Valley Farm Solar, Suffolk: Geophysical Survey Report

OPDENERGY

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V0.2	DY	QA1	07/10/2025
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Executive Summary

Curra Terrae were instructed by OPDENERGY to undertake an archaeological geophysical survey at Valley Farm, Suffolk ahead of a proposed solar development. The survey produced good results throughout and has not revealed any anomalies of confident early archaeological origin.

Several linear anomalies were noted across the Site survey data which have been found to correspond to the positions of land division illustrated in historical Ordnance Survey (OS) maps (1830's – 1880's) and (1888 – 1915). A former footpath is also noted in the southern portion of the Field 2 survey data and is also illustrated in historical OS maps (1830's – 1880's).

The remaining anomalies are limited to being caused by overhead power lines, a modern service as well as land drains. Ferrous disturbances along the survey extent is also noted caused by peripheral fencing and external objects. Ferrous 'spikes' caused by modern waste, within the subsoil are also noted sporadically throughout the survey data.

1. Introduction

1.1 Project Background

1.1.1 Cura Terrae were instructed by OPDENERGY to carry out an archaeological geophysical survey ahead of a forthcoming planning application for development of land at Valley Farm, Suffolk (hereafter 'the Site').

1.1.2 The Site is centred on National Grid Reference (NGR) 594423 259230 (TL 94423 59230) (Figure 1).

1.2 Location, Topography and Geology

1.2.1 The Site is c. 36.8 ha in size, comprised of two large fields, situated approximately 8.5 km southeast of Bury St Edmunds, in the county of Suffolk

1.2.2 The survey area is bounded by trees, hedgerows and fencing on all sides. Further agricultural fields lay beyond the Site boundary on all sides, as well as a small farm yard and buildings to the immediate west.

1.2.3 The Site is on a broadly north facing slope and is recorded at approximately 68 m above Ordnance Datum (aOD) to the north, and slopes down from approximately 83 m aOD in the south.

1.2.4 The underlying bedrock of the Site is recorded as Sand of the Crag Group. Superficial deposits of Lowestoft Formation (Diamicton) are also noted (British Geological Survey, 2025).

2. Archaeological and Historical Background

2.1 Introduction

2.1.1 Below is a summary of archaeological and heritage data from an Heritage Desk-Based Assessment (HDBA) provided by Cura Terrae (Cura Terrae 2025). While not exhaustive, this section aims to present a summary of findings considered relevant to the interpretation of the geophysical survey data collected.

2.2 Summary

Prehistoric

2.2.1 Little evidence for the prehistoric periods has been uncovered within the study area, and nothing has been recorded within the Site. To the southeast of the Site towards the edge of the study area the PAS has recorded three lithic implements which span the Mesolithic through to the Bronze Age. Several Bronze Age copper alloy fragments, comprising metal working debris, including part of a cast ingot have been recovered during metal detecting. Some of these items were recovered during metal detecting (ESF28205).

2.2.2 Two Iron Age find spots to the southeast of the Site revealed a bronze stater coin and a base sherd; both uncovered during metal detecting c. 690 m and c. 1km from the Site respectively. In addition, the PAS has recorded a cast copper-alloy cosmetic mortar of late Iron Age to Roman date.

Romano-British

2.2.3 There are no monuments from the Romano-British period within the Site. Information relating to this period within the study area is sparse and covers a similar area to the southeast of the Site as the prehistoric evidence. A scatter of Roman pottery was recovered c. 1 km from the Site. The PAS has also recorded numerous sherds of Roman pottery within this area, as well as copper-alloy coins and brooches, an armlet and a nail cleaner.

2.2.4 The Site sits within a much wider Roman landscape, and at some distance from the main road network. There was an early fort and Roman roadside settlement at Ixworth c. 10 km to the north of the Site. Coddenham c. 19 km to the southeast of the Site was a major road hub and settlement derived from an early fort. Long Melford was another Roman settlement on the Roman road network, 15.5 km southwest of the Site.

Earl Medieval and Medieval

2.2.5 Evidence relating to the medieval period is more prevalent across the whole study area with a total of 20 monuments. There are none within the Site, however it is bordered to the north by Hindley Wood which has been recorded as an ancient woodland. Ancient woodland is defined as an area of woodland that has been continuously wooded since at least 1600 AD, but many are considerably older.

2.2.6 Felshamhall Wood and Bradfield Woods, c. 890 m to the southwest of the Site, represent an ancient, coppiced woodland covering 103 acres. It formerly belonged to the Abbey of Bury St. Edmunds. These woods are well documented back to 1252 (Rackham 1994, 30). The wood is surrounded by a massive wood bank with pollard trees and is now managed as a nature reserve. It adjoins Monk's Park Wood to its south.

2.2.7 There are numerous pockets of woodland across the study area which have been recorded as ancient woodland. These include, Free Croft Wood (14), Small Wood, Green Wood, Mardlands Wood and Crookland Grove and Hollocks Grove; Holy Oaks Grove, all to the west of the Site, c. 410 m, 960 m and 920 m respectively. Monks Wood lies c. 340 m to the north and Bucks Wood, sits c. 410 m to the east of the Site.

2.2.8 In addition to ancient woodland, the study area also contains evidence for the early medieval and medieval settlement of the area. There are several settlements within the vicinity of the Site which appear in the Domesday Book. These include Gedding, Drinkstone and Felsham, all in the hundred of Thedwastre and the county of Suffolk. Details about the ownership of the land reveal that a large swathe within the area was owned by the Abbey of (Bury) St. Edmunds.

2.2.9 In addition to documentary evidence there are earthworks and cropmarks associated with four medieval moated sites within the study area. These survive at Priory Farm, and Gedding Hall, c. 830 m and c. 640 m to the southeast, Cragate Farm c. 985 m to the southwest, and Valley Farm c. 135 m to the west of the Site. A watching brief (ESF22715) undertaken within the tennis courts at Priory Farm uncovered quantities of medieval pottery and roof tile.

2.2.10 Gedding Hall, with bridge attached to south side of gatehouse, is a Grade II* Listed Building with medieval origins (HNLE: 1032593). In addition to the surviving rectangular moat, there are a series of four fishponds and associated parkland all dating to this period. The moat is said to have been dug in 1273 by Sir John de Geddynge and was rebuilt in the 15th century by the Chamberlain family, who owned the manor from the early 15th century.

2.2.11 The manor house is described as a fragmented moated manor house of early 16th century date. To the west of the Hall, c. 600 m, and to the southeast of the Site, c. 255 m is Gedding Hall brick kiln. Radiocarbon dates, date the structure to somewhere between 1480 and 1660 AD. The kiln appears to have been used to fire both bricks and tiles. They have broadly been compared to bricks used to construct Gedding Hall and its gatehouse. The bricks may also have been used within St. Mary's church and Gedding village.

2.2.12 The Church of St. Mary within the village of Gedding is a Grade I Listed building (NHLE: 1032594). It is medieval in origin and consists of a nave, chancel and west tower. It is largely built from flint rubble, but the upper part of the tower is in red brick. Also within the village, medieval human remains were found at St. Mary's House during the excavation of an underpinning trench, c. 890 m southeast of the Site. An isolated metal detecting find, consisting of a medieval gilt bronze openwork mount with spiral foliage decoration also adds to our understanding of this period.

2.2.13 Smallwood Farm also known as Slough Farm c. 410 m to the west of the Site, is a farmstead, with a 16th century farmhouse. The farmhouse is Grade II listed (NHLE: 1228905). The stables are 17th century and the barn dates to the 19th century. The farmstead is laid out in a regular L shaped plan, forming a loose cluster alongside Manor Road.

