GEOPHYSICAL SURVEY

Geophysical survey of land at Monk Sherborne

ARS Report N°: ARS23-54
OASIS ID: archaeol5-517097

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Geophysical survey of land at Monk Sherborne

ARS LTD REPORT 2023/48

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Prepared on behalf of:	Atmos Consulting Ltd
Date of compilation:	25/05/2023
Compiled by:	Jonathan Lester and Joel Goodchild
Checked by:	Joel Goodchild
Approved for issue by:	Roger Doonan
Local Authority:	Basingstoke and Deane Council
Site central NGR:	SU 60821 55166
OASIS ID:	archaeol5-517097

CONTENTS

EXECUTIVE SUMMARY

Project Name:	Geophysical survey of land at Monk Sherborne
Site Code:	ARS23-32
Planning Authority:	Basingstoke and Dean Council
Location:	Rookery Farm Lane, Monk Sherborne, Basingstoke and Deane, Hampshire, England, RG26 5HP, United Kingdom
Parish:	Monk Sherborne
Hard Geology:	Seaford Chalk Formation
Superficial Geology:	Not recorded
Soil Type:	Shallow lime-rich soils over chalk or limestone (Soilscape 3).
NGR:	SU 60821 55166
Date of Fieldwork:	17th April – 28th April
Date of Report:	25/05/2023

Archaeological Research Services was commissioned by Atmos Consulting to undertake a magnetometry survey of Land at Monk Sherborne, Basingstoke and Dean, in order to establish the presence/absence of potentially significant archaeological anomalies and the character and extent of those anomalies within the survey area.

The survey was undertaken between 17/04/2023 and 28/04/2023 accordance with a written scheme of works across a total area of ~57ha.

The survey successfully identified magnetic anomalies relating to two possible enclosed settlements, curvilinear enclosures, a ring ditch, a braided Holloway, and other features.

1 Introduction

1.1 Project Background

1.1.1 Archaeological Research Services Ltd (ARS Ltd) was commissioned by Atmos Consulting Ltd (the client) to undertake a geophysical survey on land at Monk Sherborne, Basingstoke and Dean.

1.1.2 Works were undertaken in compliance with the Written Scheme of Investigation (WSI) and took place between 17/04/2023 and 28/04/2023.

1.1.3 The proposed development area (PDA) is indicated in red on Figure 1. The site is located c.2.8km northwest of Basingstoke, Hampshire, and c.1.2km south of Monk Sherborne, roughly centred on SU 60826 55276.

1.2 Site Description

1.2.1 The site is located c.2.8km northwest of Basingstoke, Hampshire, and c.1.2km south of Monk Sherborne. The south-east boundary of fields 2 and 3 are bordered by the Weybrook Park Golf Club. Field 4 is bounded to the west by land associated with Manor Farm. The remaining boundaries are bordered by arable fields.

1.2.2 The site is characterised by gently undulating ground which ranges between 130 and 95m AOD. The higher ground is situated to the south of the survey area.

1.2.3 The four fields within the PDA are arable fields.

1.3 Geology and Soils

1.3.1 The underlying solid geology of the site is the Seaford Chalk Formation with no superficial geology recorded (BGS 2023).

1.3.2 The soils in the survey area consist of shallow lime-rich soils over chalk or limestone (Soilscape 3).

Field	Area (m^2)	Area (ha)
1	110430	11.04
2	103710	10.34
3	225740	22.57
4	125920	12.59

Table 1: Survey areas by field and their respective size.

1.4 Archaeological and Historical Background

1.4.1 The following archaeological and historical background has been gathered and recorded by the national and local Historic Environment Records.

1.4.2 There is substantial evidence of prehistoric activity in the vicinity of the survey area. This includes a perforated mace head found in 1953 by Hugh Oliver-Bellasis to the north of Crooked Row Copse, Monk Sherborne. Three circular enclosures are reported as being visible on LiDAR and

as crop marks on aerial photography in the north of the survey area to the west of Sherborne St. John. The enclosures measure between 29m and 34m in diameter (HER ID 36035). The investigation suggests the features may be associated with a potential later pre-historic co-axial field system to the west (HER ID 36035). An irregular/sub-oval enclosure was also identified on aerial photographs south of Rookery Farm Lane (HER ID 36031).

1.4.3 Two Bronze Age ring ditches, identified through aerial survey in 1996, have been recorded in fields to the south-east of Manor Farm in the local Historic Environmental Record. An air photograph survey in 1996 also yielded images of an irregular series of cropmarks south of Rookery Farm Lane. These cropmarks are interpreted as a probable Iron Age settlement (HER ID 36064).

1.4.4 Evidence of possible Roman presence is indicated by a number of finds including fragments of glass vessels, window glass, tile finds, building material finds and pottery were obtained south of Rookery Farm Lane (HER ID 19499). These finds have been used to support the proposal that a Roman villa is present in the proximity of the survey area. The presence of hypocaust tiles and iron slag (HER ID 19498) go someway to supporting this hypothesis. Further observations in 1957 indicated the presence of two ditches and associated finds to the east side of a chalk pit (HER ID 20718). Roman pottery was also obtained in 1986 to the north of the site, north of Rookery Farm Lane (HER ID 20660). In 1993 the potential villa was included in a survey of Romano-British villas in Hampshire ('A Survey of Romano-British Villas'; HER ID 20655).

1.4.5 In 1996 a holloway was recorded east of the boundary of All Saints church/Manor Farm. The sunken lane has an estimated date range of 1066AD-1539AD (HER ID 36853). A LiDAR survey identified medieval/post-medieval ridge and furrow (HER ID 69631). The Pamber Priory was founded in c.1120-30 by Henry de Port and inhabited by a prior and 12 monks until it was suppressed in 1414. Excavations have revealed an earlier church beneath the extant nave, the east wall of a chantry chapel, footings of the South transept and a North chapel. The Priory is also recorded as having to have utilised Roman and medieval floor tiles, but no medieval pottery (HOB UID: 240330).

2 METHOD STATEMENT

2.1 Introduction

2.1.1 Magnetometry is a non-intrusive scientific prospecting technique that is the preferred geophysical technique used to determine the presence or absence of buried archaeological features when site and geological conditions are favorable. It is an efficient and effective method for locating anomalies corresponding with archaeological features. The instrument chosen for this survey was a Bartington Grad 601 dual sensor fluxgate gradiometer which can detect weak changes in the Earth's magnetic field caused by buried features.

2.1.2 All fieldwork and reporting was undertaken following Historic England's (2008) Geophysical Survey in Archaeological Field Evaluation and The Chartered Institute for Archaeologists (CIfA) Code of Conduct (CifA 2014a) and Standards and Guidance for Archaeological Geophysical Survey (CIfA 2014b).

2.1.3 The 30m by 30m survey grids were located to cover each field in turn and aligned as shown in Figure 2. In total 770 survey grids (including partial grids) were set out and accurately positioned using a Leica Zeno 20 GNSS field controller with GS05 antenna cap which was connected to Leica Smartnet to receive corrections resulting in an accuracy of typically 0.5m. Each grid was then surveyed at 1m traverse intervals with the sampling at 0.25m (4 readings per meter) intervals. The

survey was carried out in 'zig-zag' mode with each alternate traverse walked in opposite directions. The range of the instrument was set at 100nT (0.01nT resolution).

2.1.4 The survey was carried out by ARS Ltd between 17/04/2023 and 28/04/2023 during which time the weather was mixed.

2.1.5 Prior to commencing the survey the gradiometer was balanced and calibrated to the local conditions and this was repeated regularly throughout the day. At the end of the day, the data was downloaded into a computer, checked and archived on the ARS Ltd server. The data was downloaded using Bartington Instruments' Grad 601 Communication Application.

