NPA GEOPHYSICAL SURVEYS

Client Report CP465/07 August 2007

GEOPHYSICAL SURVEYS OF LAND EITHER SIDE OF THE A19, NORTH OF HAWTHORN, EASINGTON, CO. DURHAM

on behalf of

IAN FARMER ASSOCIATES LTD

NGR NZ 4150 4625

OASIS ID: northpen3-30882

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CONTENTS

Page

LIST OF FIGURES

SUMMARY

Between May and August 2007, North Pennines Archaeology Ltd, commissioned by Ian Farmer Associates, undertook geophysical surveys of 6ha of land either side of the A19, north of Hawthorn, near Easington, Co. Durham. This was in advance of a proposed wind farm development, which includes the construction of four turbines, associated underground cabling and access roads. The objective of the geophysical surveys was to determine the presence/absence, nature and extent of any archaeological anomalies within the proposed development area.

The area is known to have been exploited in prehistory. The site lies close to a Bronze Age barrow on Batter Law Hill, and a nearby possible Iron Age enclosure. A settlement is believed to have existed at Cold Hesledon from the medieval period onwards, and medieval earthworks associated with the early settlement have previously been identified to the east of the site. Historic map evidence suggests that the proposed development area has been maintained as agricultural land from the medieval period to the present, although a number of post-medieval and modern developments have taken place to the north, including Murton Colliery and the South Hetton to Seaham railway line.

Geomagnetic survey was undertaken over eight separate areas within the proposed development area, covering the locations of the proposed turbines, and associated electricity cable/access corridors. The survey detected a number of features which were associated with the modern and post-medieval agricultural use of the site, including field boundaries, possible land drains, and evidence for former ploughing regimes. A number of modern service pipes were also detected.

The most significant archaeological feature detected was a curvilinear soil-filled ditch on the west side of the A19, possibly part of a prehistoric enclosure ditch encircling the top of a hill. This hill has been bisected by the construction of a cutting for the A19, which may have also removed any evidence for the ditch to the east of the survey area. A possible ditch terminal has been identified at the south end of this feature, which may indicate the location of an entrance.

A number of possible soil-filled features of unknown date have been identified on the east side of the proposed development area. The nature of these features is uncertain, as these are difficult to interpret given the small size of the survey area. Other possible soil-filled features have been identified on the lower slopes of Batter Law Hill, although these could be modern.

It is recommended that the survey results be evaluated, by the excavation of a series of trial trenches. In particular the soil-filled ditch should be targeted to provide further information regarding date and function. It is also recommended that a sample of the possible soil-filled features on the east side of the proposed development area are targeted, as these will be truncated by one of the proposed cable/access corridors.

1 INTRODUCTION *(Figure 1)*

1.1 Between May and August 2007, North Pennines Archaeology Ltd, commissioned by Ian Farmer Associates Ltd, undertook geophysical surveys of land either side of the A19, north of Hawthorn, near Easington, Co. Durham. This was in advance of a proposed wind farm development, which included construction of four turbines, associated underground cabling and access roads. The work was conducted in accordance with brief supplied by Durham County Council Archaeology Section (White 2007), and a project design produced by Ian Farmer Associates Ltd (Ian Farmer Associates 2007).

1.2 The site is located either side of the A19, to the north of Hawthorn village and southwest of Cold Hesledon, near Easington, Co. Durham. It is centred on Ordnance Survey grid reference NZ NZ 4150 4625. The solid geology of the area comprises Magnesian Limestone with inter-bedded Anhydrite and with Marl Slate at base (BGS 2001). These are overlain by deposits of glacial boulder clay.

1.3 The area is dominated by Batter Law Hill, which is located at the southwest corner of the site. The hill rises to a peak of 143m OD, with the surrounding hills at 105-110m OD. The site is bounded by Hesledon Bank to the north, and open fields to the south, east, and west. Immediately to the north of the site are a number of prominent spoil heaps, associated with the former Murton Colliery. These now form part of Dalton Park.

1.4 The proposed development area comprised *c.*115.6 ha of land located either side of the A19, which subdivided into a number of small fields at the time of the survey. The geophysical study area measured just over 6ha in total, focused on the areas directly impacted by the proposed wind farm. This comprised 1ha centred over each of the four proposed turbine locations (1-4), and 2ha distributed over the routes of the proposed cable/access corridors (Figure 1).

1.5 The objective of the geophysical surveys was to determine the presence/absence, nature and extent of any archaeological anomalies within the proposed development area, and the presence/absence of any known modern anomalies within the study area, which may affect the results. The results of the geophysical survey were to be used to inform the layout of evaluation trenches within the proposed development area.

1.6 The geophysical surveys were conducted by Martin Railton, Cat Peters, and Angus Clarke between 10th May and 14th August 2007, and managed by Martin Railton, NPA Senior Project Officer. This report was prepared and illustrated by Martin Railton, and was edited by Matthew Town, NPA Senior Project Officer.

2 METHODOLOGY

2.1 Standards

2.1.1 The geophysical survey and reporting were conducted in accordance with English Heritage guidelines (English Heritage 1995), and the recommendations of the Institute of Field Archaeologists (IFA 2002).

2.2 Technique Selection

2.2.1 Geomagnetic survey was selected as the most appropriate technique, given the non-igneous environment, and the expected presence of cut archaeological features at depths of no more than 1.5m. Previous geomagnetic surveys conducted by North Pennines Archaeology in fields immediately to the north, has proved the effectiveness of this technique for detecting sub-surface features (Railton 2007).

2.2.2 This technique involved the use of hand-held gradiometers, which measure variations in the vertical component of the earth's magnetic field. These variations can be due to the presence of sub-surface archaeological features. Data was recorded by the instruments and downloaded into a laptop computer for initial data processing in the field using specialist software.

2.3 Field Methods

2.3.1 The proposed development area was located in seven separate fields, located either side of the A19. The geophysical study area was subdivided into eight survey areas (Areas 1-8). A 30m grid was established in each area, and tied-in to known Ordnance Survey points using a Trimble 3605DR Geodimeter total station with datalogger.

2.3.2 Geomagnetic measurements were determined using a Bartington Grad601-2 dual gradiometer system, with twin probes set 1m apart. It was expected that significant archaeological features at a depth of up to 1.5m would be detected using this arrangement. The survey was undertaken using a zig-zag traverse scheme, with data being logged in 30m grid units. A sample interval of 0.25m was used, with a traverse interval of 1m, providing 3600 sample measurements per grid unit. The data was downloaded on site into a laptop computer for processing and storage.

2.4 Data Processing

2.4.1 Geophysical survey data was processed using ArchaeoSurveyor II software, which was used to produce 'grey-scale' images of the raw data. Positive magnetic anomalies are displayed as dark grey, and negative magnetic anomalies are displayed as light grey. A palette bar shows the relationship between the grey shades and geomagnetic values in nT for each area.

2.4.2 Raw data was processed in order to further define and highlight the archaeological features detected. The following basic data processing functions were used:

Despike: *to locate and suppress random iron spikes in the gradiometer data*

Clip: *to clip data to specified maximum and minimum values, in order to limit large noise spikes in the gradiometer data*

Destagger: *to reduce the effect of staggered gradiometer data, sometimes caused by difficult working conditions, topography, or operator error*

2.5 Interpretation

2.5.1 Four types of geophysical anomaly were detected in the gradiometer data:

positive magnetic: regions of anomalously high or positive magnetic gradient, which may be associated with the presence of high magnetic susceptibility soil-filled features, such as pits or ditches.

negative magnetic: regions of anomalously low or negative magnetic gradient, which may be associated with features of low magnetic susceptibility, such as stone-built features, geological features, land-drains or sub-surface voids.

dipolar magnetic: regions of paired positive-negative magnetic anomalies, which typically reflect ferrous or fired materials, including fired/ferrous debris in the topsoil, modern services, metallic structures, or fired structures, such as kilns or hearths.

diffuse anomalies: areas of diffuse or indistinct magnetic gradient, which may be associated with the presence of geological features or be caused by modern agricultural practices.

2.5.2 Discrete dipolar magnetic anomalies were detected across the whole of the study area. These are almost certainly caused by fired/ferrous litter in the topsoil, which is typical for modern agricultural land. These anomalies are indicated on the geophysical interpretation drawings, but not referred to again in the subsequent interpretations.

2.6 Presentation

2.6.1 The grey-scale images were combined with site survey data and Ordnance Survey data to produce the geophysical survey plans. Colour-coded geophysical interpretation diagrams are provided, showing the locations and extent of positive, negative, dipolar, and diffuse magnetic anomalies.

2.6.2 Archaeological interpretation diagrams are provided, which are based on the interpretation of the geophysical survey results, in light of the archaeological and historical background of the site.

2.6.3 Trace plots of the unprocessed geophysical data are included in Appendix I.

2.7 Project Archive

2.7.1 The data archive for this project has been created in accordance with the recommendations of the Archaeology Data Service (ADS 2001). The archive is currently held at the company offices at Nenthead, Cumbria.

2.7.2 One copy of the survey report will be deposited with the County Historic Environment Record, where viewing will be available on request. The project is also registered with the **O**nline **A**cces**S** to the **I**ndex of archaeological investigation**S** (**OASIS**). The OASIS reference for this project is **northpen3-30888**2.

3 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

3.1 Historical Background

3.1.1 The archaeological and historical background of the site has been presented in a desk-based assessment of the surrounding area (ASUD 2006). The results of this assessment are summarised below.

3.1.2 There is evidence that the area of the proposed development was exploited during the prehistoric period. Mesolithic (*c.*800-4500 BC) stone tools have been found near Hawthorn Tower, Hawthorn East Farm, around Hawthorn Village, near Beacon Hill, and at Cold Hesledon. These are likely to represent the presence of nomadic hunter-gatherer groups, exploiting the resources of the surrounding area.

3.1.3 A Bronze Age (*c.*220-750 BC) round barrow is at the southwest corner of the proposed development area, on Batter Law Hill. This is believed to have contained a crouched human burial and possible cremation burial. Further possible barrows have been identified at Murton Moor East Farm, Murton Moor, Croup Hill and Kinley Hill, indicating that the surrounding area was occupied during this period.

3.1.4 Settlement evidence is located immediately east of Batter Law Hill, in the form of a possible Iron Age enclosure (*c.*750 BC-70 AD), which has been identified on air photographs of the site. Quern stones (for grinding corn) dated to the Iron Age, have previously been found in the vicinity of this enclosure.

3.1.5 There is no evidence for Roman (70 AD-5th century AD) activity in the vicinity of the proposed development area. However, evidence for a possible Roman road has been recorded on Murton Moor, 2km to the west of the site. The alignment of the road suggests that it may have ran eastwards towards Cold Hesledon, to the north of the proposed development area.

3.1.6 Place-name evidence suggests that Cold Hesledon (‘*hill by the hazel valley’)* is likely to have medieval origins (5th century AD-1540). Earthworks of possible medieval date have been identified at East farm, Hawthorn Village and at Beacon House and Beacon Hill, to the east of the proposed development area. Evidence for ridge and furrow cultivation has also been identified.

3.1.7 Early maps of the site indicate that the proposed development area was undeveloped land during the post-medieval period (1541 – 1899), being situated to the south of the settlement of Cold Hesledon. The *c.*1844 Tithe plan for Cold Hesledon shows the proposed development area subdivided into a number of fields by this time, with a road running east-west across the site. These features correspond to the field system and track visible at the site today.

3.1.8 Hesledon Bank, situated immediately to the north of the proposed development area, formerly carried the South Hetton to Seaham railway line, which was built in 1835 to transport coal from South Hetton Colliery to Seaham Harbour. Murton Colliery was situated to the north of Hesledon Bank. The railway and colliery have since closed.

3.1.9 Historic Ordnance Survey maps of the area indicated that little change has taken place within the proposed development area during the modern period (1900 to present). The east end of the proposed development was maintained as agricultural land until relatively recently, whilst parts of the west end were maintained as rough pasture.

3.2 Previous Archaeological Works

3.2.1 Batter Law round barrow was subjected to non-professional excavation in the early 20th century. This revealed the presence of a crouched burial with associated flint knife. No other known archaeological excavations have previously taken place within the immediate vicinity of the proposed development area.

3.2.2 Geophysical surveys have been conducted in fields to the north and west, some of which were within the northern part of the proposed development area (Railton 2007). The surveys revealed the presence of ridge and furrow earthworks to the west of the present study area, and field boundaries to the north, which probably date to the medieval or post-medieval periods. Large amounts of magnetic material, believed to be associated with the nearby colliery or the railway embankment, and modern service pipes were detected on the north side of the of the proposed development area.

4 SURVEY RESULTS *(Figures 2-25)*

4.1 Area 1 (Figures 2-4)

4.1.1 Area 1 was to the west of the A19, in an arable field containing a young winter wheat crop. It was bounded by a hedgerow to the east, and a track to the north. The survey area measured 1.08ha, and was situated in the location of one of the proposed wind turbines (No 2). Small dipolar magnetic anomalies were detected across the whole of the survey area. These are almost certainly caused by fired/ferrous litter in the topsoil, which is typical for modern agricultural land, and are not mentioned again in the following interpretations.

4.1.2 A number of parallel positive linear magnetic anomalies were detected in Area 1, aligned northwest-southeast, which were indicative of former ploughing. Two weak positive linear magnetic anomalies were also detected at the south side of this area, aligned northeast-southwest. It is possible that these correspond to the locations of land drains. No other archaeological features were detected in this area.

4.2 Area 2 (Figures 5-7)

4.2.1 Area 2 comprised a 20m-wide strip of land on the west side of the A19, which was positioned close to the route of a proposed electricity cable. The survey area measured 0.64ha, and was located within an arable field containing a young winter wheat crop. The field contained a prominent rounded hill, which has been truncated by the A19 on the west side, and was bounded by a post and wire fence to the north and west. This fence produced a strong dipolar magnetic response along the northern edge of the survey area. A radio mast occupied the top of the hill in this field, and some of the support wires for the mast were located within the southern part of Area 2. These also produced strong dipolar magnetic anomalies.

4.2.2 A number of parallel positive linear magnetic anomalies were detected in Area 2, aligned northwest-southeast, which were indicative of former ploughing. A 3.7m-wide and 130m-long curvilinear magnetic anomaly was detected in the central part of Area 2. This was aligned approximately north-south, curving eastwards at the southern end where it appeared to terminate. It is probable that this anomaly continued outside of the survey area at the northern end. This feature was interpreted as a soil-filled ditch, which had possibly been truncated to the east by the construction of the A19 road.

4.3 Area 3 (Figures 8-10)

4.3.1 Area 3 was located on the northern slope of Batter Law Hill, on the west side of the proposed development area, in the location of a proposed wind turbine (No 1). The survey area measured 1.08ha and was situated within an area of scrub containing young trees and gorse bushes, which made surveying difficult. Consequently, some parts of this survey area could not be surveyed. An electricity pylon was situated in the northeast corner of the survey area, and this produced a strong dipolar magnetic anomaly.

4.3.2 A number of parallel weak positive linear magnetic anomalies were detected in this area, aligned northwest-southeast, which were indicative of former ploughing. Three

positive magnetic linear anomalies were also detected, which were interpreted as possible land drains. A number of discrete strongly positive magnetic anomalies were also detected, which may be soil-filled features, or patches of burnt material of unknown date. An area of diffuse magnetic anomalies was detected on the east side of this area, on the lower slope of a small knoll. These are were almost certainly geological in origin.

4.4 Area 4 (Figures 11-13)

4.4.1 Area 4 was situated to the north of Area 3, in an arable field containing a winter wheat crop. This area measured 0.28ha, and was positioned over the proposed route of an electricity cable/access corridor. It was bounded by an existing track at the northern end, and the steep bank of a field boundary to the south.

4.4.2 A number of parallel weak positive linear magnetic anomalies were also detected in this area, aligned east-west, which were indicative of former ploughing. A small discrete strongly positive magnetic anomalies was also detected at the south end of this area, which may be soil-filled feature. No other archaeological features were detected in this area.

