# Cudworth Parkway, Barnsley: Geophysical Survey Report

## Fenwood Estates Ltd

Date: February 2026

Prepared by: Dylan Dormer-Johnson

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# Executive Summary

Cura Terrae were instructed by Fenwood Estates to undertake an archaeological geophysical survey of land at Cudworth Parkway, Barnsley. The survey produced good results throughout and anomalies that have tentatively been interpreted as archaeological in origin have been noted within the dataset. However, areas in the eastern portion of the Site were omitted due to the presence of overgrown vegetation.

A possible network of interconnected earlier boundary features is noted. It is not possible to confidently attribute these to a specific period of activity. However, if they are fragmented by ridge and furrow cultivation which is prevalent in the same area, they may pre-date the medieval period.

Weak, linear anomalies were noted in the dataset and correspond to modern footpaths, which were both present on the Site and visible in available satellite imagery, emanating from Three Nooks Lane.

Increased magnetic responses are noted throughout the Site and can be primarily attributed to 'made ground' associated with modern agricultural and or construction activity. However, increased responses within Fields 2 and 3 correspond to the former location of Weet Shaw Houses illustrated on historic Ordnance Survey (OS) maps (1888 – 1915) and likely denote redeposited buildings materials associated with their demolition. Furthermore, increased magnetic responses observed in Field 4 are likely result of quarrying activity, also on illustrated on historic Ordnance Survey (OS) maps of the same provenance.

Further anomalies noted within the dataset are inclusive of further modern activity. Modern agricultural trends associated with ploughing and other activity are noted in Field 1. Ferrous disturbances are also present along the survey boundaries and sporadic, dipolar anomalies are noted throughout the Site which are the likely result of modern waste and debris within the topsoil.

# 1. Introduction

## 1.1 Project Background

1.1.1 Cura Terrae were instructed by Fenwood Estates to undertake an archaeological geophysical survey to inform a forthcoming planning application for a development of land at Cudworth Parkway, Barnsley (hereafter 'the Site').

1.1.2 The Site is centred on National Grid Reference (NGR) 439054 410340 (SE 39054 10340) (Figure 1).

## 1.2 Location, Topography and Geology

1.2.1 The Site is c. 5.35 ha in size, comprised of 5 fields, and is situated directly north of the village of Cudworth, approximately 5 km northeast of Barnsley, in the county of South Yorkshire.

1.2.2 The survey area is bounded by trees, hedgerows and fencing on all sides. Cudworth Parkway is located just beyond the northern, eastern and western boundaries of the Site, with residential properties and the village of Cudworth directly to the south.

1.2.3 The Site is undulating and recorded as lying between 75 m and 90 m above Ordnance Datum (aOD).

1.2.4 The underlying bedrock of the Site is recorded primarily as sandstone of the Mexborough Rock Formation, with a small area underlain by mudstone, siltstone and sandstone of the Pennine Middle Coal Formation present in the northeast. No superficial deposits are noted (British Geological Survey 2026).

# 2. Archaeological and Historical Background

## 2.1 Introduction

2.1.1 Below is a summary of archaeological and heritage data compiled from publicly available (online) Historic Environment Records within an approximate 1 km search radius of the Site. 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

### Iron Age to Romano-British

2.2.1 A geophysical survey and subsequent archaeological evaluation carried out c. 400 m northwest of the survey area prior to the construction of the Cudworth Bypass and West Green Link Road identified numerous Roman era ditches, post holes and a pit containing pottery dating from the 1st to 4th centuries (HER 04822).

2.2.2 Iron Age or Romano-British ditches and pits forming a field system are located c. 400 m to the west of the Site. A 3rd century coin and a sherd of Roman pottery were recovered during their excavation (HER 05709).

2.2.3 An archaeological evaluation carried out over a 10-hectare area at Shafton Two-Gates, 400 m to the north of the Site, unearthed an additional Romano-British field system and an associated farmstead (ADS 1840969).

2.2.4 A sub-ovular, ditched enclosure visible as a cropmark on available air photography was excavated during a 2020 archaeological evaluation c. 750 m northeast of the Site and was determined to be 1st to 2nd century in origin (HOB Uid: 1394612; ADS 1884828).

