

Woodlands Solar Farm Suffolk

Archaeological Geophysical Survey

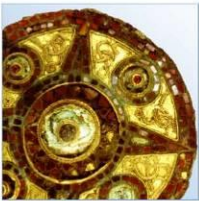
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ARCHAEOLOGY

HERITAGE

CONSERVATION

Woodlands Solar Farm, Suffolk: Archaeological Geophysical Survey

On Behalf of:	Arcus Consultancy Services Ltd 1C Swinegate Court East 3 Swinegate York YO1 8AJ
National Grid Reference (NGR):	TM 06621 56430 (centre)
AOC Project No:	40142
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This document has been prepared in accordance with AOC standard operating procedures.

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Non-Technical Summary

AOC Archaeology Group was commissioned by Arcus Consultancy Services Ltd, on behalf of their client to undertake an archaeological geophysical gradiometer survey to investigate the potential for buried archaeological remains ahead of a proposed development at Woodlands Farm, Badley, in Suffolk, (centred at TM 06621 56430). A total of 56 hectares, of the 58 hectare scheme were surveyed across seven individual fields (Fields 1-7).

The results of the survey have identified a number of anomalies of possible archaeological origin. Whilst none of these can be definitively interpreted as archaeological in origin, some features of a possible archaeological origin, alongside unclear responses have been identified. These are predominantly located in Fields 3 and 4 and the most significant of these features comprise of magnetically enhanced linear features. These are semi-circular in form, in Field 3, which could be evidence of prehistoric activity. Furthermore, to the south of these features, located in Field 4, which appear to form a ladder types latticework, suggesting possible Roman origins or later.

To the south of the scheme, there is evidence of possible early prehistoric pit alignment, but also a series of linear responses and areas of disturbance, which together may form an area of possible, undated archaeological activity. A similar collection of pits and linear features have been recorded in the south of Field 4.

In addition, a number of former field boundaries have been identified, these anomalies are recorded on 1888 Ordnance Survey (OS) mapping of the area. Field boundaries in Fields 4 and 5 are removed between 1957 and 1970, with others in Field 6 removed post 1970's mapping.

Evidence of features that whilst recorded as unclear, might have an archaeological origin have been identified within Field 4, as a square type enclosure, and also a series of concentric semi-circular anomalies to the eastern extent of Field 7.

Geological anomalies have been identified within the dataset. This has been caused by material being brought to the surface during the removal of former field boundaries, or trees.

Magnetic disturbance has been detected throughout the dataset. This has been caused by the significant interference caused by the overhead pylons within the site, but also from telegraph poles.

Along the boundaries of the site, there is evidence of magnetic disturbance. This has been caused by buildings (as in the case for the northern boundary of Field 3), but also from metal fencing and detritus within the field boundaries.

Throughout the survey area, evidence of isolated dipolar responses, have been detected.

Linear magnetic responses, indicative of field drains, have been identified within the dataset within Fields 1 and 2.

1 Introduction

- 1.1 AOC Archaeology Group was commissioned by Arcus Consultancy Services Ltd, on behalf of their client to undertake an archaeological geophysical gradiometer survey of a site at Woodlands Farm, Badley in Suffolk (Figure 1). The geophysical survey forms part of a wider scheme of archaeological assessment in advance of the possible development of the site.
- 1.2 Archaeological geophysical survey uses non-intrusive and non-destructive techniques to determine the presence or absence of anomalies likely to be caused by archaeological features, structures or deposits, as far as is reasonably possible (ClfA, 2014). The survey was conducted throughout February and April 2022.
- 1.3 The survey was carried out to provide information on the extent and significance of potential buried archaeological remains within the proposed development site. The results of the geophysical survey will help to inform the requirement and scope for any subsequent phase of archaeological work.

2 Site Location and Description

- 2.1 The proposed development site (hereafter 'the Site') is located on land at Woodlands Farm, Badley, Suffolk, approximately 2.5km south of Stowmarket and 2.5km north of Needham Market (NGR TM 06621 56430). The Site is situated to the west of the B1113 Stowmarket Road, the link between the two settlements. The major settlement of Ipswich, lies approximately 18km to the south/southeast (see Figure 1).
- 2.2 The Site totals approximately 58 ha and is bound to the north and west by cultivated land, with the east bound by the B1113 and a light industrial complex and electricity sub-station. The survey area comprises seven individual fields (labelled as Fields 1-7 for the purposes of this report) The ground level varies across the site, but in general, the centre of the site lies at 46m above Ordnance Datum (aOD), sloping to the east to approximately 30m aOD, and to the west to approximately 40m aOD. The northern part of the Site is higher at about 47m aOD, whilst the southern boundaries, bordering the Badley Church Green Conservation Area at about 34m aOD.
- 2.3 The Site is located on the Newhaven Chalk Formation bedrock; a sedimentary deposit consisting of mudstones formed in the Cretaceous Period approximately 72 to 86 million years, in an environment dominated by shallow seas (BGS, 2022). Superficial deposits are recorded as Lowestoft Formation to the south and Alluvium to the north formed in the Quaternary Period (BGS, 2022).
- 2.4 The soils within the Site are classed as slowly permeable seasonally wet slightly acidic loams and clay soils (Soilscapes, 2022).
- 2.5 Gradiometer survey is suggested to provide a variable response over sedimentary rocks; for example the results can be good over certain sandstones and average over mudstones and the drift / alluvium deposits may also have an effect (David *et al.* 2008, 15).

3 Archaeological Background

- 3.1 The archaeological background is summarised from a draft Heritage Statement of the Site, produced for Arcus Consultancy Services, in December 2021 (AB Heritage, 2021).
- 3.2 All references are drawn from this report, which details archaeological features of note, with a wider 1km Study Area.

Prehistoric and Roman (500,000 BC – AD 410)

- 3.3 One record of Palaeolithic material has been found within the 1km radius (MSF21731) about 850m to the northwest of the Site). However given the importance of the geography, in relation to the Doggerland Plain, there is potential for further finds, complimenting the existing important and significant Site within the county.
- 3.4 Isolated Mesolithic finds spots have been identified within the county, but none have been located with the Site or wider Study Area.
- 3.5 Findspots, dating from the Neolithic and Iron Age, have been recorded within the Study Area comprising of worked flints MSF21731 and MSF809 (850m to the northwest and 925m to the north respectively), Bronze Age ring ditches (MSZ27175, MSZ27176, 780m and 665m to the north respectively) and various pits and postholes (MSF5398, MSF31306, 684m and 432m north of the Site).
- 3.6 The Roman period is documented within the Study Area, by two artefact scatters (MSF13194 and MSF12173, 340m to the east and 702m to the southeast).
- 3.7 There is excavation evidence of Roman occupation in this area, (950m to the south of the Site) which recorded former field systems (Suffolk HER ESF22560).

Early Historic and Medieval (AD 410-1600)

- 3.8 Archaeological evidence of this period has been recorded via an Anglo-Saxon scatter of Bronze bowls (MSF5367), recovered 720m to the southeast), with documentary evidence suggesting that the Church to the south may have 12th century origins.
- 3.9 A deserted Medieval Settlement (DMS) of Badley (MSF27432), located approximately 30m to the southeast of the Site, has the potential to extend into the survey area, with settlement or agricultural evidence likely to be recorded.
- 3.10 Furthermore, the village of Combs (MSF11786) is likely to have Medieval origin (520m to the northwest) and a farming site at Badley Green (MSF43485, 650m to the southwest) and a moated site at Cedars Field (MSF5399), 660m to the north and the remains Creeting St Peter (MSF5372) and 665m to the east.

Post-medieval (AD 1600-1900)

- 3.11 Badley Hall (approximately 225m to the west) had an associated Great Park (MSF43478) likely to have been used to support the residence of status in the post-Medieval period.
- 3.12 A history and expanded discussion of the upstanding works during this period, with the Site and the wider Study Area can be found in the Heritage Statement, although mention of the water-powered mill (1231092), 157m to the east, the Ipswich to Stowmarket Navigation (MSF44887) and the Ipswich to Bury St Edmunds railway (MSF34993), both within 200m to the east of the Site, are industrial features of note, which will have affected the surrounding landscape.

Previous Archaeological Investigations

- 3.13 In addition to the excavation mentioned above, there have been a number of non-intrusive and intrusive archaeological works, in the wider context of the Site.
- 3.14 A geophysical survey (ESF22399), in 2014, 432m to the east of the Site detected a number of potential ditches and pits.
- 3.15 Aerial photography analysis (ESF21323) in 2005 recorded a number of ring-ditches and post-Medieval revetments and tracks.

- 3.16 Three separate metal detecting evaluations, recorded on the Portable Antiquities Scheme (PAS) have also been documented (ESF27334, ESF27335 and ESF28227).
- 3.17 Archaeological evaluations and monitoring (ESF28302, ESF22460, ESF28594, ESF19549 and ESF22996) vary between negative finds and multi-phase evidence (ESF22460).
- 3.18 No details of the excavation that took place to the northwest of the Site (ESF28640) in 2021 were available, whilst post-excavation assessment (ESF22560) in 2014, of a site approximately 857m to the south of the Site recorded ditches that contained evidence of a prehistoric field system, and also Anglo-Saxon and early Medieval pottery.

4 Aims

- 4.1 The aim of the geophysical survey was to identify any potential archaeological anomalies that would enhance the current understanding of the archaeological resource within the proposed survey area.
- 4.2 Specifically, the aims of the gradiometer survey were:
- To locate, record and characterise any surviving sub-surface archaeological remains within the survey area;
 - To provide an assessment of the potential significance of any identified archaeological remains in a local, regional and (if relevant) national context; and
 - To produce a comprehensive site archive (Appendix 2) and report.

5 Methodology

- 5.1 The geophysical survey was undertaken between February and April 2022.
- 5.2 All geophysical survey work was carried out in accordance with recommended good practice specified in the EAC guideline documents published by Historic England (Schmidt et al. 2016) and the Chartered Institute for Archaeologists Standard and Guidance for archaeological geophysical survey (2014).
- 5.3 Parameters and survey methods were selected that were suitable for the prospective aims of the survey and in accordance with recommended professional good practice (Schmidt et al. 2016).
- 5.4 Digital photographs of every survey parcel were taken before, during and after geophysical survey to show any changes to field conditions following the programme of works. The photos were downloaded and stored off site.
- 5.5 The gradiometer survey was largely carried out using Bartington Grad601-2 fluxgate gradiometers (see Appendix 3). The survey was conducted within a grid system, across grids measuring 30m by 30m which were marked out using temporary markers at each grid node.
- 5.6 Grid nodes were set out and recorded using a Trimble R8 / R10 dGPS with an error no greater than +/- 0.05m. The GPS system uses the Trimble "VRS Now" service to provide instant access to real-time kinematic (RTK) corrections enabling an accuracy of < 2cm. It was connected via a SIM card run on the Vodafone network with good cellular signal in the survey areas, meaning a repeater was not required.
- 5.7 Data was collected in the field on an east-west alignment using zig-zag traverses, with a sample interval of 0.25m and a traverse interval of 1m.
- 5.8 Before each session of use, each gradiometer was balanced around a single set up point within the Site specifically chosen for use by all machines. This point is magnetically quiet and in balancing the machine around this point, produces a more uniform dataset throughout and allows all data to be

plotted with ease within the standard range of -1nT to 2nT. Where significant drift occurred on a machine throughout a survey session, the affected grids were re-surveyed. Striping of the data may occur due to machine drift and it is decided in the field if this is within a sensible and acceptable limit.

- 5.9 Care was also taken to attempt to avoid metal obstacles present within the survey area, such as metal fencing around hedge boundaries as gradiometer survey is affected by 'above-ground noise' and avoiding these improves the overall data quality and results obtained.
- 5.10 The gradiometer data were downloaded using Bartington Grad601 PC Software v313 and processed using Geoscan Geoplot v4.0, the details of which can be found in Appendices 3 and 4. Data processing, storage and documentation were carried out in accordance with the good practice specifications detailed in the guidelines issued by the Archaeology Data Service (Schmidt and Ernenwein, 2009).
- 5.11 Interpretations of the data were created as layers in AutoCAD LT 2019 and the technical terminology used to describe the identified features can be found in Appendix 5.

6 Results and Interpretation

- 6.1 The gradiometer survey results have been visualised using AutoCAD 2019. Figures 2, 3 and 4 are shown at a scale of 1:3000 and show the areas surveyed, an overview of the greyscale data and also an overview of the interpretation. The remaining figures have all been plotted at 1:1250 and sequential show processed greyscale plots, with data plotted at -1nT to 2nT, a minimally processed XY traceplot and subsequent interpretation of the data. An individual characterisation of the identified anomalies can be seen in Appendix 1.
- 6.2 For the most part, only trends of a possible archaeological or historical origin have been assigned an anomaly number on the interpretation figures. Trends that are integral to the discussion have also been assigned anomaly numbers.
- 6.3 There is evidence of magnetic interference from the overhead power lines in the dataset, most notably in Field 6.
- 6.4 The central part of the survey area, whilst consisting of a single land parcel, has been divided into three parts, in order, to assist in interpretation and discussion.

Archaeology

- 6.5 No clear and supported evidence of archaeological activity has been detected across the site.

Possible Archaeology

- 6.6 Magnetic anomalies of a possible archaeological nature have been detected within the dataset, predominantly in the north of Field 3.
- 6.7 In the north-east corner of field 3, a magnetically enhanced linear trend (**P1**) has been identified (Figure 10). It does not appear on any mapping of the area, therefore a possible archaeological interpretation has been reached as its form suggest a possible enclosure, however any characteristics which would provide additional defining insight, may occur outside of the Site.
- 6.8 Amongst the magnetic linear trends of U1, a collection of pit-like anomalies (**P2**) have been identified (Figure 10). It is possible that they are associated with the circular anomalies, representing post-holes, or gully ditch termini.
- 6.9 A second collection of pits have been identified approximately 40m to the east of P1 and P2. A collection of pits (**P3**) are aligned along a north to south orientation (Figure 10).

- 6.10 Located within a cluster of anomalies identified as U9, a collection of anomalies (**P4**) have been identified as having a possible archaeological origin, as they have comparable magnetic responses and alignment to those identified in Field 3 (Figure 10). These pit-like anomalies may be an indicator of pits, or postholes associated with U9.
- 6.11 Located within Field 4, a collection of anomalies (**P5**) have been identified as having a possible archaeological origin, as they have comparable magnetic responses and alignment to those identified in Field 3 (Figure 13).

Unclear Origins

- 6.12 Across the survey area, a number of linear trends and areas of unclear disturbance have been detected, some of which may have archaeological provenance.
- 6.13 Within Field 3, a collection of anomalies (**U1**) close to the area of magnetic disturbance caused by a building in the north of the field has been identified (Figure 10). It measures approximately (7m x 7m) and has the appearance of a circular feature, around a central focal point.
- 6.14 To the south of P1 anomalies **U2** and **U3** are, two magnetic linear trends that have been detected along a northwest to southeast alignment (Figure 10). The origin of these responses is unclear, although a modern agricultural origin is feasible.
- 6.15 West of the northern most pylon base in Field 3, a semi-circular feature (**U4**) has been identified, which may have an archaeological origin (Figure 10). It measures approximately (25m x 30m) and whilst it could be considered to be evidence of an attempt to enclose a space, the features may also have been created by activity associated with the erection of the pylon.
- 6.16 To the south of U4, two smaller linear anomalies (**U5**) have been detected (Figure 10). Together it could be considered that they form a feature, but it is likely to be a remnant of activity associated with the pylon erection.
- 6.17 Nine curvilinear features (**U6**) have been revealed within the dataset (Figure 10). The concentration of the features and apparent interconnectivity suggest a feature of archaeological potential. However, these, as with U3-U5, being in close proximity to the pylon, maybe features created and associated with the erection of the pylon, to the north. Ergo an unclear interpretation has been reached.
- 6.18 To the immediate south of the concentration of features of U6, pit-like anomalies (**U7**) have been identified. These, as with the larger features of **U8**, may represent an area of archaeological activity (Figure 10). Yet an unclear interpretation has been reached as a result of the close proximity to the pylon nearby.
- 6.19 Within Field 4, close to the intersection with Field 5, magnetic enhancement has been detected (**U9**). The shape of feature is characteristic of a ladder type anomaly, which could be considered to be archaeological in origin (Figure 13). However, given the location of the feature, close to the existing footpath this could be a feature of modern origin.
- 6.20 In the southeast corner of Field 4, a collection of responses have been identified (**U10** and **U11**). These magnetically enhanced linear responses appear to be interconnected. An archaeological interpretation could be made, based upon the shape that these responses make. However, as these responses are largely ephemeral and regular, it may be that these responses are associated with a collection of fields or paddocks, which have been removed (Figure 13). This feature is bisected by a former field

boundary, ergo making a collection of former field boundaries unlikely, therefore an unclear interpretation has been reached.

- 6.21 Two magnetically enhanced linear trends have been identified (**U12**) however their origin is unclear (Figure 13).
- 6.22 Located within Field 6, a square-type feature has been revealed (**U13**). The ephemeral nature of the magnetic response means that an unclear interpretation has been reached (Figure 19). The negative halo that defines this feature suggests a characterisation that may be comparable to that U1 in shape, albeit not in magnetic signature.
- 6.23 In the northern extent of Field 6, an unclear linear trend (**U14**) has been identified (Figure 19). It, and the anomaly identified as **U15** may be evidence of agricultural activity, rather than being of archaeological significance.
- 6.24 Within Field 4 two parallel linear trends have been identified within the dataset, which curve at the northern extent (**U16**). They are aligned upon a north-south orientation (Figure 22). Given their apparent symmetry these features may be defined as edges of an informal agricultural track. However an origin other than agricultural cannot be dismissed, therefore an unclear interpretation has been reached.
- 6.25 Magnetic trends (**U17** and **U18**) have been recorded in Fields 5 and 7 respectively, which have an unclear origin, but are likely to be evidence of agricultural scars in the landscape (Figures 25 and 28).
- 6.26 Located within Field 2, a collection of anomalies have been identified as unclear in origin (**U19 – U21**). As they are positioned close to magnetic responses identified as geological in origin, it is feasible that they may be naturally occurring responses, however an archaeological origin cannot be wholly dismissed given the shape and size of the anomalies (Figure 13).

Agricultural

- 6.27 Evidence of ploughing has been identified with the survey area, most notably in Fields 6 and 7.

Non - Archaeology

- 6.28 A number of former field boundaries have been identified across the Site, with the majority, identified in Fields 5 and 6 (H1-H8). These features are recorded on 1888 OS mapping of the Site and appear to remain in place until the 1970 OS mapping revision. At this point H1, H2, H3, H4, H5 and part of H6 are removed, which may coincide with the erection of overhead pylons. The remaining field boundaries are removed after this date. Former field boundaries have been identified throughout the survey area, which date from early OS mapping of the site, which were subsequently removed.
- 6.29 An historic feature, described as an infilled pond (H9), has been identified close to anomalies U10 and U11 (Figure 13). It is not definitively recorded on OS mapping, however, its proximity to the existing pond, which has developed over time, until it has become its current shape, is a likely origin. The subsequent magnetic enhancement has been caused by the nature of the infilled material, contrasting with that of the surrounding features.
- 6.30 Geological anomalies have been identified within the dataset. This has been caused by material being brought to the surface during the removal of former field boundaries, or trees.
- 6.31 Magnetic disturbance has been detected throughout the dataset. This has been caused by the significant interference caused by the overhead pylons within the site, but also from telegraph poles.

- 6.32 Along the boundaries of the site, there is evidence of magnetic disturbance. This has been caused by buildings (as in the case for the northern boundary of Field 3), but also from metal fencing and detritus within the field boundaries.
- 6.33 Throughout the survey area, evidence of isolated dipolar responses, have been detected.
- 6.34 Linear magnetic responses, indicative of field drains, have been identified within the dataset within Fields 1 and 2.

