WYAS Archaeological Services

Cottingham and Orchard Park Flood Alleviation Scheme (COPFAS)

East Riding of Yorkshire

Archaeological Evaluation

Report no. 2874
May 2016

Client: East Riding of Yorkshire Council

CIfA Registered Organisation

West Yorkshire Joint Services

Cottingham and Orchard Park Flood Alleviation Scheme (COPFAS) East Riding of Yorkshire

Geophysical Survey

Summary

A geophysical (magnetometer) survey, covering approximately 29 hectares, was carried out over fourteen fields on a mixture of pasture and arable land to the north of Cottingham, Hull. The survey was undertaken prior to the proposed management of the site. Circular and rectilinear features have been detected which may be indicative of a medieval post mill. Anomalies corresponding to a former field division and both historical and modern ploughing were also noted. Service pipes and areas of magnetic disturbance have been recorded throughout. The archaeological potential of the site in the very east is deemed to be high whilst the remainder is low.

WYAS Archaeological Services

Report Information

Client:	East Riding of Yorkshire Council
Address:	County Hall, Beverley, HU17 9BA
Report Type:	Geophysical Survey
Location:	Cottingham and Orchard Park
County:	East Riding of Yorkshire
Grid Reference:	TA 004 313 (east) TA 058 337 (west)
Period(s) of activity:	Medieval to modern
Report Number:	2874
Project Number:	6355
Site Code:	COP16
OASIS ID:	archaeol11-253430
Planning Application No.:	N/A
Museum Accession No.:	N/A
Date of fieldwork:	May 2016
Date of report:	May 2016
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Authorisation for distribution: --

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1 Introduction

Archaeological Services WYAS (ASWYAS) was commissioned by ECUS Ltd (the Client), to undertake a geophysical (magnetometer) survey on land between Cottingham and Orchard Park, to inform a proposed planning application for a flood alleviation scheme. The work was undertaken in accordance with a Project Design (Horn 2016). Guidance contained within the National Planning Policy Framework (DCLG 2012) was also followed, in line with current best practice (CIfA 2014; David *et al*. 2008). The survey was carried out between 3rd and 13th May 2016, to provide additional information on the archaeological resource of the site.

Site location, topography and land-use

The Proposed Development Area (PDA) is across fourteen separate fields located approximately 5km to the north-west of the centre of Hull (see Fig. 1). The western end of the PDA is located to the south of Hessle Golf Club at TA 004 313 and the route follows the course of Westfield and Eppleworth Road, with separate sites located to the north and south of the roads. The eastern part of the site is located in fields bound to the south by Orchard Park Road and Danepark Road to the east, centred at TA 058 337 (see Fig. 2). The site is at an elevation of between 26m above Ordnance Datum (aOD) in the west and 2m aOD in the east.

The current land use is predominantly agricultural management. The majority of fields are under arable cultivation, specifically a young winter wheat, with the exception of Fields 7, 10 and 12 which are managed as pasture. Fields 13 and 14 are grassland, Field 13 is a playing field whilst Field 14 currently houses a pitch and putt golf course.

As depicted on Figure 2 there are some areas which were deemed unsuitable for survey for various reasons. In Field 1 half the survey area was under an oilseed rape crop, areas in both Fields 7 and 8 were unsuitable because of rough terrain, and an area of ploughing in Field 10 was also unsurveyable.

Soils and geology

The proposed development overlies superficial Quaternary deposits of a consolidated soft silty clay, with layers of sand, gravel and peat, over chalk of the Burnham Chalk Formation (BGS 2016). Overlying soils are predominantly loamy and clayey soils of coastal flats with naturally high groundwater (SSEW 1983), the areas at the western end of the survey are overlain with a glacial till, whilst those to the east are dominated by sands and gravel (BGS 2016).

2 Historical and Archaeological Background

The historical and archaeological background provided here has been largely extracted from an archaeological survey produced by Barton Howe Associates in 2014, which focuses on Eppleworth (one of the reservoir locations). The archaeological potential of the development site in its entirety, however, is broadly unknown (WYG 2012; Atkinson & Steedman 2014).

A prominent almost east-west aligned linear bank, which is recorded on the Humber Archaeology Partnership Sites and Monuments Record as 'Earthworks at Grange Farm' (HSMR site 8222) lies within the survey area. The site is not designated as a Scheduled Monument nor otherwise protected, and it is not recorded by English Heritage's National Monuments Record (EH NMR). The Eppleworth area has also been included in English Heritage's National Mapping Project of the Chalk Lowland and Hull Valley in East Yorkshire (Oakey *et al*. 2012), although only ridge and furrow and the occasional bank is recorded.

Eppleworth Grange (now West Cottage at Grange Farm), on the north side of the survey area, dates from *c*. 1822 and is a Grade II Listed Building (National Heritage List for England no.1 103342)

An overhead electricity line runs parallel to Westfield Road. The placement of the electricity poles for this line was subject to an archaeological watching brief in June 2012, where only the topsoil and the fields themselves were examined. No archaeological deposits were identified in the excavated material, although the earthworks of the linear bank and some denuded ridge and furrow to its south were noted. The report concluded that the bank was likely to be post-medieval in date, probably 18th century, and that it may have formed an elevated road or causeway associated with a large former chalk quarry to the east of Green Lane; another large depression to the west was also thought to be a former chalk quarry (Rawson 2012).

The site was also identified by White Young Green in 2012 as part of an Archaeology and Heritage Option Appraisal Report associated with the COPFAS project (WYG 2012, site MHU8222), as 'undated earthworks at Grange Farm'. The Appraisal Report notes that the function of the earthworks is unclear, and repeated the potential link with the chalk quarry to the east, although it may also be associated with the former Eppleworth Grange or even be of earlier origins (WYG 2012, 17).

3 Aims and Methodology

The main aim of the geophysical survey was to provide sufficient information to enable an assessment to be made of the impact of the development on potential sub-surface archaeological remains and for further evaluation or mitigation proposals, if appropriate, to be recommended. To achieve this aim, a magnetometer survey covering all amenable parts of the PDA was undertaken (see Fig. 2).

The general objectives of the geophysical survey were:

- to provide information about the nature and possible interpretation of any magnetic anomalies identified;

- to therefore determine the presence/absence and extent of any buried archaeological features; and
- to prepare a report summarising the results of the survey.

Magnetometer survey

The site grid was laid out using a Trimble VRS differential Global Positioning System (Trimble 5800 model). The survey was undertaken using Bartington Grad601 magnetic gradiometers. These were employed taking readings at 0.25m intervals on zig-zag traverses 1.0m apart within 30m by 30m grids, so that 3600 readings were recorded in each grid. These readings were stored in the memory of the instrument and later downloaded to computer for processing and interpretation. Geoplot 3 (Geoscan Research) software was used to process and present the data. Further details are given in Appendix 1.

Reporting

A general site location plan, incorporating the 1:50000 Ordnance Survey (OS) mapping, is shown in Figure 1. Figure 2 displays an overview of the processed magnetometer data and Figure 3 displaying the interpretation both at a scale of 1:15000. The processed and minimally processed data, together with an interpretation of the survey results are presented in Figures 4 to 30 inclusive, the majority of which are a scale of 1:1000, with Figures 16-18 been presented at a scale of 1:1250.

Technical information on the equipment used, data processing and survey methodologies are given in Appendix 1. Technical information on locating the survey area is provided in Appendix 2. Appendix 3 describes the composition and location of the archive. A copy of the OASIS form is included in Appendix 4.

The survey methodology, report and any recommendations comply with guidelines outlined by English Heritage (David *et al.* 2008) and by the Chartered Institute for Archaeologists (CIfA 2014). All figures reproduced from Ordnance Survey mapping are with the permission of the controller of Her Majesty's Stationery Office (© Crown copyright).

The figures 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 figures are presented to most suitably display and interpret the data from this site based on the experience and knowledge of Archaeological Services staff.

4 Results and Discussion (see Figures 4-30)

Ferrous anomalies

Ferrous anomalies, as individual 'spikes', or as large discrete areas are typically caused by ferrous (magnetic) material, either on the ground surface or in the plough-soil, or the proximity of the survey area to magnetic material in boundary fences, buildings, or other above ground features. Little importance is normally given to such anomalies, unless there is any supporting evidence for an archaeological interpretation, as modern ferrous debris or material is common on rural sites, often being present as a consequence of manuring or tipping/infilling. There is no obvious pattern or clustering to their distribution to suggest anything other than a random background scatter of ferrous debris in the plough-soil.

A number of modern service pipes have been identified as part of the survey, they lie within Fields 7, 9 and 10 and are visible as linear dipolar anomalies.

Field 13 contains a series of pairs of ferrous dipolar anomalies which can be attested to the magnetometer coming in close proximity to standing goal posts while the survey was being conducted.

Field 14 will have undergone a significant amount of modern landscaping in order to be transformed into a pitch and putt golf course. The disturbance of ground and creation of new topographic profiles, alongside the addition of structural features relating to the course will all have created a significant amount of magnetic disturbance.

Recreational land uses, such as that in Fields 13 and 14 are likely to increase the amount of debris introduced into an area, either through the introduction of magnetically enhanced topsoil, or through anthropogenic contamination as the land is used.

Geological anomalies

Discrete low magnitude anomalies have been identified throughout and are thought to be caused by variations in the depth and composition of the soils and the superficial deposits from which they derive. These anomalies occur in locations where this type of response is expected, brought about by topographical variations, such as a break in slope.

Agricultural anomalies

Linear trends seen in a number of the survey areas represent cultivation, either as medieval ridge and furrow or more modern ploughing.

A former field boundary / drain can be seen in Field 14 which corresponds to old mapping dating from 1888 (Old-Maps 2016). The drain shows to continue to the west into Field 11.

Possible Archaeological anomalies

Most notable, in Fields 13 and 14 (Figure 28-30), there are two sets of linear features which could be related to the archaeological features chronicled in Field 12. However because of the fragmentary nature of the responses and the landscaping that has taken place in Fields 13 and 14, a definitive archaeological origin cannot be assigned.

Archaeology

Within Field 7 (Figs 13-15) magnetic responses that correlate with the known earthworks have been recorded. A service that runs through the field has created a magnetic response that obscures some of the more subtle features within this area of known archaeological potential.