2.2.14 There are two greens depicted on Hodskinson's Map of 1783, which are thought to be medieval in origin. Smallwood Green c. 705 m to the west of the Site and Drinkstone Green c. 888 m, at its closest point, from to the east of the Site. Drinkstone Green (11), centred on the village the green extends outwards along four of the access roads, including Drinkstone Road, which extends to the south and Park Road which extends to the north. A green is a small common open area, associated with a settlement. Historically it was common grassland with a pond for watering animals and other stock. It was often used as a place for gathering cattle before taking them onto common land for grazing. The green was also a place for people to gather (Historic England 2024). The roads extending out of the village would have formed part of the common land associated with the local manor (Rackham 1994, 128-129).

Post-Medieval

2.2.15 Evidence from the post-medieval period also proliferates across the study area with a total of 26 monuments. There is a single monument which occupies the southwest corner of the site, this comprises the Grove, a woodland which is shown on the 1838 tithe map of the area. In addition, the Site is bordered by two additional woodlands seen on the map, to the south by Further Drinkstone Grove and to the north by Hawks Wood.

2.2.16 There are a total of ten woodlands, which have been identified as existing on the 1838 Tithe map. They have all been included in the Suffolk inventory of Ancient Woodland.

2.2.17 Scotts Ground Grove, Town Grove, Little Hinderlay Grove, Hawks Wood and Bunters Grove, all to the north and northwest of the Site, are also known as Elm wood, which may suggest that 'Elm' wood once extended over a wider area.

2.2.18 As well as scattered small woodlands, the landscape during this period is also populated with numerous farmsteads. There are 13 19th century farmsteads and one outfarm which have been recorded within the study area. The agricultural landscape during the post-medieval period is characterised by individual or loosely grouped farmsteads between dispersed settlements.

2.2.19 The Site is depicted on three tithe maps dating to the 1830s and 1840s. The northern portion of the Site formed part of the parish of Hessett and appears on the 1838 tithe map as comprising five fields. The central portion appears as a detached portion of the parish of Bradfield St George on the 1845 tithe map, comprising three fields. The southern portion of the Site is depicted on the 1838 tithe map of Drinkstone and comprises eight fields. By the publication of the 1884 OS map the Site comprised a total of 14 fields. Little change within the Site is discernible on subsequent editions of the OS from the late 19th century through to the 1958 OS map. The Site now occupies two fields following agglomeration of the smaller fields during the course of the second half of the 20th century.

Unknown

2.2.20 There are two monuments of unknown date. Hollocks Grove c. 940 m west of the Site is an irregular, roughly hexagonal shaped enclosure seen as a cropmark on aerial photographs. Approximately 860 m east of the Site, is a curvilinear enclosure of irregular form also recorded as a cropmark seen on aerial photographs.

3. Geophysical Survey Methodology

3.1.1 All survey work was completed to appropriate standards, as outlined by existing guidance (CIfA 2020a; 2020b; 2020c, 2022; and Schmidt *et al*. 2015).

3.1.2 This geophysical survey was completed using a Sensys FMG650/3 system. Readings were recorded at a resolution of 0.01 nT and data collected with a traverse interval of 1 m and a sample interval of between 0.16 - 0.25 m.

3.1.3 Data was collected by traversing the survey area in 4 m increments using a quadbike-towed non-magnetic cart system to achieve the best possible results.

3.1.4 Real Time Kinematic (RTK) differential GPS equipment (Carlson BRX7 GNSS Smart Antenna) was used to accurately determine the position of the survey equipment and survey monitor data.

3.1.5 The data processing was undertaken using TerraSurveyor64 software and consisted of a 'DeStripe' process. This process determines the average of the datapoints in each track and subtracts that value from all the datapoints along each survey track.

3.1.6 Illustrations were created using QGIS software. Interpretation of identified anomalies was achieved through analysis of anomaly patterning and increases in magnetic response and was aided by examining the available supporting information, including but not limited to Greyscale plots, Colourscale plots and XY Trace plots. The interpretations follow Cura Terrae colour coding and categorisations of anomalies and attempt, where possible, to suggest the nature of buried features.

3.1.7 Further details of geophysical survey methodology can be found in Appendix A.

4. Mitigating Factors

4.1.1 The results of geophysical survey may not reveal all potential archaeology within a survey area, and geological, agricultural, and modern features may limit the detection of weaker archaeological responses.

4.1.2 At the time of survey, the Site conditions were dry and firm underfoot. An area in the northern portion of Field 3 was omitted due to heavy rutting caused by recent ploughing.

4.1.3 Overhead lines are noted traversing the data in Field 1 from the northwest to southeast. The strong magnetic response resulting from the presence of this feature has likely affected the data, limiting the detection of potential weaker anomalies in its vicinity. A modern service is also noted in the southern portion of Field 3 on a northeast to southwest alignment, though this is not thought to have had a negative impact on the data.

4.1.4 Field boundaries comprised hedgerows and fencing. Where necessary, a 2 m buffer was observed along metal fences although some interference is still noted at the survey periphery. The buffer was observed to minimise the effects or magnetic interference on the survey and to help to reduce as far as is reasonably practicable any non-detection of potential buried features.

5. Results and Interpretation

5.1.1 Anomalies found within the survey data are listed in Table 1 and illustrated on Figures 3, 5, 7 and 9.

Table 1: Survey Anomalies

Anomaly Number	Anomaly Type	Description	Interpretation
1 - 10. (Fields 1. 2 and 3, All Figures)	Former Boundary	Several, linear and rectilinear anomalies of varying response located in Fields 1, 2 and 3.	These anomalies correspond to former areas of land division illustrated on historical OS maps (1830's – 1880's) and (1888 – 1915).
11. (Field 3, Figure 9)	Former Footpath	Positive, linear anomaly located in the northeast corner of Field 3. Measures 137 m long on broadly northeast to southwest alignment.	This anomaly corresponds to former footpath illustrated on historical OS maps (1830's – 1880's).
12. (Field 1, Figure 3)	Service	Curvilinear anomaly of varying magnetic response. Located in the northern portion of Field 1.	This anomaly represents overhead power cables present within the field. This has subsequently caused an area of increased magnetic response within the dataset.
13. (Field 3, Figure 7)	Service	Dipolar, linear anomaly located in the southern portion of Field 3. Measures 223 m long on a broadly northeast to southwest alignment.	This anomaly represents a modern service.
14. (Fields 1, 2 and 3, Figure 3)	Ferrous Disturbance	Several, amorphous anomalies primarily located along the survey extents.	These anomalies have likely been caused to proximity to metal fencing or other ferrous materials beyond the survey extents.

Anomaly Number	Anomaly Type	Description	Interpretation
NA. (Fields 1, 2 and 3, All Figures)	Land Drains	Numerous, linear anomalies of varying response located throughout the Site.	These anomalies represent modern land drains associated with modern agricultural activity.
NA. (Fields 1, 2 and 3, All Figure)	Ferrous 'Spikes'	Several, small, dipolar anomalies located throughout the Site.	These anomalies have likely been caused by modern and or agricultural waste within the subsoil.

6. Discussion

6.1.1 The geophysical survey produced good results throughout the Site. The anomalies identified are all likely to indicate features dating from the medieval or more likely, post-medieval period. Despite a propensity of features in the wider landscape dating to the Romano British and early medieval period, no anomalies identified by this survey have been interpreted to date to these periods, although an earlier origin cannot be ruled out based on the results of only this geophysical survey.