7 Conclusion

- 7.1 The results of the survey have identified a number of anomalies of possible archaeological origin. Whilst none of these can be definitively interpreted as archaeological in origin, some features of a possible archaeological origin, alongside unclear responses have been identified. These are predominantly located in fields 3 and 4 and the most significant of these features comprise of shapes and forms which may be of an archaeological origin. These include P1 – a linear feature, located in the north of Field 3 - along with pit-like anomalies to the west of P1 (P2 and P3). A collection of semi-circular anomalies and areas of magnetic disturbance in Field 3, identified as U1 – U8, may suggest archaeological activity, although their origin is unclear (Figure 10).
- 7.2 In the northeast corner of Field 4, anomalies of a possible and unclear origin have been identified which comprises of P4 – a possible west to east pit alignment – and U9, a collection of anomalies which have a form suggesting something of a ladder enclosure (Figure 10).
- 7.3 In the southeast corner of Field 4, anomalies U10 and U12 create a form which may have origins, that predate the former field boundary, however the creation of these responses may also be associated with the removal of H???? and the subsequent infilling of the pond (Figure 13).
- 7.4 Further to the west of U10, anomalies P5 have been identified, similarly reflecting P4, further to the northeast (Figure 13).
- 7.5 Anomalies U19, U20 and U21, located in Field 2 (Figure 16) reflect linear trends which are defined as unclear, as a geological, as well as an archaeological origin may be the cause of their creation.
- 7.6 In the northwest corner of Field 6 (Figure 19), anomaly U13 has been identified as unclear, which might have an archaeological origin as the square nature of the response is such that it may represent a square-type enclosure, although the responses are tentative.
- 7.7 Unclear anomalies in Field 7, close to the eastern extent of the Site boundary have been identified. Whilst these semi-circular anomalies may have an archaeological origin, an agricultural creation can not be dismissed.
- 7.8 A collection of unclear anomalies have been detected throughout the dataset, as linear trends and areas of disturbance. They have been classified as unclear, as both an archaeological or natural reason for their origin is feasible, when taken into context alongside supplementary information, such as mapping or aerial photographs.
- 7.9 Responses indicative of magnetic enhancement and disturbance have also been detected throughout the data.
- 7.10 In comparison to the archaeological baseline, the anomalies detected suggest that the archaeological resource is limited.
- 7.11 In assessing the results of the geophysical survey against the specific aims set out in Section 4;

- The survey has succeeded in locating, recording and characterising surviving sub-surface remains within the Site, though more remains may be present that are not suitable for detection through magnetometry;
- The survey will help in determining the next stage of works as it has provided evidence that remains of an uncertain origin are most likely present on site, and has provided a number of targets for further investigation;
- It is not possible to provide an assessment of the potential significance of the identified remains in a local, regional or national context as it has not been possible to definitively characterise the nature of the anomalies identified through survey alone;
- The survey has resulted in a comprehensive report and archive.

7.12 The geophysical survey has produced good quality gradiometer results which have successfully helped to clarify whether archaeological or uncertain remains are present across the Site. There is a high confidence level that the methodology and survey strategy chosen were appropriate to assess the archaeological potential across the Site.

8 Statement of Indemnity

- 8.1 Although the results and interpretation detailed in this report have been produced as accurately as possible, it should be noted that the conclusions offered are a subjective assessment of collected data sets.
- 8.2 The success of a geophysical survey in identifying archaeological remains can be heavily influenced by several factors, including geology, seasonality, field conditions and the properties of the features being detected. Therefore, the geophysical interpretation may only reveal certain archaeological features and not produce a complete plan of all the archaeological remains within a survey area.

9 Archive Deposition

- 9.1 In accordance professional standard practice an 'Online Access to the Index of archaeological investigations' ('OASIS') record will be completed for submission to the HER and Archaeological Data Service (ADS) (Appendix 2).
- 9.2 One digital and hard copy of the report and data will be submitted to the relevant Historic Environment Record (HER).
- 9.3 A digital copy of the report and data will also be submitted to the ADS at the Client's discretion.

10 Bibliography

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11 Plates



Plate 1. Field 3 looking south, taken from the northern boundary



Plate 2. Field 5 looking south, taken from the northern boundary



Plate 3. Field 6 looking west, taken from the boundary between Fields 6 and 7



Plate 4. Field 7 looking north, taken from the southeast corner

12 Figures

Appendix 1: Characterisation of Anomalies

Gradiometer survey

Anomaly	Type of Anomaly
P1	Linear trend - Archaeology
P2	Pit-like anomaly
P3	Pit-like anomaly
P4	Pit-like anomaly
U1	Linear trend – unclear
U2	Linear trend – unclear
U3	Linear trend – unclear
U4	Linear trend – unclear
U5	Linear trend – unclear
U6	Linear trend – unclear
U7	Pit-like anomaly - unclear
U8	Linear trend – unclear
U9	Linear trend – unclear
U10	Linear trend – unclear
U11	Linear trend – unclear
U12	Linear trend – unclear
U13	Linear trend – unclear
U14	Linear trend – unclear
U15	Linear trend – unclear
U16	Linear trend – unclear
U17	Linear trend – unclear
U18	Linear trend – unclear
U19	Disturbed area - unclear
U20	Linear trend - unclear
U21	Linear trend - unclear

Appendix 2: Survey Metadata**Oasis ID: aocarcha1-436185**

Field	Description
Surveying Company	AOC Archaeology
Data collection staff	D. Shiel and S. O'Connor
Client	Arcus Consultancy Services
Site name	Woodlands Solar Farm, Suffolk
County	Suffolk
NGR	TM 06621 56430
Land use/ field condition	Arable
Duration	Four weeks
Weather	Overcast
Survey type	Gradiometer Survey
Instrumentation	Bartington Grad 601-2, Trimble R10 GNSS System
Area covered	Approx 56 ha
Download software	Grad601 PC Software v313
Processing software	Geoplot v3.0
Visualisation software	AutoCAD LT 2019
Geology	Newhaven Chalk (BGS, 2022)
Soils	Slowly permeable seasonally wet slightly acidic loams and clay
Scheduled Ancient Monument	No
Known archaeology on site	See section 3 above – yes, but not extensive
Historical documentation/ mapping on site	Yes, see above
Report title	Woodlands Solar Farm, Suffolk: Archaeological Geophysical Survey
Project number	40142
Report Author	Kayt Armstrong & Chris Sykes
Quality Checked by	James Lawton

Appendix 3: Archaeological Prospection Techniques, Instrumentation and Software Utilised

Gradiometer Survey

Gradiometer surveys measure small changes in the earth's magnetic field. Archaeological materials and activity can be detected by identifying changes to the magnetic values caused by the presence of weakly magnetised iron oxides in the soil (Aspinall et al., 2008, 23; Sharma, 1997, 105). Human inhabitation often causes alterations to the magnetic properties of the ground (Aspinall et al, 2008, 21). There are two physical transformations that produce a significant contrast between the magnetic properties of archaeological features and the surrounding soil: the enhancement of magnetic susceptibility and thermoremanent magnetization (Aspinall et al., 2008, 21; Heron and Gaffney 1987, 72).

Ditches and pits can be easily detected through gradiometer survey as the topsoil is generally suggested to have a greater magnetisation than the subsoil caused by human habitation. Areas of burning or materials which have been subjected to heat commonly also have high magnetic signatures, such as hearths, kilns, fired clay and mudbricks (Clark 1996, 65; Lowe and Fogel 2010, 24).

It should be noted that negative anomalies can also be useful for characterising archaeological features. If the buried remains are composed of a material with a lower magnetisation compared to the surrounding soil, the surrounding soil will consequently have a greater magnetization, resulting in the feature in question displaying a negative signature. For example, stone materials of a structural nature that are composed of sedimentary rocks are considered non-magnetic and so will appear as negative features within the dataset.

Ferrous objects – i.e. iron and its alloys - are strongly magnetic and are typically detected as high-value peaks in gradiometer survey data, though it is not usually possible to determine whether these relate to archaeological or modern objects.

Although gradiometer surveys have been successfully carried out in all areas of the United Kingdom, the effectiveness of the technique is lessened in areas with complex geology, particularly where igneous and metamorphic bedrock is present or thick layers of alluvium or till. All magnetic geophysical surveys must therefore take the effects of background geological and geomorphological conditions into account.

Gradiometer Survey Instrumentation and Software

AOC Archaeology's gradiometer surveys are carried out using Bartington Grad601-2 magnetic gradiometers. The Grad601-2 is a high-stability fluxgate magnetic gradient sensor, which uses a 1m sensor separation. The detection resolution is from 0.03 nT/m to 0.1nT/m, depending on the sensor parameters selected, making the Grad601-2 an ideal instrument for prospective survey of large areas as well as detailed surveys of known archaeology. The instrument stores the data collected on an on-board data-logger, which is then downloaded as a series of survey grids for processing.

Following the survey, gradiometer data is downloaded from the instrument using Grad601 PC Software v313. Survey grids are then assembled into composites and enhanced using a range of processing techniques using Geoscan Geoplot v3.0 / v4.0 (see Appendix 4 for a summary of the processes used in Geoplot to create final data plots).

Bartington Non-Magnetic Cart Instrumentation and Software

AOC Archaeology's cart-based surveys are carried out using a Bartington Non-Magnetic Cart. The cart enables multiple traverses of data to be collected at the same time, increasing the speed at which surveys may be carried out and offers the benefits of reduced random measurement noise and rapid area coverage (Schmidt et al 2015, 60-62, David et al. 2008, 21).

The cart uses a configuration of four Grad-01-1000L sensors mounted upon a carbon fibre frame along with two DL601 dataloggers and one BC601 battery cassette. The sensors are normally positioned at 1m intervals on a horizontal bar, with the datalogger taking readings every 12.5cm along each traverse, though this can be altered to increase / reduce resolution if required. The data is georeferenced via a Trimble R10 Real Time Kinematic (RTK) VRS Now GNSS GPS which streams data throughout survey and allows the data to be recorded relative to a WGS1984 UTM coordinate system.

The gradiometer data is collected through Geomar MLGrad601 software on a laptop in real-time during the survey. The data is downloaded and converted into a .xyz file in Geomar MultiGrad601 before being processed along with the GPS data in TerraSurveyor v3.0.34.10 (see Appendix 4 for a summary of the processes used in Geoplot to create final data plots).

Appendix 4: Summary of Data Processing

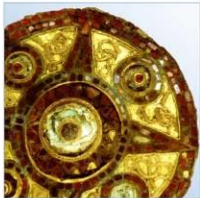
Process	Effect
Clip	Limits data values to within a specified range
De-spike	Removes exceptionally high readings in the data that can obscure the visibility of archaeological features. In resistivity survey, these can be caused by poor contact of the mobile probes with the ground. In gradiometer survey, these can be caused by highly magnetic items such as buried ferrous objects.
De-stagger	Corrects a misalignment of data when the survey is conducted in a zig-zag traverse pattern.
Discard Overlap (TerraSurveyor)	Removes datapoints which occur too closely together and can cause digital artefacts in the data which are caused by the overlapping of parallel traverses.
Edge Match	Counteracts edge effects in grid composites by subtracting the difference between mean values in the two lines either side of the grid edge.
High pass filter	Removes low-frequency, large scale detail in order to remove background trends in the data, such as variations in geology.
Interpolate	Increases the resolution of a survey by interpolating new values between surveyed data points, creating a smoother overall effect.
Low Pass filter	Uses a Gaussian filter to remove high-frequency, small scale detail, typically for smoothing the data.
Periodic Filter	Used to either remove or reduce the appearance of constant and reoccurring features that distort other anomalies, such as plough lines.
Remove Turns (TerraSurveyor)	Uses analysis of the direction of travel derived from the GNSS data to break continuous streams of data into individual traverses.
Zero Mean Grid	Resets the mean value of each grid to zero, in order to counteract grid edge discontinuities in composite assemblies.
Zero Mean Traverse	Resets the mean value of each traverse to zero, in order to address the effect of striping in the data and counteract edge effects.

Processing Steps

Gradiometer survey	
Process	Extent
Zero Mean Traverse	All LMS =on, threshold -5 to 5
De-spike	X=1 Y=1 Thr = 3 Repl = Mean
De-stagger	All grids dir Shift = 2 Line Pattern 34-78 Dual-DS
Low Pass filter	X=1 Y=1 Wt=G
Interpolate	Y, Expand – Expand –SinX/X x2
Palette Scale	Grey08 Min= -1nT Max= 2nT

Appendix 5: Technical Terminology

Type of Anomaly	Description
Archaeology	<i>Interpretation is supported by the presence of known archaeological remains or by other forms of evidence such as HER records, LiDAR data or cropmarks identified through aerial photography.</i>
Trend	Linear / curvilinear / rectilinear anomalies either characterised by an increase or decrease in values compared to the magnetic background.
Area of enhanced magnetism	A zone of enhanced magnetic responses over a localised area. These anomalies do not have the high dipolar response which are manifested in an 'iron spike' anomaly and likely have a relationship with nearby archaeological trends.
Pit	An anomaly composed of an increase in magnetic values with a patterning on the XY trace plot that is pit-like in appearance.
Possible Archaeology	<i>Trends are likely to have an archaeological origin, however without supporting evidence from known archaeological remains, HER records, LiDAR or aerial photography, they can only be classed as having a possible archaeological origin.</i>
Trend	Linear / curvilinear / rectilinear anomalies either characterised by an increase or decrease in values compared to the magnetic background.
Area of enhanced magnetism	A zone of enhanced magnetic responses over a localised area. These anomalies do not have the high dipolar response which are manifested in an 'iron spike' anomaly but lacks definitive records to be classed as being archaeological.
Pit-like anomaly	An anomaly composed of an increase in magnetic values with a patterning on the XY trace plot that is pit-like in appearance.
Burnt area	An anomaly with a patterning on the XY trace plot that is suggestive of industrial activity such as a kiln or hearth.
Unclear Origin	<i>Trends are magnetically weak, fractured or isolated and their context is difficult to ascertain. Whilst an archaeological origin is possible, an agricultural, geological or modern origin is also likely.</i>
Trend	Linear / curvilinear / rectilinear anomalies which are composed of a weak or different change in magnetic values. The trends do not appear to form a patterning that is suggestive of archaeological remains, such as enclosures or trackways.
Area of enhanced magnetism	A zone of enhanced magnetic responses which lack context for a conclusive interpretation. They do not appear to have a relationship with nearby trends of an archaeological origin. Can often be caused by areas of former woodland, geological variations or agricultural activity.
Agricultural	<i>Trends associated with agricultural activity, either historical or modern.</i>
Old Field Boundary	These isolated long linear anomalies, most often represented as a negative or fractured magnetic trend, relate to former field boundaries when their positioning is cross referenced with historical mapping.
Historical Features	Features observed on historical mapping that correspond with anomalies or trends in the data. Areas of enhanced magnetism could relate to former buildings, trackways, quarries or ponds.
Ridge and Furrow / Rig and Furrow	A series of regular linear or curvilinear anomalies either composed of an increased or decreased magnetic response compared to background values. The wide regular spacing between the anomalies is consistent with that of a ridge and furrow / rig and furrow ploughing regime. The anomalies often present as a positive 'ridge' trend adjacent to a negative 'furrow' trend.
Ploughing Trends	A series of regular linear anomalies either composed of an increased or decreased magnetic response compared to background values. Anomalies seen parallel to field edges are representative of headlands caused by ploughing.
Field Drainage	A series of magnetic linear anomalies of an indeterminate date, usually with a regular or herringbone patterning.
Non - Archaeology	<i>Trends which are likely to have derived from non-archaeological processes or activities.</i>
Geology / Natural	An area of enhanced magnetism that is composed of irregular weak increases or decreases in magnetic values compared with background readings. It is likely to indicate natural variations in soil composition or reflect variations in the bedrock or superficial geology.
Possible Modern Service	Anomalies of a linear form often composed of contrasting high positive and negative dipolar values. Such anomalies usually signify a feature with a high level of magnetisation and are likely to belong to modern activity such as pipes or modern services.
Magnetic Disturbance	A zone of highly magnetic disturbance that has been caused by or is a reflection of modern activity, such as metallic boundary fencing, gateways, roads, boreholes, adjacent buildings, rubbish at field edges or a spread of green waste material.
Isolated Dipolar Anomalies / Ferrous (iron spikes) and Ferrous Zones	A response caused by ferrous materials on the ground surface or within the subsoil, which causes a 'spike' in the data representing a rapid variation in the magnetic response. These generally represent modern material often re-deposited during manuring.



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Summary for aocarcha1-503698

OASIS ID (UID)	aocarcha1-503698
Project Name	Geophysical Survey at Woodlands Solar Farm, Suffolk
Sitename	Woodlands Solar Farm, Suffolk
Activity type	Geophysical Survey, MAGNETOMETRY SURVEY
Project Identifier(s)	40142
Planning Id	
Reason For Investigation	Planning: Pre application
Organisation Responsible for work	AOC Archaeology Group
Project Dates	14-Feb-2022 - 04-Mar-2022
Location	Woodlands Solar Farm, Suffolk NGR : TM 06621 56430 LL : 52.1674398304668, 1.01987417304123 12 Fig : 606621,256430
Administrative Areas	Country : England County : Suffolk District : Mid Suffolk Parish : Badley
Project Methodology	The survey consisted of gridded magnetometer survey with a Bartington Grad601-2 set to collect data at 25cm interval and at 1 metre traverse intervals, over 30x30metre grids, set out with a Trimble R8 GPS. Some of the fields were also completed with a cart-based system, utilising an R10 GPS at 1Hz frequency and six Bartington Grad601 sensors at 10Hz frequency and 1 metre traverse intervals.

Project Results	<p>AOC Archaeology Group was commissioned by Arcus Consultancy Services Ltd, on behalf of their client to undertake an archaeological geophysical gradiometer survey to investigate the potential for buried archaeological remains ahead of a proposed development at Woodlands Farm, Badley, in Suffolk, (centred at TM 06621 56430). A total of 56 hectares, of the 58 hectare scheme were surveyed across seven individual fields (Fields 1-7). The results of the survey have identified a number of anomalies of possible archaeological origin. Whilst none of these can be definitively interpreted as archaeological in origin, some features of a possible archaeological origin, alongside unclear responses have been identified. These are predominantly located in Fields 3 and 4 and the most significant of these features comprise of magnetically enhanced linear features. These are semi-circular in form, in Field 3, which could be evidence of prehistoric activity. Furthermore, to the south of these features, located in Field 4, which appear to form a ladder types latticework, suggesting possible Roman origins or later. To the south of the scheme, there is evidence of possible early prehistoric pit alignment, but also a series of linear responses and areas of disturbance, which together may form an area of possible, undated archaeological activity. A similar collection of pits and linear features have been recorded in the south of Field 4. In addition, a number of former field boundaries have been identified, these anomalies are recorded on 1888 Ordnance Survey (OS) mapping of the area. Field boundaries in Fields 4 and 5 are removed between 1957 and 1970, with others in Field 6 removed post 1970's mapping. Evidence of features that whilst recorded as unclear, might have an archaeological origin have been identified within Field 4, as a square type enclosure, and also a series of concentric semi-circular anomalies to the eastern extent of Field 7. Geological anomalies have been identified within the dataset. This has been caused by material being brought to the surface during the removal of former field boundaries, or trees. Magnetic disturbance has been detected throughout the dataset. This has been caused by the significant interference caused by the overhead pylons within the site, but also from telegraph poles. Along the boundaries of the site, there is evidence of magnetic disturbance. This has been caused by buildings (as in the case for the northern boundary of Field 3), but also from metal fencing and detritus within the field boundaries. Throughout the survey area, evidence of isolated dipolar responses, have been detected. Linear magnetic responses, indicative of field drains, have been identified within the dataset within Fields 1 and 2.</p>
Keywords	Stock Enclosure - UNCERTAIN - FISH Thesaurus of Monument Types
Funder	
HER	Suffolk HER - unRev - STANDARD
Person Responsible for work	Kayt, Armstrong, Chris, Sykes
HER Identifiers	
Archives	

