SEMK/01

SOUTH EAST MILTON KEYNES
CENTRAL BEDFORDSHIRE

GEOPHYSICAL SURVEY

commissioned by SEMK Consortium (Miller Homes, Taylor Wimpey, Harcourt Developments (UK) Ltd, Martin Grant Homes)

Pre-application

September 2016

HEADLAND ARCHAEOLOGY

REGISTERED ORGANISATION CIfA

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CENTRAL BEDFORDSHIRE

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project info

HA JOB NO.	SEMK/01
NGR	SP 93330 38177
PARISH	Aspley Guise
LOCAL AUTHORITY	Central Bedfordshire
OASIS REF.	headland5-261797

project team

PROJECT MANAGER	Alistair Webb
AUTHOR	David Harrison
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APPROVED BY	Alistair Webb – Project Manager

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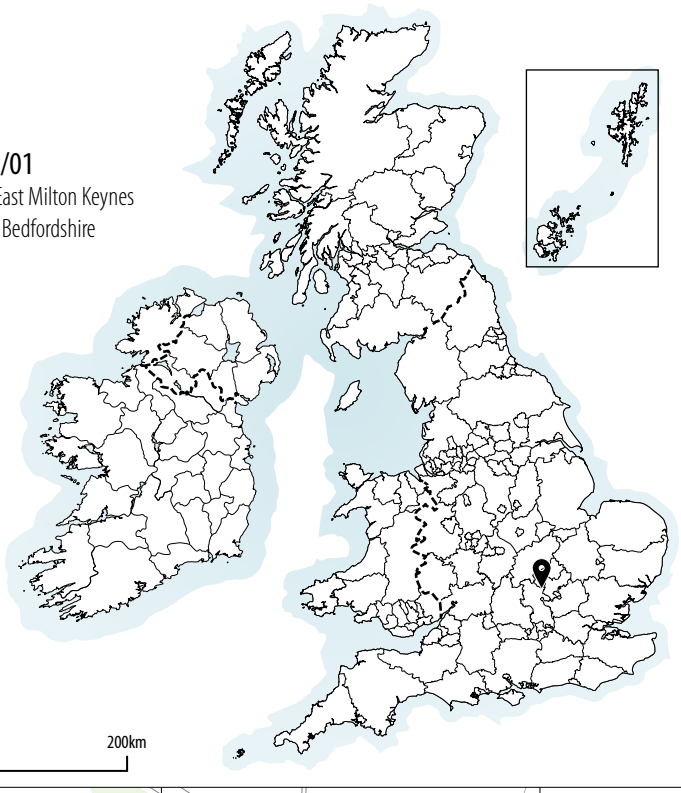
PROJECT SUMMARY

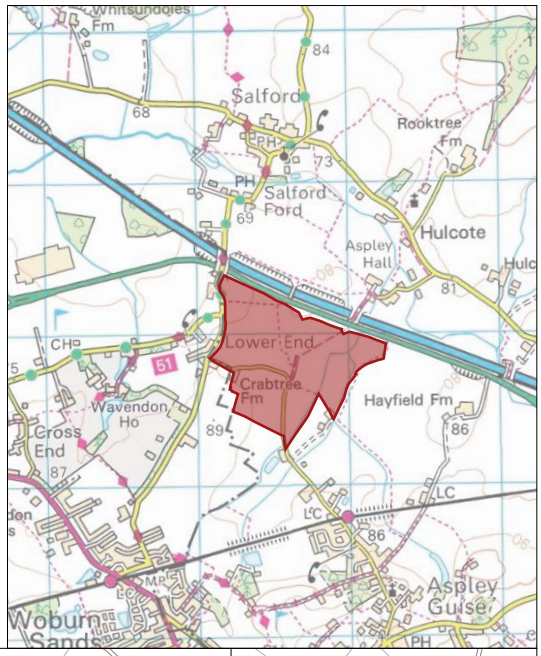
Headland Archaeology (UK) Ltd undertook a geophysical (magnetometer) survey covering approximately 60 hectares on land south-east of Milton Keynes to inform forthcoming archaeological strategy in advance of the proposed development of the site. A localised complex of linear and rectilinear anomalies suggestive of Iron Age or Romano-British settlement has been identified within the north-west corner of the site. The complex covers an area of five hectares and comprises several interlinking rectangular enclosures; roundhouses and other discrete pit-type features are also identified and are clearly indicative of occupation. No anomalies of definite archaeological potential have been identified beyond the well-defined extents of the settlement complex, although a few linear and curvilinear anomalies of possible archaeological origin have been identified to the north and east towards the M1 motorway. Elsewhere, the survey has identified anomalies indicative of agricultural activity including former field boundaries, field drains and ridge and furrow cultivation. On the basis of the geophysical survey, the archaeological potential across the majority of the site is considered to be low with a high potential ascribed to the settlement complex in the north-west corner.

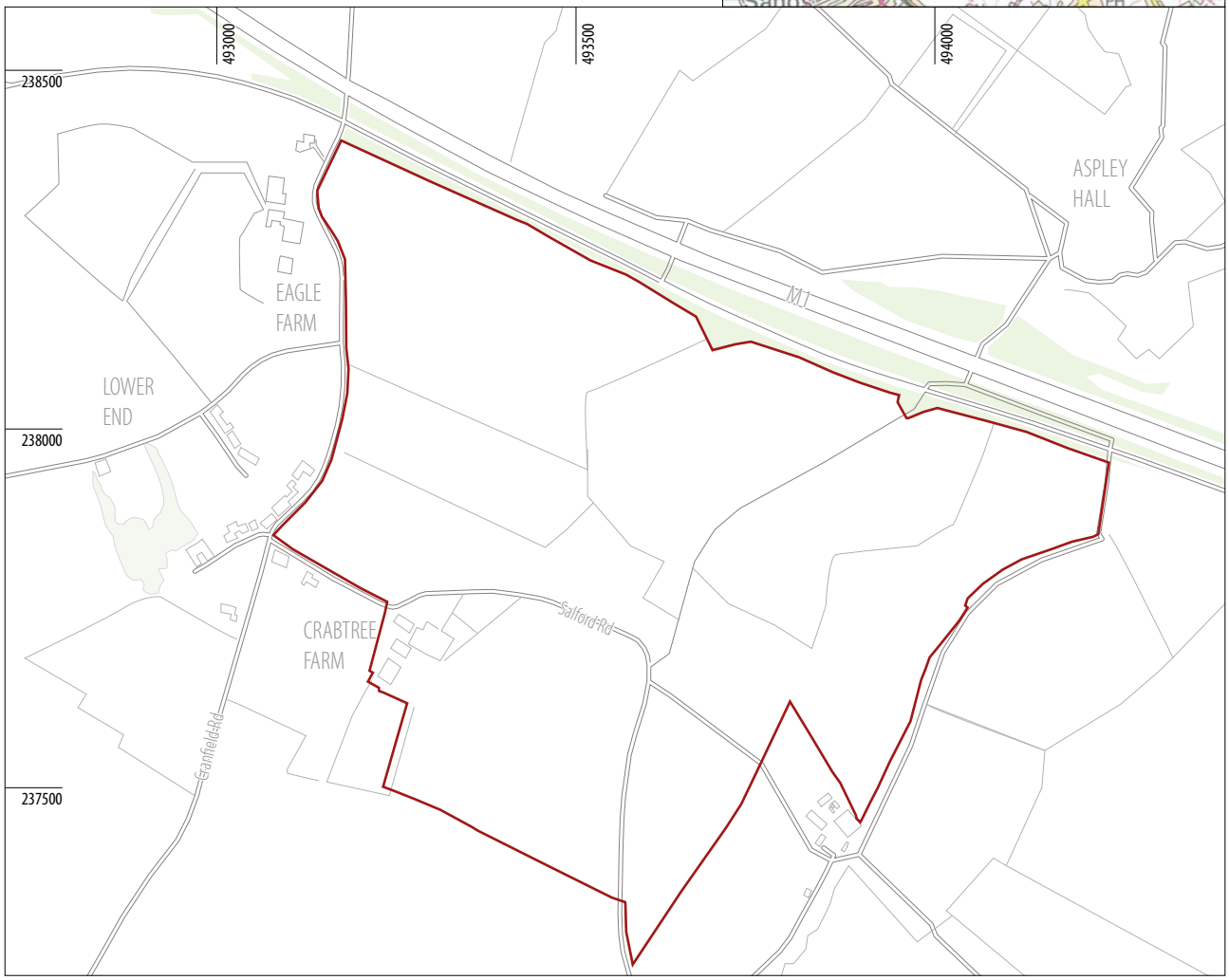
CONTENTS

LIST OF ILLUSTRATIONS

SEMK/01
South East Milton Keynes
Central Bedfordshire







KEY
proposed development area

N
0
500m
1:10,000 @ A4

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ILLUS 1 Site location

SOUTH EAST MILTON KEYNES

CENTRAL BEDFORDSHIRE

GEOPHYSICAL SURVEY

1 INTRODUCTION

Headland Archaeology (UK) Ltd was commissioned by Environmental Dimension Partnership (the Consultant) on behalf of SEMK Consortium (Miller Homes, Taylor Wimpey, Harcourt Developments (UK) Ltd, Martin Grant Homes) (the Client) to undertake a geophysical (magnetometer) survey south-east of Milton Keynes, Central Bedfordshire. The survey will inform forthcoming archaeological strategy in advance of the proposed development of the site.

The work was undertaken in accordance with a Written Scheme of Investigation (Headland Archaeology 2016), approved by Hannah Firth, LPA Archaeological Advisor, as well as guidance contained within the National Planning Policy Framework (DCLG 2012) and in line with current best practice (English Heritage 2008).

The survey was carried out between April 4th and April 11th 2016 and between July 25th and July 27th 2016 in order to provide information on the archaeological potential of the proposed development area (PDA).

1.1 SITE LOCATION, TOPOGRAPHY AND LAND-USE

The PDA comprises ten fields (F1–F10) within a single parcel of land to the south of the M1 motorway, centred at NGR 493330, 238177 (see Illus 1). It is bound by the M1 to the north, by Cranfield Road to the west, by a minor watercourse and mature field boundaries to the east and by arable farmland to the south. The southern part of the PDA is bisected by the north-west/south-east aligned Crabtree Lane/Salford Road. The site undulates slightly between 79m above Ordnance Datum (aOD) along the northern site limit and 75m aOD towards the south. At the time of the survey the fields were under a mixture of winter wheat and oil seed rape crops at varying stages of growth. F1 had been recently harrowed (see Illus 2 to Illus 6).

1.2 GEOLOGY AND SOILS

The underlying bedrock geology comprises mudstone which is classified in both the Stewartby Member and Oxford Clay Formations overlain in the north and west by Oadby Member – diamicton (formerly chalky boulder clay). Alluvial deposits of clay, silt, sand and gravel are recorded along the minor watercourse in the east of the PDA (see Illus 7 – NERC 2016).

The soils are classified in the Soilscape 8 association which are characterised as slightly acid loams and clays with impeded drainage (Cranfield University 2016).

2 ARCHAEOLOGICAL BACKGROUND

An Archaeological Desk Based Assessment (Environmental Dimension Partnership 2008) and search of the Historic Environment Record concluded that the only known archaeological sites, monuments and findspots from within the PDA comprise extant features and a former building, which are all of post-medieval or later date. However, despite the absence of known archaeological remains from within the PDA

> '…past investigative fieldwork, completed outside the study area boundary to the north and west, has demonstrated that there is potential for settlement remains of prehistoric to Romano-British date to be found within it. Field investigation at both Nova MK1 [1.4km west of the PDA] and Whitsundoles Farm [2km north-west] has shown that, even where there is little evidence to suggest the presence of significant archaeological remains, multi-phase Iron Age and Romano-British settlement sites have been identified.'

ILLUS 2 General view of Field 1, looking east **ILLUS 3** General view of Field 6, looking south **ILLUS 4** General view of Field 7, looking south **ILLUS 5** General view of Field 8, looking south **ILLUS 6** General view of Field 10, looking north-west

3 AIMS, METHODOLOGY AND PRESENTATION

The main aim of the geophysical survey was to provide sufficient information to enable an assessment to be made of the impact of any proposed development on any potential sub-surface archaeological remains.

The general 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 & 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 is programmed to take readings at a frequency of 10Hz (allowing for a 10–15cm sample interval) on roaming traverses 4m apart. These readings are stored on an external weatherproof

laptop and later downloaded for processing and interpretation. The system is 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 has been used to collect and export the data. Terrasurveyor V3.0.28.4 (DWConsulting) software has been used to process and present the data.

Marker canes were laid out using a Trimble VRS differential Global Positioning System (Trimble GeoXR model).

3.2 REPORTING

A general site location plan is shown in Illus 1 at a scale of 1:10,000. Illus 2 to Illus 6 are general site condition photographs. Illus 7 shows the survey location, the geology detail and the location and direction of the site condition photographs at a scale of 1:5,000. A plan showing the overall processed greyscale magnetometer data is presented in Illus 8, also at 1:5,000. Illus 9 is an overall interpretation of the data at the same scale.

Detailed data plots (greyscale and XY trace) and interpretative illustrations are presented at a scale of 1:1,000 in Illus 10 to Illus 48 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. A copy of the OASIS entry (Online Access to the Index of Archaeological Investigations) is reproduced in Appendix 4.

The survey methodology, report and any recommendations comply with the Written Scheme of Investigation (Headland Archaeology 2016) and guidelines outlined by English Heritage (English Heritage 2008) and by the Chartered Institute for Archaeologists (CIfA 2014). All illustrations reproduced from Ordnance Survey (OS) mapping are with the permission of the controller of Her Majesty's Stationery Office (© 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

Magnetic background

A moderate level of background magnetic response has been identified across the PDA which is visible in the data as a relatively even distribution of discrete anomalies throughout. The anomalies are caused by variations in the depth and composition of the soils. An area of increased background variation within the north-west of the PDA is thought to be due to the presence of diamicton superficial deposits. Against this favourable background, numerous anomalies can be identified which are discussed below, and cross-referenced to specific anomalies on the interpretative illustrations, where appropriate.

4.1 FERROUS 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 (not in this case), as modern ferrous debris or material is common on most sites, often being present as a consequence of manuring or tipping/infilling.

A north-west/south-east alignment of large ferrous spikes (P1 see Illus 10–12, Illus 16–21 and Illus 28–30) has been identified across F1, F9 and F10. The anomalies are thought to be caused by ferrous material forming part of a buried pipe. Buried pipes or culverts are also identified as dipolar linear anomalies (P2 and P3 see Illus 22–24 and Illus 31–33) within the north of F4.

Two ferrous spikes within F8 (TP1 and TP2 see Illus 37–42) locate wooden telegraph poles carrying overhead cables.

Other areas of magnetic disturbance around the perimeter of the survey area and field edge can be attributed to the proximity of post and wire fencing and/or other ferrous material within or close to the boundaries.

4.2 AGRICULTURAL ANOMALIES

Analysis of historical OS mapping indicates that the division and layout of fields within the PDA has changed since the publication of the first edition OS map in 1883 with the removal of eight former boundaries to create fewer, larger, fields. Seven of these former boundaries have been identified as linear anomalies (B1 – B7). The anomalies are caused by the contrast between the soil-fill of the ditch and surrounding soils.

Numerous parallel, slightly curving, trends are visible across the PDA, mostly being orientated parallel with, or at right-angles to, existing or historic field boundaries. These are characteristic of the medieval and post-medieval practice of ridge and furrow cultivation – the anomalies being caused by the contrast between the soil-filled furrows and the former ridges.

Linear anomalies aligned along the field edges are due to ploughing headlands whilst all other linear anomalies are interpreted as being due to field drains.

4.3 GEOLOGICAL ANOMALIES

Discrete anomalies are identified throughout the PDA and are due to variations in the depth and composition of the soils. The anomalies increase in magnitude and frequency west of boundary G1 (see Illus 10–18 and Illus 25–27), which marks the extent of the superficial deposits; Oadby member diamicton is present west of this boundary with no superficial deposits to the east (see Illus 7).

A cluster of broad low magnitude anomalies (G2 see Illus 13–15) within the east of F1 forms no coherent pattern and is interpreted as being due to an isolated area of near-surface geological variation, although this type of response may equally be caused by modern ground disturbance.

The north/south aligned linear band of magnetic enhancement (G3 see Illus 19–21 and Illus 25–30) within the east of F9 and F10 corresponds to the contours of the fields and is thought to be caused by the accumulation of deposits at the break of the slope.

4.4 ARCHAEOLOGICAL & POSSIBLE ARCHAEOLOGICAL ANOMALIES

In the north-west corner of the PDA, a plethora of interlinking linear and rectilinear anomalies has been identified on a north-west/south-east alignment throughout much of F1 and extending southwards into F10, centred at NGR 493866, 238084. The anomalies, caused by soil-filled ditches, cover an area of five hectares extending 220m from north to south and 270m from east to west forming a settlement complex comprising at least 25 broadly rectangular enclosures (E1–E25 see Illus 10). Numerous discrete pit-type anomalies have been identified. Such is the frequency of these discrete anomalies that, for the most part, it is impossible to differentiate between anomalies of likely geological origin and those of possible archaeological origin. The higher magnitude anomalies have been interpreted as being of possible archaeological origin, perhaps being due to internal ditches, pits or spreads of enhanced material, but it is possible, given the level of archaeological activity in this localised area, that some of the lower magnitude anomalies in this part of the PDA, which are interpreted as geological, may also be of archaeological origin. Faint circular anomalies (RD1–RD5), possibly due to roundhouses, have been identified within enclosures E4, E5 and E25.

Several linear anomalies have been identified to the immediate north of the complex on a variety of alignments. Some of these are characteristic of ridge and furrow cultivation or field drains. Others do not fit either of these patterns nor do they form any coherent archaeological pattern. However, given the local archaeological context in this specific part of the PDA an archaeological origin cannot be dismissed and some of these anomalies (D1–D6) may be due to soil-filled ditches.

To the east of F1 a fragmentary curvilinear anomaly (D7) is thought to be due to a curving ditch. No clear archaeological pattern is discernible, but it is possible that the anomaly is due to a boundary feature. This anomaly is assessed as being of possible archaeological potential.

5 CONCLUSION

An extensive enclosure complex has been identified within the north-west of the site covering an area of five hectares confirming the archaeological potential of the PDA as identified in the Archaeological Desk Based Assessment. The magnetic anomalies are suggestive of multiphase Iron Age or Romano British settlement with numerous internal features being identified, including probable roundhouses. The complex is confined to the north-west corner of the PDA with no further anomalies of definite archaeological potential being identified beyond the well-defined extent of the settlement.

Elsewhere, the survey has identified anomalies which reflect the post-medieval, medieval and modern historical agricultural landscape including ridge and furrow cultivation and a number of former field boundaries which have been removed since the publication of the first edition OS map.

The archaeological potential across the majority of the PDA is assessed as low, based on the results and interpretation of the geophysical data. The obvious exception is the north-west corner where the extent of a settlement covering 5 hectares is clearly defined. The archaeological potential here is assessed as very high.

