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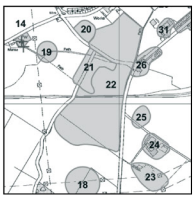
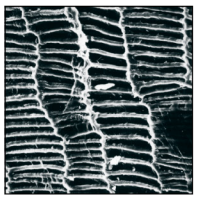









LAND AT NETHERHAMPTON ROAD, SALISBURY, WILTSHIRE

GEOPHYSICAL SURVEY

commissioned by the Environmental Dimension Partnership
on behalf of Bovis Homes

July 2017

HEADLAND ARCHAEOLOGY

REGISTERED ORGANISATION CIfA

LAND AT NETHERHAMPTON ROAD, SALISBURY, WILTSHIRE

GEOPHYSICAL SURVEY

commissioned by the Environmental Dimension Partnership
on behalf of Bovis Homes

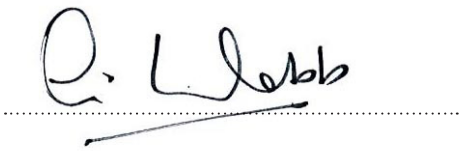
July 2017

project info

HA JOB NO.	NESW/01
NGR	SU 1200 2887
PARISH	Netherhampton
LOCAL AUTHORITY	Wiltshire
OASIS REF.	headland5-290295

project team

PROJECT MANAGER	Alistair Webb
AUTHOR	David Harrison
FIELDWORK	Aaron Rawlinson, Joe Turner, Nick Adams, Ross Bishop
GRAPHICS	Beata Wieczorek-Oleksy, Caroline Norrman, David Harrison
APPROVED BY	Alistair Webb – Project Manager



HEADLAND ARCHAEOLOGY

NORTH
Headland Archaeology
Unit 16, Hillside, Beeston Road, Leeds, LS11 8ND

0113 387 6430
north@headlandarchaeology.com

www.headlandarchaeology.com

PROJECT SUMMARY

Headland Archaeology (UK) Ltd undertook a geophysical (magnetometer) survey of a 78 hectare site, south-west of Salisbury, Wiltshire, as part of a baseline assessment of the heritage potential of the site. This information will help guide archaeological strategy in advance of the proposed development of the site. The survey has identified four areas of archaeological potential. A substantial sub-oval enclosure, of likely prehistoric origin, containing dozens of pit-type anomalies is located in the west of the site. A sinuous trackway meanders through the enclosure from north-west to south-east. The enclosure, including two smaller enclosures appended to the eastern side, are assessed as of very high archaeological potential. To the east of the enclosure twelve ring-ditches, probable barrows, are identified in three distinct clusters, most with possible internal features which may be pits, cremations or inhumations. These areas are assessed as of high archaeological potential. Across the central part of the site a regular pattern of linear anomalies may locate an undated field system which is assessed as of moderate archaeological potential. Anomalies locating a former quarry and a barn may be of local historical interest.

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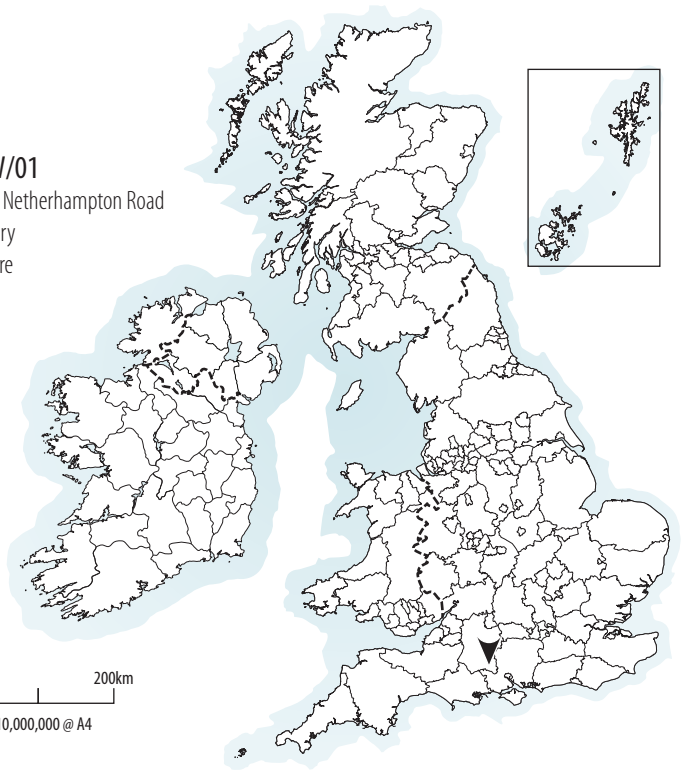
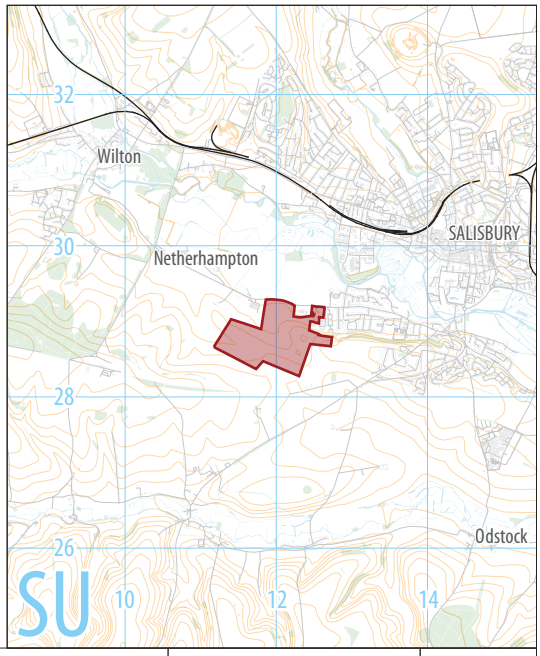
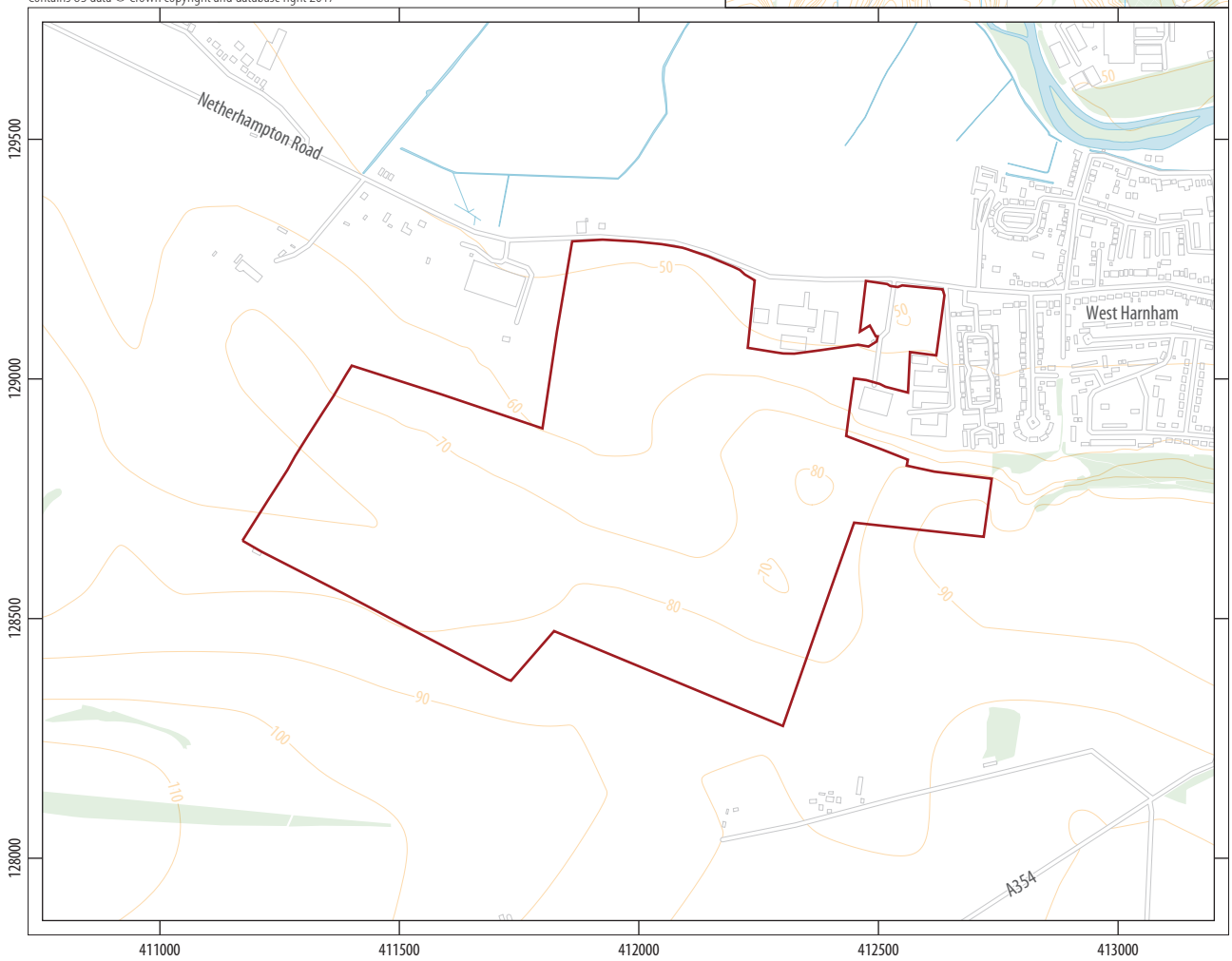
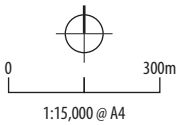
LIST OF ILLUSTRATIONS

NESW/01
land at Netherhampton Road
Salisbury
Wiltshire









proposed development area

HEADLAND ARCHAEOLOGY
NORTH
Unit 16, Hillside, Beeston Road
Leeds LS11 8ND
0113 387 6430
www.headlandarchaeology.com

ILLUS 1 Site location

LAND AT NETHERHAMPTON ROAD, SALISBURY, WILTSHIRE

GEOPHYSICAL SURVEY

1 INTRODUCTION

Headland Archaeology (UK) Ltd was commissioned by the Environmental Dimension Partnership (The Consultant), on behalf of Bovis Homes (The Client), to undertake a geophysical (magnetometer) survey of land at Netherhampton Road, Salisbury where a residential development is being proposed. The survey was carried out as part of a baseline study which aims to assess the heritage potential of the proposed development area (PDA), and therefore the impact of the proposed development on the historic environment. The survey was carried out to help guide the development proposals.

The work was undertaken in accordance with a Written Scheme of Investigation (Headland Archaeology 2017), produced on behalf of the client and approved by Wiltshire County Council, and was undertaken in accordance with guidance contained within the National Planning Policy Framework (DCLG 2012). All work was undertaken in line with current best practice (Chartered Institute for Archaeologists 2014, English Heritage 2008).

The survey was carried out between April 3rd and April 11th 2017 in order to provide information on the archaeological potential of the PDA.

1.1 SITE LOCATION, LAND-USE AND TOPOGRAPHY

The PDA comprises five fields (F1–F5) within a contiguous but irregularly shaped block of land, centred at SU 1200 2887 (see Illus 1), on the south-western edge of Salisbury. It is bound to the north by Netherhampton Road with a Livestock market and football pitches to the north-west and industrial units to the north-east. Arable farmland surrounds all other sides of the PDA.

At the time of the survey, the fields had been recently seeded (see Illus 2–5).

Generally, the PDA is located on the north-facing slopes of a low hill ranging from 49m above Ordnance Datum (AOD) at Netherhampton Road in the north to 85m AOD in the south. The topography rises steeply in the east of the site and either side of a low ridge which runs north-west/south-east across F1.

1.2 GEOLOGY AND SOILS

The underlying bedrock geology comprises chalk of the Newhaven Chalk Formation, Seaham Chalk Formation and the Culver Chalk Formation (see Illus 7). This is overlain in the north by River Terrace Deposits (sand and gravel) whilst Head (clay, silt, sand and gravel) is recorded at the base of the steeper slopes in the north of the PDA (NERC 2017).

The soils are classified in the Soilscape 5 association, characterised as freely draining lime-rich loams (Cranfield University 2017).

2 ARCHAEOLOGICAL BACKGROUND

The site is within a landscape of high archaeological potential, as identified within the Council's Core Strategy and the Wiltshire Historic Environment Record (HER). These identify cropmark features of potential prehistoric barrows, field systems and enclosures both within the site and the wider landscape. Further evidence of Neolithic, Bronze Age and Iron Age activity has been identified in advance of the development of the Livestock market to the immediate north-west of the PDA (Land Use Consultants 2009). Roman activity in the environs of the site is represented by a Roman road which is recorded a short distance west of the PDA (see Illus 6). Medieval and post-medieval heritage assets are also recorded within and in close proximity to the site, including a north-west/south-east aligned double-ditched medieval droveway to the south-east of the PDA whilst Foxmore Drove runs north/south through the centre of

ILLUS 2 Field 1, looking south-east

the site. Cropmarks of a group of lynchets have also been identified by cropmarks within the centre of the site with one of the lynchets appearing to partially circle a possible round barrow.

Analysis of historical mapping indicates that the division and layout of land within the PDA has changed little since the publication of the first edition Ordnance Survey (OS) map in 1881, albeit with the removal of occasional field boundaries from F2, F3 and F5 and the removal of a building from F2.

3 AIMS, METHODOLOGY AND PRESENTATION

The general aim of the geophysical survey was to provide sufficient information to establish the presence/absence, character and extent of any archaeological remains within the PDA. This will therefore enable an assessment to be made of the impact of the proposed development on any sub-surface archaeological remains, if present.

The specific archaeological objectives of the geophysical survey were:

- to provide information about the nature and possible interpretation of any magnetic anomalies identified;
- to therefore model the presence/absence and extent of any buried archaeological features; and
- to prepare a report summarising the results of the survey.

3.1 MAGNETOMETER SURVEY

Magnetic survey methods rely on the ability of a variety of instruments to measure very small magnetic fields associated with buried archaeological remains. A feature such as a ditch, pit or kiln can act like a small magnet, or series of magnets, that produce distortions (anomalies) in the earth's magnetic field. In mapping these slight variations, detailed plans of sites can be obtained as buried features often produce reasonably characteristic anomaly shapes and strengths (Gaffney and Gater 2003). Further information on soil magnetism and the interpretation of magnetic anomalies is provided in Appendix 1.

The survey was undertaken using four Bartington Grad601 sensors mounted at 1m intervals (1m traverse interval) onto a rigid carrying frame. The system was programmed to take readings at a frequency of 10Hz (allowing for a 10–15cm sample interval) on roaming traverses (swaths) 4m apart. These readings were stored on an external weatherproof laptop and later downloaded for processing and interpretation. The system was linked to a Trimble R8s Real Time Kinetic (RTK) differential Global Positioning System (dGPS) outputting in NMEA mode to ensure a high positional accuracy for each data point.

MLGrad601 and MultiGrad601 (Geomar Software Inc.) software was used to collect and export the data. Terrasurveyor V3.0.31.4 (DWConsulting) software was used to process and present the data.

3.2 REPORTING

A general site location plan is shown in Illus 1 at a scale of 1:5,000. Illus 2–5 inclusive are site condition photographs. Illus 6 is a 1:5,000 scale survey location plan showing the GPS swath data. The geology data (after NERC 2017) is presented at the same scale in Illus 7.

ILLUS 3 Field 2, looking north

The processed greyscale data and an overall interpretation plot are also presented at 1:5,000 on Illus 8 and Illus 9. Detailed data plots of the fully processed data (greyscale), the minimally processed data (XY traceplot) and an accompanying interpretative plot, are presented at a scale of 1:2,500 in Illus 10 to Illus 21 inclusive, with more detailed (1:1,000) plots of the areas of archaeological activity (AAA) in Illus 22 to Illus 33 inclusive.

Technical information on the equipment used, data processing and magnetic survey methodology is given in Appendix 1. Appendix 2 details the survey location information and Appendix 3 describes the composition and location of the site archive. Data processing details are presented in Appendix 4. A copy of the OASIS entry (Online Access to the Index of Archaeological Investigations) is reproduced in Appendix 5.

The survey methodology, report and any recommendations comply with the Written Scheme of Investigation (Headland Archaeology 2017) and guidelines outlined by Historic England (English Heritage 2008) and by the Chartered Institute for Archaeologists (CIfA 2014). All illustrations from Ordnance Survey mapping are reproduced with the permission of the controller of Her Majesty's Stationery Office (Ó Crown copyright).

The illustrations in this report have been produced following analysis of the data in 'raw' and processed formats and over a range of different display levels. All illustrations are presented to most suitably display and interpret the data from this site based on the experience and knowledge of management and reporting staff.