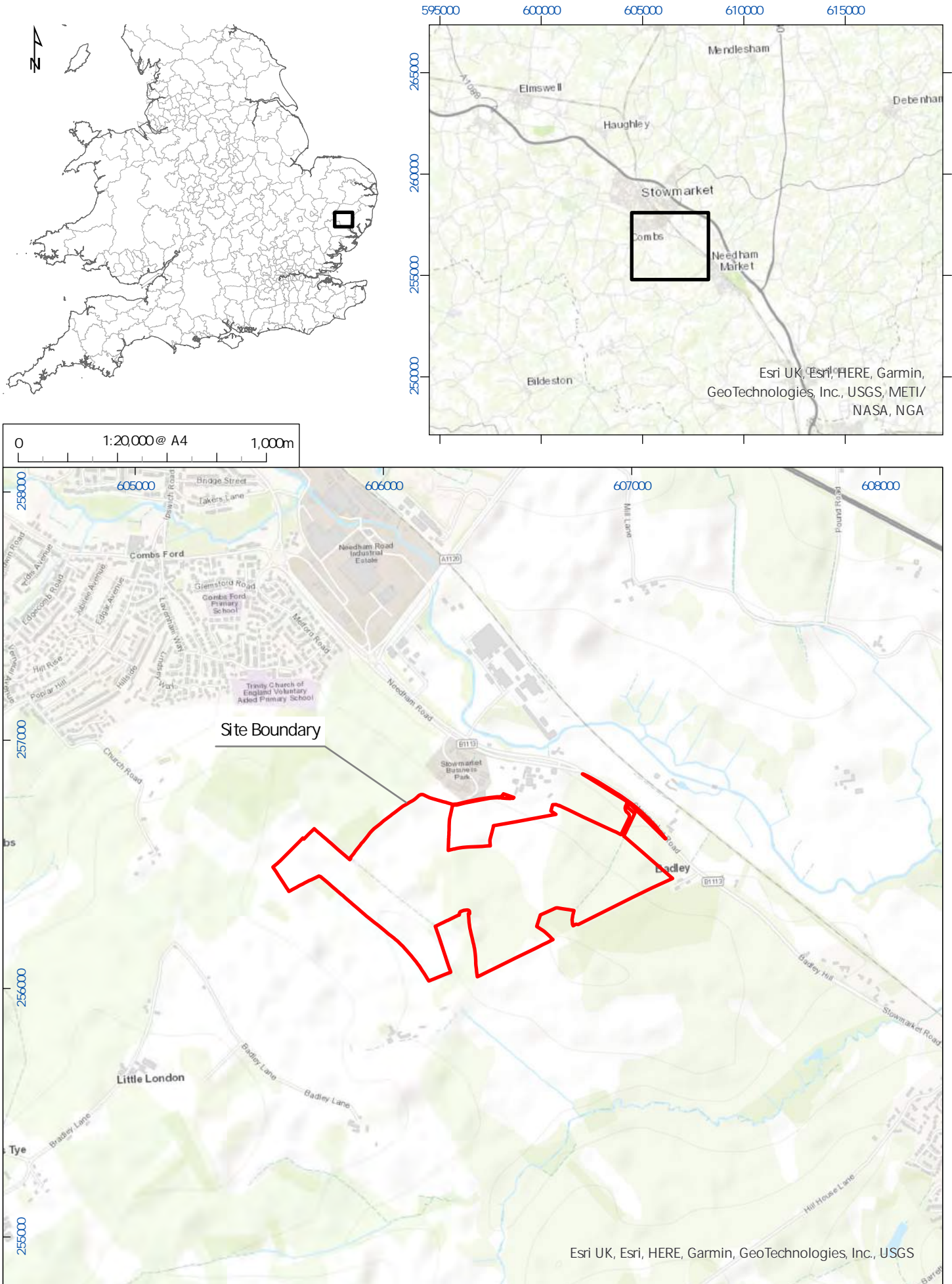


Figure 1: Site locat on plan

01/40142/WSI/01/01

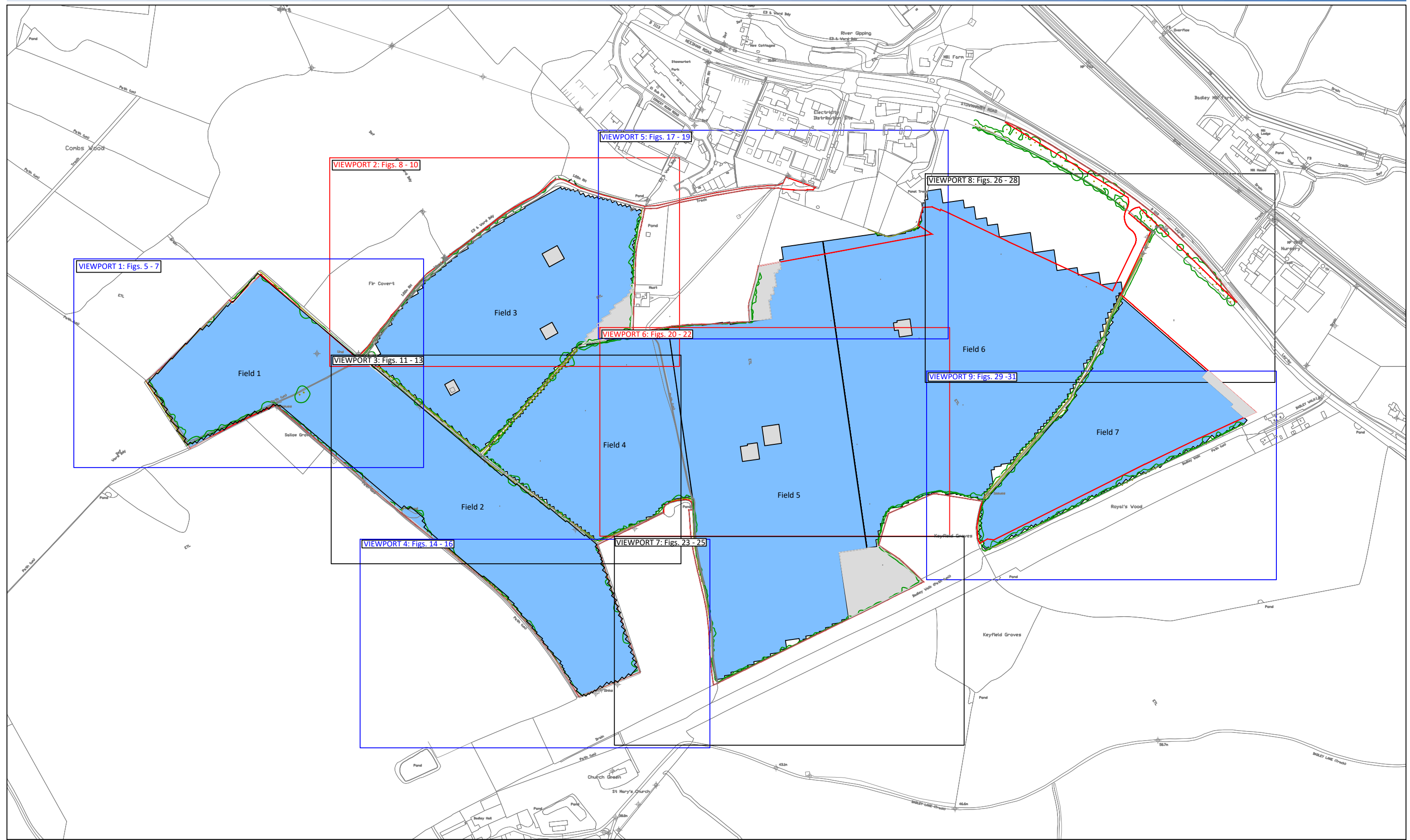
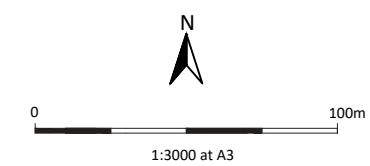


Figure 2: Location of survey areas.

Figure
2

- Magfill Surveyed
- Magfill Not Surveyed
- Survey boundary



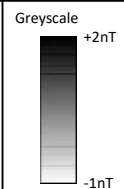
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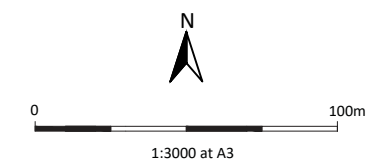


Figure 3: Overview of processed gradiometer data greyscale plots.


Figure
3



Survey boundary



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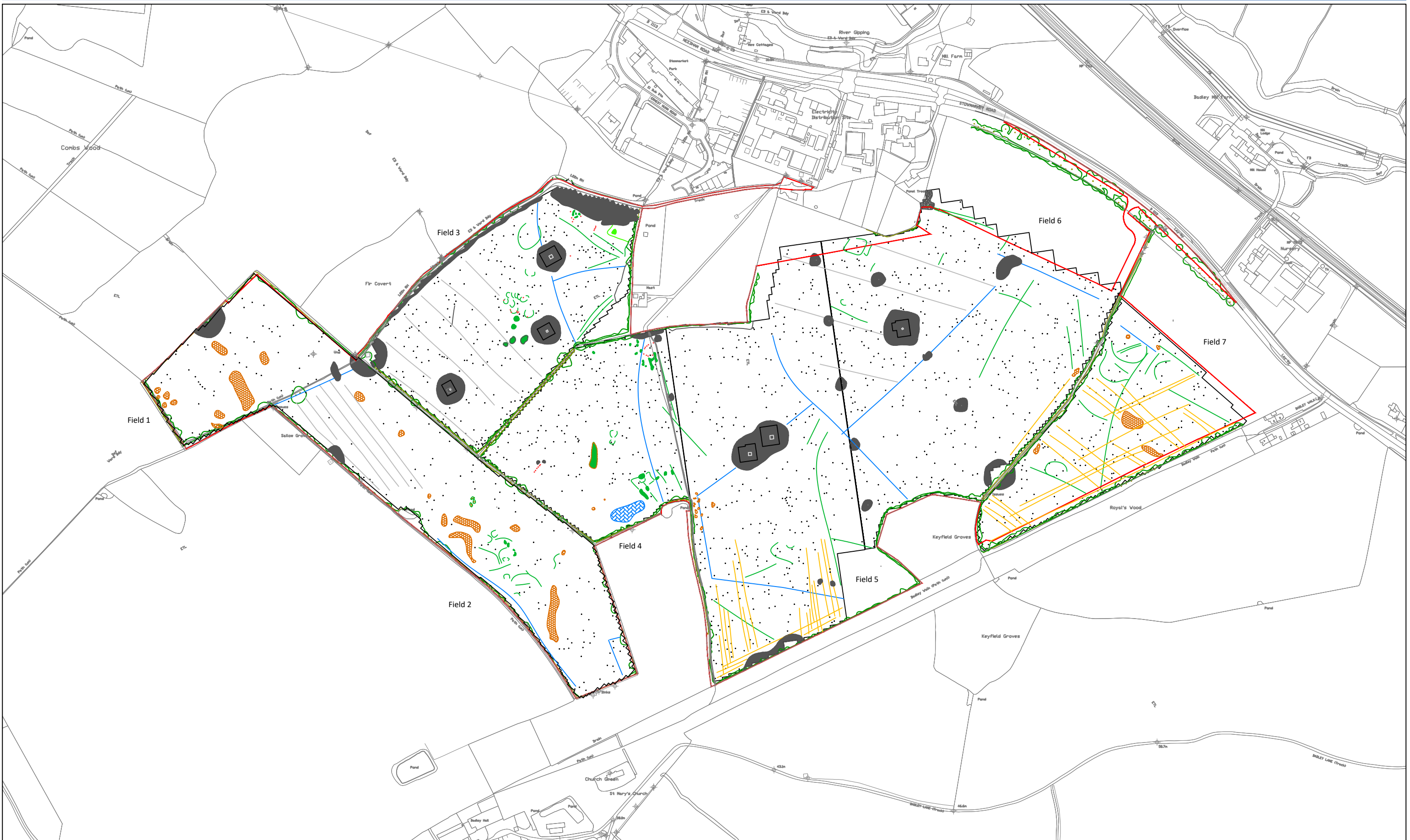
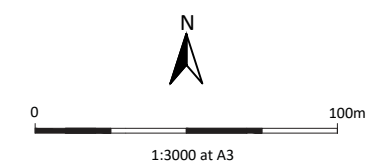



Figure 4: Overview interpretation of processed greyscale plots.

Figure
4

Trend (Archaeology)	Possible Archaeology Area	Old Field Boundary	Geology / Natural	Area of Historic Feature
Area of Disturbance (Archaeology)	Discrete Pit (Archaeology?)	Linear Trend (Ridge and Furrow)	Linear Trend (Modern Service)	Survey boundary
Pit (Archaeology)	Trend (Unclear Origin)	Linear Trend (Ploughing)	Area of Disturbance (Modern)	
Possible Archaeology Trend	Area of Disturbance (Unclear Origin)	Linear Trend Field Drain	Ferrous / Iron Spike	



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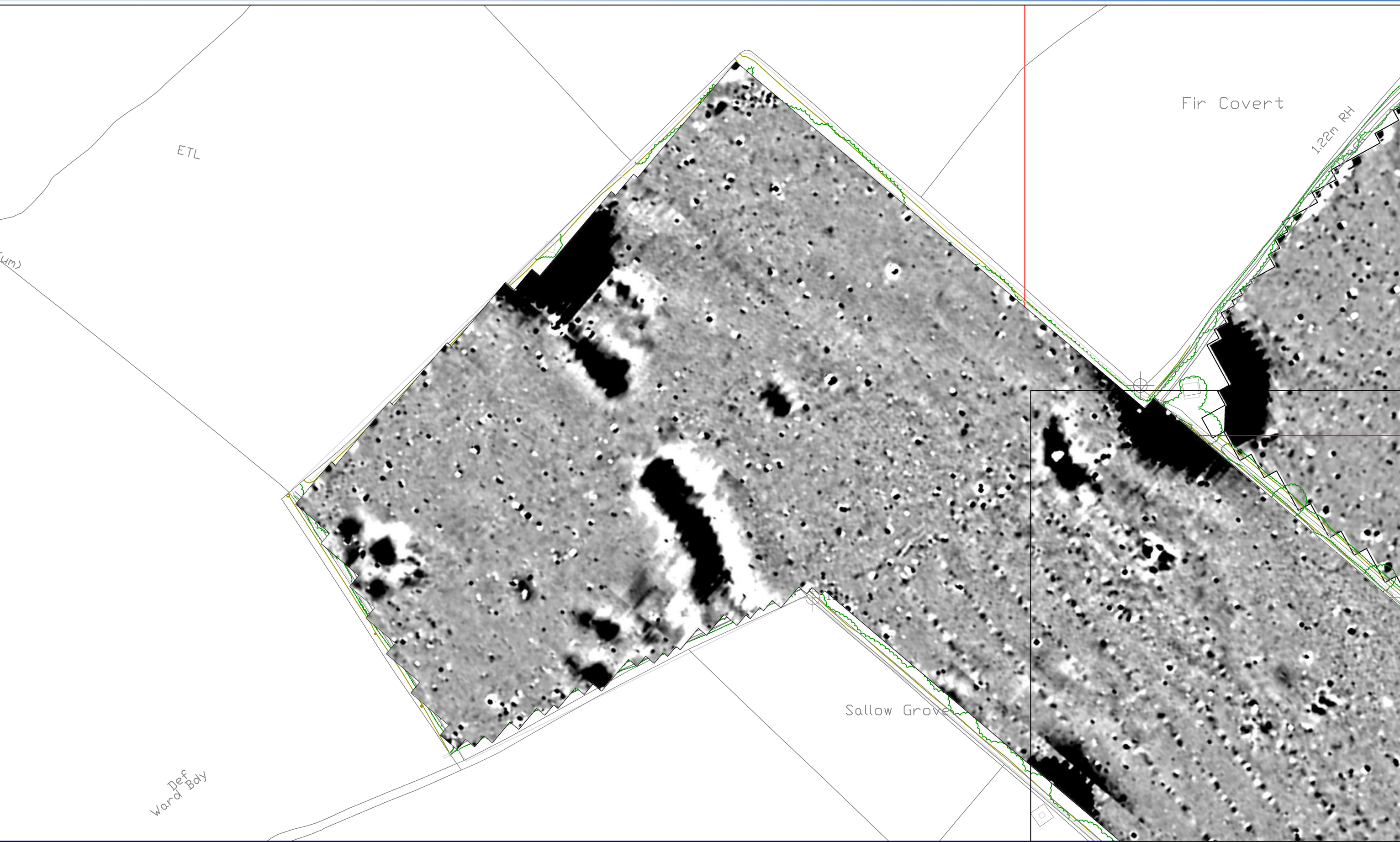


Figure 5: Processed gradiometer survey results - greyscale plot: Viewport 1, Fields 1 and 2

<p>Figure 5</p>	<p>Greyscale</p>	<p>0 40m</p> <p>1:1250 at A3</p>	<p>Contains OS data (c) Crown copyright and database right, 2022. Licence No: 100050351</p>	
	<p>Drawing No: 05/40142/GEO/05/02</p> <p>Drawn by/Checked by: CS / JL</p> <p>Date created: 20 / 04 / 2022</p>			

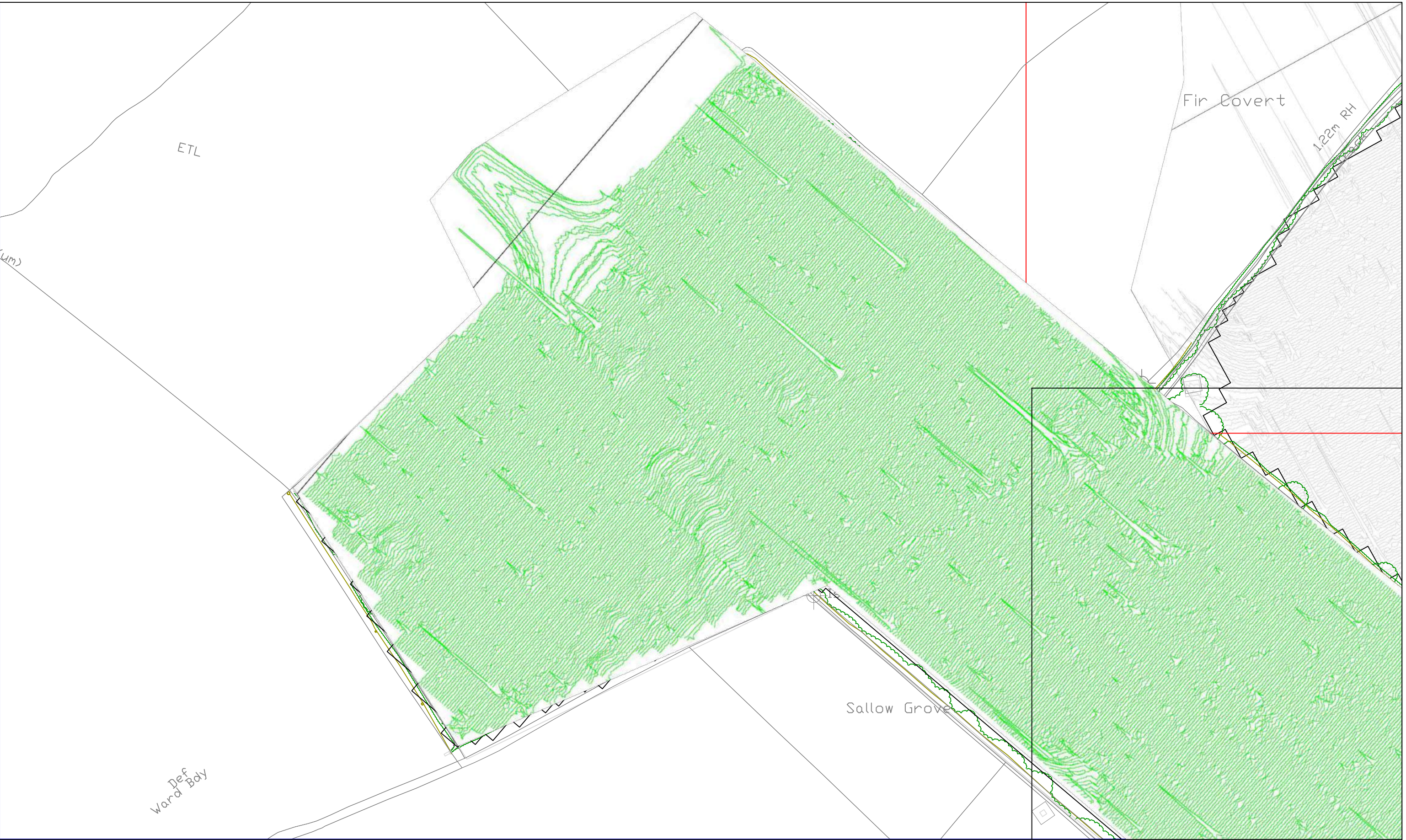
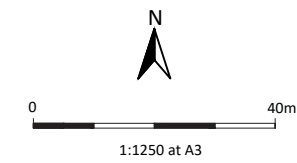
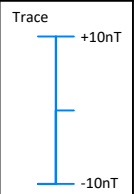