2.2.5 Ditches belonging to another likely Iron Age or Romano-British field system have been identified through cropmarks present c. 1 km to the southwest of the Site (HER 05708).

### Medieval

2.2.6 Ridge and furrow, as well as post-medieval bell pits, was recorded during a 2020 archaeological evaluation carried out c. 450 m to the southeast of the Site (ADS 3492304).

2.2.7 Foundations belonging to a windmill believed to be of medieval or early post-medieval origin are visible on available 20th century air photographs taken c. 1 km northeast of the Site (HER 06116).

## Post-Medieval

2.2.8 A cropmark believed to represent a post-medieval clay extraction site is visible on available aerial photography of an area c. 450 m to the southeast of the Site (HOB Uid: 1394591).

# 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 hand-pushed and/or 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 mean '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 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 Illustrations were created using QGIS software.

3.1.8 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 wet but firm underfoot. Much of the site, predominantly to the east, was unsuitable for survey due to the presence of overgrown vegetation.

4.1.3 Field boundaries comprised hedgerows and metal fences. 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.

4.1.4 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 4 and 7.

**Table 1: Survey Anomalies**

| Anomaly Number | Anomaly Type | Description | Interpretation |
|---|---|---|---|
| 1a.<br><br>Field 1<br><br>Figure 4 | Possible Archaeology | Weakly positive, fragmented linear anomaly on a north to south alignment across Field 2. The anomaly measures 92 m long. | This anomaly may indicate a ditch cut feature in the underlying deposits. This could be evidence of an earlier pattern of land division. The fragmented nature of the feature may be the result of ridge and furrow cultivation.<br><br>However, a more recent origin cannot be ruled out, and the response may be the result of more recent ground works. |
| 1b - 1c.<br><br>Field 1<br><br>Figure 4 | Possible Archaeology | Weakly positive, fragmented rectilinear anomaly on a north to south and east to west alignment in Field 1. | This anomaly is on broadly perpendicular and parallel alignment to 1a and may be evidence of further ditch cut features and may be evidence of further interconnected boundary features.<br><br>However, again, a more recent origin cannot be ruled out, and the response may be the result of more recent ground works. |

| Anomaly Number | Anomaly Type | Description | Interpretation |
|---|---|---|---|
| 2a – 2b.<br><br>Field 1 and 2, Figure 4 and 7 | Possible Archaeology | Weakly positive, fragmented linear anomaly on a west northwest to east southeast alignment between Field 1 and Field 2. | These two anomalies are on a broadly projected alignment and may be evidence of a further ditch cut features. However, it is also possible these are evidence of more recent footpaths, similar to 3a – 3c. |
| 3a – 3c.<br><br>Fields 1 and 2, Figures 4 and 7. | Footpath | Three, weakly positive linear anomalies located in Fields 1 and 2. Measuring between 32 m to 48 m in length, on varying alignments. | These anomalies correspond to modern footpaths visible in available satellite imagery, emanating from Three Nooks Lane. |
| NA.<br><br>Fields 1 and 2, Figure 4 and 7 | Ridge and Furrow | A series of weakly positive parallel linear trends predominately located in Field 2 on a broadly northeast to southwest alignment. The anomalies are more broadly spaced (5 – 7 m). | These anomalies denote ridge and furrow regimes, which are indicative of medieval to post-medieval cultivation. |
| NA.<br><br>Field 1, Figure 4 | Agricultural Trend | Several linear and curvilinear anomalies of variable response, located in Field 1. | These anomalies are the result of modern agricultural activity noted on the Site as well as corresponding to available satellite imagery. |