3 Geophysical Survey Results

3.1 Introduction

3.1.1 The data was minimally processed using Geoplot software. The data was "clipped" (clipping parameters selected on the mean and standard deviation data values), and the striping that can often appear in gradiometer data was removed by utilising the "zero mean traverse" function with thresholds applied. To enhance the visibility of subtle features the data was viewed under a number of different clip plotting parameters.

3.1.2 Occasionally processing the data to compensate for directional sensitivity or to remove iron spikes caused by miscellaneous ferrous objects can also inadvertently disguise anomalies that may be of archaeological origin, particularly long linear features in the direction of the traverses. The data has therefore been analysed in a number of different formats and at each stage of processing.

3.1.3 Not all anomalies have been included in the results and discussion. Dipolar anomalies with no clustering or pattern to their distribution are common on most sites and almost certainly relate to natural variations in the soils and geology, agricultural disturbance and miscellaneous ferrous litter on the surface of the field. These anomalies have not been analysed further.

3.1.4 The data analysis is presented graphically in figures 3-11. Greyscale shade plots of the processed gradiometer data is presented in figures 3, 5, 7 and 9. Interpretative plans are presented in figures 4, 6, 8 and 10.

3.2 Results

3.2.1 The survey results are described in Table 2 below.

Field No.	Archaeological Anomalies	Summary	Interpretation
1	Probable	Braided holloway and possible Linear features relating to agricultural field boundaries and ferrous anomalies	A series of linear features are visible in the north and south-west of the field which may represent former field boundaries. Linear features in the south-east of the field extend into fields 2 and 3 and may represent a braided holloway. To the north of Field 1, there are magnetic disturbances caused by two identified service/drains that traverse the upper northern corner of the field. Additionally, further disturbances on the eastern side of

Field No.	Archaeological Anomalies	Summary	Interpretation
1(cont)	Probable		Field 1 are likely due to the proximity of fencing. A natural geological feature has been noted in the top area of Field 1 PDA.
2	Probable	Braided holloway, possible Linear features and ferrous anomalies	A series of linear anomalies have been identified in the north-east of the field, which may represent an extension of the agricultural field boundaries observed in Field 1 PDA. Linear anomalies are present in the south-east of the field that may represent a braided holloway. These feature alongside a series of discrete anomalies to their north. Several magnetically enhanced linear anomalies at the northern extent of Field 2 may relate to archaeological features. The majority of the magnetic disturbances are concentrated along the borders of Field 2 which are likely the result of proximity to metal fencing. A service/drain feature is visible running toward the northern extent of Field 2.
3	Probable	Braided holloway, circular ring ditch, remains of an enclosed settlement and associated track, alongside linear features	Linear anomalies that may represent a braided holloway are present running across the field to the northeast. A well-defined circular anomaly may represent a prehistoric ring ditch. A series of curvilinear anomalies toward the southern extent of the field define a probable enclosed settlement. This is overlain by a rectilinear enclosure that may be represent a Roman villa. The spatial relationship between features appears to indicate distinct phases of occupation. Several other strong magnetic results are assumed to be of archaeological significance, potentially associated with features within the settlement. A series of linear anomalies that may represent a trackway run from the north-east edge of the enclosed settlement to the north-western extent of the field and appear to continue into Field 4. A service/drain feature is visible running toward the western extent of Field 3. Other magnetic disturbances are primarily located along the borders of Field 3, which likely relate to presence of modern ferrous materials that constitute fencing. These disturbances are not of archaeological nature. It is possible that the pronounced magnetic signature associated with these features may mask archaeological features in their vicinity.

Field No.	Archaeological Anomalies	Summary	Interpretation
4	Probable	Circular ring ditches and potential D-shaped enclosure, extraction site, former trackway, field systems and ferrous anomalies	An area of magnetic disturbance in the northern extent of the field is likely associated with quarrying activity. In the south-eastern part of Field 4, there is a probable D-shaped enclosure accompanied by a related circular ring ditch. Additionally, high-amplitude magnetic signatures suggestive of pitting are found in close proximity to these features. A series of linear anomalies representing a probable trackway extends from the south-eastern extent of the field before curving to the north-east. This appears to respect the D-shaped enclosure and indicates these features may be contemporary. A pair of curvilinear anomalies are visible to the west of the D-shaped enclosure. A number of mid to high-amplitude magnetic disturbances surround the easternmost enclosure which may be associated with activity relating to the settlement. Linear anomalies running east-west and north-east to south-west are present and appear to be associated with agricultural field boundaries. Magnetic disturbance is primarily located along the borders of Field 4. These disturbances relate to services/drains that run along the south-eastern and, possibly, north-western extent of the field as well as a drain which meets the south-western extent of the survey area. Magnetic disturbance caused by fencing are also visible along the northern field boundary. It is possible that the pronounced magnetic signature associated with these features may mask archaeological features in their vicinity.

Table 2: The results of geophysical survey with summary and interpretation

4 Discussion and Conclusions

4.1.1 The survey has identified magnetic anomalies relating to archaeological features that represent multi-phase occupation of the landscape around Monk Sherborne. The presence of archaeology in the survey area is to some extent expected in light of the results of a number of previous archaeological surveys. In light of the results identified here the survey can be considered valid and provides good data from which to assess the presence of archaeological remains.

4.1.2 A well-defined circular anomaly that relates to a probable ring ditch is visible at the north-eastern extent of Field 3. This does not appear to be associated with any other identified features and may represent the earliest feature identified by the survey.

4.1.3 The survey has revealed two large enclosures that may represent enclosed settlements. These consist of a large curvilinear enclosure in Field 3 and a smaller curvilinear enclosure in Field 4. Both enclosures contain evidence of internal features. Linear anomalies representing a probable trackway in Field 3 coincide with the ditch that constitutes the north-east face of the southern enclosure before extending NNW in the direction of the northern enclosure in Field 4, which the trackway appears to respect, curving as it does to the NNE around this enclosure. The spatial relationship between these features suggests that the two enclosures and trackway may be contemporary. Two further less clearly defined enclosures are also visible at the south-western extent of Field 4 alongside linear features that may represent field boundaries.

4.1.4 A rectilinear enclosure is visible in Field 3 that overlies the northern extent of the curvilinear enclosure. This is located in close proximity to the HER record relating to finds of Roman material including fragments of glass vessels, window glass, tile finds, building material finds and pottery (HER ID 19499). The morphology of the enclosure is consistent with that of a Roman villa complex and may be associated with this documented material.

4.1.5 A number of fragmentary linear and rectilinear anomalies are visible in Field 1 representing possible field boundaries.

4.1.6 A series of linear anomalies running to the north-east across fields 3,2 and 1 are interpreted as a braided holloway. The less pronounced magnetic response associated with these features can likely be attributed to compaction of the ground by the movement of people and livestock over extended periods of time.

4.1.7 In summary, the survey has provided a useful dataset that is valid for assessing the range and extent of features across the survey area. These results are suitable for considering future proposed developments across the site. The archaeology is well-defined and may permit a variety of design options or mitigation strategies.

5 Publicity, Confidentiality and Copyright

5.1.1 Any publicity will be handled by the client.

5.1.2 ARS Ltd will retain the copyright of all documentary and photographic material under the Copyright, Designs and Patent Act (1988).

6 Statement of Indemnity

13.1 All statements and opinions contained within this report arising from the works undertaken are offered in good faith and compiled according to professional standards. No responsibility can be accepted by the author/s of the report for any errors of fact or opinion resulting from data supplied by any third party, or for loss or other consequence arising from decisions or actions made upon the basis of facts or opinions expressed in any such report(s), howsoever such facts and opinions may have been derived.