Figure 6: XY traceplot of minimally processed gradiometer data: Viewport 1, Fields 1 and 2

Figure
6



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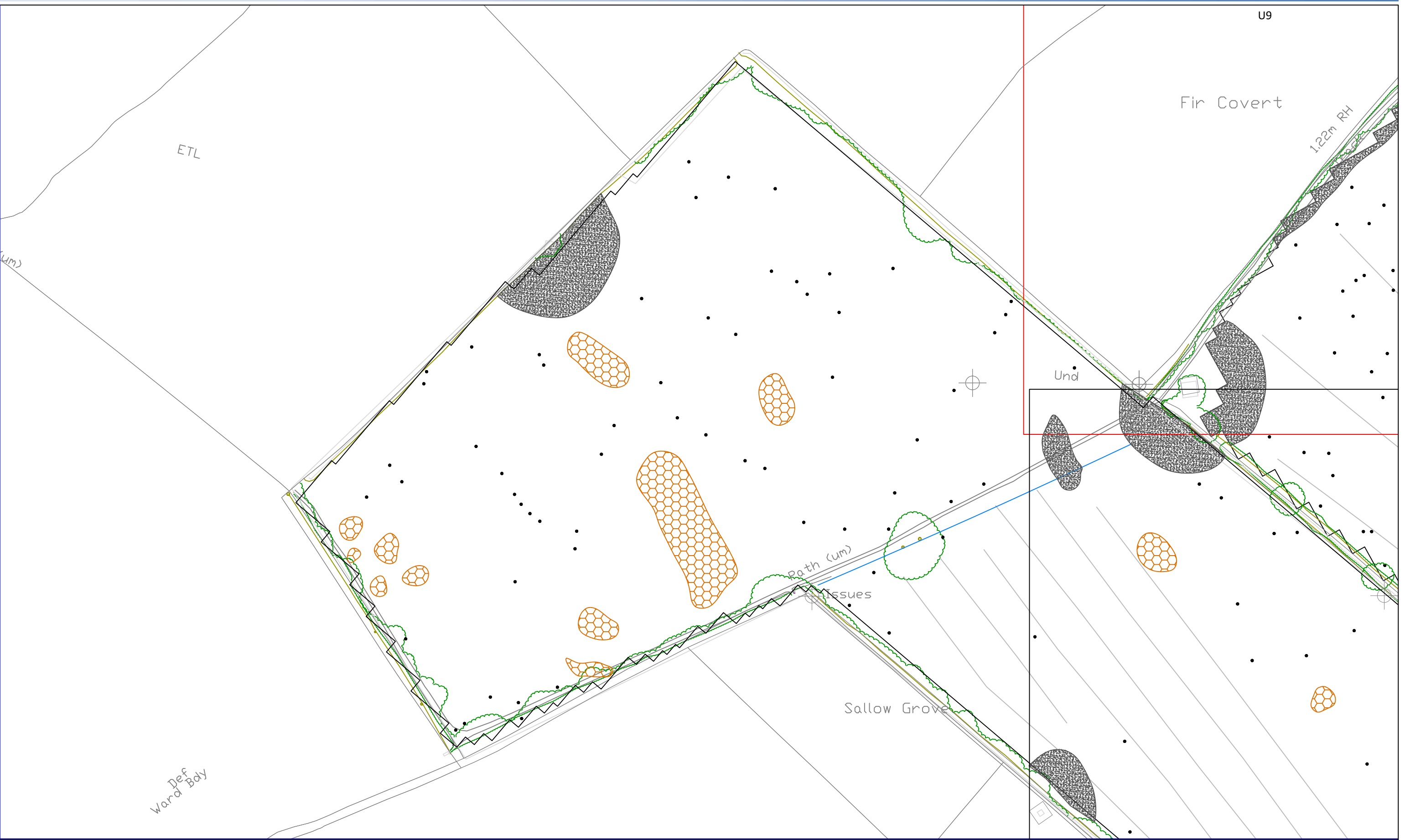
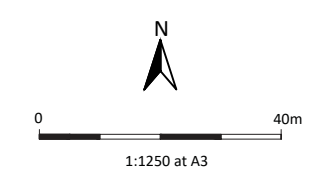



Figure 7: Interpretation of minimally processed gradiometer data: Viewport 1, Fields 1 and 2

Figure
7

Trend (Archaeology)	Possible Archaeology Area	Old Field Boundary	Geology / Natural	Area of Historic Feature
Area of Disturbance (Archaeology)	Discrete Pit (Archaeology?)	Linear Trend (Ridge and Furrow)	Linear Trend (Modern Service)	
Pit (Archaeology)	Trend (Unclear Origin)	Linear Trend (Ploughing)	Area of Disturbance (Modern)	
Possible Archaeology Trend	Area of Disturbance (Unclear Origin)	Linear Trend Field Drain	Ferrous / Iron Spike	



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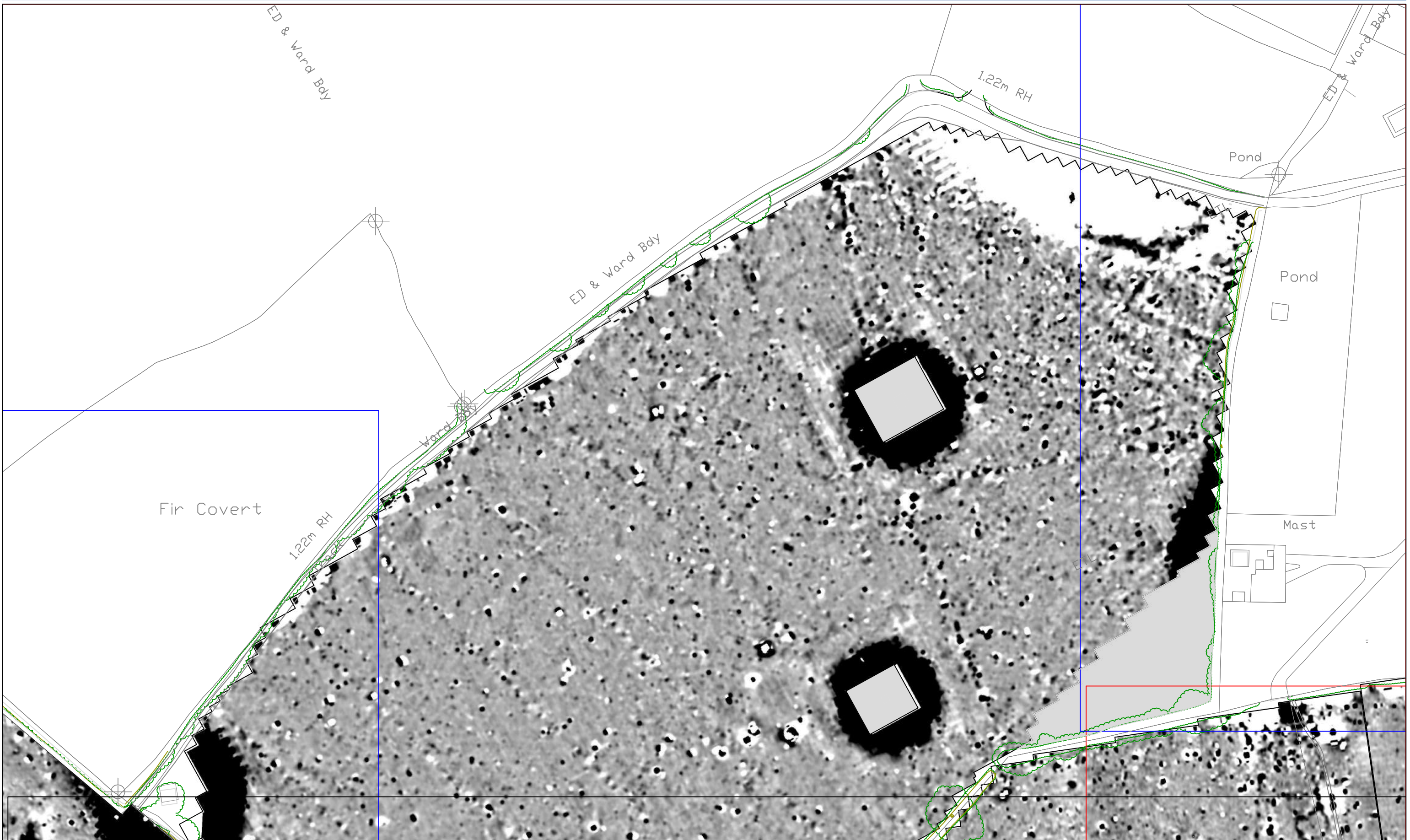
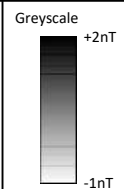
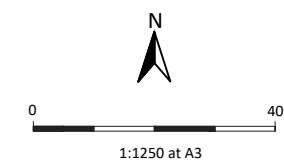


Figure 8: Processed gradiometer survey results - greyscale plot : Viewport 2, Field 3

Figure
8



Magfill Not Surveyed



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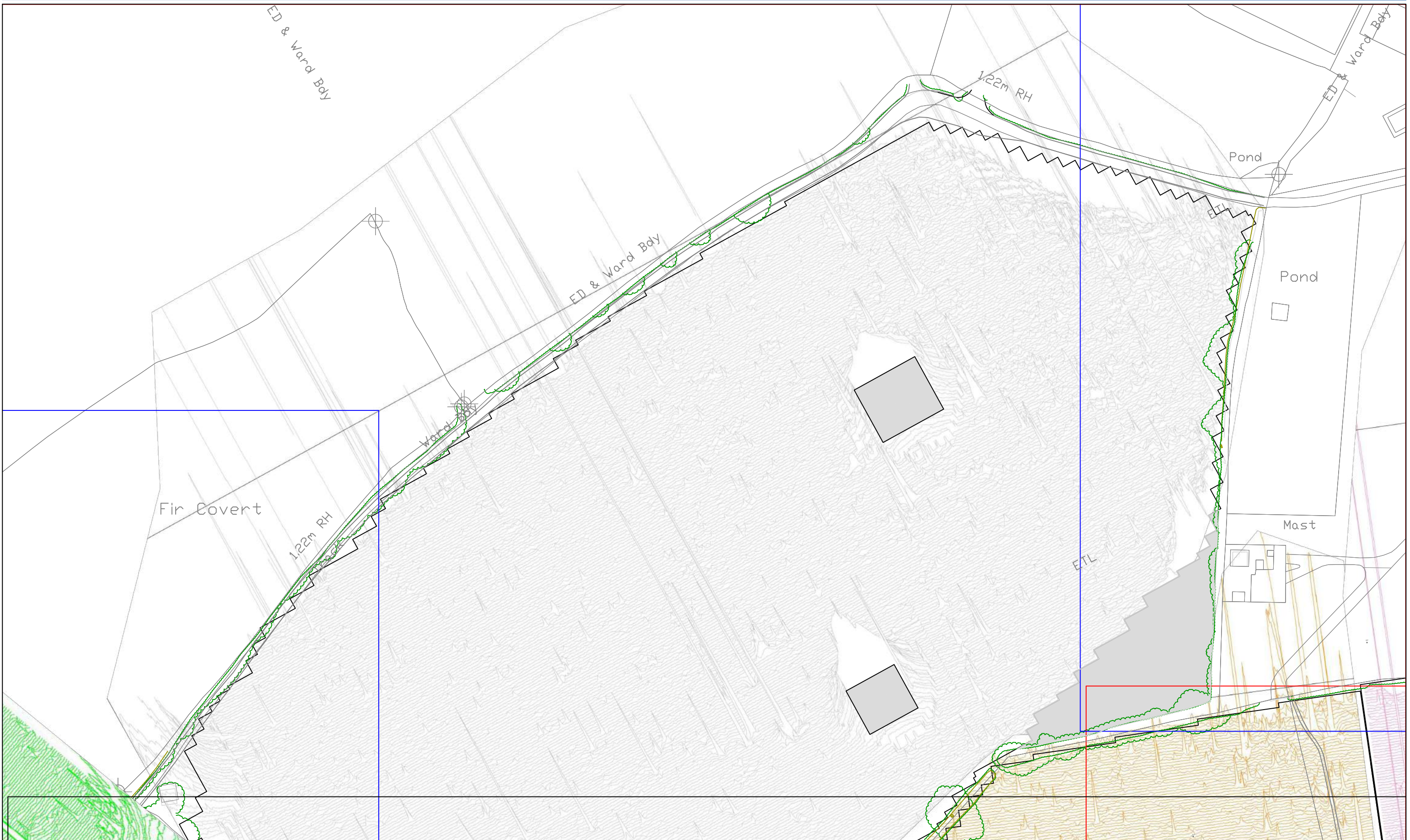
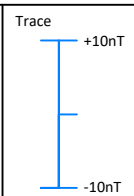
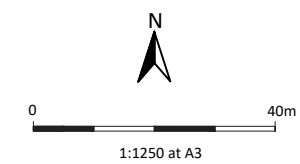


Figure 9: XY traceplot of minimally processed gradiometer data: Viewport 2, Field 3

Figure
9



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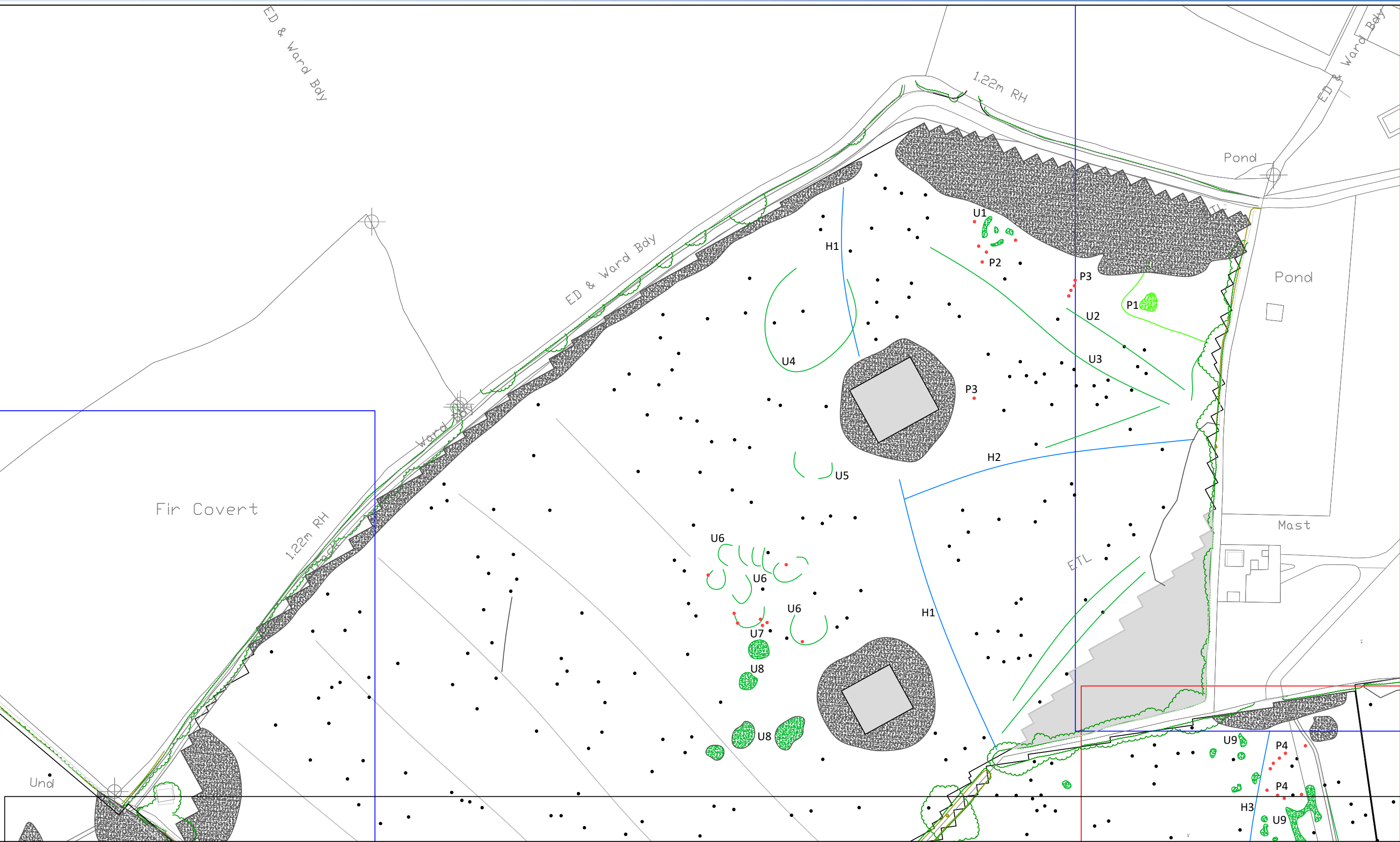


Figure 10: Interpretation of minimally processed gradiometer data: Viewport 2, Field 3

<p>Figure 10</p>	<p> Trend (Archaeology)</p>	<p> Possible Archaeology Area</p>	<p> Old Field Boundary</p>	<p> Geology / Natural</p>	<p> Magfill Not Surveyed</p>
	<p> Area of Disturbance (Archaeology?)</p>	<p> Discrete Pit (Archaeology?)</p>	<p> Linear Trend (Ridge and Furrow)</p>	<p> Linear Trend (Modern Service)</p>	<p> Area of Disturbance (Modern)</p>
	<p> Pit (Archaeology)</p>	<p> Trend (Unclear Origin)</p>	<p> Linear Trend (Ploughing)</p>	<p> Area of Disturbance (Modern)</p>	<p> Ferrous / Iron Spike</p>
	<p> Possible Archaeology Trend</p>	<p> Area of Disturbance (Unclear Origin)</p>	<p> Linear Trend Field Drain</p>	<p> Ferrous / Iron Spike</p>	

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Drawing No: 05/40142/GEO/10/02

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Date created: 15 / 03 / 2022

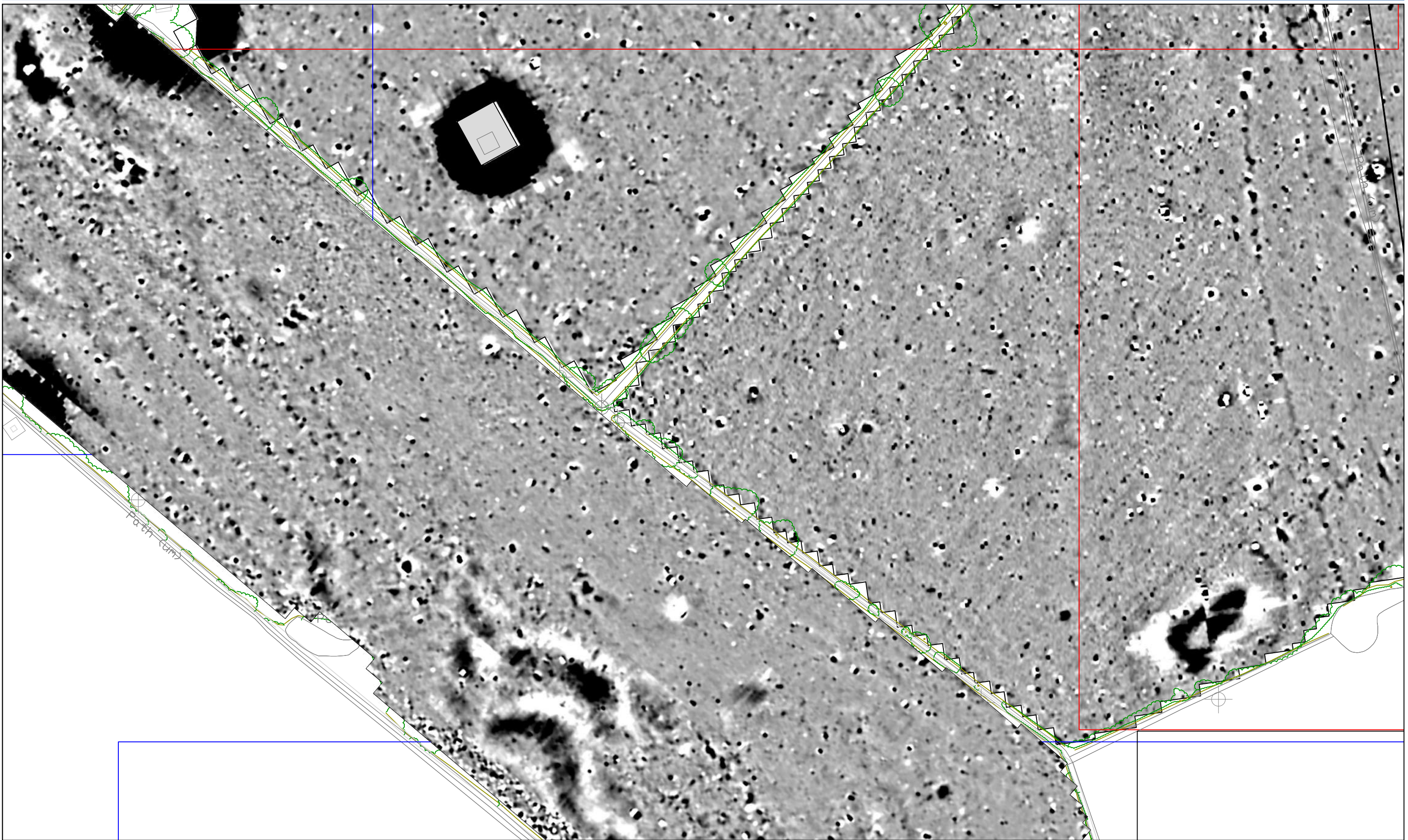
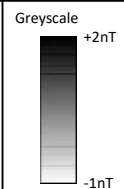
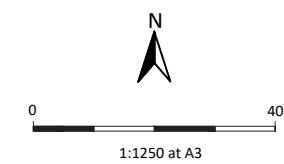