| Anomaly Number | Anomaly Type | Description | Interpretation |
|---|---|---|---|
| NA.<br><br>All Fields, All Figures | Increased Magnetic Response | Amorphous, highly dipolar anomalies found across the Site. | These anomalies likely represent areas of 'made ground' associated with modern agricultural or construction activity. Responses noted in the northeast corner of Field 2 and throughout Field 3, correspond the former location of West Sheet Houses; illustrated on historic OS maps (1888 – 1915) so deposits associated with this may be present within this response.<br><br>Furthermore, the large area of increased response noted throughout Field 4 is likely associated with a former quarry noted illustrated on historic OS maps of the same provenance, again with the possibility of associated deposits being present. |
| NA.<br><br>Fields 1 and 2, Figures 4 and 7 | Ferrous Disturbance | Dipolar, highly magnetic, anomalies located predominantly along the boundaries of Fields 1 and 2. | Located at the edges of the survey area, these anomalies are likely caused by metal fencing, gateways or ferrous objects beyond the survey extents. |
| N/A.<br><br>Fields 1, 2 and 3, Figures 4 and 7 | Ferrous Spike | Numerous, dipolar anomalies sporadically located throughout Fields 1 to 3. | These anomalies represent isolated, modern ferrous debris within the subsoil. |

# 6. Discussion

6.1.1 Where the geophysical survey was possible, the works have produced good data throughout. Much of the eastern portion of the Site had to be omitted due to overgrown vegetation. Anomalies that have tentatively been interpreted as archaeological in origin have been noted within the dataset that have been interpreted as evidence of a possible network of interconnected earlier boundary features (1a – 1c). It is not possible to attribute these to a specific date. However, if they are fragmented by ridge and furrow cultivation which is prevalent in the same area, they may pre-date the medieval period.

6.1.2 Probable evidence of ridge and furrow cultivation has been identified within the survey area, predominantly in Field 2. Ridge and furrow cultivation is associated with medieval or post-medieval period and is noted in the region surrounding the Site, suggesting possible medieval and post-medieval activity at the site.

6.1.3 Three weak, positive linear anomalies (3a – 3c) are noted in Fields 1 and 2. These anomalies correspond to modern footpaths, which were noted on the Site during the survey and are visible in available satellite imagery, emanating from Three Nooks Lane.

6.1.4 Amorphous areas of increased magnetic response are noted throughout the Site. However, dipolar responses noted within Fields 2, 3 and 4 correspond to historic features. Areas of increased magnetic response with Field 2 and 3 correspond to the former location of Weet Shaw Houses illustrated on historic (OS) maps (1888 – 1915) and likely denote buried demolition material associated with the building's deconstruction. Furthermore, increased magnetic responses observed in Field 4 are likely result of former quarrying activity, also on illustrated on historic Ordnance Survey (OS) maps of the same provenance, highlighting changes within the historical landscape.

6.1.5 Amorphous areas of dipolar response are also observed along the survey boundaries and have likely been caused by proximity to metal fencing or other ferrous materials beyond the survey extents. Several, small dipolar anomalies are noted throughout Field 1, 2 and 3. These anomalies are indicative areas of isolated ferrous materials of likely agricultural and or modern provenance.

6.1.6 The remaining anomalies likely arise from modern activities such as modern agricultural trends associated with ploughing regimes or other topsoil disturbance, in addition to ferrous disturbances from metallic objects incorporated into the ground and along the boundary of the survey area. Numerous ferrous spikes are scattered across the survey area, likely representing modern ferrous objects and agricultural activity.

# 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: **curaterr1-540632**. 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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Cura Terrae