4.5 Area 5 (Figures 14-16)

4.5.1 Area 5 was situated on the east side of the A19, in an arable field to the west of the B1432. This area measured 1.35ha was located in the area of a proposed wind turbine (No 3), and an associated electricity cable/access corridor. The field was bounded by hedgerows to the east and north, and contained oilseed rape stubble at the time of the survey.

4.5.2 Weak positive and negative linear magnetic anomalies were detected across the whole of Area 5, and were due to the modern plough texture. In addition, a series of parallel positive linear magnetic anomalies were detected, which were indicative of earlier plough patterns. These were aligned east-west at the south side of the survey area, and north-south at the northern end, indicating this area had formerly been two separate fields.

4.5.3 A positive magnetic anomaly was detected at the western corner of Area 5, which was interpreted as a possible soil-filled feature. However, it was not possible to fully interpret this anomaly, as it may well have extended outside of the survey area. A number of smaller discrete positive magnetic anomalies were also detected, which were interpreted as possible soil-filled features.

4.6 Area 6 (Figures 17-19)

4.6.1 Area 6 was located to the east of the B1432, and west of Hesledon Lane, in a field of wheat stubble. This area comprised a 20m-wide strip of land, measuring 0.48ha, in the location of a proposed electricity cable/access corridor. The southern end of the survey area was bounded by a mature hedgerow and wire fence, which produced a strong negative anomaly.

4.6.2 A strongly dipolar linear magnetic anomaly was detected at the west end of the survey area. This was almost certainly a modern service pipe or drain. Three weak positive linear magnetic anomalies were also detected, aligned east-west, which were interpreted as possible land drains. No other archaeological features were detected in this area.

4.7 Area 7 (Figures 20-22)

4.7.1 Area 7 was located on the east side of the proposed development area in the location of a proposed turbine (No 4). It comprised 1.08ha of land, situated on the top of a low hill within a field of wheat stubble. The steep bank of a field boundary bounded the survey area to the north. Two electricity pylons were located within this area, which produced strong dipolar anomalies. A stack of straw was also present, which could not be surveyed.

4.7.2 A linear string of strongly dipolar magnetic anomalies was detected, aligned northwest-southeast, which was interpreted as a service pipe. Two weak linear positive magnetic anomalies were also detected, aligned north-south, which were indicative of former ploughing. A linear positive magnetic anomaly was detected at the north side of the survey area, which was interpreted as a former field boundary, or possibly a land drain. Along the northern edge of this area, a linear negative magnetic anomaly indicated the limit of the ploughed area, and the bottom of the field boundary bank. A positive magnetic anomaly at the south side of Area 7 was interpreted as a possible soil-filled feature.

4.8 Area 8 (Figures 23-25)

4.8.1 The final survey area, Area 8, was located immediately to the south of Area 7, and was situated in the location of a proposed electricity cable/access corridor. It comprised a 20m-wide strip of land, and measured 0.15ha, bounded by a field boundary at the southern end.

4.8.2 A number of parallel positive linear magnetic anomalies were detected in Area 8, aligned north-south, which were indicative of former ploughing. A linear positive magnetic anomaly was detected as the south side of this area, which was interpreted as a former field boundary. To the south side of this was a linear negative magnetic anomaly, which corresponded to the limit of modern ploughing, and the location of the present field boundary. A number of weak curvilinear positive magnetic anomalies were also detected in the central part of Area 8, which appeared to extend outside the survey area. These were interpreted as possible soil-filled features, but the nature of these features was uncertain.

5 CONCLUSIONS

5.1 Geomagnetic surveys, measuring just over 6ha in total, have been conducted over eight separate areas within the proposed development area, covering the locations of the four proposed turbines, and associated electricity cable/access corridors. The surveys have detected a number of modern and post-medieval features including service pipes, field boundaries, possible land drains, and evidence for former ploughing regimes.

5.2 The most significant archaeological feature detected during the survey was a curvilinear soil-filled ditch in Area 2. This feature appears to have been part of an enclosure ditch, which may have continued to the east of the survey area, possibly encircling the top of a hill. This hill has been bisected by the construction of a cutting for the A19 road, which may have also removed any evidence for the ditch to the east of the survey area. A possible ditch terminal has been identified at the south end of this feature, which may indicate the location of an entrance. The date of this feature is unknown. However, the possibility exists that this was part of a prehistoric enclosure, given the close proximity of a Bronze Age burial monument on Batter Law Hill, and the known presence other prehistoric enclosures in the area. This feature should be targeted in the trial trench evaluation, in order to provide further information regarding its date and function.

5.3 A number of possible soil-filled features of unknown date have been identified in Area 3, on the lower slopes of Batter Law Hill, and in Areas 7 & 8, on the east side of the proposed development area. The features in Area 3 may be recent, as this area has been subjected to modern tree-planting. The nature of the features in Areas 7 & 8 is uncertain, as these are difficult to interpret given the small size of the survey area. Therefore it is recommended that a sample of these are targeted in the trial trench evaluation.

6 ACKNOWLEDGEMENTS

North Pennines Archaeology is grateful to Frigga Kruse of Ian Farmer Associates for commissioning the geophysical surveys.

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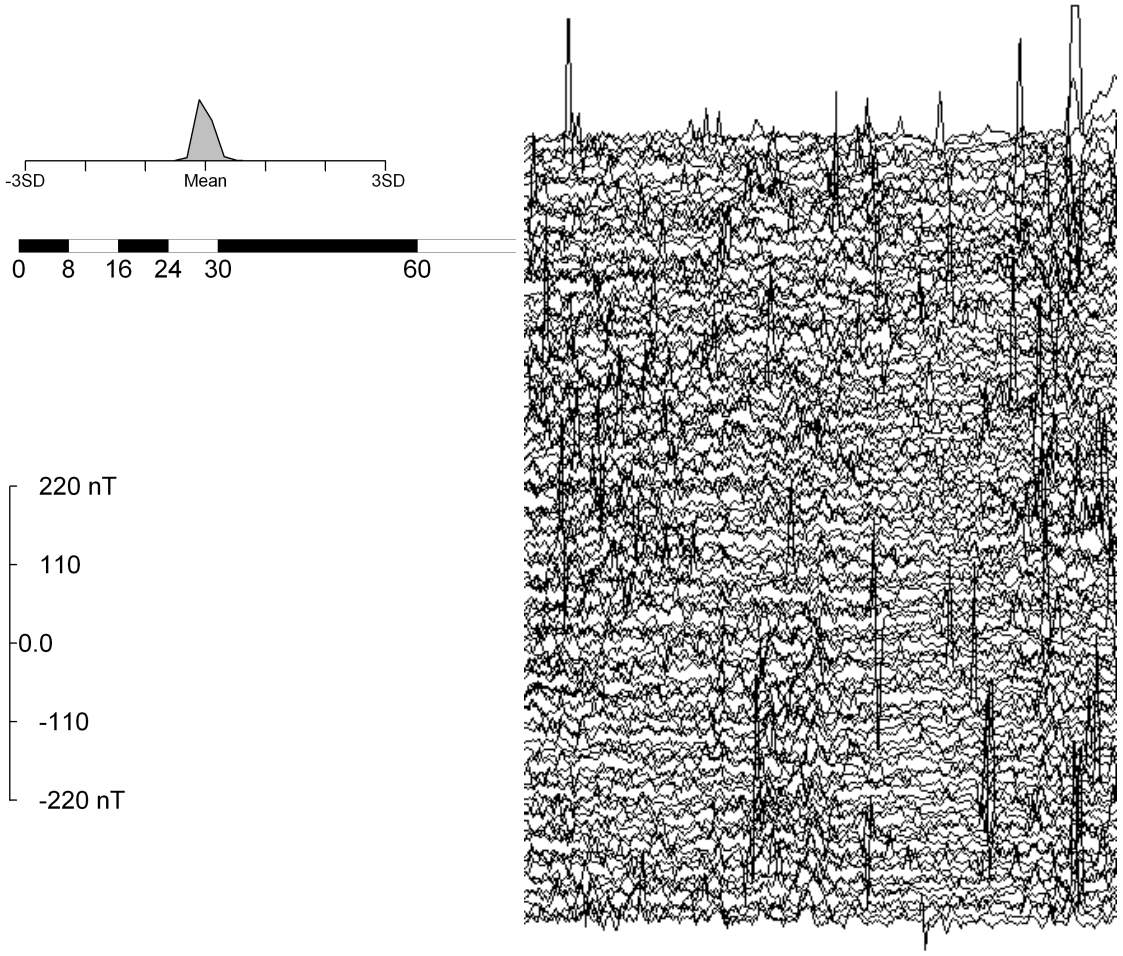
APPENDIX I – TRACE PLOTS OF THE GEOPHYSICAL DATA

Area 1



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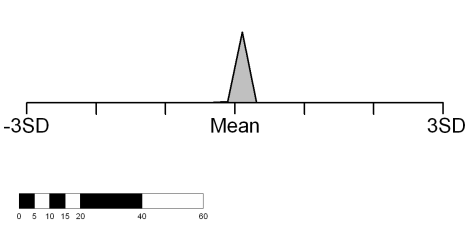

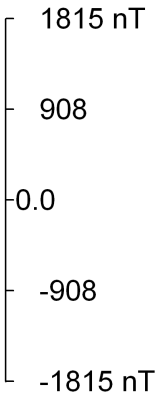

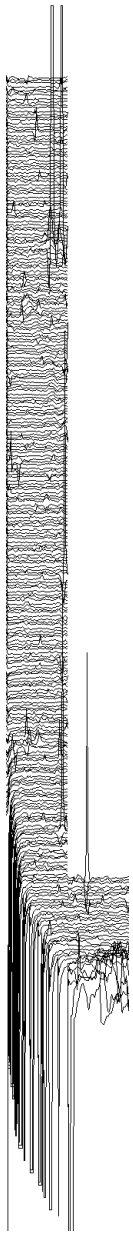

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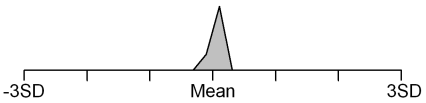

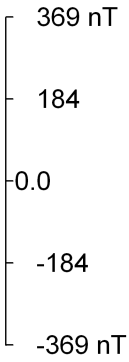

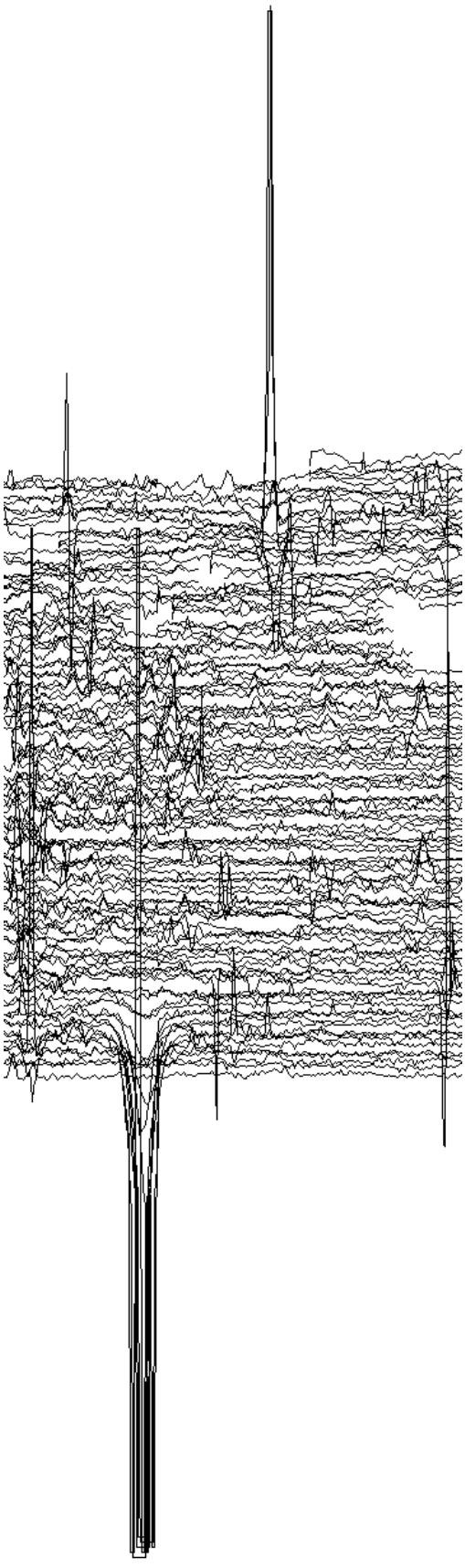

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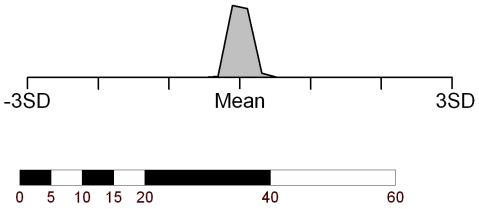

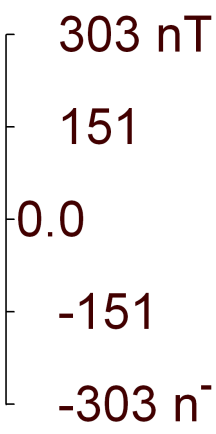

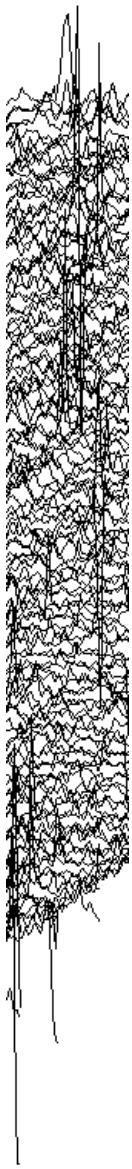

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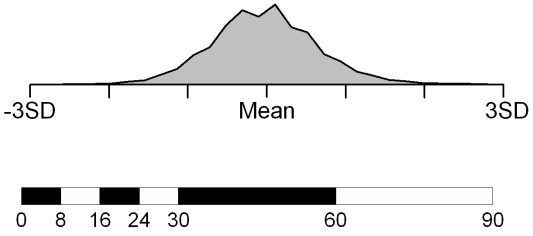