A circular feature measuring approximately 22m in diameter has been detected in Field 12 (Figs 23-25, 28-30). Within the centre an anomaly can be seen in the shape of a purported cross. These responses are characteristic of the site of a medieval post-mill. Examples of similar features have been identified by ASWYAS close to Pocklington (Sykes 2015) and by the Landscape Research Centre (LRC 2005) at West Heslerton, near York.

Immediately to the east a rectangular feature can also be seen, measuring 34m by 11m. It is likely that this is associated with the circular features, forming part of a wider complex.

The results and subsequent interpretation of data from geophysical surveys should not be treated as an absolute representation of the underlying archaeological and non-archaeological remains. Confirmation of the presence or absence of archaeological remains can only be achieved by direct investigation of sub-surface deposits.

5 Conclusions

The magnetic survey has detected anomalies of a likely archaeological origin in the forms of a circular response possibly relating to a medieval post-mill and a rectilinear feature which may be associated with the ‘mill’. Ridge and furrow cultivation along with modern ploughing have been detected throughout. The majority of responses are of a ferrous origin relating to landscaping, sports fields, service pipes and scatters of iron debris. Consequently the archaeological potential of this site is deemed to be high in the very east and low elsewhere.

Appendix 1: Magnetic survey - technical information

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 haemetite. 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. Areas of human occupation or settlement can then be identified by measuring the magnetic susceptibility of the topsoil because 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 and the fermentation and bacterial effects associated with rubbish decomposition. The area of enhancement is usually quite large, mainly due to the tendency of discard areas to extend beyond the limit of the occupation site itself, and spreading by the plough.

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.

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 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.

Methodology: Gradiometer Survey

The main method of using the fluxgate gradiometer for commercial evaluations is referred to as ***detailed survey*** and requires the surveyor to walk at an even pace carrying the instrument within a grid system. A sample trigger automatically takes readings at predetermined points, typically at 0.25m intervals, on traverses 1m apart. These readings are stored in the memory of the instrument and are later dumped to computer for processing and interpretation.

During this survey a Bartington Grad601 magnetic gradiometer was used taking readings on the 0.1nT range, at 0.25m intervals on zig-zag traverses 0.5m apart within 30m by 30m square grids. The instrument was checked for electronic and mechanical drift at a common point and calibrated as necessary. The drift from zero was not logged.

The gradiometer data have been presented in this report in processed greyscale format. The data in the greyscale images have been interpolated and selectively filtered to remove the effects of drift in instrument calibration and other artificial data constructs and to maximise the clarity and interpretability of the archaeological anomalies.

The results and subsequent interpretation of data from geophysical surveys should not be treated as an absolute representation of the underlying archaeological and non-archaeological remains. Confirmation of the presence or absence of archaeological remains can only be achieved by direct investigation of sub-surface deposits

Appendix 2: Survey location information

An initial survey station was established using a Trimble VRS differential Global Positioning System (Trimble R6 model). The data were geo-referenced using the geo-referenced survey station with a Trimble RTK differential Global Positioning System (Trimble R6 model). The accuracy of this equipment is better then 0.01m. The survey grids 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 co-ordinates are measured off hard copies of the mapping rather than using the digital co-ordinates.

Archaeological Services WYAS cannot accept responsibility for errors of fact or opinion resulting from data supplied by a third party.

Appendix 3: Geophysical archive

The geophysical archive comprises:-

- an archive disk containing compressed (WinZip 8) files of the raw data, report text (Microsoft Word 2000), and graphics files (Adobe Illustrator CS2 and AutoCAD 2008) files; and

- a full copy of the report.

At present the archive is held by Archaeological Services WYAS although it is anticipated that it may eventually be lodged with the Archaeology Data Service (ADS). Brief details may also be forwarded for inclusion on the English Heritage Geophysical Survey Database after the contents of the report are deemed to be in the public domain (i.e. available for consultation in the East Riding of Yorkshire Historic Environment Record).

Appendix 4: OASIS form

OASIS DATA COLLECTION FORM: England

Printable version

OASIS ID: archaeol11-253430

Project details

Project name	Cottingham and Orchard Park Flood Alleviation Scheme
Short description of the project	A geophysical (magnetometer) survey, covering approximately 29 hectares, was carried out over fourteen fields on a mixture of pasture and arable land to the north of Cottingham, Hull. The survey was undertaken prior to the proposed management of the site. Circular and rectilinear features have been detected which may be indicative of a medieval post mill. Anomalies corresponding to a former field division and both historical and modern ploughing were also noted. Service pipes and areas of magnetic disturbance have been recorded throughout. The archaeological potential of the site in the very east is deemed to be high whilst the remainder is low.
Project dates	Start: 01-05-2016 End: 31-05-2016
Previous/future work	Not known / Not known
Any associated project reference codes	6355 - Contracting Unit No.
Type of project	Field evaluation
Site status	None
Current Land use	Grassland Heathland 4 - Regularly improved
Monument type	POST MILL Medieval
Methods & techniques	"Geophysical Survey"

Development type	Flood Alleviation Scheme
Prompt	National Planning Policy Framework - NPPF
Position in the planning process	Pre-application
Solid geology (other)	Burnham Chalk Formation
Drift geology (other)	Clay and Silt Loam
Techniques	Magnetometry

Project location

Country	England
Site location	EAST RIDING OF YORKSHIRE EAST RIDING OF YORKSHIRE COTTINGHAM COPFAS
Postcode	HU7 WHZ
Study area	29 Hectares
Site coordinates	TA 504123 433371 53.864179296924 0.287604839348 53 51 51 N 000 17 15 E Point
Height OD / Depth	Min: 2m Max: 26m

Project creators

Name of Organisation	Archaeological Services WYAS
Project brief originator	ECUS Ltd
Project design originator	Archaeological Services WYAS
Project director/manager	C. Sykes
Project supervisor	C. Sykes

Type of sponsor/funding body	Developer

Project archives

Physical Archive Exists?	No
Digital Archive recipient	ADS
Digital Contents	"Survey"
Digital Media available	"GIS","Geophysics","Text"
Paper Archive recipient	ASWYAS
Paper Contents	"Survey"
Paper Media available	"Report","Survey "

Project bibliography 1

Publication type	Grey literature (unpublished document/manuscript)
Title	Cottingham and Orchard Park Flood Alleviation Scheme
Author(s)/Editor(s)	Brunning, E.
Other bibliographic details	Report Number: 2874
Date	2016
Issuer or publisher	ASWYAS
Place of issue or publication	Morley, Leeds

Entered by	Rebecca Goulding (Rebecca.Goulding@aswyas.com)
Entered on	1 June 2016

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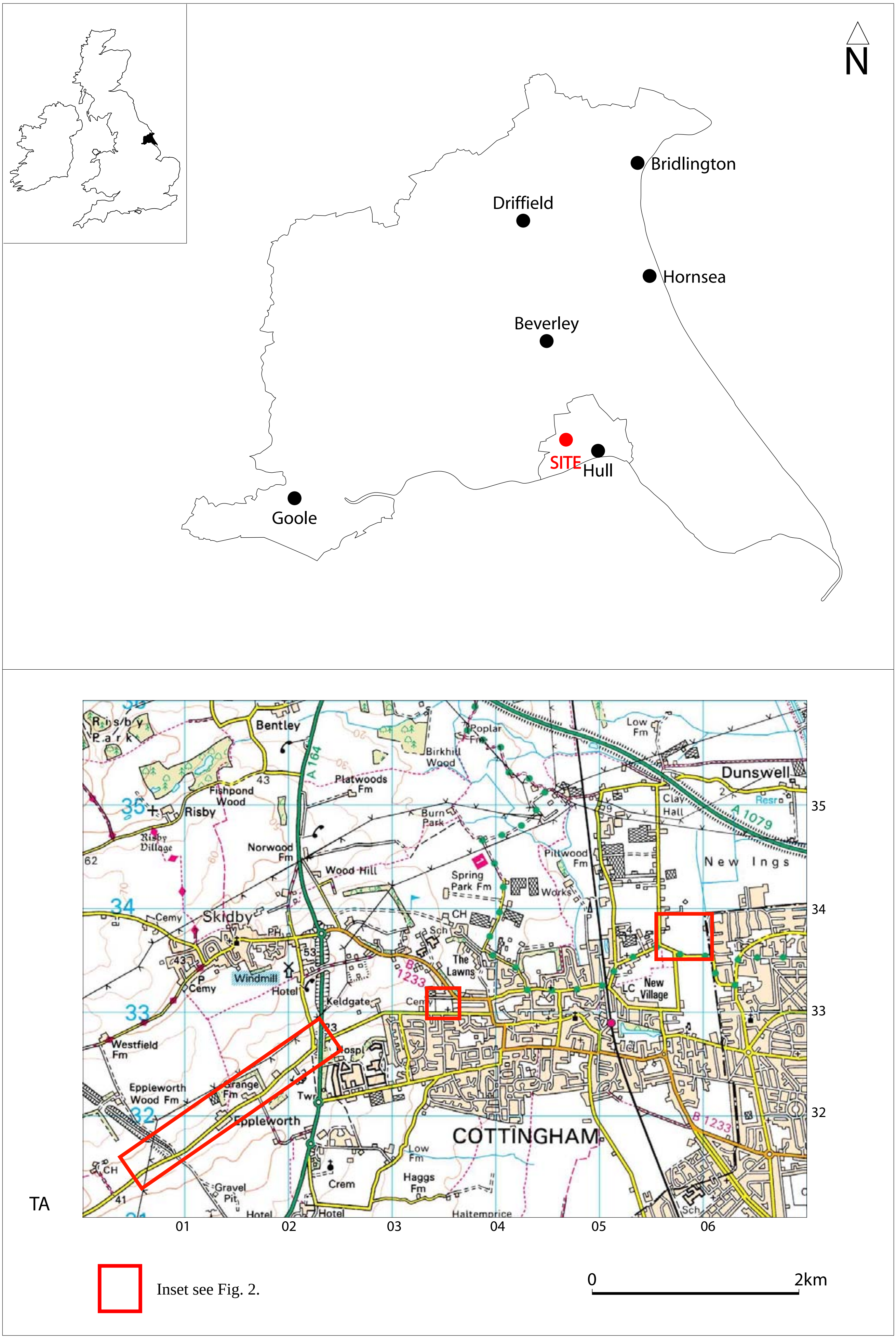

Fig. 1. Site location

Fig. 2. Survey overview showing greyscale magnetometer data, with photo directions (1:15 000 @ A3)