6.1.2 An interconnected network of linear anomalies (1 - 10) have been identified throughout the Site. These correspond to former land divisions illustrated in historical OS maps (1830's – 1880's) and (1888 – 1915). A former footpath (11) was also noted in the southern portion of Field 2 and is also illustrated in historical OS maps (1830's – 1880's).

6.1.3 A linear area of increased magnetic response is noted in the northern portion of Field 1 and indicates the course of an overhead powerline (12). A response associated with an underground service (13) is also noted in Field 3.

6.1.4 Numerous land drains associated with modern agricultural activity are also prominent across the Site. The remaining anomalies are limited to ferrous disturbances across the survey extents and small, dipolar, ferrous 'spikes' caused by modern and or agricultural waste within the subsoil.

7. Curation and Storage

7.1.1 The archive will be prepared in accordance with national guidelines (CIfA 2020b). The integrity of the primary field record will be preserved. Security copies will be maintained where appropriate. Digital records of the geophysical survey and its collected data will be held by Cura Terrae

7.1.2 An OASIS form has been created on the results of the works under the following reference number (curaterr1-537331). Following approval of the report, a pdf version of the final version will be submitted within three months to the Archaeology Data Service via the OASIS form.

8. References

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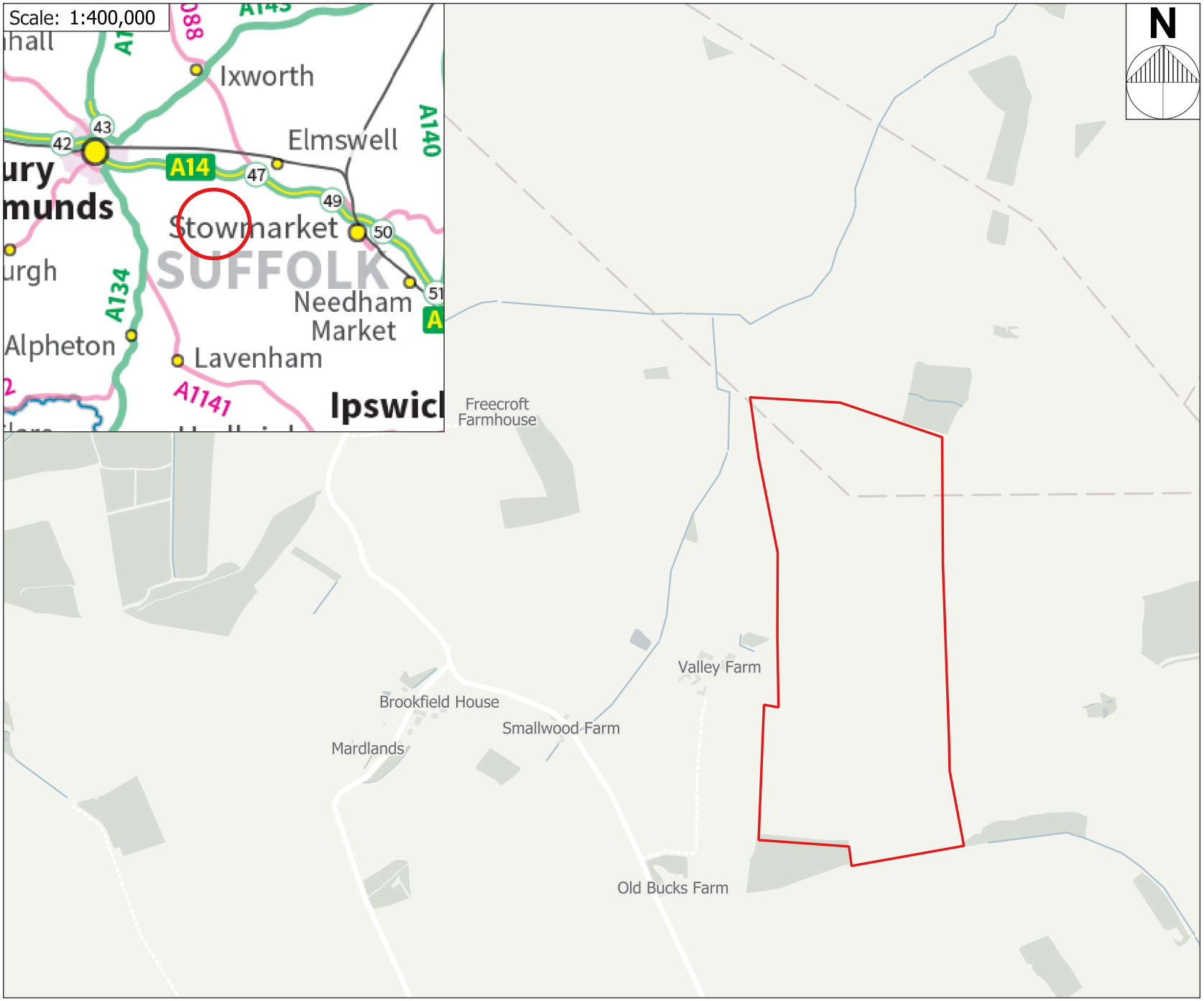