4 RESULTS AND DISCUSSION

The ground conditions across the PDA were good and the overall quality of the data collected was good throughout.

The magnetic background only varies slightly across the PDA most notably over the superficial head deposits in the north and towards the bases of the sites steeper slopes.

Against this background numerous anomalies have been identified. Those anomalies with modern, agricultural or geological origins are discussed first followed by those anomalies with a possible or probable archaeological cause. All anomalies are discussed below and cross-referenced to specific anomalies on the interpretative drawings, where appropriate.

4.1 FERROUS AND MODERN ANOMALIES

Ferrous anomalies, characterised as individual 'spikes', are typically caused by ferrous (magnetic) material, either on the ground surface or in the plough-soil. Little importance is normally given to such anomalies, unless there is any supporting evidence for an archaeological interpretation, as modern ferrous debris is common on most sites, often being present as a consequence of manuring or tipping/infilling.

A north-south alignment of ferrous spike anomalies (**TP**) within the west of F1 locates a series of telegraph poles carrying overhead wires. Two broader areas of magnetic disturbance (**PY**) within the east of F1 are caused by electricity pylons (see Illus 2).

The site of a former exploratory oil platform (Illus 19–21; **OP1**) is identified along the western edge of F1 as a broad area of magnetic disturbance. The disturbance is due to both modern ground disturbance and ferrous contamination of the upper soil horizons.

ILLUS 4 Field 3, looking east

The broad area of magnetic disturbance (Illus 25–27; **B1**) towards the middle of F2 corresponds with the location of a building, probably a barn, which is first shown on the 1901 edition OS map but is removed by the 1939 edition map. The disturbance is caused by the spread of rubble and building debris within the topsoil.

A high magnitude linear dipolar anomaly (Illus 16–21; SP1) is identified running due west from a manhole cover (MH) in F5 across the full width of the PDA. This anomaly locates a sub-surface pipe. Seven further pipes (SP2–SP8) are identified connecting to it.

Magnetic disturbance around the field edges is due to ferrous material within or close to the adjacent field boundaries and is of no archaeological interest.

4.2 AGRICULTURAL ANOMALIES

Numerous, closely-spaced, parallel linear trend anomalies are identified across the PDA. The vast majority of these are aligned parallel with the long axis of the current field system and are caused by modern cultivation. East-west aligned linear anomalies **FB1**–**FB4** within F1, F2 and F3 (see Illus 10–18) correspond to former boundaries which are shown on early OS mapping. The anomalies are caused by the magnetic contrast between the soil fill of a ditch and the surrounding soil.

4.3 GEOLOGICAL ANOMALIES

Numerous low magnitude discrete anomalies are identified across the PDA. These anomalies are due to minor variations in the composition of the soils. Broader low magnitude anomalies and concentrations of curving trend anomalies within the south of F1, across F2 and extending south-eastwards through F4, are thought to be due to the accumulation of superficial deposits of clay, silt, sand and gravel (Head) at the base of steep gradients.

4.4 ANOMALIES OF POSSIBLE ARCHAEOLOGICAL POTENTIAL (ILLUS 10–21)

A series of faint and fragmented parallel linear anomalies (**D1**–**D27**), mostly aligned north/south-east/west, is identified across the central part of the PDA. The anomalies do not correspond to the existing or historical pattern of land division, nor do they correspond to any topographical features or known geological boundaries. The anomalies are thought to be caused by soil-filled ditches, perhaps defining a former field system of unknown origin. Alternatively, the anomalies may locate the group of lynchets which are recorded on the Wiltshire HER with the anomalies being caused by the accumulation of soils alongside the buried ridges. The curve in the alignment of **D12** (Illus 28–30), skirting the western side of ring-ditch **RD9**, is worthy of note. This deviation suggests that the ditch is contemporary with, or later than, the prehistoric ring-ditch.

A broad sinuous anomaly (Illus 13–21; TR1), aligned north-north-east/south-south-west along the western edge of F3 and F4, is also ascribed a possible archaeological origin in the absence of any obvious modern, agricultural, topographical or geological explanation. It is possible that the anomaly locates a former track or droveway. The anomaly runs close to Foxmore Drove, with a second probable trackway identified in F1 (see below) whilst a medieval droveway is also recorded immediately south of the PDA.

ILLUS 5 Field 4, looking east

4.5 AREAS OF ARCHAEOLOGICAL ACTIVITY

AAA1 (Illus 22–24)

A clear area of archaeological activity identified in an elevated position within the north-west of F1 corresponds to a cropmark recorded on the Wiltshire HER. The area comprises a sub-oval enclosure (Illus 22–24; **E1**) centred at SU 1148 2885 and measuring 125m north/south and 130m east/west. The enclosure contains a dense concentration of discrete pit-type anomalies throughout, probably suggesting settlement activity. A second enclosure, **E2**, is identified appended to the eastern side of **E1** with a smaller D-shaped enclosure, **E3**, located to the immediate south-east. A broad sinuous anomaly, **TR2**, winds through the complex between the north-western and the south-eastern sides of the enclosure. This anomaly is thought to be due to a former trackway which extends south-eastwards across F1 along a low ridge from the north-western corner of the PDA. Whilst no definite phasing can be inferred from the geophysical survey it seems likely, given the oblique alignment of the **TR2** across **E1**, that the trackway is later than, rather than contemporary with, the enclosure

AAA2 (Illus 25–27)

Eight ring-ditches (**RD1**–**RD8**), probable barrows, are identified in a cluster in a low-lying position, between 49m and 55m AOD, within the north of F2. The exact locations and dimensions of the barrows are detailed in Table 1. **RD8** differs clearly in form with a clear concentric internal ditch, whilst suggestions of an internal ditch are also identified within **RD2**. Low magnitude discrete pit-type anomalies are identified within the interior of most of the barrows which may be due to pits, cremations or inhumations. The probable barrows are located either side of a band of Head (superficial deposits of clay, silt, sand and gravel which accumulate at the base of slopes). It is notable that the ring-ditches which lie in closest proximity to the Head (**RD3** and **RD5**) are lower in magnitude, fainter and less well defined than those located further away from the superficial deposits. It is possible therefore, that there may be further anomalies of archaeological potential within this area which are either masked by deeper superficial deposits or for which there is insufficient magnetic contrast in the surrounding soils for them to manifest in the data.

AAA3 (Illus 28–30)

Two more ring-ditches (**RD9** and **RD10**) are identified on a prominent north-west facing slope, between 75m and 80m AOD, in the centre of F3 (see Table 1). The ring-ditches, probable barrows, are notably smaller in diameter than those in the cluster in F2, 350m to the north-west, with **RD9** also more oval than circular in shape and containing pit-type anomalies within the interior.

AAA4 (Illus 31–33)

AAA4 comprises two ring-ditches located 30m apart either side of Foxmore Drove within the west of F4 (**RD11**) and the east of F1 (**RD12**) respectively (see Table 1). The probable barrows are located towards the top of a low ridge at 78m AOD. Possible pits are identified within the interior of **RD12** whilst a broad linear anomaly, a possible trackway (**TR1**) runs through the centre of **RD11**.

RING-DITCH	EASTING	NORTHING	DIAMETER
RD1	411953	129251	28m
RD2	412018	129224	26m

RING-DITCH	EASTING	NORTHING	DIAMETER
RD3	412046	129192	22.5m
RD4	411921	129080	29.5m
RD5	411960	129095	19m
RD6	411920	129028	21m
RD7	411951	129064	29m
RD8	411988	129079	28m
RD9	412240	128857	20.5m
RD10	412357	128833	14.5m
RD11	411914	128589	21m
RD12	411866	128616	29m

TABLE 1 Ring-ditch locations

5 CONCLUSION

The geophysical survey has successfully evaluated the site and has identified four areas of archaeological activity including a large sub-oval enclosure and twelve ring-ditches, probable barrows, within three distinct clusters. These anomalies reflect both funerary and settlement activity and are assessed as of high or very high archaeological potential.

Across the central part of the site a series of fragmentary parallel linear ditch type anomalies are identified which may locate an undated field system, whilst a second possible trackway is also ascribed some archaeological potential. These anomalies are assessed as of moderate archaeological potential.

Elsewhere across the PDA the anomalies identified are consistent with post-medieval and recent agricultural and modern activity, with the exception of an area of localised chalk extraction in the south-west. The majority of the PDA is therefore assessed as having a low to moderate archaeological potential.

6 REFERENCES

Chartered Institute for Archaeologists (ClfA) 2014 ***Standard and guidance for archaeological geophysical survey*** [online document] Accessed 2 May 2017 from http://www.archaeologists.net/sites/default/files/ClfAS&GGeophysics_1.pdf

Cranfield University 2017 ***Cranfield Soil and Agrifood Institute Soilscapes*** [online] Accessed 2 May 2017 from www.landis.org.uk/soilscapes/

Department of Communities and Local Government (DCLG) 2012 ***National Planning Policy Framework*** [online document] Accessed 2 May 2017 from https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/6077/2116950.pdf

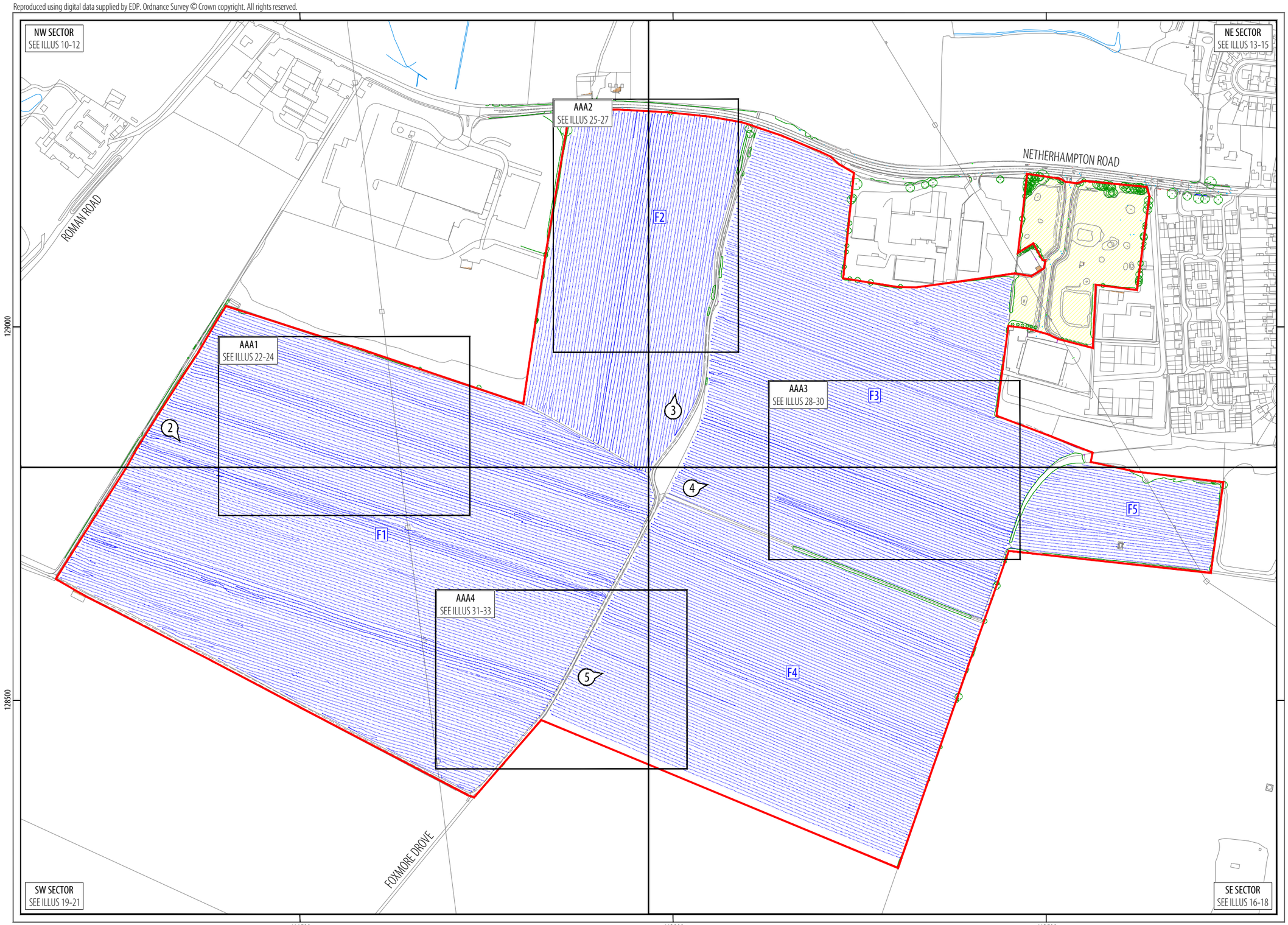
English Heritage 2008 ***Geophysical Survey in Archaeological Field Evaluation: Research and Professional Services Guidelines*** (2nd edition) [online document] Accessed 2 May 2017 from http://content.historicengland.org.uk/images-books/publications/geophysical-survey-in-archaeological-field-evaluation/geophysics-guidelines.pdf

Gaffney, C & Gater, J 2003 ***Revealing the Buried Past: Geophysics for Archaeologists*** The History Press: Stroud

Headland Archaeology 2017 ***Land at Netherhampton Road, Salisbury, Wiltshire: Written Scheme of Investigation for Geophysical Survey*** [unpublished Headland document] ref NESW/01

Land Use Consultants 2009 ***Salisbury Historic Environment Assessment*** Accessed 9 May 2017 from http://www.wiltshire.gov.uk/salisbury_historic_environment_assessment_april_2009.pdf

Natural Environment Research Council (NERC) 2017 ***British Geological Survey*** [online] Accessed 2 May 2017 from http://www.bgs.ac.uk/



geophysical survey area
GPS swaths
location and direction of ILLUS 2-5
area unsuitable for survey

N
0 100m
scale 1:5,000 @ A3

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Land at Netherhampton Road
Salisbury
Wiltshire

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HEADLAND ARCHAEOLOGY
NORTH Unit 16, Hillside, Beeston Road
Leeds LS11 8ND
0113 387 6430
www.headlandarchaeology.com

ILLUS 6 Survey location showing GPS swaths

geophysical survey area

BEDROCK GEOLOGY
- Seaford Chalk Formation
- Newhaven Chalk Formation
- Culver Chalk Formation

SUPERFICIAL GEOLOGY
- River Terrace Deposits 4 - sand and gravel
- Head - clay, silt, sand and gravel

nT
-1.0 2.0

N

0 100m
scale 1:5,000 @ A3

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Leeds LS11 8ND
0113 387 6430
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ILLUS 7 Survey location showing geology data

geophysical survey area

-1.0 nT 2.0

N

0 100m

scale 1:5,000 @ A3

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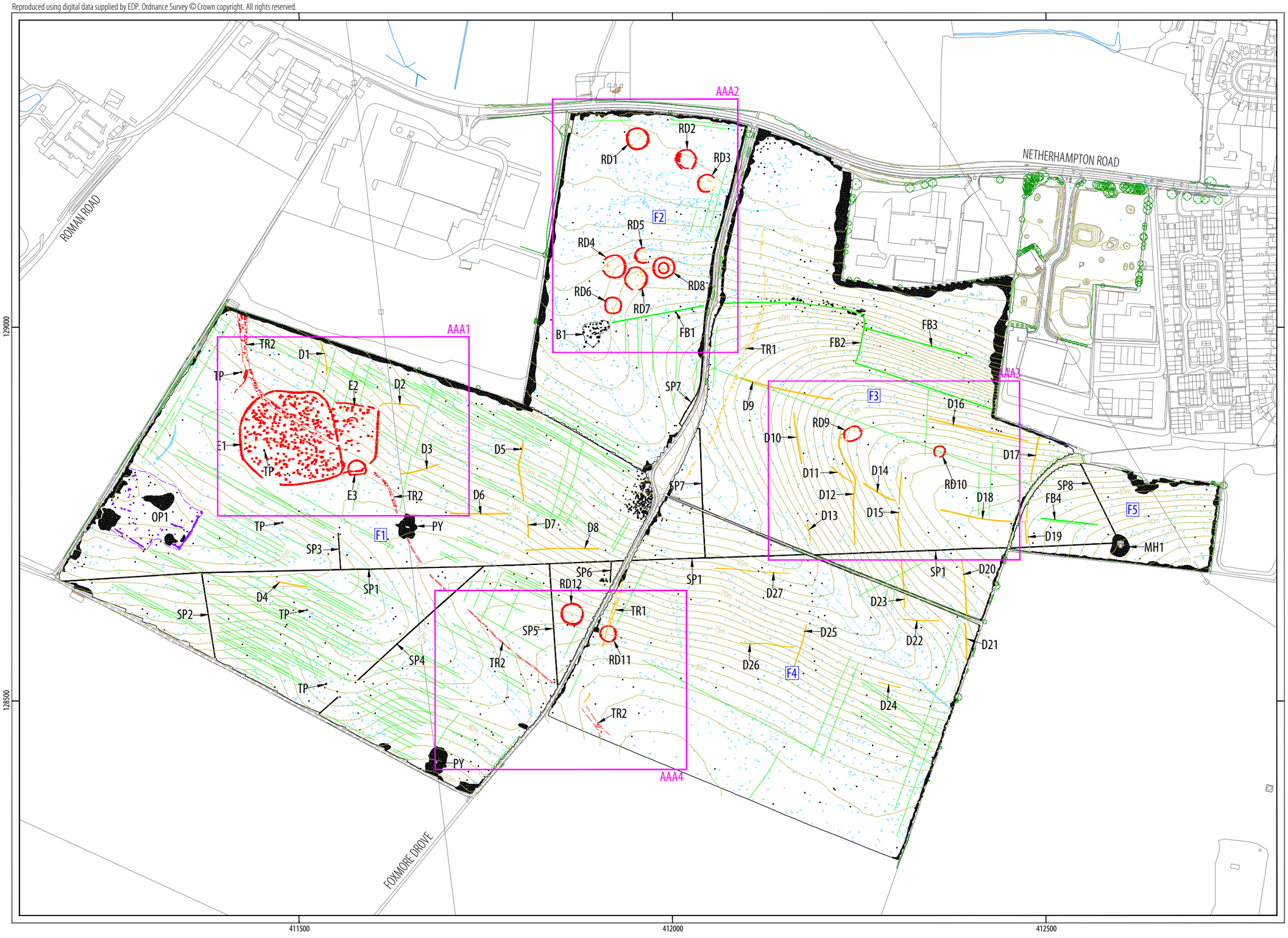
ILLUS 8 Overall processed greyscale magnetometer data