6 REFERENCES

Chartered Institute for Archaeologists (CIfA) 2014 ***Standard and guidance for archaeological geophysical survey*** [online document] Accessed 3 August 2016 from http://www.archaeologists.net/sites/default/files/CIfAS&GGeophysics_1.pdf

Cranfield University 2016 ***Cranfield Soil and Agrifood Institute Soilscapes*** [online] Accessed 3 August 2016 from www.landis.org.uk/soilscapes/

Department of Communities and Local Government (DCLG) 2012 ***National Planning Policy Framework*** [online document] Accessed 3 August 2016 from https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/6077/2116950.pdf

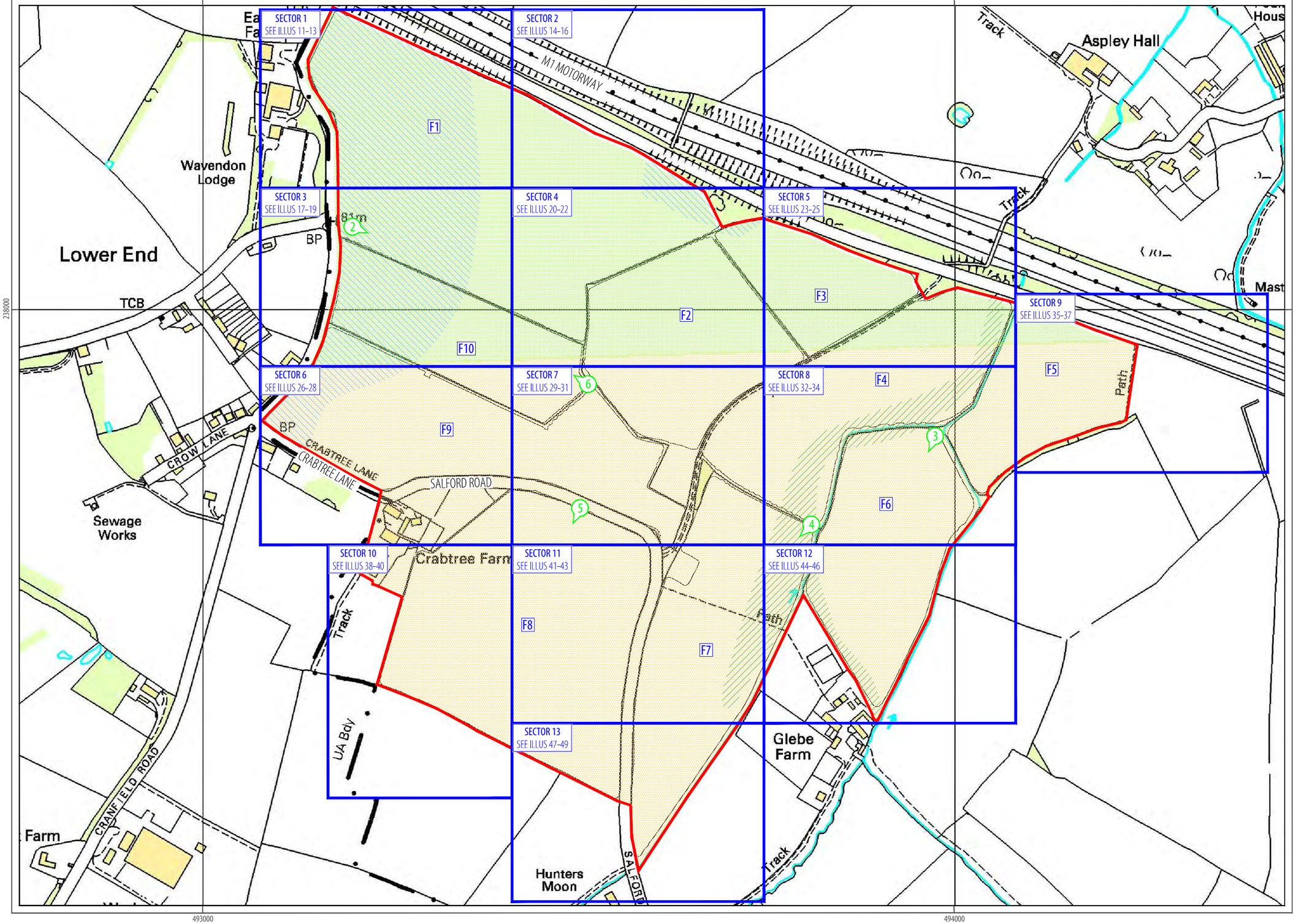
EDP 2008 ***Land at South East Milton Keynes: Archaeological Desk-Based Assessment*** Unpublished client document ref. H_EDP101_10_ Archaeological Desk-Based Assessment

English Heritage 2008 ***Geophysical Survey in Archaeological Field Evaluation: Research and Professional Services Guidelines*** (2nd edition) [online document] Accessed 3 August 2016 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 2016 ***Land south-east of Milton Keynes, Central Bedfordshire: Written Scheme of Investigation for Geophysical Survey*** Unpublished Headland document ref SEMK/01

Natural Environment Research Council (NERC) 2016 ***British Geological Survey*** [online] Accessed 3 August 2016 from http://www.bgs.ac.uk/



proposed development area

location and direction of ILLUS 2–6

BEDROCK

Stewartby Member - mudstone

Oxford Clay Formation - mudstone

SUPERFICIAL

Oadby Member - diamicton

Alluvium - clay, silt, sand and gravel

N

0 100m

scale 1:5,000 @ A3

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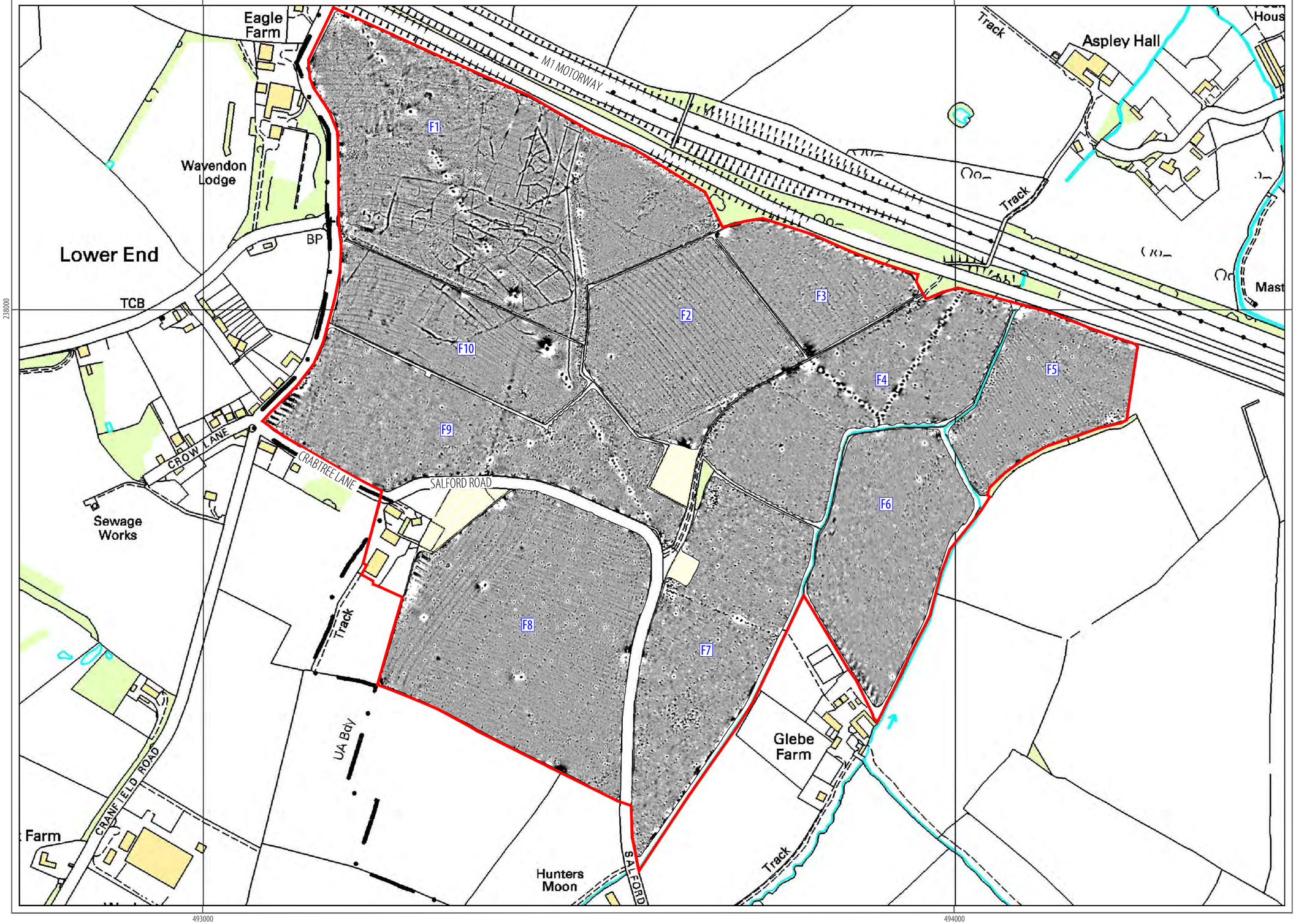
ILLUS 7 Survey location showing geology detail, location and direction of ILLUS 2 - 6 and location of ILLUS 10 – 48



proposed development area
area unsuitable for survey

nT
-1.0 2.0

N

0 100m
scale 1:5,000 @ A3

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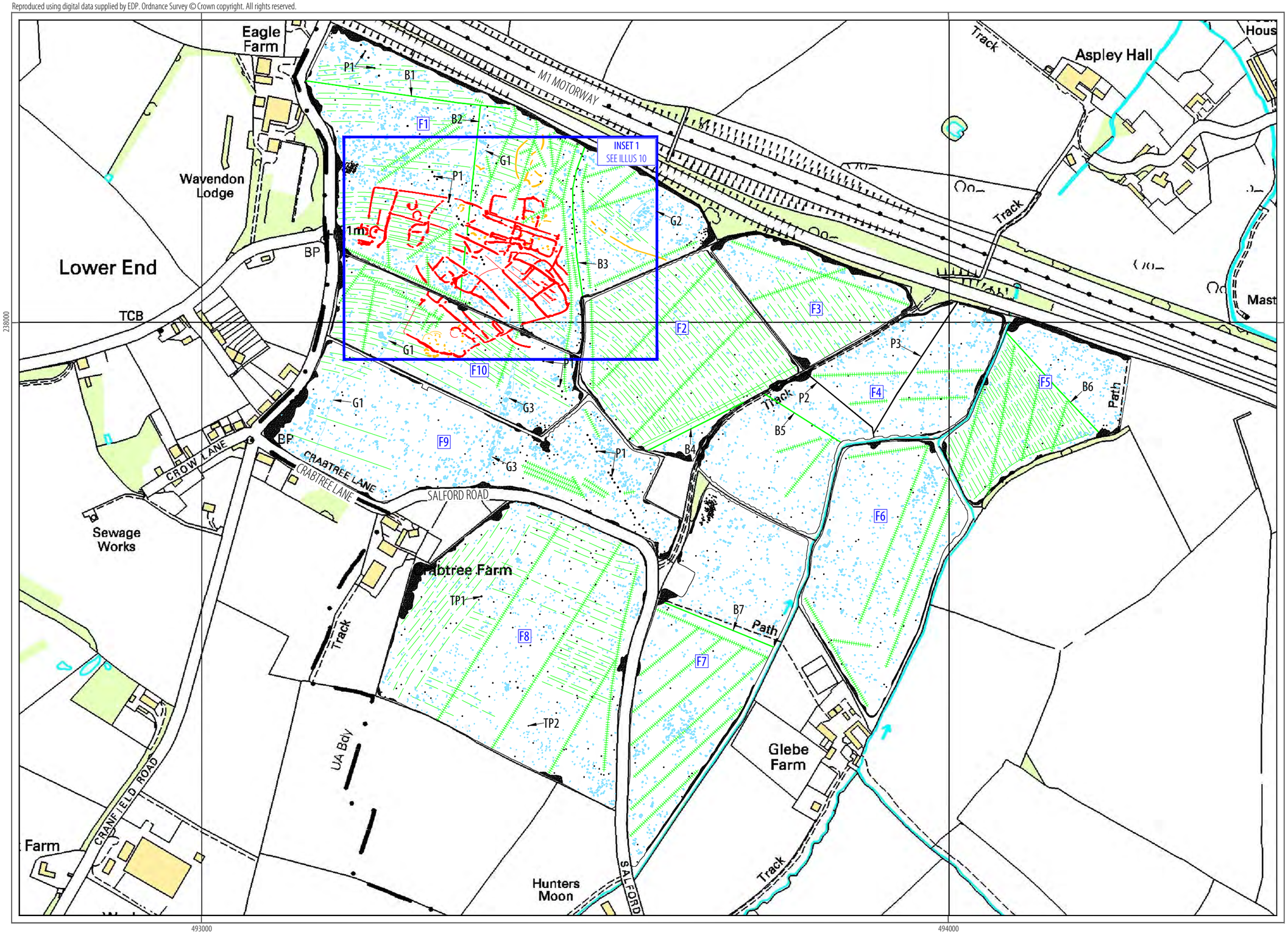
ILLUS 8 Overall processed greyscale magnetometer data



TYPE OF ANOMALY	INTERPRETATION
dipolar Isolated	ferrous material
magnetic disturbance	ferrous material
dipolar Linear	service pipe
linear trend	ridge and furrow
linear trend	agricultural
linear trend	field drain
linear	former field boundary
linear trend	geological variation
magnetic enhancement	geology
magnetic enhancement	archaeology?
linear trend	archaeology
magnetic enhancement	archaeology

ABBREVIATIONS

B	boundary	P	pipe
G	geology	TP	telegraph pole

N

0 100m

scale 1:5,000 @ A3

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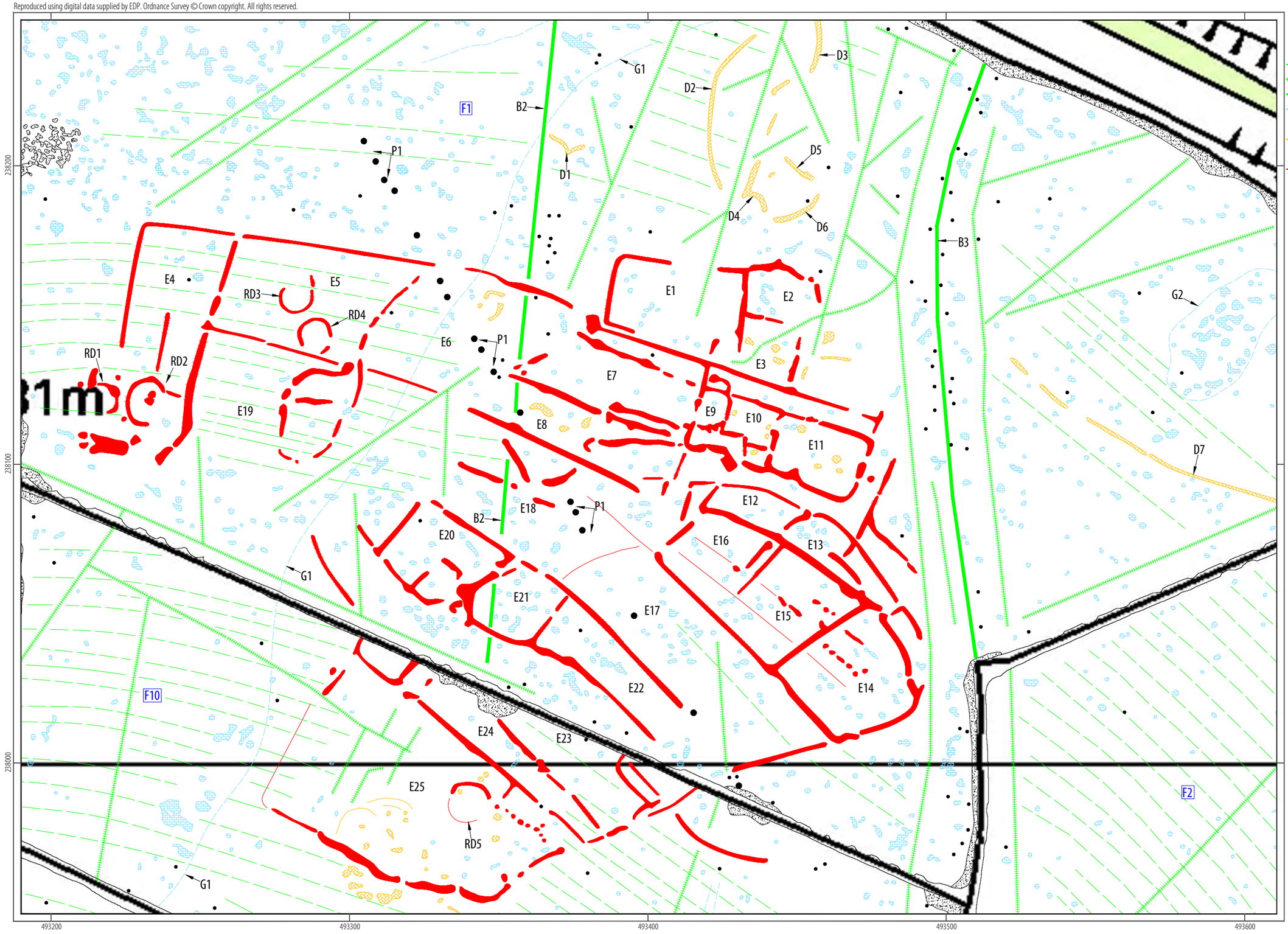
ILLUS 9 Overall interpretation of magnetometer data



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

ABBREVIATIONS

B	boundary	G	geology
D	ditch	P	pipe
E	enclosure	RD	ring-ditch
		TP	telegraph pole

N

0 25m

scale 1:1,250 @ A3

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ILLUS 10 Overview of enclosure complex

nT
-1.0 2.0

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

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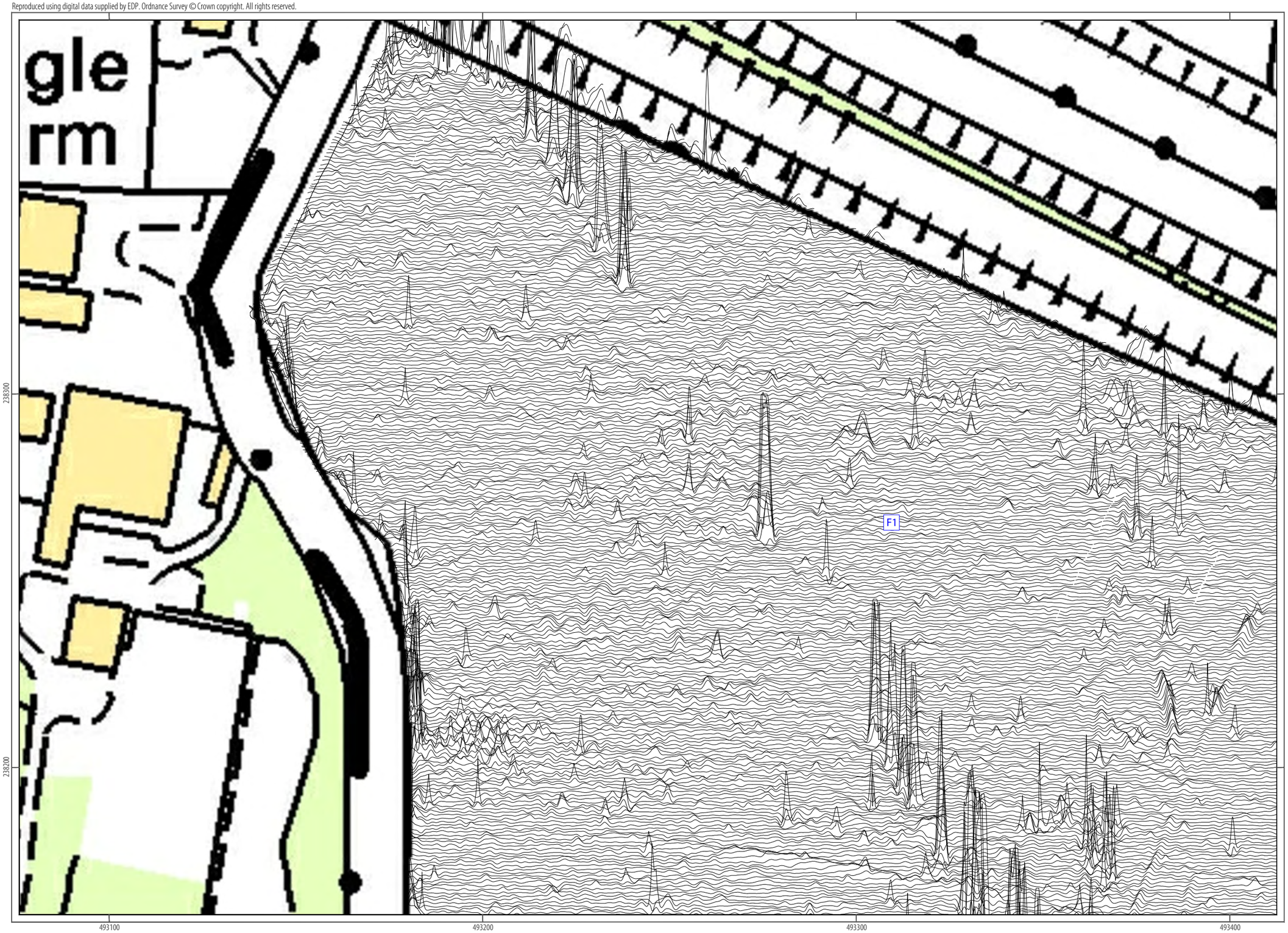
ILLUS 11 Processed greyscale magnetometer data; Sector 1