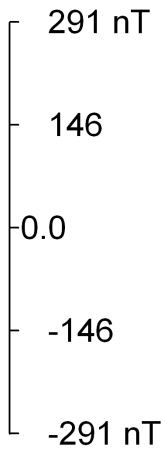

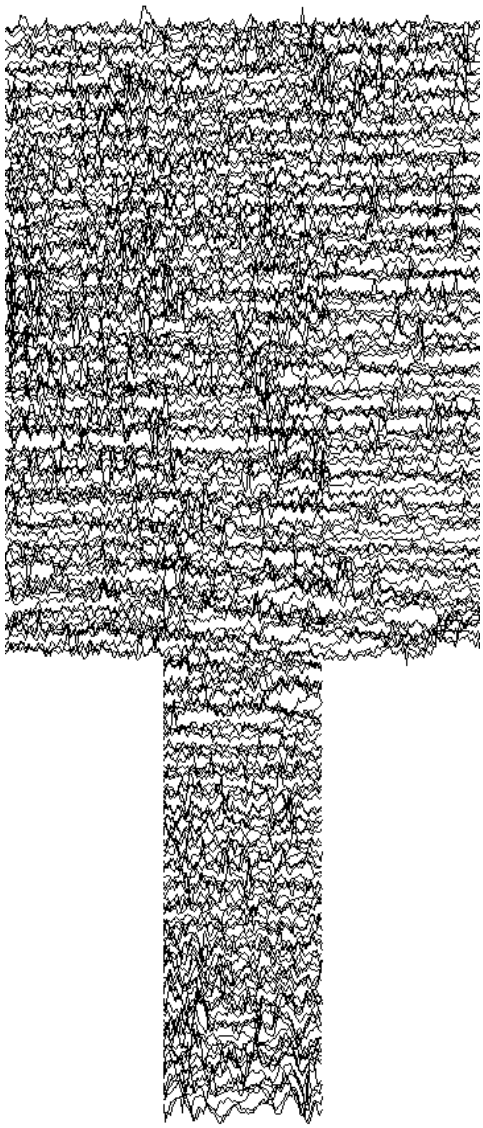

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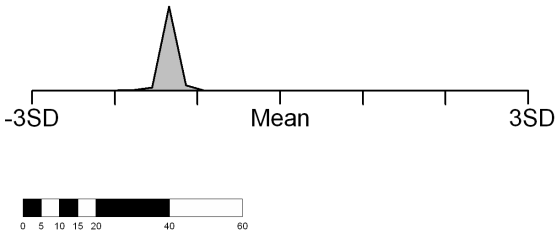
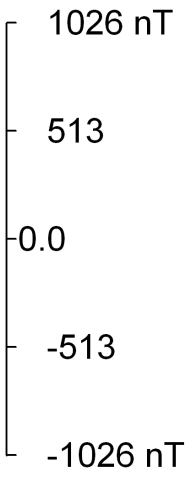
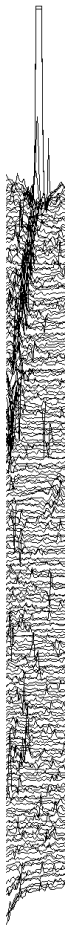
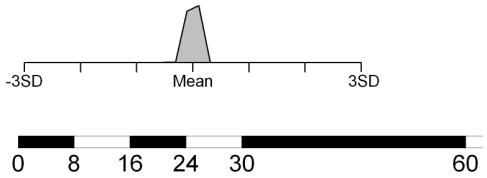
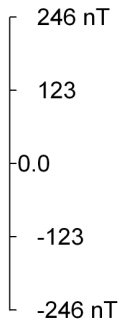


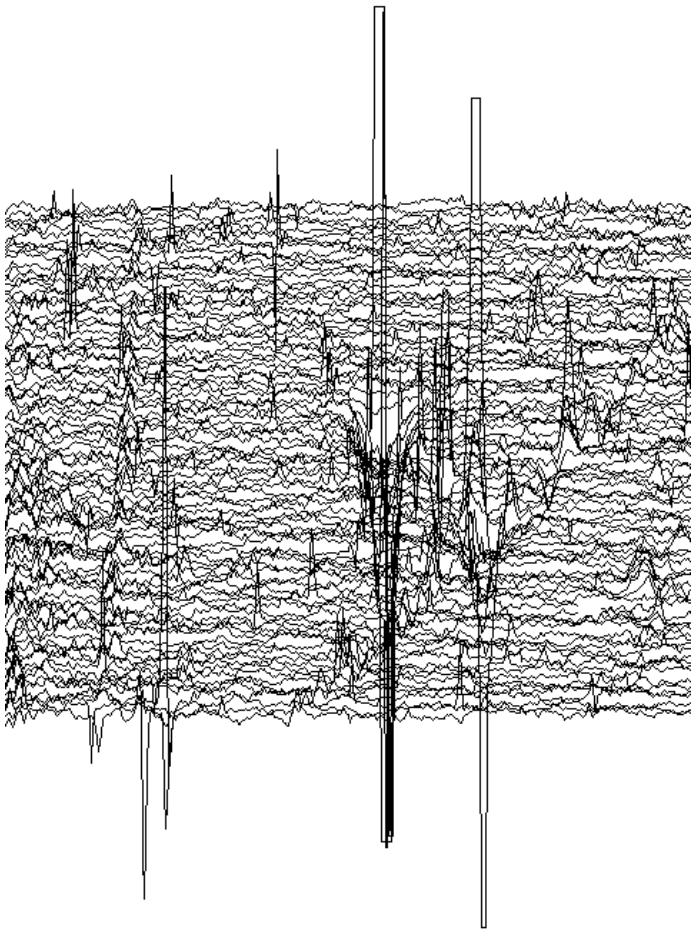




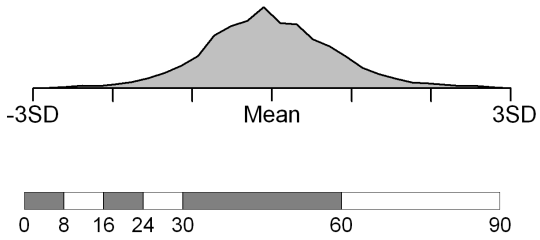
Area 7

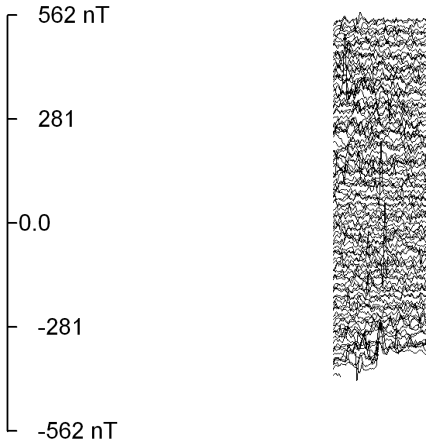






Area 8





APPENDIX II – ILLUSTRATIONS

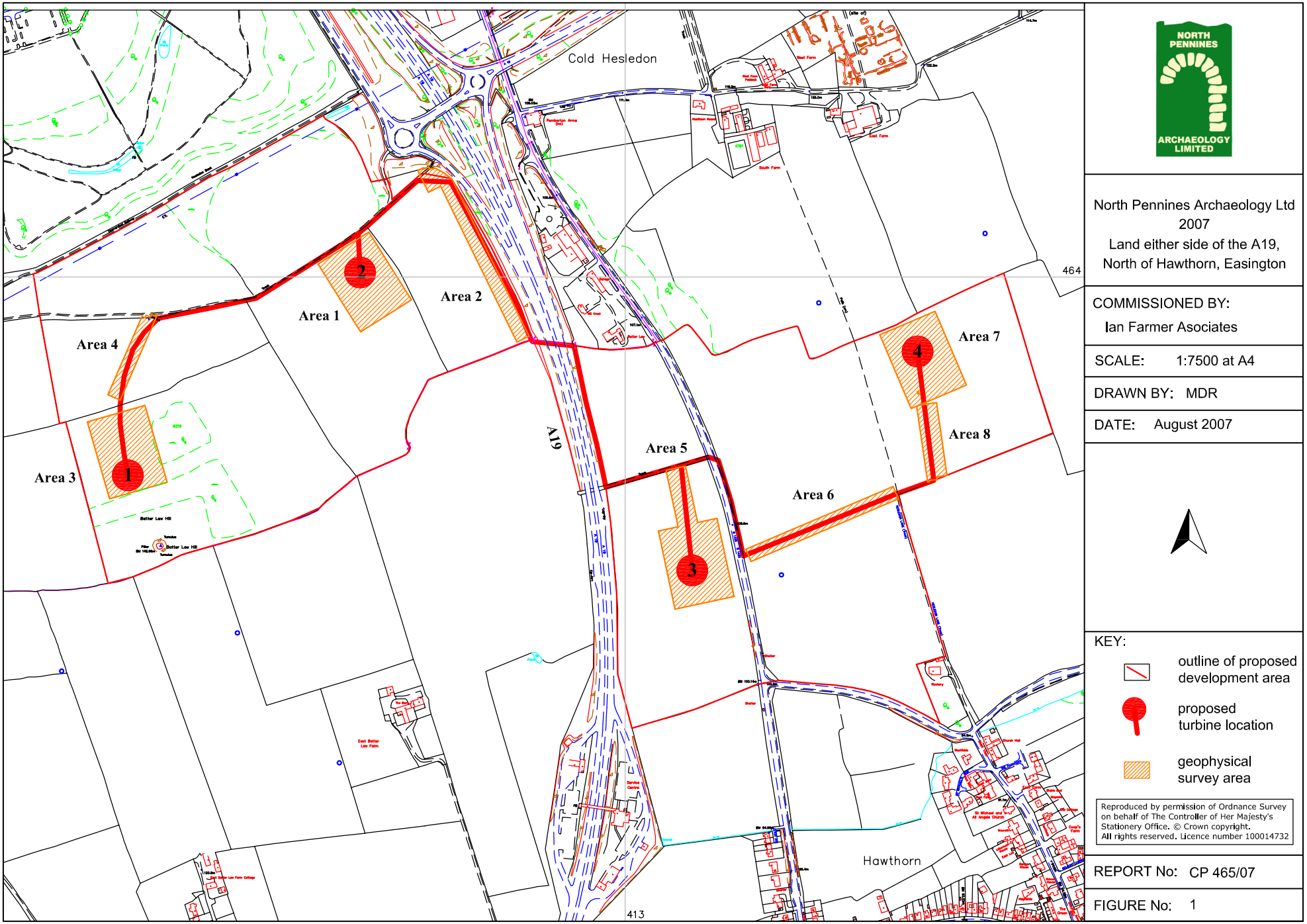
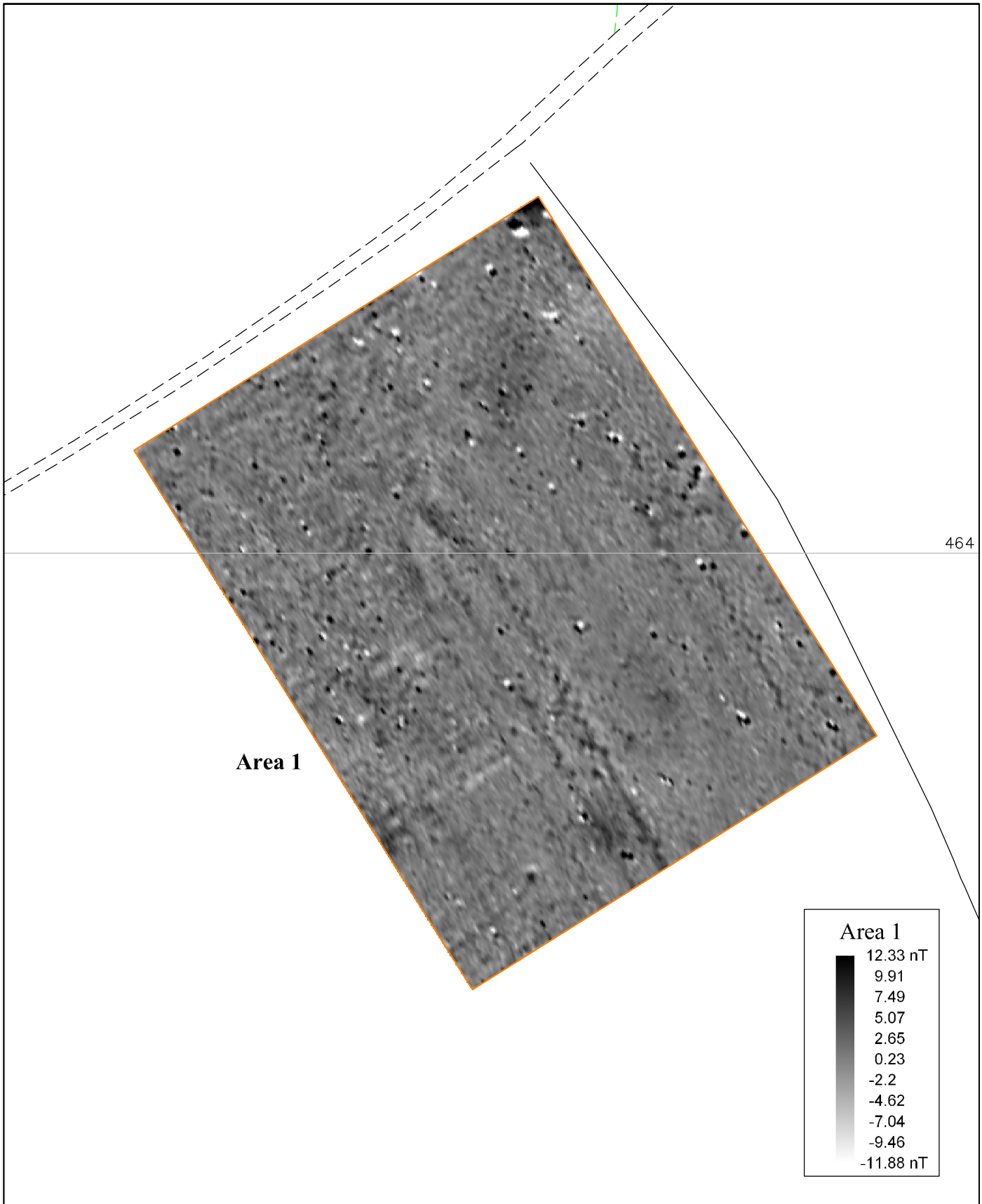


Figure 1 : Location of geophysical survey areas (Areas 1-8) showing proposed turbine locations (1-4)



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DATE:	August 2007
FIGURE No:	2

