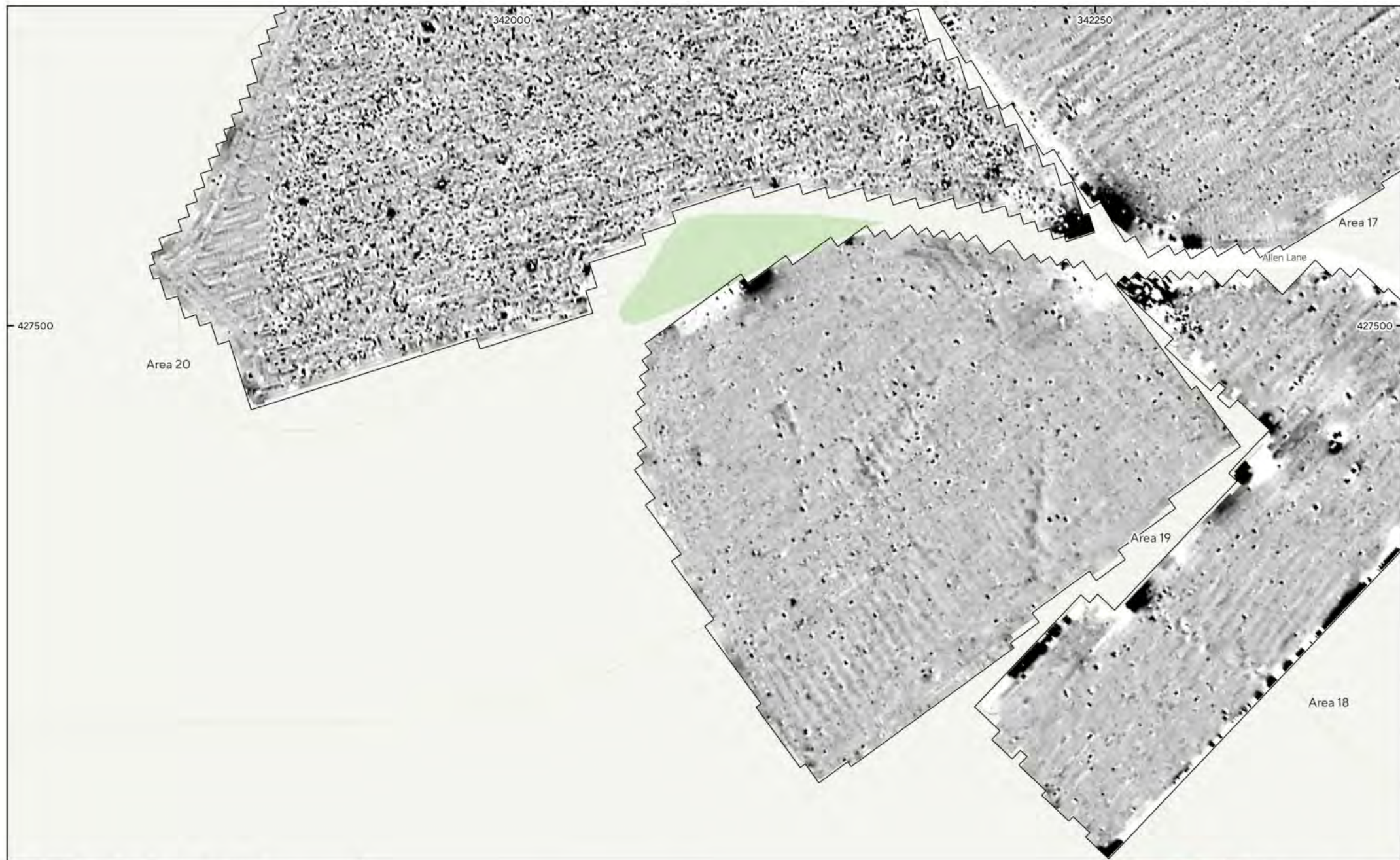




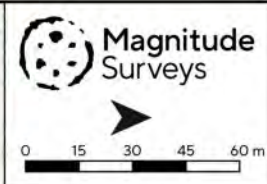
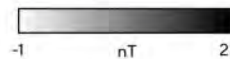
MSSK1908 - Main Road, Brailsford, Ashbourne  
Figure 23 - XY Trace Plot (Areas 1, 2, 10-12, 14 & 21)  
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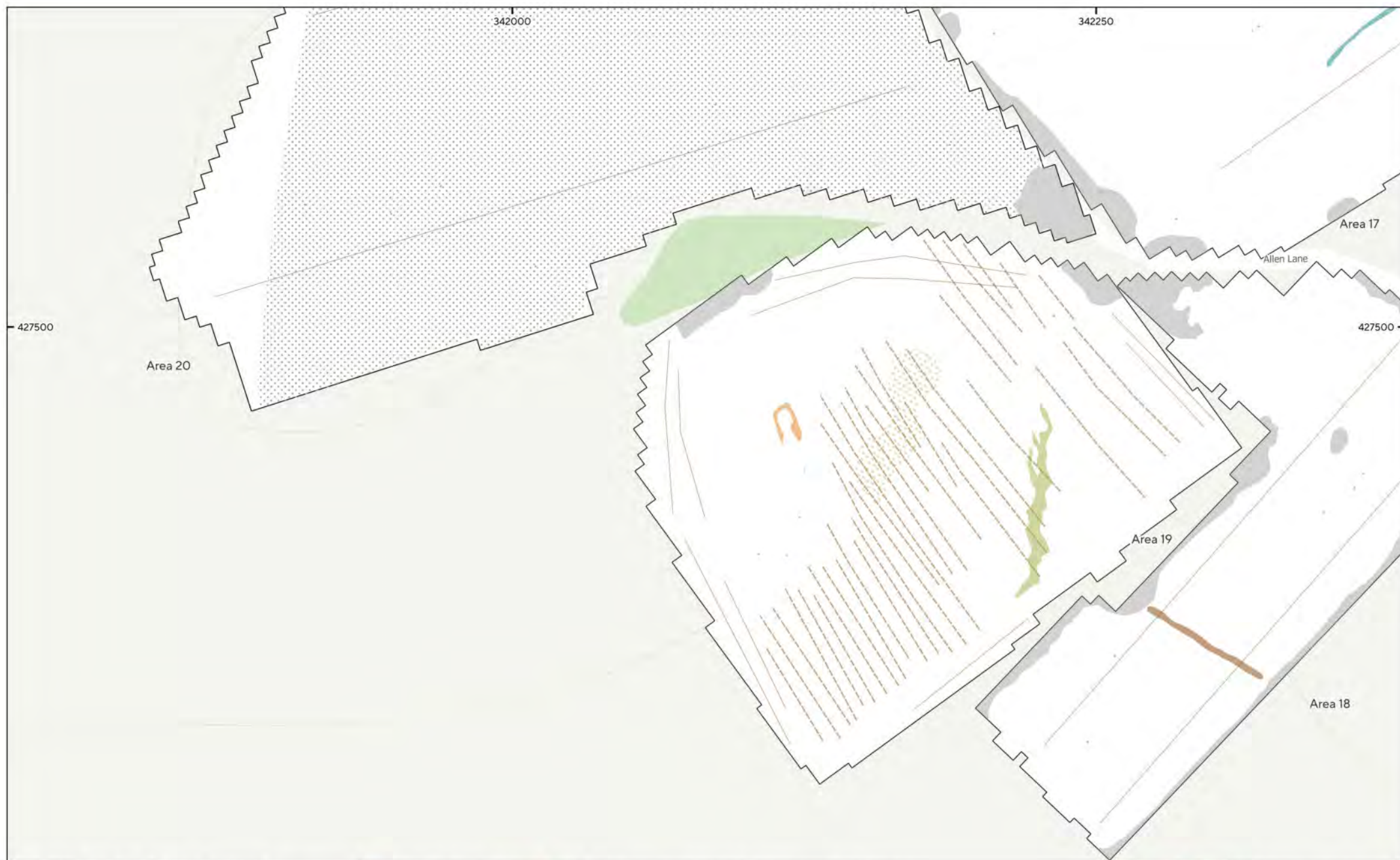