12.5nT/cm

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N

0 25m

scale 1:1,000 @ A3

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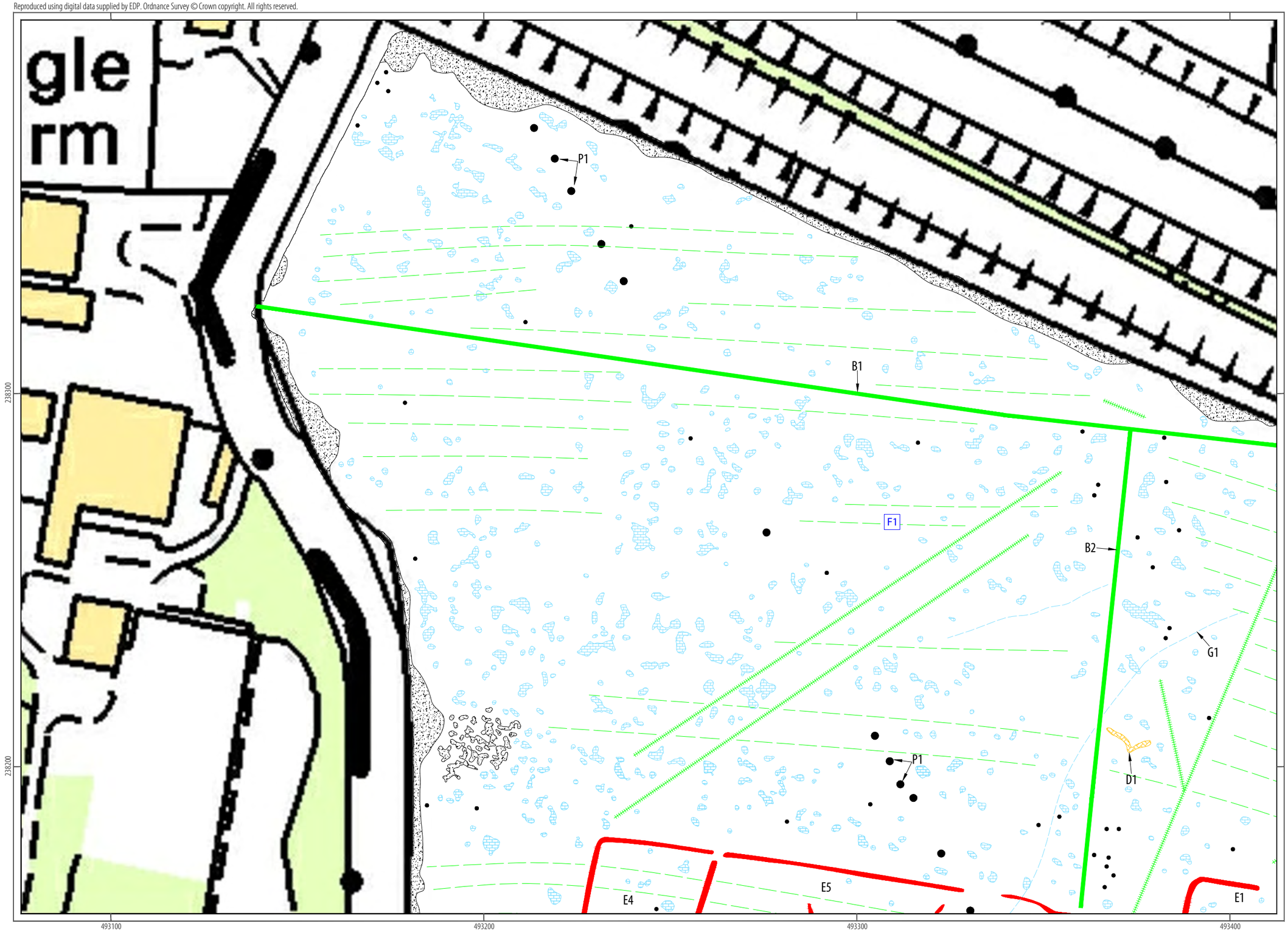
ILLUS 12 XY trace plot of magnetometer data; Sector 1



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

ABBREVIATIONS

B	boundary	E	enclosure
D	ditch	G	geology
		P	pipe

N

0 25m

scale 1:1,000 @ A3

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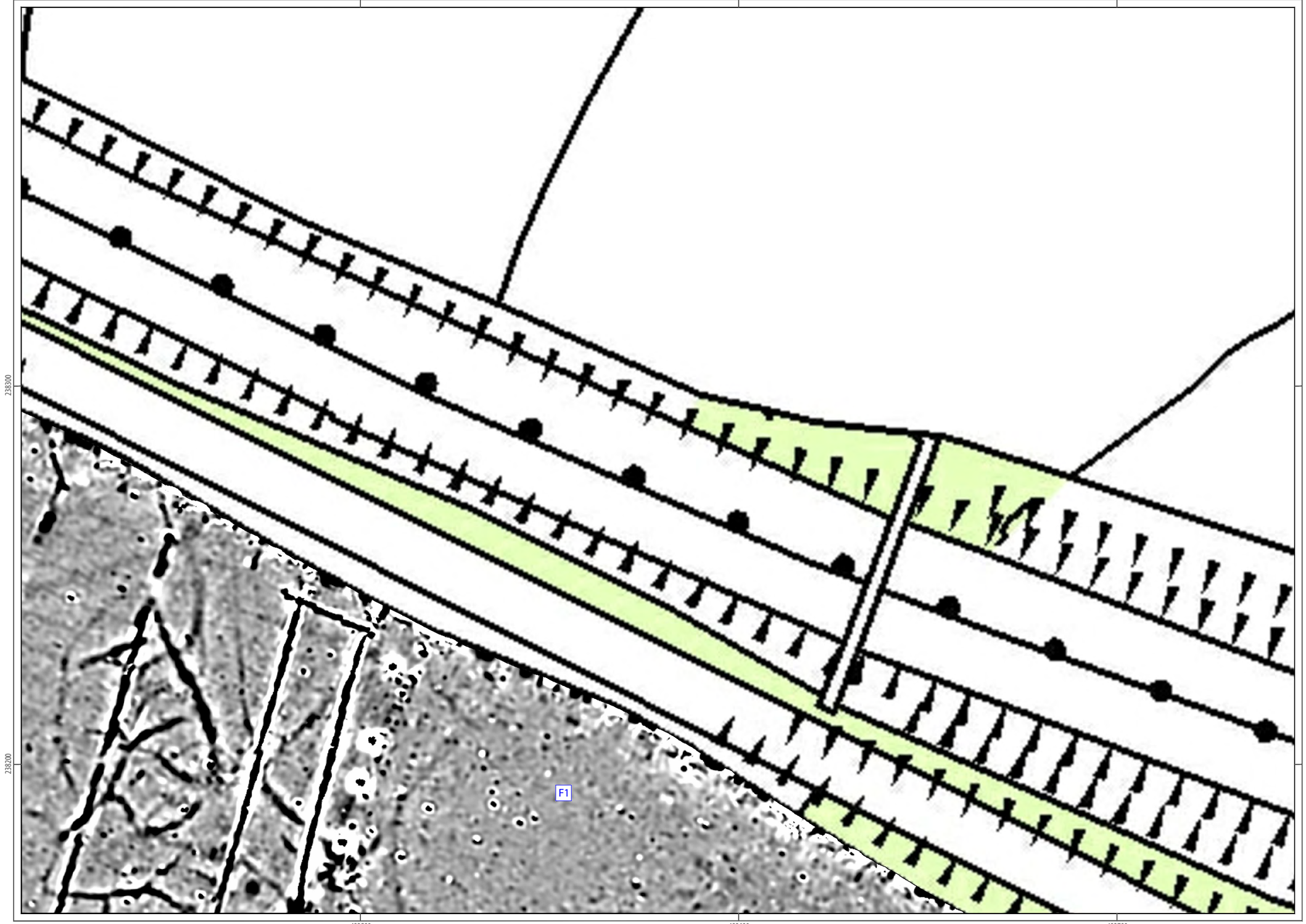
ILLUS 13 Interpretation of magnetometer data; Sector 1



nT
-1.0 2.0

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scale 1:1,000 @ A3

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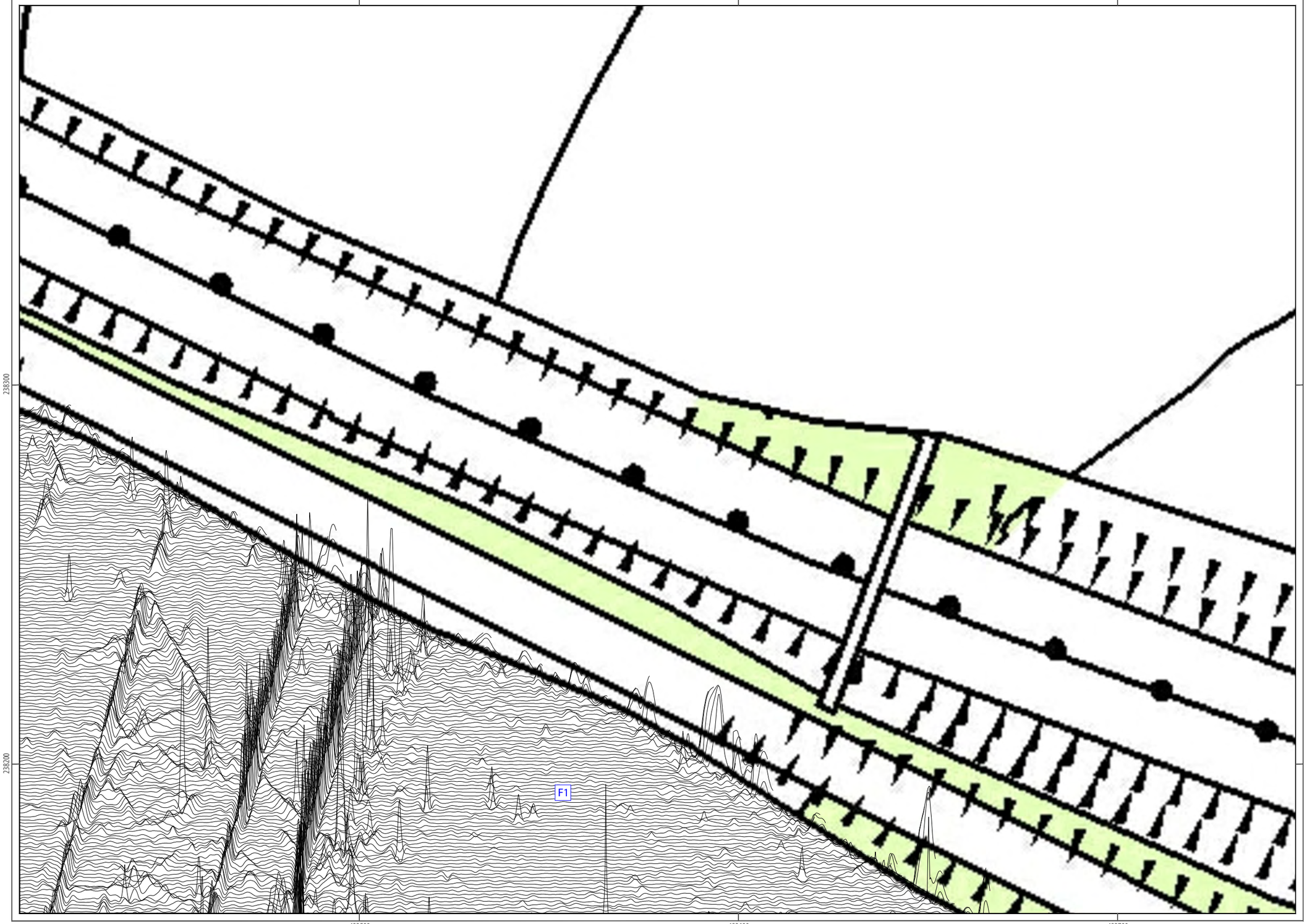
ILLUS 14 Processed greyscale magnetometer data; Sector 2



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scale 1:1,000 @ A3

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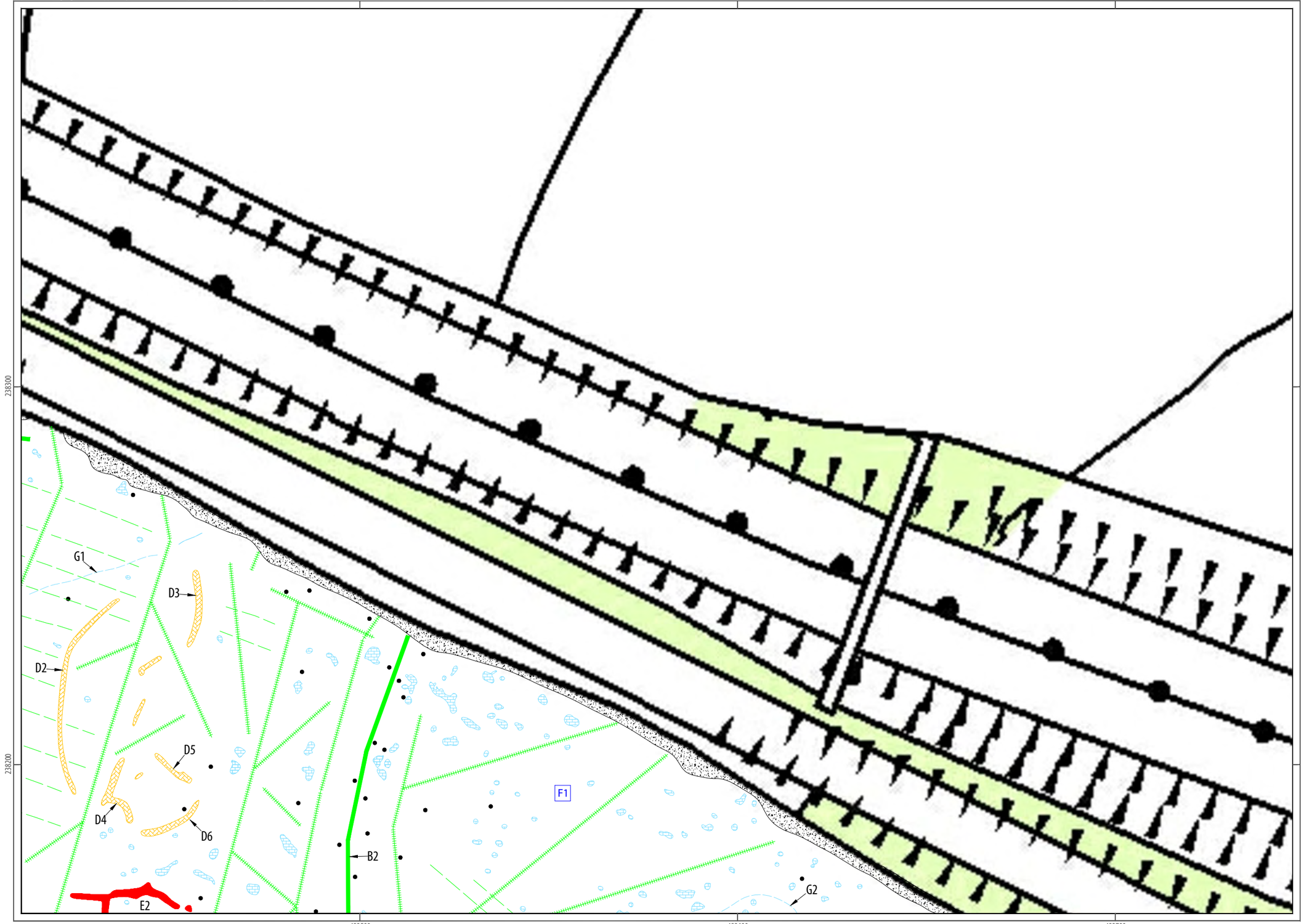
ILLUS 15 XY trace plot of magnetometer data; Sector 2



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

ABBREVIATIONS

B	boundary	E	enclosure
D	ditch	G	geology

N

0 25m

scale 1:1,000 @ A3

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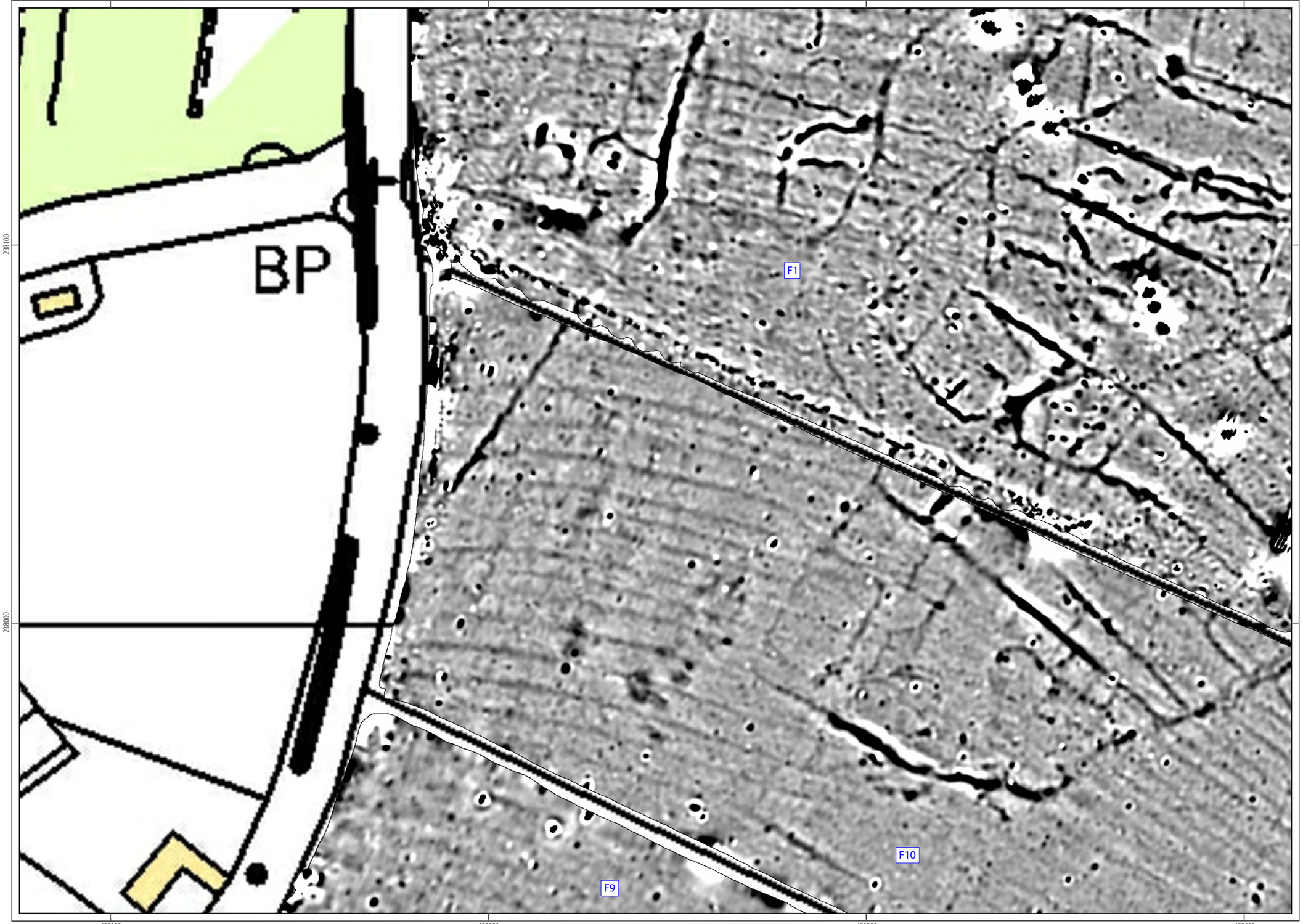
ILLUS 16 Interpretation of magnetometer data; Sector 2



-1.0 nT 2.0

N

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scale 1:1,000 @ A3

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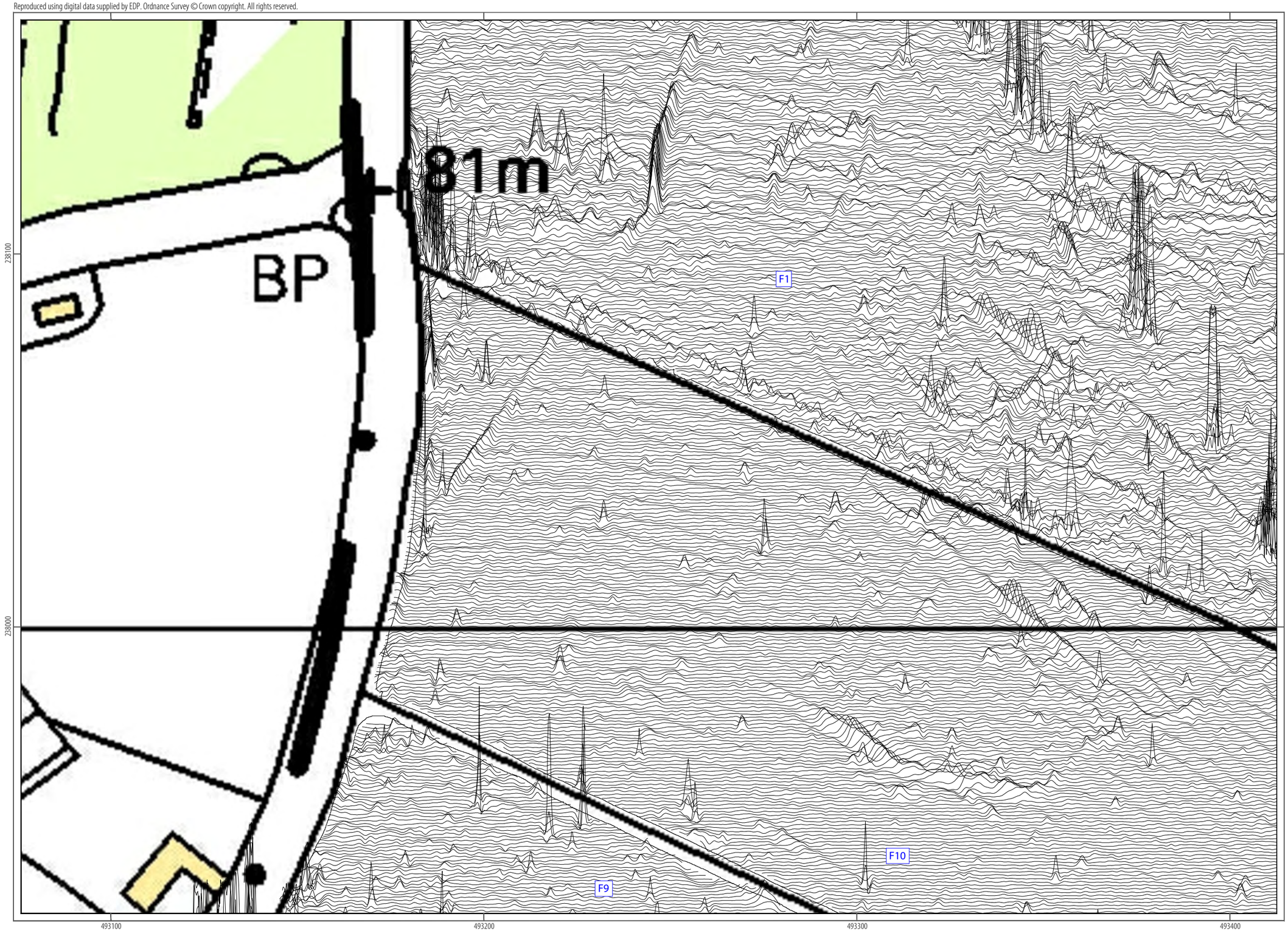
ILLUS 17 Processed greyscale magnetometer data; Sector 3