Fig. 3. Survey overview showing interpretation of magnetometer data (1:15 000 @ A3)

0 500m

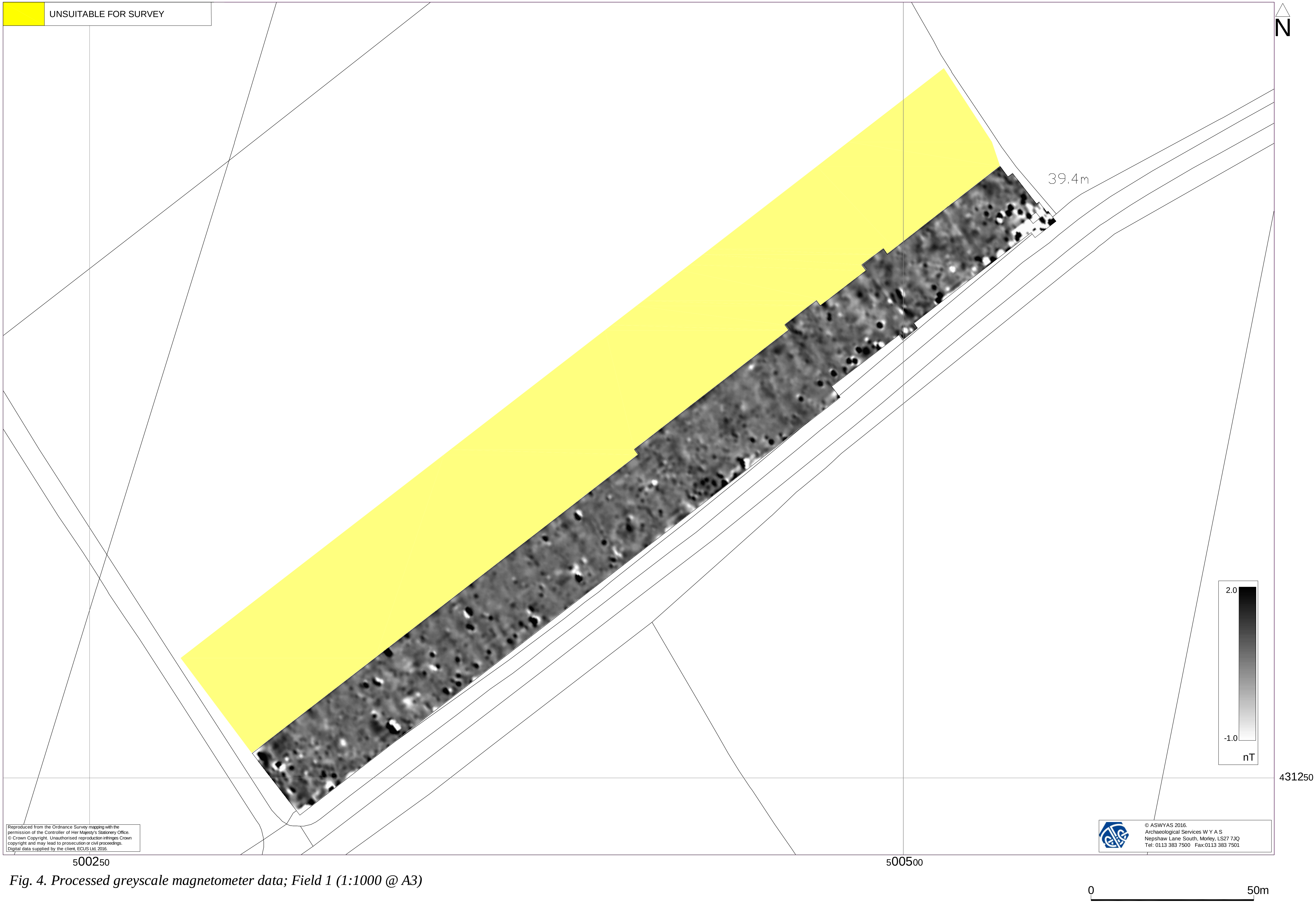

Fig. 4. Processed greyscale magnetometer data; Field 1 (1:1000 @ A3)

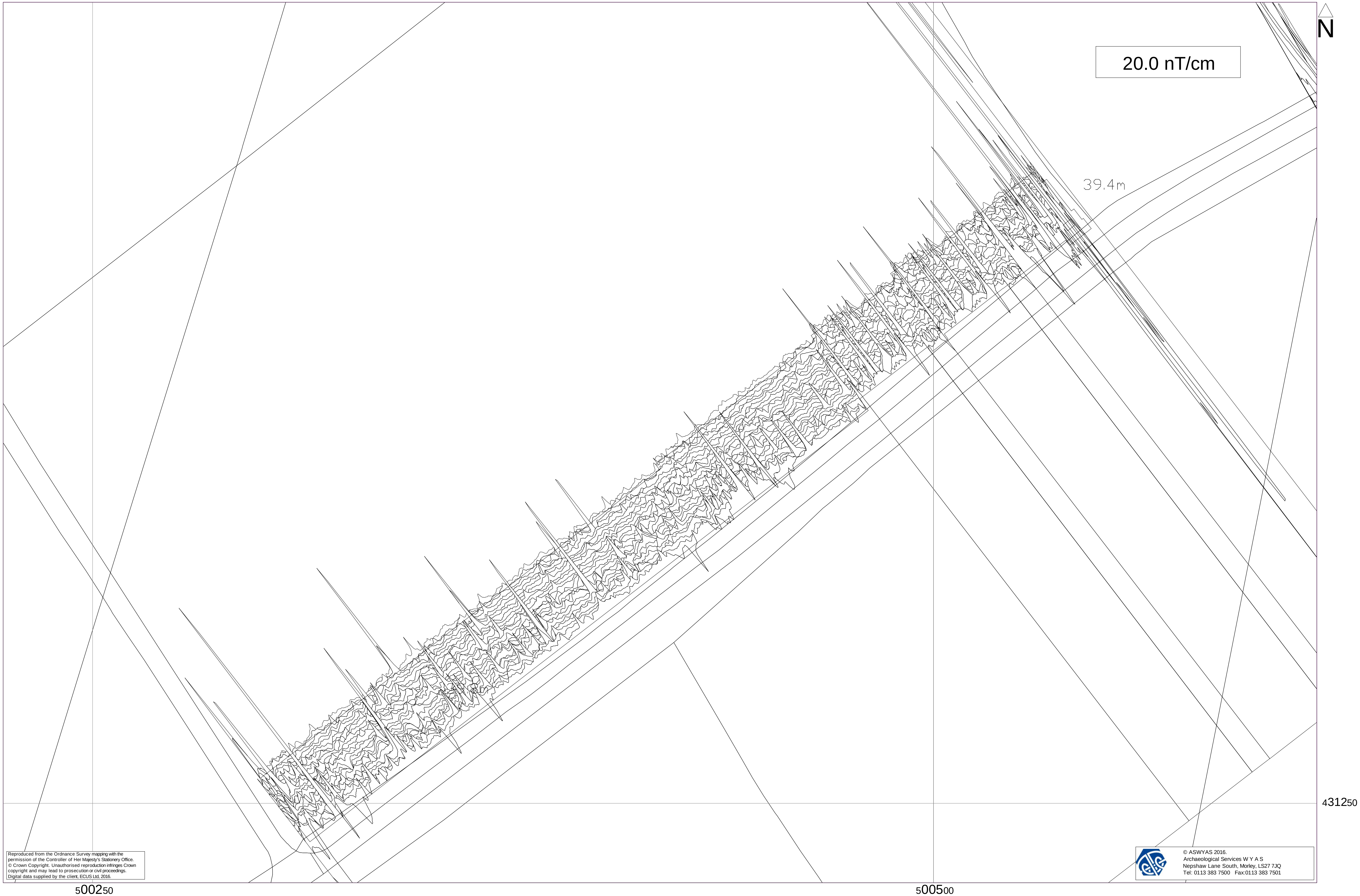

Fig. 5. XY trace plot of minimally processed magnetometer data; Field 1 (1:1000 @ A3)