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 Figure 24 - Magnetic Gradient (Areas 17-20)  
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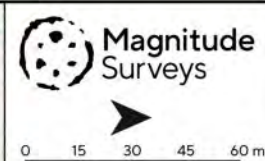




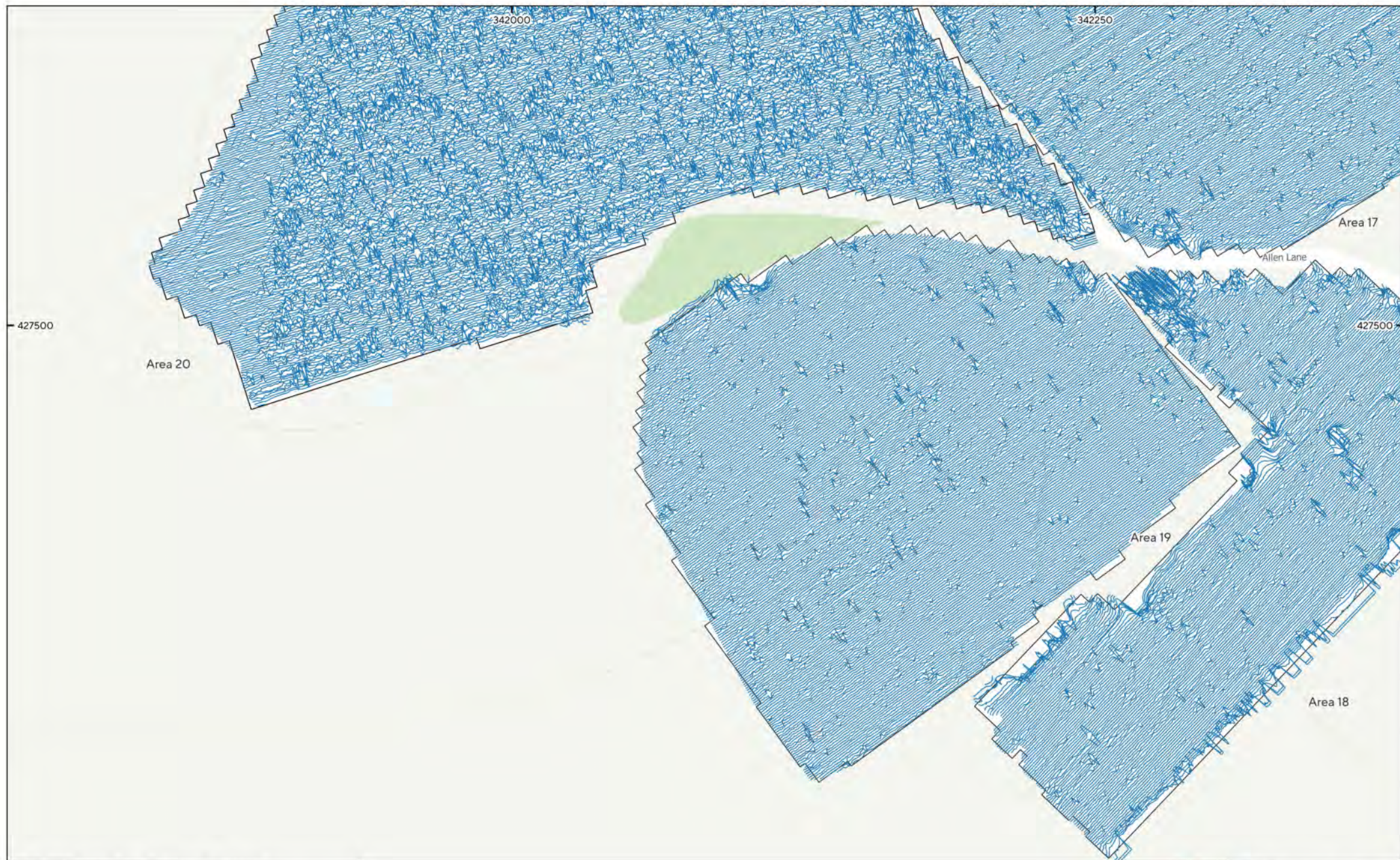


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 Figure 25 - Magnetic Interpretation (Areas 17-20)  
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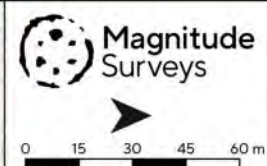
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| Archaeology Possible (Weak) | Natural (Spread)     | Ferrous/Debris (Spread)  | Ferrous (Spike) |
| Agricultural (Weak)         | Undetermined (Weak)  | Ridge and Furrow (Trend) |                 |
| Natural (Weak)              | Magnetic Disturbance | Agricultural (Trend)     |                 |