12.5nT/cm

[Data clipped to -2.0 to 50.0nT/cm]

N

0 25m

scale 1:1,000 @ A3

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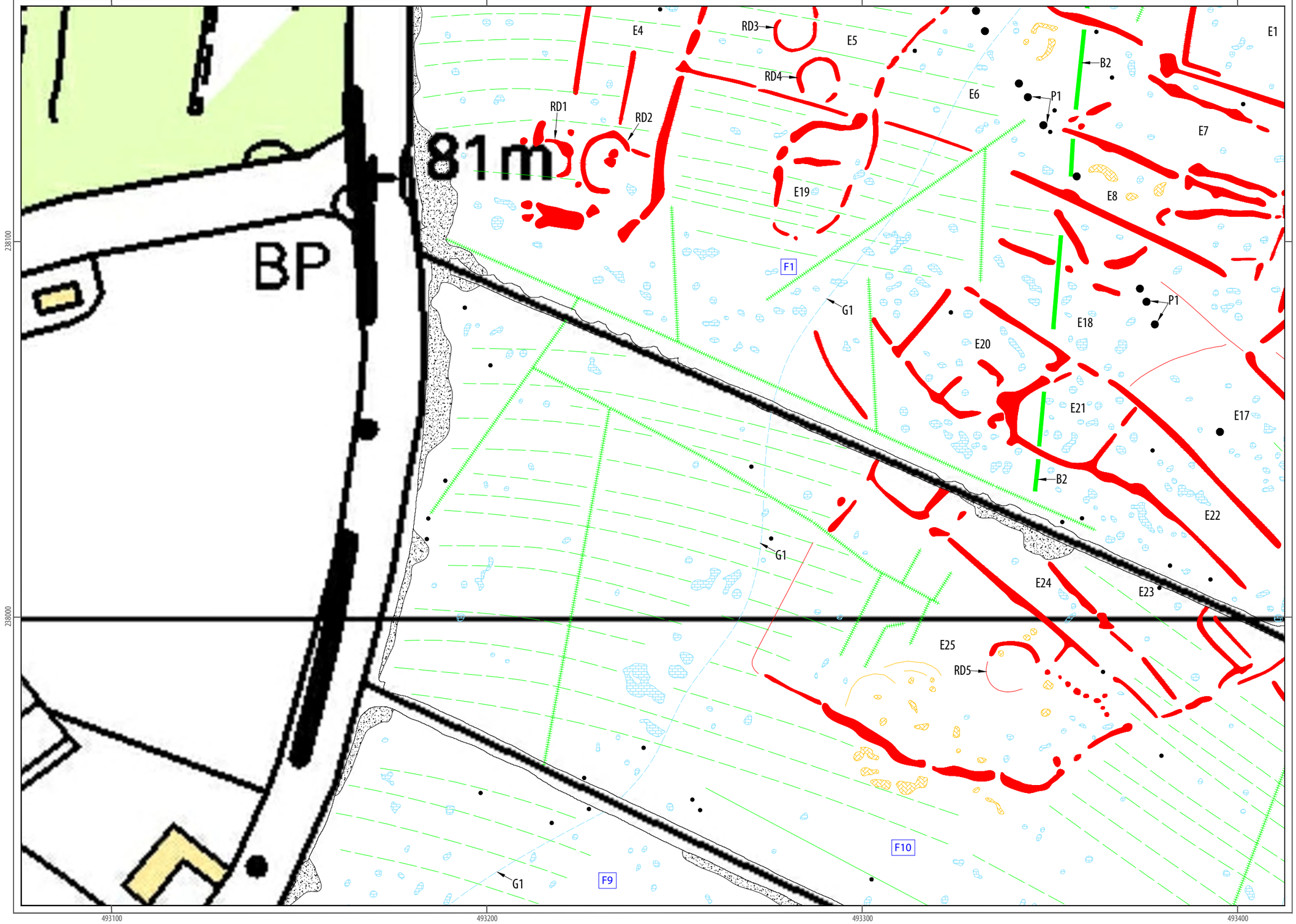
ILLUS 18 XY trace plot of magnetometer data; Sector 3



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

ABBREVIATIONS

B	boundary	G	geology
D	ditch	P	pipe
E	enclosure	RD	ring-ditch

N

0 25m

scale 1:1,000 @ A3

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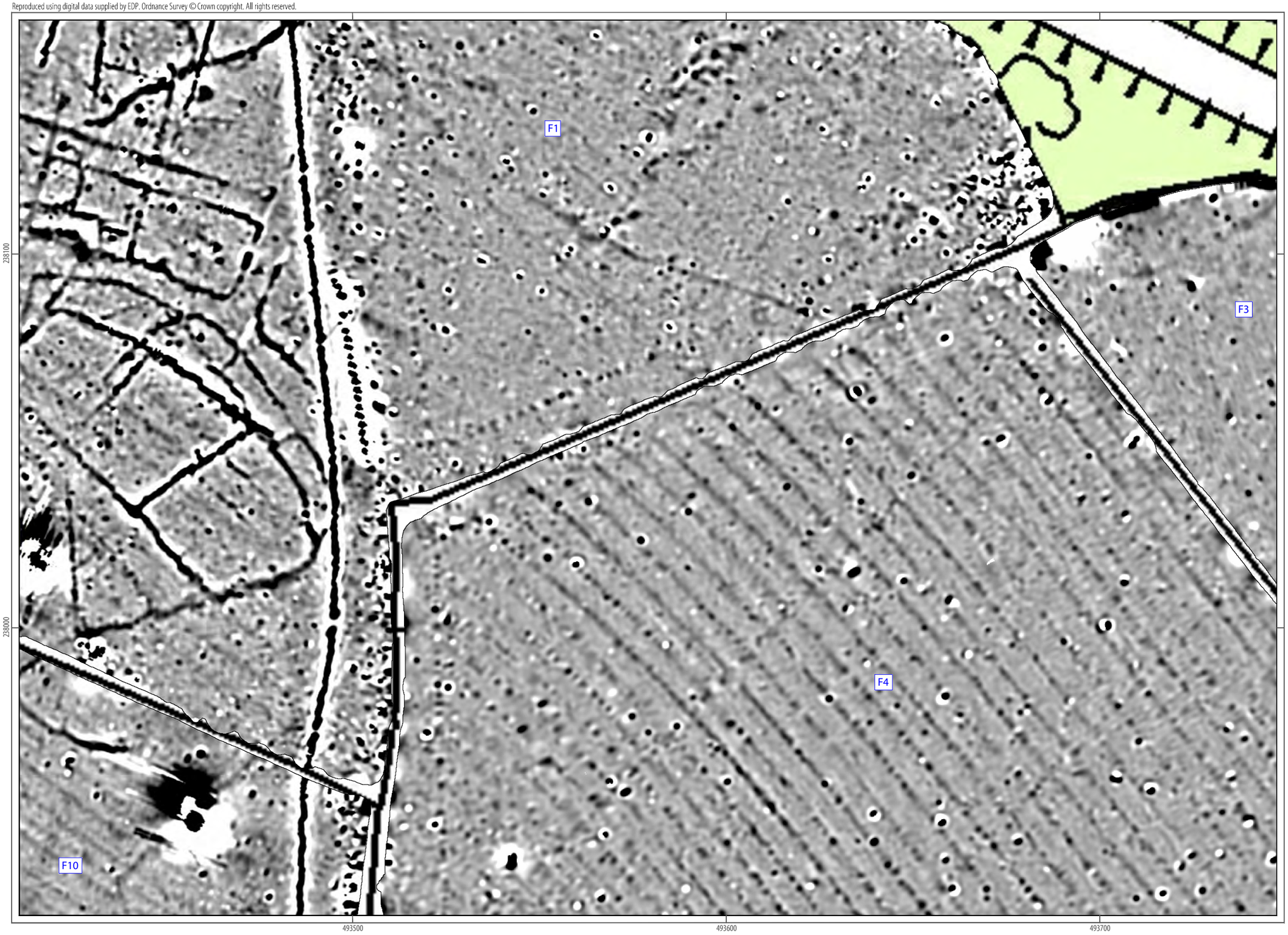
ILLUS 19 Interpretation of magnetometer data; Sector 3



-1.0 nT 2.0

N

0 25m

scale 1:1,000 @ A3

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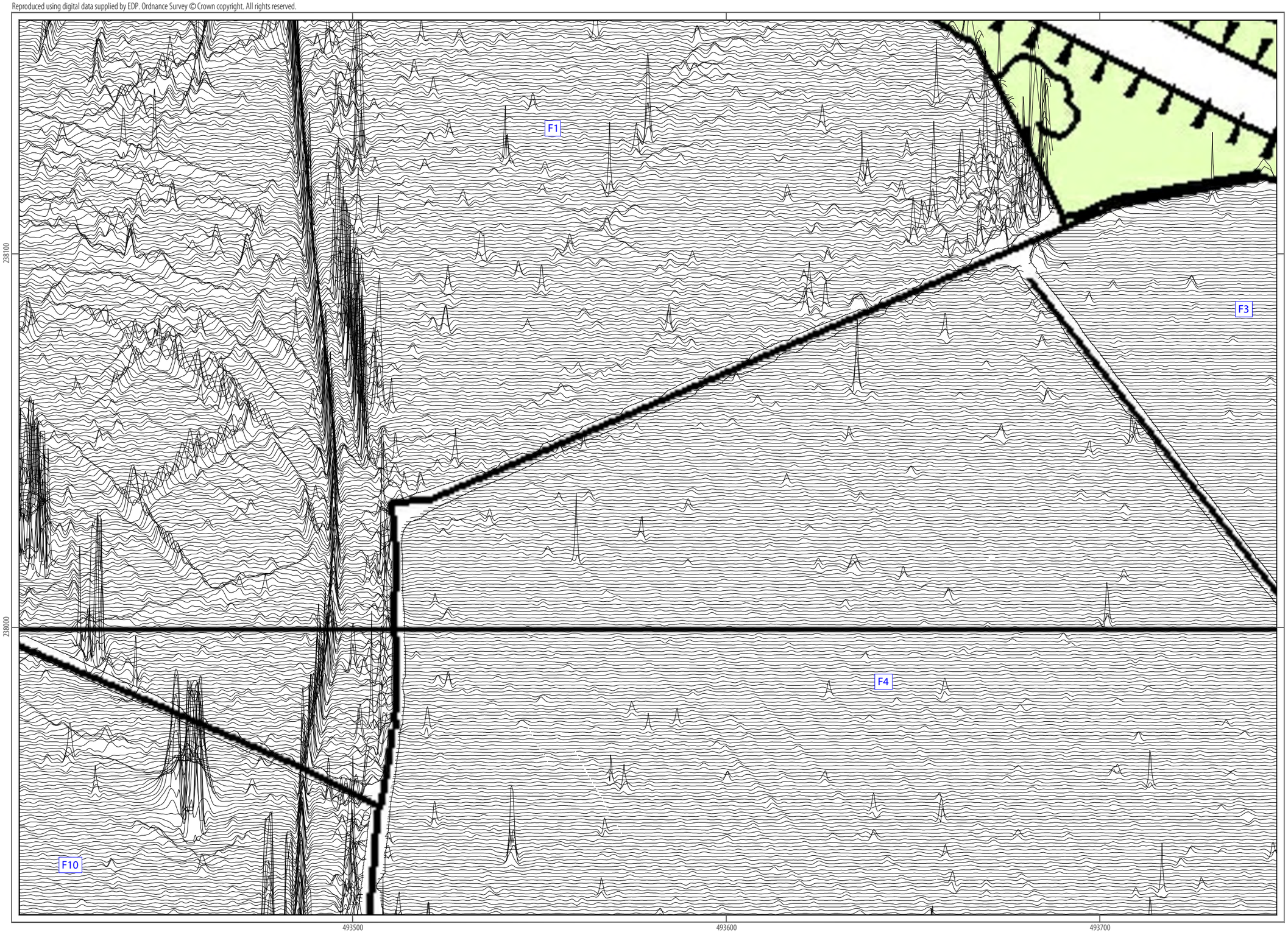
ILLUS 20 Processed greyscale magnetometer data; Sector 4



12.5nT/cm

[Data clipped to -2.0 to 50.0nT/cm]

N

0 25m

scale 1:1,000 @ A3

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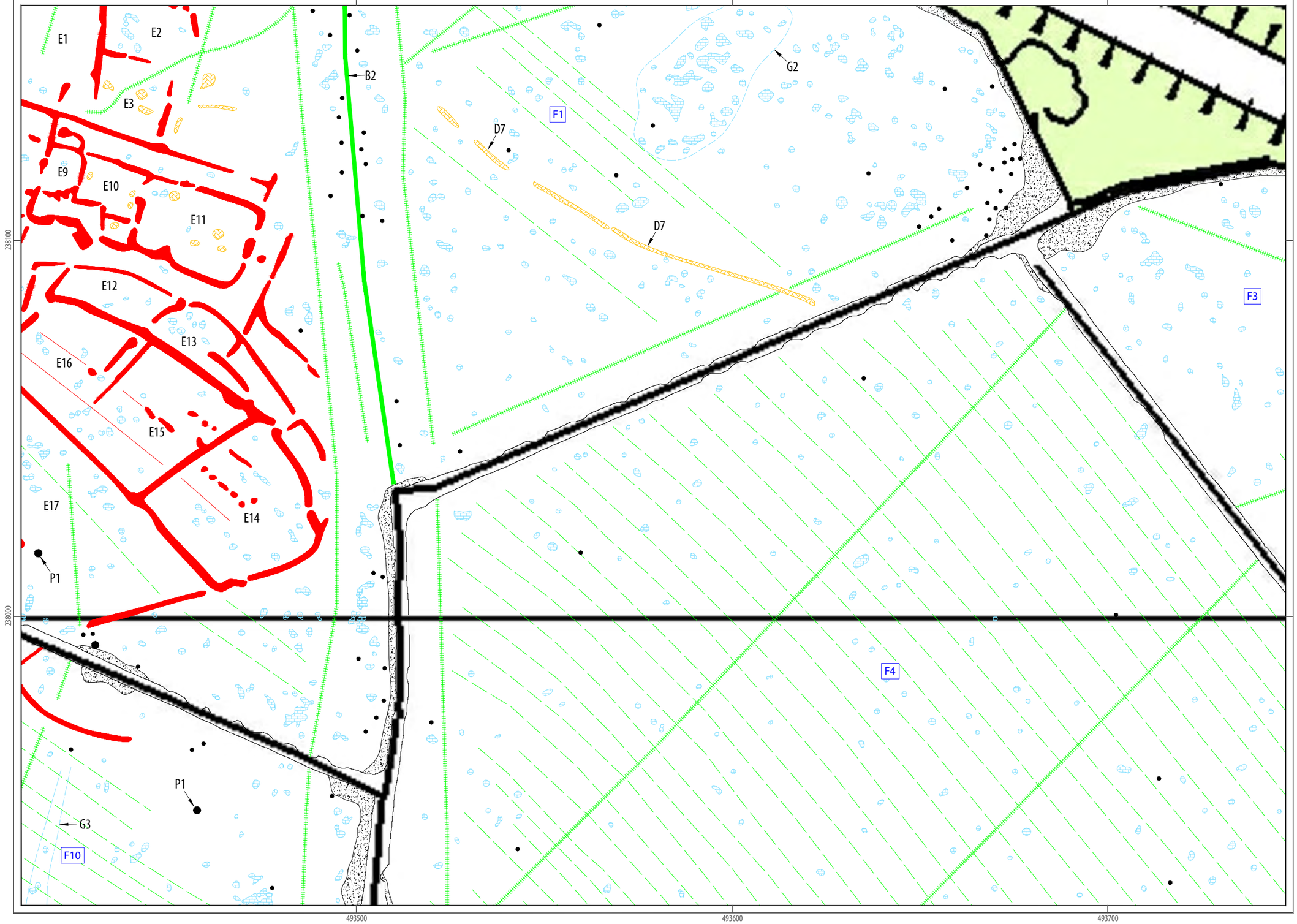
ILLUS 21 XY trace plot of magnetometer data; Sector 4



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

ABBREVIATIONS

B	boundary	E	enclosure
D	ditch	G	geology
		P	pipe

N

0 25m

scale 1:1,000 @ A3

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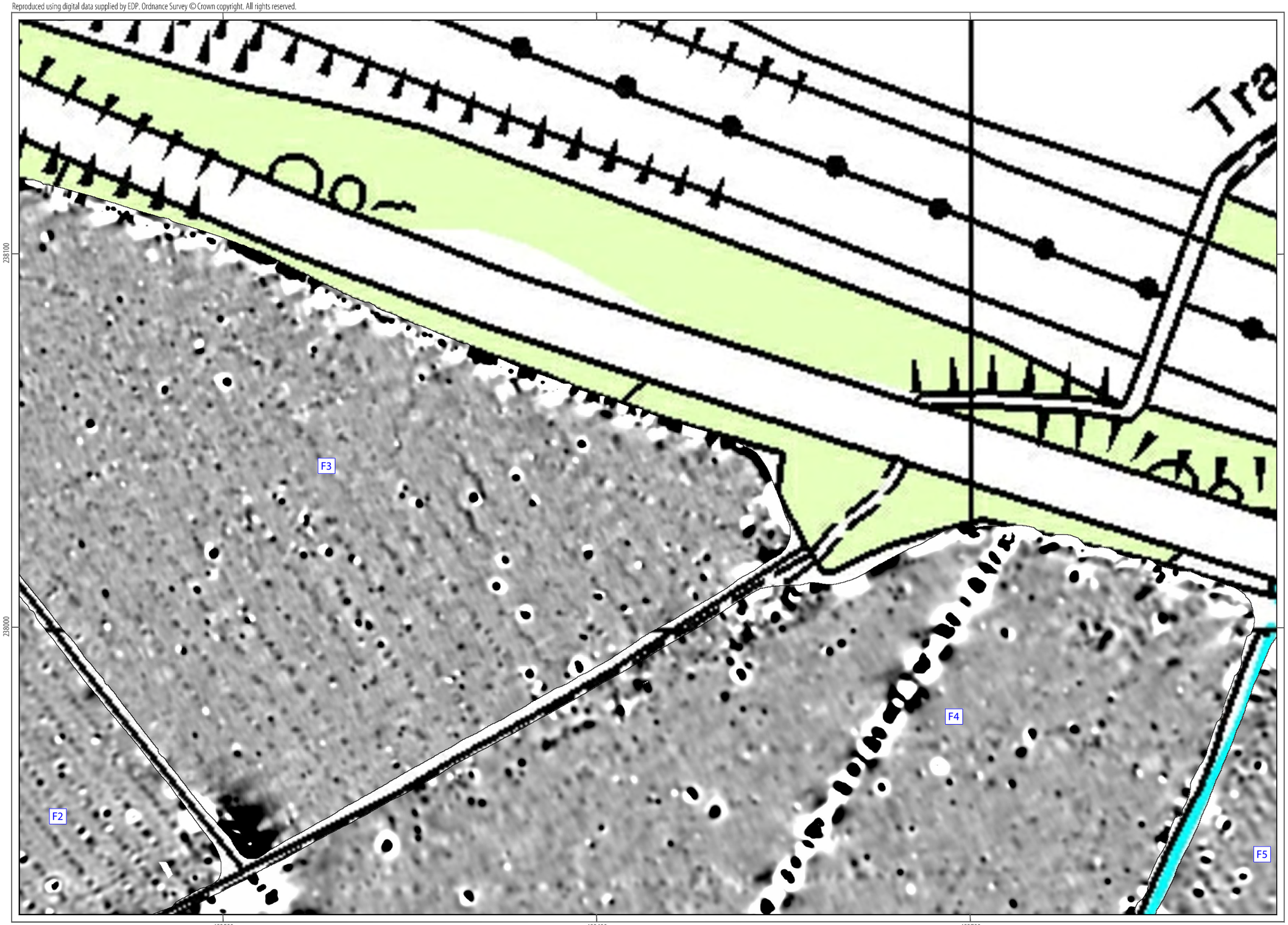
ILLUS 22 Interpretation of magnetometer data; Sector 4