**Key**

Site Boundary

0 20 40 60 80 100 m

Fenwood Estates Ltd.
Cudworth Parkway, Barnsley

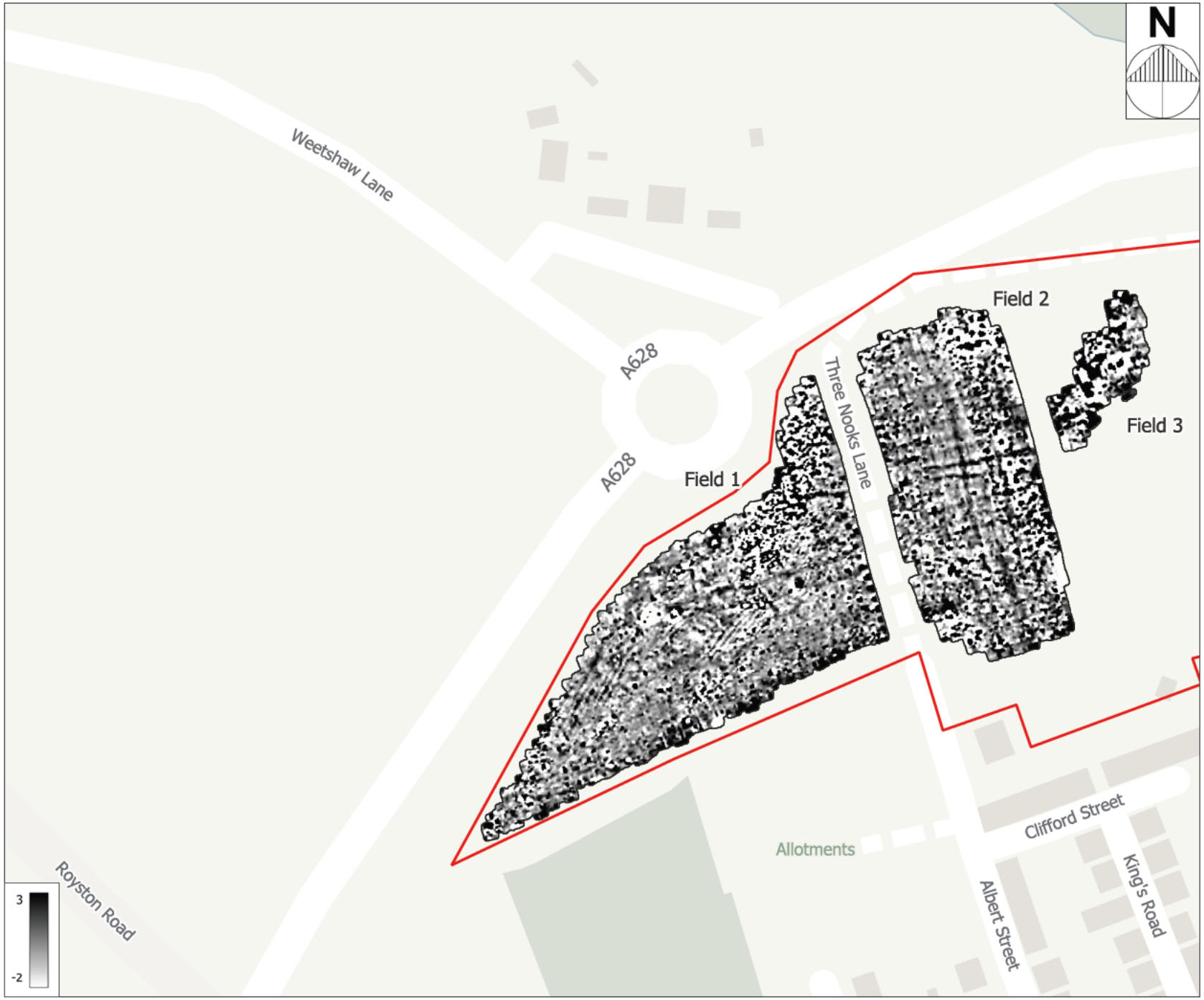
Figure 1
Site Location

| | | | |
|---|---|---|---|
| | | | |
| | | | |
| A | 17.02.2026 | DDJ | - |
| Rev | Date | Drawn by | Checked by |

| | |
|---|---|
| Site centred on: | SE390103 |



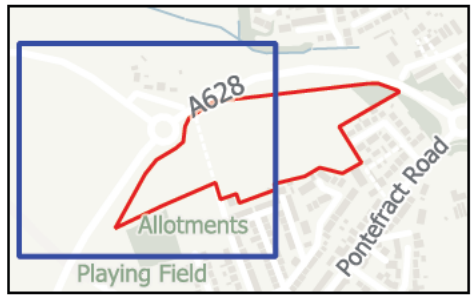
February 2026 | Scale: 1:2,500 @A4 | Drg.Ref: 26327 - GEO - 1 - A