CuraTerrae

Key

Site Boundary

0 100 200 300 400 500 m

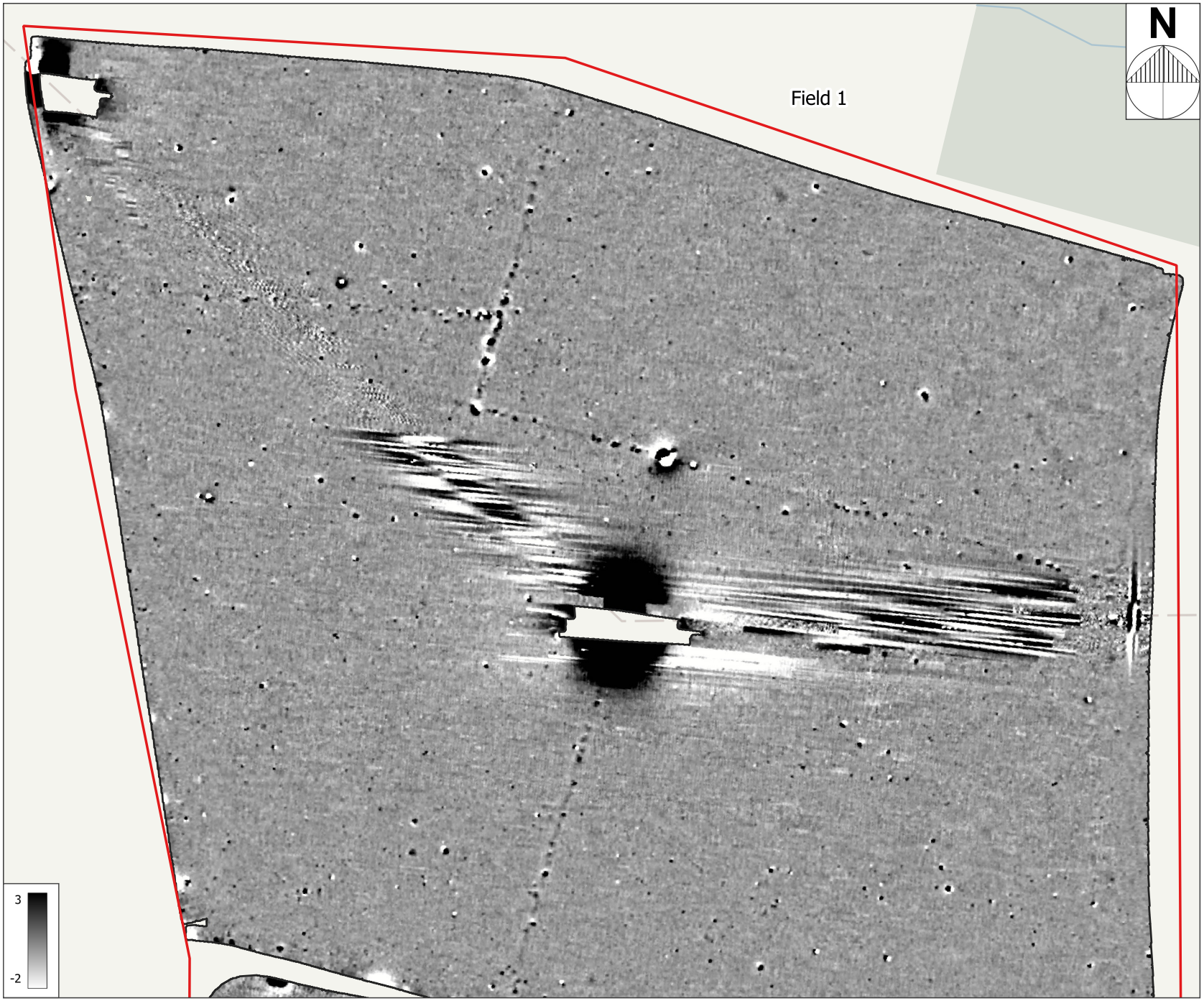
Opdenergy
Valley Farm Solar, Suffolk

Figure 1
Site Location

A	12.09.25	PFP	-
Rev	Date	Drawn by	Checked by

Site centred on:	TL 94440 59240

September 2025 | Scale: 1:12,000 @A4 | Drg.Ref: 25357 - GEO - 1 - A



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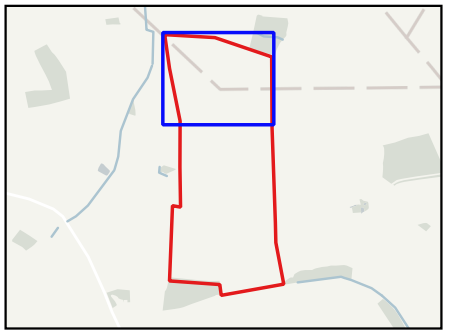
Key

Site Boundary

Survey Extent



0 10 20 30 40 50 m

Opdenergy
Valley Farm Solar, Suffolk

Figure 2
Greyscale Plot - Field 1 (North)

A	12.09.25	PFP	-
Rev	Date	Drawn by	Checked by

Site centred on:	TL 94440 59240

October 2025 | Scale: 1:2,000 @A4 | Drg.Ref: 25357 - GEO - 2 - A

CuraTerrae

Key

- Site Boundary
- Survey Extent
- Former Boundary
- Land Drain
- Service
- Ferrous Spike
- Ferrous Disturbance
- Increased Magnetic Response

0 10 20 30 40 50 m

Opdenergy
Valley Farm Solar, Suffolk

Figure 3
Interpretation Plot - Field 1 (North)

A	12.09.25	PFP	-
Rev	Date	Drawn by	Checked by

Site centred on:	TL 94440 59240

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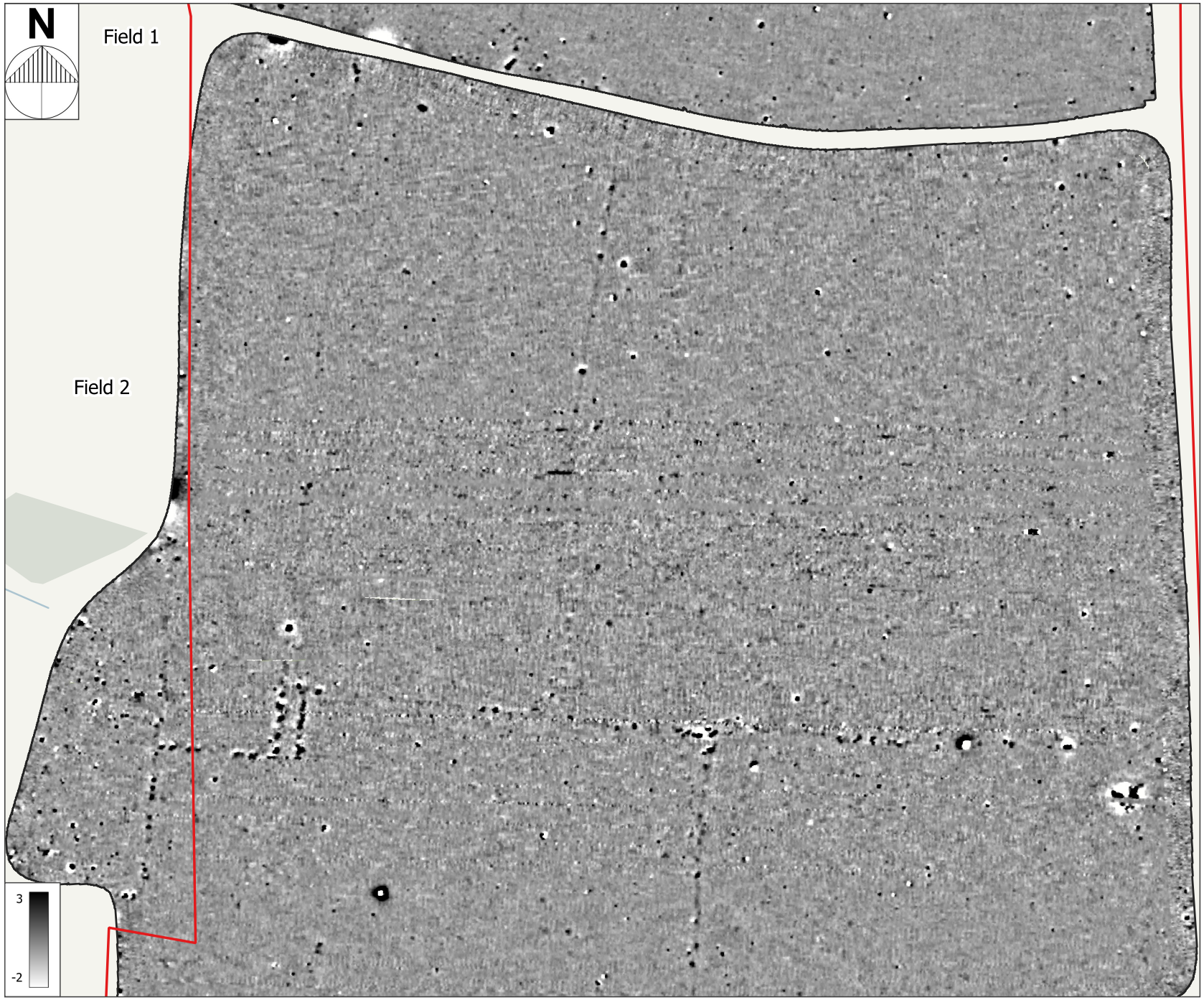
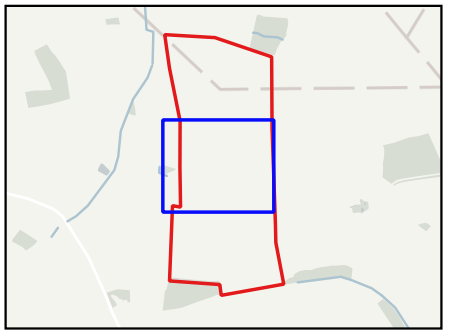


CuraTerrae

Key

- Site Boundary
- Survey Extent



0 10 20 30 40 50 m

Opdenergy
Valley Farm Solar, Suffolk

Figure 4
Greyscale Plot - Field 1 (South), and Field 2 (North)