0 50m

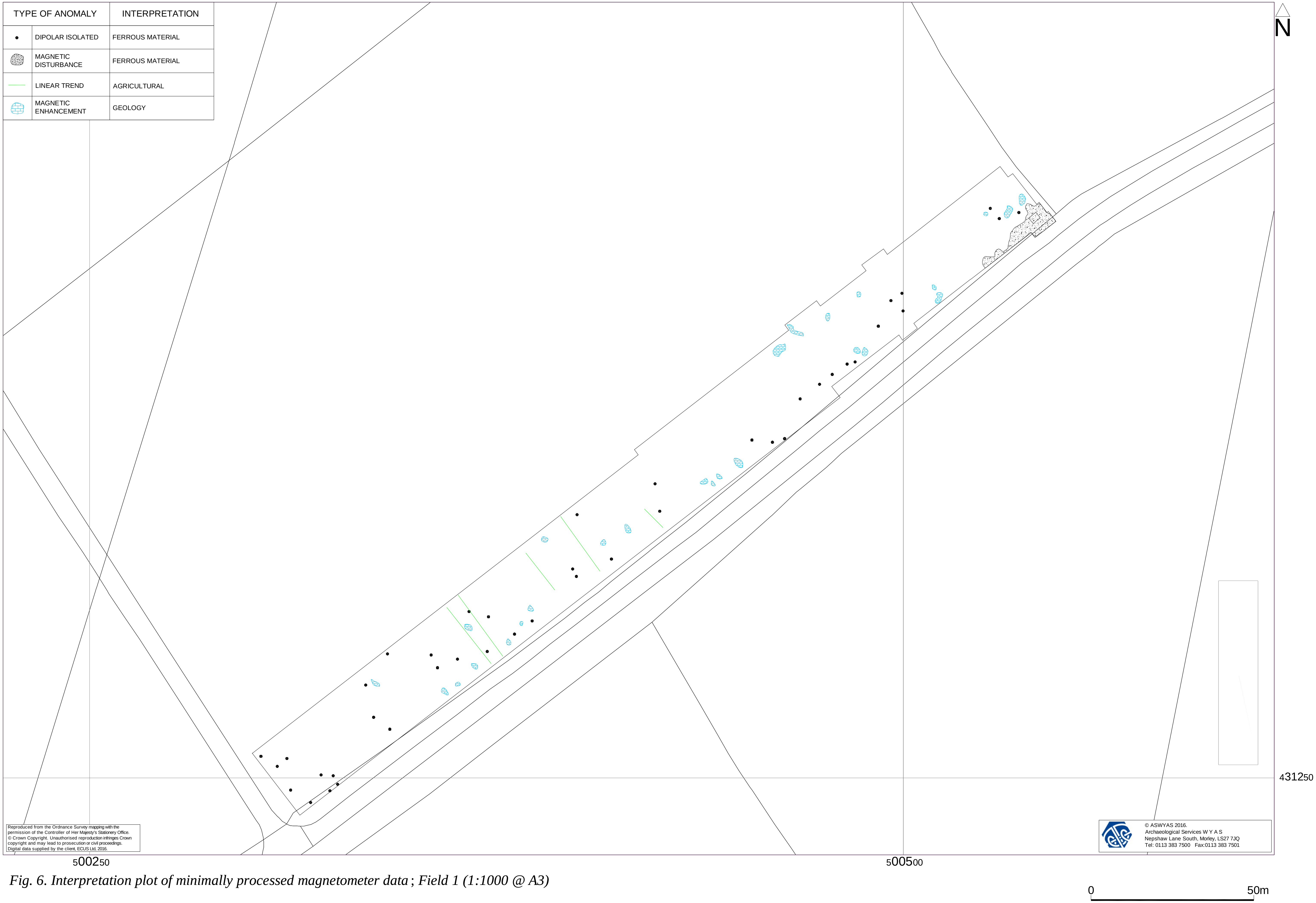

Fig. 6. Interpretation plot of minimally processed magnetometer data ; Field 1 (1:1000 @ A3)

Archaeological Services W Y A S
Nepshaw Lane South, Morley, LS27 7JQ
Tel: 0113 383 7500 Fax:0113 383 7501

Fig. 7. Processed greyscale magnetometer data; Fields 2, 3 and 4 (1:1000 @ A3)

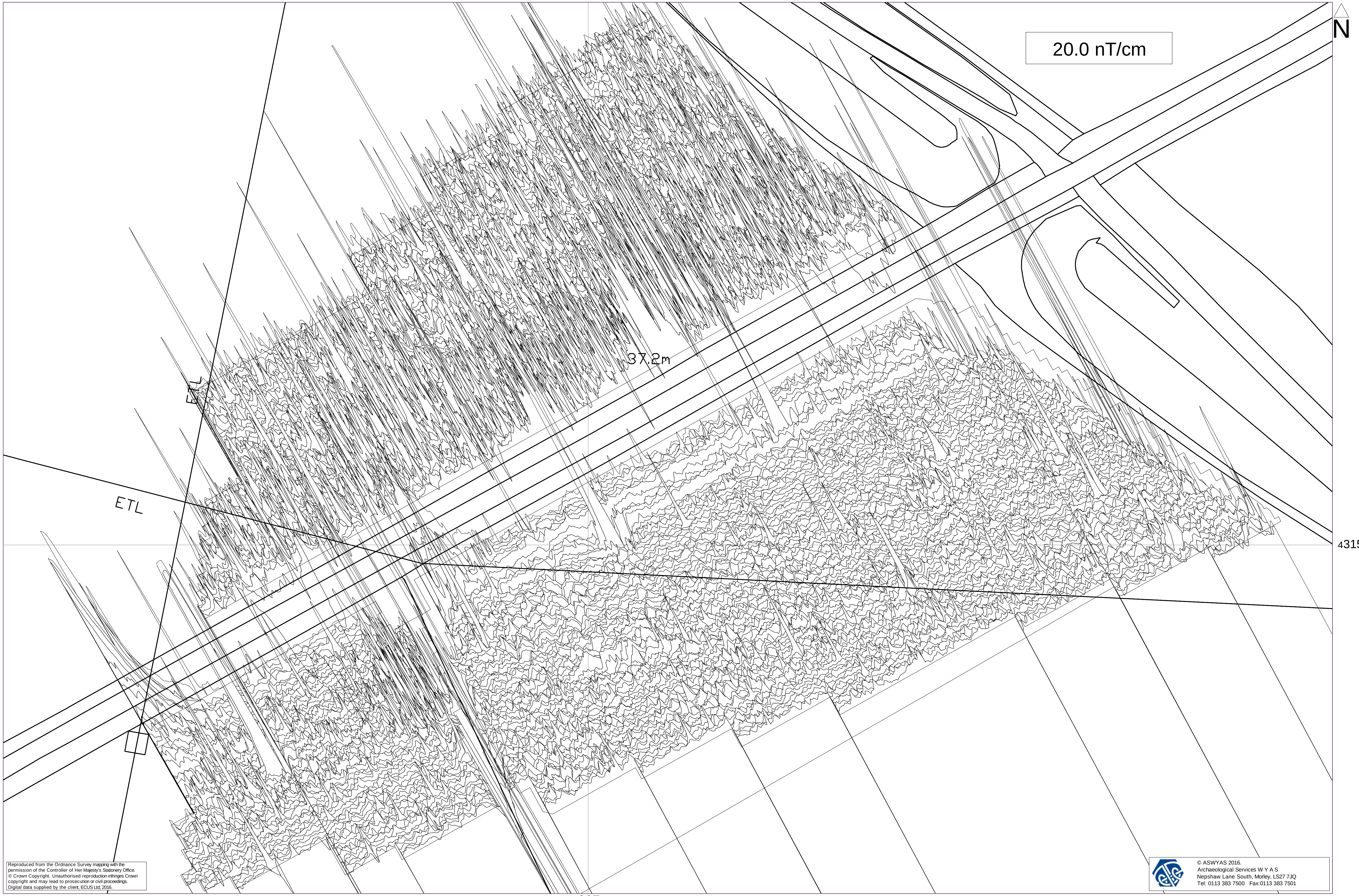

Fig. 8. XY trace plot of minimally processed magnetometer data; Fields 2, 3 and 4 (1:1000 @ A3)

0 50m

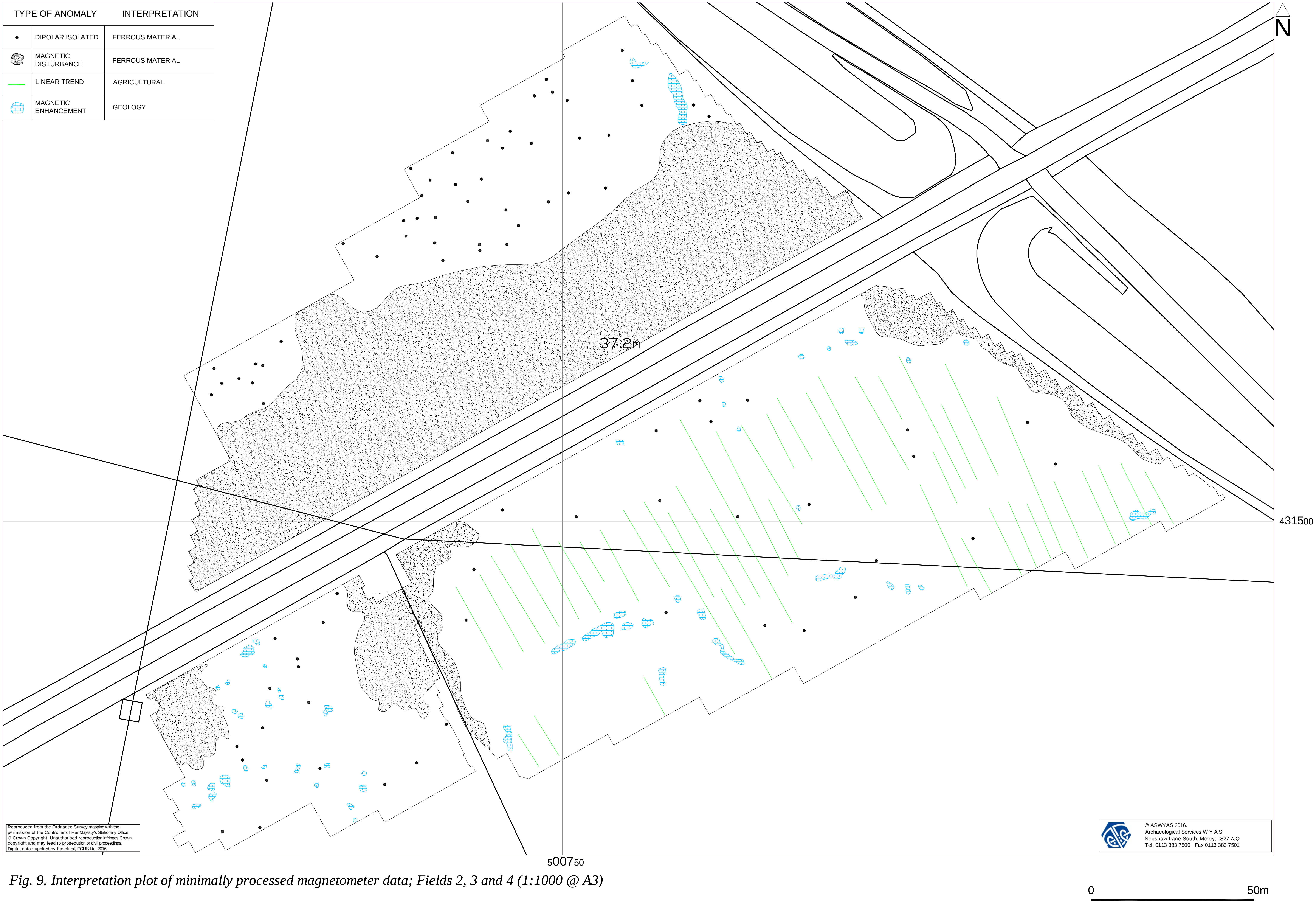

Fig. 9. Interpretation plot of minimally processed magnetometer data; Fields 2, 3 and 4 (1:1000 @ A3)

Fig. 10. Processed greyscale magnetometer data; Fields 5 and 6 (1:1000 @ A3)