7 ARCHIVE

7.1.1 One bound copy of the final report with an attached digital PDF/A copy on disc will be deposited with the ADS. The disc will also include a digital archive, consisting of relevant ESRI shapefiles or CAD files, for use of updating the HER database.

8 ACKNOWLEDGEMENTS

8.1.1 ARS Ltd would like to thank to thank Atmos Consulting Ltd. for commissioning the project.

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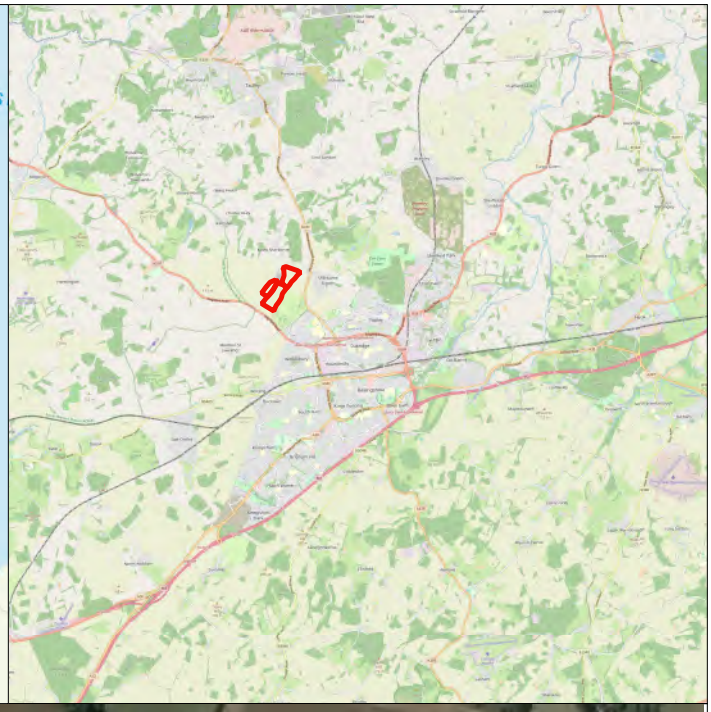
Soil Survey of England and Wales. 1983b. Legend for the 1:250,000 Soil Map of England and Wales.

APPENDIX I FIGURES



Site name: Monk Sherbourne Date: March 2023 Drawn by: KP Scale: Varies		Archaeological Research Services Ltd Aizlewood's Mill Nursery Street Sheffield S3 8GG Tel: 01619 762544 www.archaeologicalresearchservices.
	Figure 1: Site Location	

Figure 2:

Field IDs

Site name: Monk Sherbourne

Date Surveyed: March/April 2023

Date Drawn: May 2023

Client: Atmos Consulting

Monk Sherbourne Survey

PDA Monk Sherbourne

0 100 200 m

1:4000

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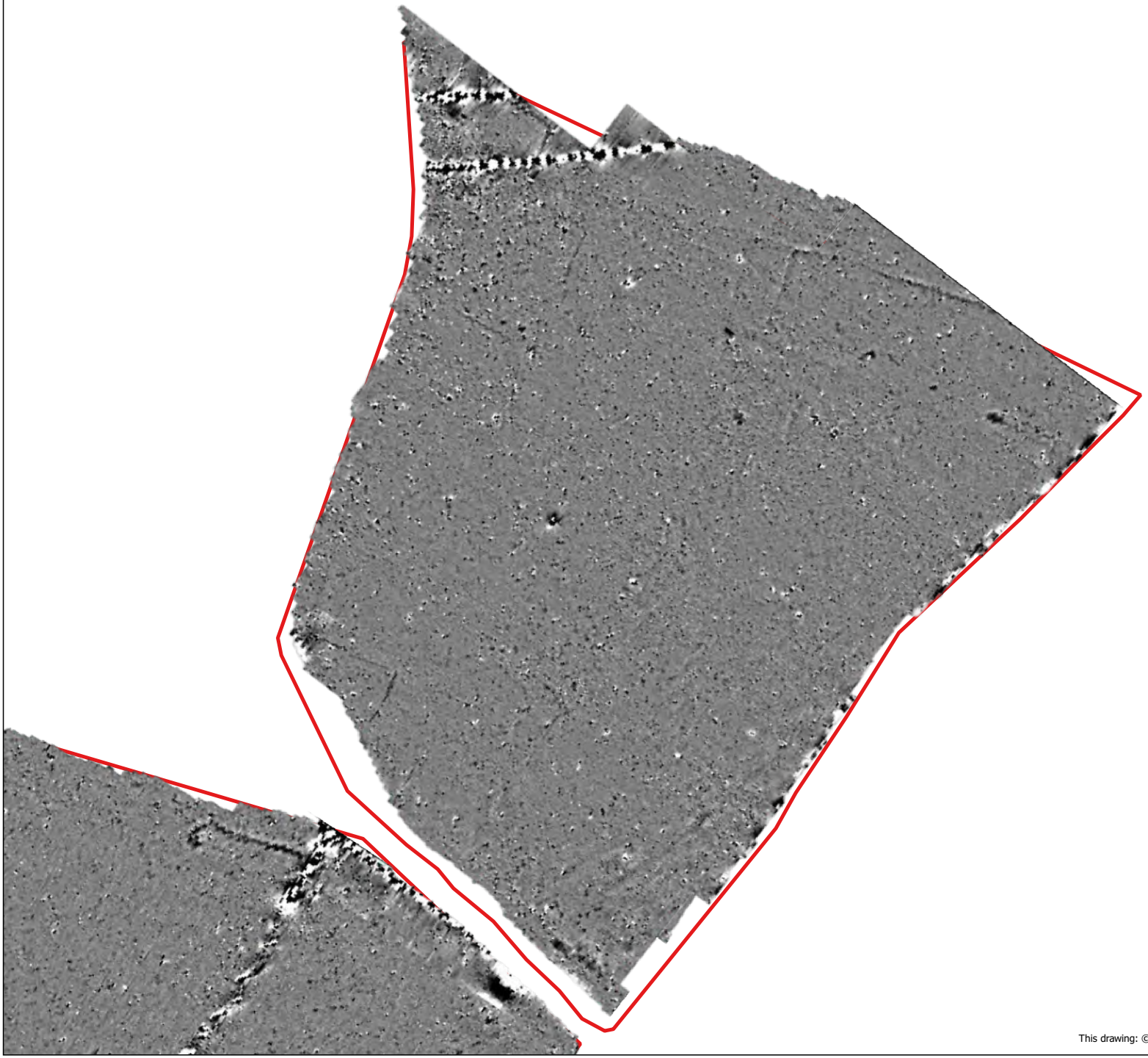

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Figure 3:

Field 1 greyscale shade plot at Monk Sherbourne

Site name: Monk Sherbourne
Date Surveyed: March/April 2023

Date Drawn: May 2023

Client: **Atmos Consulting**

PDA Monk Sherbourne

0 50 100 m

1:2,800

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Figure 4:

Field 1 interpretive plan of gradiometer data at Monk Sherbourne

Site name: Monk Sherbourne
Date Surveyed: March/April 2023

Date Drawn: May 2023

Client: **Atmos Consulting**

- PDA Monk Sherbourne
- Probable Archaeology
- Possible Archaeology
- Drain/Service
- Natural
- Magnetic Disturbance
- Ferrous Object
- Extraction