outline of proposed development area

outline of geophysical survey area

Figure 2 : Geophysical survey of Area 1

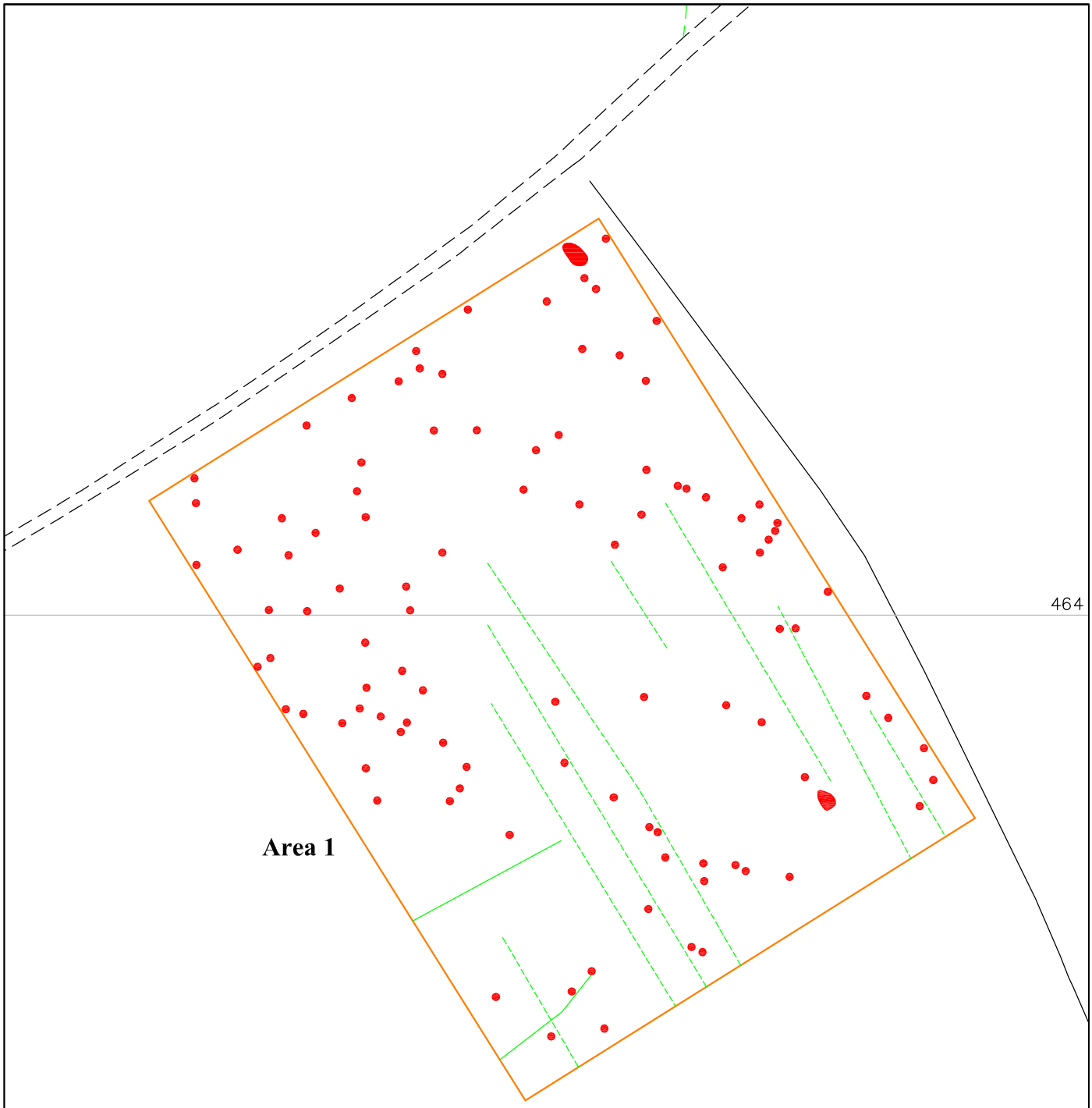

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FIGURE No:	3

outline of proposed development area

outline of geophysical survey area

positive magnetic anomaly

dipolar magnetic anomaly

Figure 3 : Geophysical interpretation of Area 1

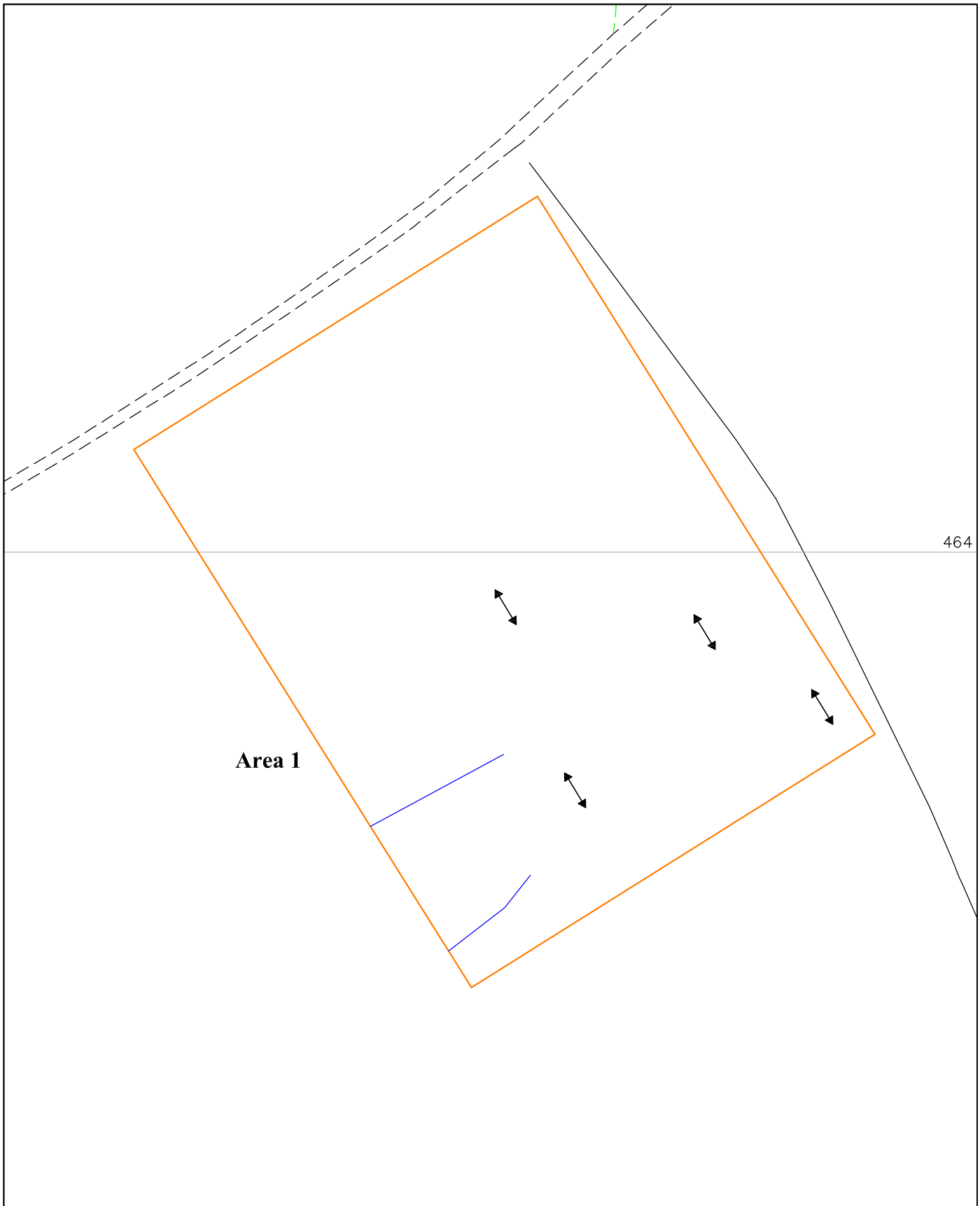

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FIGURE No:	4

- outline of proposed development area
- outline of geophysical survey area
- land drain
- direction of ploughing

Figure 4 : Archaeological interpretation of Area 1

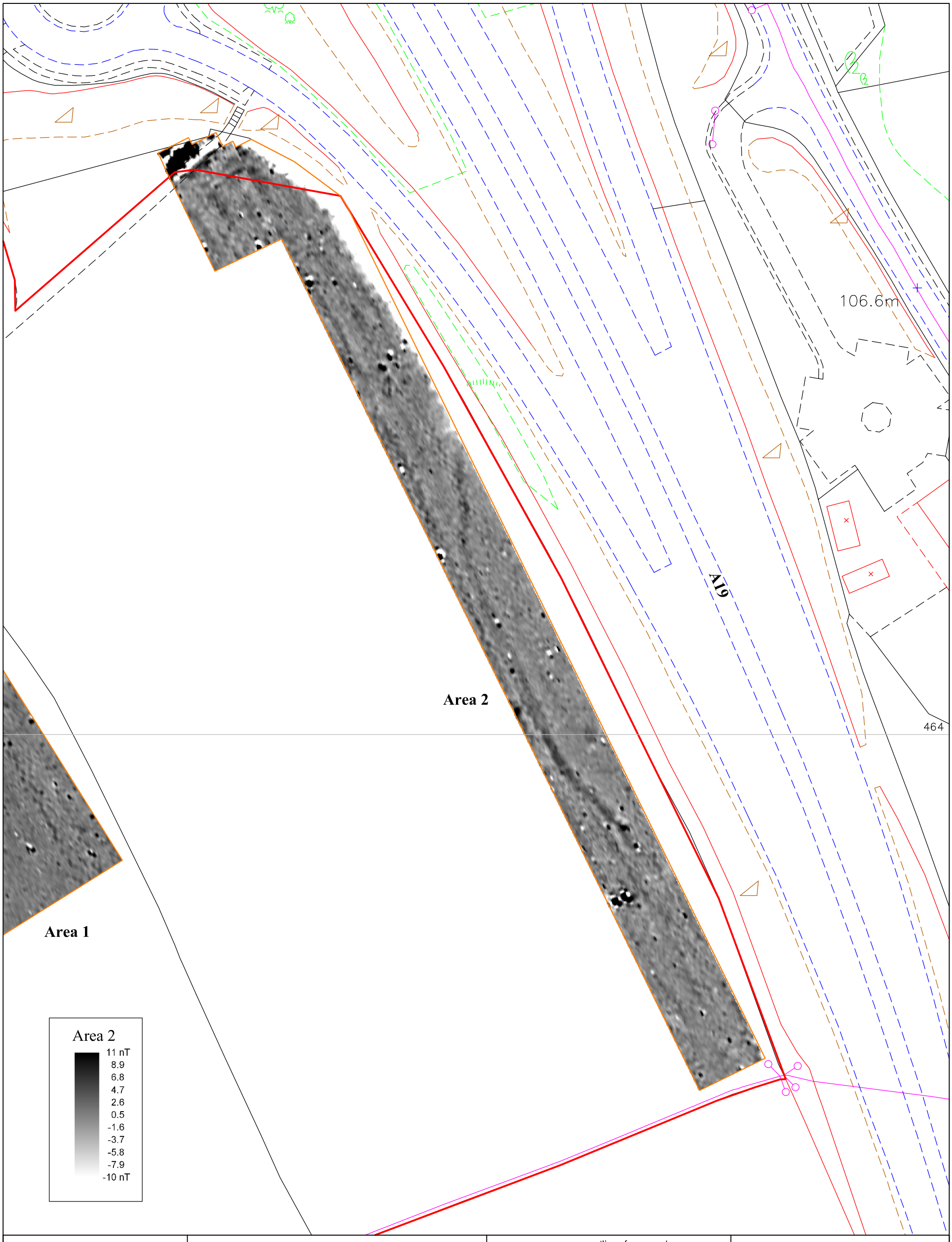

Figure 5 : Geophysical survey of Area 2

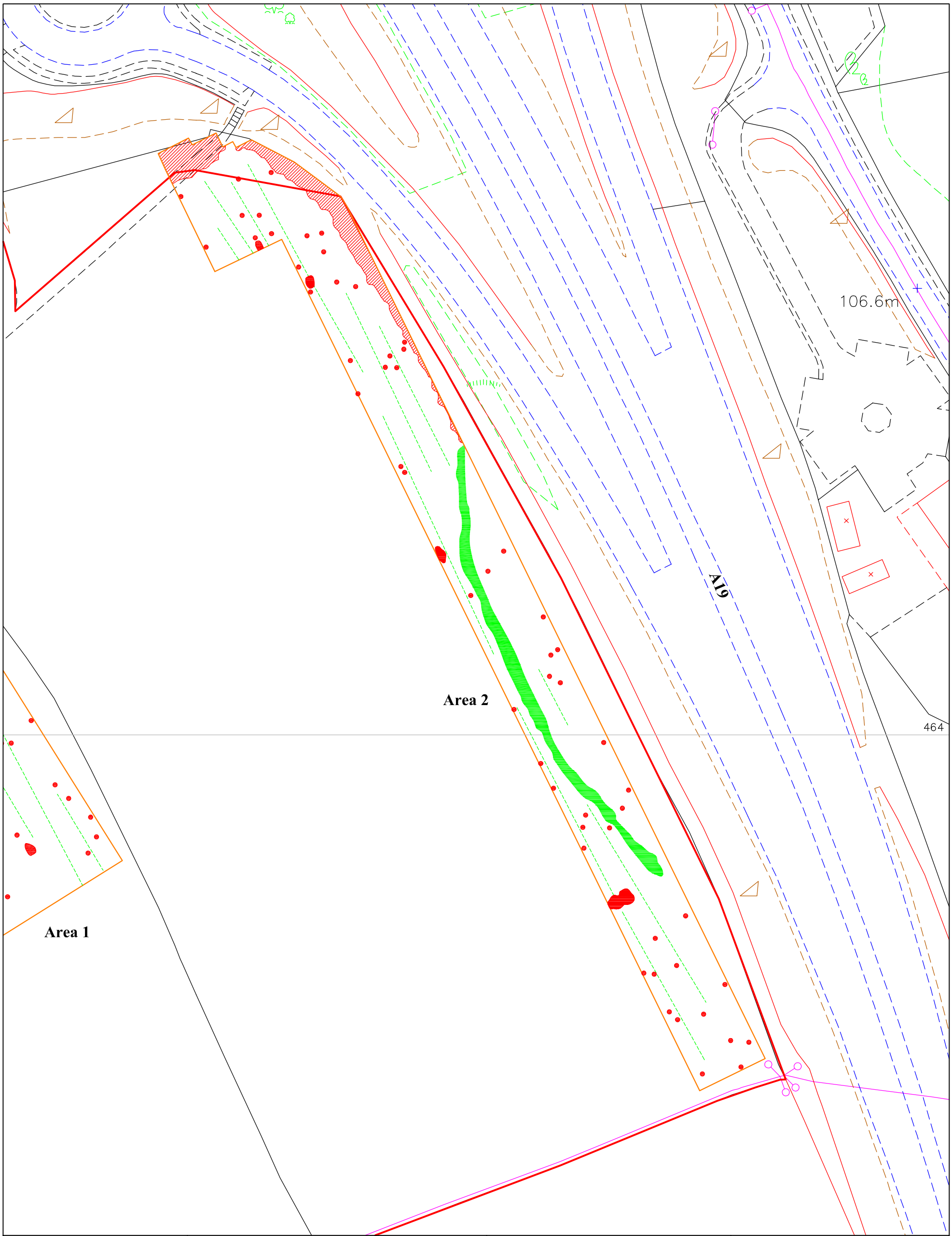

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FIGURE NO:	6

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- outline of proposed development area
- outline of geophysical survey area
- positive magnetic anomaly
- dipolar magnetic anomaly