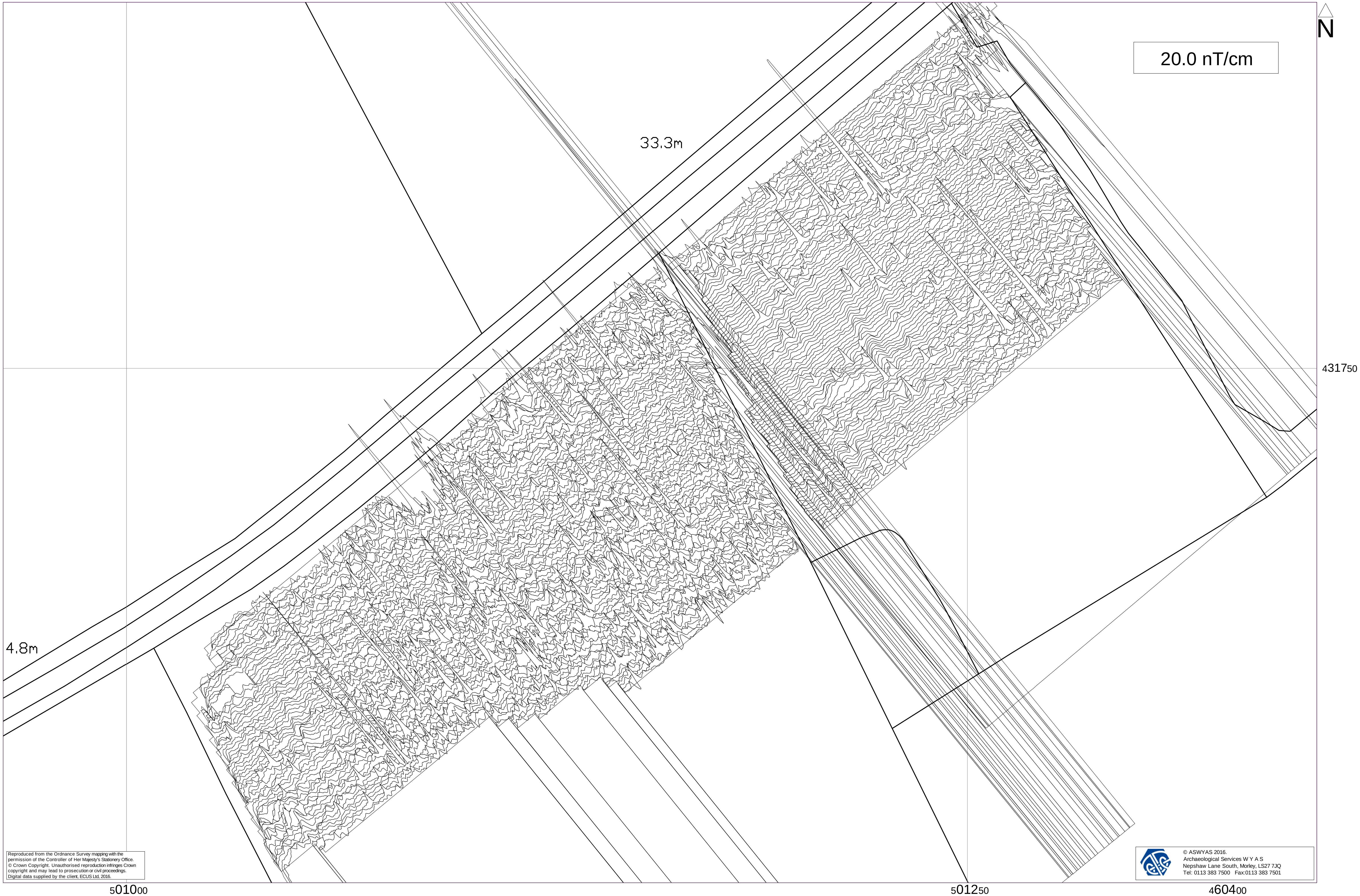

Fig. 11. XY trace plot of minimally processed magnetometer data; Fields 5 and 6 (1:1000 @ A3)

0 50m

Fig. 12. Interpretation plot of minimally processed magnetometer data; Fields 5 and 6 (1:1000 @ A3)

Fig. 13. Processed greyscale magnetometer data; Field 7 (1:1000 @ A3)

Fig. 14. XY trace plot of minimally processed magnetometer data; Field 7 (1:1000 @ A3)

0 50m

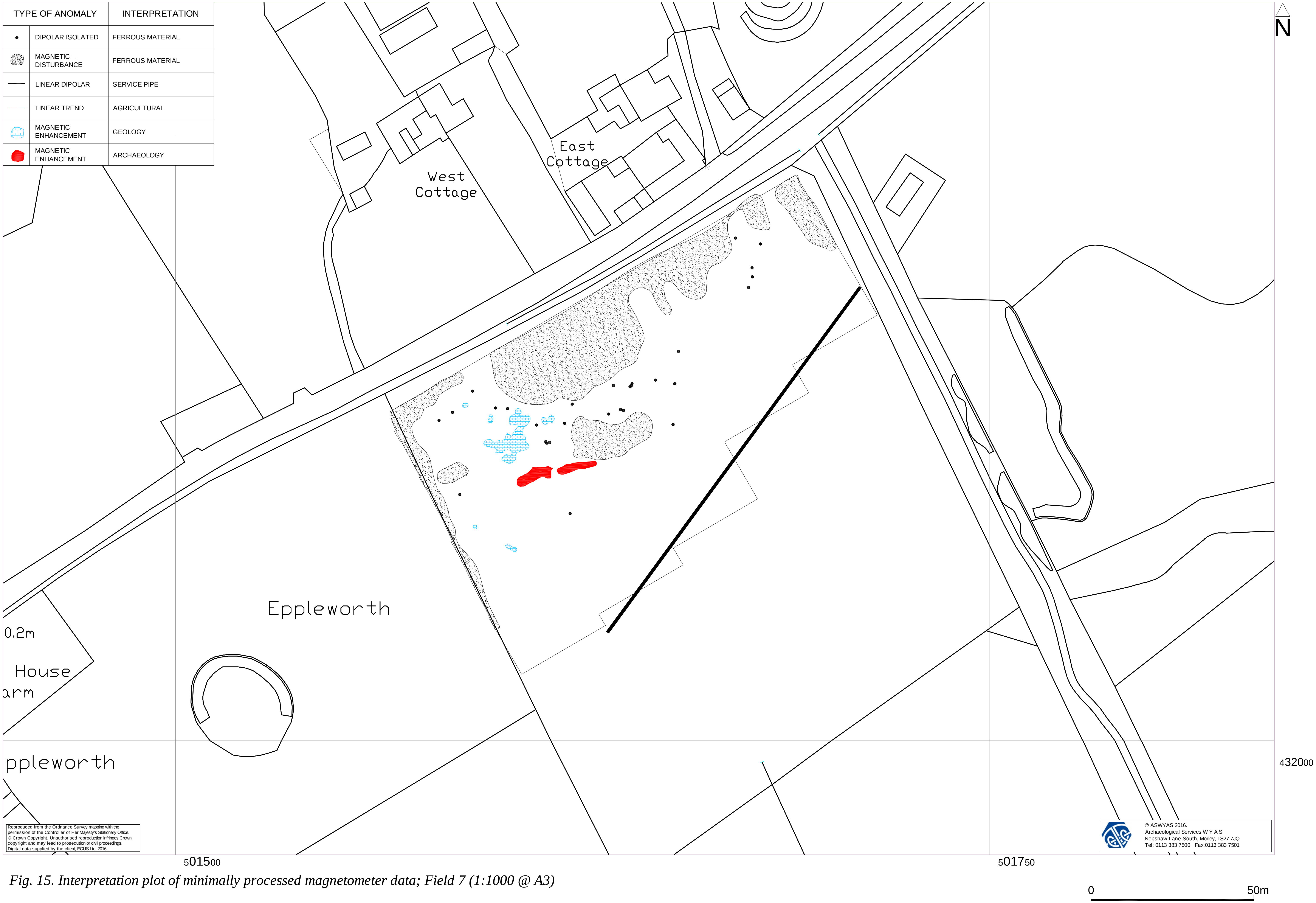

Fig. 15. Interpretation plot of minimally processed magnetometer data; Field 7 (1:1000 @ A3)

Fig. 16. Processed greyscale magnetometer data; Fields 8, 9 and 10 (1:1250 @ A3)

Fig. 17. XY trace plot of minimally processed magnetometer data; Fields 8, 9 and 10 (1:1250 @ A3)