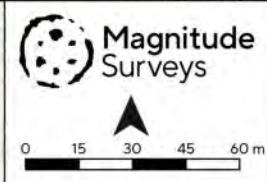
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Figure 26 - XY Trace Plot (Areas 17-20)  
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Figure 27 - Magnetic Gradient (Areas 10, 14, 16, 17 & 20)  
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 Figure 28 - Magnetic Interpretation (Areas 10, 14, 16, 17 & 20)  
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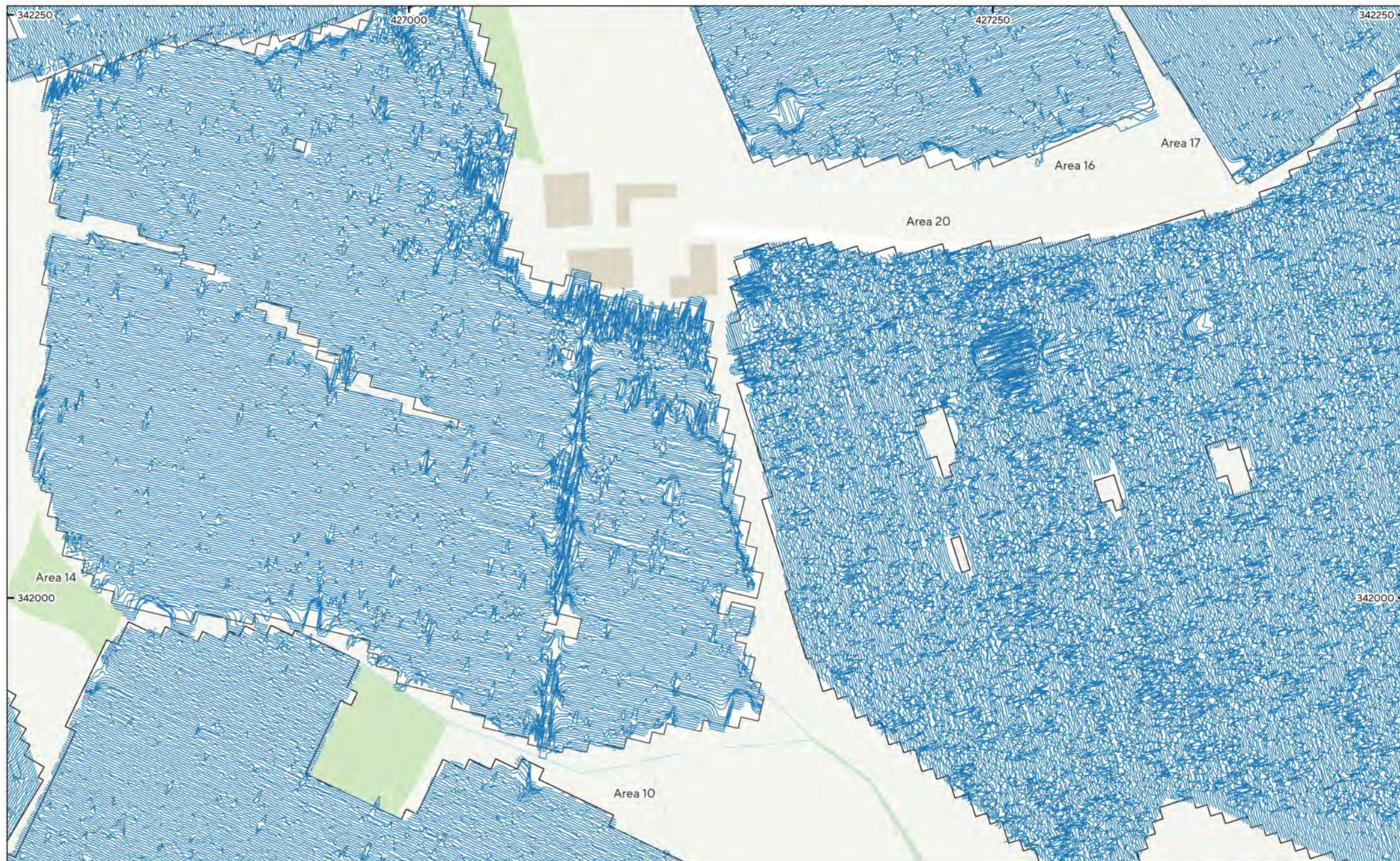
|                             |                         |                          |                 |
|-----------------------------|-------------------------|--------------------------|-----------------|
| Archaeology Possible (Weak) | Undetermined (Weak)     | Ridge and Furrow (Trend) | Ferrous (Spike) |
| Agricultural (Weak)         | Magnetic Disturbance    | Agricultural (Trend)     |                 |
| Agricultural (Spread)       | Ferrous/Debris (Spread) | Service                  |                 |



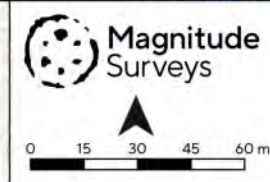
**Magnitude Surveys**

0 15 30 45 60 m





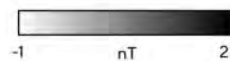
MSSK1908 - Main Road, Brailsford, Ashbourne  
Figure 29 - XY Trace Plot (Areas 10, 14, 16, 17 & 20)  
30nT/cm at 1:1,500 @ A3  
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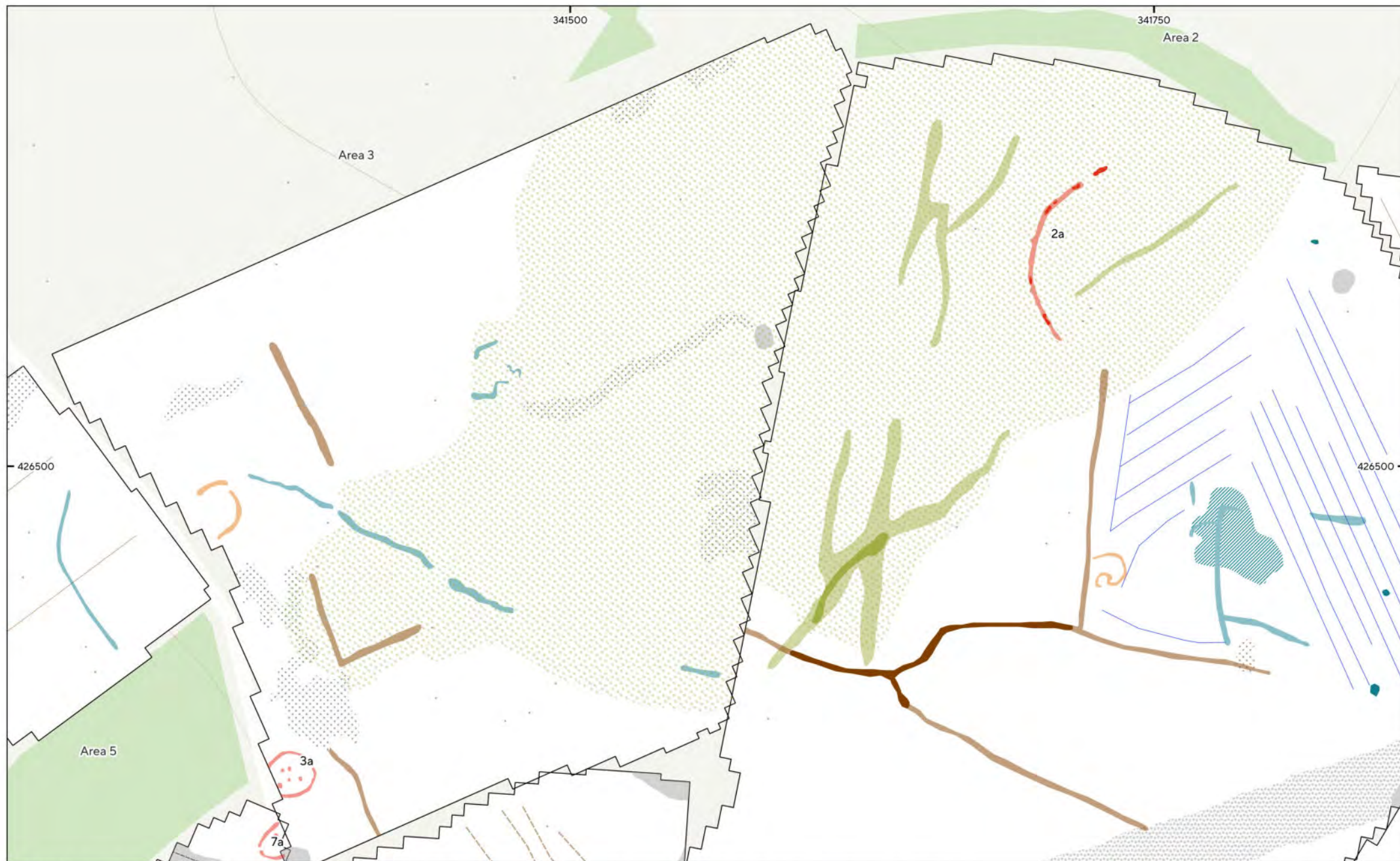