TYPE OF ANOMALY	INTERPRETATION
dipolar isolated	ferrous material
magnetic disturbance	ferrous material
dipolar linear	service pipe
magnetic enhancement	modern
linear trend	agricultural
linear	former field boundary
linear	geological variation?
magnetic enhancement	geology?
linear trend	archaeology?
magnetic enhancement	archaeology?
magnetic enhancement	archaeology

ABBREVIATIONS

- **AAA** area of archaeological activity
- **B** building
- **D** ditch
- **E** enclosure
- **FB** former boundary
- **MH** manhole cover
- **OP** oil platform
- **PY** pylon
- **RD** ring-ditch
- **SP** service pipe
- **TP** telegraph pole
- **TR** trackway

N

0 100m

scale 1:5,000 @ A3

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NORTH Unit 16, Hillside, Beeston Road
Leeds LS11 8ND
0113 387 6430
www.headlandarchaeology.com

ILLUS 9 Overall interpretation of magnetometer data showing 1m contour data

nT
-1.0 2.0

N
0 50m
scale 1:2,500 @ A3

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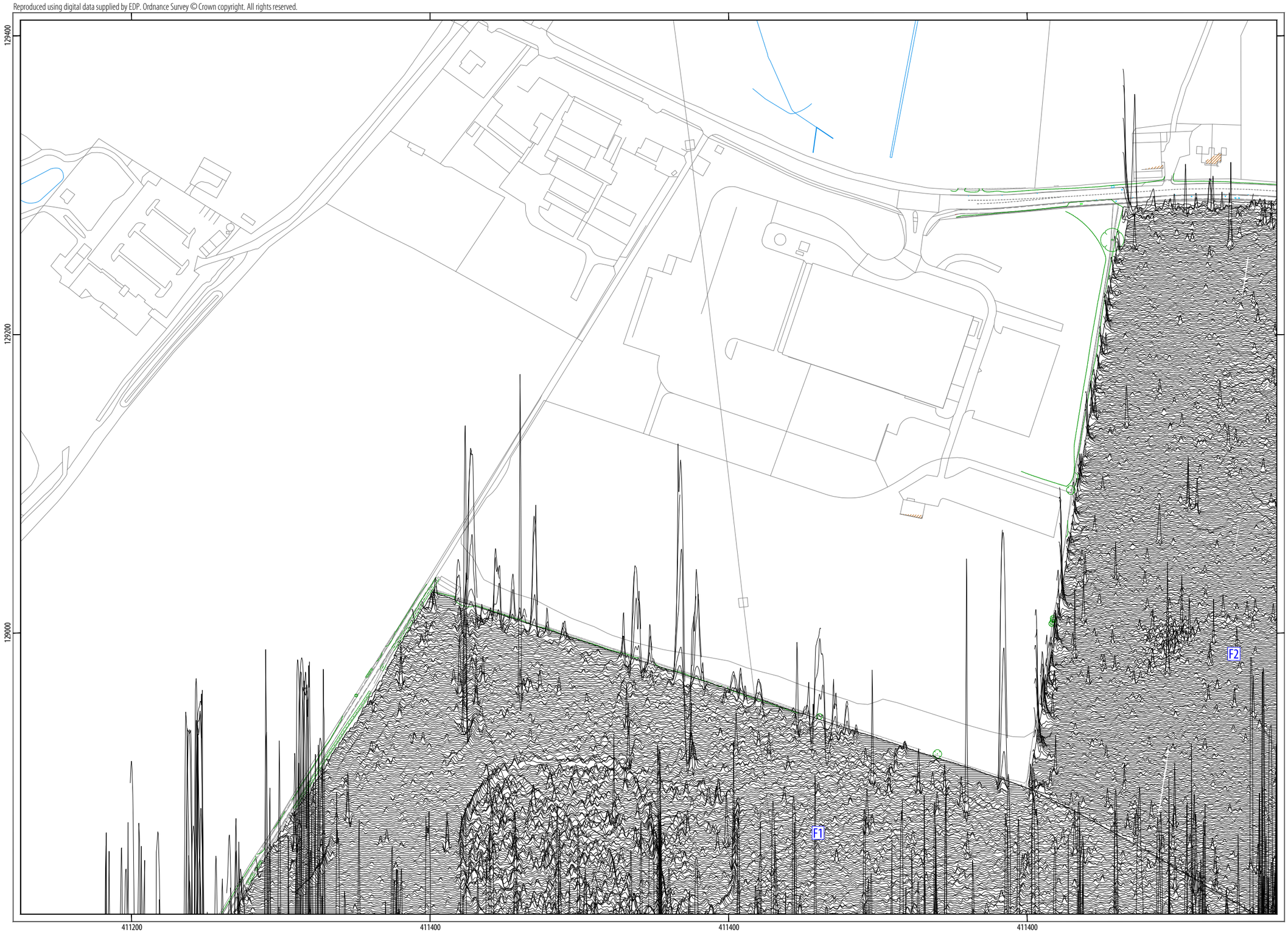
ILLUS 10 Processed greyscale magnetometer data; NW Sector



15.0nT/cm

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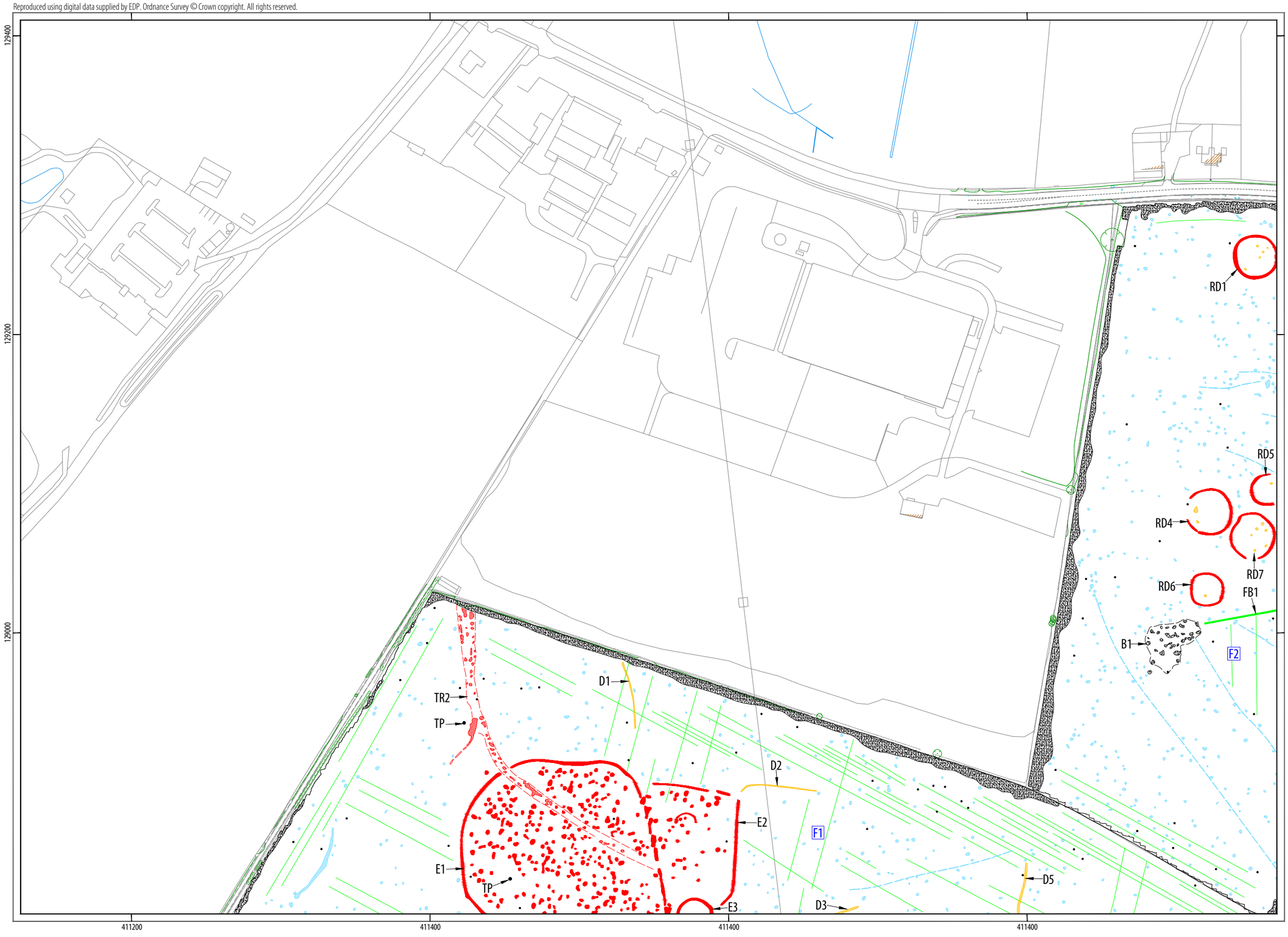
Leeds LS11 8ND
0113 387 6430
www.headlandarchaeology.com

ILLUS 11 XY trace plot of minimally processed magnetometer data; NW Sector



TYPE OF ANOMALY	INTERPRETATION
dipolar isolated	ferrous material
magnetic disturbance	ferrous material
linear trend	agricultural
linear	former field boundary
linear	geological variation?
magnetic enhancement	geology?
magnetic enhancement	archaeology?
magnetic enhancement	archaeology

ABBREVIATIONS

B	building
D	ditch
E	enclosure
FB	former boundary
RD	ring-ditch
TP	telegraph pole
TR	trackway

N

0 50m

scale 1:2,500 @ A3

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Salisbury
Wiltshire

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NORTH Unit 16, Hillside, Beeston Road
Leeds LS11 8ND
0113 387 6430
www.headlandarchaeology.com

ILLUS 12 Interpretation of magnetometer data; NW Sector

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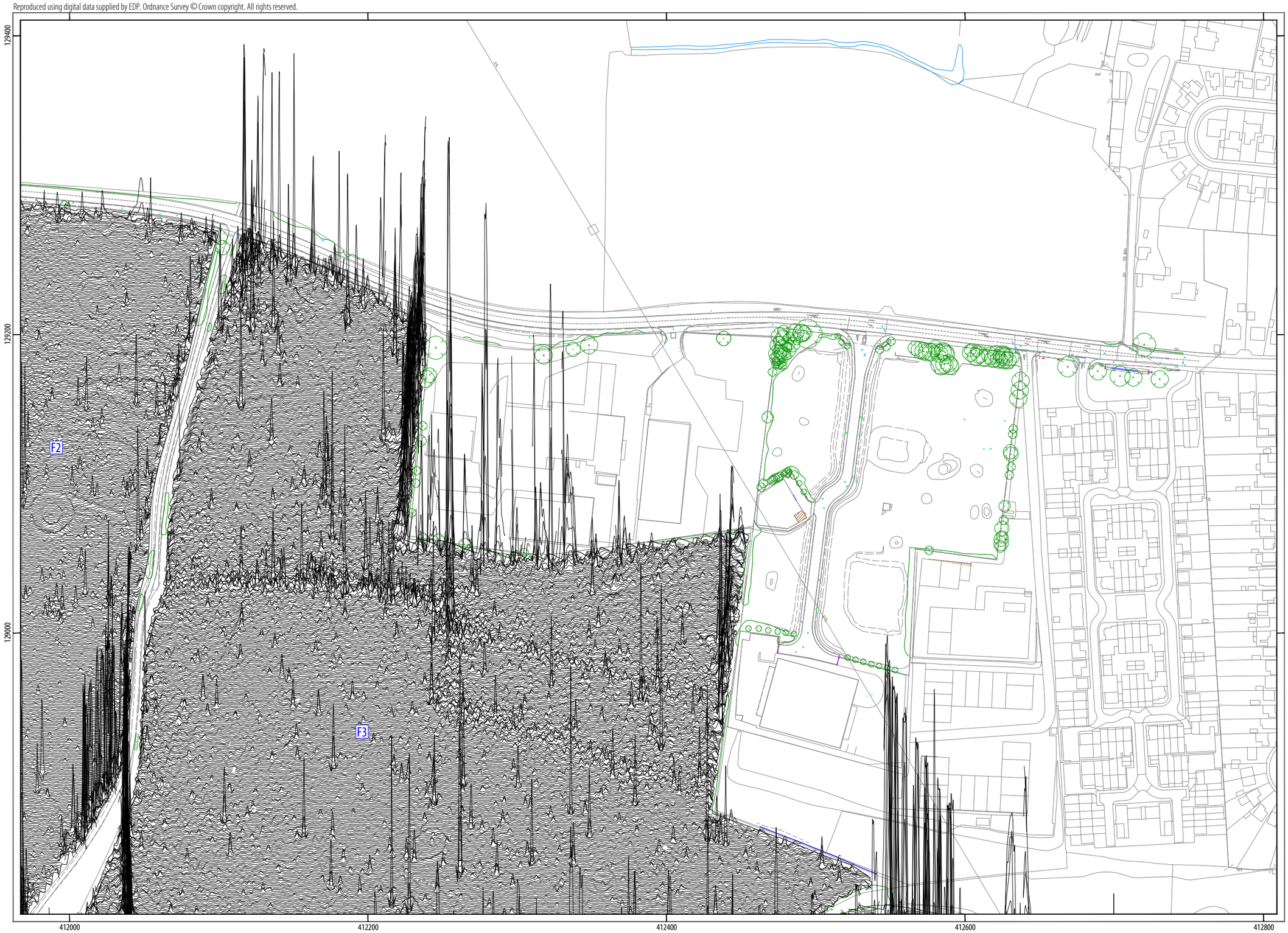
Land at Netherhampton Road
Salisbury
Wiltshire

CLIENT Bovis Homes Ltd

HEADLAND ARCHAEOLOGY
NORTH Unit 16, Hillside, Beeston Road
Leeds LS11 8ND
0113 387 6430
www.headlandarchaeology.com