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Rev	Date	Drawn by	Checked by

Site centred on:	TL 94440 59240

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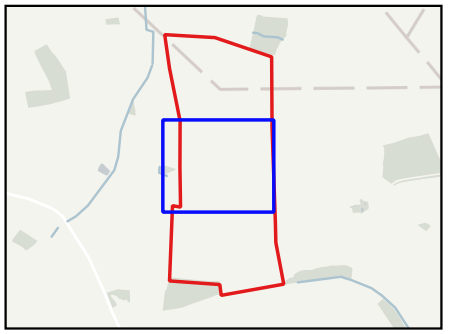
CuraTerrae

Key

- Site Boundary
- Survey Extent



0 10 20 30 40 50 m

Opdenergy
Valley Farm Solar, Suffolk

Figure 5
Interpretation Plot - Field 1 (South), and Field 2 (North)

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Rev	Date	Drawn by	Checked by

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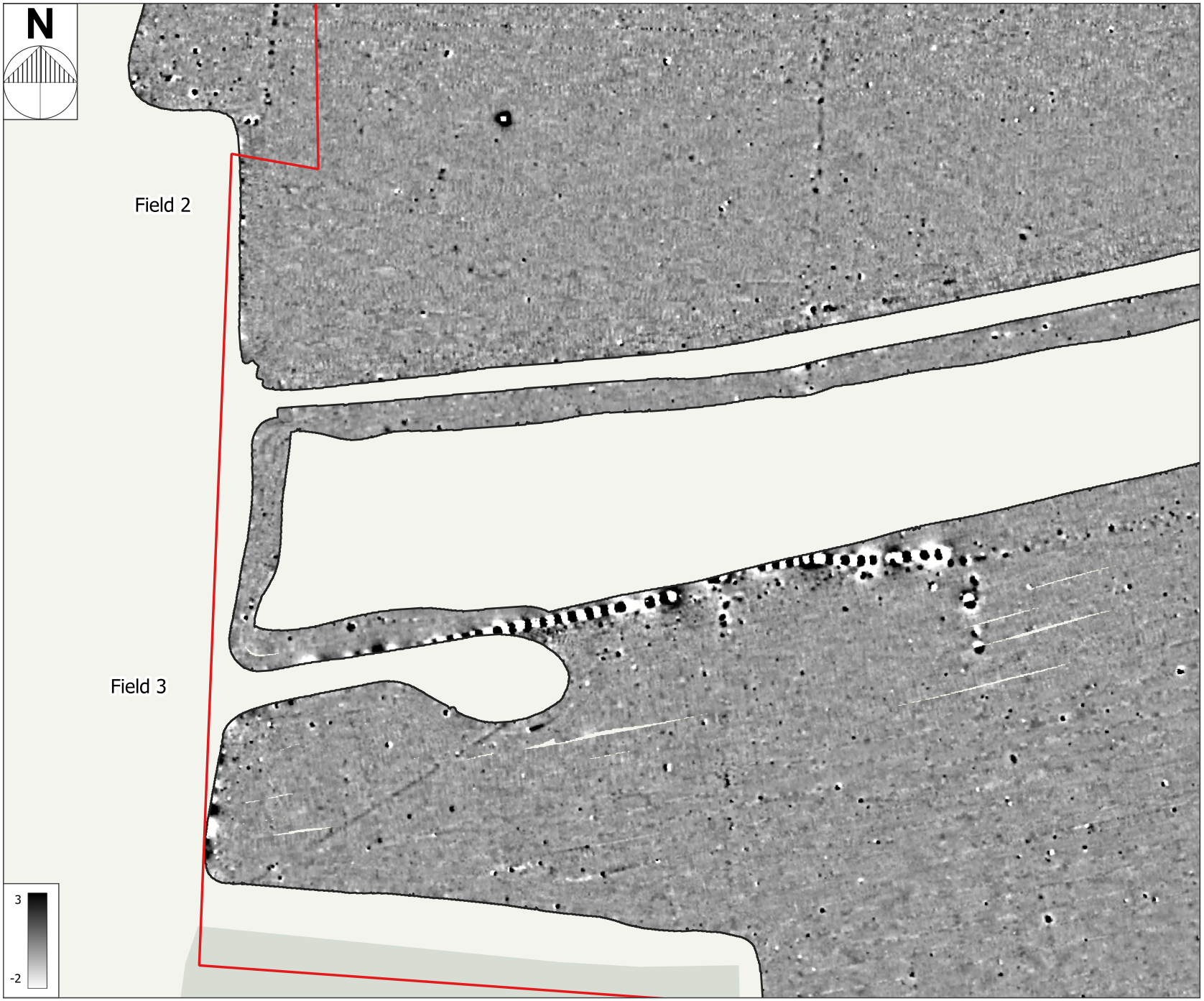
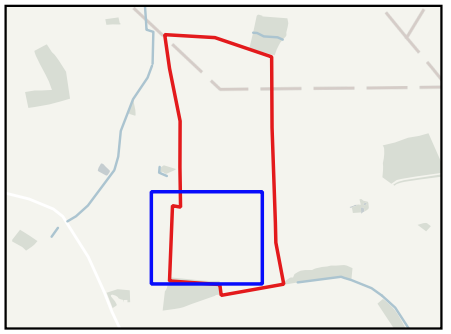


CuraTerrae

Key

- Site Boundary
- Survey Extent



0 10 20 30 40 50 m

Opdenergy
Valley Farm Solar, Suffolk

Figure 6
Greyscale Plot - Field 2 (South West), and Field 3 (North West)

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Rev	Date	Drawn by	Checked by

Site centred on:	TL 94440 59240

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CuraTerrae

Key

- Site Boundary
- Survey Extent
- Former Boundary
- Former Footpath
- Land Drain
- Service
- Ferrous Spike
- Ferrous Disturbance

0 10 20 30 40 50 m

Opdenergy
Valley Farm Solar, Suffolk

Figure 7
Interpretation Plot - Field 2 (South West), and Field 3 (North West)

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Rev	Date	Drawn by	Checked by