-1.0 nT 2.0

N

0 25m

scale 1:1,000 @ A3

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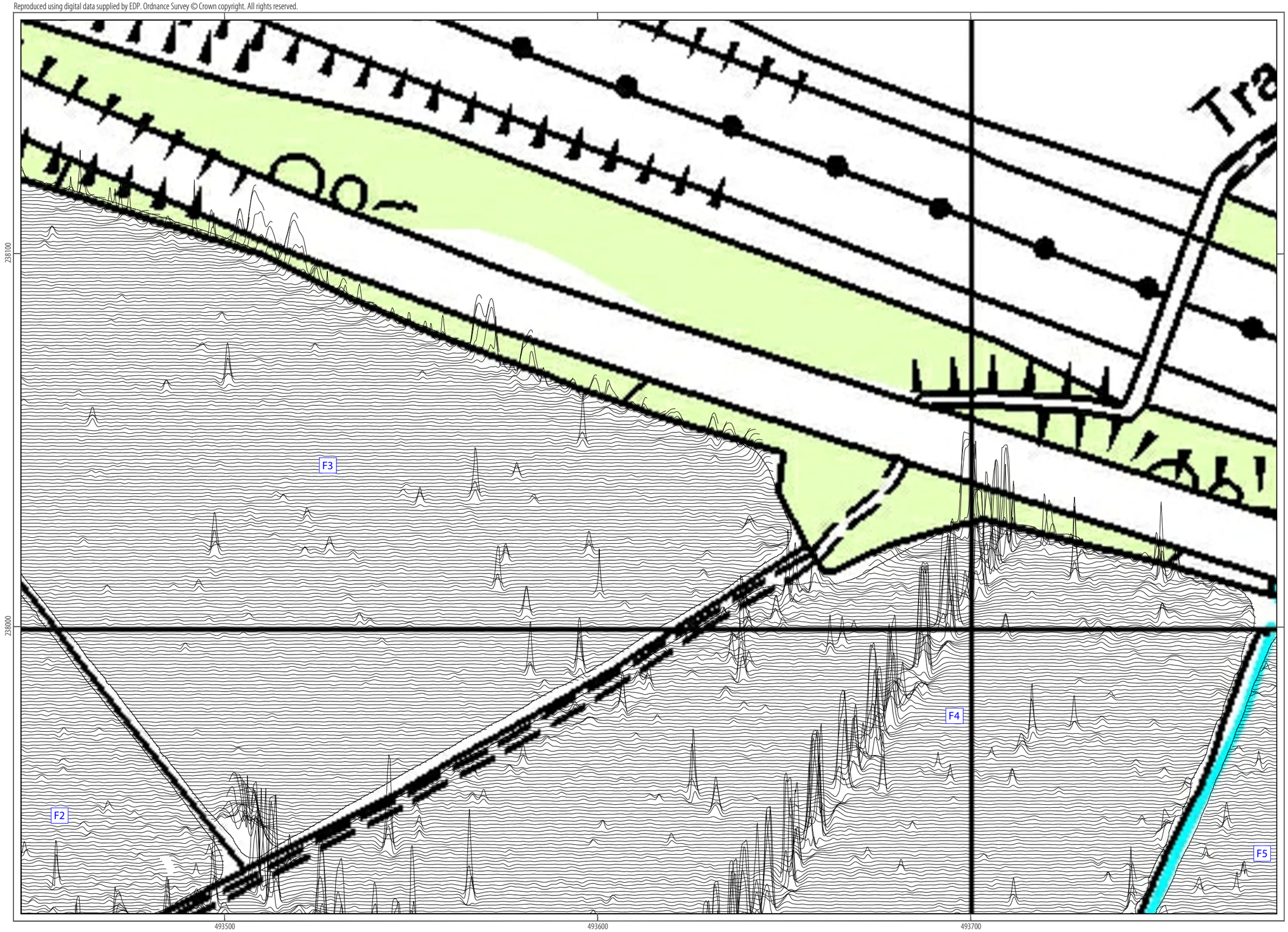
ILLUS 23 Processed greyscale magnetometer data; Sector 5



12.5nT/cm

[Data clipped to -2.0 to 50.0nT/cm]

N

0 25m

scale 1:1,000 @ A3

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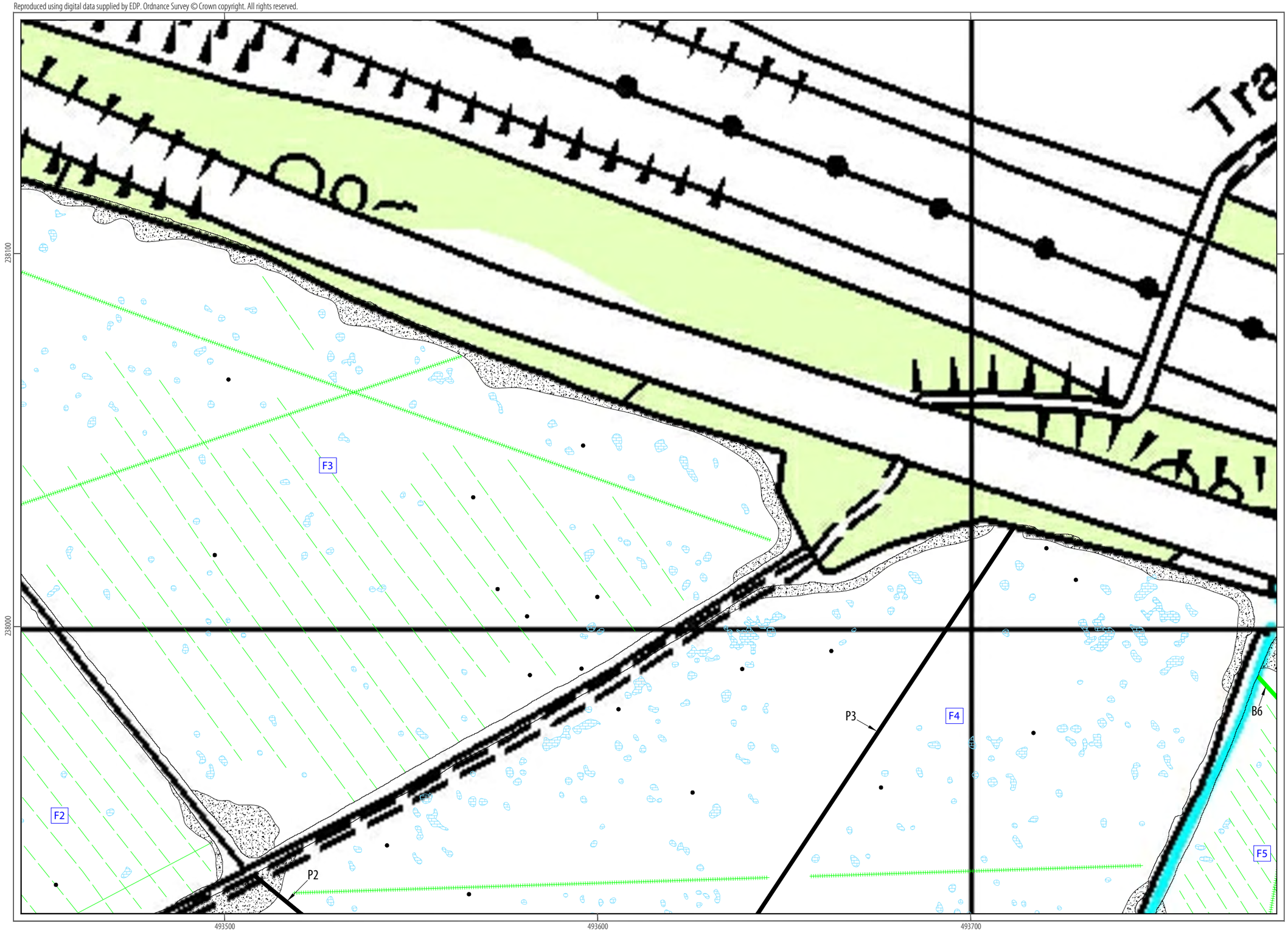
ILLUS 24 XY trace plot of magnetometer data; Sector 5



TYPE OF ANOMALY	INTERPRETATION
dipolar isolated	ferrous material
magnetic disturbance	ferrous material
dipolar linear	service pipe
linear trend	ridge and furrow
linear trend	agricultural
linear trend	field drain
linear trend	former field boundary
magnetic enhancement	geology

ABBREVIATIONS

B boundary P pipe

N

0 25m

scale 1:1,000 @ A3

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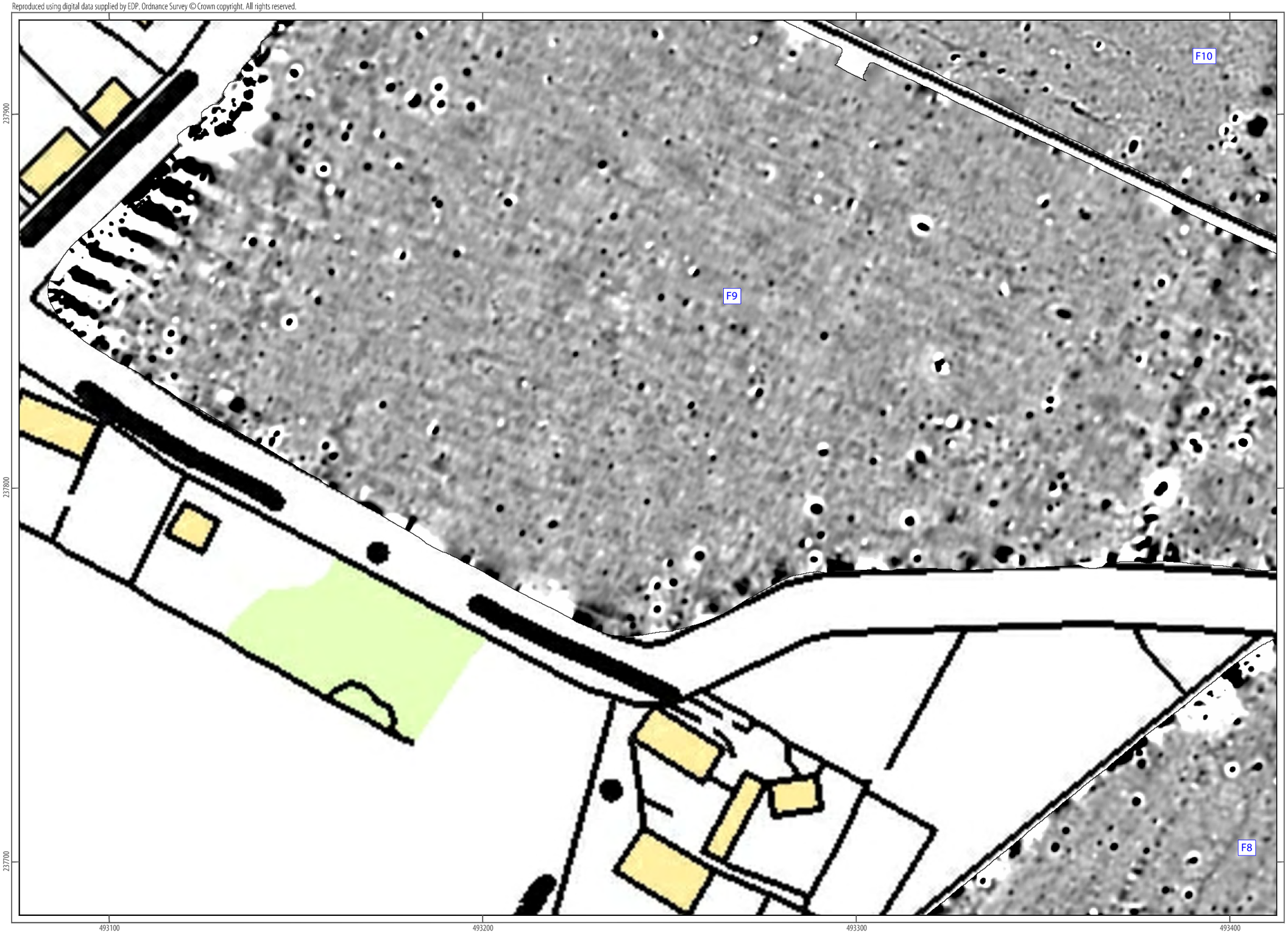
ILLUS 25 Interpretation of magnetometer data; Sector 5



-1.0 nT 2.0

N

0 25m

scale 1:1,000 @ A3

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ILLUS 26 Processed greyscale magnetometer data; Sector 6

12.5nT/cm

[Data clipped to -2.0 to 50.0nT/cm]

N

0 25m

scale 1:1,000 @ A3

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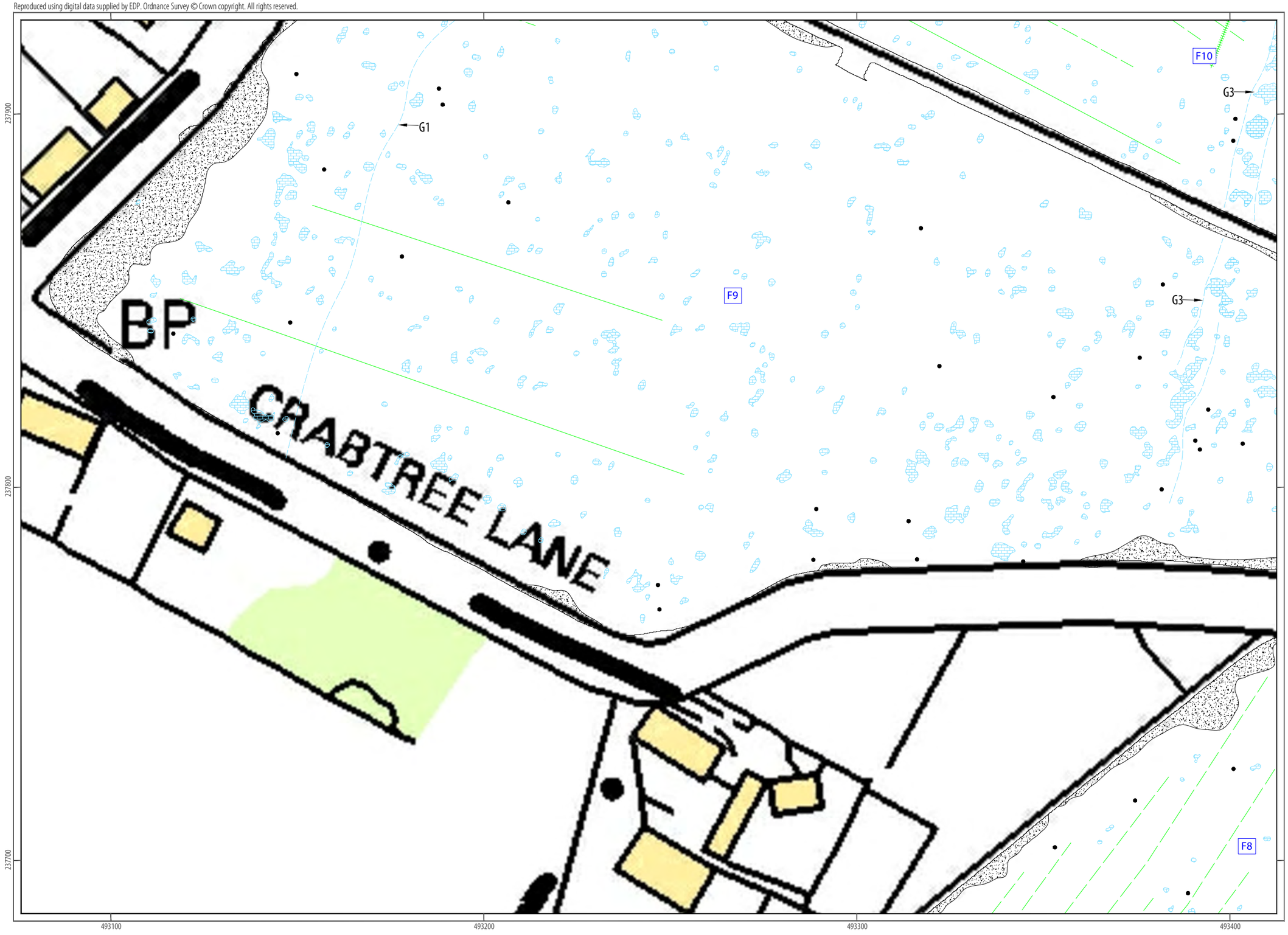
ILLUS 27 XY trace plot of magnetometer data; Sector 6



TYPE OF ANOMALY	INTERPRETATION
dipolar isolated	ferrous material
magnetic disturbance	ferrous material
linear trend	ridge and furrow
linear trend	agricultural
linear trend	field drain
linear trend	geological variation
magnetic enhancement	geology

ABBREVIATIONS

G geology

N

0 25m

scale 1:1,000 @ A3

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ILLUS 28 Interpretation of magnetometer data; Sector 6

-1.0 nT 2.0

N

0 25m

scale 1:1,000 @ A3

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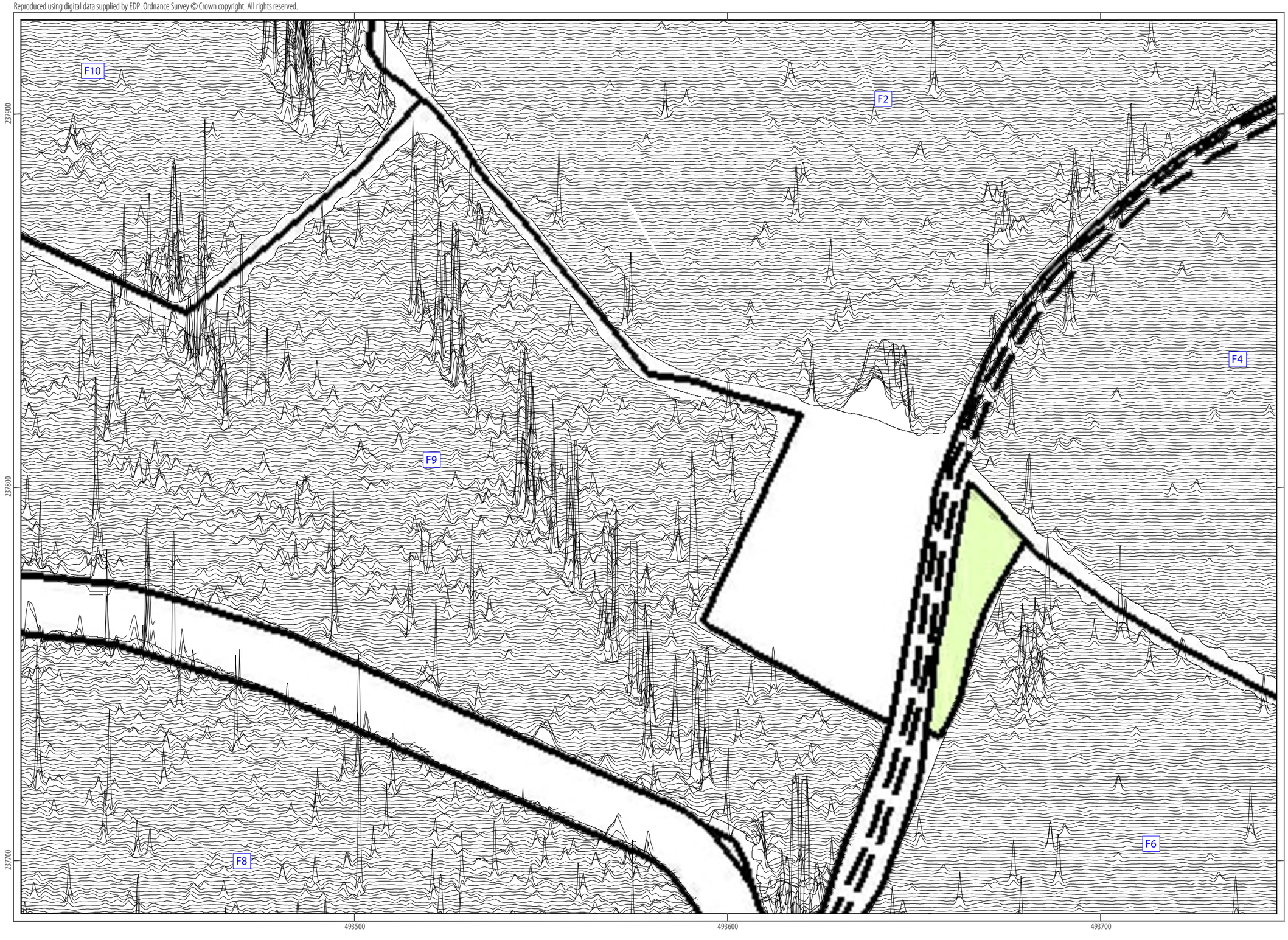
ILLUS 29 Processed greyscale magnetometer data; Sector 7



12.5nT/cm

[Data clipped to -2.0 to 50.0nT/cm]