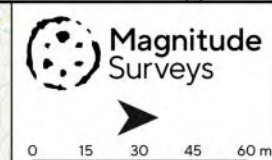
MSSK1908 - Main Road, Brailsford, Ashbourne  
Figure 30 - Magnetic Gradient (Areas 2, 3, 5 & 6)  
1:1,500 @ A3  
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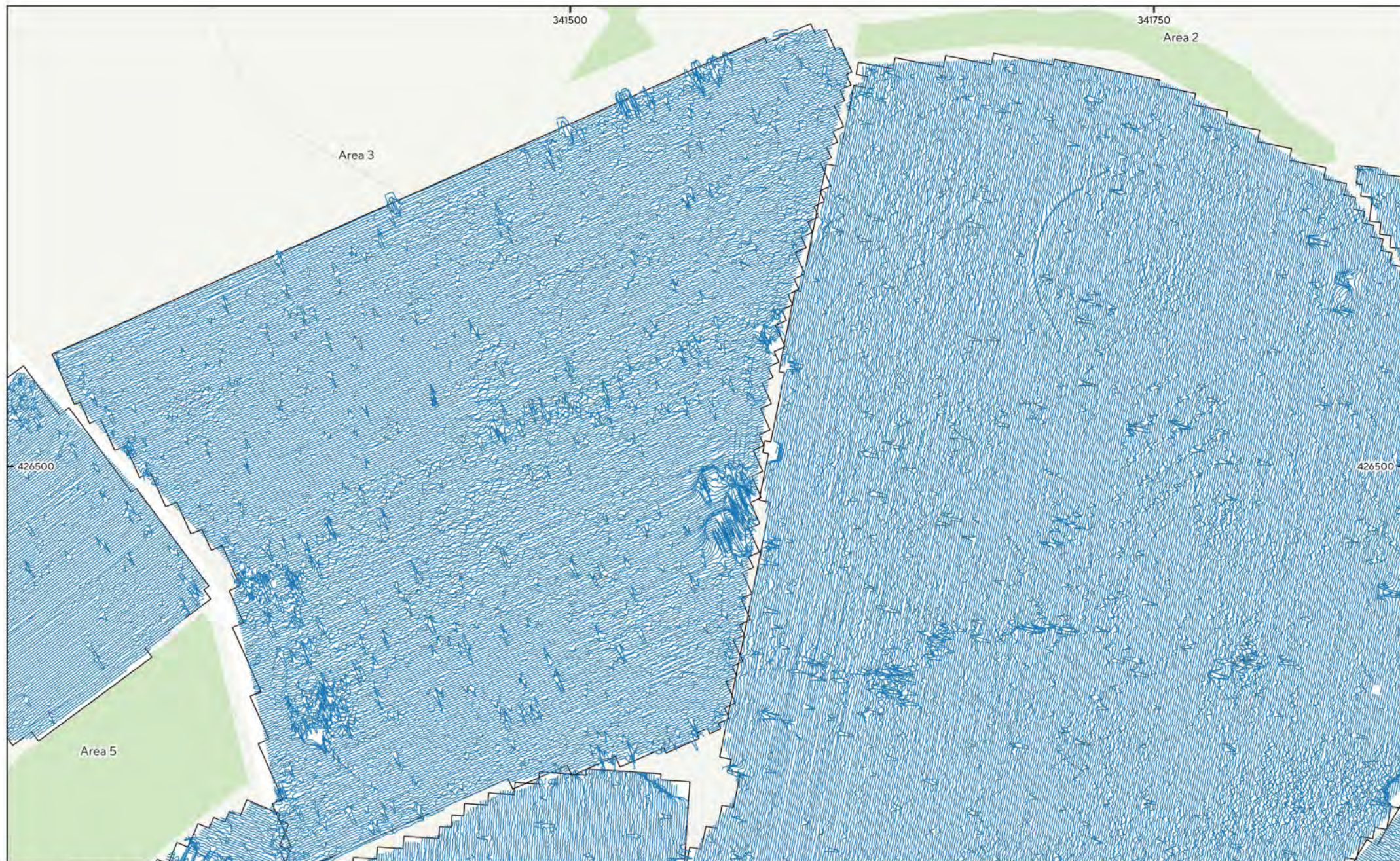




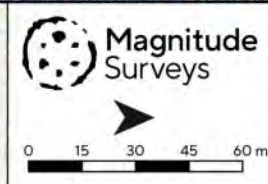
MSSK1908 - Main Road, Brailsford, Ashbourne  
 Figure 31 - Magnetic Interpretation (Areas 2, 3, 5 & 6)  
 1:1,500 @ A3  
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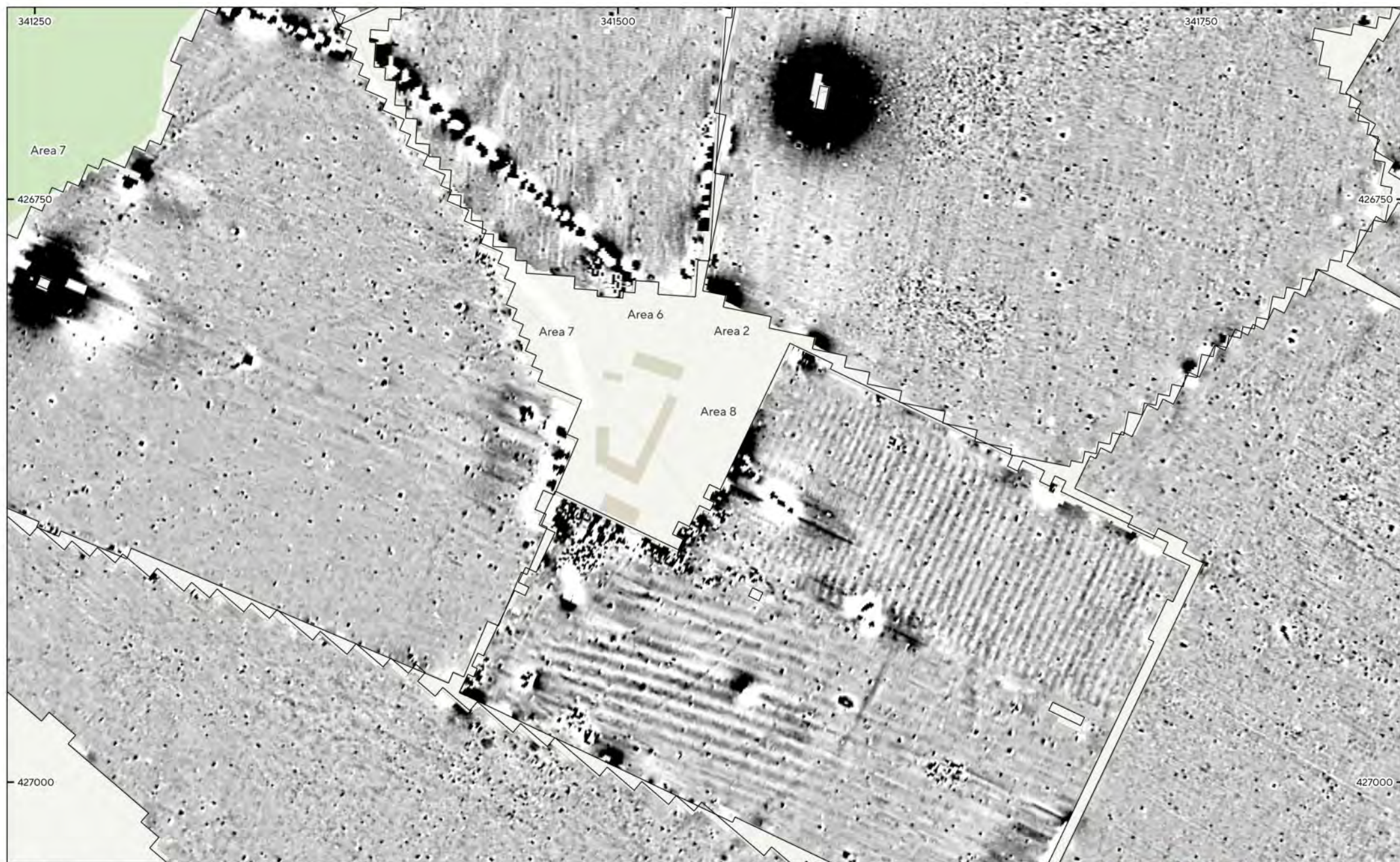