Site centred on:	TL 94440 59240

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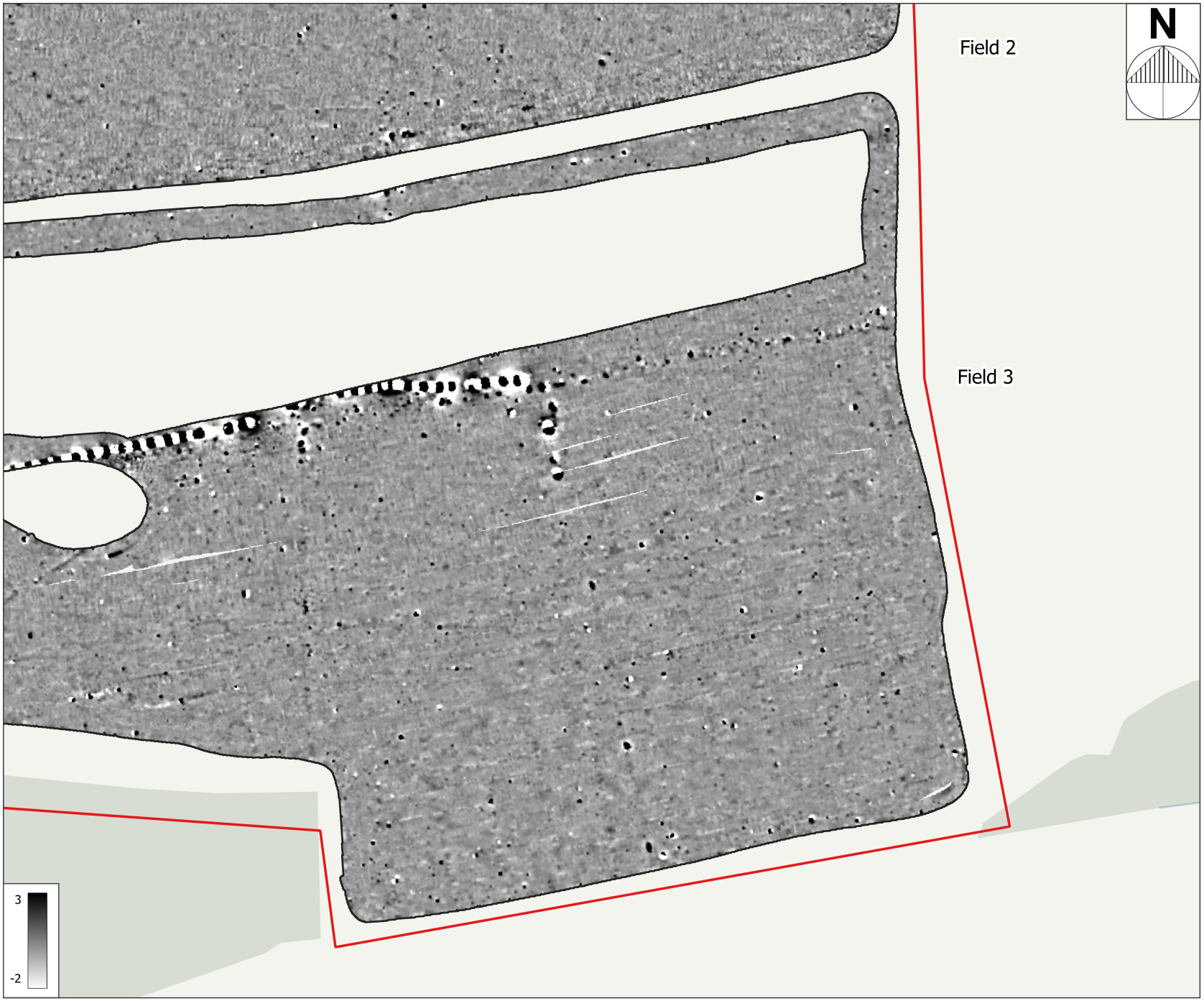
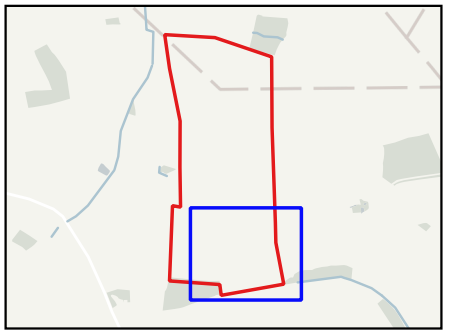


CuraTerrae

Key

- Site Boundary
- Survey Extent



0 10 20 30 40 50 m

Opdenergy
Valley Farm Solar, Suffolk

Figure 8
Greyscale Plot - Field 2 (South East), and Field 3 (North East)

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Rev	Date	Drawn by	Checked by

Site centred on:	TL 94440 59240

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Cura Terrae

Key

- Site Boundary
- Survey Extent
- Former Boundary
- Former Footpath
- Land Drain
- Service
- Ferrous Spike
- Ferrous Disturbance

0 10 20 30 40 50 m

Opdenergy
Valley Farm Solar, Suffolk

Figure 9
Interpretation Plot - Field 2 (South East), and Field 3 (North East)

A	12.09.25	PFP	-
Rev	Date	Drawn by	Checked by

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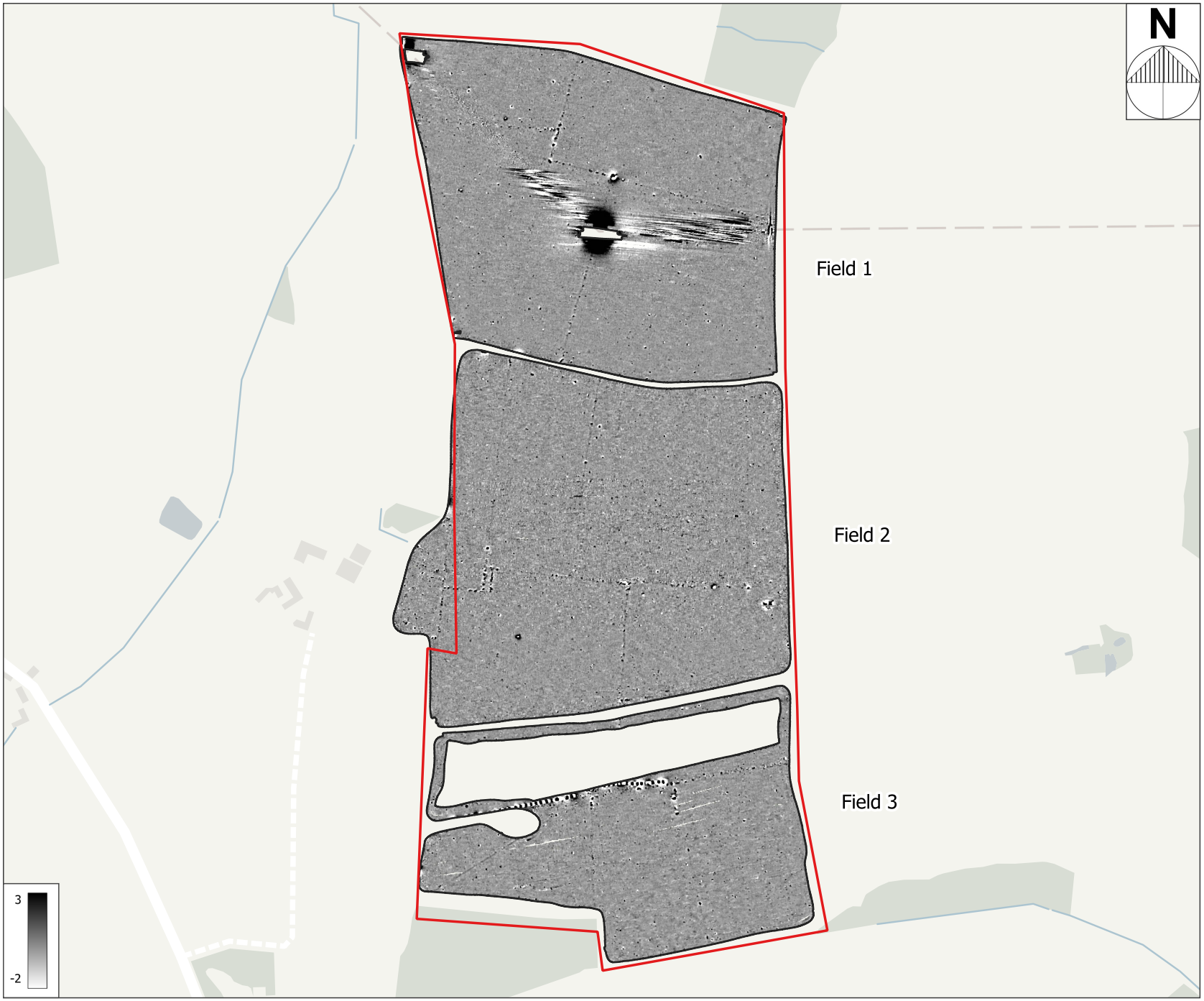