CuraTerrae

**Key**

- Site Boundary
- Survey Extent




0 20 40 60 80 100 m

Cudworth Parkway, Barnsley

Figure 2
Greyscale Plot - Field 1, Field 2 and Field 3

| | | | |
|---|---|---|---|
| | | | |
| B | 18.02.2026 | DDJ | - |
| Rev | Date | Drawn by | Checked by |

| | |
|---|---|
| Site centred on: | SE390103 |



February 2026 | Scale: 1:2,000 @A4 | Drg.Ref: 26327 - GEO - 2 - B


CuraTerrae

**Key**

- Site Boundary
- Survey Extent

0 20 40 60 80 100 m

Cudworth Parkway, Barnsley

Figure 3
XY Plot - Field 1, Field 2 and Field 3

| | | | |
|---|---|---|---|
| | | | |
| | | | |
| A | 23.02.2026 | DY | - |
| Rev | Date | Drawn by | Checked by |

| | |
|---|---|
| Site centred on: | SE390103 |



February 2026 | Scale: 1:2,000 @A4 | Drg.Ref: 26327 - GEO - 4 - A


CuraTerrae

**Key**

- Site Boundary
- Survey Extent
- Possible Archaeology
- Footpath
- Ridge & Furrow
- Agricultural Trend
- Ferrous Disturbance
- Increased Magnetic Response
- Ferrous Spike

0 20 40 60 80 100 m

Cudworth Parkway, Barnsley

Figure 4
Interpretation Plot - Field 1, Field 2 and Field 3

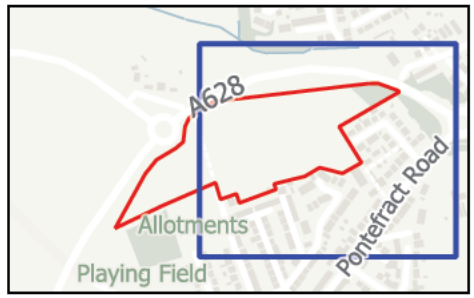
| | | | |
|---|---|---|---|
| | | | |
| C | 23.02.2026 | DY | - |
| Rev | Date | Drawn by | Checked by |

| | |
|---|---|
| Site centred on: | SE390103 |


CuraTerrae

**Key**

- Site Boundary
- Survey Extent




0 20 40 60 80 100 m

Cudworth Parkway, Barnsley

Figure 5
Greyscale Plot - Field 2, Field 3 and Field 4

| | | | |
|---|---|---|---|
| | | | |
| C | 23.02.2026 | DY | - |
| Rev | Date | Drawn by | Checked by |

| | |
|---|---|
| Site centred on: | SE390103 |

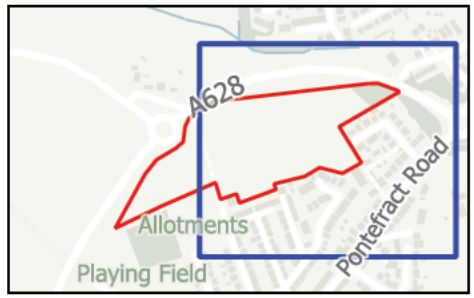


February 2026 | Scale: 1:2,000 @A4 | Drg.Ref: 26327 - GEO - 5 - C


CuraTerrae

**Key**

- Site Boundary
- Survey Extent




0 20 40 60 80 100 m

Cudworth Parkway, Barnsley

Figure 6
XY Plot - Field 2, Field 3 and Field 4

| | | | |
|---|---|---|---|
| | | | |
| C | 23.02.2026 | DY | - |
| Rev | Date | Drawn by | Checked by |

| | |
|---|---|
| Site centred on: | SE390103 |



February 2026 | Scale: 1:2,000 @A4 | Drg.Ref: 26327 - GEO - 5 - C


CuraTerrae

## Key

- Site Boundary
- Survey Extent
- Possible Archaeology
- Footpath
- Uncertain Trend
- Ridge & Furrow
- Agricultural Trend
- Ferrous Spike
- Ferrous Disturbance
- Increased Magnetic Response

0 20 40 60 80 100 m

Cudworth Parkway, Barnsley

Figure 7
Interpretation - Field 2, Field 3 and Field 4

| | | | |
|---|---|---|---|
| | | | |
| | | | |
| B | 23.02.2026 | DY | - |
| Rev | Date | Drawn by | Checked by |

| | |
|---|---|
| Site centred on: | SE390103 |



February 2026 | Scale: 1:2,000 @A4 | Drg.Ref: 26327 - GEO - 6 - B

# 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 effect 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, which 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 a 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, which 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 vary 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.