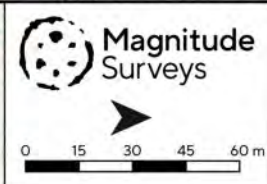
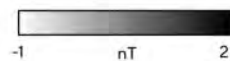
MSSK1908 - Main Road, Brailsford, Ashbourne  
Figure 32 - XY Trace Plot (Areas 2, 3, 5 & 6)  
30nT/cm at 1:1,500 @ A3  
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MSSK1908 - Main Road, Brailsford, Ashbourne  
Figure 33 - Magnetic Gradient (Areas 2 & 6-10)  
1:1,500 @ A3  
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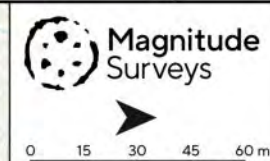




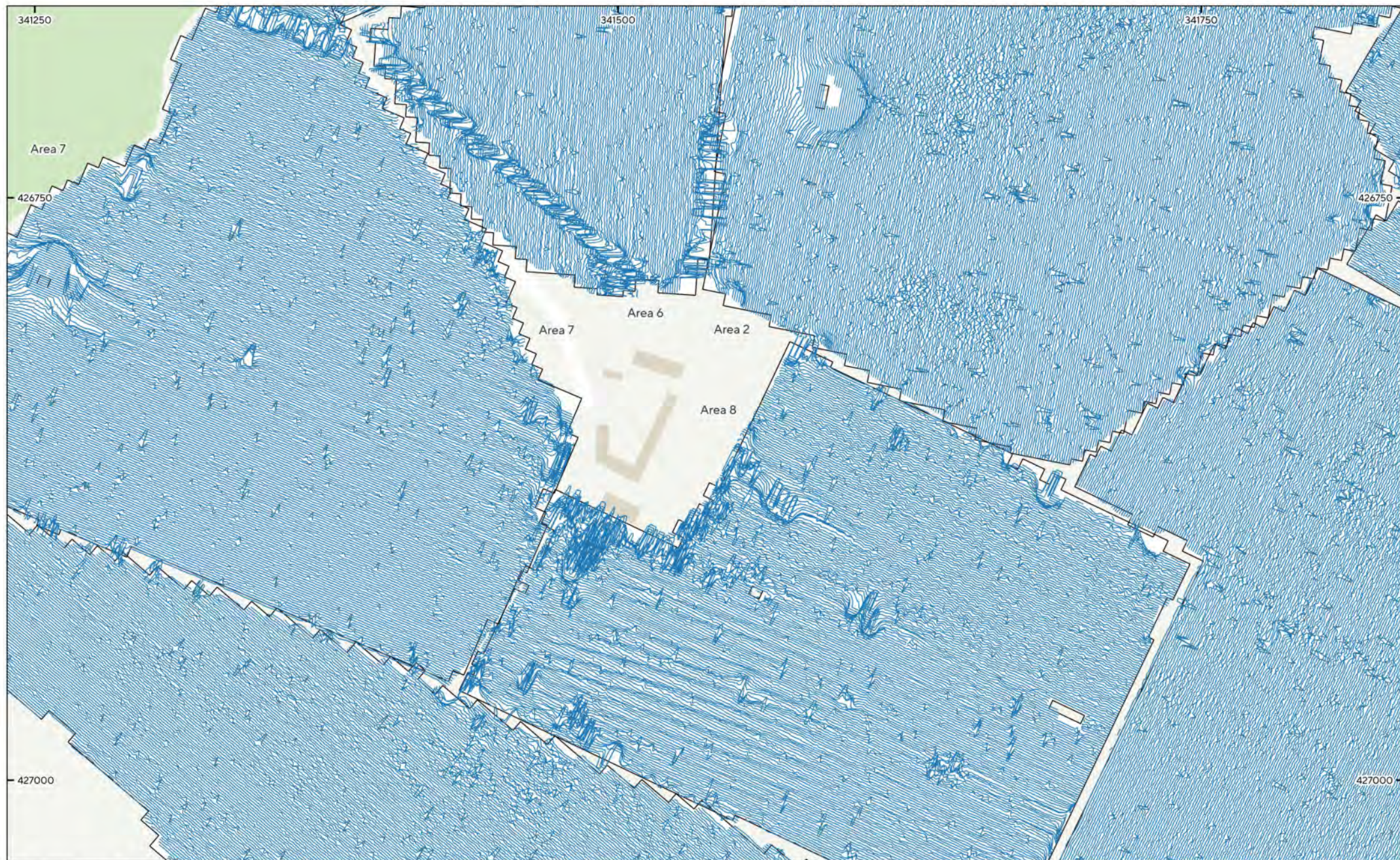


MSSK1908 - Main Road, Brailsford, Ashbourne  
 Figure 34 - Magnetic Interpretation (Areas 2 & 6-10)  
 1:1,500 @ A3  
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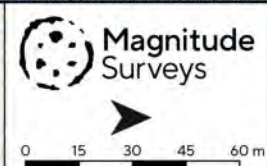
- |                             |                         |                          |                  |
|-----------------------------|-------------------------|--------------------------|------------------|
| Archaeology Probable (Weak) | Undetermined (Strong)   | Overhead Cables          | Drainage Feature |
| Archaeology Possible (Weak) | Undetermined (Weak)     | Ridge and Furrow (Trend) | Ferrous (Spike)  |
| Agricultural (Weak)         | Magnetic Disturbance    | Agricultural (Trend)     |                  |
| Natural (Spread)            | Ferrous/Debris (Spread) | Service                  |                  |