N

0 25m

scale 1:1,000 @ A3

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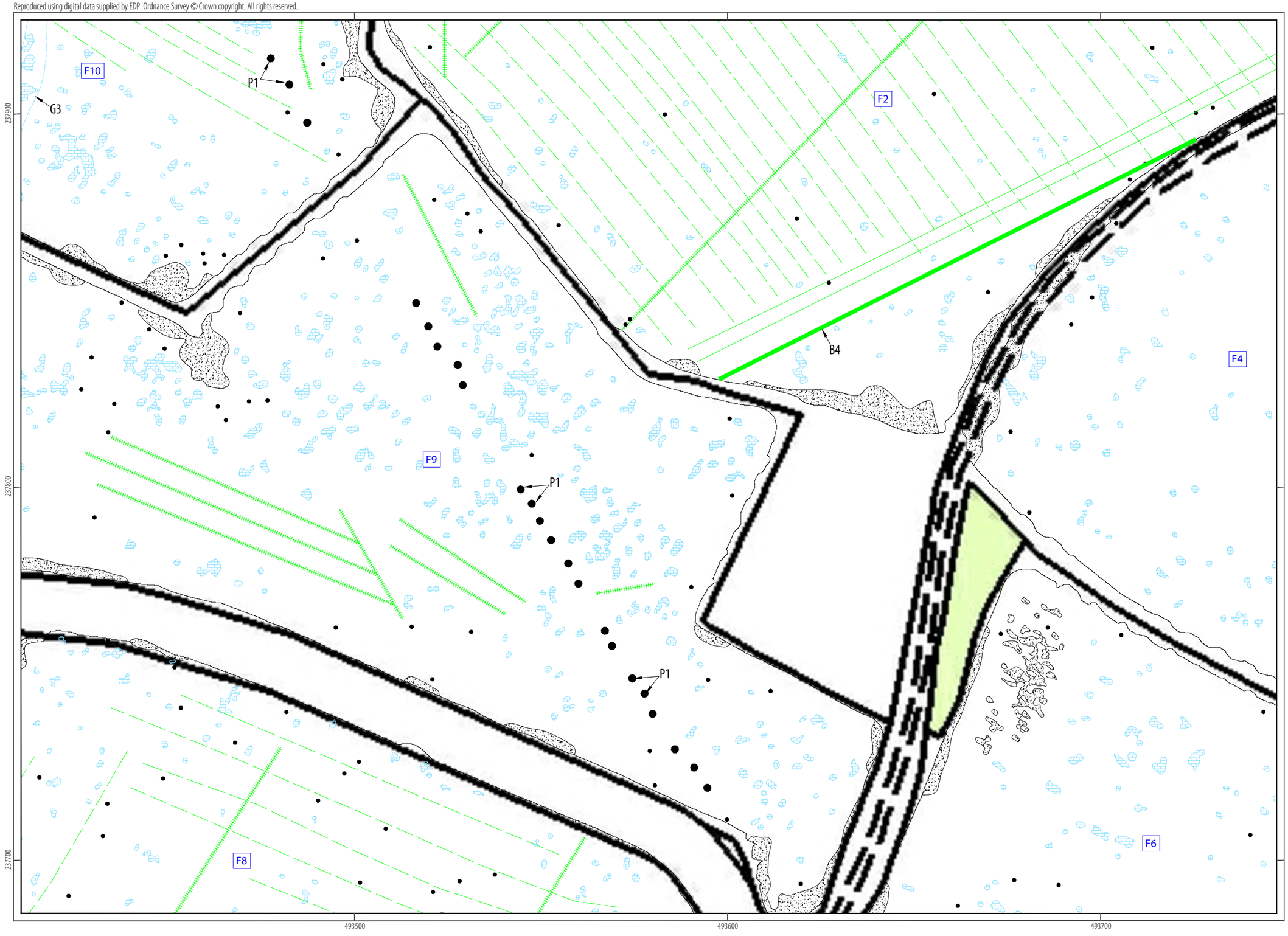
ILLUS 30 XY trace plot of magnetometer data; Sector 7



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

ABBREVIATIONS

B	boundary	G	geology
		P	pipe

N

0 25m

scale 1:1,000 @ A3

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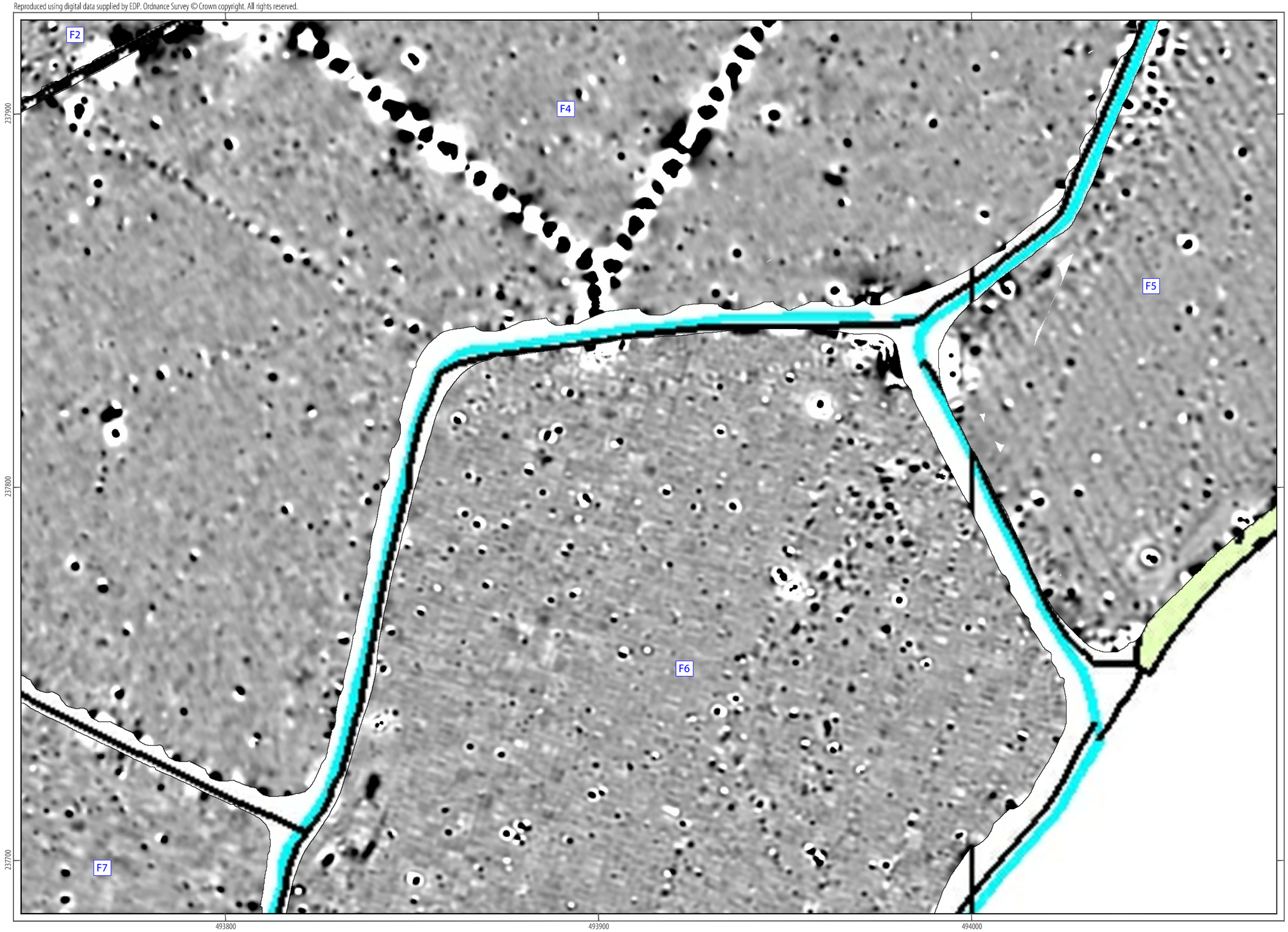
ILLUS 31 Interpretation of magnetometer data; Sector 7



-1.0 nT 2.0

N

0 25m

scale 1:1,000 @ A3

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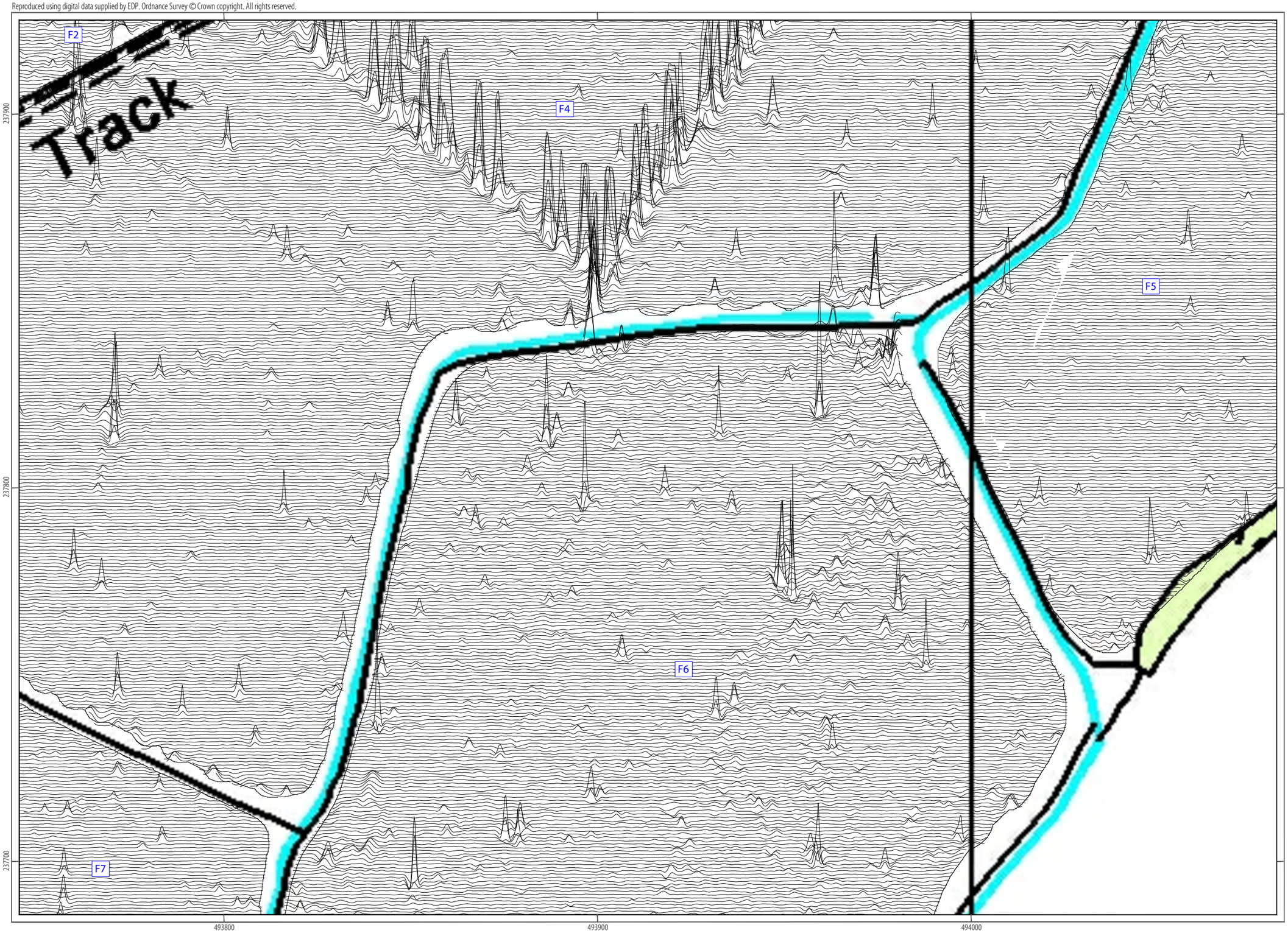
ILLUS 32 Processed greyscale magnetometer data; Sector 8



12.5nT/cm

[Data clipped to -2.0 to 50.0nT/cm]

N

0 25m

scale 1:1,000 @ A3

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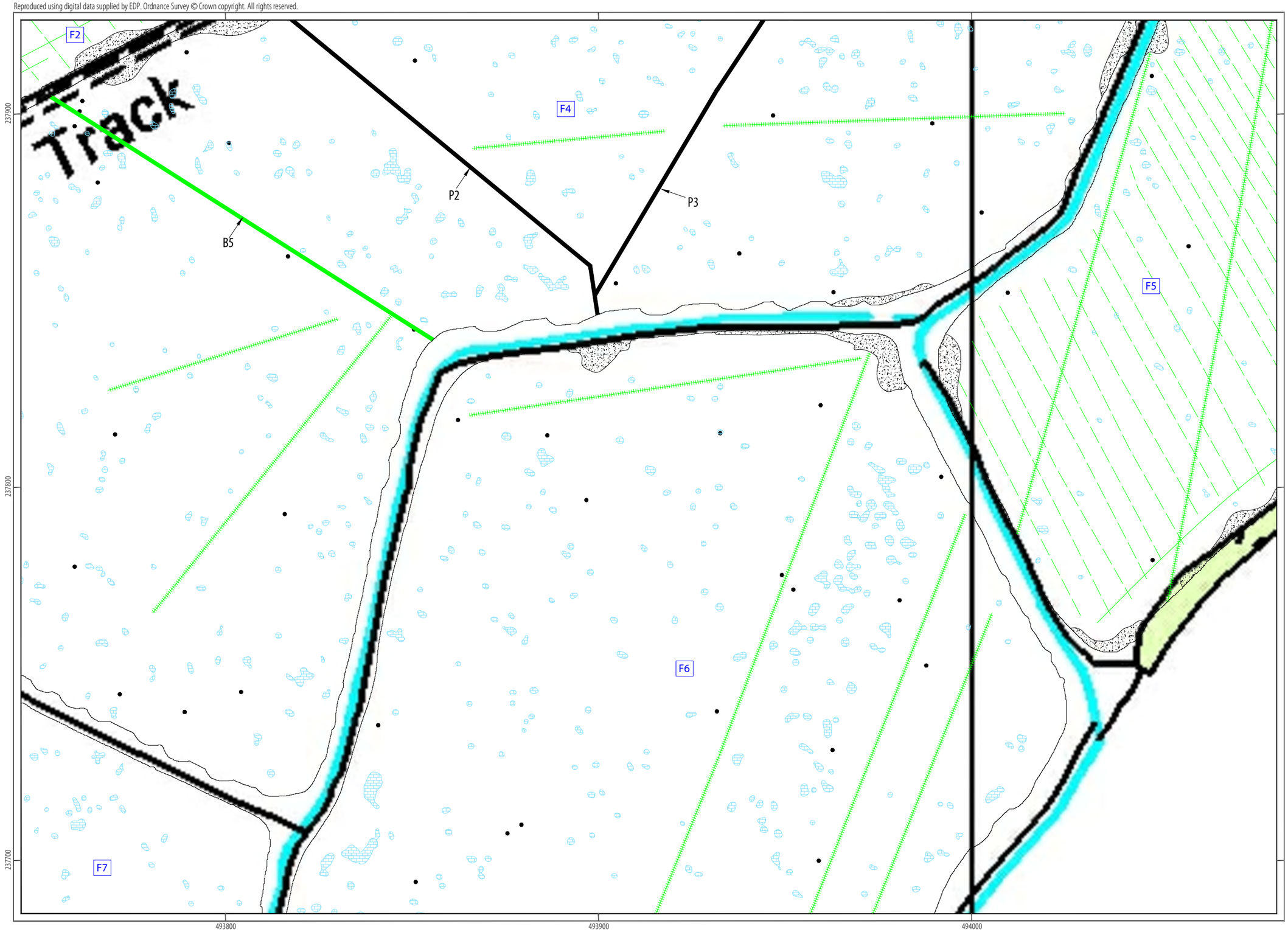
ILLUS 33 XY trace plot of magnetometer data; Sector 8



TYPE OF ANOMALY	INTERPRETATION
dipolar isolated	ferrous material
magnetic disturbance	ferrous material
dipolar linear	service pipe
linear trend	ridge and furrow
linear trend	agricultural
linear trend	field drain
magnetic enhancement	geology

ABBREVIATIONS

B boundary
P pipe

N

0 25m

scale 1:1,000 @ A3

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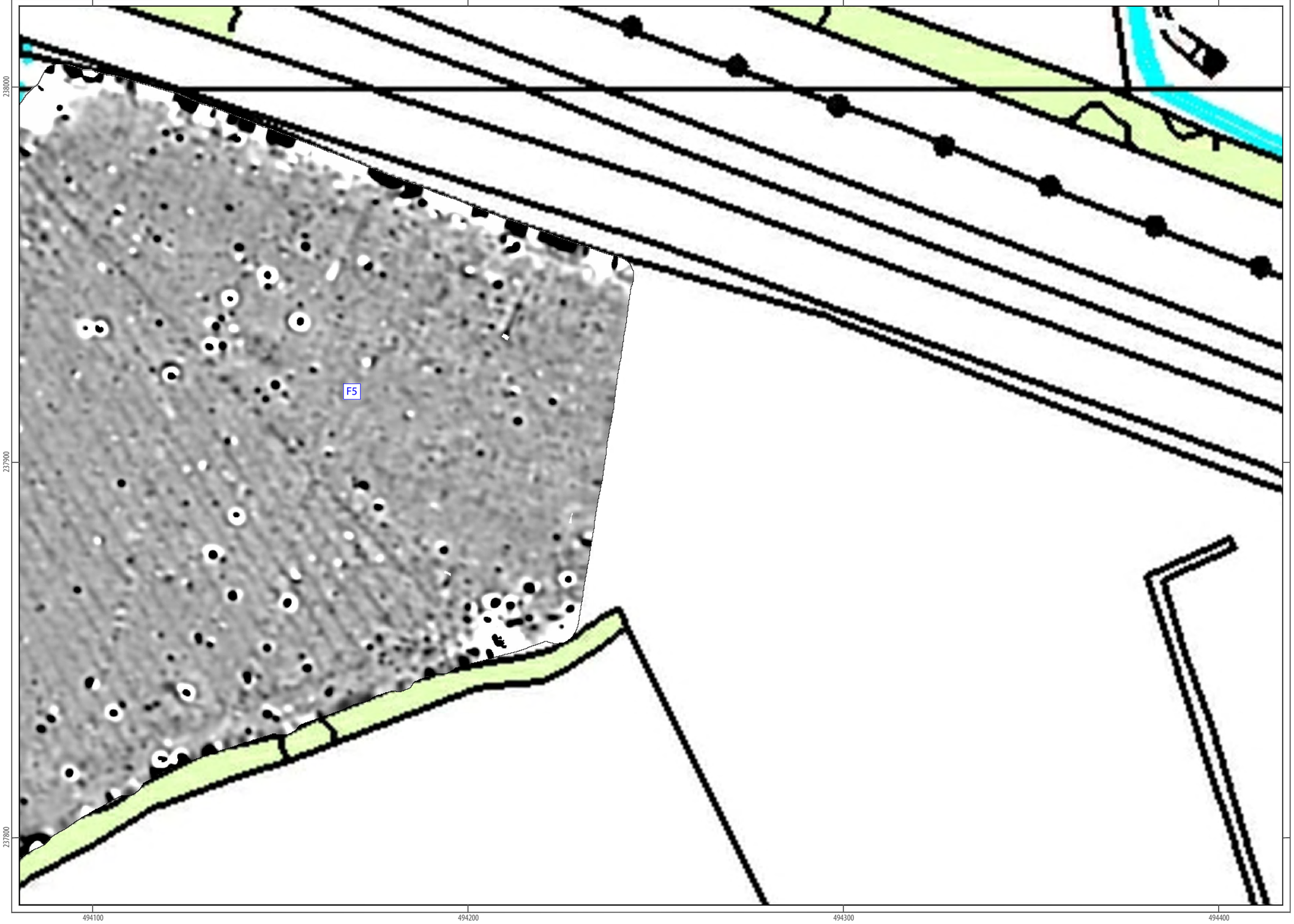
ILLUS 34 Interpretation of magnetometer data; Sector 8



-1.0 nT 2.0

N

0 25m

scale 1:1,000 @ A3

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ILLUS 35 Processed greyscale magnetometer data; Sector 9

12.5nT/cm

[Data clipped to -2.0 to 50.0nT/cm]

N

0 25m

scale 1:1,000 @ A3

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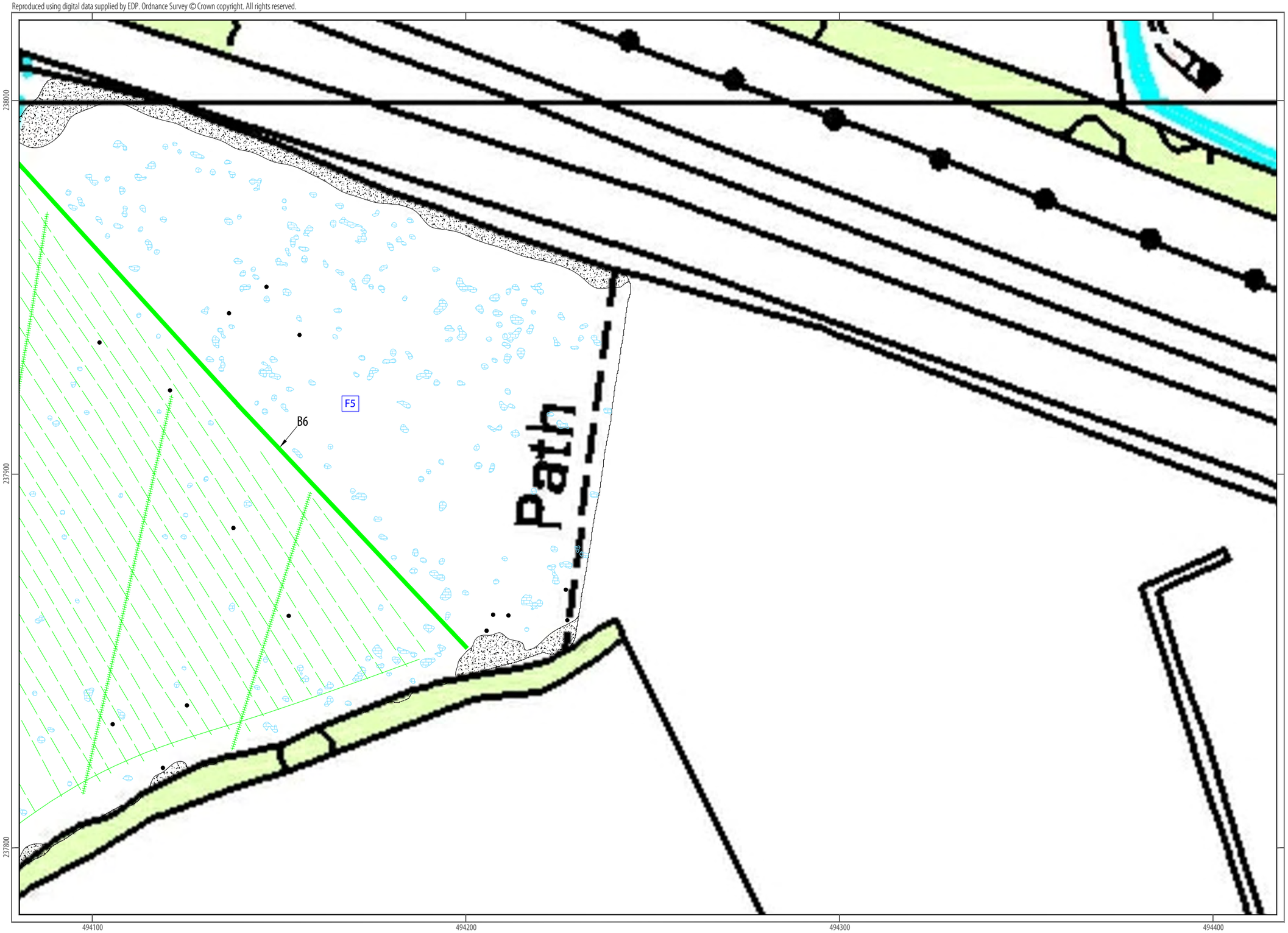
ILLUS 36 XY trace plot of magnetometer data; Sector 9