CuraTerrae

Key

- Site Boundary
- Survey Extent

0 50 100 150 200 250 m

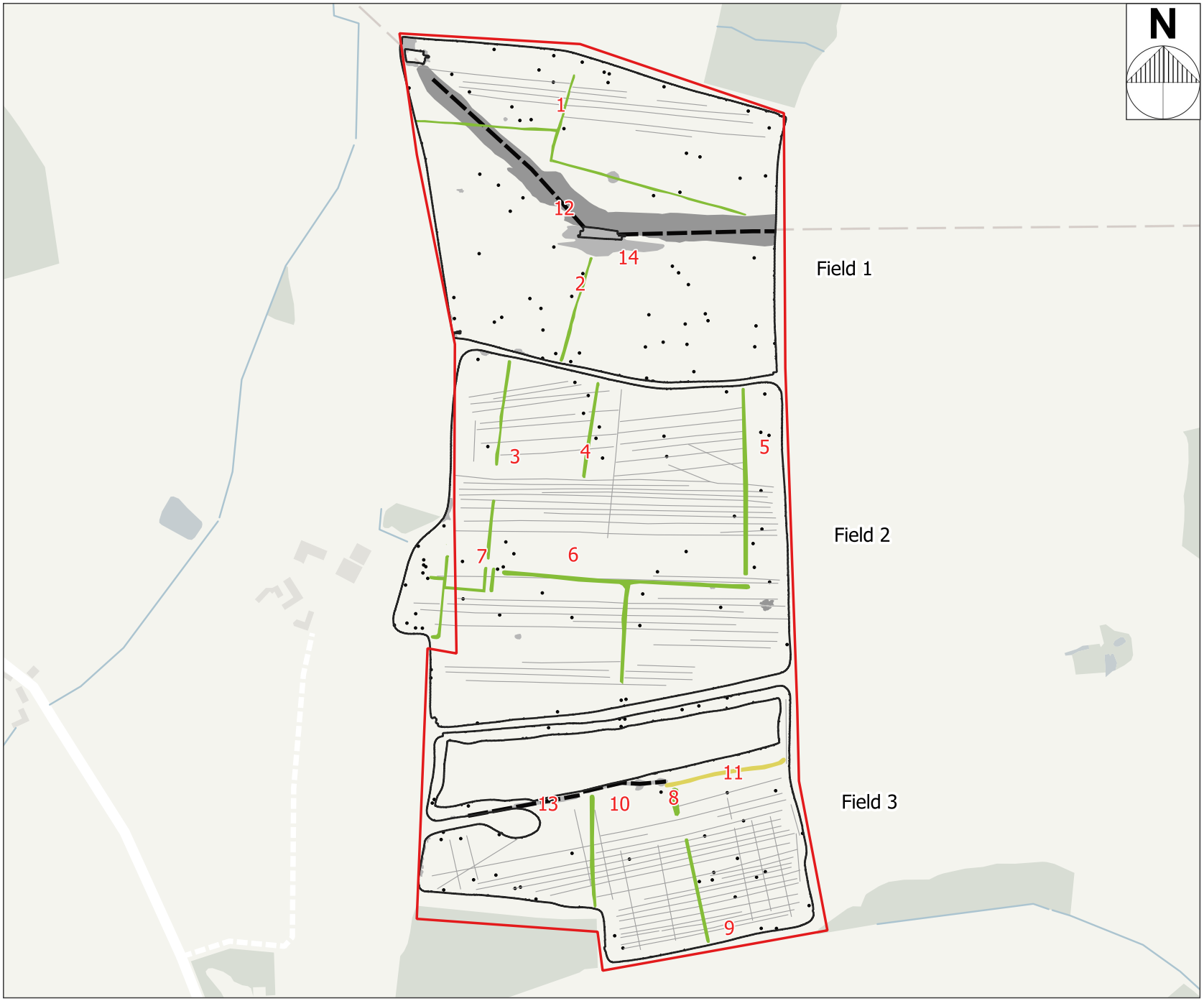
Opdenergy
Valley Farm Solar, Suffolk

Figure 10
Greyscale Plot - Overview

A	12.09.25	PFP	-
Rev	Date	Drawn by	Checked by

Site centred on:	TL 94440 59240

October 2025 | Scale: 1:6,000 @A4 | Drg.Ref: 25357 - GEO - 10 - A



CuraTerrae

Key

- Site Boundary
- Survey Extent
- Former Boundary
- Former Footpath
- Land Drain
- Service
- Ferrous Spike
- Ferrous Disturbance
- Increased Magnetic Response

0 50 100 150 200 250 m

Opdenergy
Valley Farm Solar, Suffolk

Figure 11
Interpretation Plot - Overview

A	12.09.25	PFP	-
Rev	Date	Drawn by	Checked by

Site centred on:	TL 94440 59240

October 2025 | Scale: 1:6,000 @A4 | Drg.Ref: 25357 - GEO - 11 - A

Appendix A: Technical Information

Gradiometer Survey

Magnetic surveys measure distortions of variable strength in the earth's magnetic field caused by magnetic fields associated with buried features (Gaffney and Gater 2003, 36) that have either remnant or induced magnetic properties (Aspinal *et al*. 2008, 21–26). Human activity and inhabitation often alter the magnetic properties of materials (Aspinal *et al*. 2008, 21) resulting in the ability for numerous archaeological features to be detected through magnetic surveys.

Intensive burning or heating can also result in materials attaining a thermoremanent magnetisation; examples of which include kilns, ovens, heaths, and brick structures (Aspinal *et al*. 2008, 27; Gaffney and Gater, 2003, 37). However, there is also no way to always confidently assert from the results of Gradiometer surveys alone, whether burned material is in situ or has been redeposited within, for example, a refuse pit.

When topsoil-rich with iron oxides, fills a man-made depression in the subsoil, it creates an infilled feature, such as a pit or ditch, with a higher magnetic susceptibility compared to the surrounding soil (Aspinal *et al*. 2008, 37–41; Gaffney and Gater 2003, 22– 26). Magnetic surveys can also detect features with a lower magnetically susceptibility than the surrounding soil, an example of which is a stone wall.

Limitations

Poor results can be due to several factors including, but not limited to, short lived archaeological occupation and land use, or sites with minimal cut or built features. Results can also be limited in areas where the natural geology is of a similar composition to the fills of cut archaeological features such as ditches, or where soils are naturally deficient in iron compounds. Poor results can also be caused by areas with soils overlying naturally magnetically enhanced geological deposits, which can produce strong or variable responses limiting the detection of earlier archaeological features.

Overlying layers, such as demolition rubble or layers of made ground such as during landscaping works, can also limit the detection of earlier archaeological features. The presence of above ground structures within, or in the near vicinity of, the survey area as well as underground services containing ferrous material such as pipelines or electricity cables can distort survey results, further limiting the detection of earlier archaeological features.

Particularly uneven or locally variable elevation in topography can increase the data processing required, and/or distort results beyond the capabilities of processing. It is also possible in areas containing dramatic topographical changes that natural weathering, such as hill wash, often in combination with intensive modern ploughing or other natural geological deposits, will reduce the topsoil on slopes and towards the peaks of hills and possibly destroy or truncate potential archaeological features as a result.

Conversely features at the bottom of slopes may be covered by a greater layer of topsoil or other deposits, and so if buried features are present, they appear faint or are entirely limited in their detection.

Over-processing of data can also obscure, remove or artificially enhance or create anomalies, especially if there are on the same orientation as the direction of data collection. Consequently, where possible, attempts are made to ensure data is not collected on the same orientation as known potential features and that data quality is sufficient to minimise the required data processing.