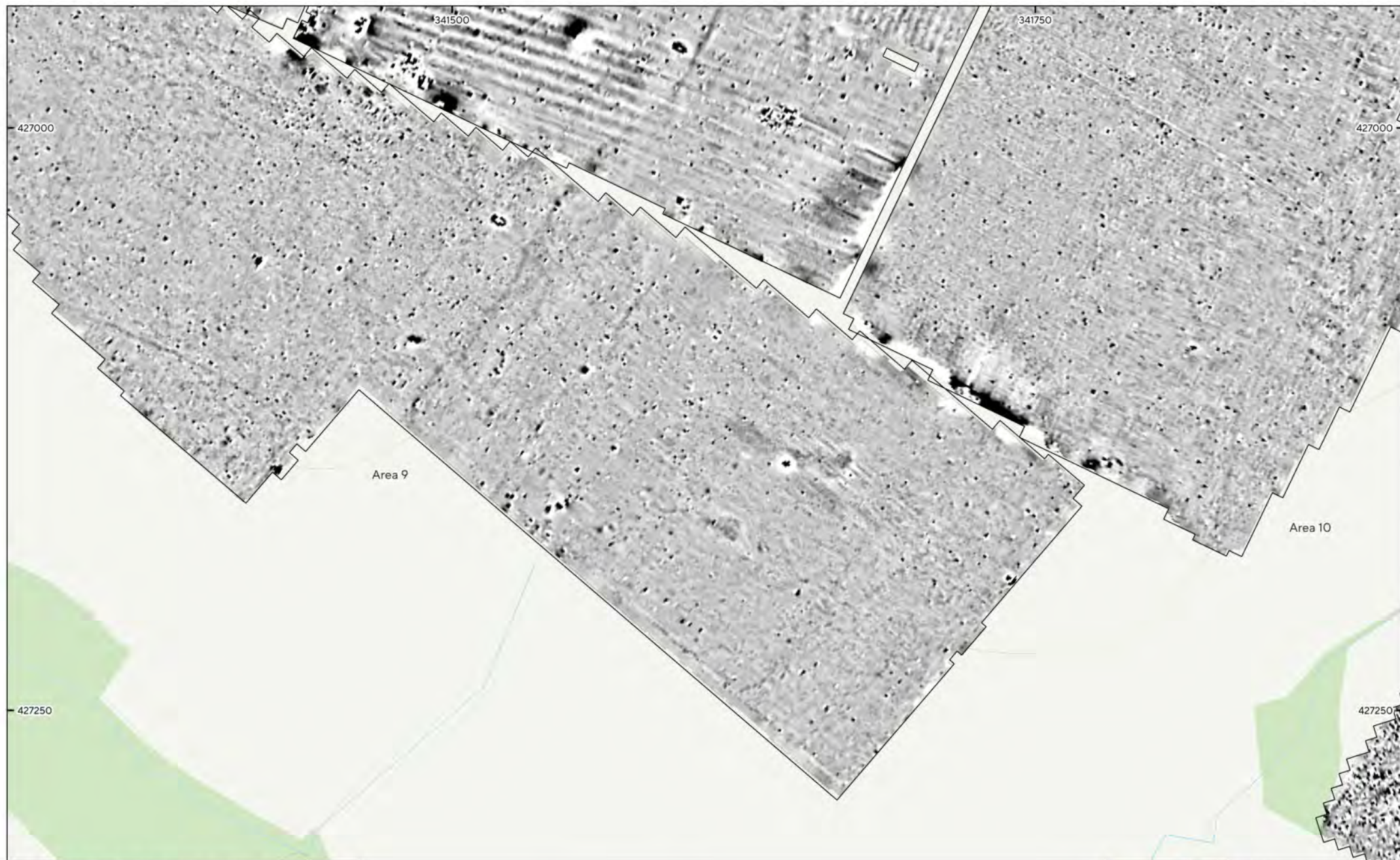




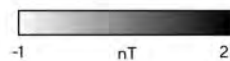
MSSK1908 - Main Road, Brailsford, Ashbourne  
Figure 35 - XY Trace Plot (Areas 2 & 6-10)  
30nT/cm at 1:1,500 @ A3  
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MSSK1908 - Main Road, Brailsford, Ashbourne  
Figure 36 - Magnetic Gradient (Areas 8-10)  
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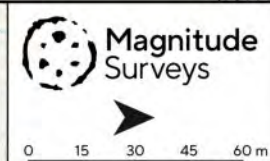




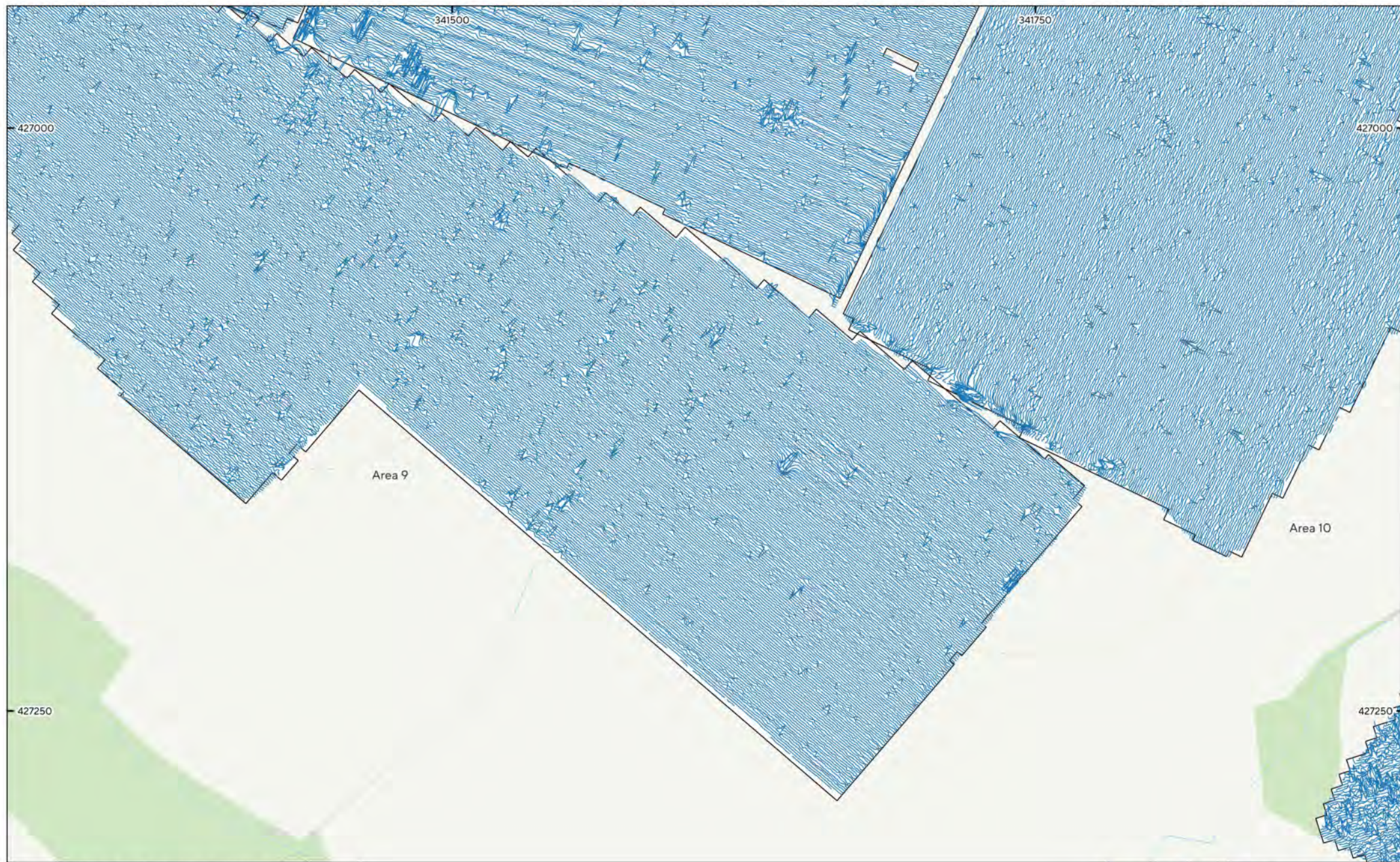


MSSK1908 - Main Road, Brailsford, Ashbourne  
 Figure 37 - Magnetic Interpretation (Areas 8-10)  
 1:1,500 @ A3  
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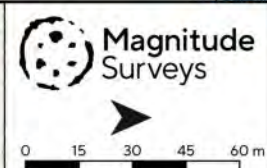
Agricultural (Weak)    Undetermined (Weak)    Ridge and Furrow (Trend)    Ferrous (Spike)  
 Natural (Weak)    Magnetic Disturbance    Agricultural (Trend)  
 Natural (Spread)    Ferrous/Debris (Spread)    Drainage Feature