Figure 11: Processed gradiometer survey results - greyscale plot: Viewport 3, Fields 3 and 4

Figure
11



□ Magfill Not Surveyed



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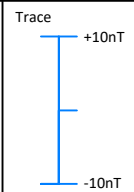
Date created: 15 / 03 / 2022



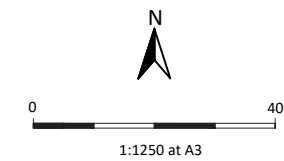


Figure 12: XY traceplot of minimally processed gradiometer data: Viewport 3 Fields 3 and 4

Figure
12



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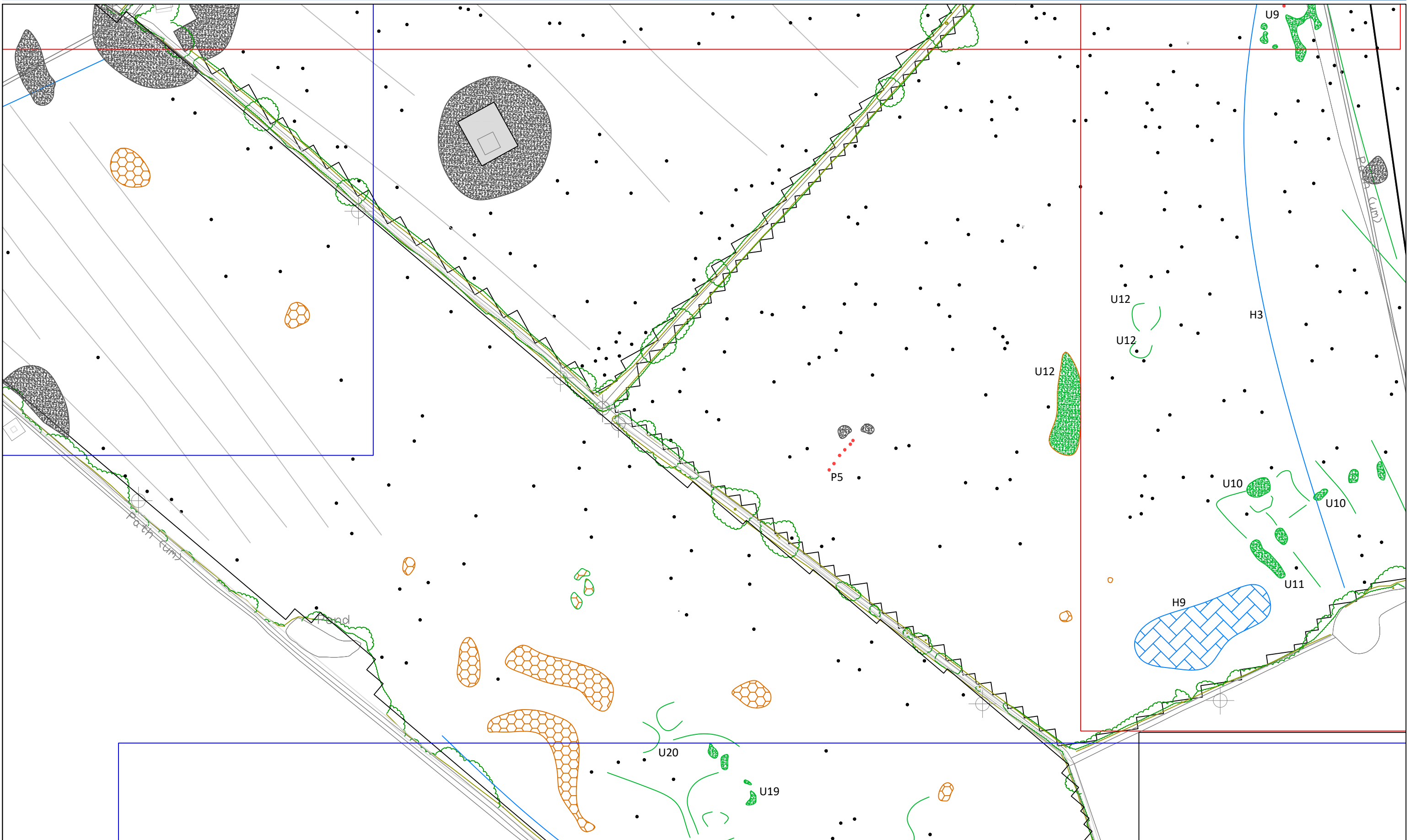
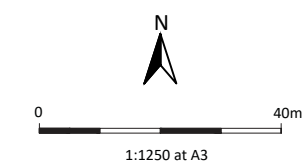



Figure 13: Interpretation of minimally processed gradiometer data: Viewport 3, Fields 3 and 4

Figure
13

Trend (Archaeology)	Possible Archaeology Area	Old Field Boundary	Geology / Natural	Area of Historic Feature
Area of Disturbance (Archaeology)	Discrete Pit (Archaeology?)	Linear Trend (Ridge and Furrow)	Linear Trend (Modern Service)	Magfill Not Surveyed
Pit (Archaeology)	Trend (Unclear Origin)	Linear Trend (Ploughing)	Area of Disturbance (Modern)	Ferrous / Iron Spike
Possible Archaeology Trend	Area of Disturbance (Unclear Origin)	Linear Trend Field Drain		



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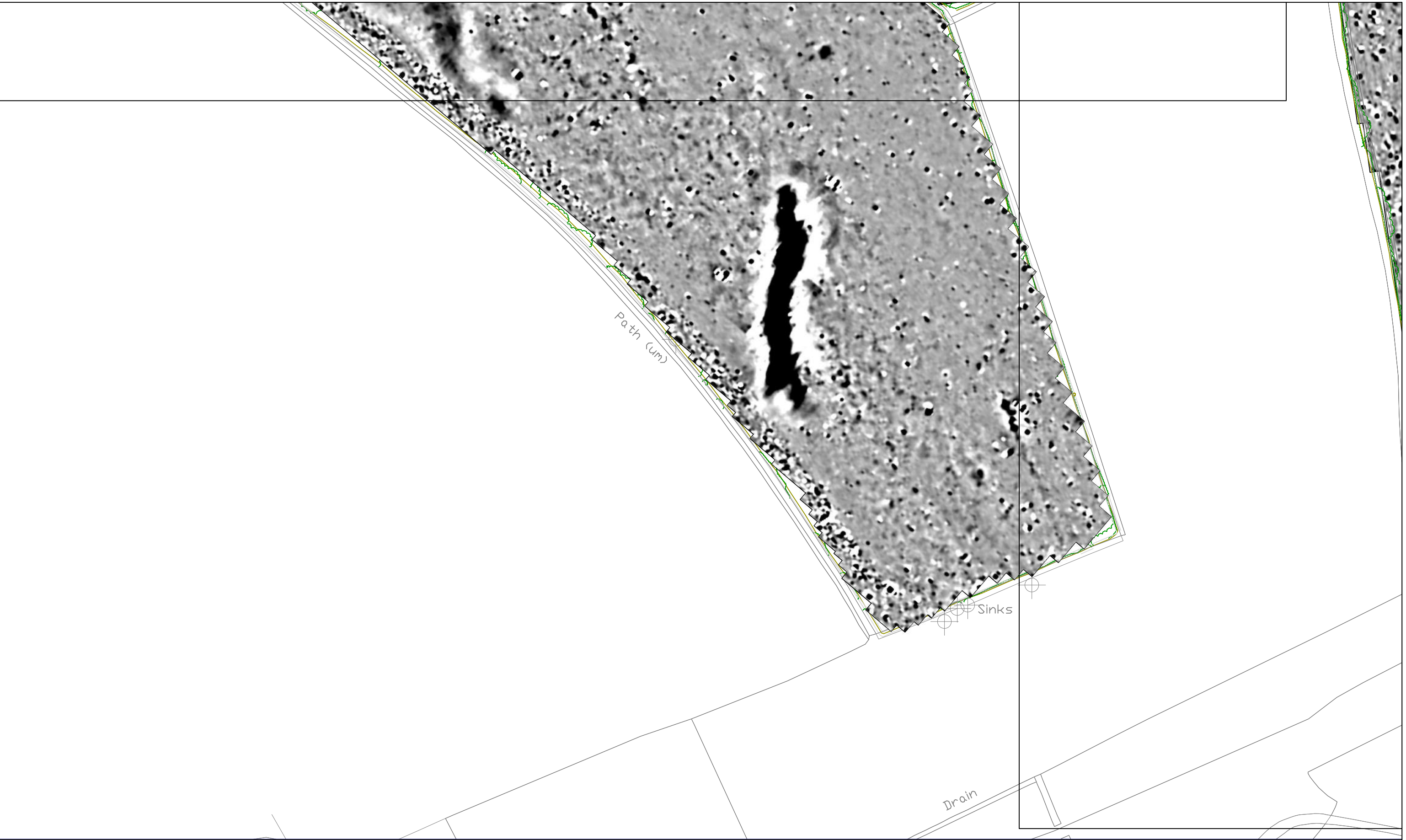
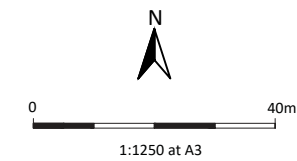
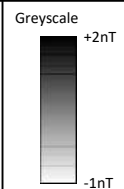



Figure 14: Processed gradiometer survey results - greyscale plot: Viewport 4, Field 2

Figure
14



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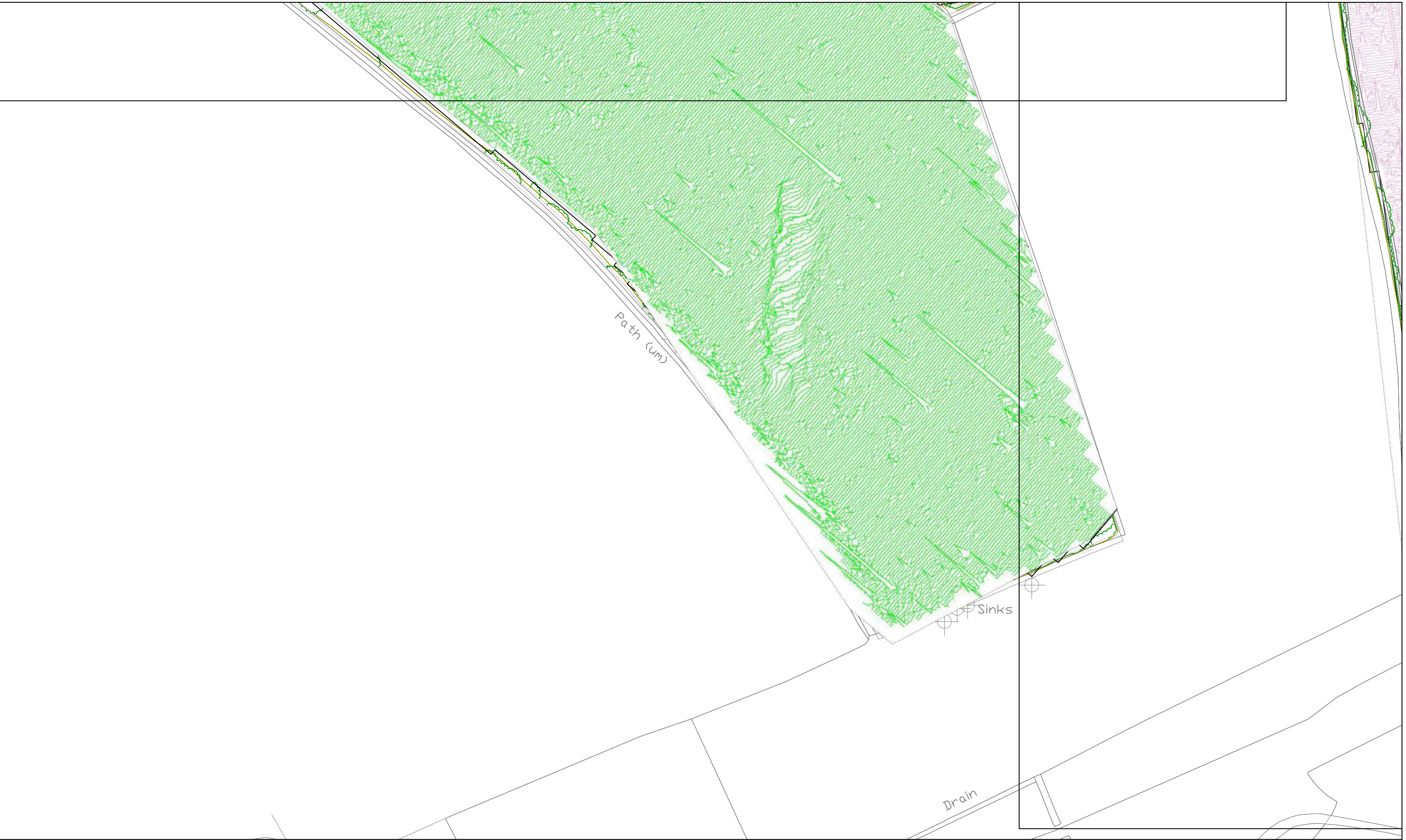
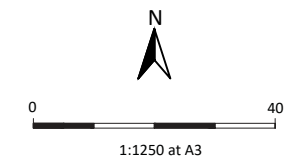
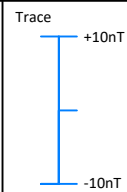


Figure 15: XY traceplot of minimally processed gradiometer data: Viewport 4, Field 2

Figure
15



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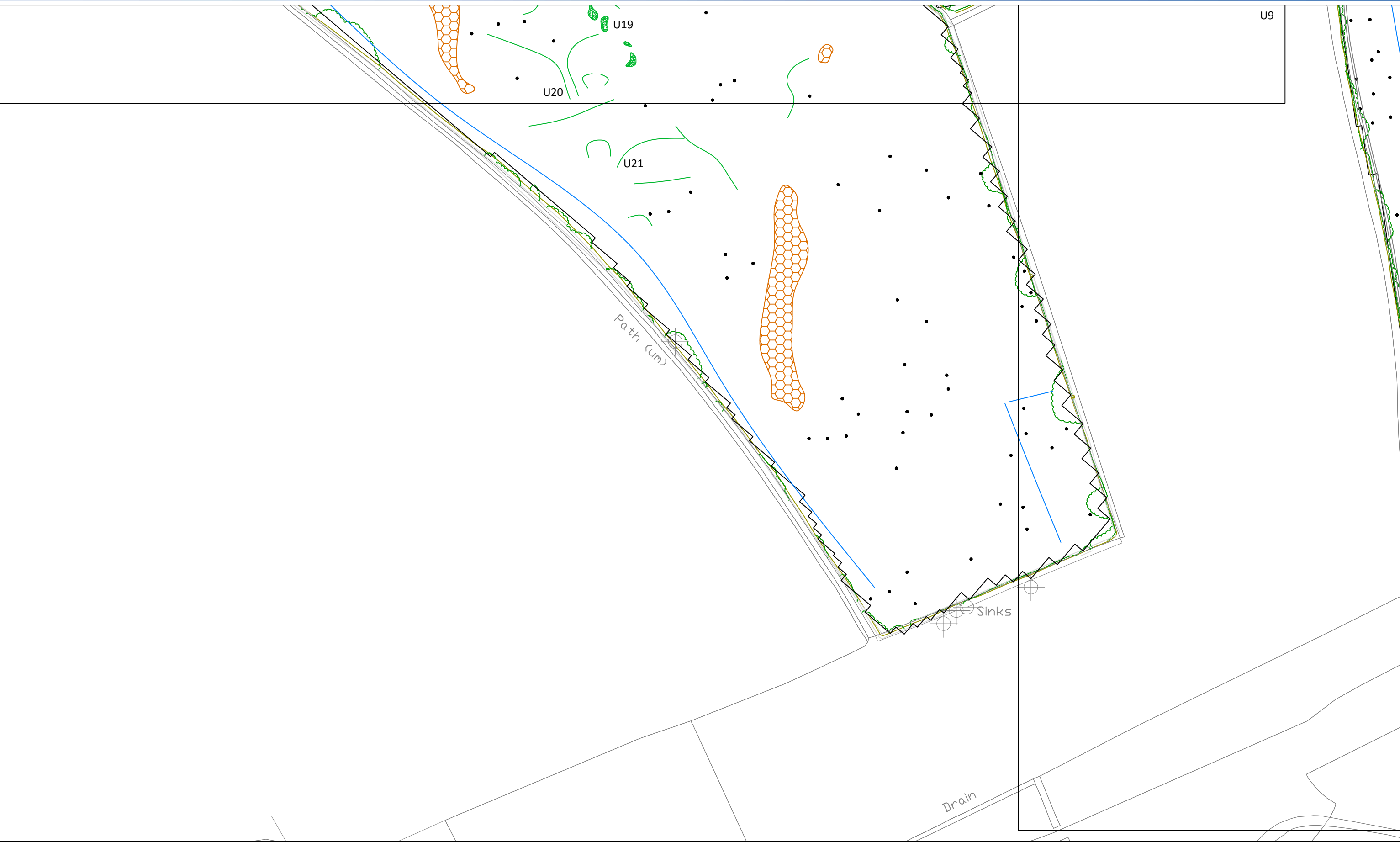


Figure 16: Interpretation of minimally processed gradiometer data: Viewport 4, Field 2