ILLUS 13 Processed greyscale magnetometer data; NE Sector



15.0nT/cm

N

0 50m

scale 1:2,500 @ A3

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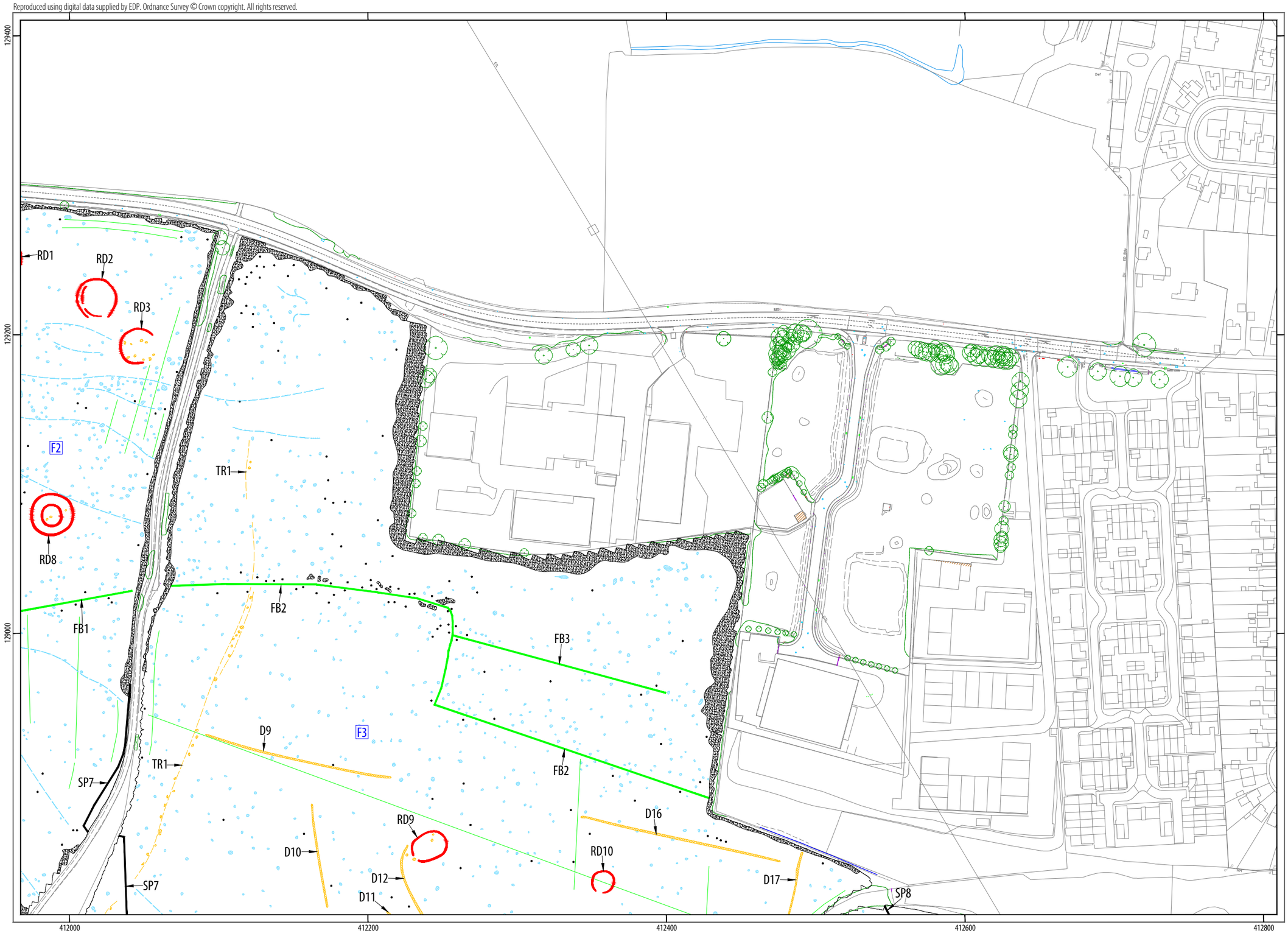
ILLUS 14 XY trace plot of minimally processed magnetometer data; NE Sector



TYPE OF ANOMALY	INTERPRETATION
dipolar isolated	ferrous material
magnetic disturbance	ferrous material
dipolar linear	service pipe
linear trend	agricultural
linear	former field boundary
linear	geological variation?
magnetic enhancement	geology?
magnetic enhancement	archaeology?
magnetic enhancement	archaeology

ABBREVIATIONS

D	ditch
FB	former boundary
RD	ring-ditch
SP	service pipe
TR	trackway

N

0 50m

scale 1:2,500 @ A3

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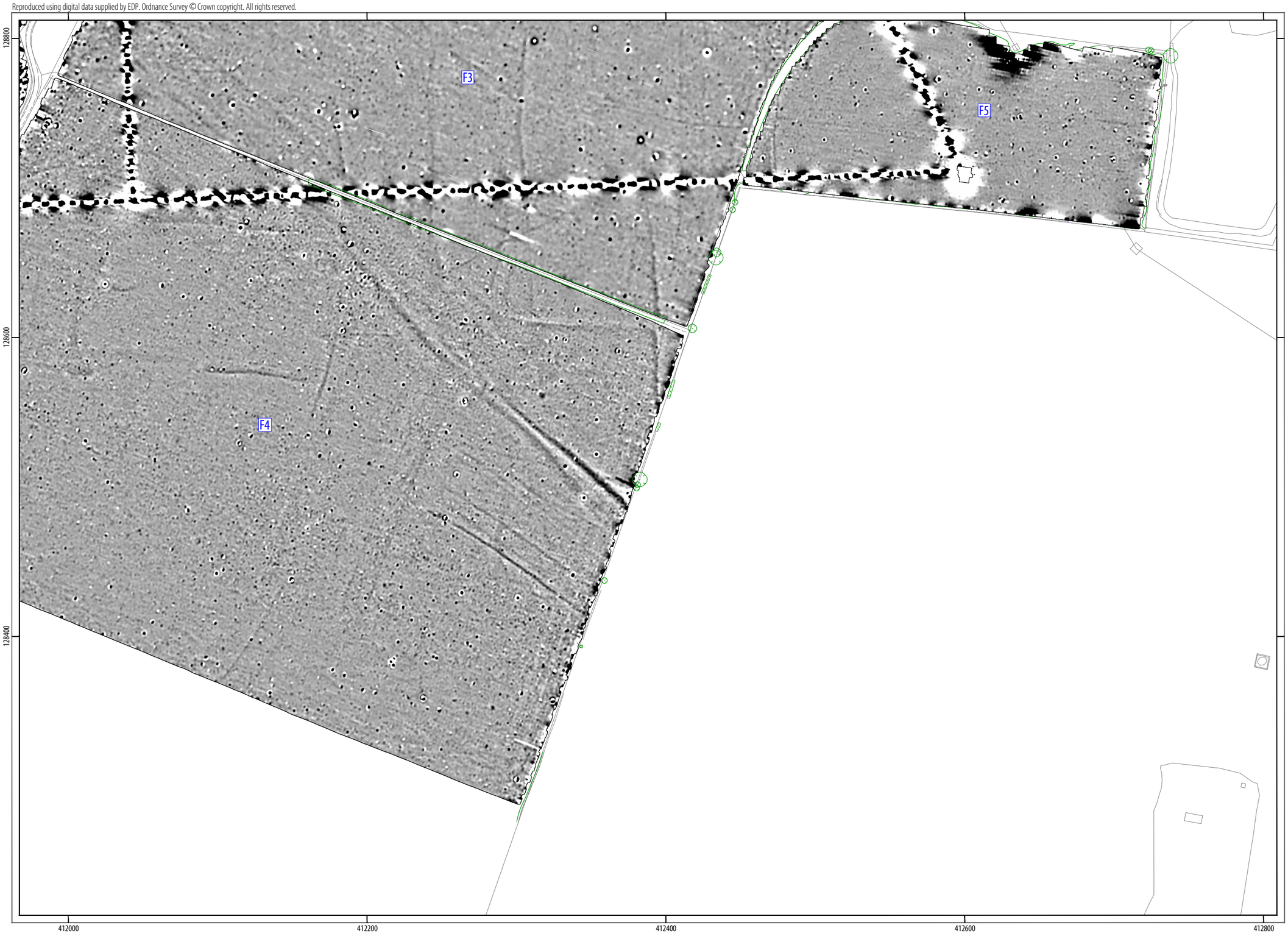
ILLUS 15 Interpretation of magnetometer data; NE Sector



nT
-1.0 2.0

N
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scale 1:2,500 @ A3

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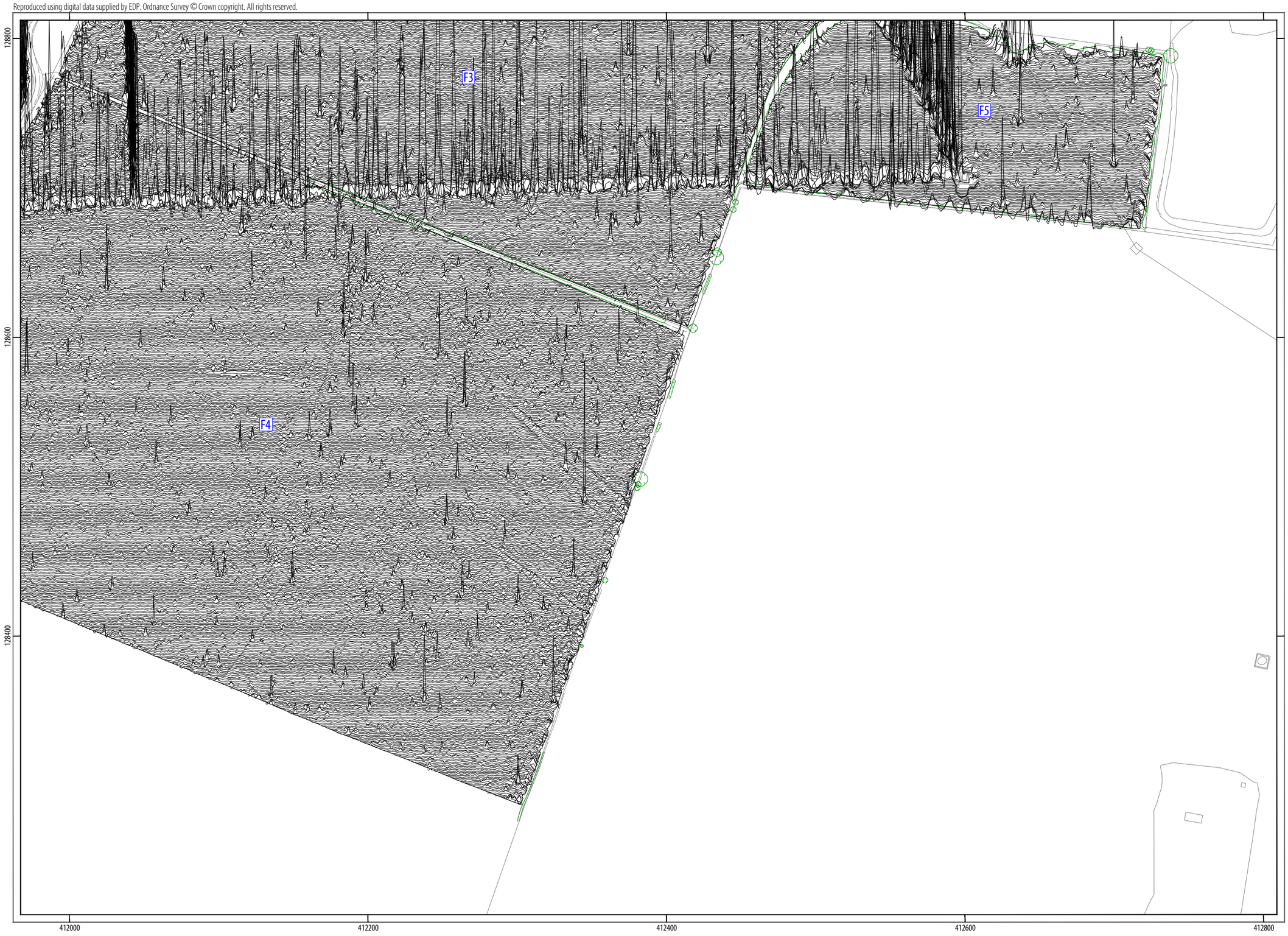
ILLUS 16 Processed greyscale magnetometer data; SE Sector



15.0nT/cm

N

0 50m

scale 1:2,500 @ A3

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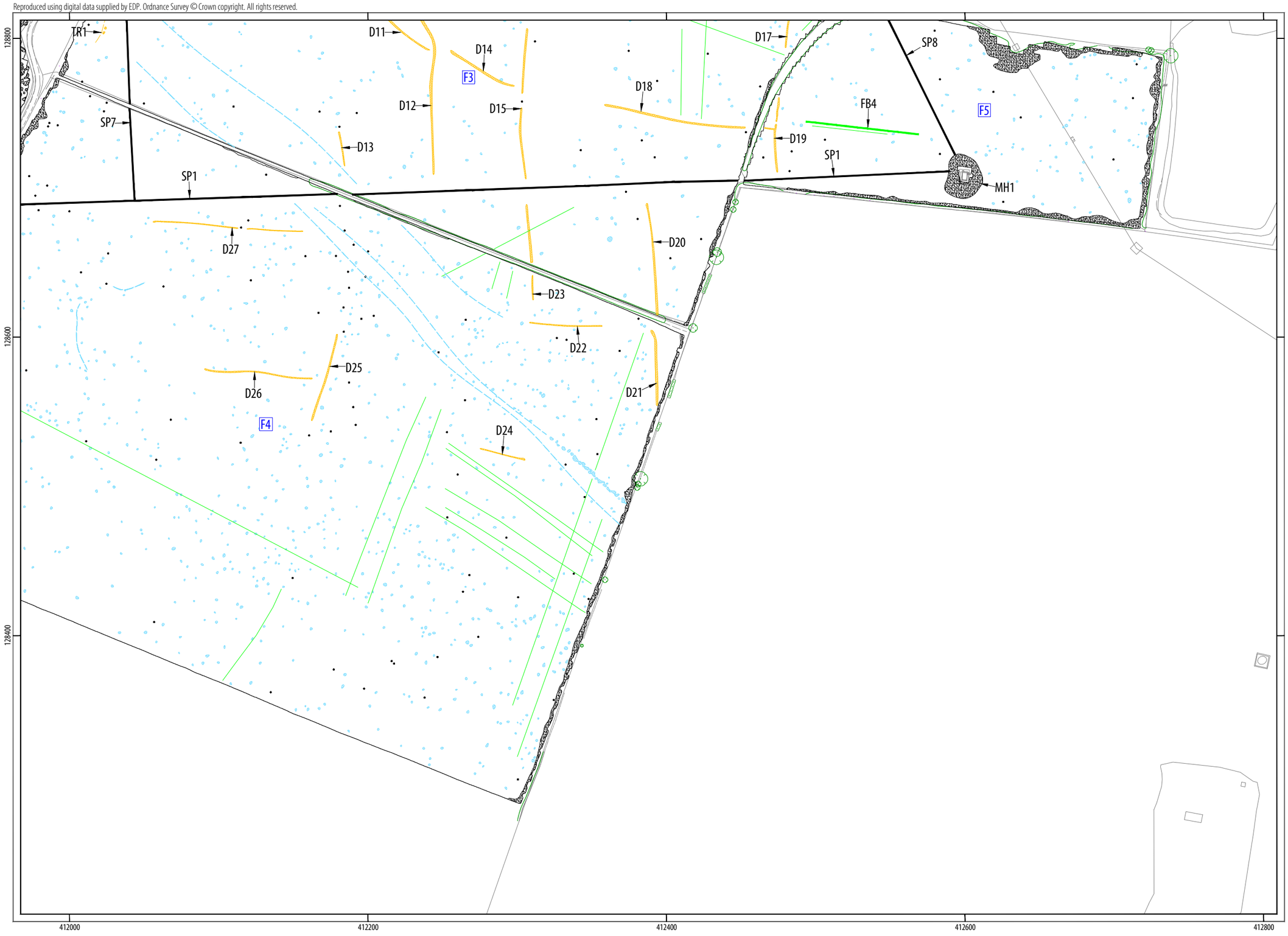
ILLUS 17 XY trace plot of minimally processed magnetometer data; SE Sector



TYPE OF ANOMALY	INTERPRETATION
dipolar isolated	ferrous material
magnetic disturbance	ferrous material
dipolar linear	service pipe
linear trend	agricultural
linear	geological variation?
magnetic enhancement	geology?
magnetic enhancement	archaeology?