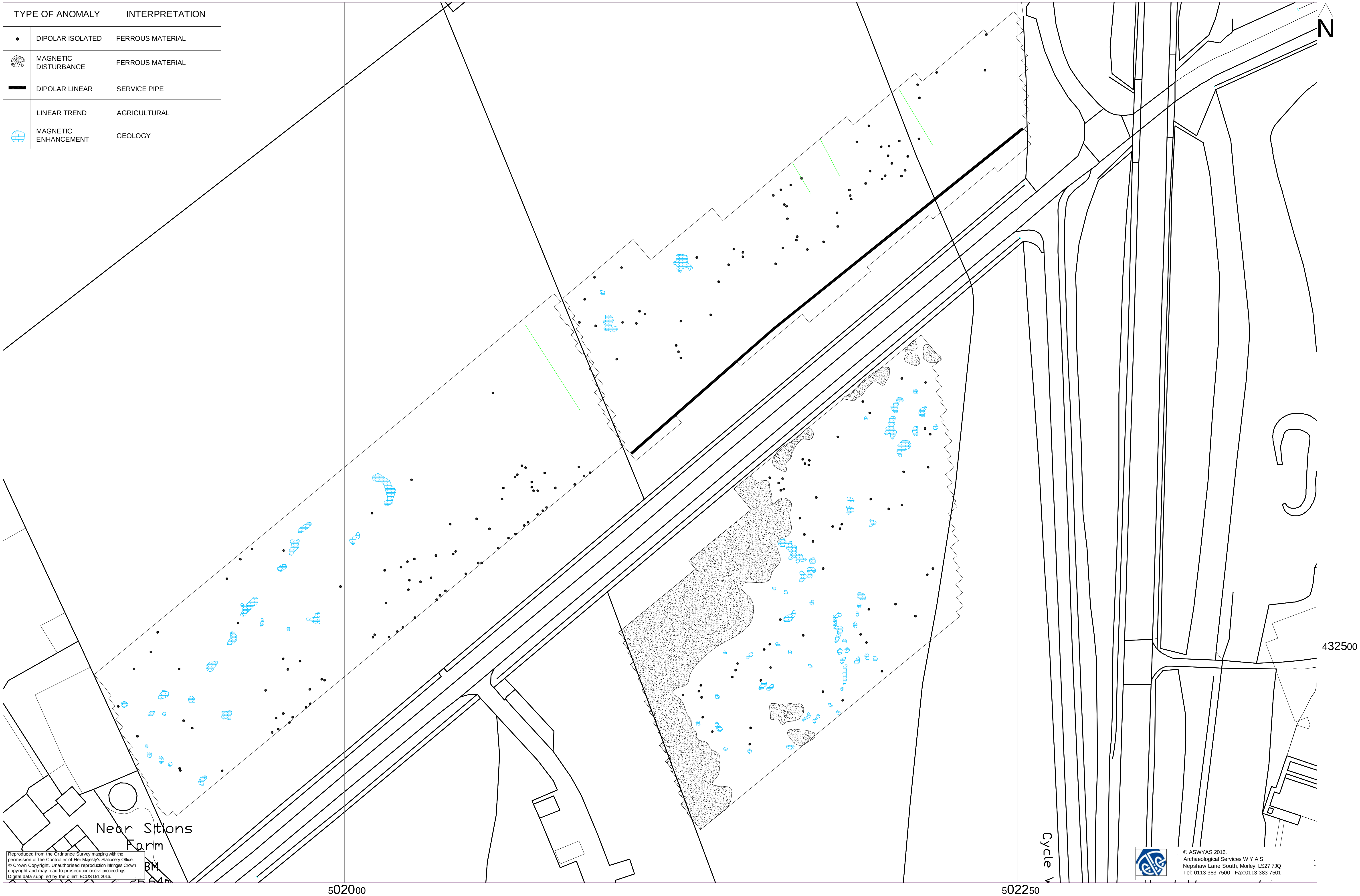

Fig. 18. Interpretation plot of minimally processed magnetometer data; Fields 8, 9 and 10 (1:1250 @ A3)

0 50m

Fig. 19. Processed greyscale magnetometer data; Field 11 (1:1000 @ A3)

0 50m

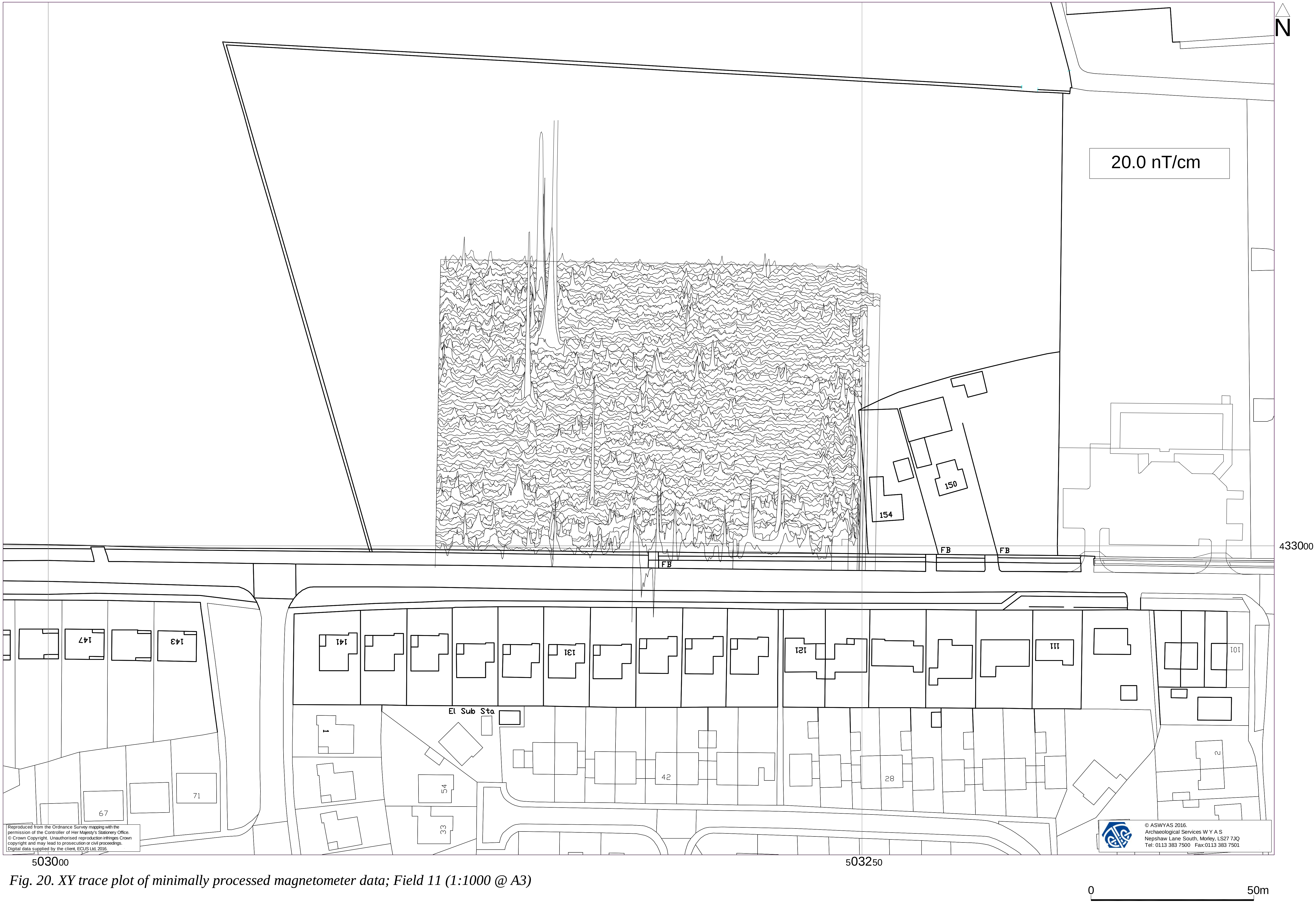

Fig. 20. XY trace plot of minimally processed magnetometer data; Field 11 (1:1000 @ A3)

Fig. 21. Interpretation plot of minimally processed magnetometer data; Field 11 (1:1000 @ A3)

Fig. 22. Processed greyscale magnetometer data; Field 12 (1:1000 @ A3)

0 50m

Fig. 23. XY trace plot of minimally processed magnetometer data; Field 12 (1:1000 @ A3)

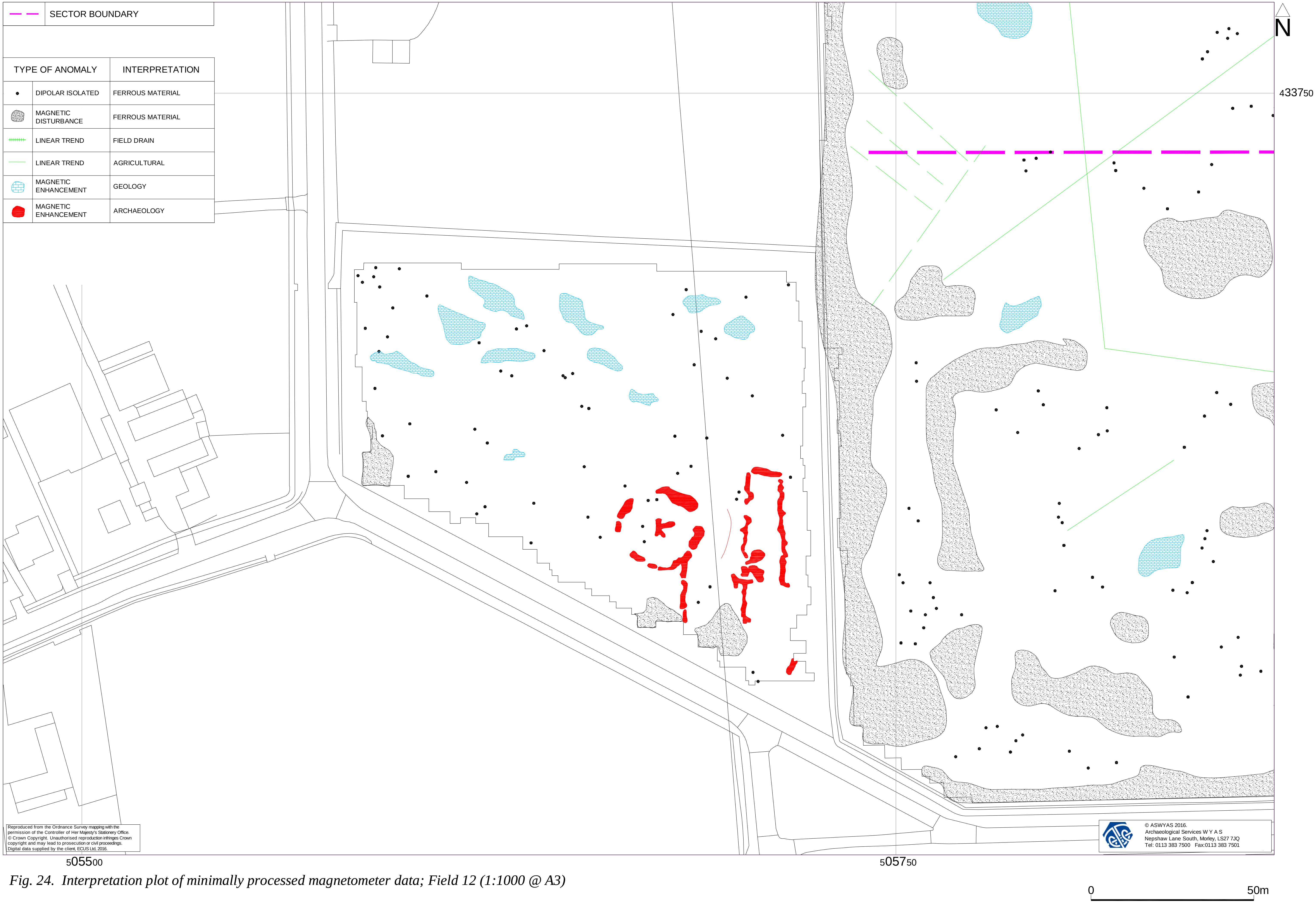

Fig. 24. Interpretation plot of minimally processed magnetometer data; Field 12 (1:1000 @ A3)

Fig. 25. Processed greyscale magnetometer data; Field 13 and 14; Sector 1 (1:1000 @ A3)