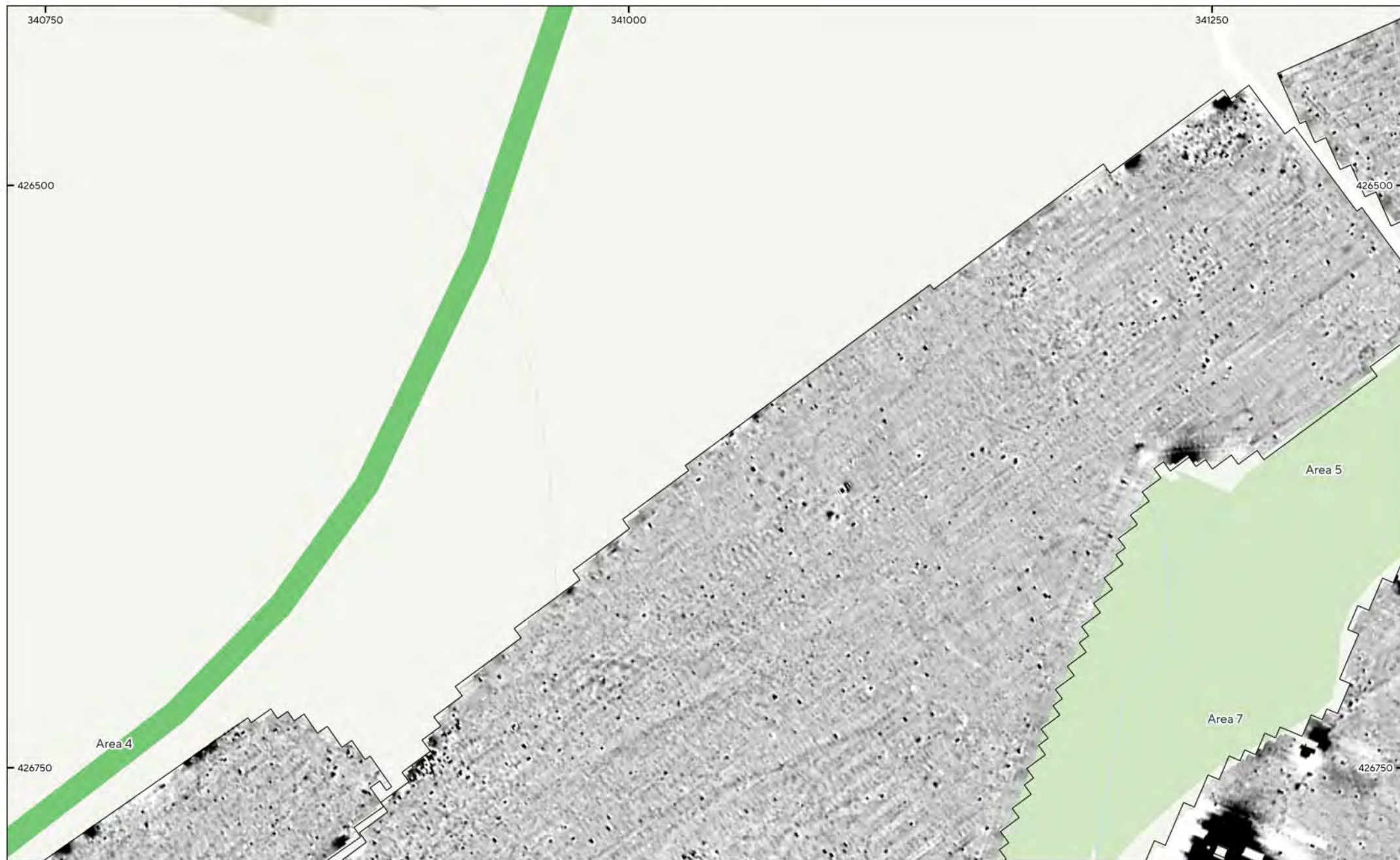




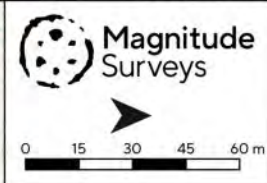
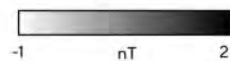
MSSK1908 - Main Road, Brailsford, Ashbourne  
Figure 38 - XY Trace Plot (Areas 8-10)  
30nT/cm at 1:1,500 @ A3  
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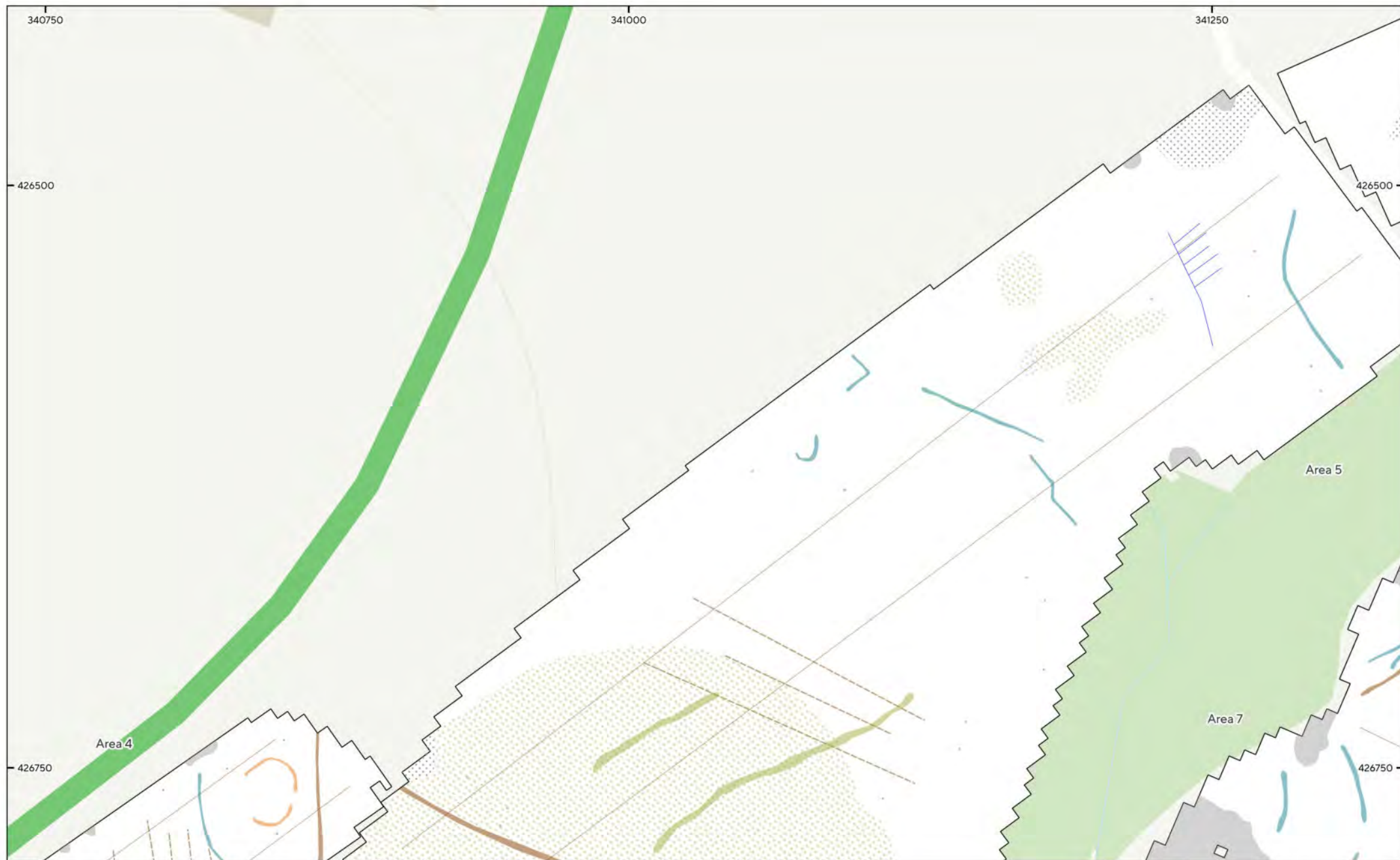