ABBREVIATIONS

D	ditch
FB	former boundary
MH	manhole cover
SP	service pipe
TR	trackway

N

0 50m

scale 1:2,500 @ A3

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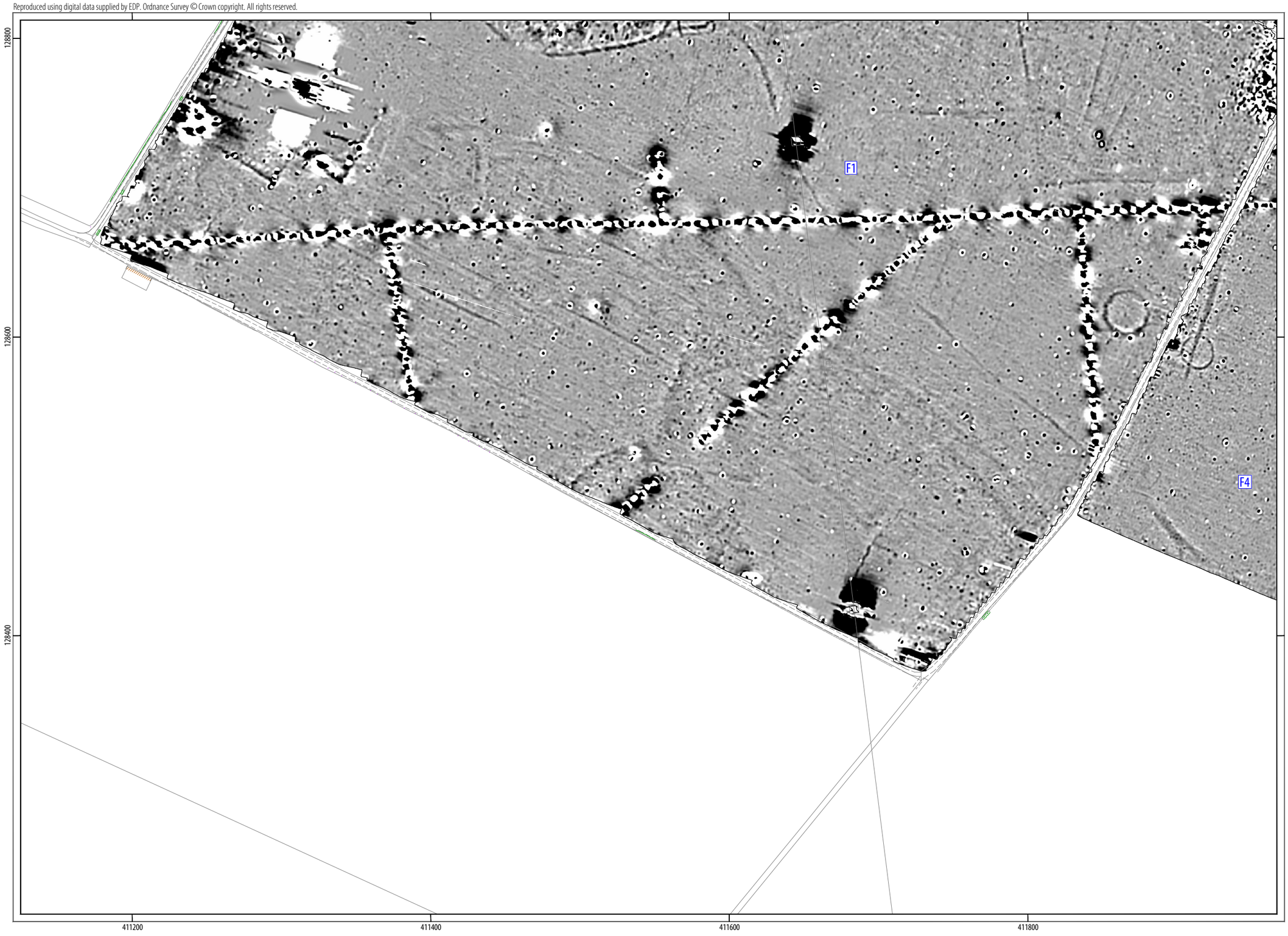
ILLUS 18 Interpretation of magnetometer data; SE Sector



nT
-1.0 2.0

N
0 50m
scale 1:2,500 @ A3

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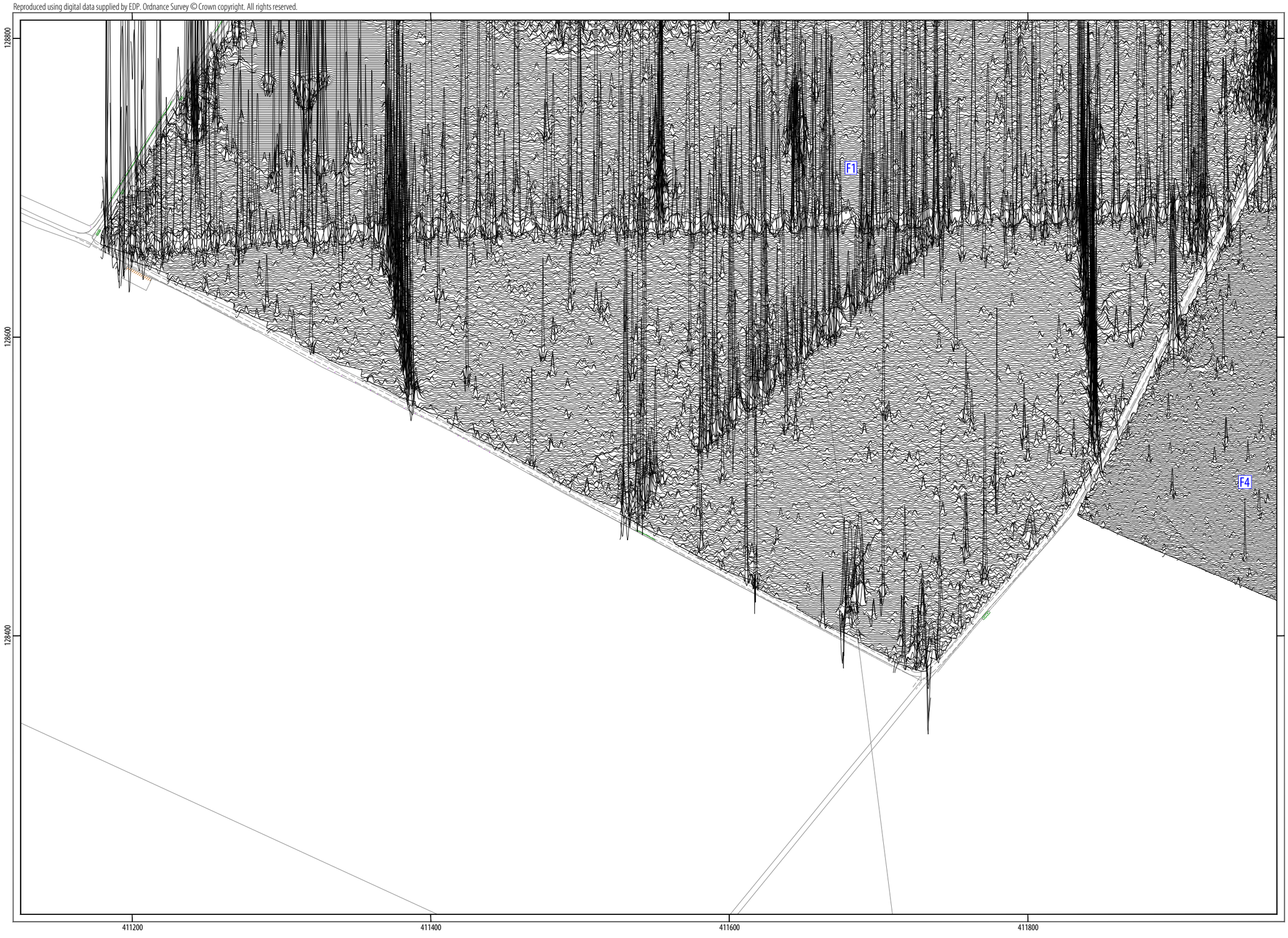
ILLUS 19 Processed greyscale magnetometer data; SW Sector



15.0nT/cm

N

0 50m

scale 1:2,500 @ A3

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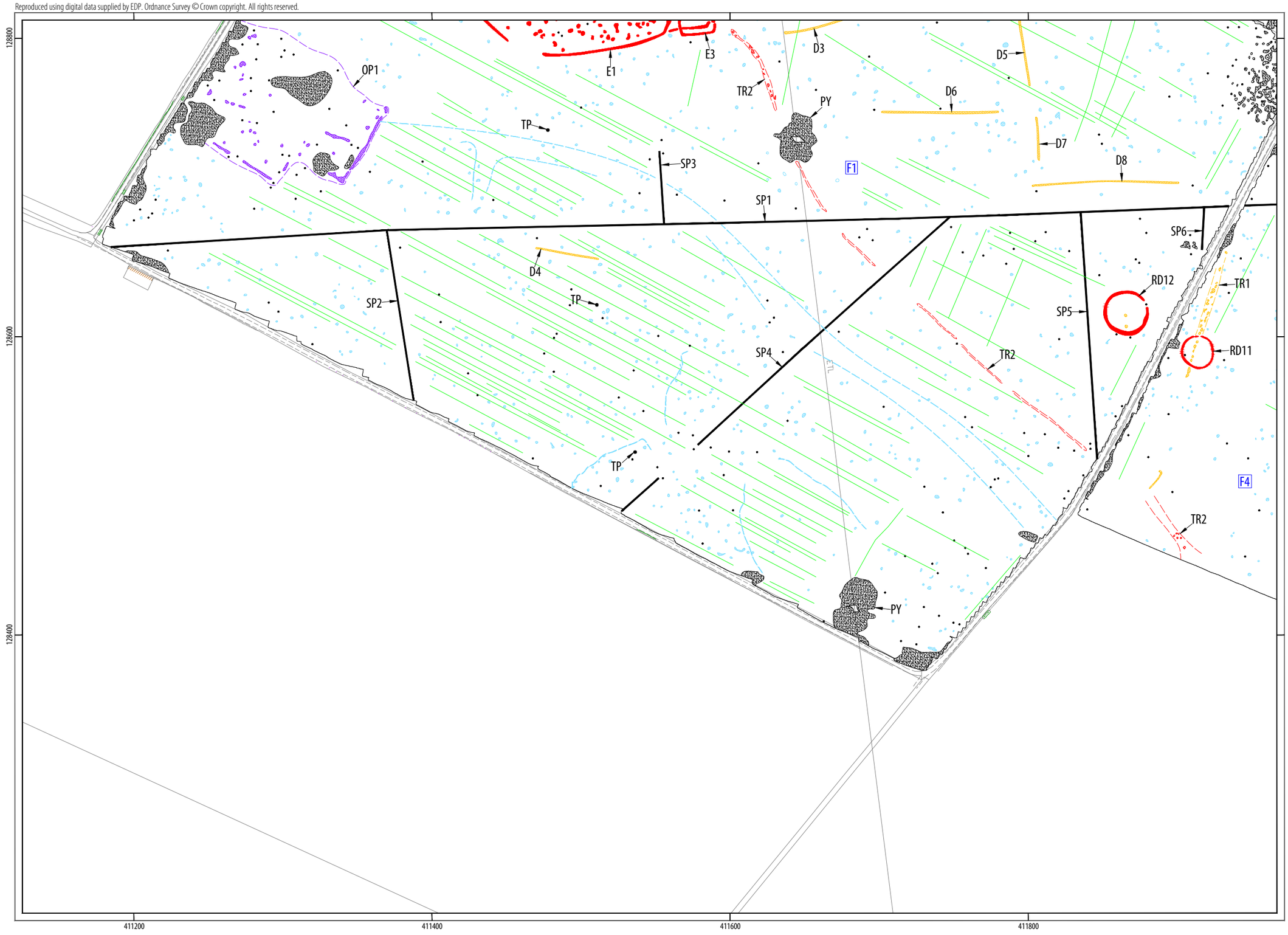
ILLUS 20 XY trace plot of minimally processed magnetometer data; SW Sector



TYPE OF ANOMALY	INTERPRETATION
dipolar isolated	ferrous material
magnetic disturbance	ferrous material
dipolar linear	service pipe
magnetic enhancement	modern
linear trend	agricultural
linear	geological variation?
magnetic enhancement	geology?
magnetic enhancement	archaeology?
magnetic enhancement	archaeology

ABBREVIATIONS

D	ditch
E	enclosure
OP	oil platform
PY	pylon
RD	ring-ditch
SP	service pipe
TP	telegraph pole
TR	trackway

N

0 50m

scale 1:2,500 @ A3

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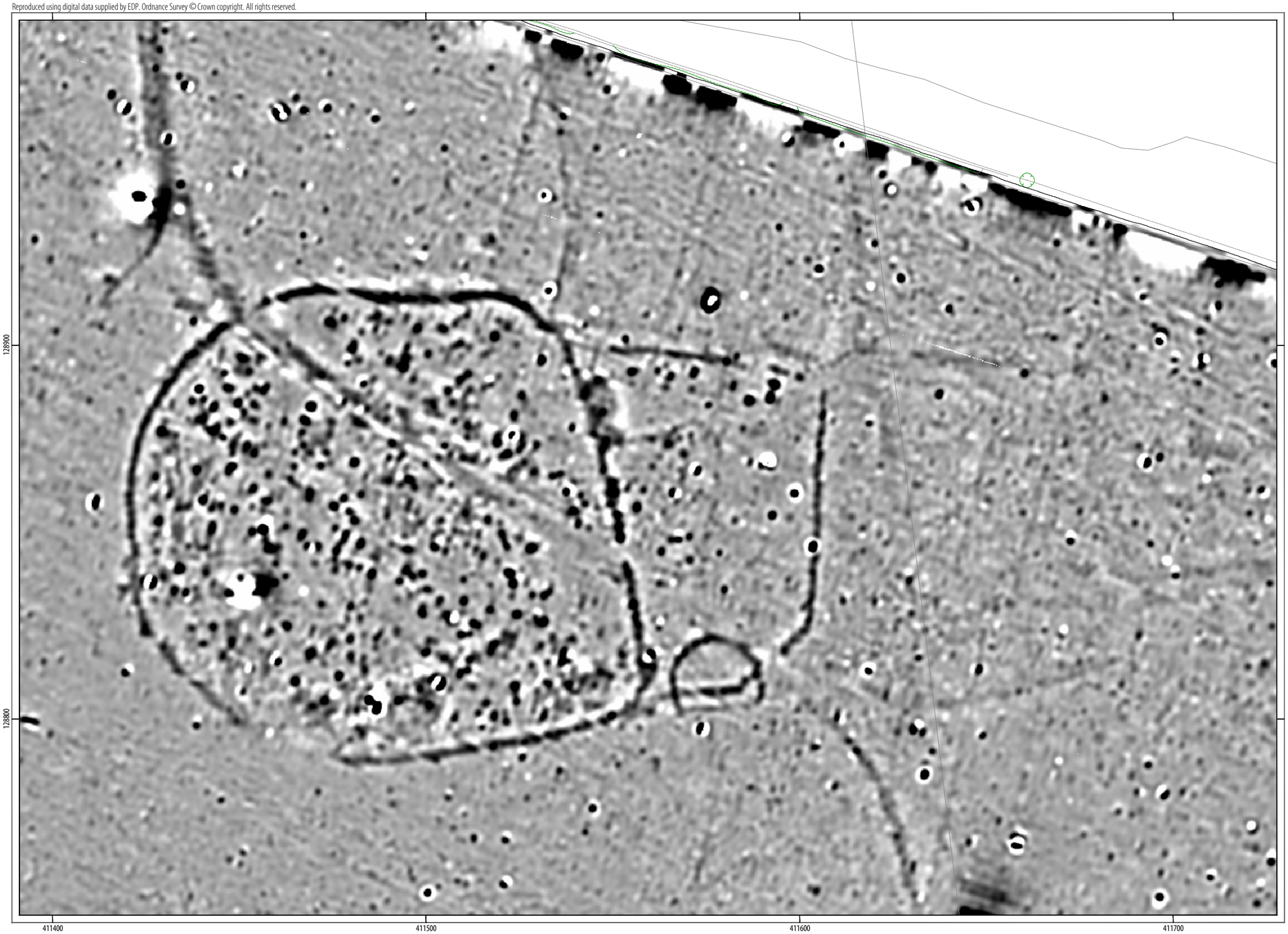
ILLUS 21 Interpretation of magnetometer data; SW Sector