Figure 6 : Geophysical interpretation of Area 2

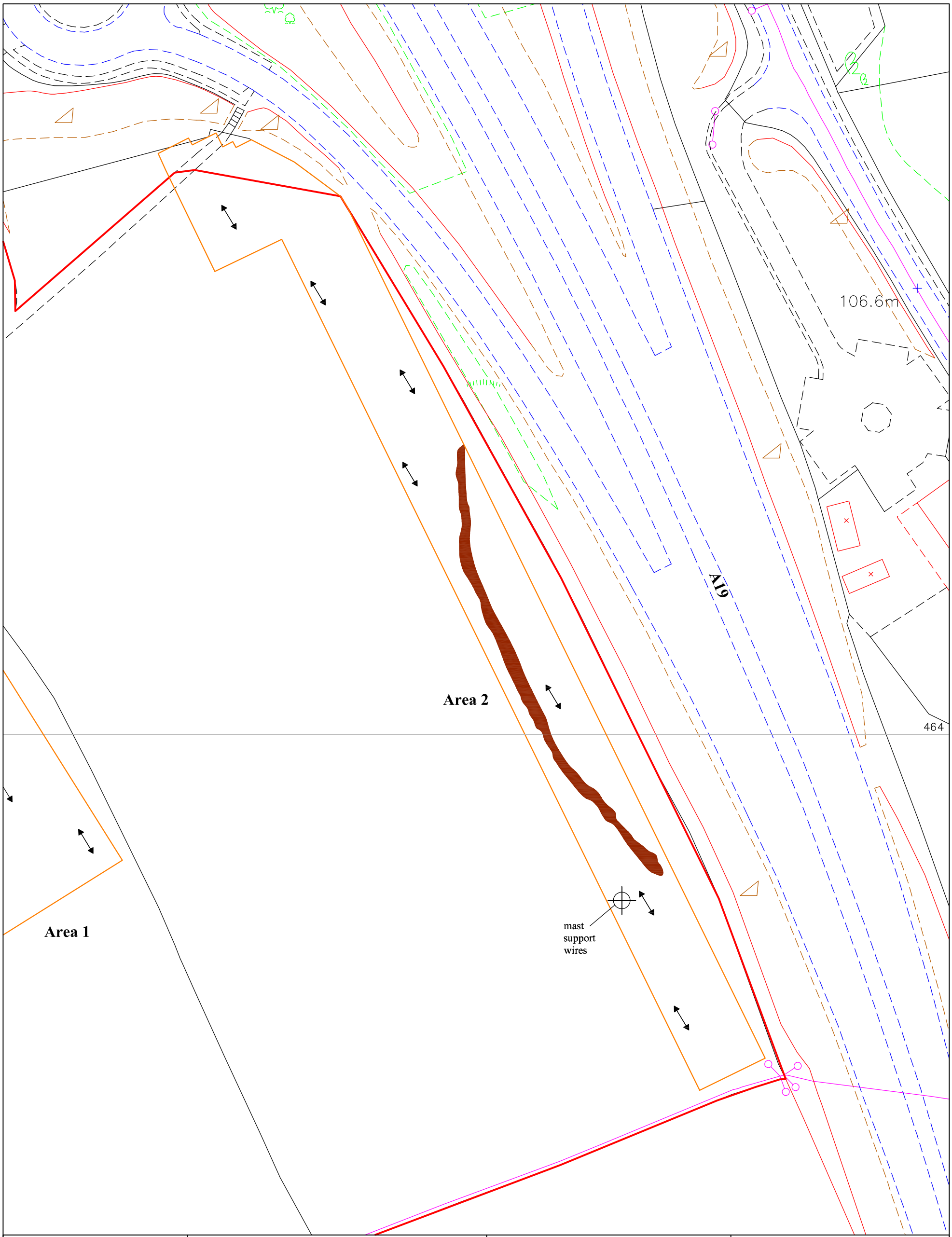

Figure 7 : Archaeological interpretation of Area 2

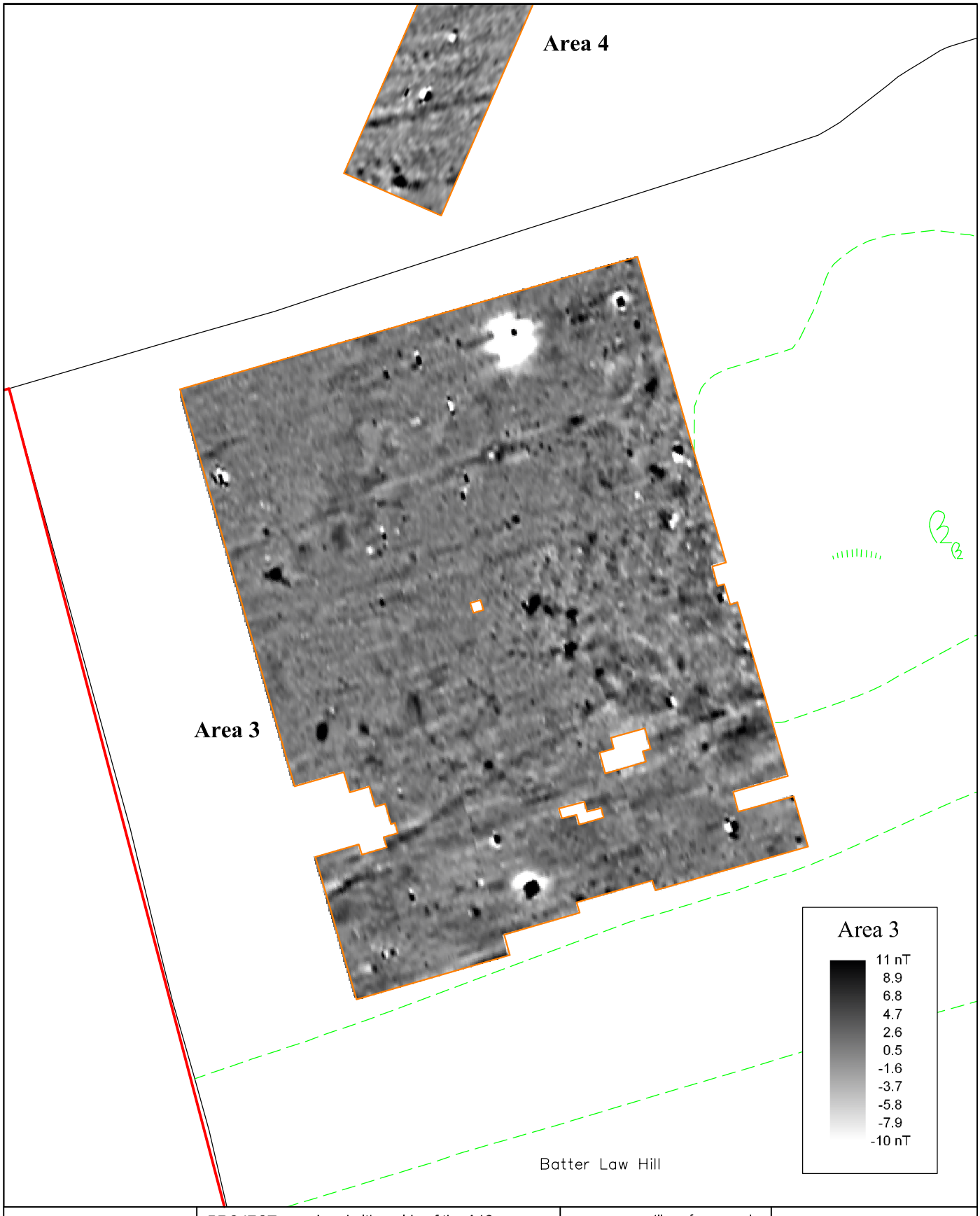

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FIGURE No:	8

outline of proposed development area

outline of geophysical survey area

Figure 8 : Geophysical survey of Area 3

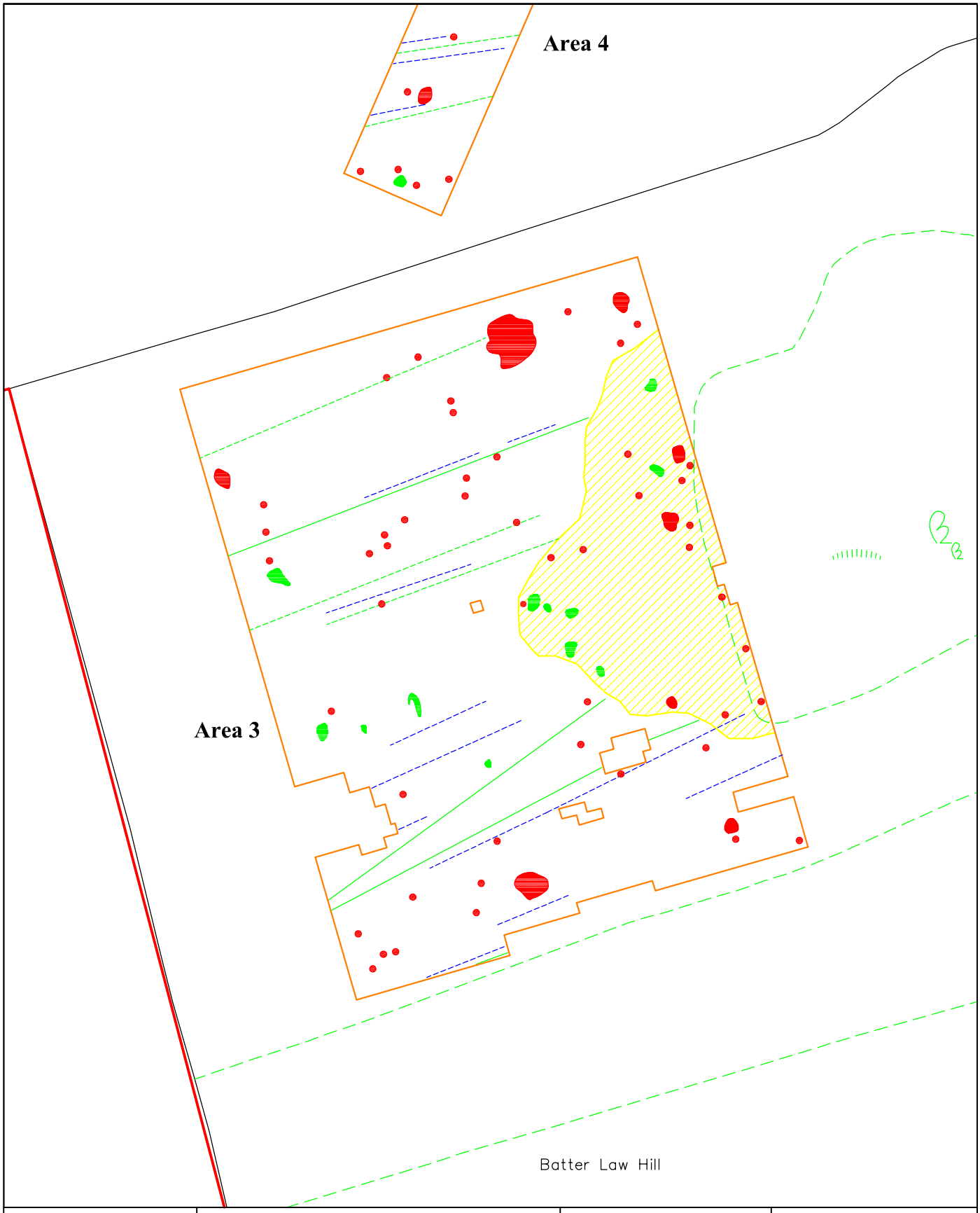

Figure 9 : Geophysical interpretation of Area 3

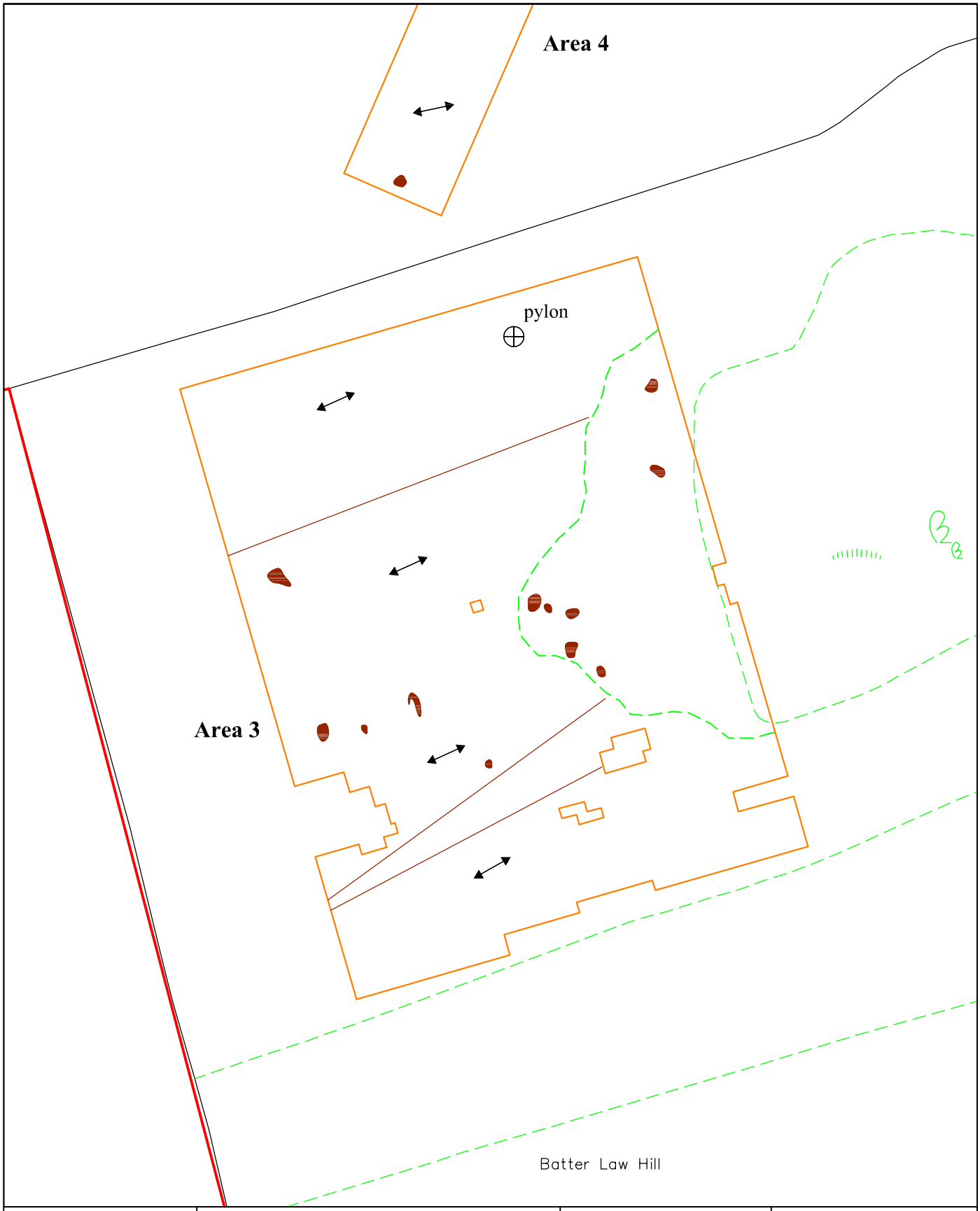

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FIGURE No:	10

- outline of proposed development area
- outline of geophysical survey area
- direction of ploughing
- possible soil-filled features
- geology