TYPE OF ANOMALY	INTERPRETATION
dipolar isolated	ferrous material
magnetic disturbance	ferrous material
linear trend	ridge and furrow
linear trend	agricultural
linear trend	field drain
linear	former field boundary
magnetic enhancement	geology

ABBREVIATIONS

B boundary

N

0 25m

scale 1:1,000 @ A3

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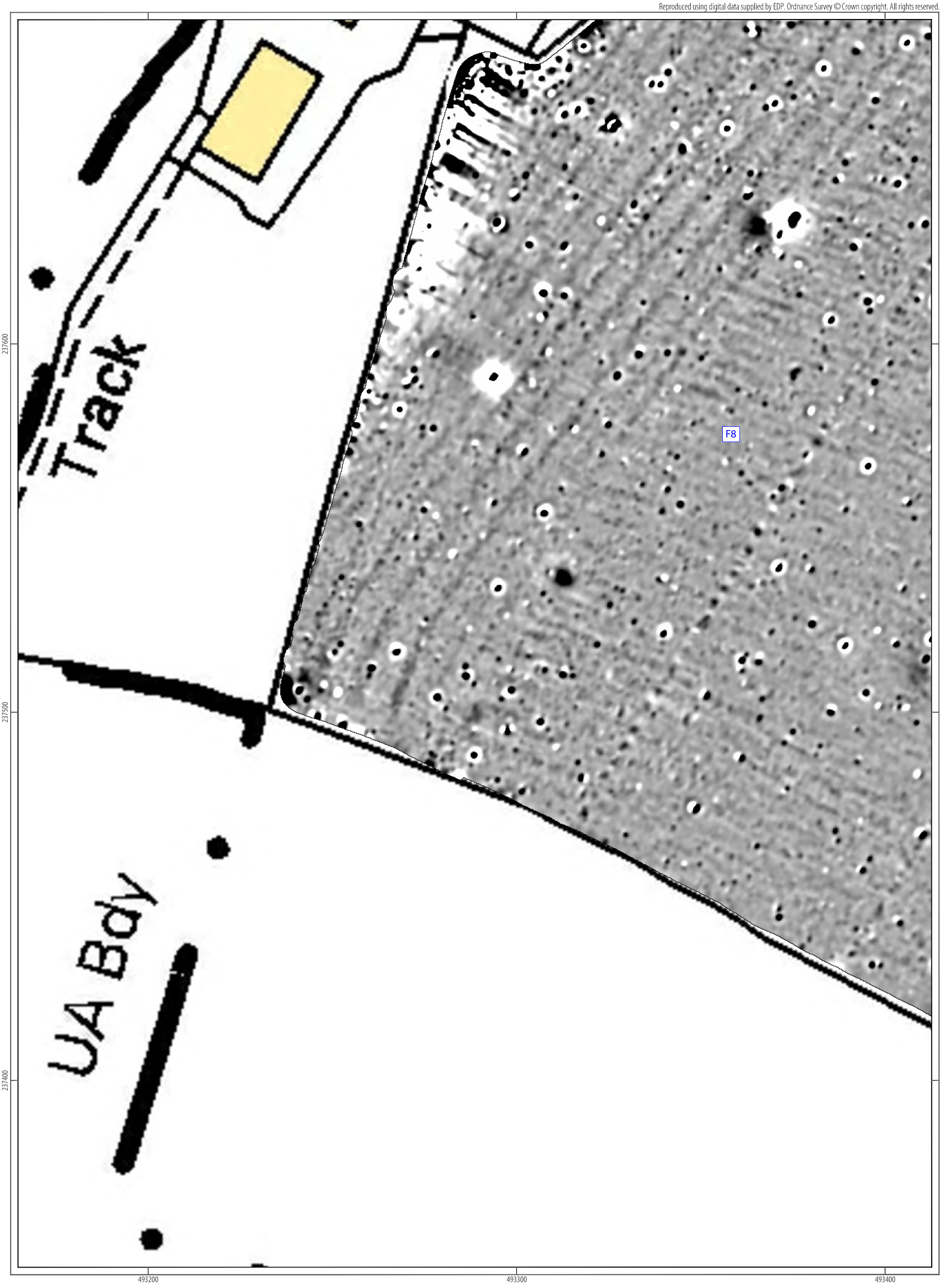
ILLUS 37 Interpretation of magnetometer data; Sector 9



nT
-1.0
2.0

N
0
100m
scale 1:4,000 @ A3

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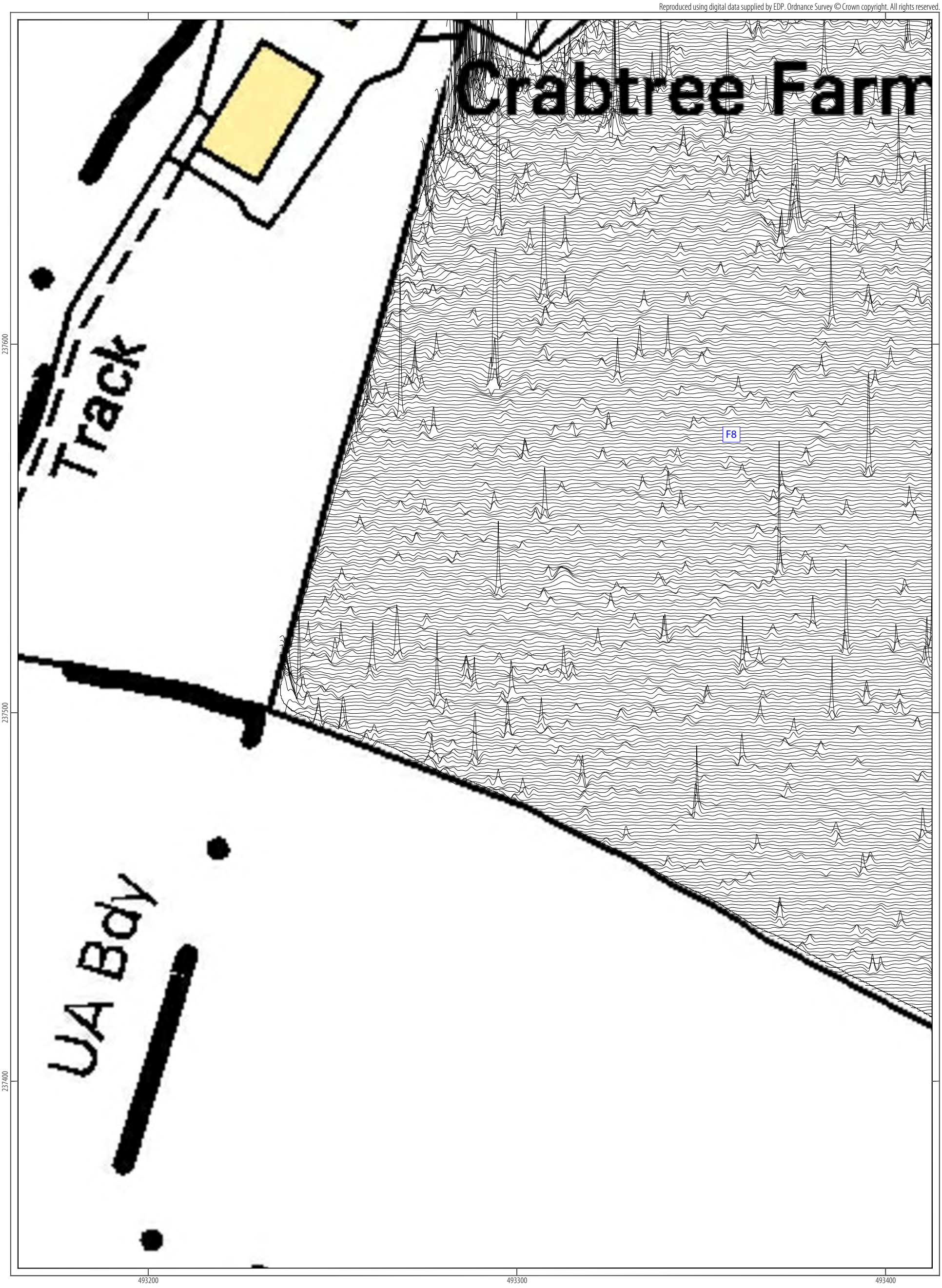
ILLUS 38 Processed greyscale magnetometer data; Sector 10



12.5nT/cm

[Data clipped to -2.0 to 50.0nT/cm]

N

0 100m

scale 1:4,000 @ A3

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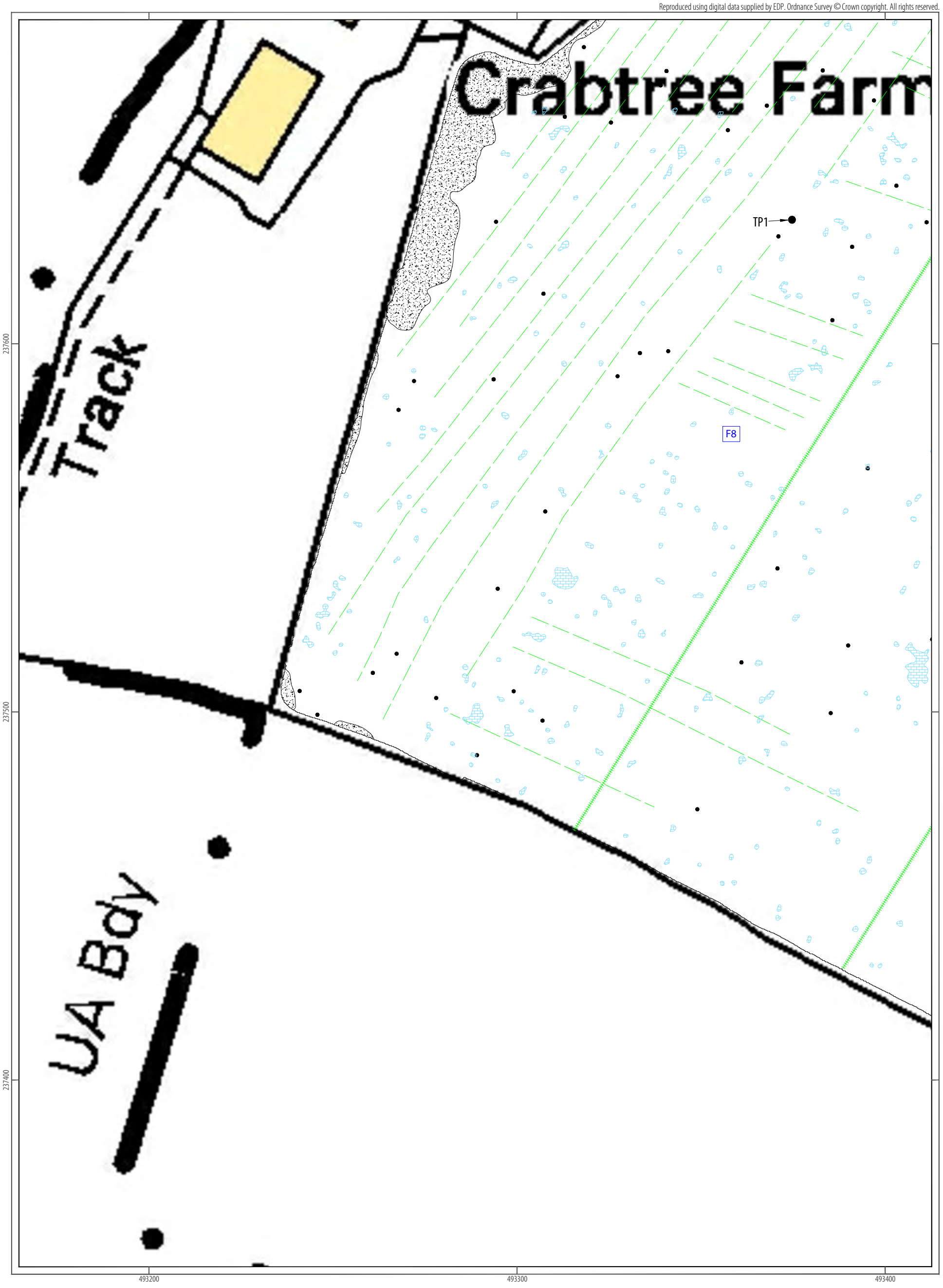
ILLUS 39 XY trace plot of magnetometer data; Sector 10



TYPE OF ANOMALY | INTERPRETATION

- dipolar isolated — ferrous material
- magnetic disturbance — ferrous material
- linear trend — ridge and furrow
- linear trend — field drain
- magnetic enhancement — geology

ABBREVIATIONS

TP telegraph pole

N

0 100m

scale 1:4,000 @ A3

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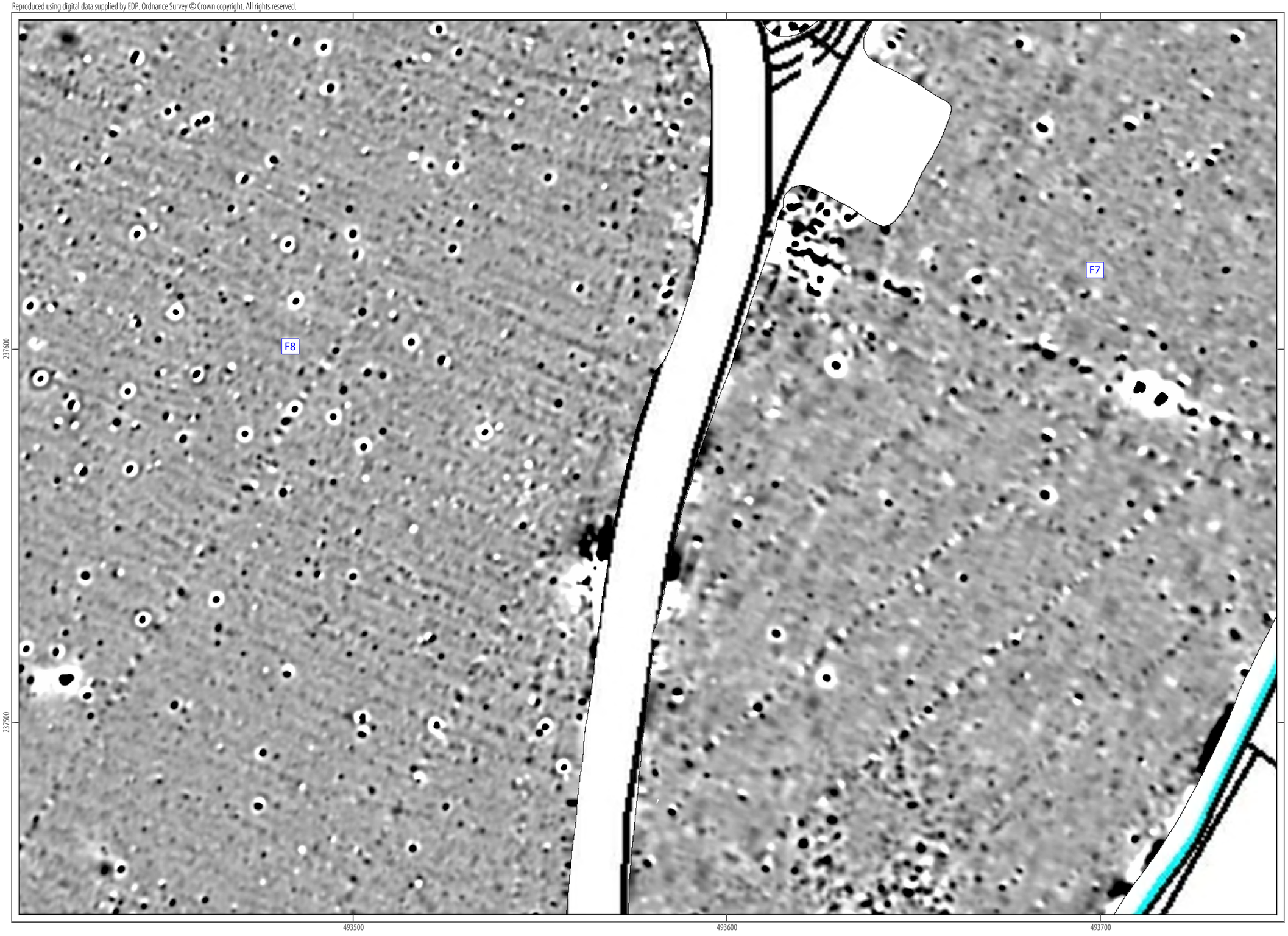
ILLUS 40 Interpretation of magnetometer data; Sector 10



-1.0 nT 2.0

N

0 25m

scale 1:1,000 @ A3

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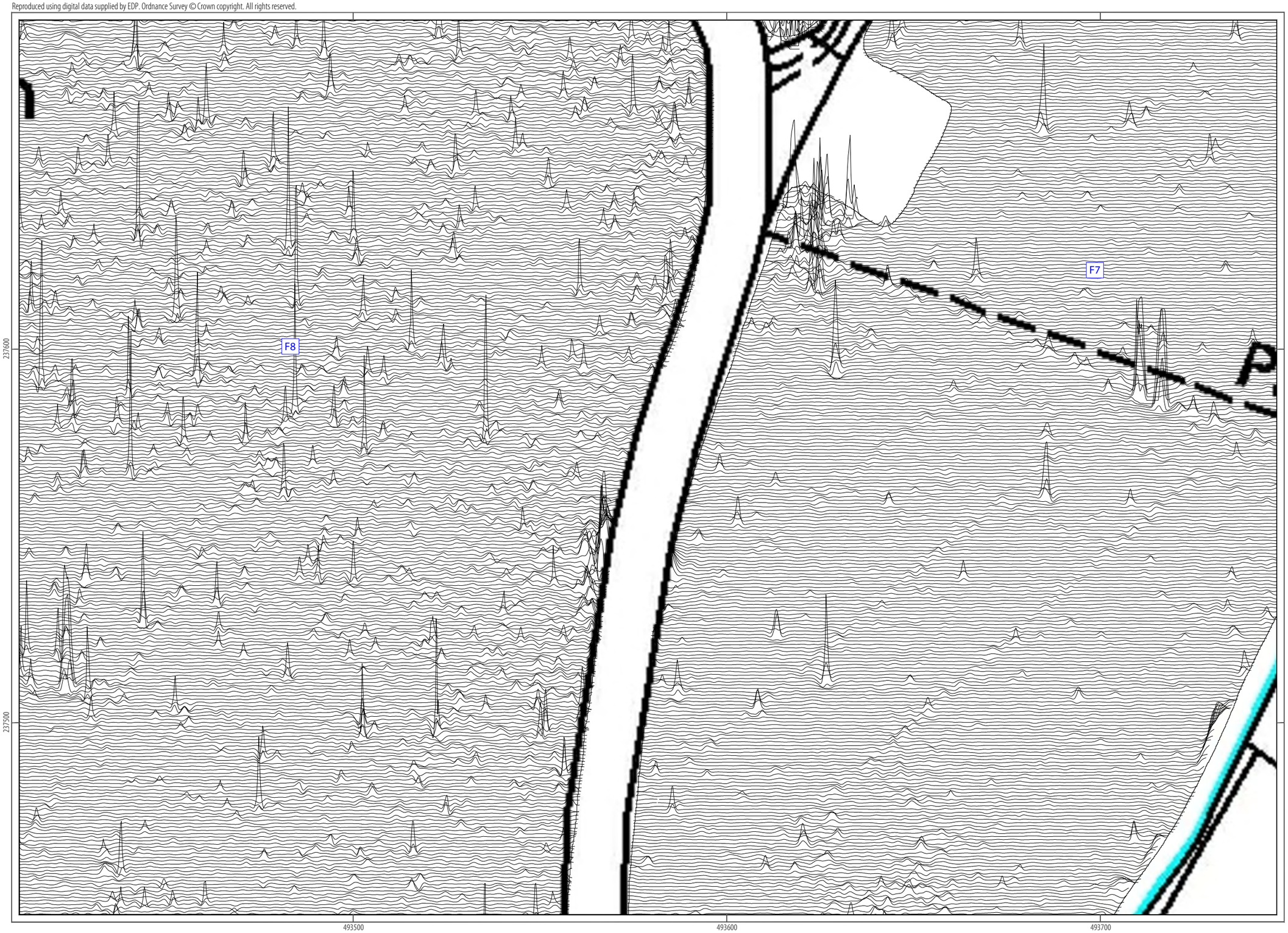
ILLUS 41 Processed greyscale magnetometer data; Sector 11