nT
-1.0 2.0

N
0 25m
scale 1:1,000 @ A3

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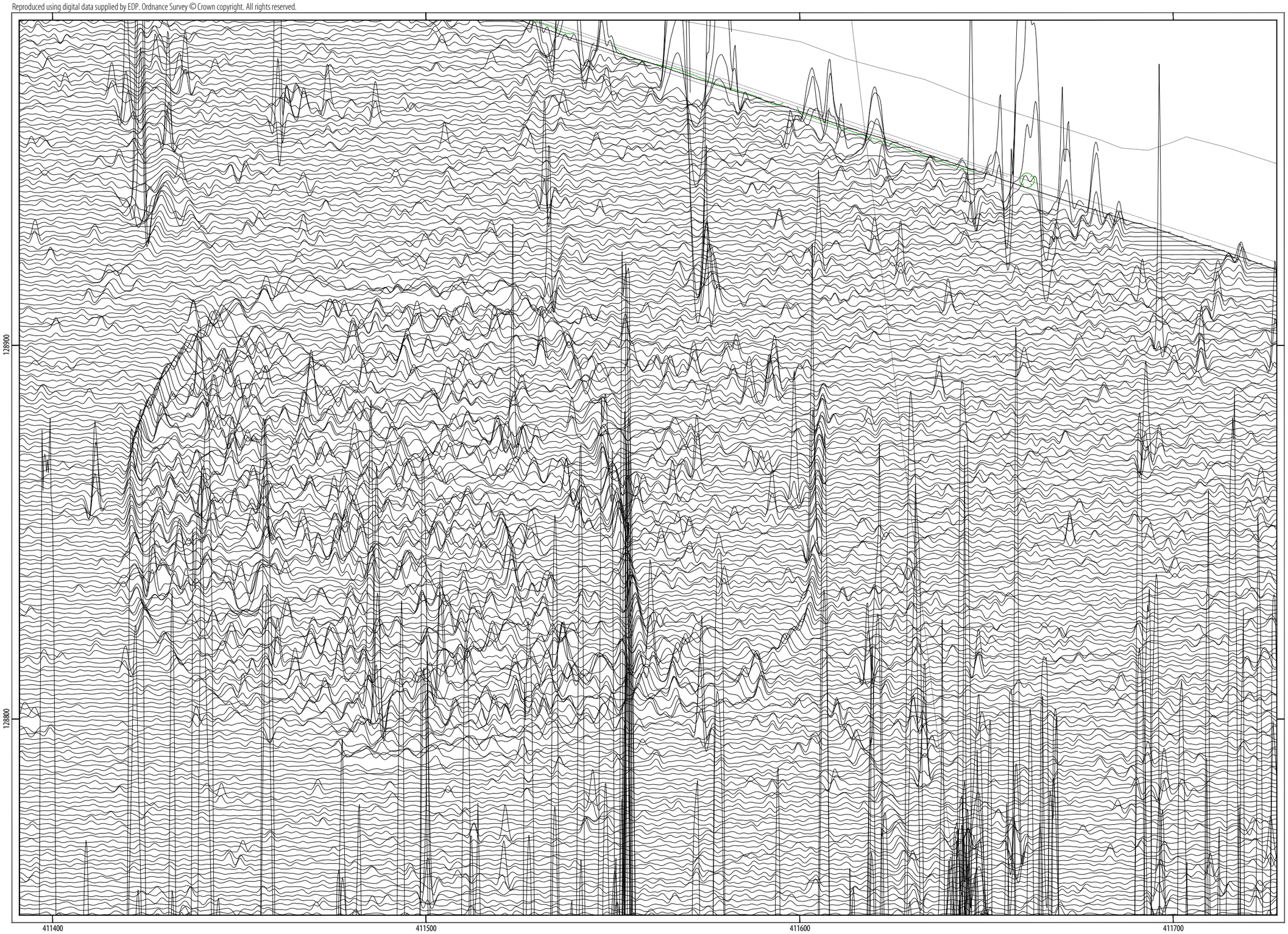
ILLUS 22 Processed greyscale magnetometer data; AAA1



6.0nT/cm

N

0 25m

scale 1:1,000 @ A3

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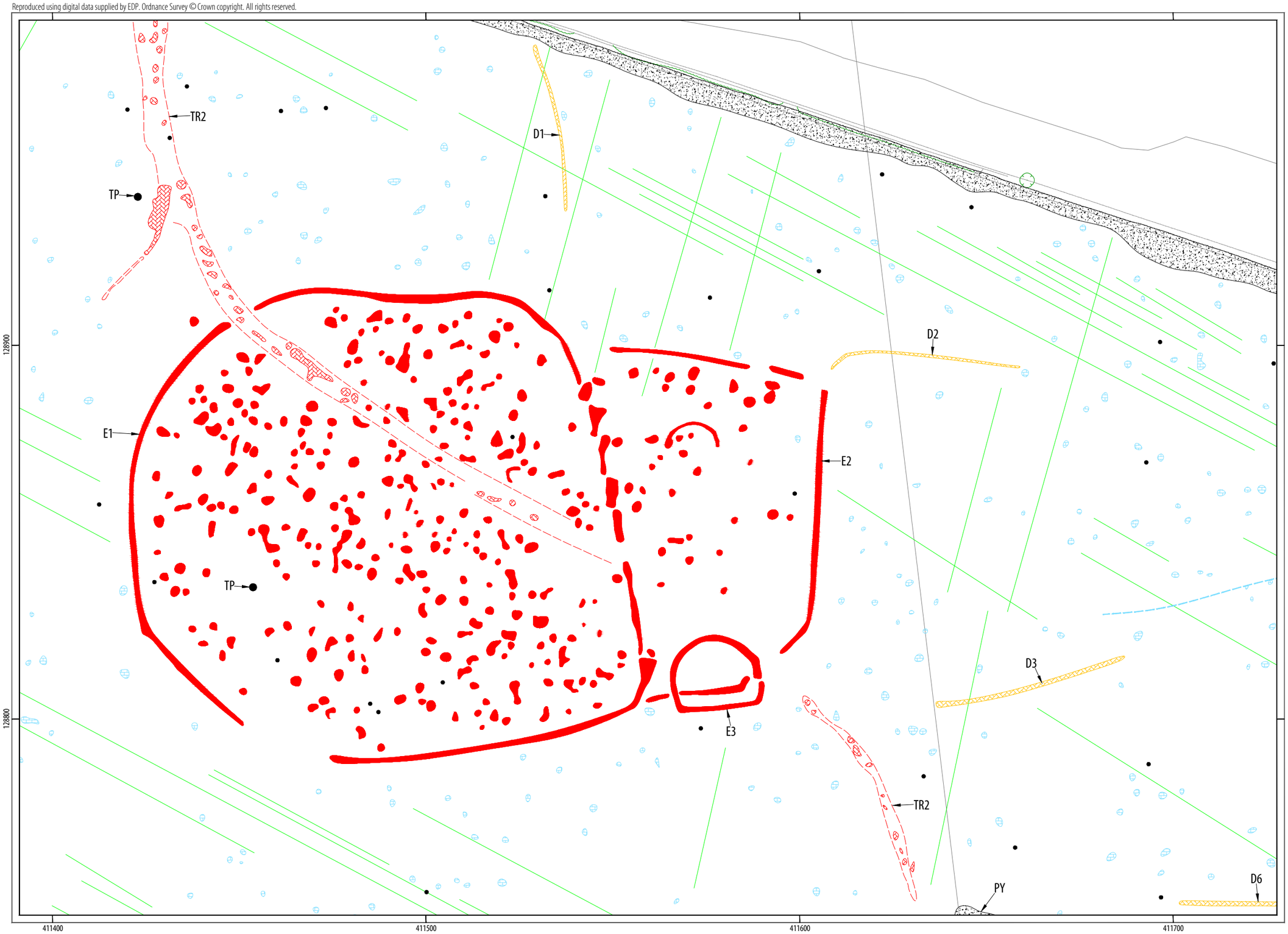
ILLUS 23 XY trace plot of minimally processed magnetometer data; AAA1



TYPE OF ANOMALY	INTERPRETATION
dipolar isolated	ferrous material
magnetic disturbance	ferrous material
linear trend	agricultural
linear	geological variation?
magnetic enhancement	geology?
magnetic enhancement	archaeology?
magnetic enhancement	archaeology

ABBREVIATIONS

D	ditch
E	enclosure
PY	pylon
TP	telegraph pole
TR	trackway

N

0 25m

scale 1:1,000 @ A3

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ILLUS 23 XY trace plot of minimally processed magnetometer data; AAA1

nT
-1.0 2.0

N
0 25m
scale 1:1,000 @ A3

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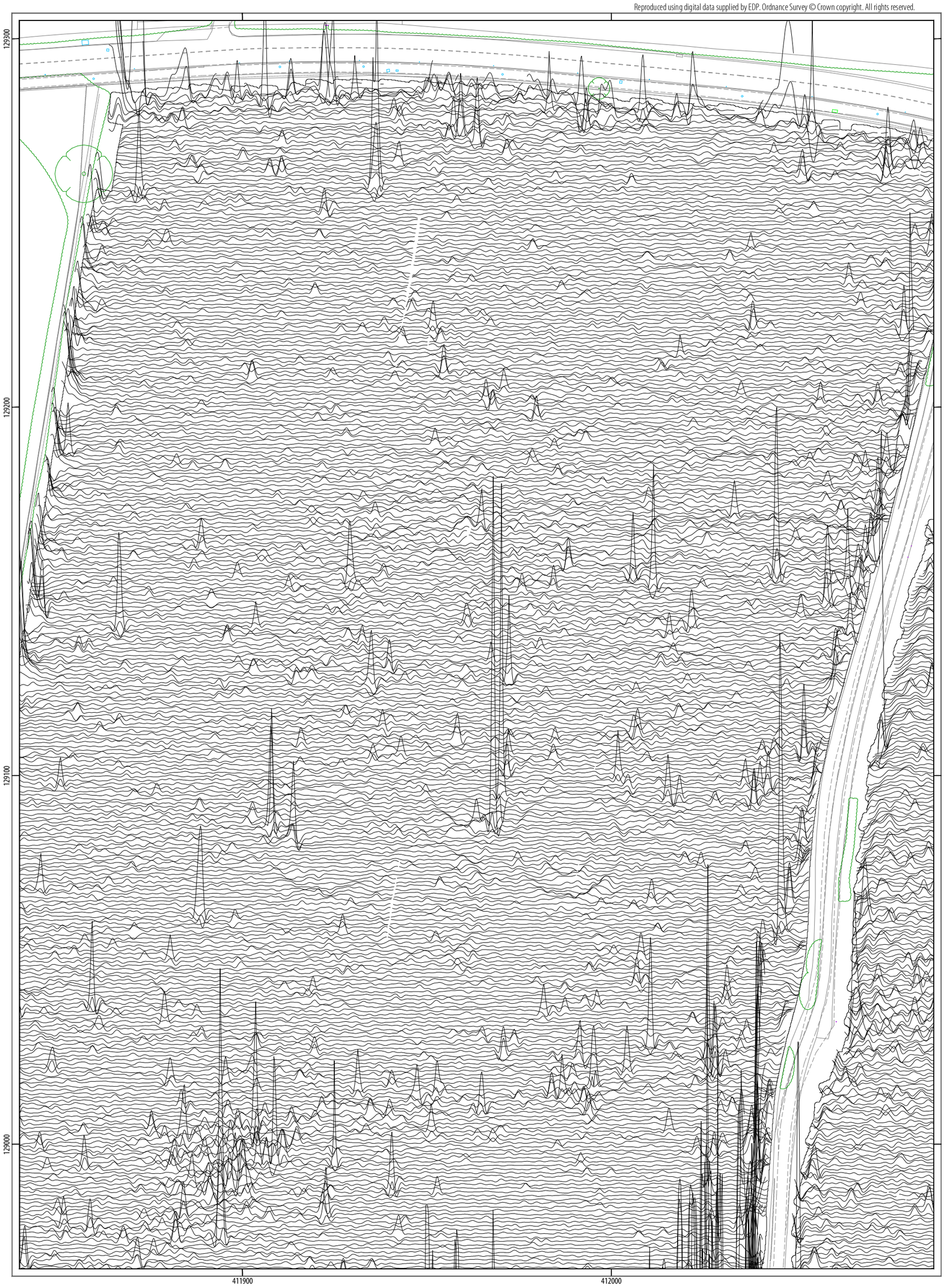
ILLUS 25 Processed greyscale magnetometer data; AAA2



6.0nT/cm

N

0 25m

scale 1:1,000 @ A3

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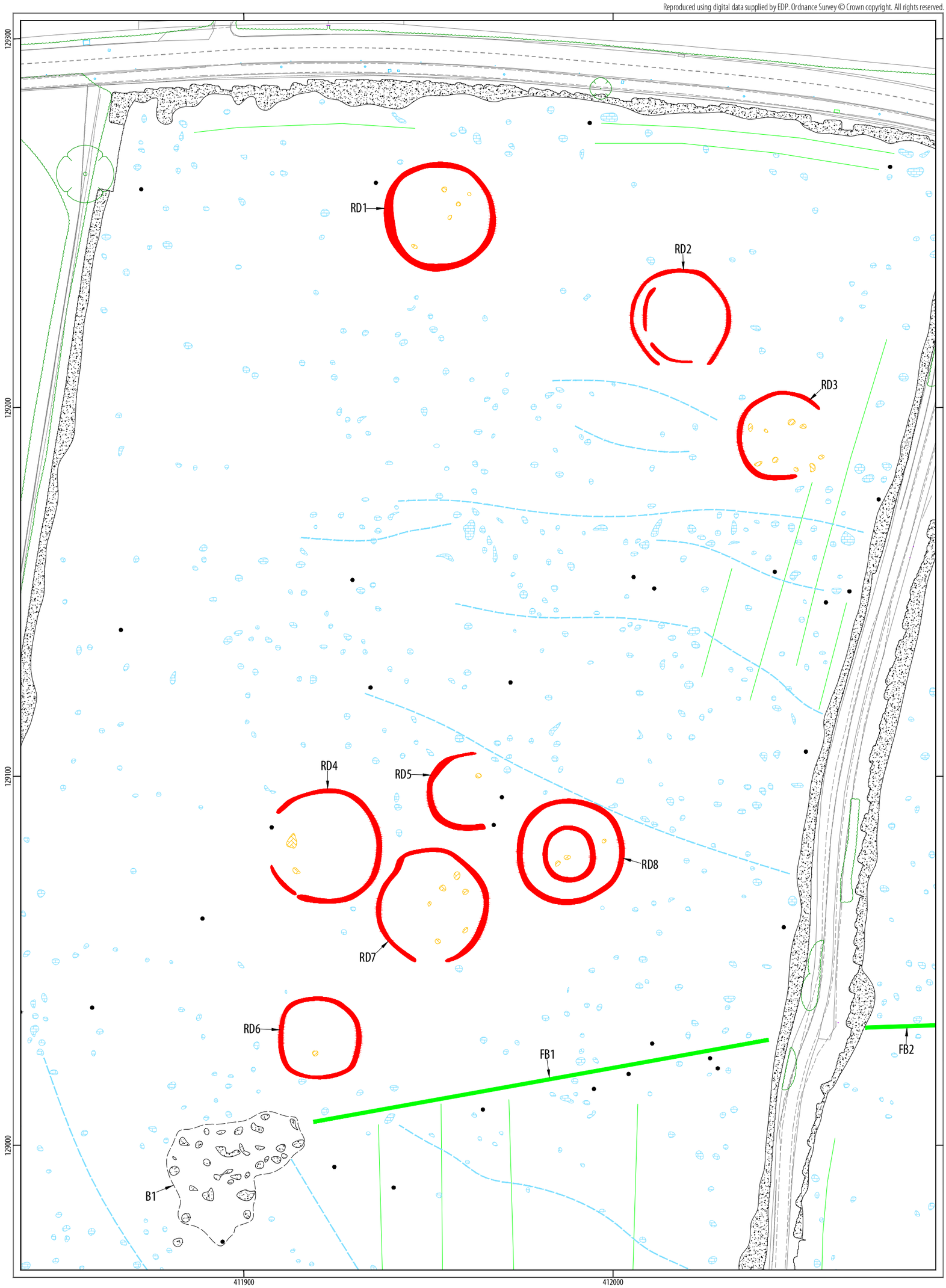
ILLUS 26 XY trace plot of minimally processed magnetometer data; AAA2



TYPE OF ANOMALY	INTERPRETATION
dipolar isolated	ferrous material
magnetic disturbance	ferrous material
linear trend	agricultural
linear	former field boundary
linear	geological variation?
magnetic enhancement	geology?