<p>Figure 16</p>	<p> Trend (Archaeology)</p> <p> Discrete Pit (Archaeology?)</p> <p> Pit (Archaeology)</p> <p> Possible Archaeology Trend</p>	<p> Possible Archaeology Area</p> <p> Trend (Unclear Origin)</p> <p> Area of Disturbance (Unclear Origin)</p>	<p> Old Field Boundary</p> <p> Linear Trend (Ridge and Furrow)</p> <p> Linear Trend (Ploughing)</p> <p> Linear Trend Field Drain</p>	<p> Geology / Natural</p> <p> Linear Trend (Modern Service)</p> <p> Area of Disturbance (Modern)</p> <p> Ferrous / Iron Spike</p>	<p> Area of Historic Feature</p>	<p>N</p> <p>0 40m 1:1250 at A3</p>	<p>Contains OS data (c) Crown copyright and database right, 2022. Licence No: 100050351</p> <p>Drawing No: 05/40142/GEO/16/02</p> <p>Drawn by/Checked by: CS / JL</p> <p>Date created: 20 / 04 / 2022</p>	
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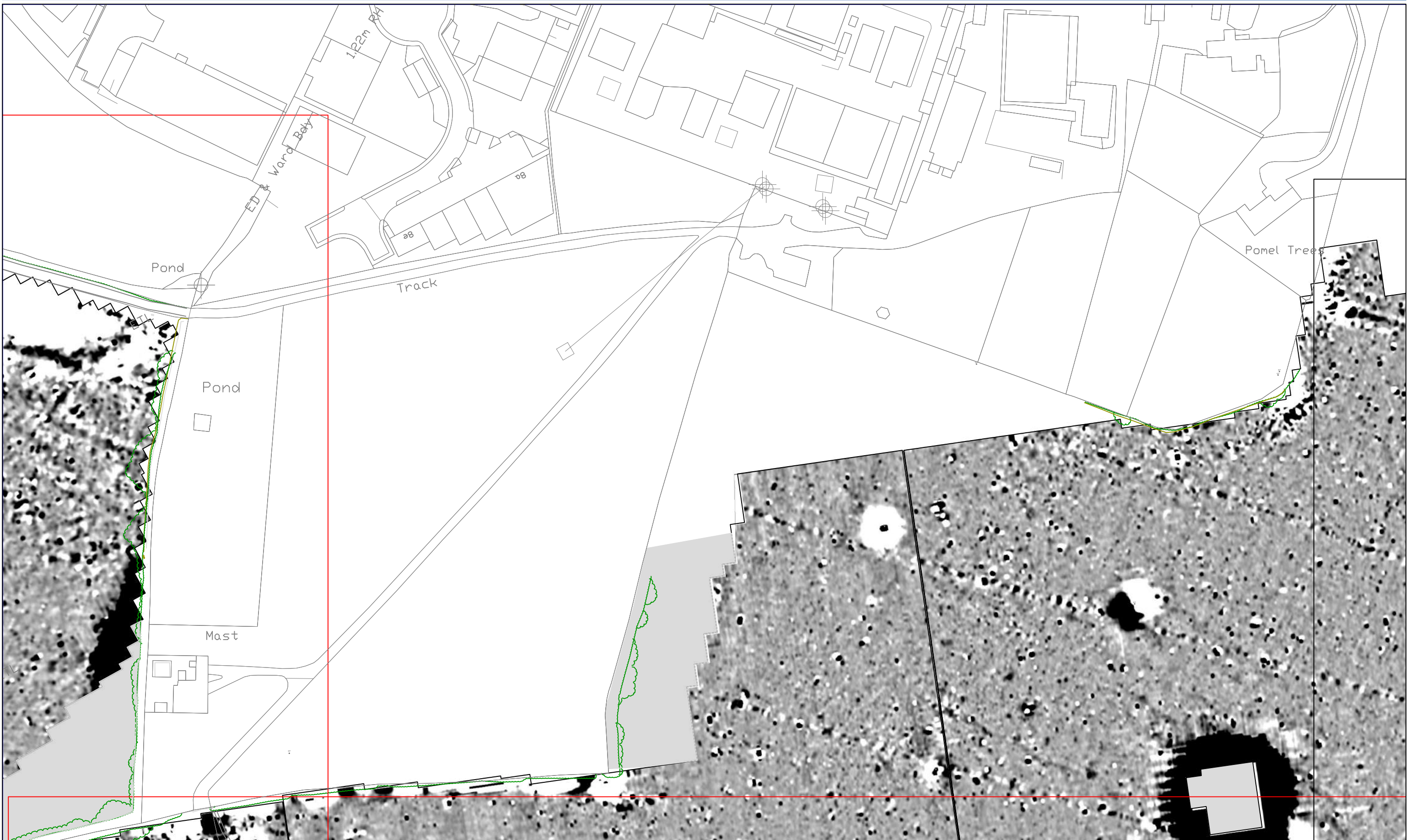
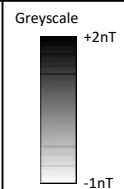
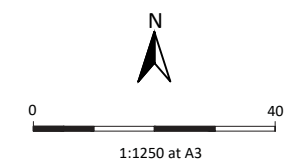


Figure 17: Processed gradiometer survey results - greyscale plot: Viewport 5, Fields 5 and 6

Figure
17



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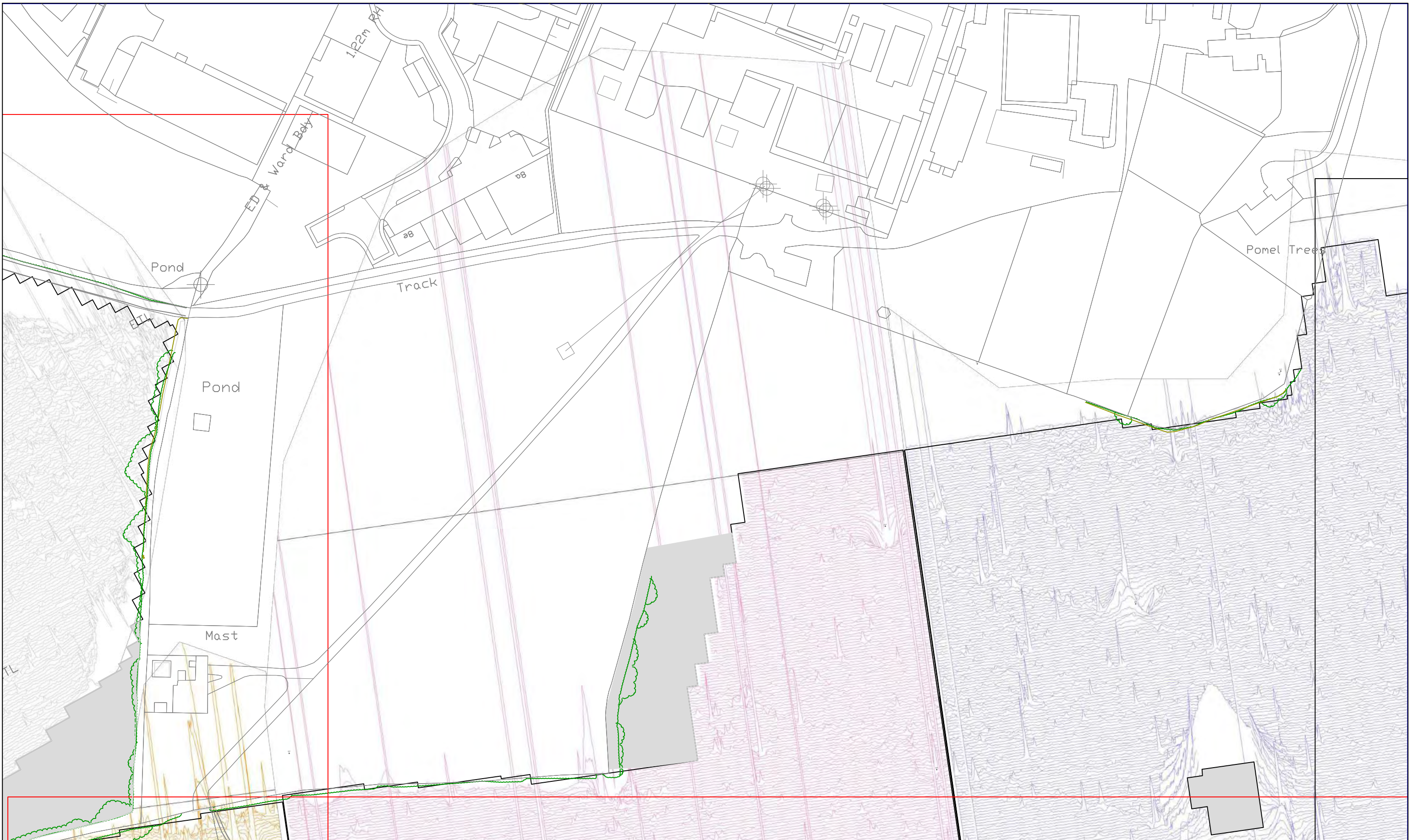
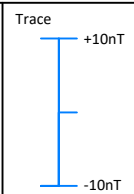
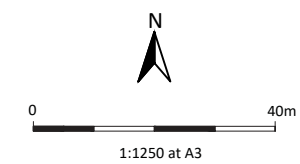


Figure 18: XY traceplot of minimally processed gradiometer data: Viewport 5, Fields 5 and 6


Figure
18



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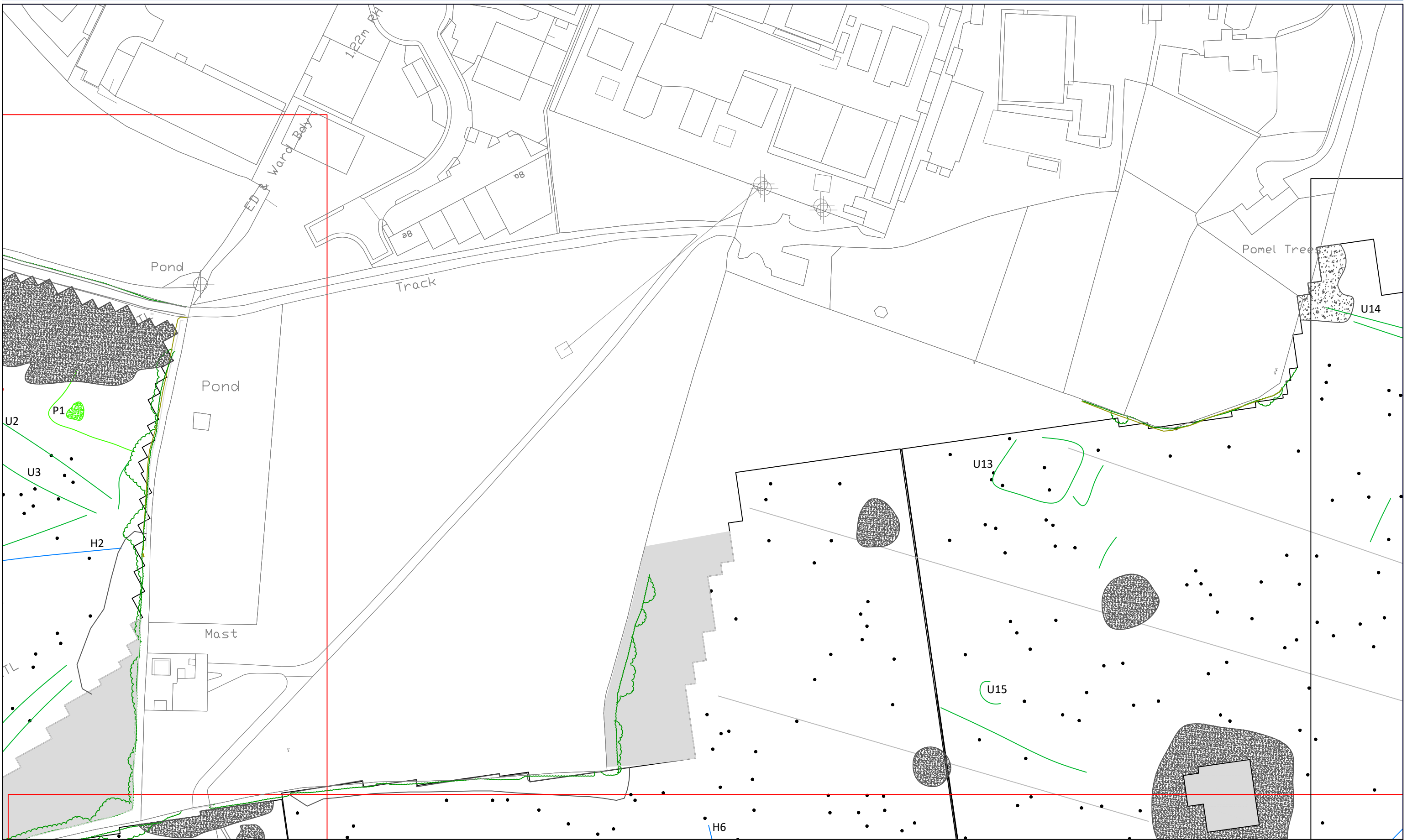
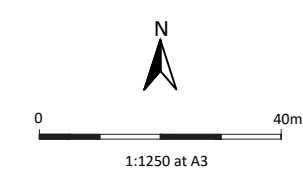



Figure 19: Interpretation of minimally processed gradiometer data: Viewport 5, Fields 5 and 6

Figure
19

Trend (Archaeology)	Possible Archaeology Area	Old Field Boundary	Geology / Natural	Linear Trend (Modern Service)	Magfill Not Surveyed
Area of Disturbance (Archaeology)	Discrete Pit (Archaeology?)	Linear Trend (Ridge and Furrow)	Linear Trend (Modern Service)	Area of Disturbance (Modern)	Ferrous / Iron Spike
Pit (Archaeology)	Trend (Unclear Origin)	Linear Trend (Ploughing)	Area of Disturbance (Modern)		
Possible Archaeology Trend	Area of Disturbance (Unclear Origin)	Linear Trend Field Drain			



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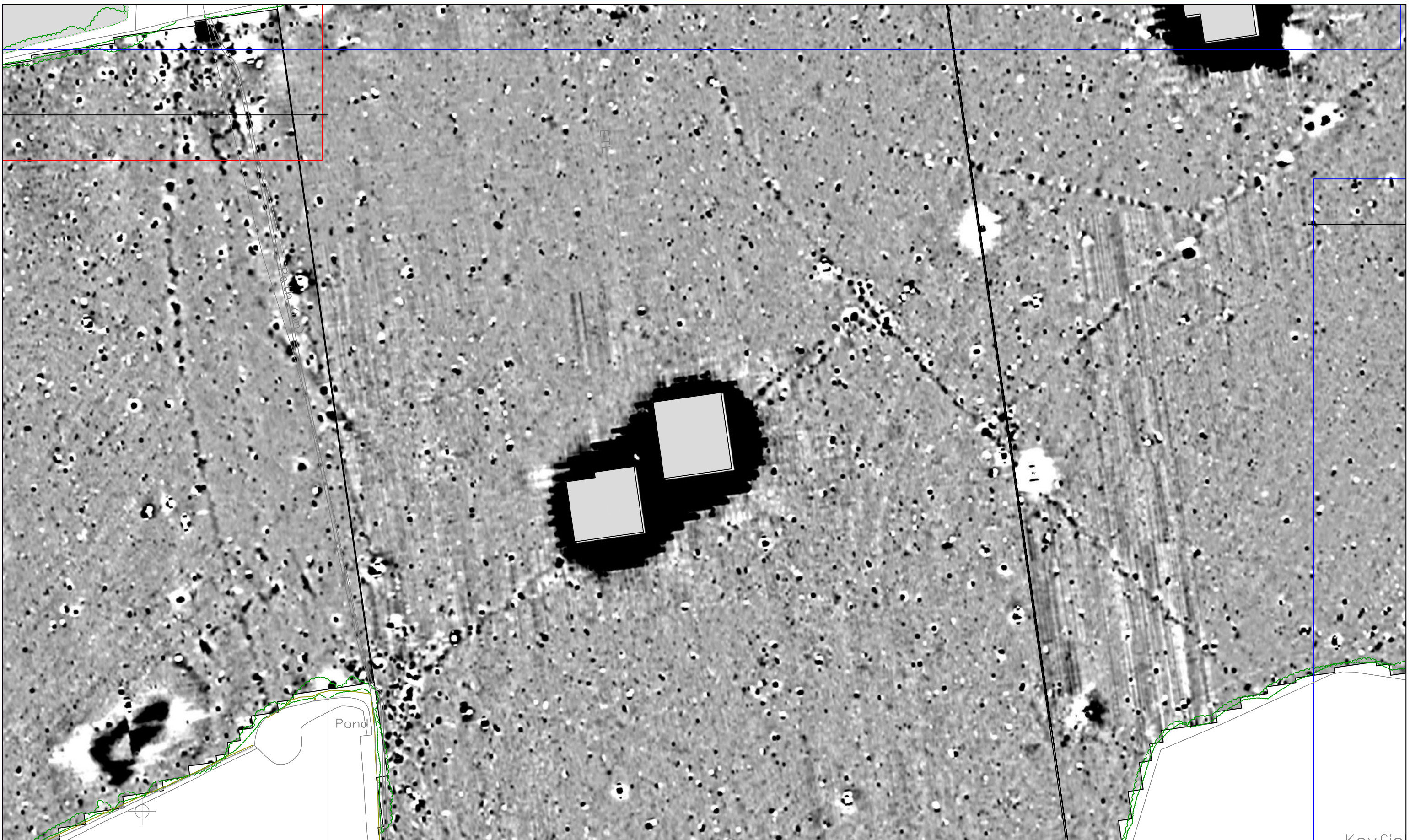
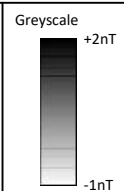
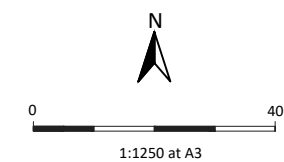


Figure 20: Processed gradiometer survey results - greyscale plot: Viewport 6, Fields 4, 5 and 6


Figure
20



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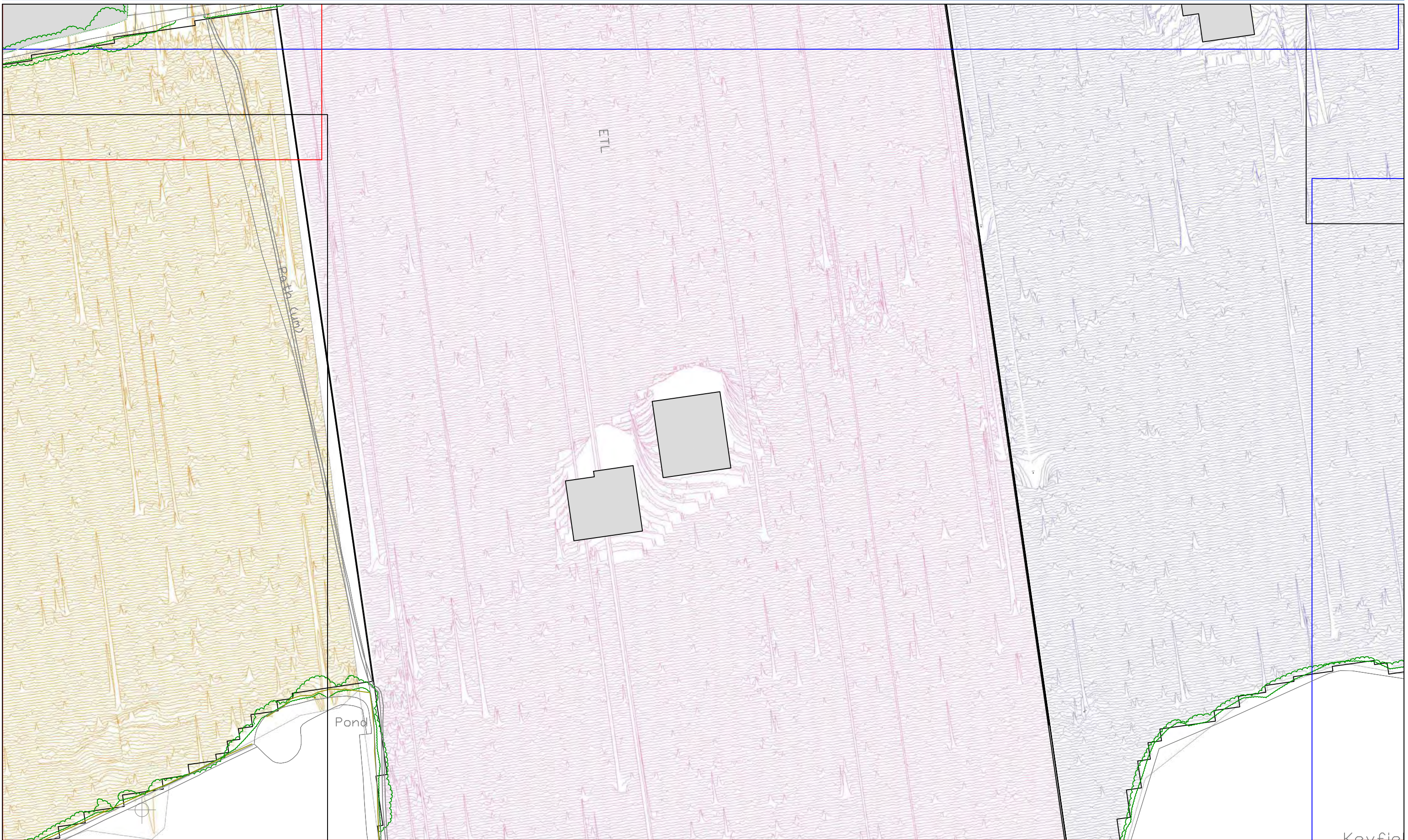
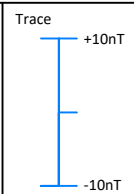
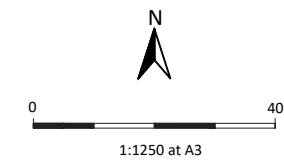