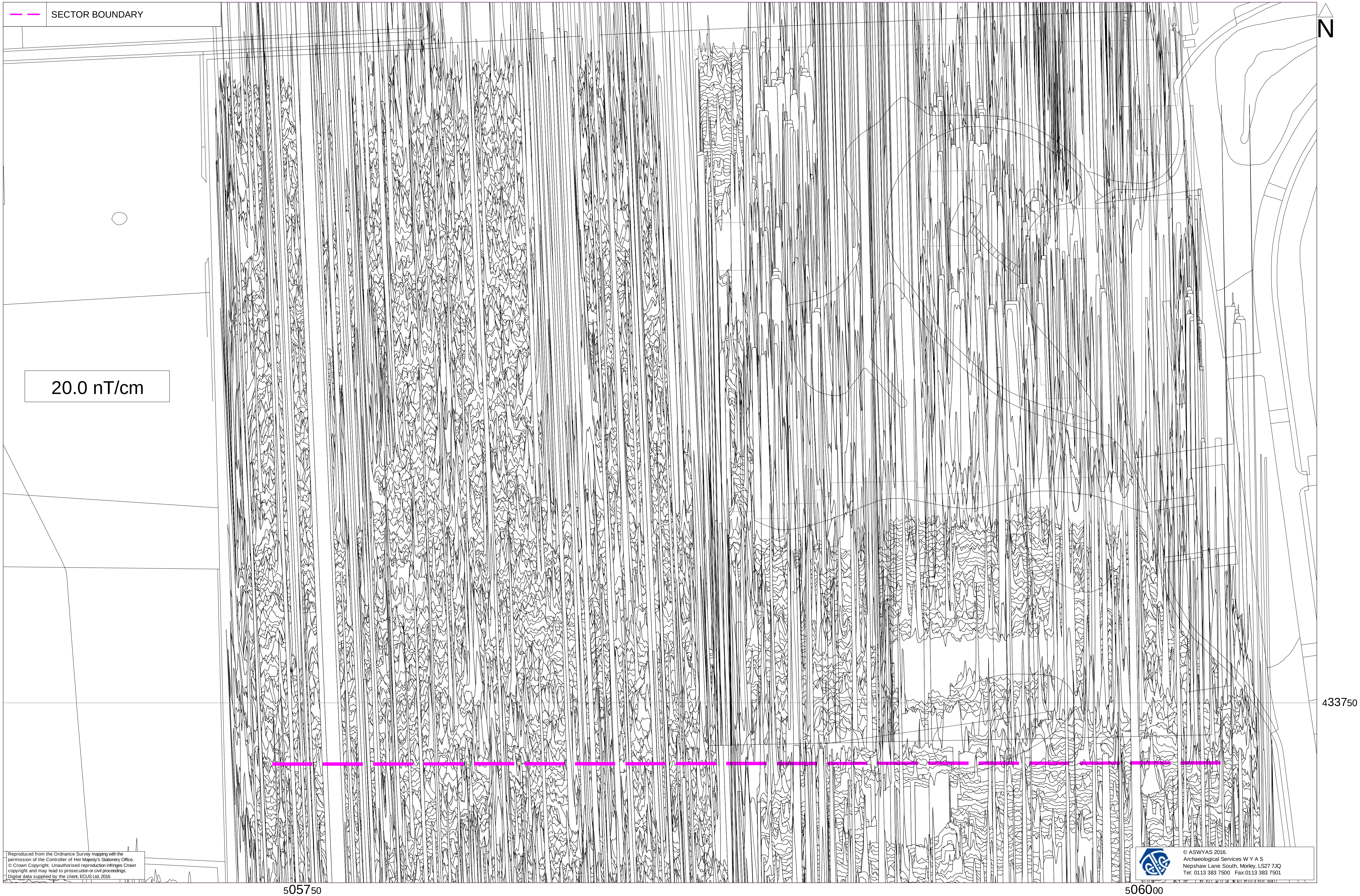

Fig. 26. XY trace plot of minimally processed magnetometer data; Field 13 and 14; Sector 1 (1:1000 @ A3)

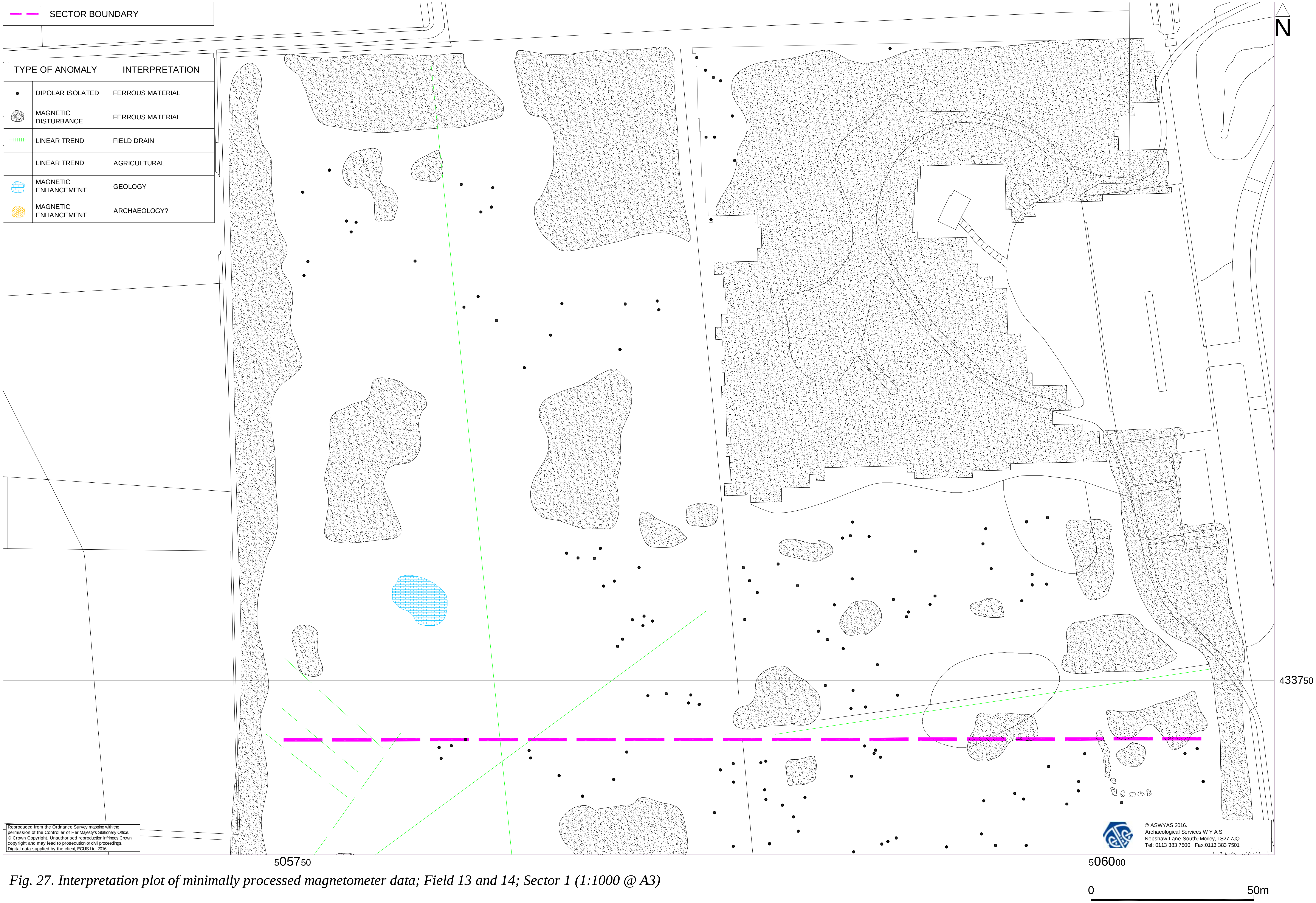

Fig. 27. Interpretation plot of minimally processed magnetometer data; Field 13 and 14; Sector 1 (1:1000 @ A3)