Figure 10 : Archaeological interpretation of Area 3

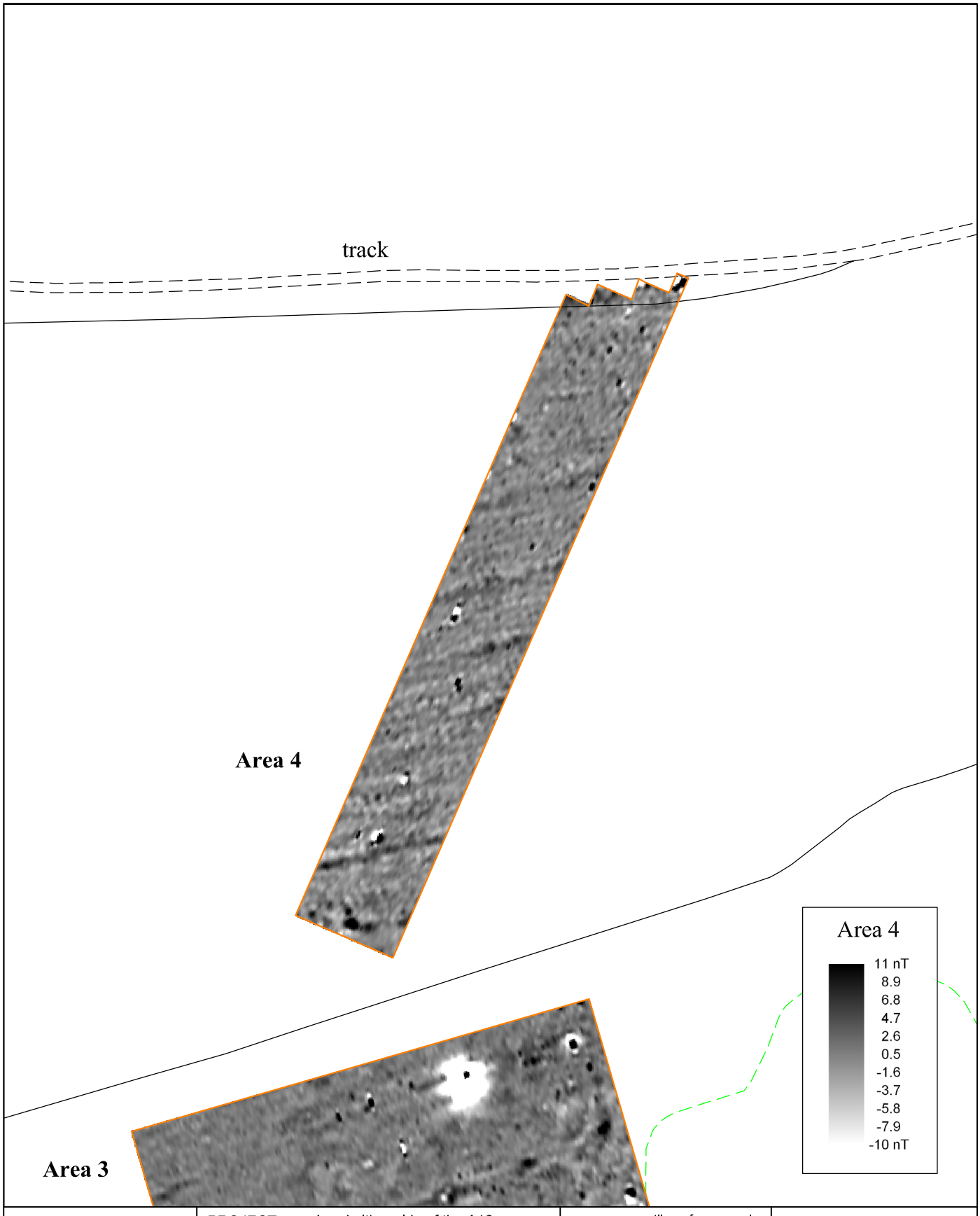

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FIGURE No:	11

outline of proposed development area

outline of geophysical survey area

Figure 11 : Geophysical survey of Area 4

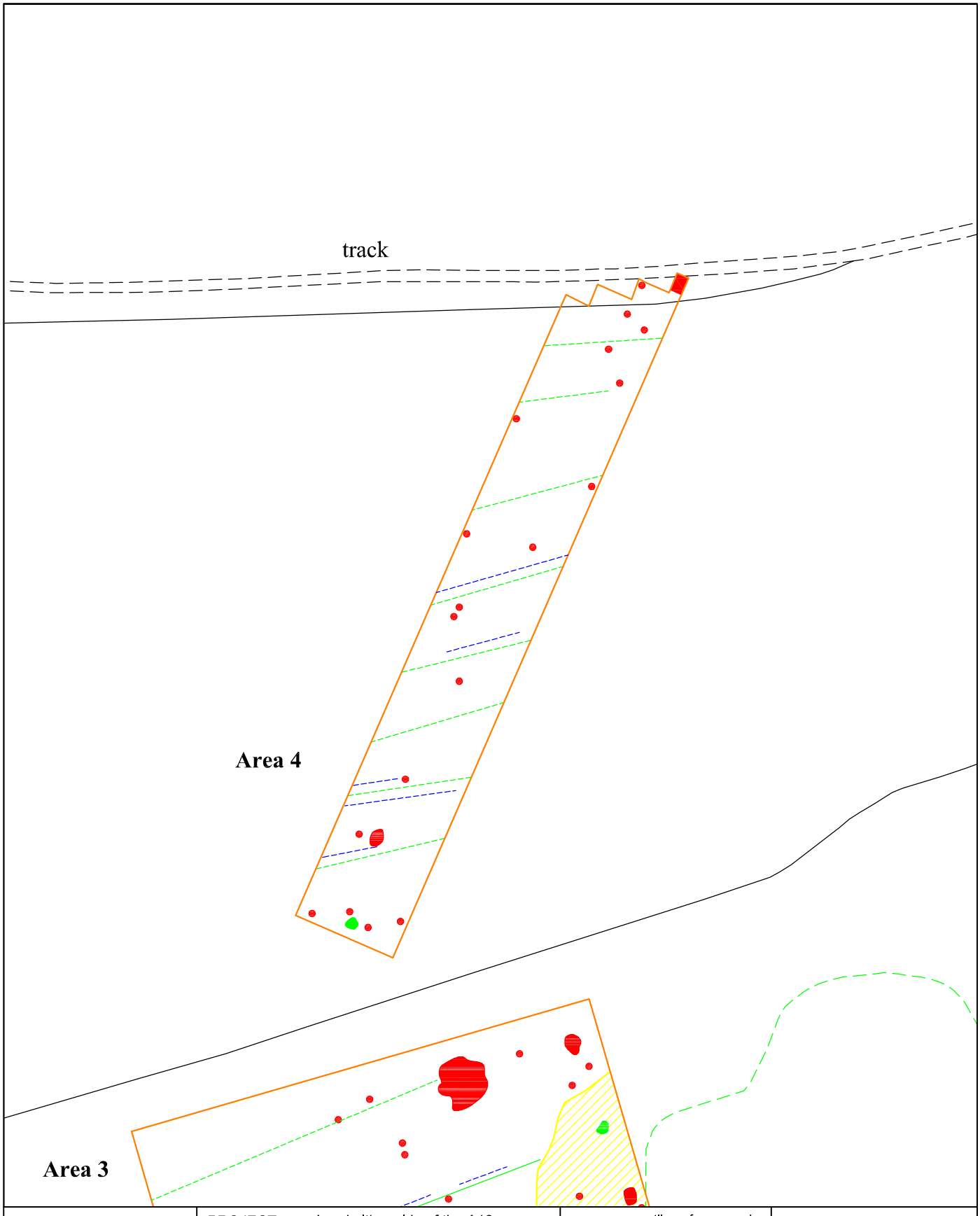

Figure 12 : Geophysical interpretation of Area 4

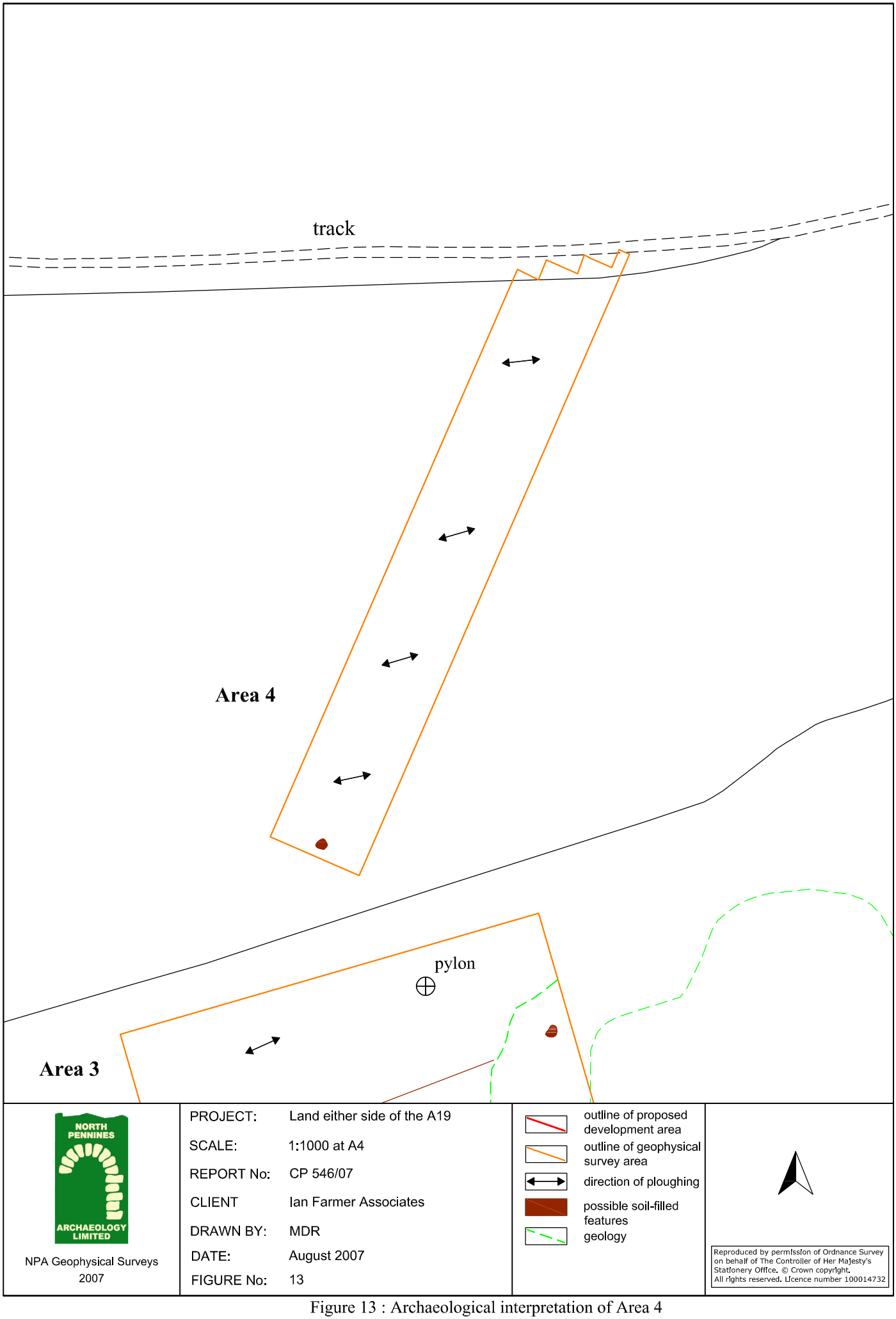

Figure 13 : Archaeological interpretation of Area 4

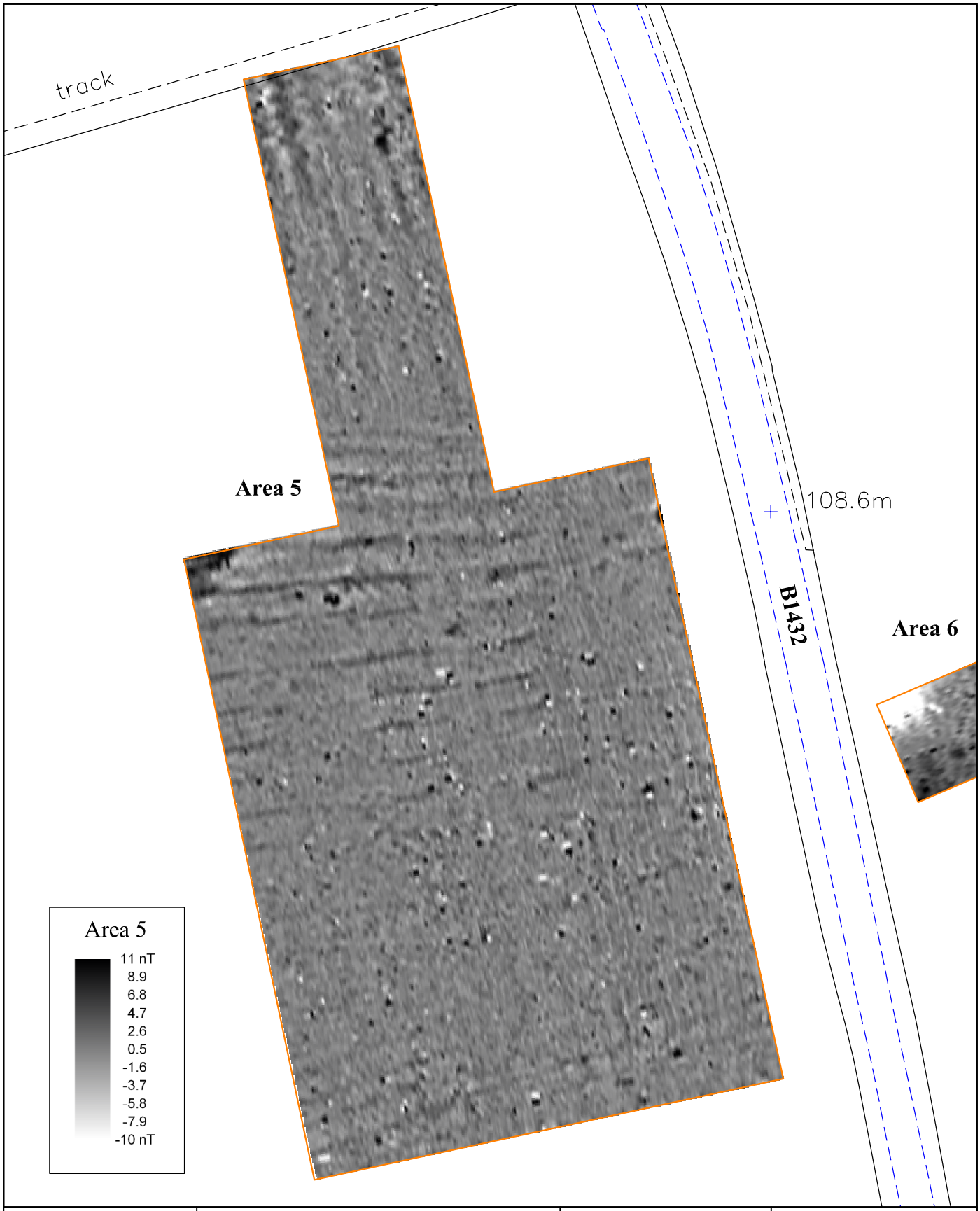

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FIGURE No:	14

outline of proposed development area

outline of geophysical survey area

Figure 14 : Geophysical survey of Area 5

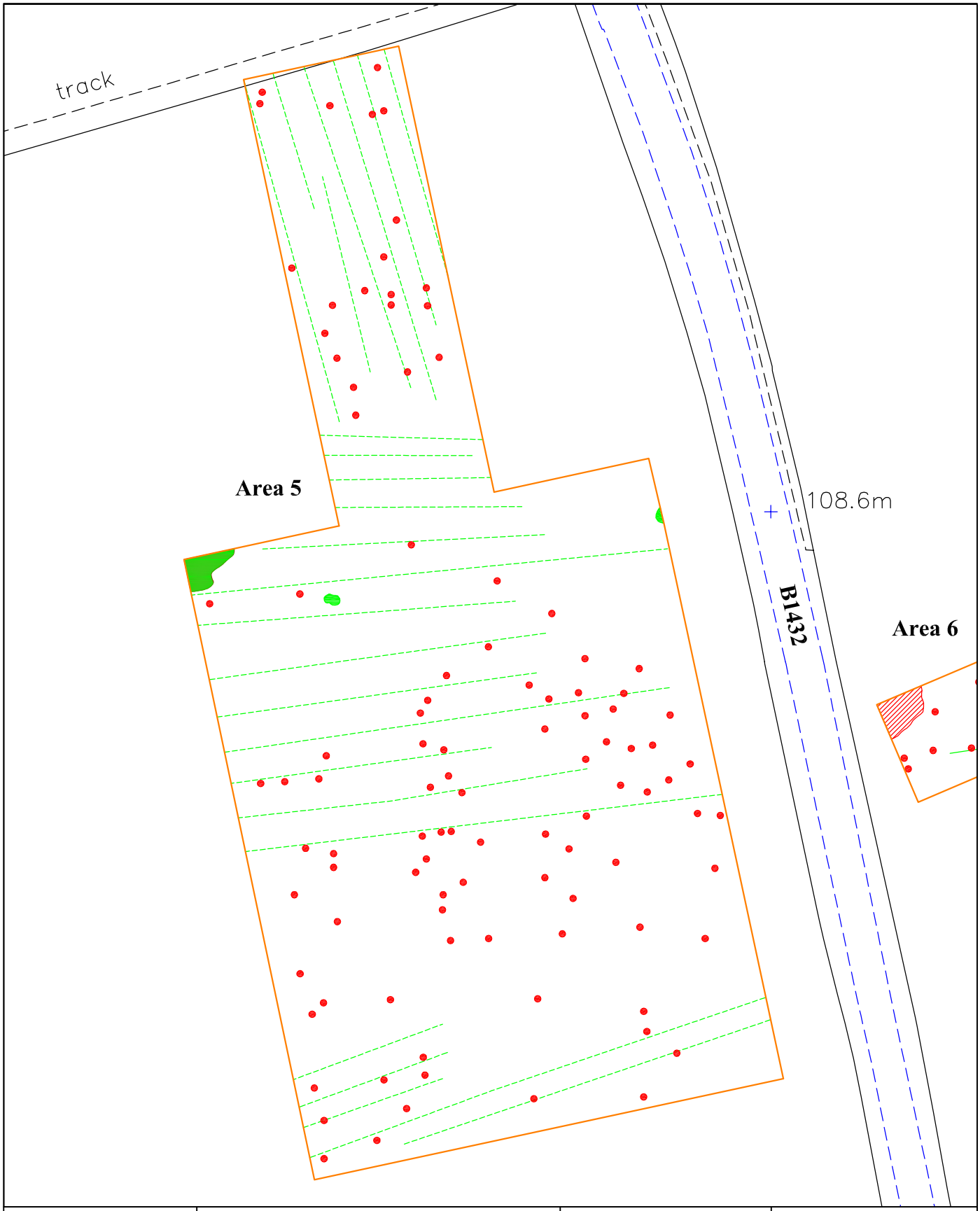

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FIGURE No:	15

- outline of proposed development area
- outline of geophysical survey area
- positive magnetic anomaly
- dipolar magnetic anomaly