Figure 21: XY traceplot of minimally processed gradiometer data: Viewport 6, Fields 4, 5 and 6

Figure
21



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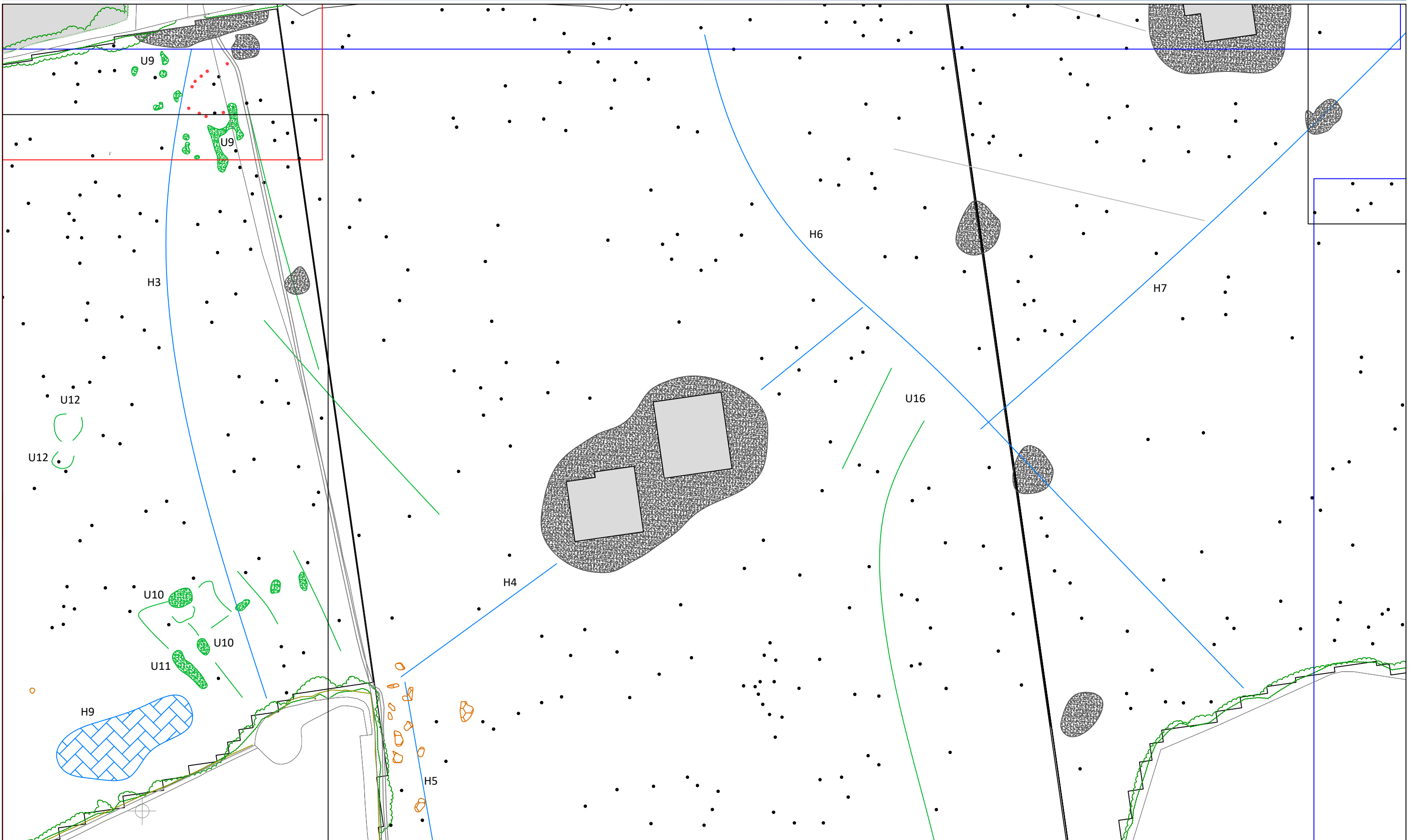
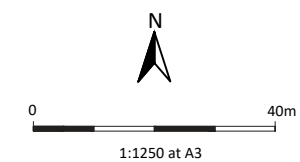



Figure 22: Interpretation of minimally processed gradiometer data: Viewport 6, Fields 4, 5 and 6

Figure
22

Trend (Archaeology)	Possible Archaeology Area	Old Field Boundary	Geology / Natural	Area of Historic Feature
Area of Disturbance (Archaeology)	Discrete Pit (Archaeology?)	Linear Trend (Ridge and Furrow)	Linear Trend (Modern Service)	Magfill Not Surveyed
Pit (Archaeology)	Trend (Unclear Origin)	Linear Trend (Ploughing)	Area of Disturbance (Modern)	Ferrous / Iron Spike
Possible Archaeology Trend	Area of Disturbance (Unclear Origin)	Linear Trend Field Drain		



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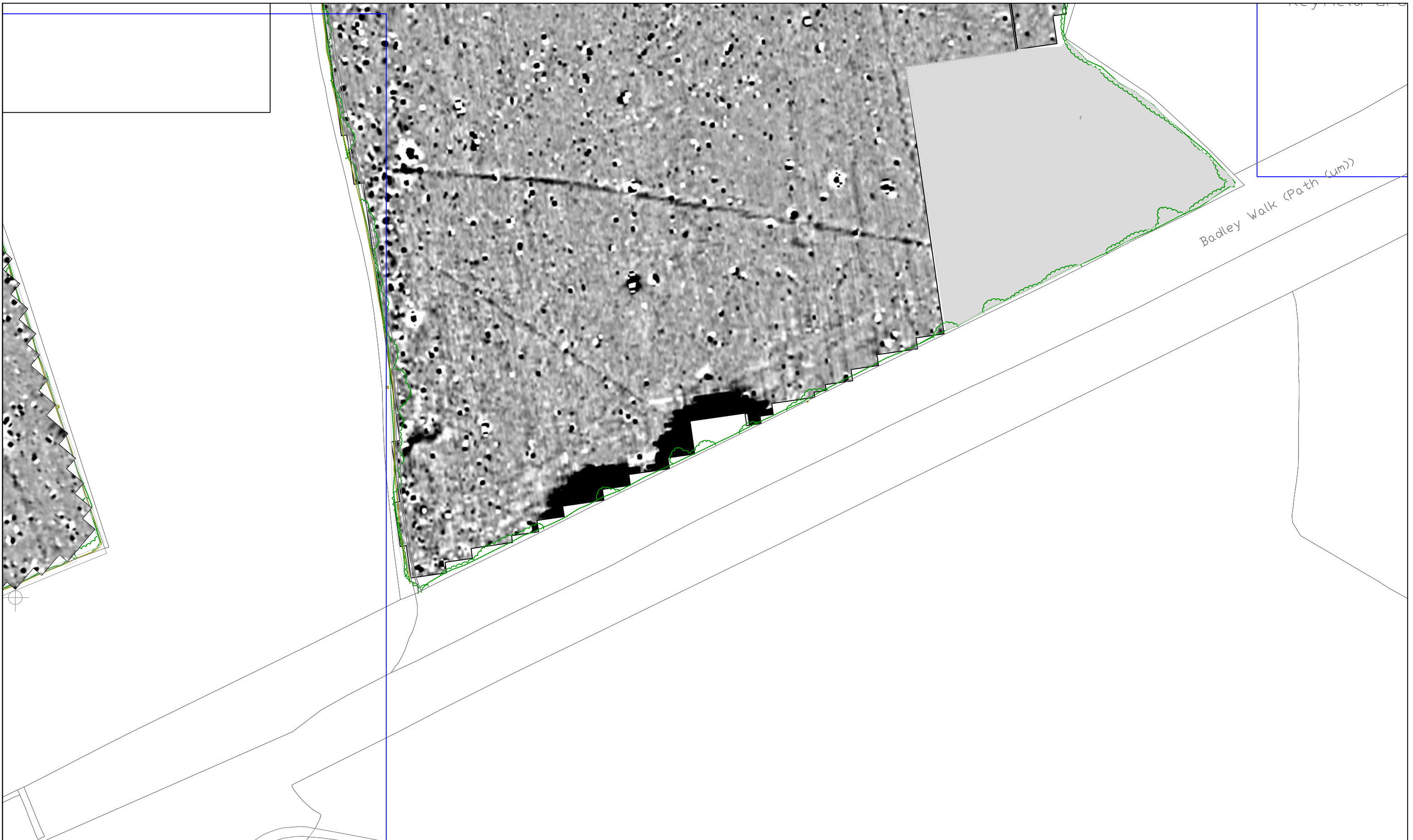
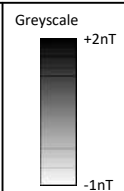
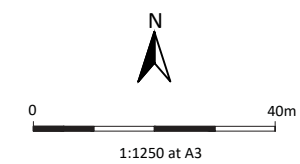


Figure 23: Processed gradiometer survey results - greyscale plot: Viewport 7, Field 5

Figure
23



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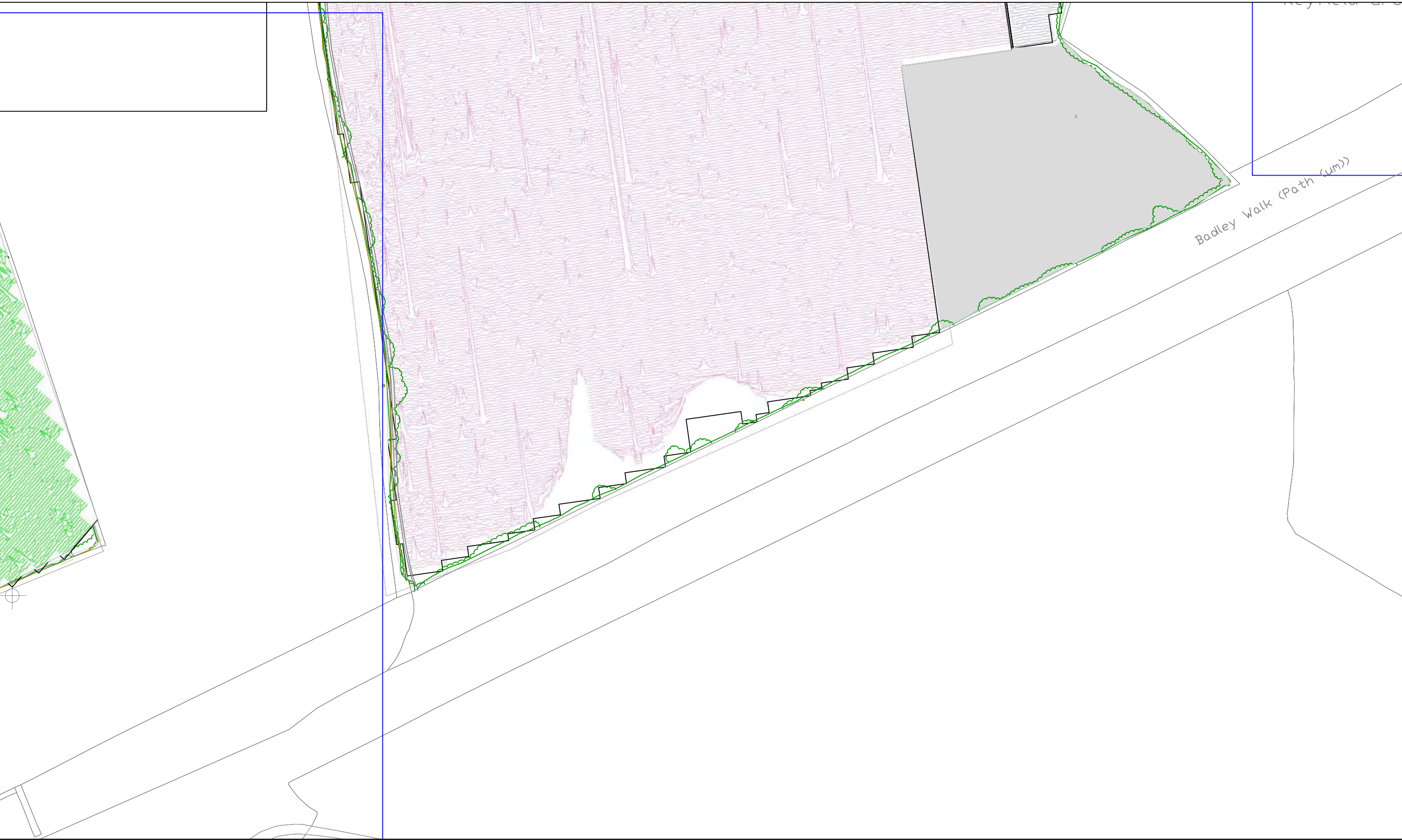
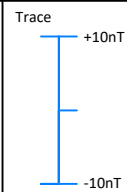
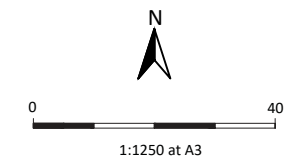


Figure 24: XY traceplot of minimally processed gradiometer data: Viewport 7, Field 5

Figure
24



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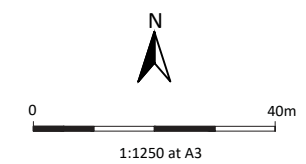





Figure 25: Interpretation of minimally processed gradiometer data: Viewport 7, Field 5

Figure
25

Trend (Archaeology)	Possible Archaeology Area	Old Field Boundary	Geology / Natural	Magfill Not Surveyed
Area of Disturbance (Archaeology)	Discrete Pit (Archaeology?)	Linear Trend (Ridge and Furrow)	Linear Trend (Modern Service)	
Pit (Archaeology)	Trend (Unclear Origin)	Linear Trend (Ploughing)	Area of Disturbance (Modern)	
Possible Archaeology Trend	Area of Disturbance (Unclear Origin)	Linear Trend Field Drain	Ferrous / Iron Spike	



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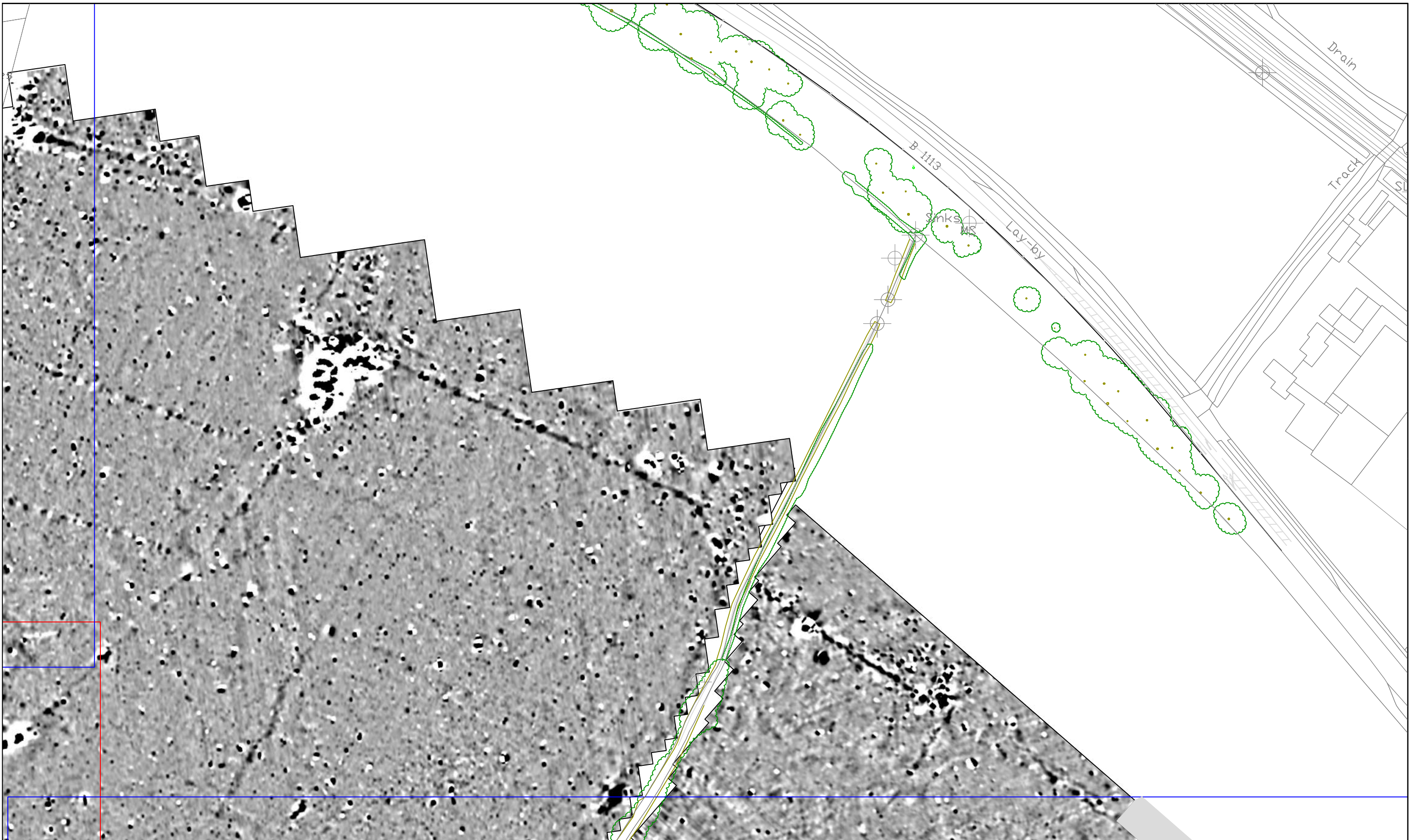
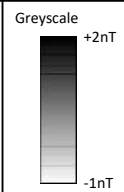
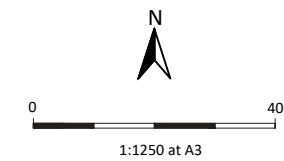


Figure 26: Processed gradiometer survey results - greyscale plot: Viewport 8, Fields 6 and 7