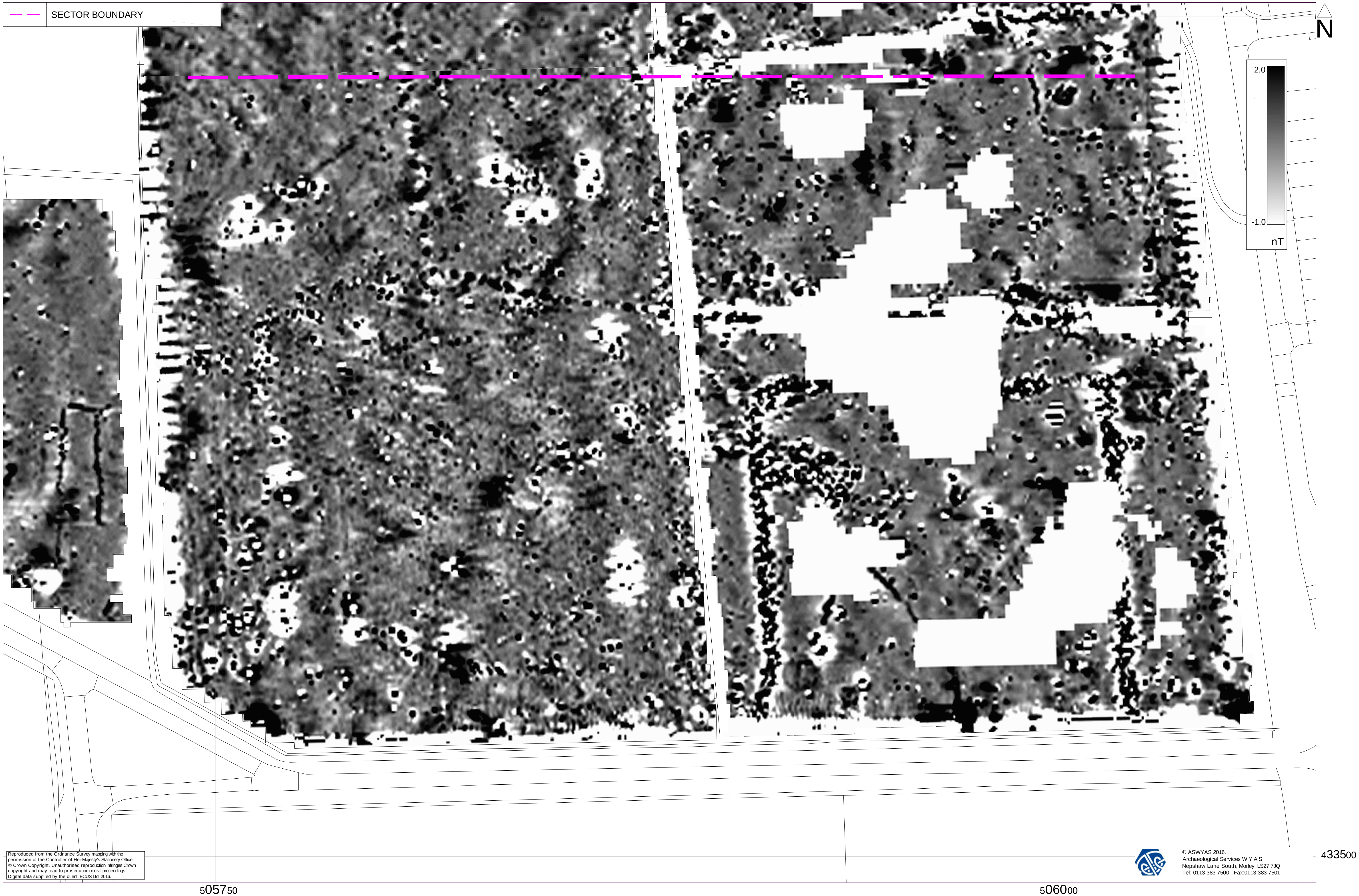

Fig. 28. Processed greyscale magnetometer data; Field 13 and 14; Sector 2 (1:1000 @ A3)

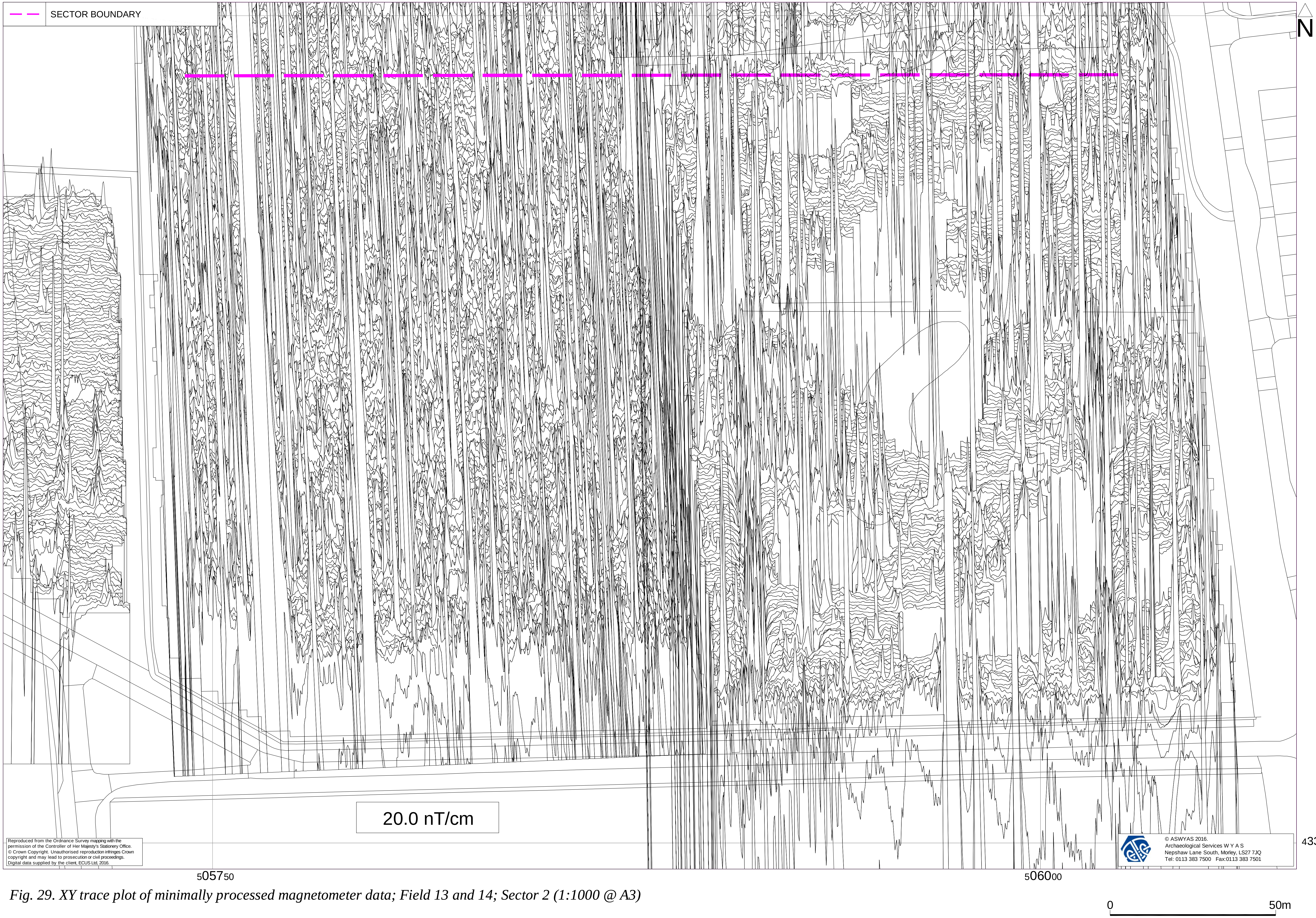

Fig. 29. XY trace plot of minimally processed magnetometer data; Field 13 and 14; Sector 2 (1:1000 @ A3)

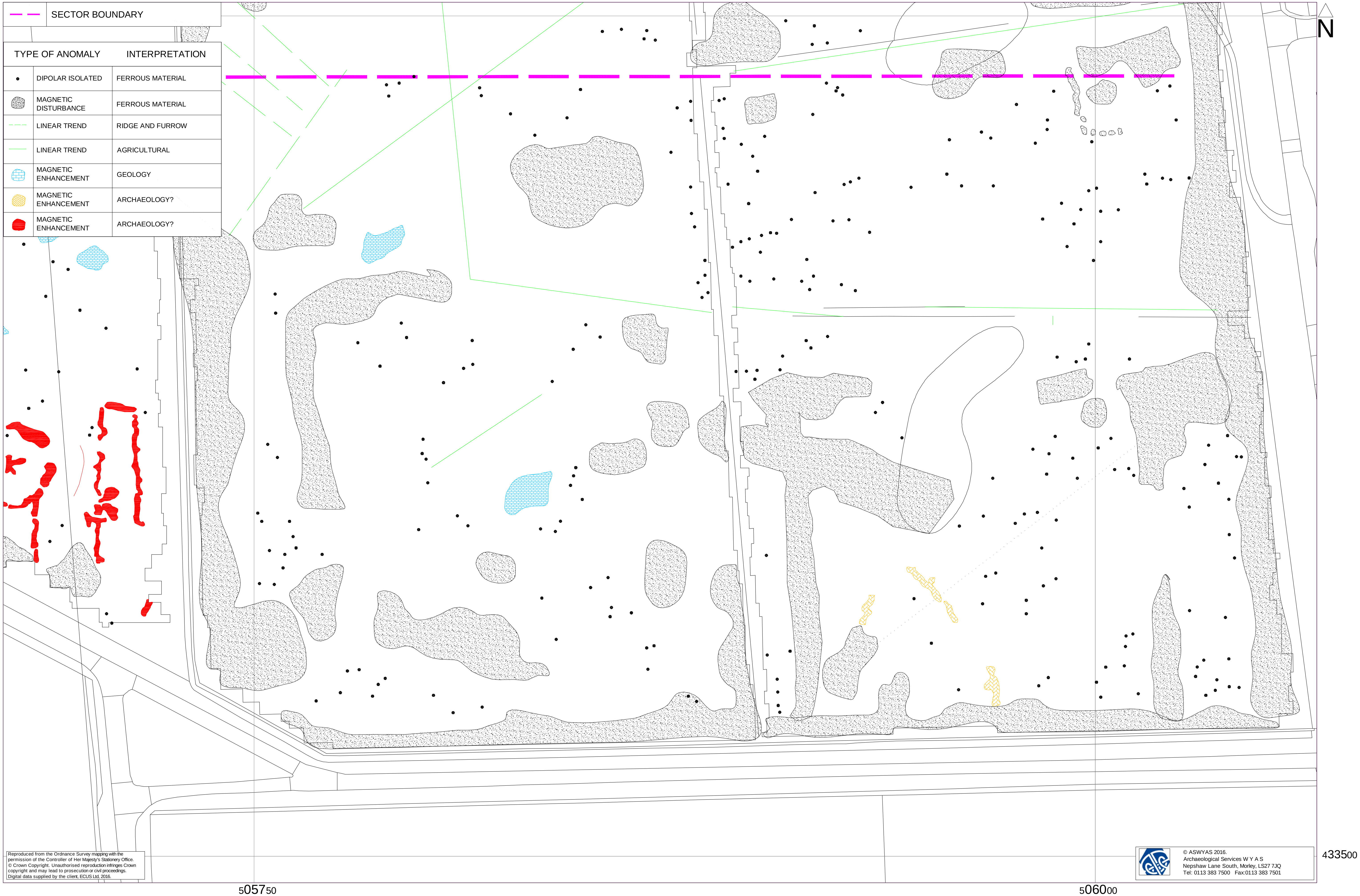

Fig. 30. Interpretation plot of minimally processed magnetometer data; Sector 2 (1:1000 @ A3)

Plate 1. General view of Field 1, looking southwest

Plate 2. General view of Field 2, looking west

Plate 3. General view of Field 3, looking west

Plate 4. General view of Field 4, looking northeast

Plate 5. General view of Field 5, looking east

Plate 6. General view of Field 6, looking north

Plate 7. General view of Field 7, looking southwest

Plate 8. General view of Field 8, looking southwest


Plate 9. General view of Field 9, looking southwest


Plate 10. General view of Field 10, looking north


Plate 11. General view of Field 11, looking southwest


Plate 12. General view of Field 12, looking east

Plate 13. General view of Field 13, looking west

Plate 14. General view of Field 14 Sector 1, looking north

Plate 15. General view of Field 14 Sector 1, looking north

Plate 16. General view of Field 14 Sector 2, looking east