TYPE OF ANOMALY	INTERPRETATION
magnetic enhancement	archaeology?
magnetic enhancement	archaeology

ABBREVIATIONS

B	building
FB	former boundary
RD	ring-ditch

N

0 25m

scale 1:1,000 @ A3

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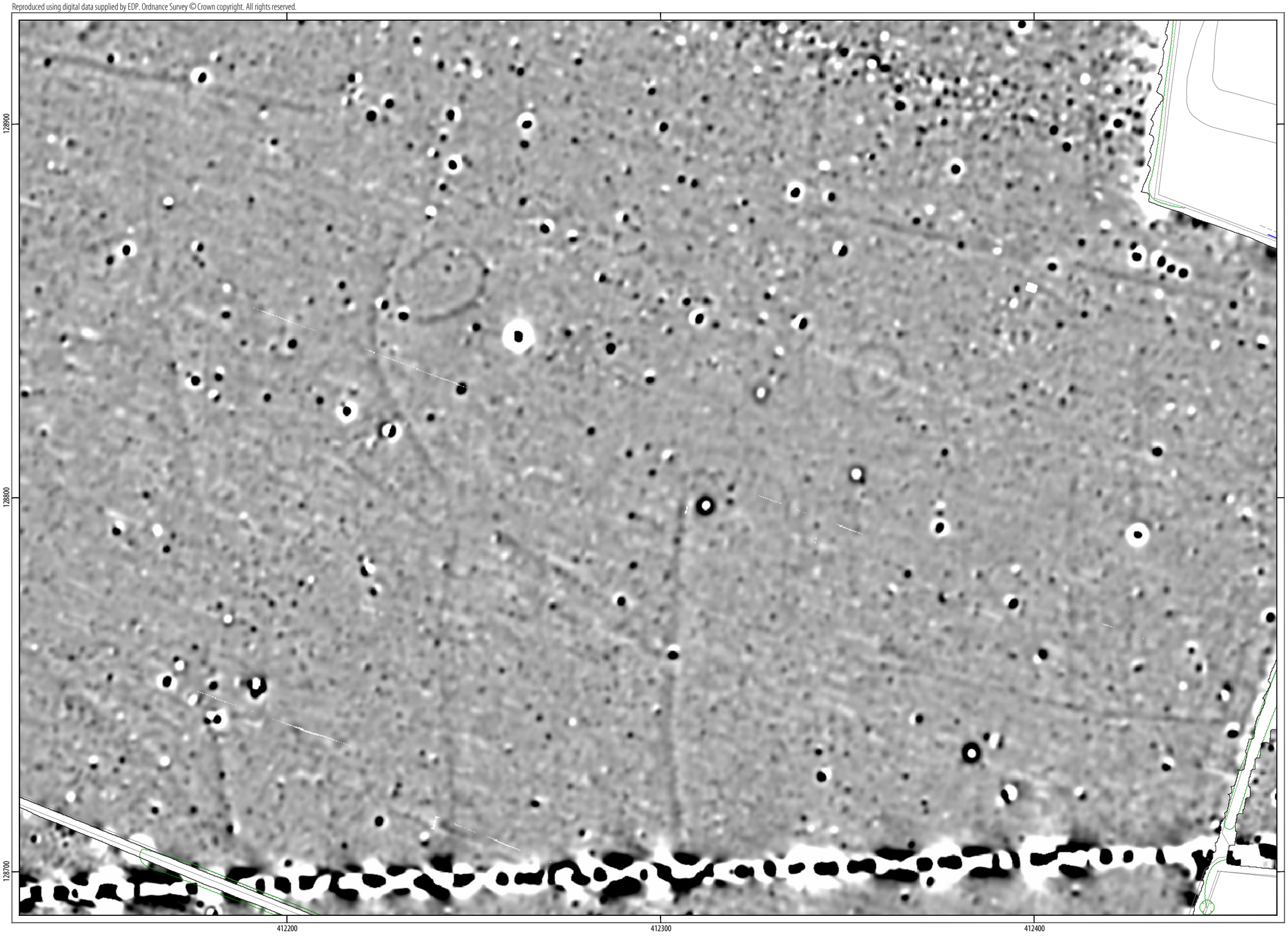
ILLUS 27 Interpretation of magnetometer data; AAA2



-1.0 nT 2.0

N

0 25m

scale 1:1,000 @ A3

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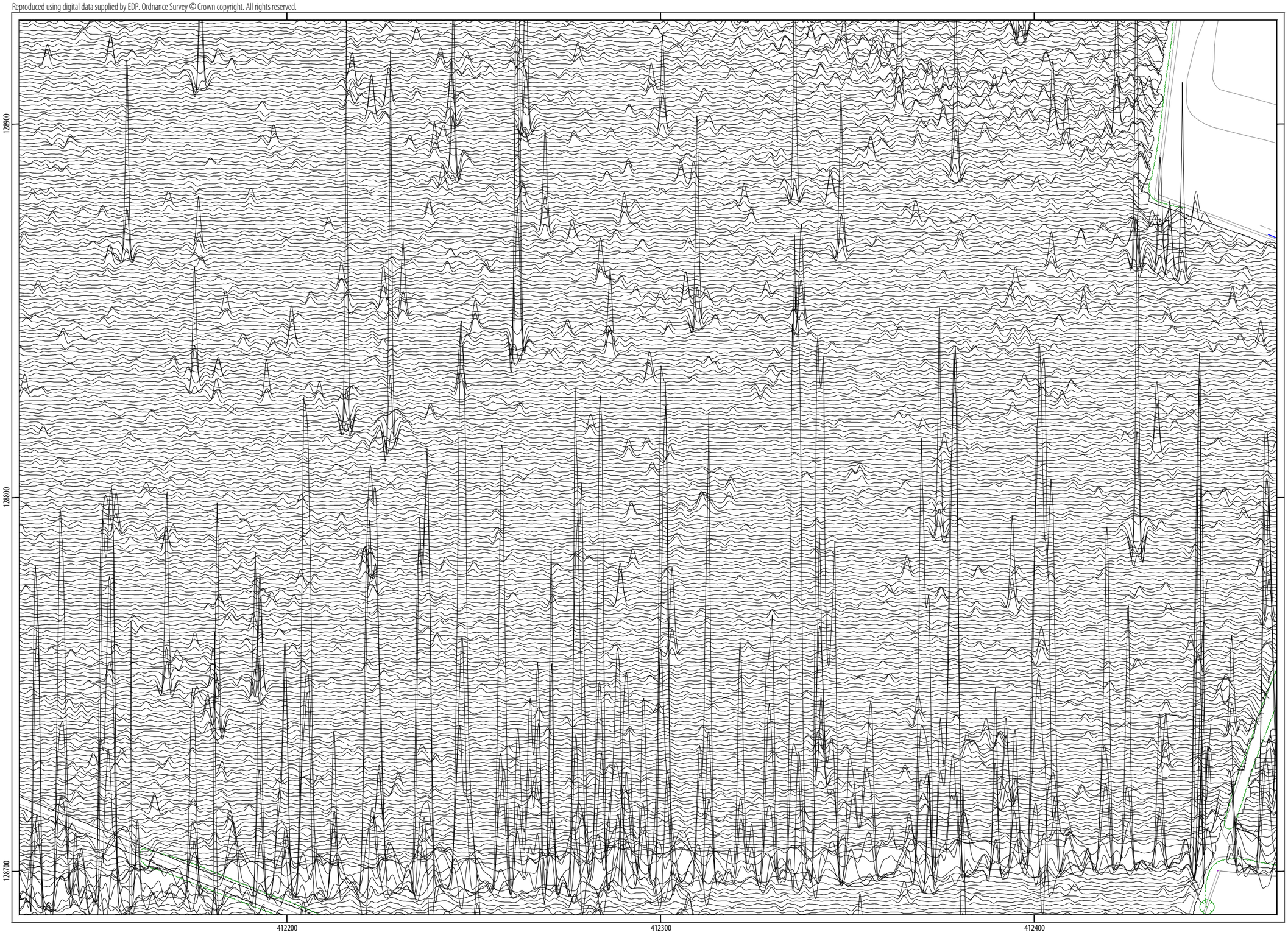
ILLUS 28 Processed greyscale magnetometer data; AAA3



6.0nT/cm

N

0 25m

scale 1:1,000 @ A3

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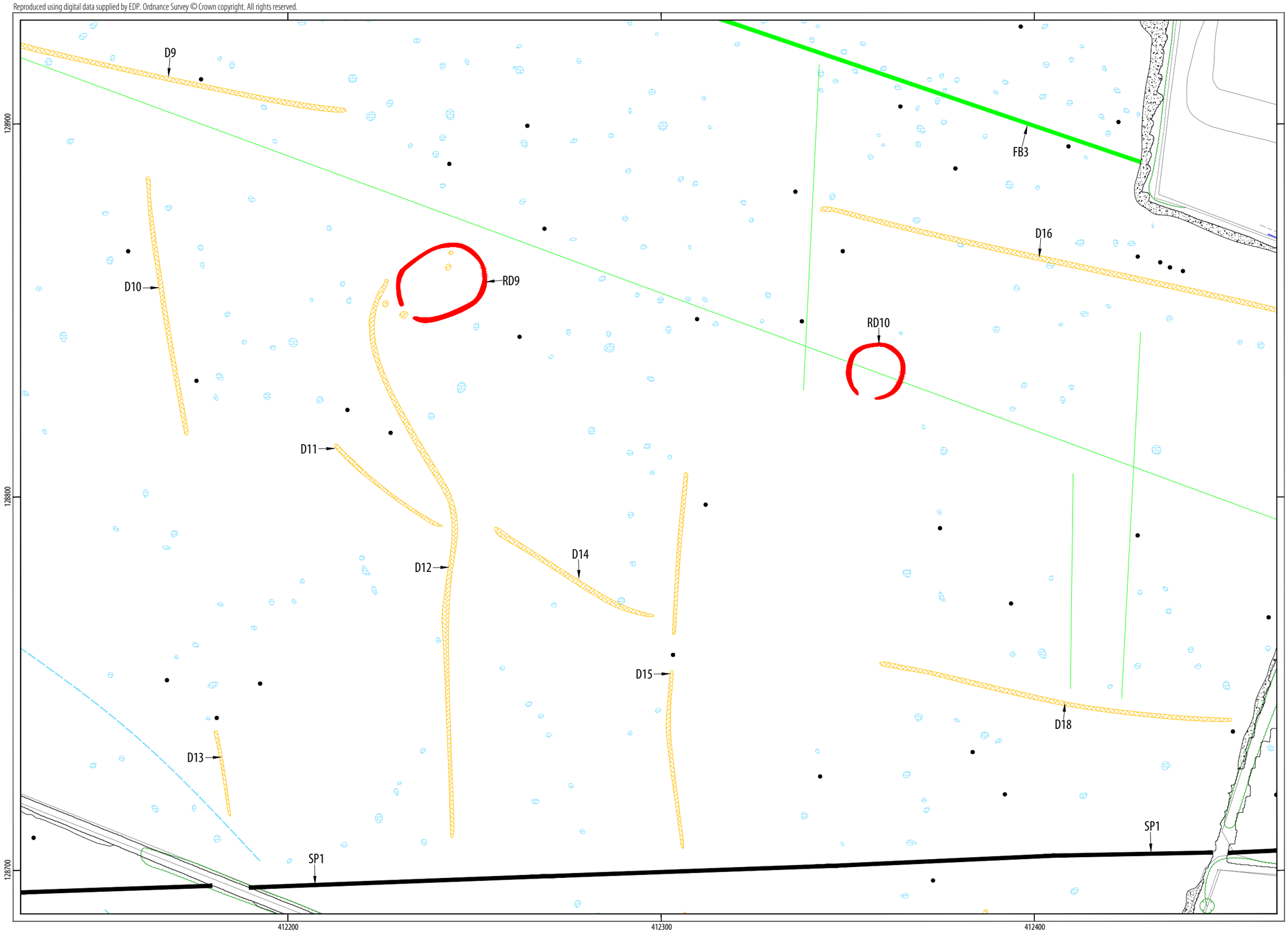
ILLUS 29 XY trace plot of minimally processed magnetometer data; AAA3



TYPE OF ANOMALY	INTERPRETATION
dipolar isolated	ferrous material
magnetic disturbance	ferrous material
dipolar linear	service pipe
linear trend	agricultural
linear	former field boundary
linear	geological variation?
magnetic enhancement	geology?
magnetic enhancement	archaeology?
magnetic enhancement	archaeology

ABBREVIATIONS

D	ditch
FB	former boundary
RD	ring-ditch
SP	service pipe

N

0 25m

scale 1:1,000 @ A3

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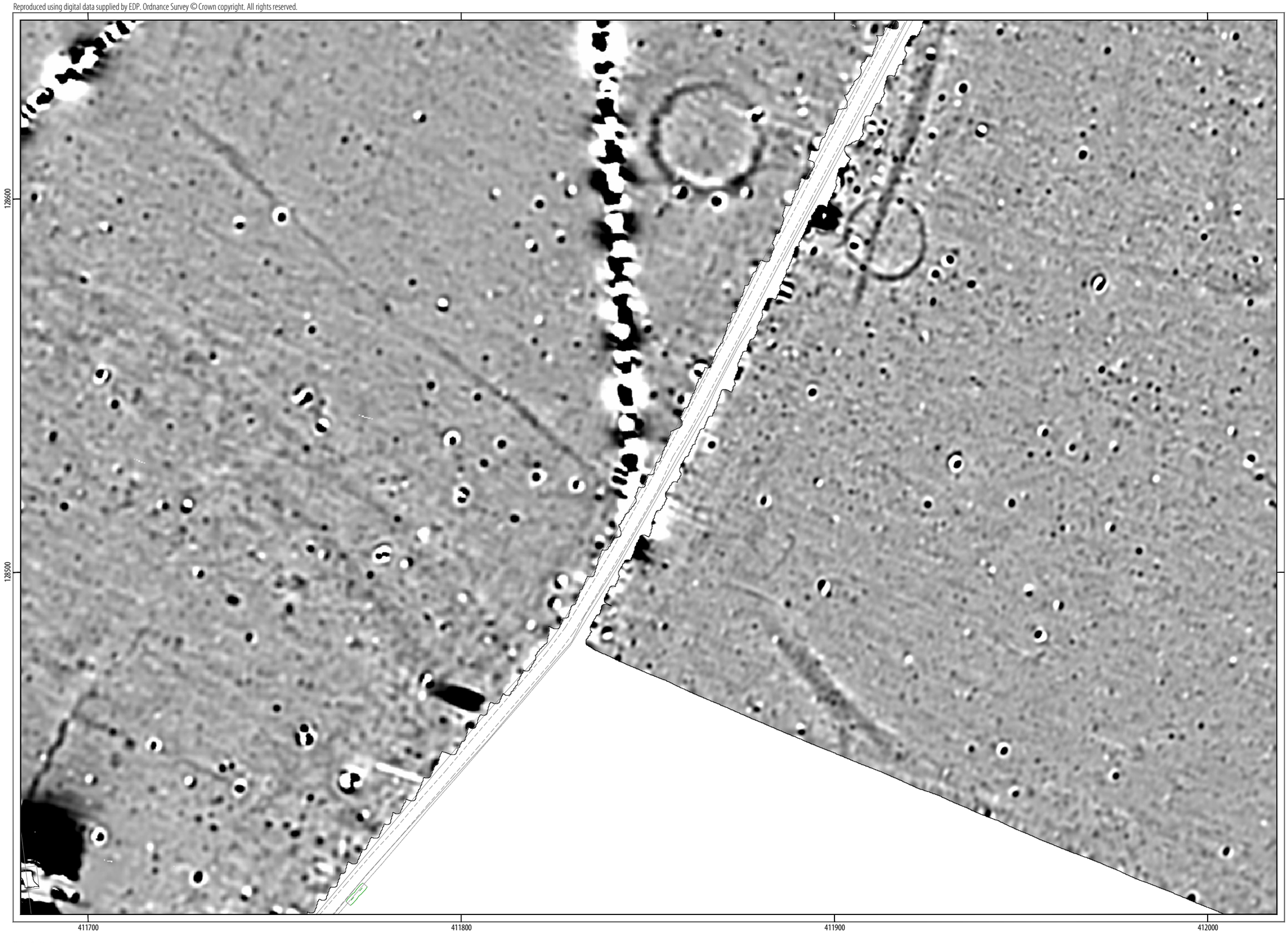
ILLUS 30 Interpretation of magnetometer data; AAA3