Figure
26



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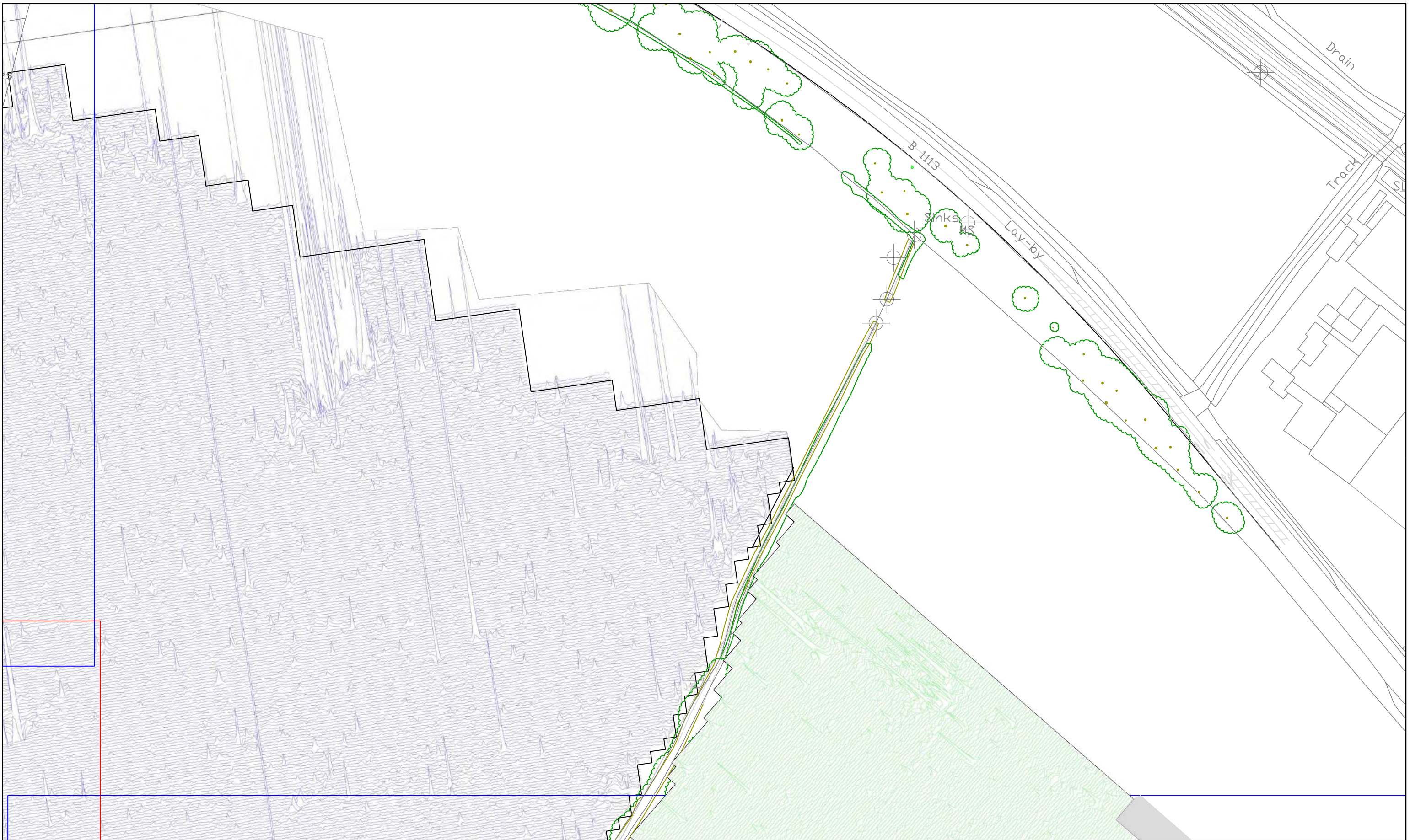
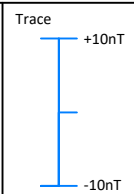
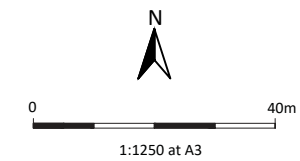


Figure 27: XY traceplot of minimally processed gradiometer data: Viewport 8, Fields 6 and 7

Figure
27



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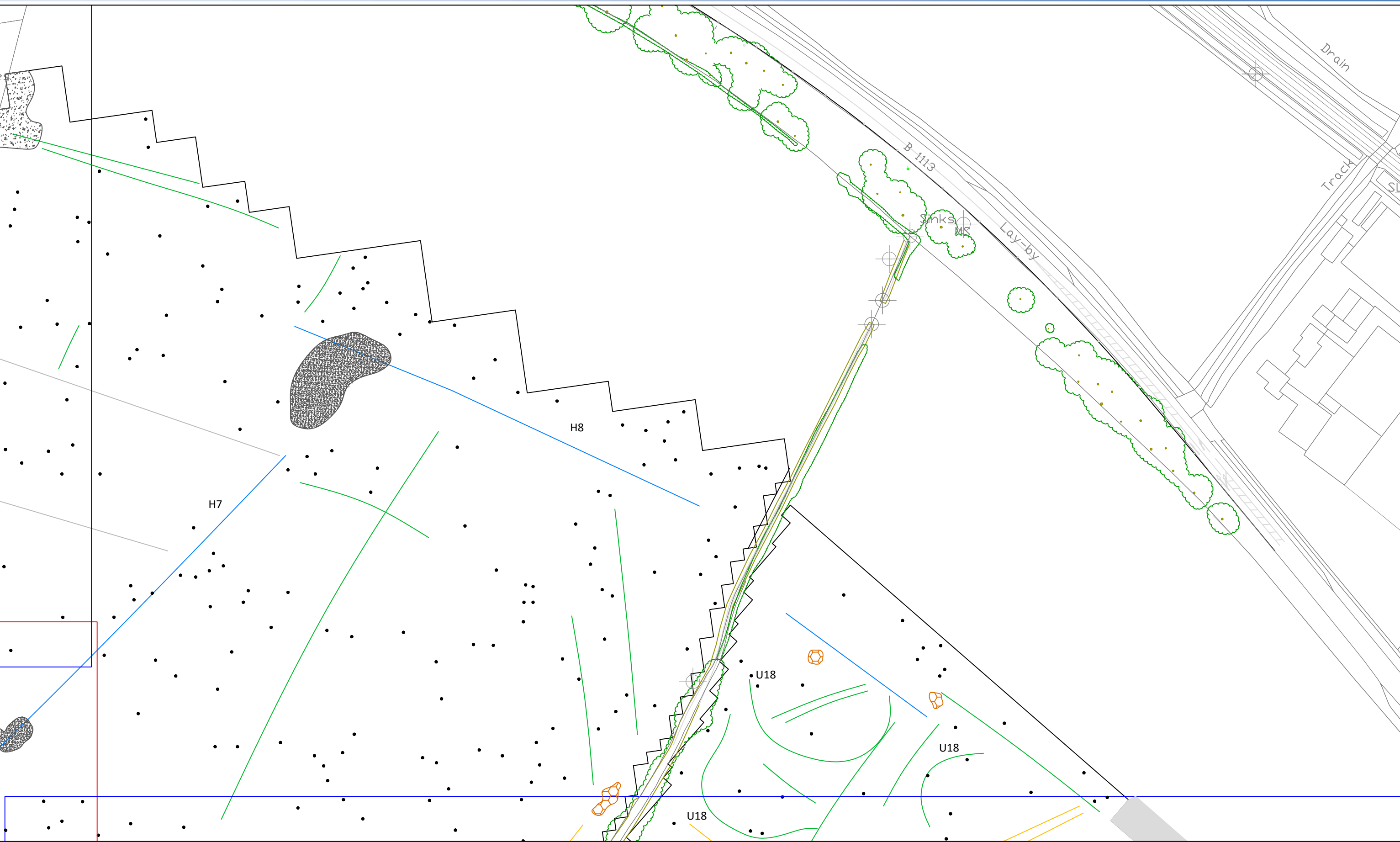


Figure 28: Interpretation of minimally processed gradiometer data: Viewport 8, Fields 6 and 7

<p>Figure 28</p>	<p> Trend (Archaeology)</p> <p> Area of Disturbance (Archaeology)</p> <p> Pit (Archaeology)</p> <p> Possible Archaeology Trend</p>	<p> Possible Archaeology Area</p> <p> Discrete Pit (Archaeology?)</p> <p> Trend (Unclear Origin)</p> <p> Area of Disturbance (Unclear Origin)</p>	<p> Old Field Boundary</p> <p> Linear Trend (Ridge and Furrow)</p> <p> Linear Trend (Ploughing)</p> <p> Linear Trend Field Drain</p>	<p> Geology / Natural</p> <p> Linear Trend (Modern Service)</p> <p> Area of Disturbance (Modern)</p> <p> Ferrous / Iron Spike</p>	<p> Magfill Not Surveyed</p>	<p>N</p> <p>1:1250 at A3</p>	<p>Contains OS data (c) Crown copyright and database right, 2022. Licence No: 100050351</p>	
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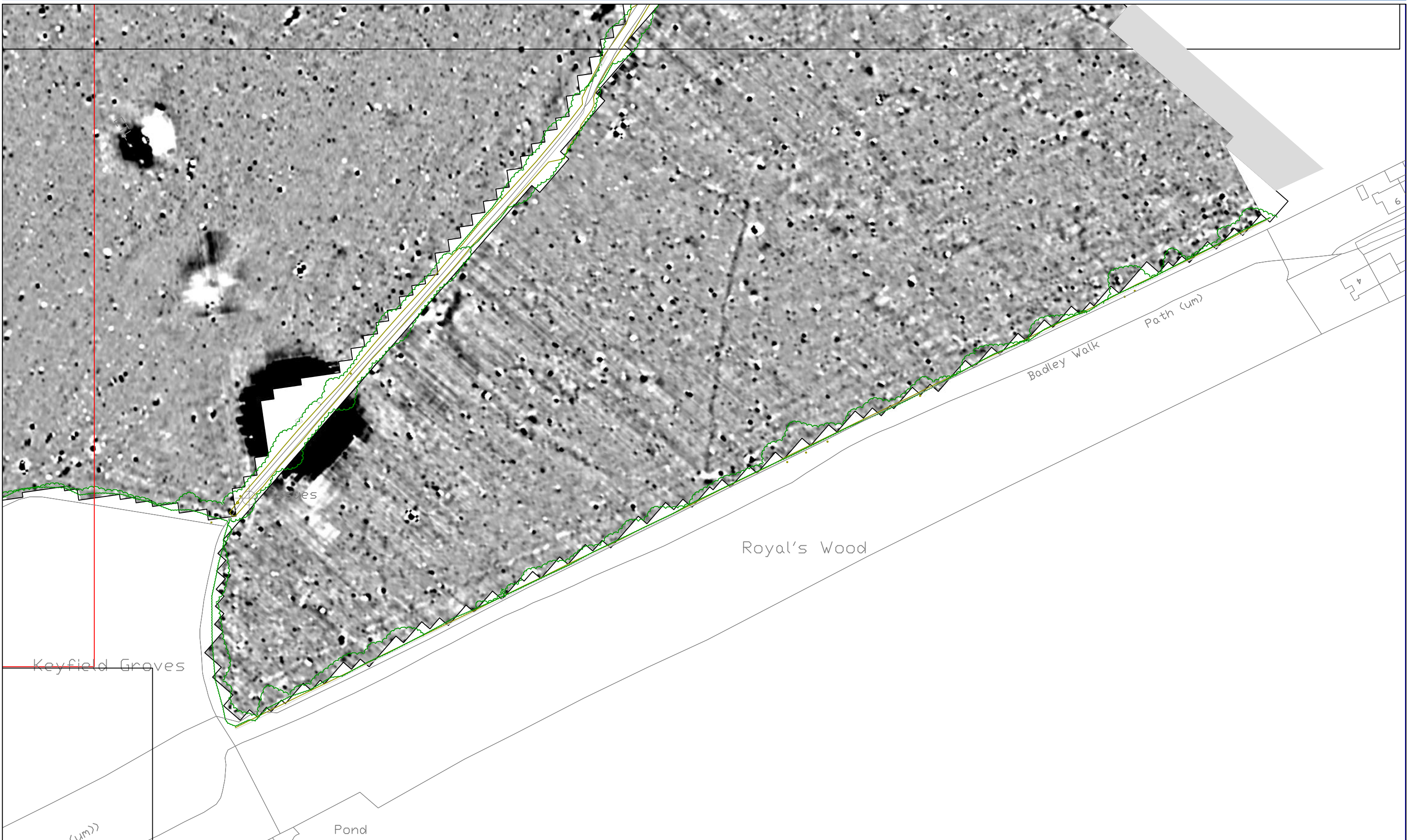
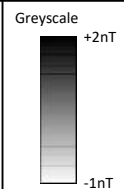
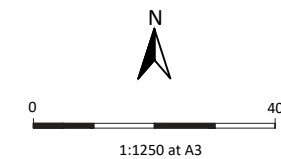


Figure 29: Processed gradiometer survey results - greyscale plot: Viewport 9, Fields 6 and 7

Figure
29



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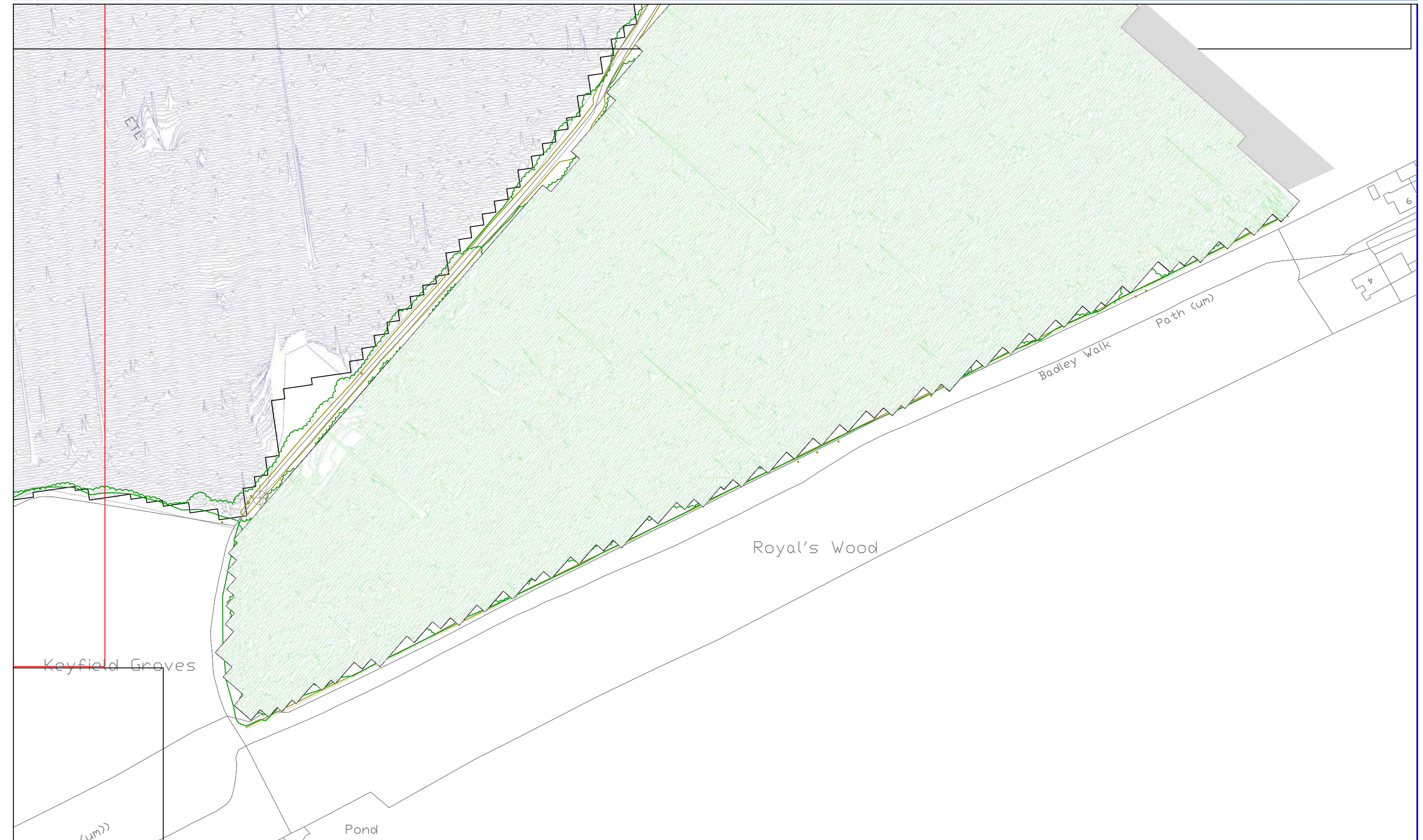
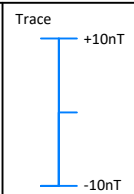
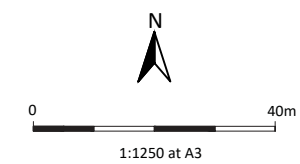


Figure 30: XY traceplot of minimally processed gradiometer data: Viewport 9, Fields 6 and 7

Figure
30



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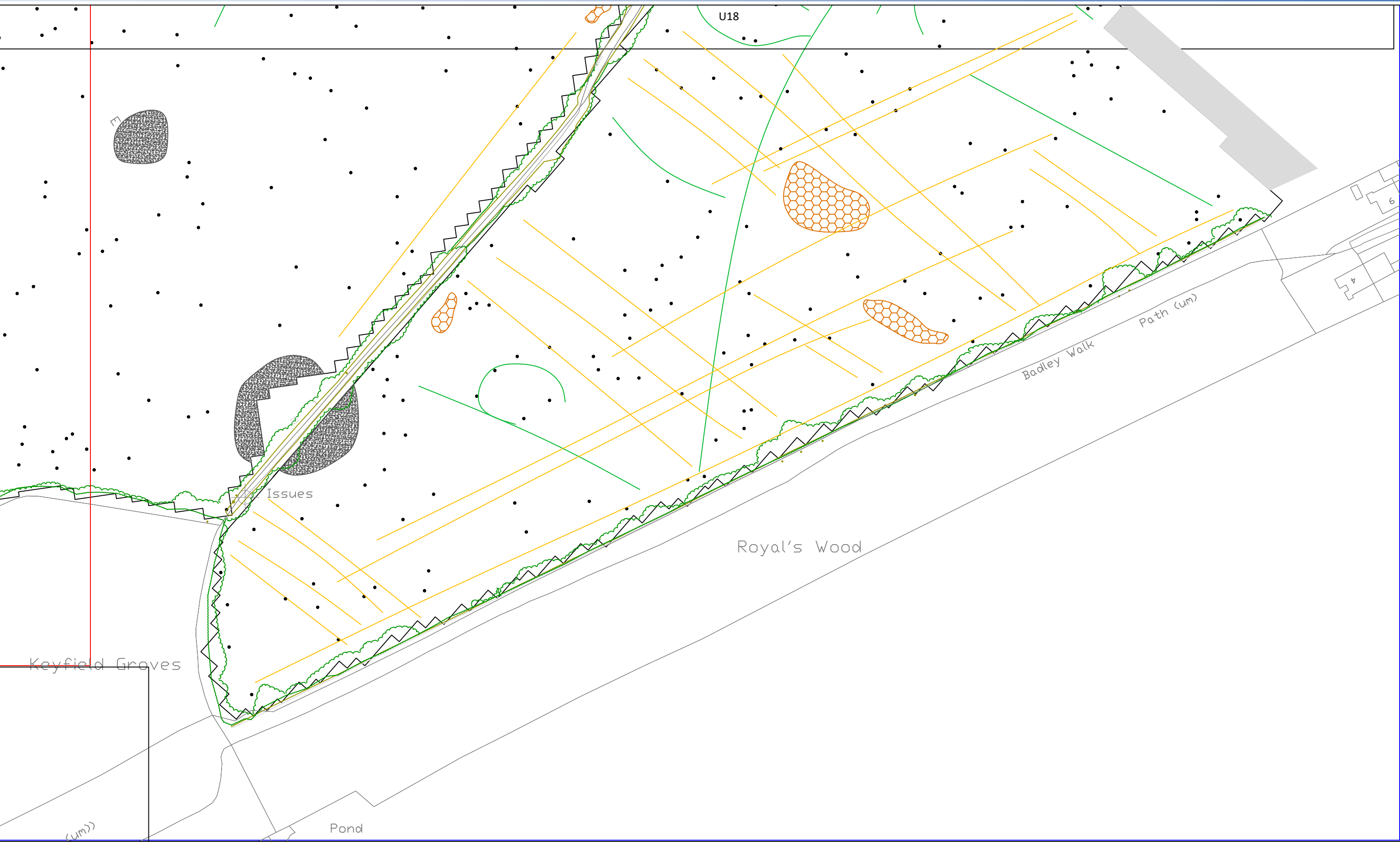


Figure 31: Interpretation of minimally processed gradiometer data: Viewport 9, Fields 6 and 7

<p>Figure 31</p>	<p> Trend (Archaeology)</p> <p> Area of Disturbance (Archaeology)</p> <p> Pit (Archaeology)</p> <p> Possible Archaeology Trend</p>	<p> Possible Archaeology Area</p> <p> Discrete Pit (Archaeology?)</p> <p> Trend (Unclear Origin)</p> <p> Area of Disturbance (Unclear Origin)</p>	<p> Old Field Boundary</p> <p> Linear Trend (Ridge and Furrow)</p> <p> Linear Trend (Ploughing)</p> <p> Linear Trend Field Drain</p>	<p> Geology / Natural</p> <p> Linear Trend (Modern Service)</p> <p> Area of Disturbance (Modern)</p> <p> Ferrous / Iron Spike</p>	<p> Magfill Not Surveyed</p>	<p>N</p> <p>0 40m 1:1250 at A3</p>	<p>Contains OS data (c) Crown copyright and database right, 2022. Licence No: 100050351</p>	
	<p>Drawing No: 05/40142/GEO/31/02</p>		<p>Drawn by/Checked by: CS / JL</p>					
	<p>Date created: 15 / 03 / 2022</p>							