MSSK1908 - Main Road, Brailsford, Ashbourne  
Figure 39 - Magnetic Gradient (Areas 4, 5 & 7)  
1:1,500 @ A3  
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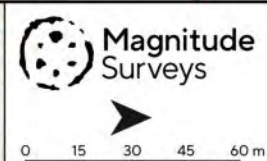






MSSK1908 - Main Road, Brailsford, Ashbourne  
 Figure 40 - Magnetic Interpretation (Areas 4, 5 & 7)  
 1:1,500 @ A3  
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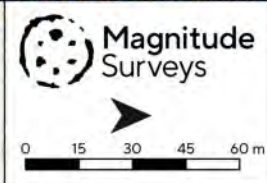
- |                             |                      |                          |                  |
|-----------------------------|----------------------|--------------------------|------------------|
| Archaeology Possible (Weak) | Natural (Spread)     | Ferrous/Debris (Spread)  | Service          |
| Agricultural (Weak)         | Undetermined (Weak)  | Ridge and Furrow (Trend) | Drainage Feature |
| Natural (Weak)              | Magnetic Disturbance | Agricultural (Trend)     | Ferrous (Spike)  |



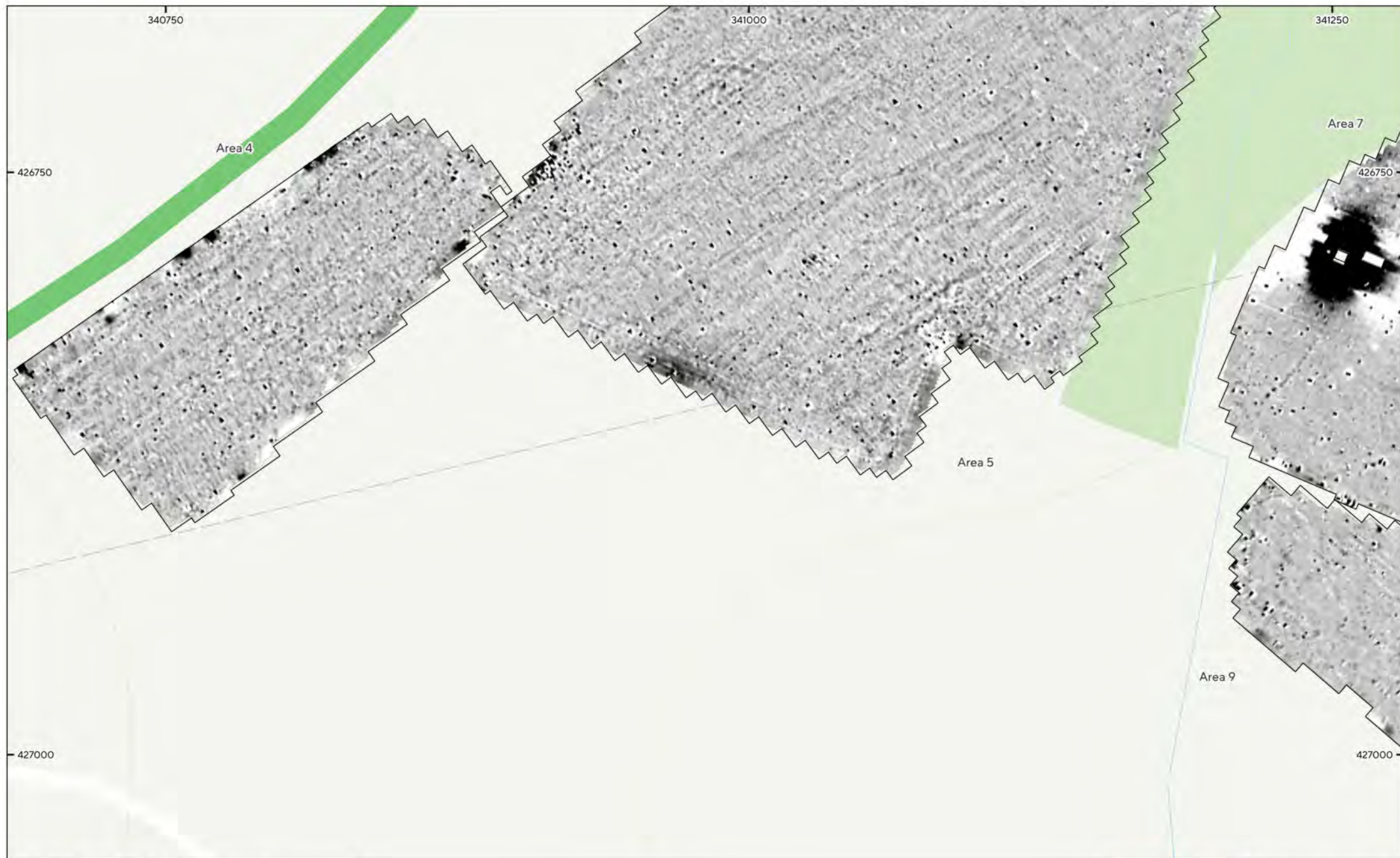




MSSK1908 - Main Road, Brailsford, Ashbourne  
Figure 41 - XY Trace Plot (Areas 4, 5 & 7)  
30nT/cm at 1:1,500 @ A3  
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MSSK1908 - Main Road, Brailsford, Ashbourne  
 Figure 42 - Magnetic Gradient (Areas 4, 5, 7 & 9)  
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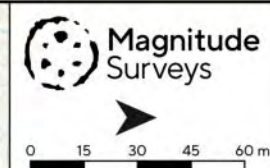






MSSK1908 - Main Road, Brailsford, Ashbourne  
 Figure 43 - Magnetic Interpretation (Areas 4, 5, 7 & 9)  
 1:1,500 @ A3  
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|                             |                      |                          |                 |
|-----------------------------|----------------------|--------------------------|-----------------|
| Archaeology Possible (Weak) | Natural (Spread)     | Ferrous/Debris (Spread)  | Ferrous (Spike) |
| Agricultural (Weak)         | Undetermined (Weak)  | Ridge and Furrow (Trend) |                 |
| Natural (Weak)              | Magnetic Disturbance | Agricultural (Trend)     |                 |







MSSK1908 - Main Road, Brailsford, Ashbourne  
Figure 44 - XY Trace Plot (Areas 4, 5, 7 & 9)  
30nT/cm at 1:1,500 @ A3  
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