0 50 100 m

1:2,800

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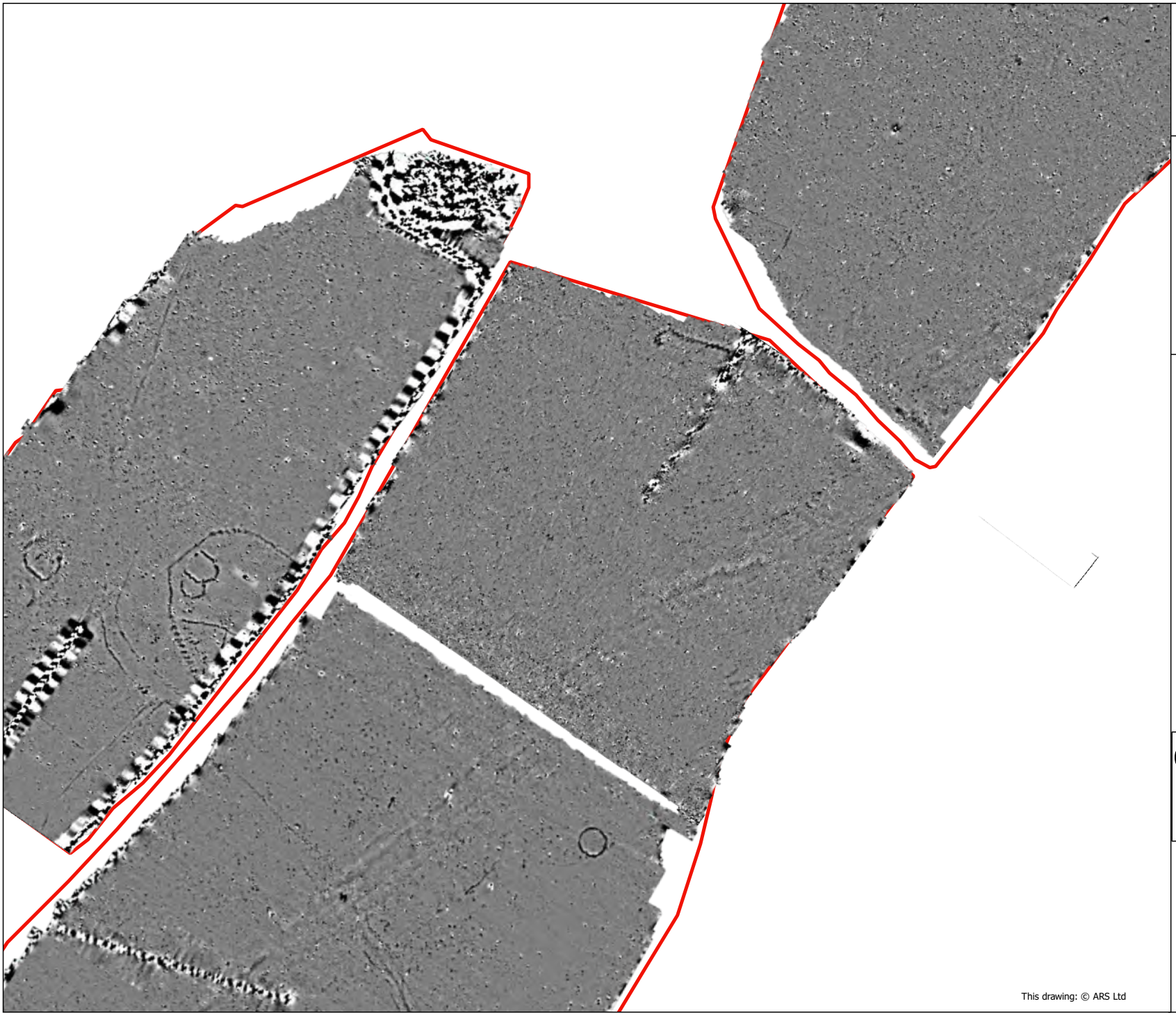

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Figure 5:

Field 2 greyscale shade plot at Monk Sherbourne

Site name: Monk Sherbourne
Date Surveyed: March/April 2023

Date Drawn: May 2023

Client: **Atmos Consulting**

PDA Monk Sherbourne

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1:4,000

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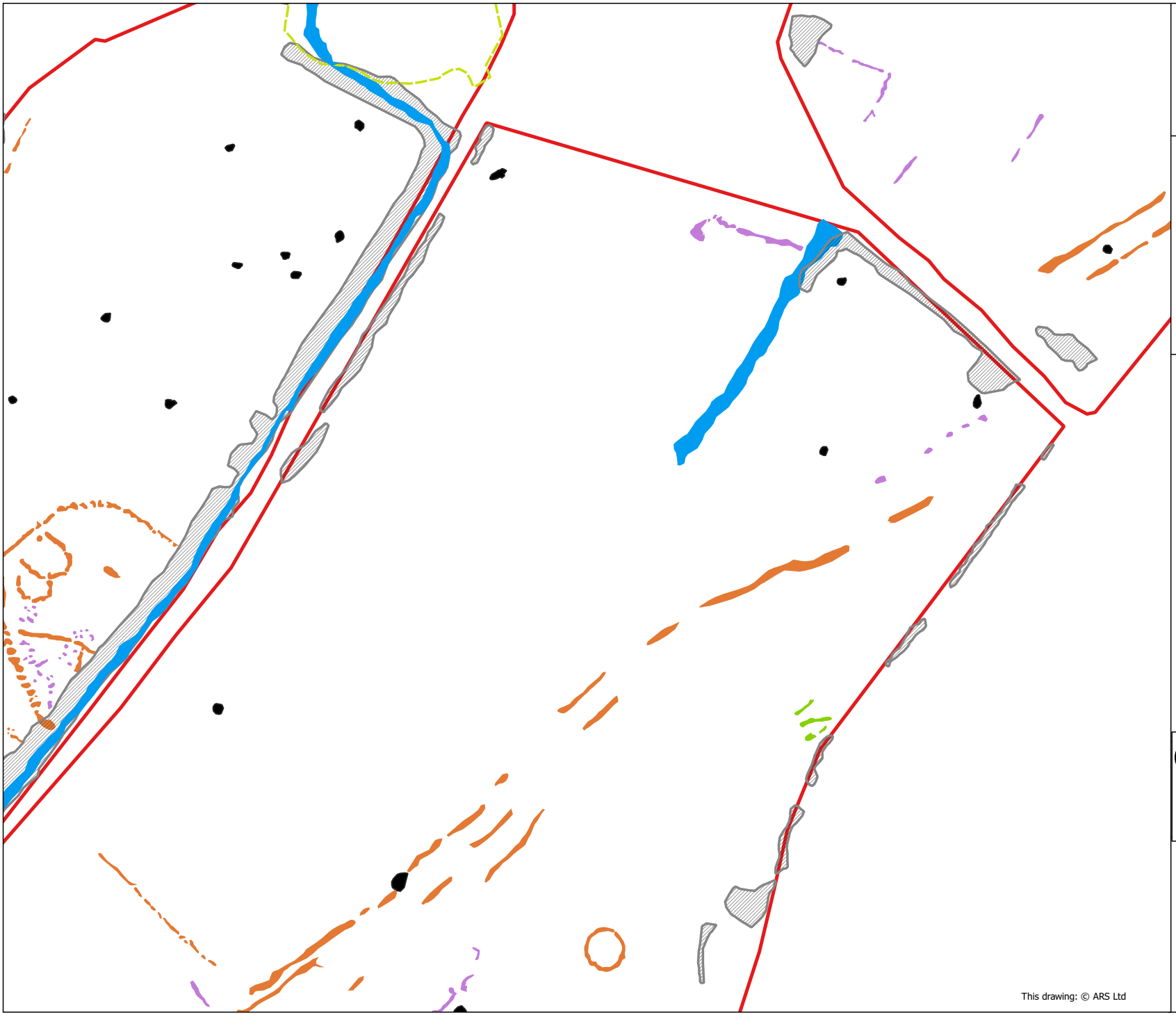