nT
-1.0 2.0

N
0 25m
scale 1:1,000 @ A3

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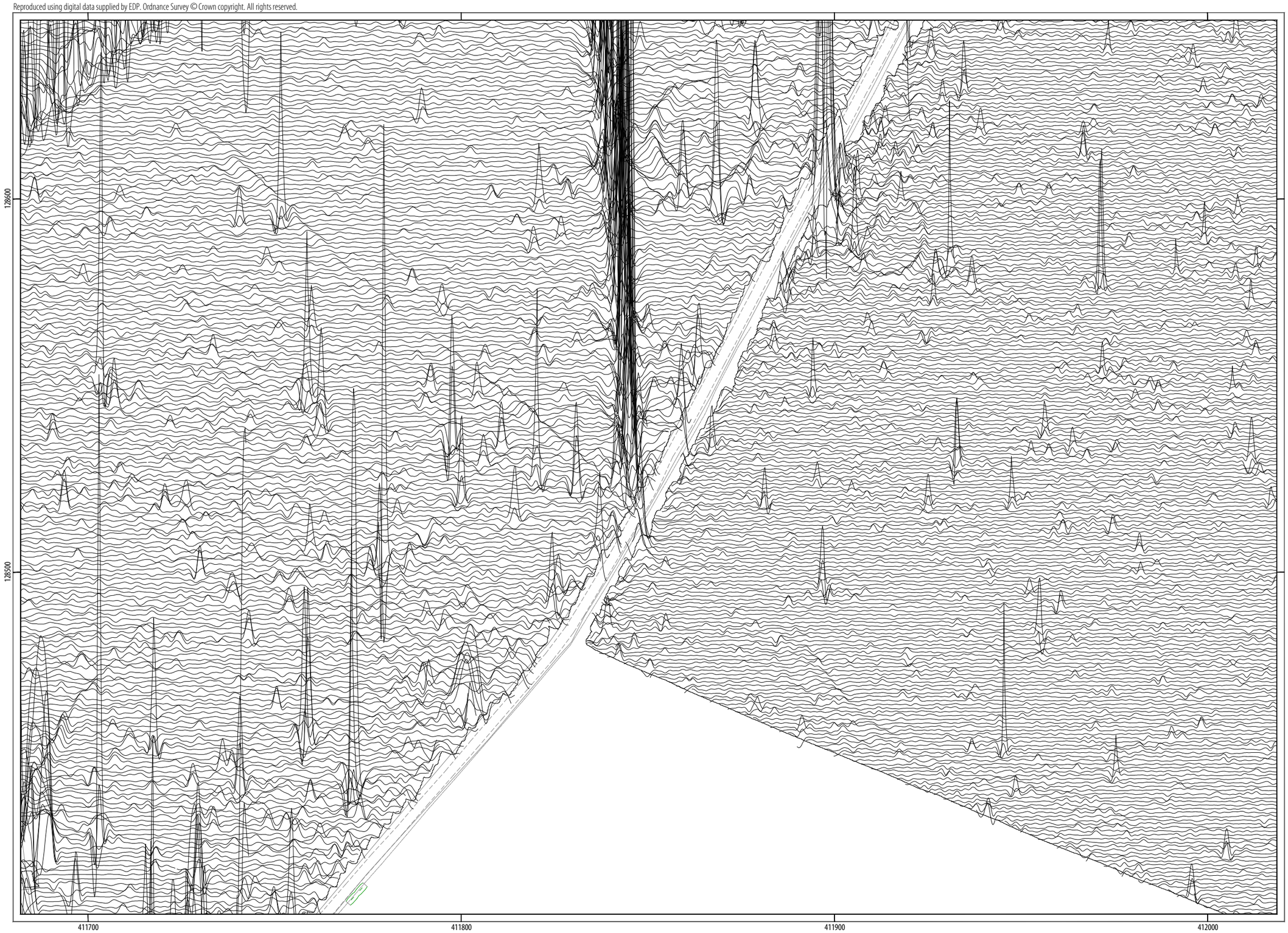
ILLUS 31 Processed greyscale magnetometer data; AAA4



6.0nT/cm

N

0 25m

scale 1:1,000 @ A3

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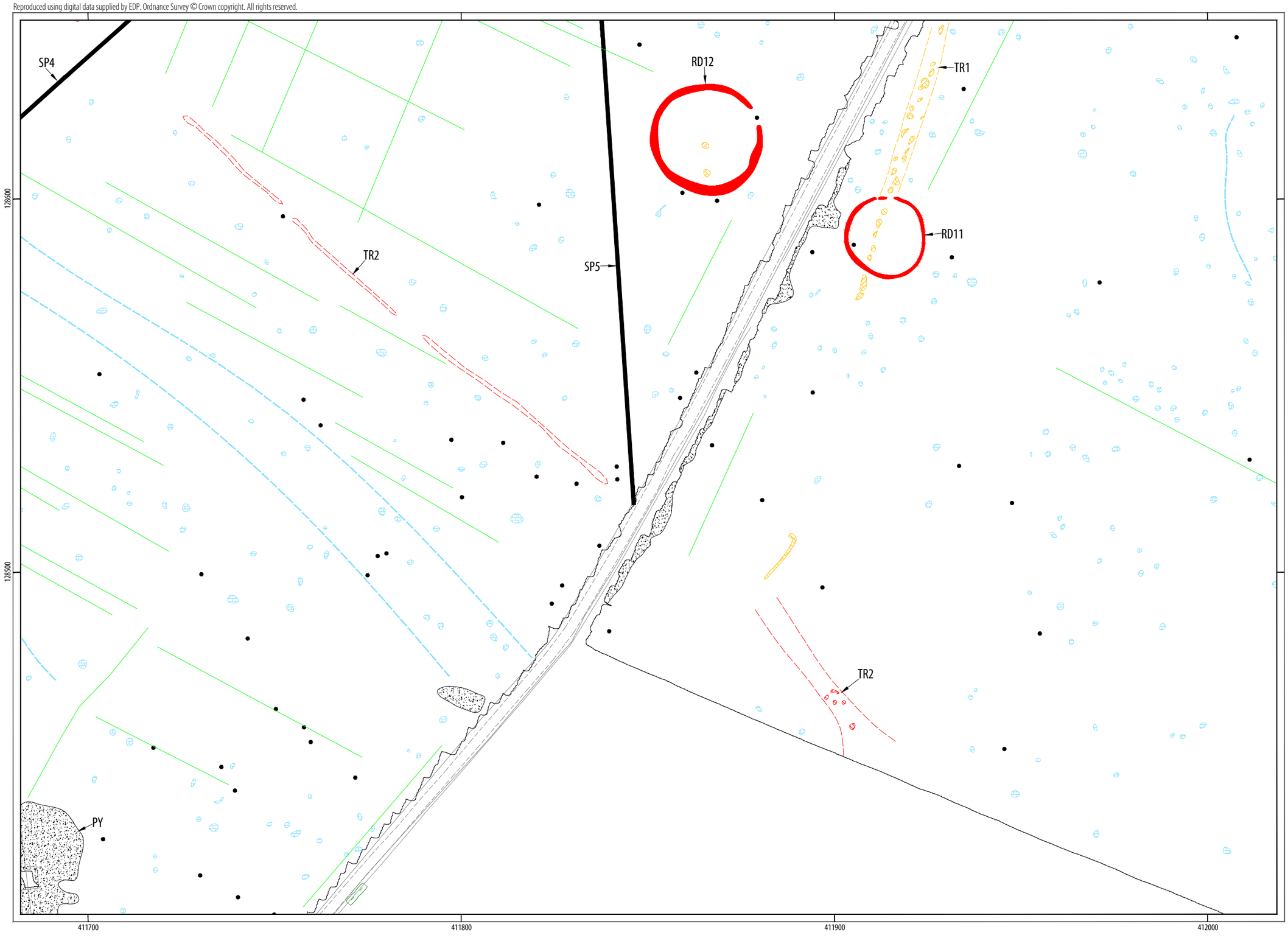
ILLUS 32 XY trace plot of minimally processed magnetometer data; AAA4



TYPE OF ANOMALY	INTERPRETATION
dipolar isolated	ferrous material
magnetic disturbance	ferrous material
dipolar linear	service pipe
linear trend	agricultural
linear	geological variation?
magnetic enhancement	geology?
magnetic enhancement	archaeology?
magnetic enhancement	archaeology

ABBREVIATIONS

D	ditch
PY	pylon
RD	ring-ditch
SP	service pipe
TR	trackway

N

0 25m

scale 1:1,000 @ A3

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ILLUS 33 Interpretation of magnetometer data; AAA4

7 APPENDICES

APPENDIX 1 MAGNETOMETER SURVEY

Magnetic susceptibility and soil magnetism

Iron makes up about 6% of the earth's crust and is mostly present in soils and rocks as minerals such as maghaemite and haematite. These minerals have a weak, measurable magnetic property termed magnetic susceptibility. Human activities can redistribute these minerals and change (enhance) others into more magnetic forms so that by measuring the magnetic susceptibility of the topsoil, areas where human occupation or settlement has occurred can be identified by virtue of the attendant increase (enhancement) in magnetic susceptibility. If the enhanced material subsequently comes to fill features, such as ditches or pits, localised isolated and linear magnetic anomalies can result whose presence can be detected by a magnetometer (fluxgate gradiometer).

In general, it is the contrast between the magnetic susceptibility of deposits filling cut features, such as ditches or pits, and the magnetic susceptibility of topsoils, subsoils and rocks into which these features have been cut, which causes the most recognisable responses. This is primarily because there is a tendency for magnetic ferrous compounds to become concentrated in the topsoil, thereby making it more magnetic than the subsoil or the bedrock. Linear features cut into the subsoil or geology, such as ditches, that have been silted up or have been backfilled with topsoil will therefore usually produce a positive magnetic response relative to the background soil levels. Discrete feature, such as pits, can also be detected.

The magnetic susceptibility of a soil can also be enhanced by the application of heat. This effect can lead to the detection of features such as hearths, kilns or areas of burning.

Types of magnetic anomaly

In the majority of instances anomalies are termed 'positive'. This means that they have a positive magnetic value relative to the magnetic background on any given site. However some features can manifest themselves as 'negative' anomalies that, conversely, means that the response is negative relative to the mean magnetic background.

Where it is not possible to give a probable cause of an observed anomaly a '?' is appended.

It should be noted that anomalies interpreted as modern in origin might be caused by features that are present in the topsoil or upper layers of the subsoil. Removal of soil to an archaeological or natural layer can therefore remove the feature causing the anomaly.

The types of response mentioned above can be divided into five main categories that are used in the graphical interpretation of the magnetic data:

Isolated dipolar anomalies (iron spikes) These responses are typically caused by ferrous material either on the surface or in the topsoil. They cause a rapid variation in the magnetic response giving a characteristic 'spiky' trace. Although ferrous archaeological artefacts could produce this type of response, unless there is supporting evidence for an archaeological interpretation, little emphasis is normally given to such anomalies, as modern ferrous objects are common on rural sites, often being present as a consequence of manuring.

Areas of magnetic disturbance These responses can have several causes often being associated with burnt material, such as slag waste or brick rubble or other strongly magnetised/fired material. Ferrous structures such as pylons, mesh or barbed wire fencing and buried pipes can also cause the same disturbed response. A modern origin is usually assumed unless there is other supporting information.

Linear trend This is usually a weak or broad linear anomaly of unknown cause or date. These anomalies are often caused by agricultural activity, either ploughing or land drains being a common cause.

Areas of magnetic enhancement/positive isolated anomalies Areas of enhanced response are characterised by a general increase in the magnetic background over a localised area whilst discrete anomalies are manifest by an increased response (sometimes only visible on an XY trace plot) on two or three successive traverses. In neither instance is there the intense dipolar response characteristic exhibited by an area of magnetic disturbance or of an 'iron spike' anomaly (see above). These anomalies can be caused by infilled discrete archaeological features such as pits or post-holes or by kilns. They can also be caused by pedological variations or by natural infilled features on certain geologies. Ferrous material in the subsoil can also give a similar response. It can often therefore be very difficult to establish an anthropogenic origin without intrusive investigation or other supporting information.

Linear and curvilinear anomalies Such anomalies have a variety of origins. They may be caused by agricultural practice (recent ploughing trends, earlier ridge and furrow regimes or land drains), natural geomorphological features such as palaeochannels or by infilled archaeological ditches.

APPENDIX 2 SURVEY LOCATION INFORMATION

An initial survey base station was established using a Trimble VRS differential Global Positioning System (dGPS). The magnetometer data was georeferenced using a Trimble RTK differential Global Positioning System (Trimble R8s model).

Temporary sight markers were laid out using a Trimble VRS differential Global Positioning System (Trimble R8s model) to guide the operator and ensure full coverage. The accuracy of this dGPS equipment is better than 0.01m.

The survey data were then super-imposed onto a base map provided by the client to produce the displayed block locations. However, it should be noted that Ordnance Survey positional accuracy for digital map data has an error of 0.5m for urban and floodplain areas, 1.0m for rural areas and 2.5m for mountain and moorland areas. This potential error must be considered if coordinates are measured off hard copies of the mapping rather than using the digital coordinates.

Headland Archaeology cannot accept responsibility for errors of fact or opinion resulting from data supplied by a third party.

APPENDIX 3 GEOPHYSICAL SURVEY ARCHIVE

The geophysical archive comprises an archive disk containing the raw data in XYZ format, a raster image of each greyscale plot with associate world file, and a PDF of the report.

The project will be archived in-house in accordance with recent good practice guidelines (http://guides.archaeologydataservice.ac.uk/g2gp/Geophysics_3). The data will be stored in an indexed archive and migrated to new formats when necessary.

APPENDIX 4 DATA PROCESSING

The gradiometer data has been presented in this report in processed greyscale and minimally processed XY trace plot format.

Data collected using RTK GPS-based methods cannot be produced without minimal processing of the data. The minimally processed data has been interpolated to project the data onto a regular grid and de-striped to correct for slight variations in instrument calibration drift and any other artificial data.

A high pass filter has been applied to the greyscale plots to remove low frequency anomalies (relating to survey tracks and modern agricultural features) in order to maximise the clarity and interpretability of the archaeological anomalies.

The data has also been clipped to remove extreme values and to improve data contrast.

APPENDIX 5 OASIS DATA COLLECTION FORM: ENGLAND

OASIS ID: headland5-290295

PROJECT DETAILS	
Project name	Land at Netherhampton Road, Salisbury, Wiltshire
Short description of the project	Headland Archaeology (UK) Ltd undertook a geophysical (magnetometer) survey of a 78 hectare site, south-west of Salisbury, Wiltshire, as part of a baseline assessment of the heritage potential of the site. This information will help guide archaeological strategy in advance of the proposed development of the site. The survey has identified four areas of archaeological potential. A substantial sub-oval enclosure, of likely prehistoric origin, containing dozens of pit-type anomalies is located in the west of the site. A sinuous trackway meanders through the enclosure from north-west to south-east. The enclosure, including two smaller enclosures appended to the eastern side, are assessed as of very high archaeological potential. To the east of the enclosure twelve ring-ditches, probable barrows, are identified in three distinct clusters, most with possible internal features which may be pits, cremations or inhumations. These areas are assessed as of high archaeological potential. Across the central part of the site a regular pattern of linear anomalies may locate an undated field system which is assessed as of moderate archaeological potential. Anomalies locating a former quarry and a barn may be of local historical interest.
Project dates	Start: 03-04-2017 End: 11-04-2017
Previous/future work	Not known / Not known
Any associated project reference codes	NESW17-01 - Sitecode
Type of project	Field evaluation
Site status	None
Current Land use	Cultivated Land 4 - Character Undetermined
Monument type	N/A None
Significant Finds	N/A None
Methods & techniques	"Geophysical Survey"
Development type	Not recorded
Prompt	National Planning Policy Framework - NPPF
Position in the planning process	Pre-application
Solid geology	CHALK (INCLUDING RED CHALK)
Drift geology	RIVER TERRACE DEPOSITS
Drift geology	COLLUVIUM
Techniques	Magnetometry

PROJECT LOCATION	
Country	England
Site location	WILTSHIRE SALISBURY NETHERHAMPTON Land at Netherhampton Road, Salisbuty, Wiltshire
Study area	78 Hectares
Site coordinates	SU 1200 2887 51.058510036432 -1.828753844427 51 03 30 N 001 49 43 W Polygon

PROJECT CREATORS	
Name of Organisation	Headland Archaeology
Project brief originator	EDP
Project design originator	Headland Archaeology
Project director/manager	Webb, A.

Project supervisor	Bishop, R
Type of sponsor/funding body	Developer

PROJECT ARCHIVES

Physical Archive Exists?	No
Digital Archive recipient	In house
Digital Contents	"other"
Digital Media available	"Geophysics"
Paper Archive Exists?	No

PROJECT BIBLIOGRAPHY 1

Publication type	Grey literature (unpublished document/manuscript)
Title	Land at Netherhampton Road, Salisbury, Wiltshire: Geophysical Survey
Author(s)/Editor(s)	Harrison, D.
Date	2017
Issuer or publisher	Headland Archaeology
Place of issue or publication	Edinburgh
Description	A4 Glue bound report

Entered by	Sam Harrison (sam.harrison@headlandarchaeology.com)
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HEADLAND ARCHAEOLOGY

SOUTH & EAST
Headland Archaeology
Building 68C, Wrest Park, Silsoe
Bedfordshire MK45 4HS

01525 861 578
southandeast@headlandarchaeology.com

MIDLANDS & WEST
Headland Archaeology
Unit 1, Clearview Court, Twyford Road
Hereford HR2 6JR

01432 364 901
midlandsandwest@headlandarchaeology.com

NORTH
Headland Archaeology
Unit 16, Hillside, Beeston Road
Leeds LS11 8ND

0113 387 6430
north@headlandarchaeology.com

SCOTLAND
Headland Archaeology
13 Jane Street
Edinburgh EH6 5HE

0131 467 7705
scotland@headlandarchaeology.com

www.headlandarchaeology.com