Instrumentation

Sensys FGM650/3

The FGM650/ is a single axis, vertical component fluxgate gradiometer with an analogue output. It outputs a voltage as an equivalent of the magnetic flux density. Each sensor contains two fluxgate sensors with a vertical separation of 0.65 m. Each of the fluxgate sensors has a dynamic range of +/ 75,000 nT and the gradiometer data have a range of +/- 8,000 nT. The sensitivity of the gradiometer is 0.6V/µT, the noise below 40pT

The analogue data are converted into a digit by a 24 bit digitizer. Practically, a resolution of 0.15 to 0.2 nT can be reached in a moved system. The sensor is calibrated before it leaves the factory, a daily calibration is not needed. Instead, the data will be compensated during the post-processing.

This system records four or five lines of data on each traverse, with traverses walked in a zig-zag pattern until all the survey area is covered.

Appendix B: Data Visualisation and Further Information

Visualisation

The survey data collected was used to produce a series of images to demonstrate the results of surveys. These are outlined below:

- Greyscale plot – This method visualises the survey data as a shaded drawing, with highest readings showing as black, running through different shades to lowest showing as white. Plotting parameters can be adjusted to aid interpretation of geophysical survey data.
- XY Trace plot – This is an alternative method of data visualisation, plotting the magnitude of responses on a scaled XY trace. The stronger the response, the sharper the rise in the trace. This type of plot can be used to differentiate the origin of an anomaly and is best used in conjunction with an alternative method of interpretation.
- Interpretation plot – Through detailed analysis, anomalies have been interpreted and possible features identified. Interpretation drawings are used to show potential features and to reinforce and clarify the written interpretation of the data. Anomalies have been characterised using the terminology detailed in the following section and have been assigned colour coding, which is outlined in keys on figures associated with this report.

Magnetic Anomalies

Different anomalies can represent different features created by human occupation, agricultural or modern activity, or natural pedological and/or geological changes in the substrata.

Anomalies interpreted as 'stronger' are considered more likely to be of the interpreted characterisation; whereas a 'weaker' categorisation represents a more tentative interpretation applied to those anomalies with lesser increases in magnetic response or if the anomaly has incomplete patterning or irregular form. The strength and size of anomalies can vary depending on the magnetic properties of the feature, the magnetic susceptibility of the soil, the depth at which the feature is buried, and the state of preservation.

Terminology

- Anomaly - Any outstanding high or low magnetic response forming a particular shape or covering a specific area within the survey results.
- Feature - A man-made or naturally created object, material or deposit that has been detected through the site investigation works and has sufficient characteristics or supporting evidence for positive identification.

- Magnetic Susceptibility - The ability of a buried feature to be magnetically induced when a magnetic field is applied.
- Magnetic Response - The strength of the changes in magnetic values caused by a buried feature with either a greater or lesser ability to be magnetised compared with the soil around it. Anomalies are considered to either have strong/weak or positive/negative response. The strength of magnetic response (along with patterning) can be essential in determining the nature of a buried feature, but it should be noted that the size or strength of the magnetic response does not always correlate with the size of the buried feature.
- Morphology - The shape or form of an individual anomaly.
- Thermoremanence - The affect caused when a material has been magnetically altered through a process of heating. Thermoremanent magnetisation occurs when an object or material is heated passed the Curie Point and acquires a permanent magnetisation that is associated with the magnetic field that they cooled within (Gaffney and Gater 2003, 37).

Characterisation of Anomalies & Interpretation Categories

Archaeological or Historical Anomalies

- Archaeology – Linear, rectilinear, or curvilinear anomalies with a positive and/or negative magnetic response, composed of a patterning or shape that is suggestive of a buried archaeological feature. These are often indicative of structural remains or infilled cut features such as ditches. The strength of the anomaly signal can be suggestive of the properties of the feature. Negative linear anomalies represent upstanding or infilled features that are less magnetically susceptible than background readings, for example structures such as a ditch-bank, or a cut ditch containing a fill composed of a non-igneous stone material. Bipolar linear anomalies considered to be of an archaeological nature are indicative of material with a high magnetic susceptibility, such as a brick wall. Isolated anomalies or anomalies with a more amorphous form possibly represent infilled features or thermomagnetic features such as areas of heating/burning of an archaeological origin. Unless associated with conclusively identified archaeological remains, such as linear anomalies, absolute identification of positive responses can be problematic as it is often not possible to decipher if they are of an archaeological, modern, or agricultural origin. Consequently, isolated positive responses such as those indicating pit-features, are not always shown within the Interpretation plot(s) unless composed of a broad form or belonging to a series of isolated positive responses. Bipolar responses considered likely to be of an archaeological origin are also interpreted as isolated anomaly (archaeology). These are considered to relate to material with a very strong magnetic susceptibility or thermoremanent magnetisation.
- Possible archaeology – This categorisation is applied where anomalies are weaker or more diffuse in response, resulting in a less certain origin. It is possible that these belong to archaeological features but given their weaker responses or incomplete patterning it is equally plausible that they relate to other sources, such as agricultural features or natural soil formations or geological variations.
- Former Boundary - Linear anomalies, sub/irregular-rectilinear anomalies either with positive or negative magnetic responses, that correspond with the location of former field boundaries, ponds or buildings recorded on historic maps, Aerial photos and/or LiDAR coverage of the site.

- Ridge and Furrow - Broadly spaced linear anomalies or trends that are likely to be indicative of earlier forms of agricultural practice, such as ridge and furrow. These often correspond with the location of earthworks visible on the ground during the survey, or can be identified on aerial or LiDAR survey imagery.

Strongly Magnetic / Bipolar / Dipolar

- Modern Service – Highly magnetic, typically dipolar linear anomalies with an stronger area of variably decreasing ferrous response depending on the vicinity of the survey instrumentation to the buried or extant feature.
- Increased magnetic response – Isolated bipolar responses of a typically modern nature that are likely to relate to buried ferrous material, building debris, or objects, such as magnetically enhanced agricultural debris. If a trend is noted in the alignment or spacing of isolated bipolar responses, it is possible that they are indicative of ferrous fittings or connectors used on buried non-magnetic buried utilities, although occasionally an archaeological origin cannot be ruled out. Also, areas of increased magnetic response denote areas of disturbance containing a high concentration of dipolar or bipolar responses. These are generally considered to be caused by modern debris in the topsoil, including agricultural 'green waste'. It is also possible that the disturbance is in part also caused by isolated archaeological material or geological or pedological changes in the substrata.
- Ferrous disturbance - Areas of magnetic disturbance, often along the edges of survey areas, or surrounding Modern Services caused by highly ferrous material such as standing metal structures like fencing and buildings. Modern Agricultural Anomalies.

Modern Agricultural

- Agricultural Trend - Ploughing trend tends to be regularly spaced linear anomalies, often with a narrower spacing, that conform with ploughing regime at the time of survey, or a recent regime recorded on aerial photos of the site. The response and distribution of land drains varies depending on the composition of the land drain and associated ditch or channel. Consequently, land drains can be composed of weak / strong positive / negative magnetic responses and are identified as a product of either their variance in magnetic values or positioning compared with regularly spaced linear anomalies considered to relate to modern ploughing. Land drains can be located within former agricultural regimes, such as ridge and furrow.
- Land drain – Weakly positive, and/or dipolar, regularly broadly spaced linear trends in a typically parallel or 'herringbone' formation. These are generally modern in origin, although earlier post-medieval ceramic drains are often plausible but cannot be determined.
- Uncertain Trend – Generally positive, although sometimes negative, isolated and weak linear or curvilinear trends. This category is applied where multiple origins can be asserted to a barely detected anomaly.