Figure 6:

Field 2 interpretive plan of gradiometer data at Monk Sherbourne

Site name: Monk Sherbourne
Date Surveyed: March/April 2023

Date Drawn: May 2023

Client: **Atmos Consulting**

- PDA Monk Sherbourne
- Probable Archaeology
- Possible Archaeology
- Drain/Service
- Natural
- Magnetic Disturbance
- Ferrous Object
- Extraction

0 50 100 m

1:2,800

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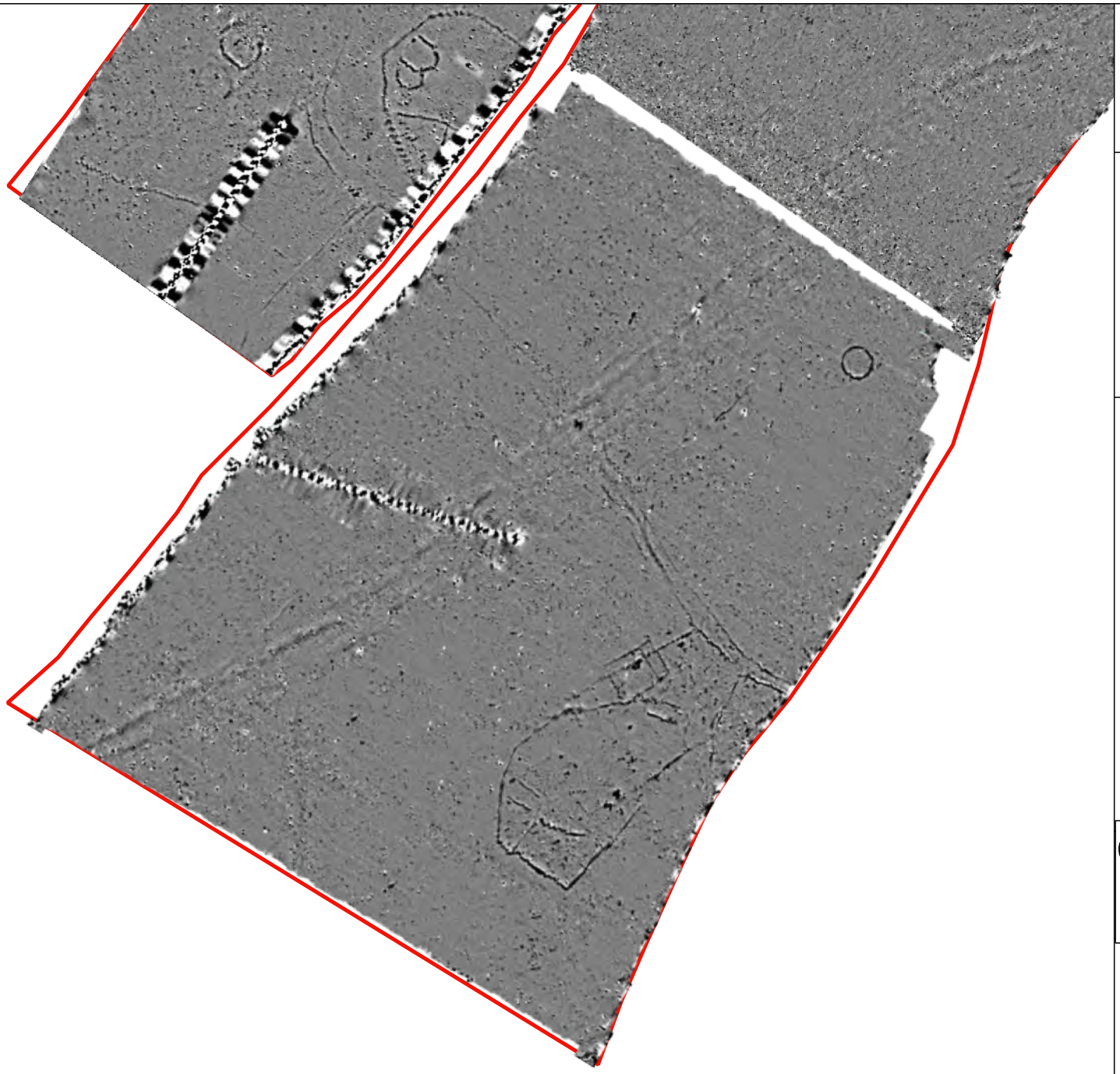

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Figure 7:

Field 3 greyscale shade plot at Monk Sherbourne

Site name: Monk Sherbourne
Date Surveyed: March/April 2023

Date Drawn: May 2023

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PDA Monk Sherbourne

0 80 160 m

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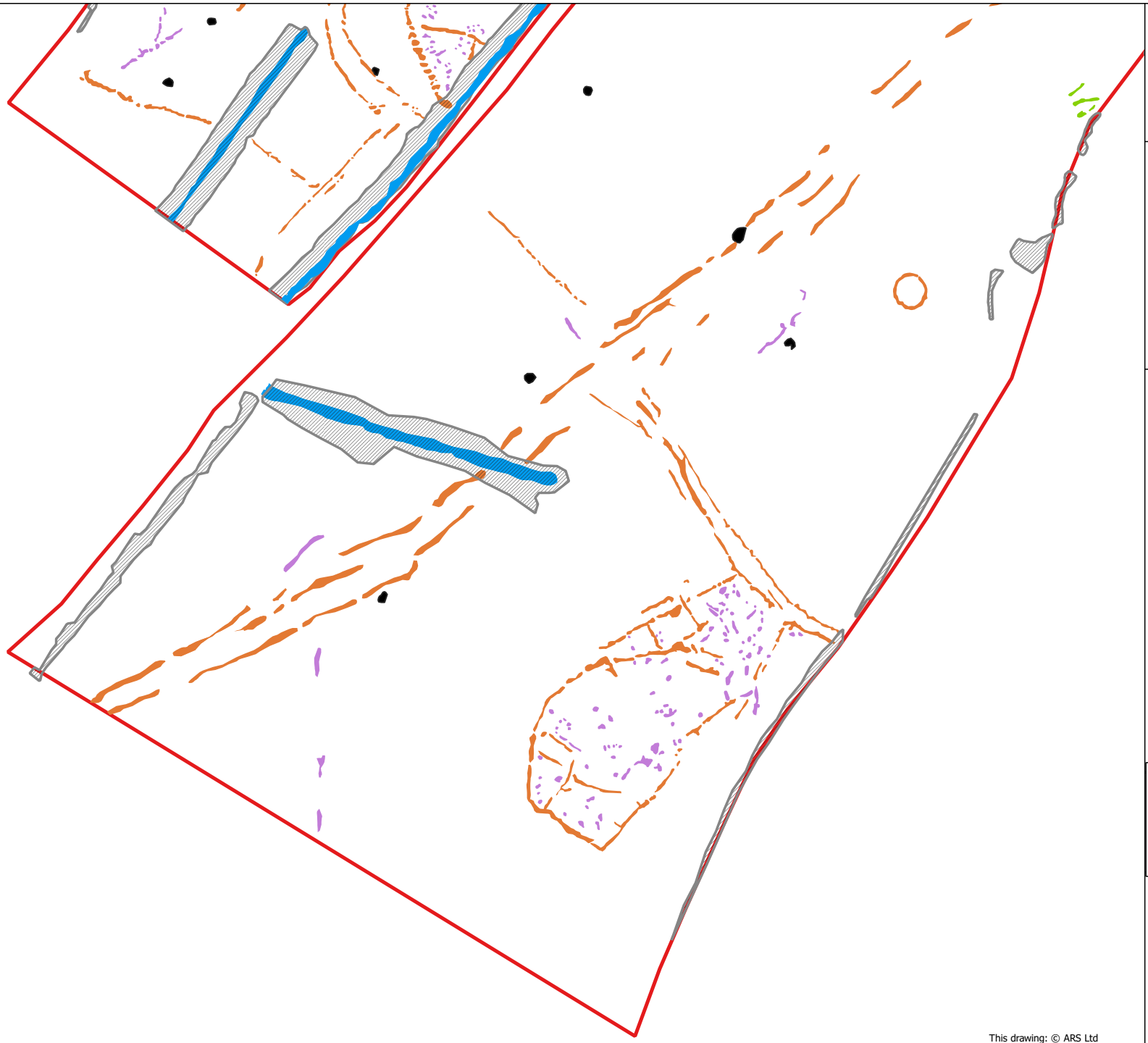