Figure 15 : Geophysical interpretation of Area 5

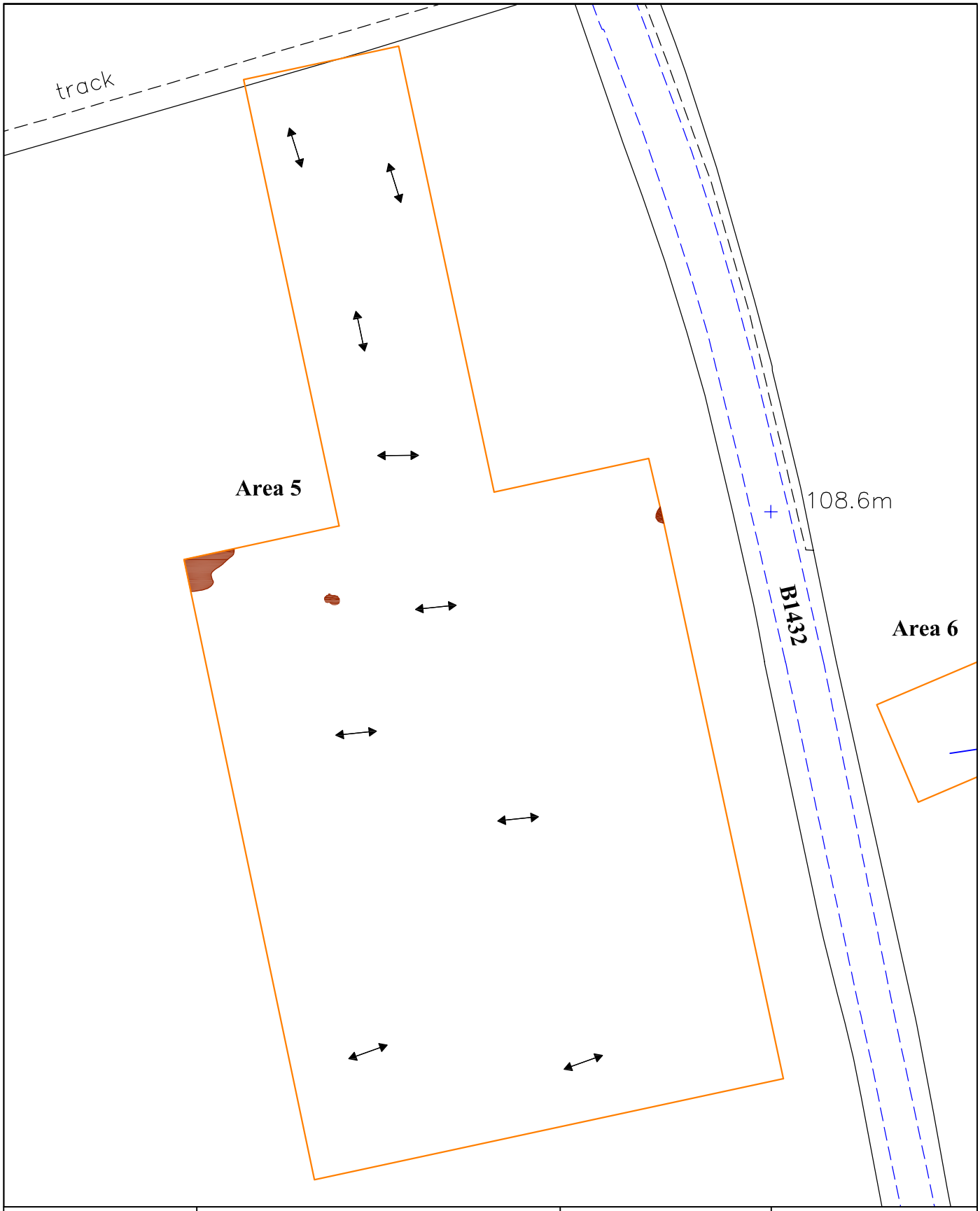

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FIGURE No:	16

- outline of proposed development area
- outline of geophysical survey area
- possible land drain
- direction of ploughing
- possible soil-filled features

Figure 16 : Archaeological interpretation of Area 5

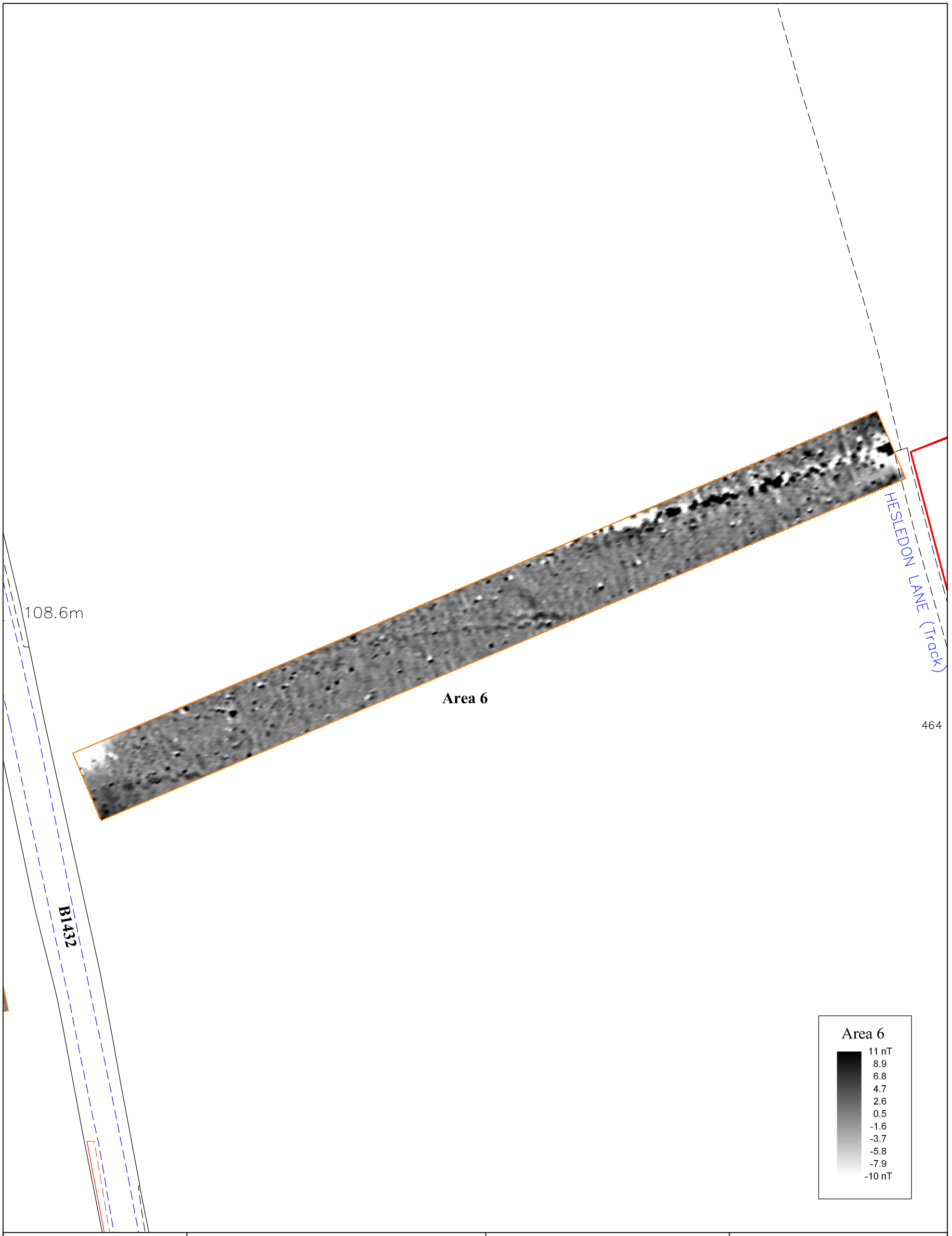

Figure 17 : Geophysical survey of Area 6

HESLEDON LANE (Track)

108.6m

B1432

Area 6

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FIGURE NO:	18

- outline of proposed development area
- outline of geophysical survey area
- positive magnetic anomaly
- dipolar magnetic anomaly

Figure 18 : Geophysical interpretation of Area 6

HESLEDON LANE (Track)