12.5nT/cm

[Data clipped to -2.0 to 50.0nT/cm]

N

0 25m

scale 1:1,000 @ A3

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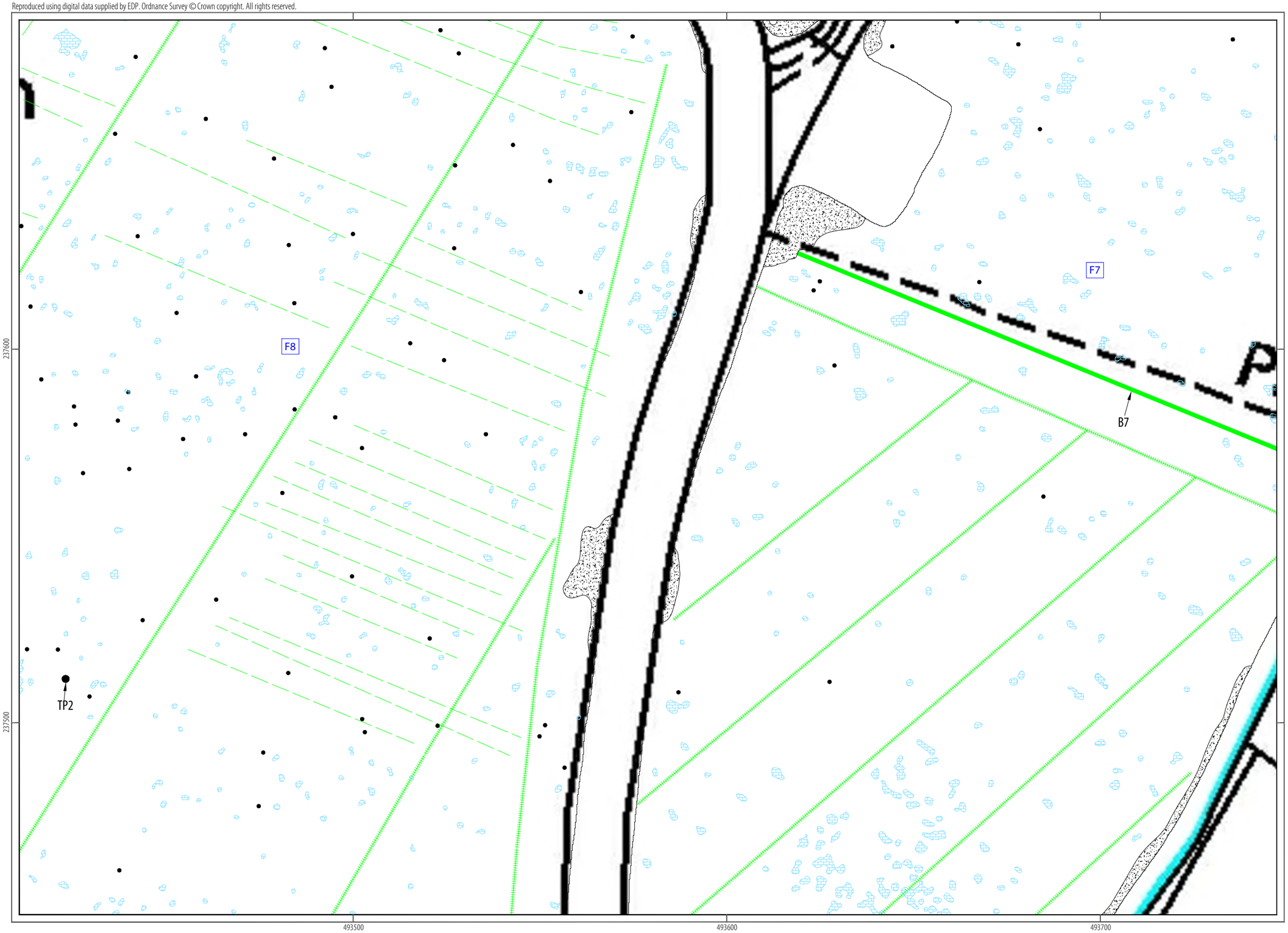
ILLUS 42 XY trace plot of magnetometer data; Sector 11



TYPE OF ANOMALY	INTERPRETATION
dipolar isolated	ferrous material
magnetic disturbance	ferrous material
linear trend	ridge and furrow
linear trend	field drain
linear	former field boundary
magnetic enhancement	geology

ABBREVIATIONS

B boundary
TP telegraph pole

N

0 25m

scale 1:1,000 @ A3

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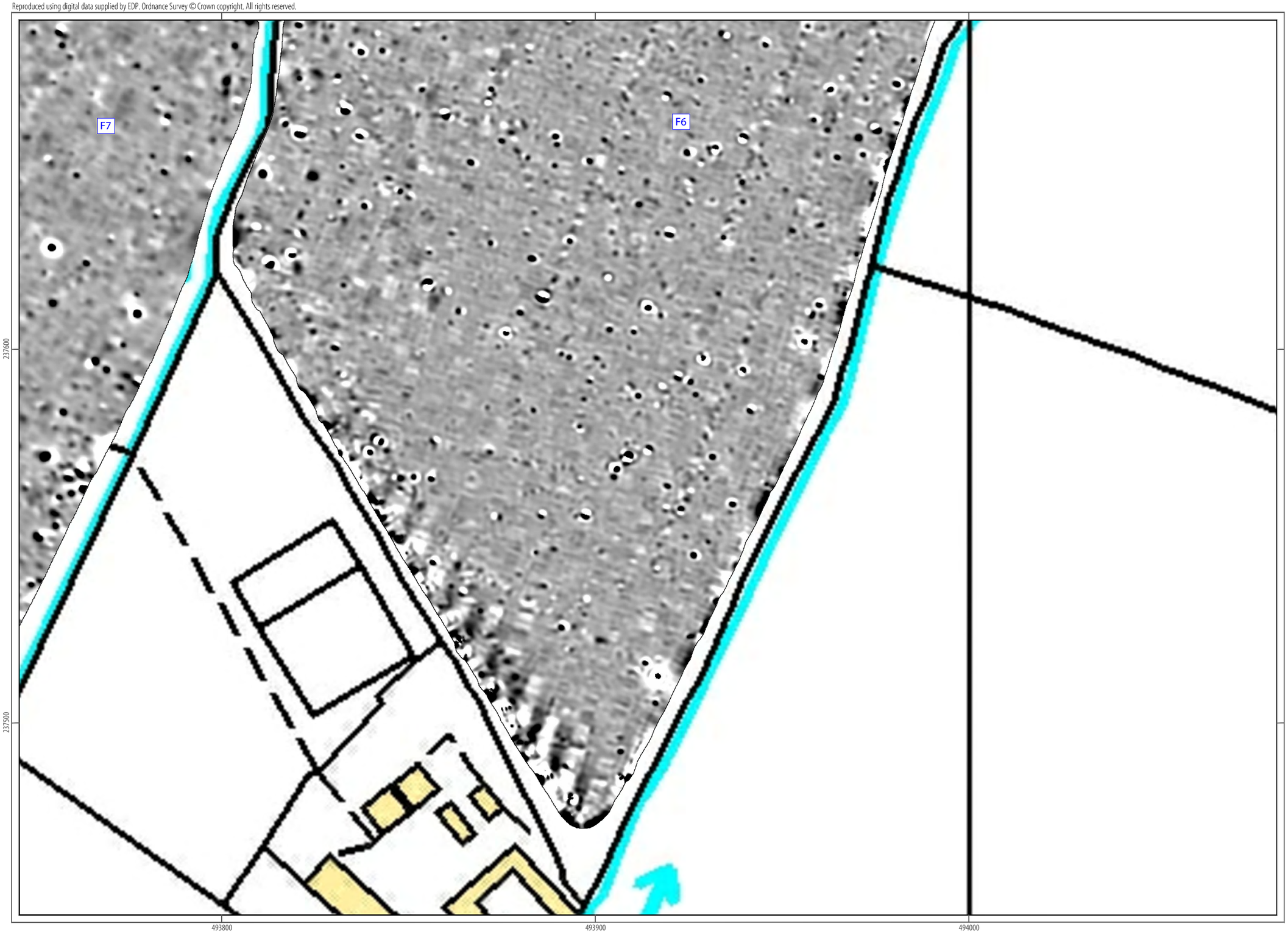
ILLUS 43 Interpretation of magnetometer data; Sector 11



-1.0 nT 2.0

N

0 25m

scale 1:1,000 @ A3

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ILLUS 44 Processed greyscale magnetometer data; Sector 12

12.5nT/cm

[Data clipped to -2.0 to 50.0nT/cm]

N

0 25m

scale 1:1,000 @ A3

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ILLUS 45 XY trace plot of magnetometer data; Sector 12

TYPE OF ANOMALY	INTERPRETATION
dipolar isolated	ferrous material
magnetic disturbance	ferrous material
linear trend	field drain
linear	former field boundary
magnetic enhancement	geology

N

0 25m

scale 1:1,000 @ A3

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ILLUS 46 Interpretation of magnetometer data; Sector 12

-1.0 nT 2.0

N

0 25m

scale 1:1,000 @ A3

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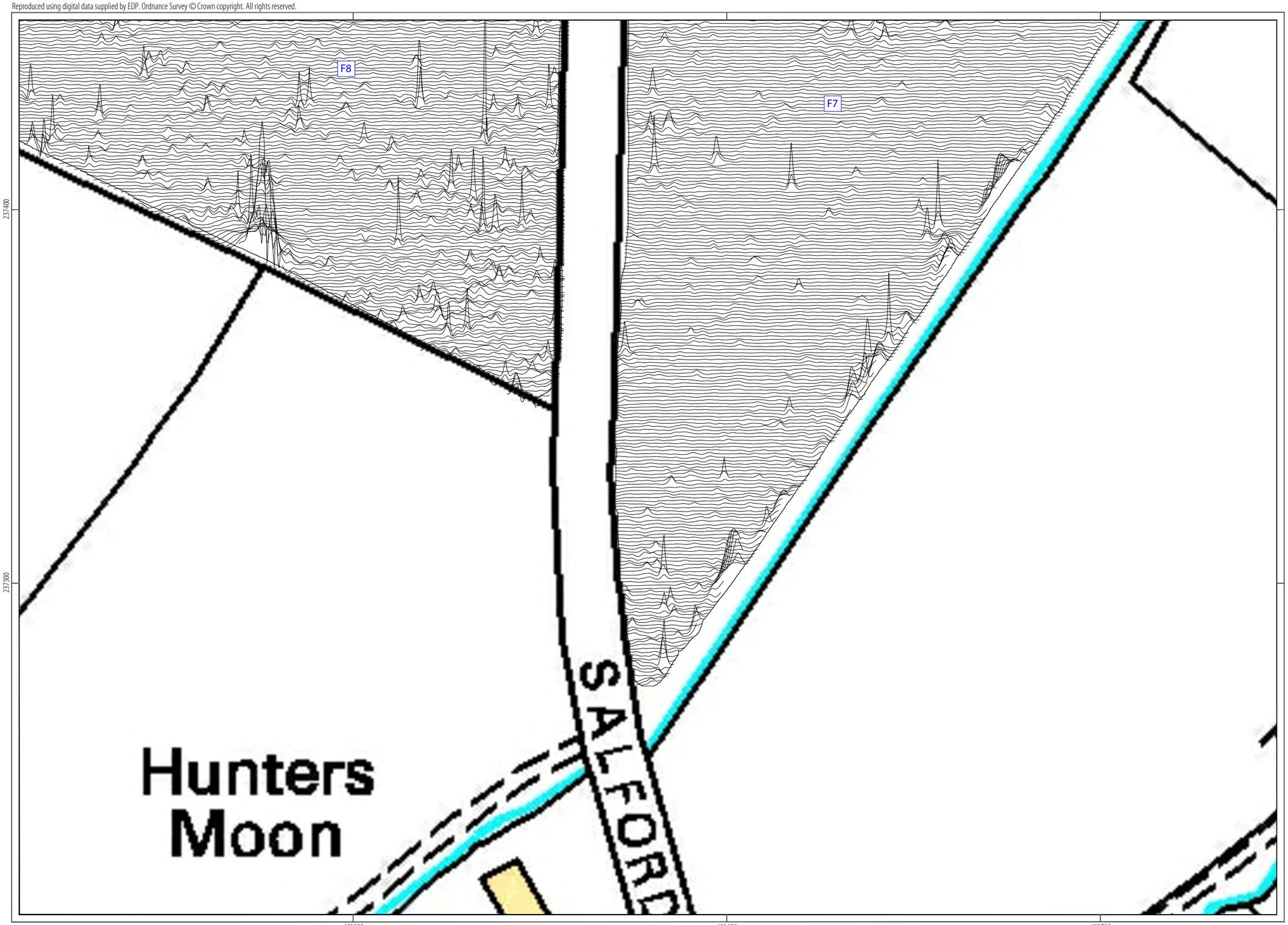
ILLUS 47 Processed greyscale magnetometer data; Sector 13



12.5nT/cm

[Data clipped to -2.0 to 50.0nT/cm]

N

0 25m

scale 1:1,000 @ A3

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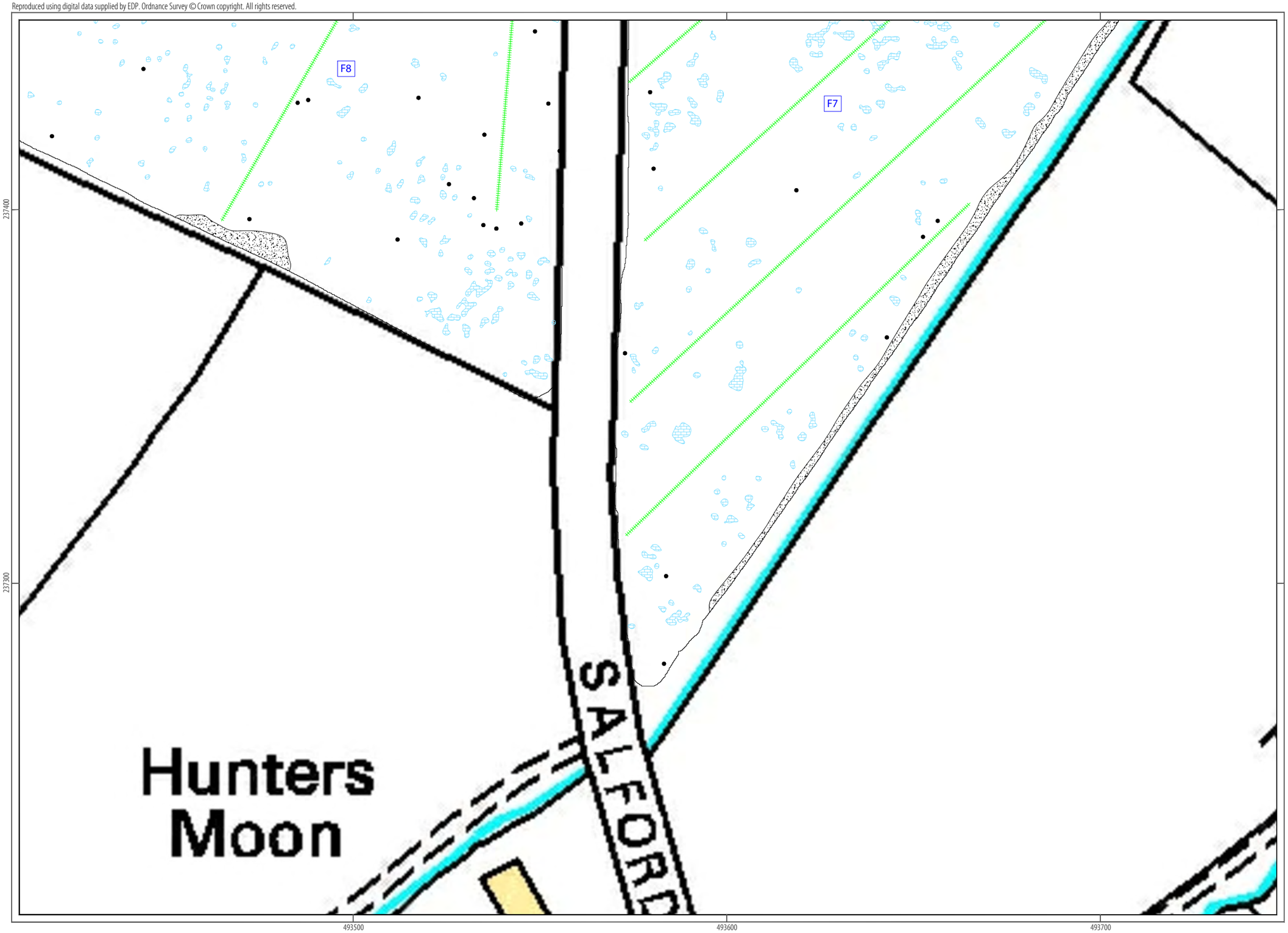
ILLUS 48 XY trace plot of magnetometer data; Sector 13



TYPE OF ANOMALY	INTERPRETATION
dipolar isolated	ferrous material
magnetic disturbance	ferrous material
linear trend	field drain
magnetic enhancement	geology

N

0 25m

scale 1:1,000 @ A3

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ILLUS 49 Interpretation of magnetometer data; Sector 13

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 OASIS DATA COLLECTION FORM: ENGLAND

OASIS ID: headland5-261797

PROJECT DETAILS	
PROJECT NAME	South East Milton Keynes
SHORT DESCRIPTION OF THE PROJECT	Headland Archaeology (UK) Ltd undertook a geophysical (magnetometer) survey covering approximately 60 hectares on land south-east of Milton Keynes to inform forthcoming archaeological strategy in advance of the proposed development of the site. A localised complex of linear and rectilinear anomalies suggestive of Iron Age or Romano-British settlement has been identified within the north-west corner of the site. The complex covers an area of five hectares and comprises several interlinking rectangular enclosures; roundhouses and other discrete pit-type features are also identified and are clearly indicative of occupation. No anomalies of definite archaeological potential have been identified beyond the well-defined extents of the settlement complex, although a few linear and curvilinear anomalies of possible archaeological origin have been identified to the north and east towards the M1 motorway. Elsewhere, the survey has identified anomalies indicative of agricultural activity including former field boundaries, field drains and ridge and furrow cultivation. On the basis of the geophysical survey, the archaeological potential across the majority of the site is considered to be low with a high potential ascribed to the settlement complex in the north-west corner.
PROJECT DATES	Start: 04-04-2016 End: 27-07-2016
PREVIOUS/FUTURE WORK	No / Yes
ANY ASSOCIATED PROJECT REFERENCE CODES	SEMK-01 - Contracting Unit No.
TYPE OF PROJECT	Field evaluation
SITE STATUS	None
CURRENT LAND USE	Cultivated Land 4 - Character Undetermined
MONUMENT TYPE	N/A None
MONUMENT TYPE	N/A None
SIGNIFICANT FINDS	N/A None
SIGNIFICANT FINDS	N/A None
METHODS & TECHNIQUES	''Geophysical Survey''
DEVELOPMENT TYPE	Housing estate
PROMPT	National Planning Policy Framework - NPPF
POSITION IN THE PLANNING PROCESS	Not known / Not recorded
SOLID GEOLOGY (OTHER)	Stewartby Member - mudstone; Oxford Clay Formation - mudstone
DRIFT GEOLOGY	ALLUVIUM
DRIFT GEOLOGY	BOULDER CLAY AND MORAINIC DRIFT
TECHNIQUES	Magnetometry

PROJECT LOCATION	
COUNTRY	England
SITE LOCATION	BEDFORDSHIRE MID BEDFORDSHIRE ASPLEY GUISE SOUTH EAST MILTON KEYNES
POSTCODE	MK17 8AP
STUDY AREA	60 Hectares
SITE COORDINATES	SP 9355 3805 52.032531658437 -0.636150109963 52 01 57 N 000 38 10 W Point

PROJECT CREATORS	
NAME OF ORGANISATION	Headland Archaeology

PROJECT BRIEF ORIGINATOR	The Environmental Dimension Partnership
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 EXISTS?	No
DIGITAL MEDIA AVAILABLE	"Geophysics"
PAPER ARCHIVE EXISTS?	No
PAPER MEDIA AVAILABLE	"Report"

PROJECT BIBLIOGRAPHY 1	
PUBLICATION TYPE	Grey literature (unpublished document/manuscript)
TITLE	South East Milton Keynes, Central Bedfordshire: Geophysical Survey
AUTHOR(S)/EDITOR(S)	Harrison, D.
DATE	2016
ISSUER OR PUBLISHER	Headland Archaeology
PLACE OF ISSUE OR PUBLICATION	Leeds
DESCRIPTION	A4 report

ENTERED BY	David Harrison (david.harrison@headlandarchaeology.com)
ENTERED ON	6 September 2016

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