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Figure 8:

Field 3 interpretive plan of gradiometer data at Monk Sherbourne

Site name: Monk Sherbourne
Date Surveyed: March/April 2023

Date Drawn: May 2023

Client: **Atmos Consulting**

- PDA Monk Sherbourne
- Probable Archaeology
- Possible Archaeology
- Drain/Service
- Natural
- Magnetic Disturbance
- Ferrous Object
- Extraction

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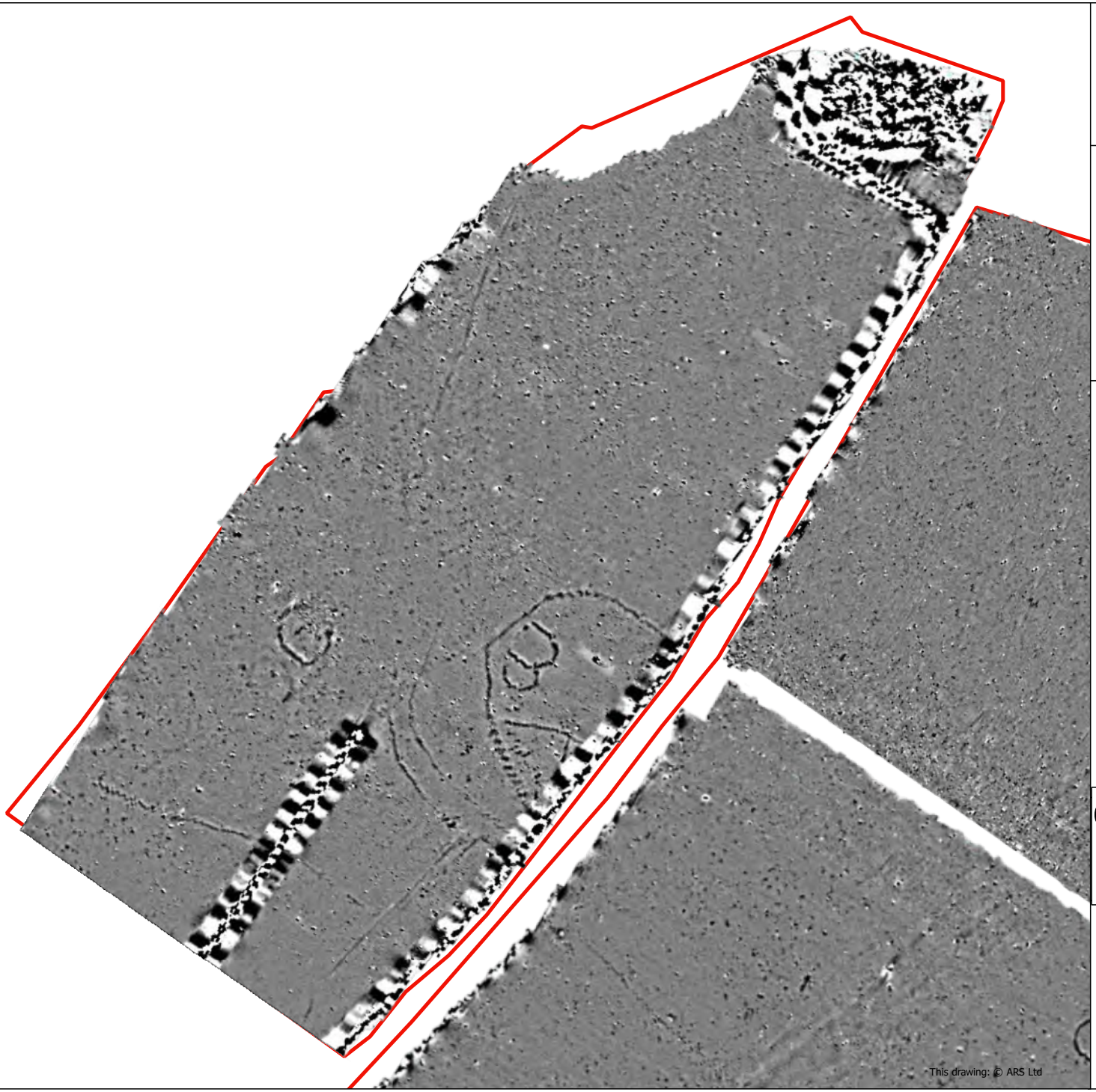

Figure 9:

Field 4 greyscale shade plot at Monk Sherbourne

Site name: Monk Sherbourne
Date Surveyed: March/April 2023

Date Drawn: May 2023

Client: **Atmos Consulting**

PDA Monk Sherbourne

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1:3,000

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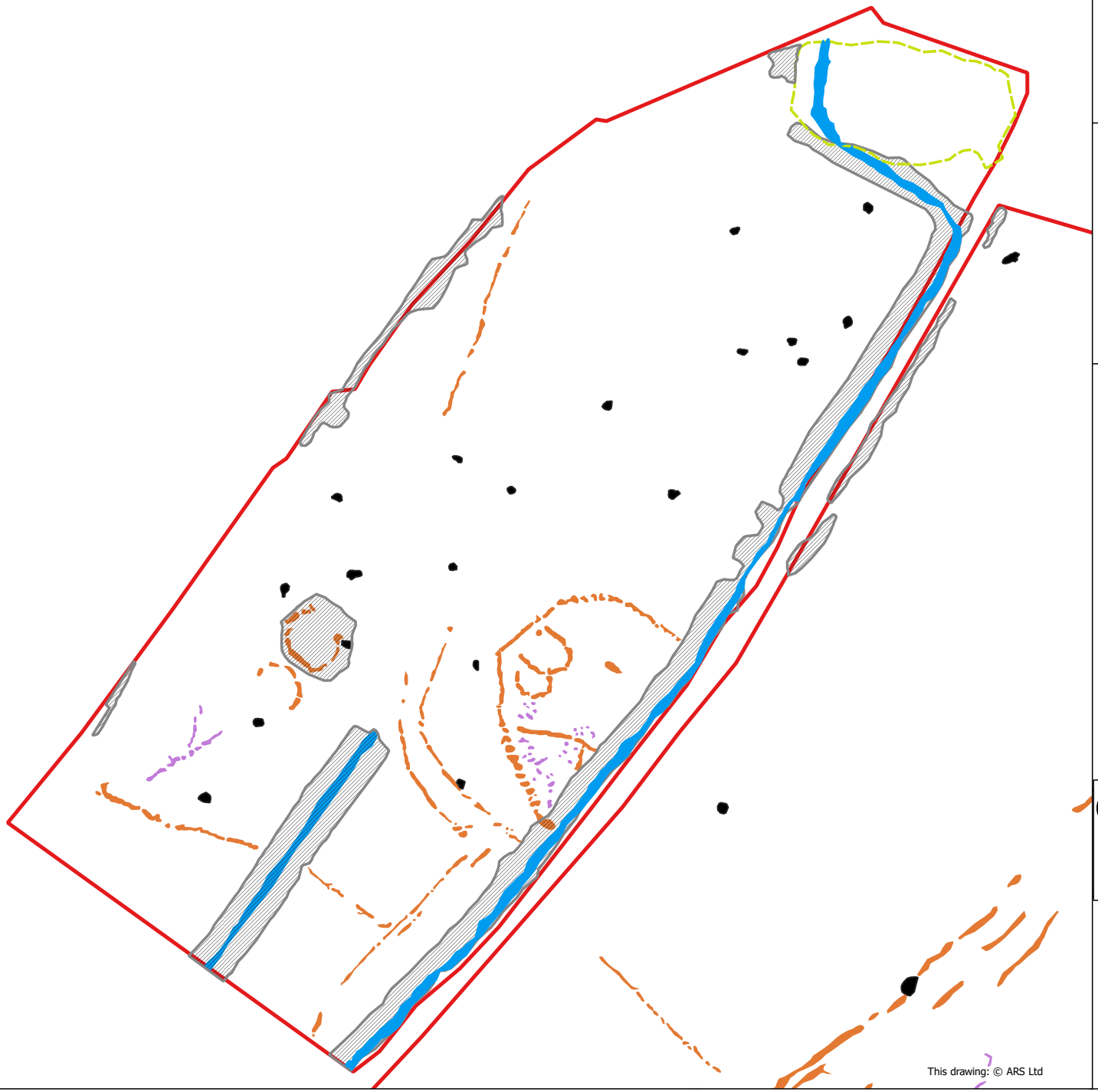

Figure 10:

Field 4 interpretive plan of gradiometer data at Monk Sherbourne

Site name: Monk Sherbourne
Date Surveyed: March/April 2023

Date Drawn: May 2023

Client: **Atmos Consulting**

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- Probable Archaeology
- Possible Archaeology
- Drain/Service
- Natural
- Magnetic Disturbance
- Ferrous Object
- Extraction

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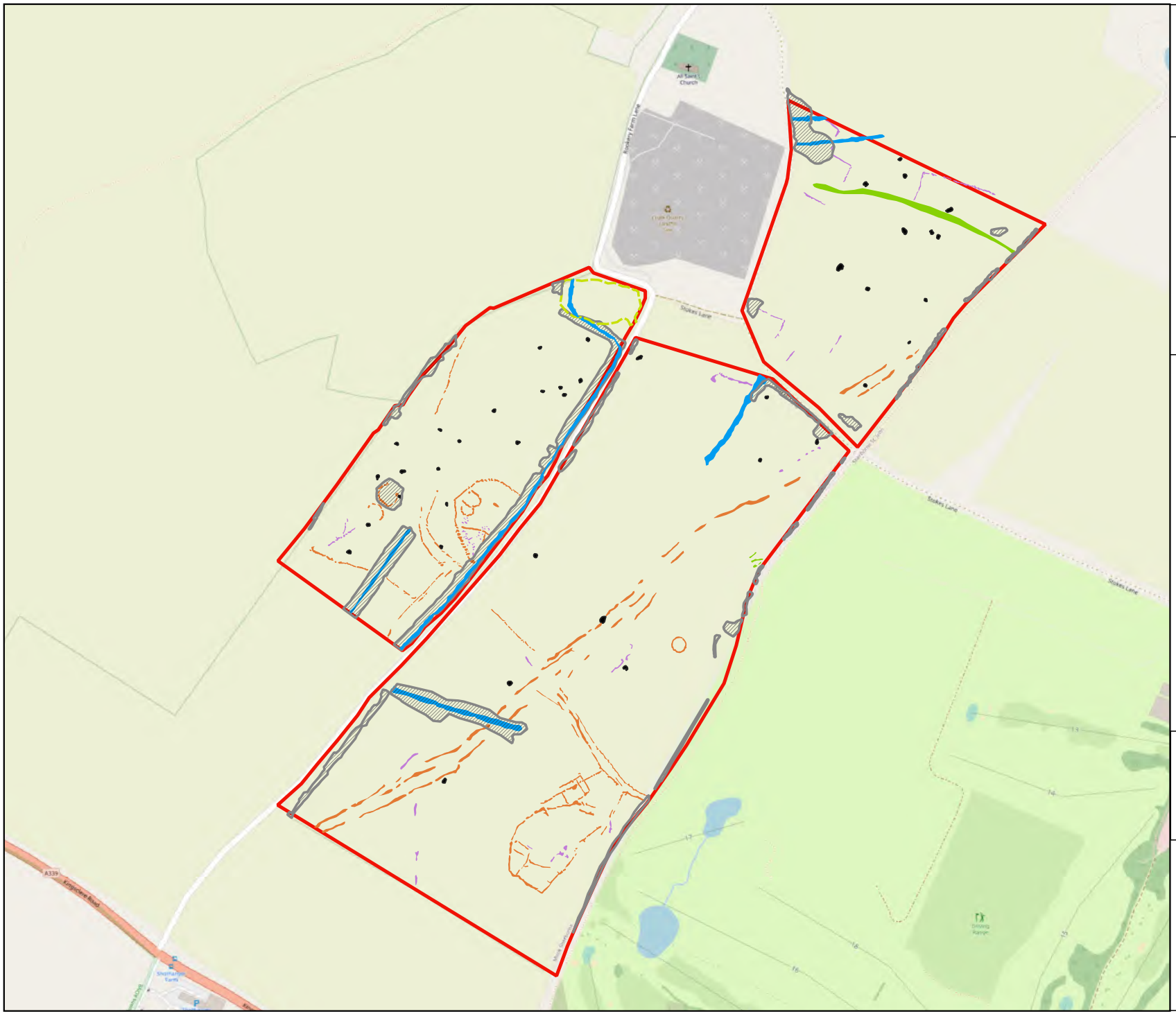

Figure 11:

Overview Interpretive Plan

Site name: Monk Sherbourne

Date Surveyed: March/April 2023

Date Drawn: May 2023

Client: **Atmos Consulting**

- PDA Monk Sherbourne
- Probable Archaeology
- Possible Archaeology
- Drain/Service
- Natural
- Magnetic Disturbance
- Ferrous Object
- Extraction

0 100 200 m

1:4000

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Figure 12:

Trace plot of processed gradiometer data at Monk Sherbourne - Field 1

Site name: Monk Sherbourne

Date Surveyed: March/April 2023

Date Drawn: May 2023

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0 50 100 m

1:2800

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Figure 13:

Trace plot of processed gradiometer data at Monk Sherbourne - Field 2

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0 100 200 m

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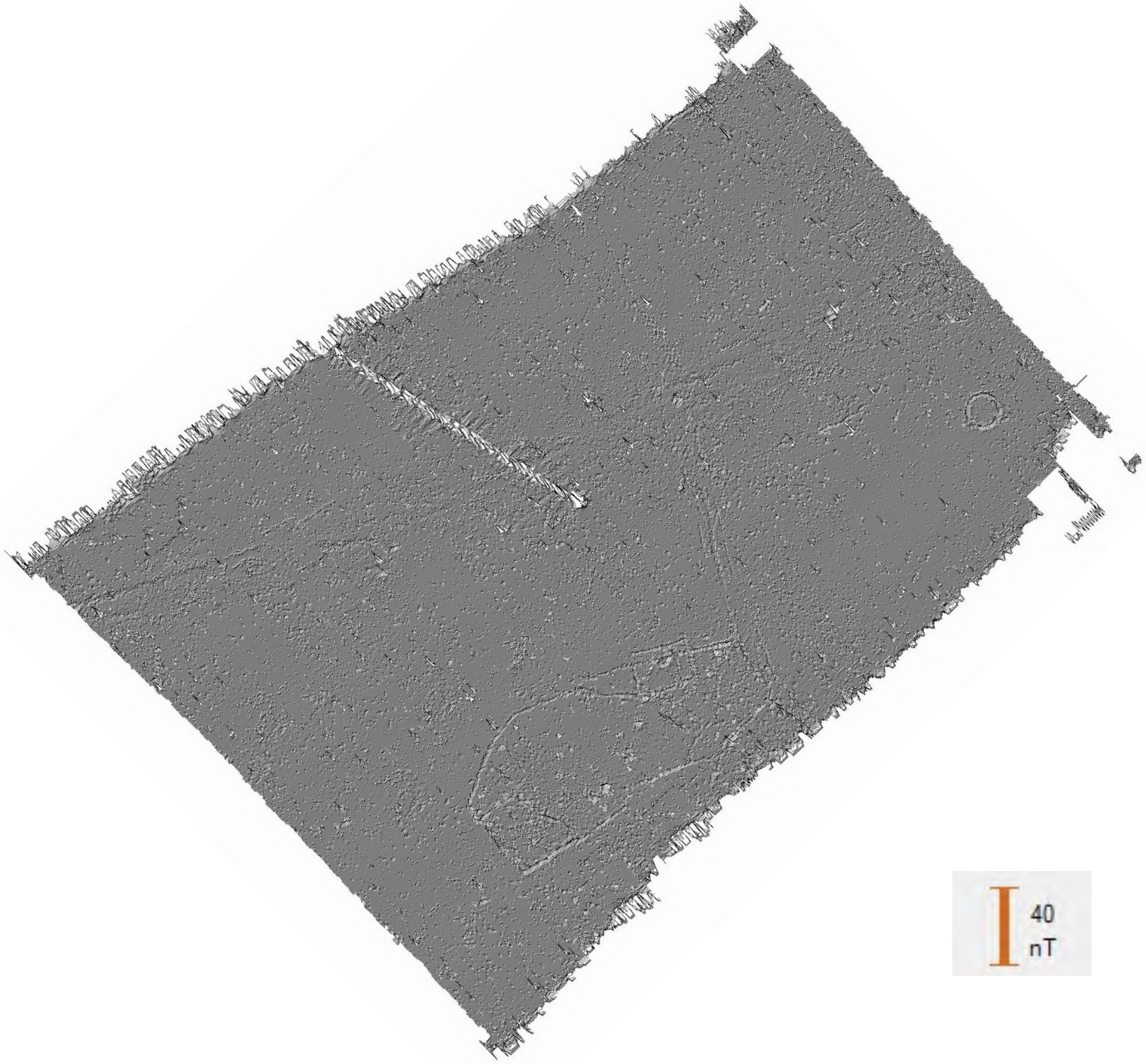

Figure 14:

Trace plot of processed gradiometer data at Monk Sherbourne - Field 3

Site name: Monk Sherbourne

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0 100 200 m

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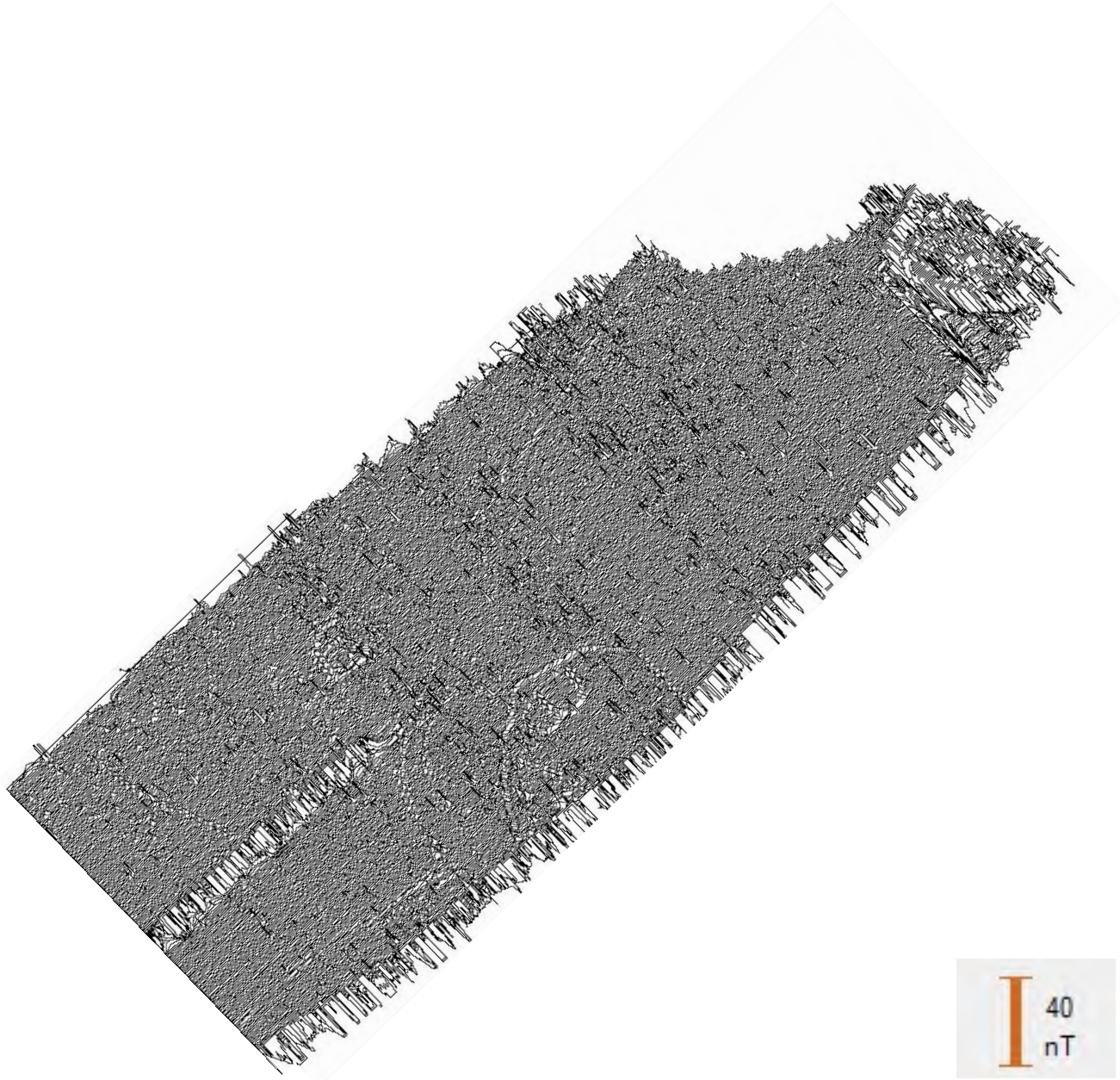

Figure 15:

Trace plot of processed gradiometer data at Monk Sherbourne - Field 4

Site name: Monk Sherbourne

Date Surveyed: March/April 2023

Date Drawn: May 2023

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0 100 200 m

1:3000

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