108.6m

B1432

Area 6

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FIGURE NO:	19

outline of proposed development area

outline of geophysical survey area

possible land drain

service pipe

Figure 19 : Archaeological interpretation of Area 6

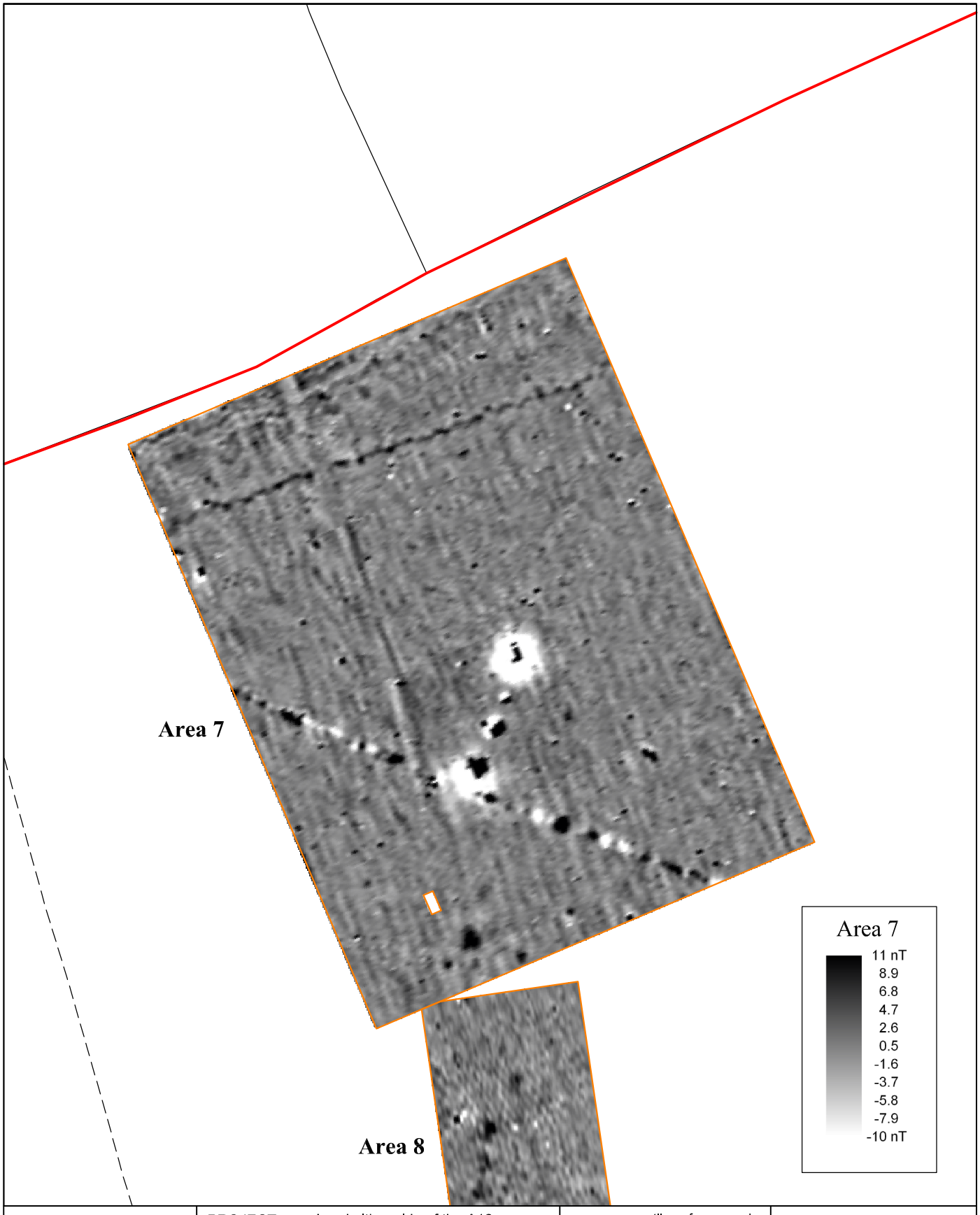

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FIGURE No:	20

outline of proposed development area

outline of geophysical survey area

Figure 20 : Geophysical survey of Area 7

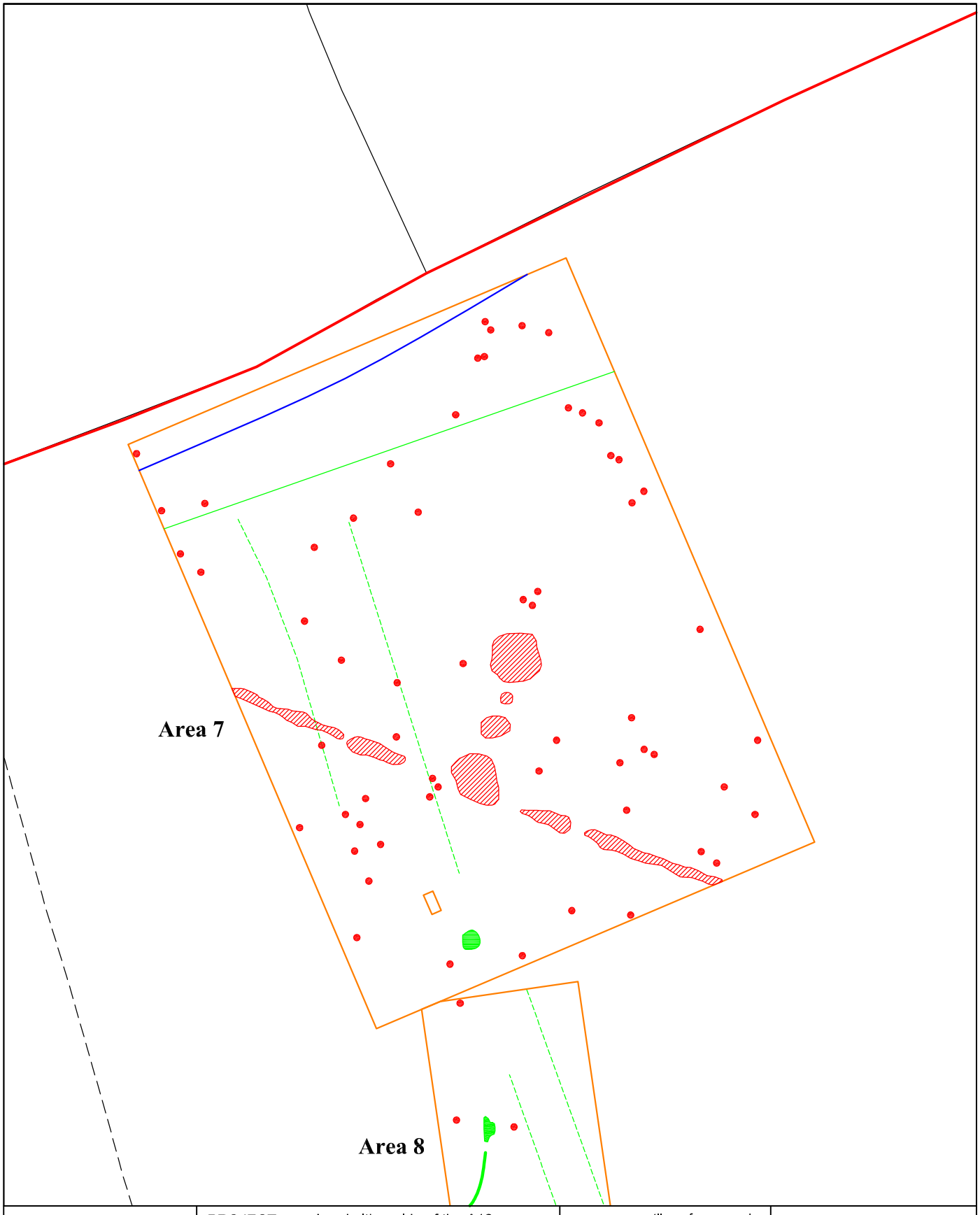

Figure 21 : Geophysical interpretation of Area 7

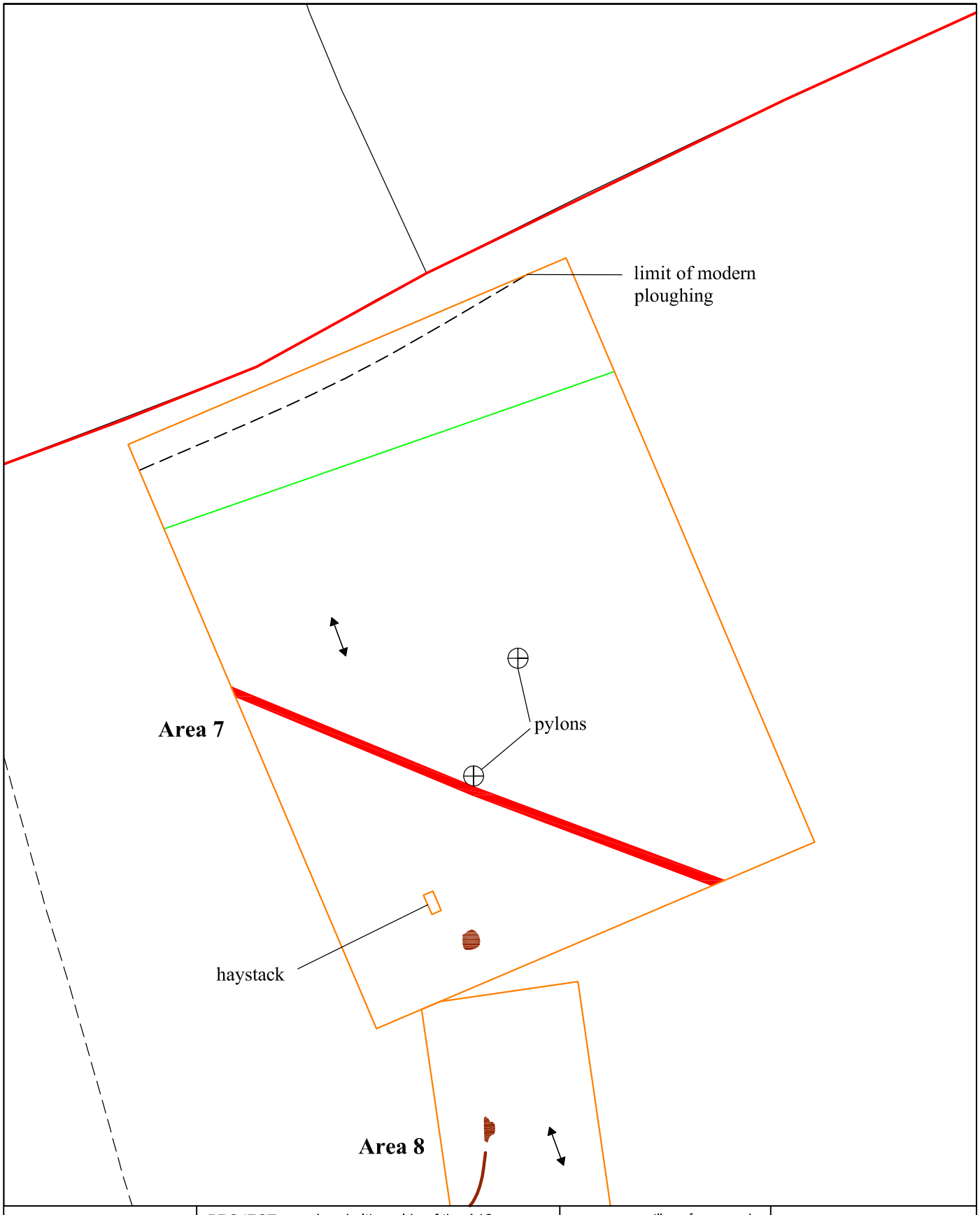

Figure 22 : Geophysical survey of Area 7

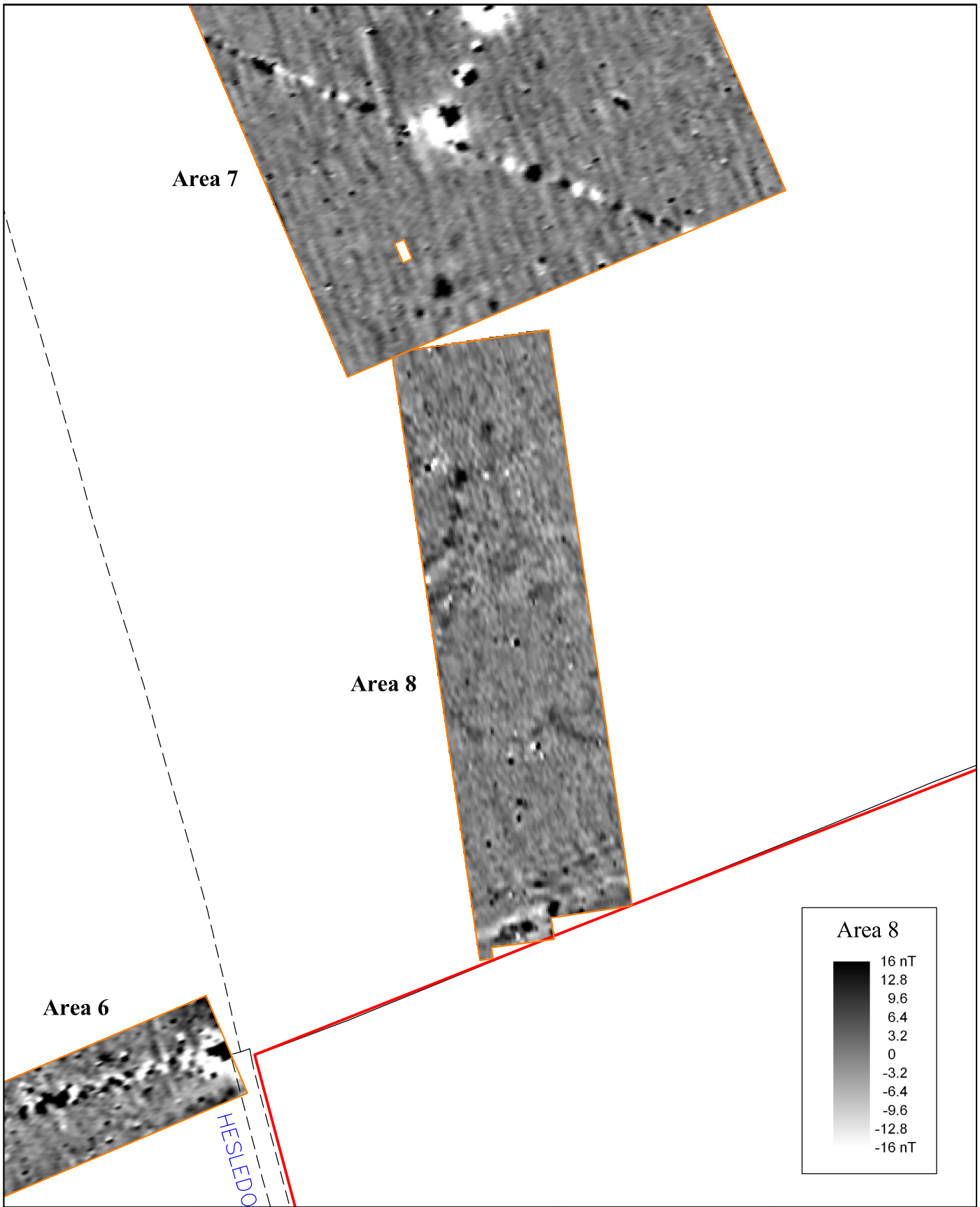

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FIGURE No:	23

outline of proposed development area

outline of geophysical survey area

Figure 23 : Geophysical survey of Area 8

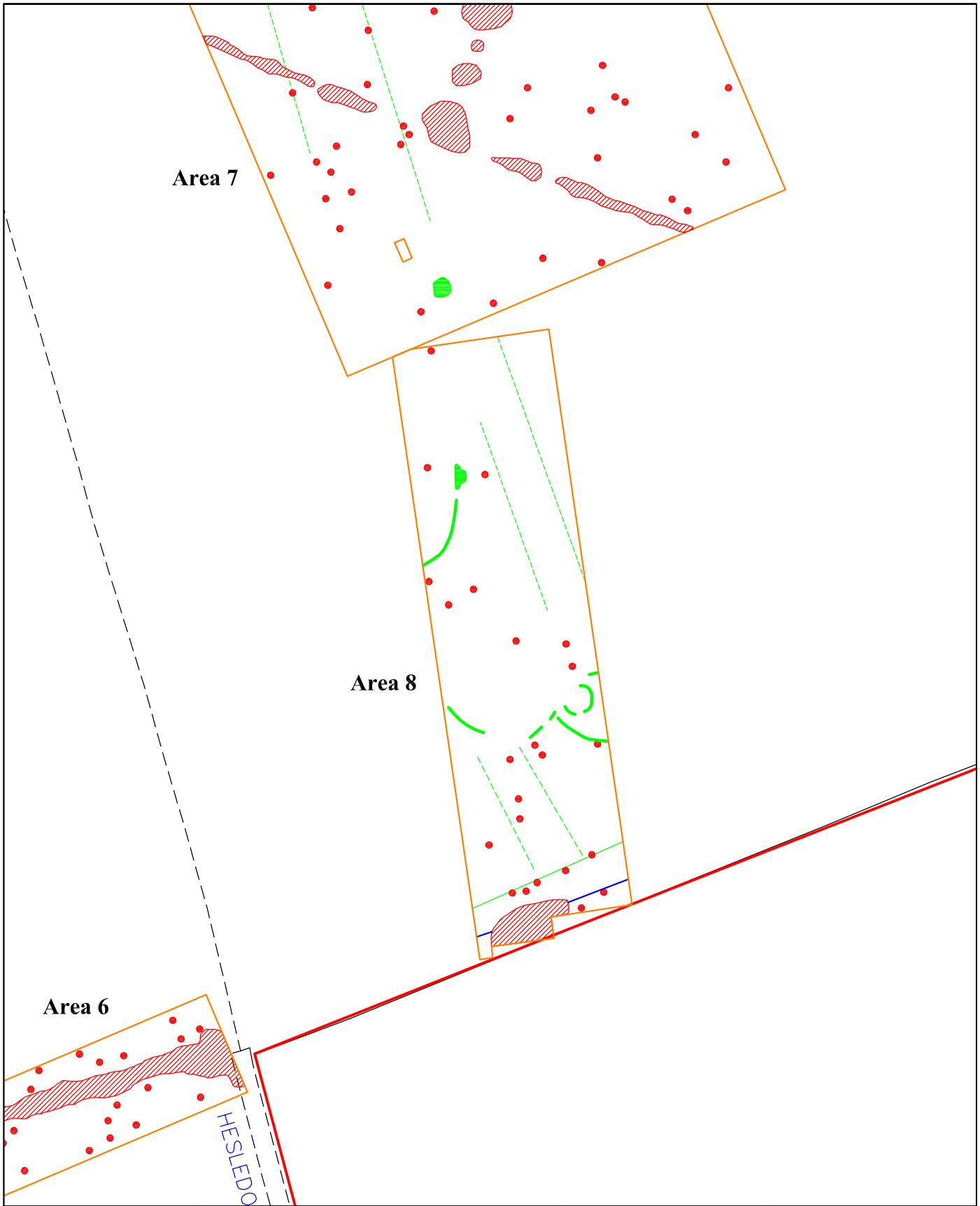

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FIGURE No:	24

- outline of proposed development area
- outline of geophysical survey area
- positive magnetic anomaly
- negative magnetic anomaly
- dipolar magnetic anomaly

Figure 24 : Geophysical interpretation of Area 8

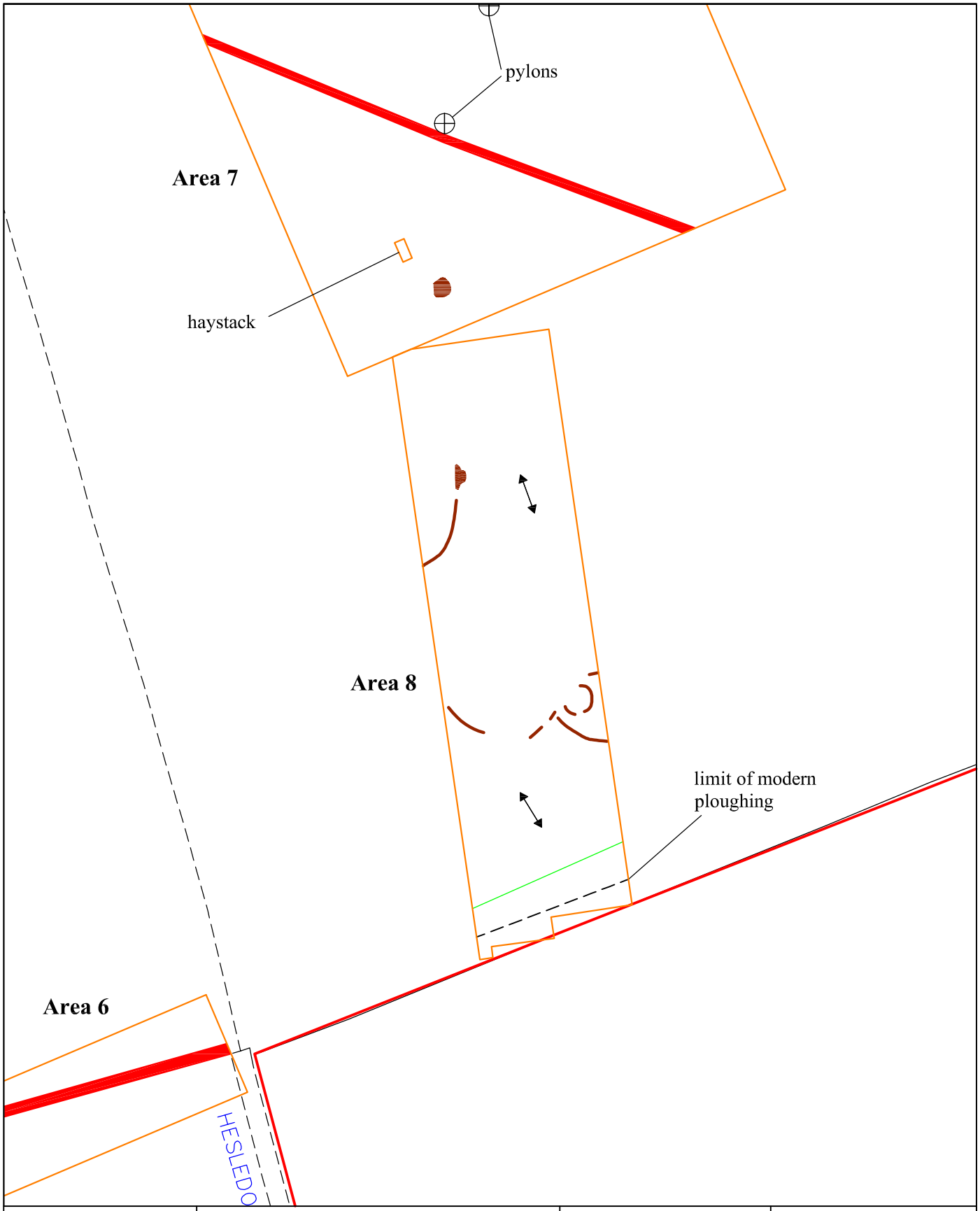

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FIGURE No:	25

- outline of proposed development area
- outline of geophysical survey area
- former field boundary
- ridge & furrow
- service pipe
- soil-filled features

Figure 25 : Archaeological interpretation of Area 8