

# **Green Hill Solar Farm**

## **EN010170**

### **Environmental Statement**

### **Appendix 12.4: Archaeological**

### **Geophysical Survey Reports**

### **Revision A**

### **(Part 3 of 10)**

Prepared by: Lanpro  
Date: November 2025

Document Reference: EX1/GH6.3.12.4\_A  
APFP Regulation 5(2)(a)

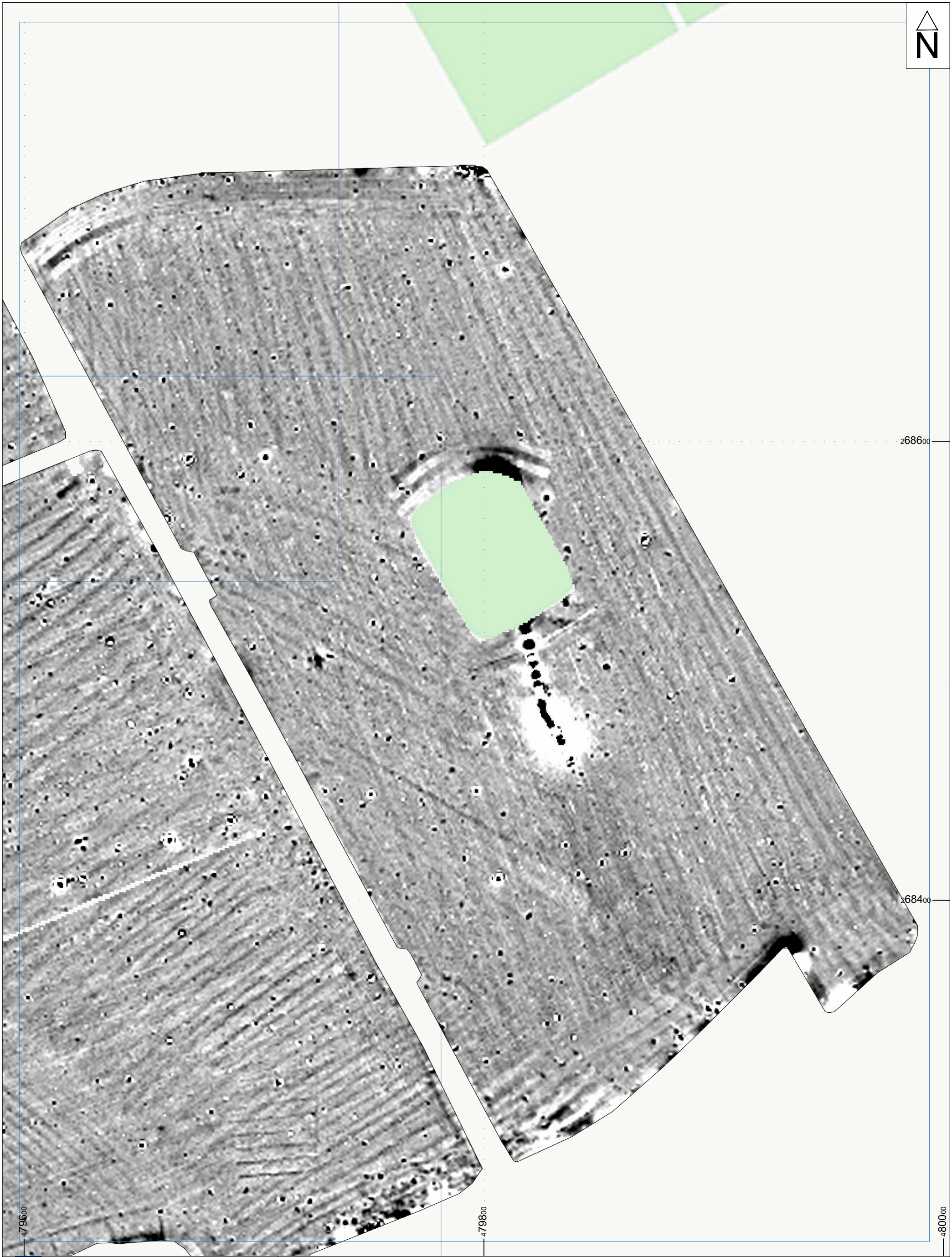



## Schedule of Changes

| Revision | Section Reference | Description of Changes                   | Reason for Revision                            |
|----------|-------------------|--|--|
| A        | [cover]           | Updated document reference to Revision A | Updated survey results (see Parts 8-10 of 10). |

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Project ID: XK77\_EXG23 Site B

Processed greyscale magnetometer data; Sector 6

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Fig. 20

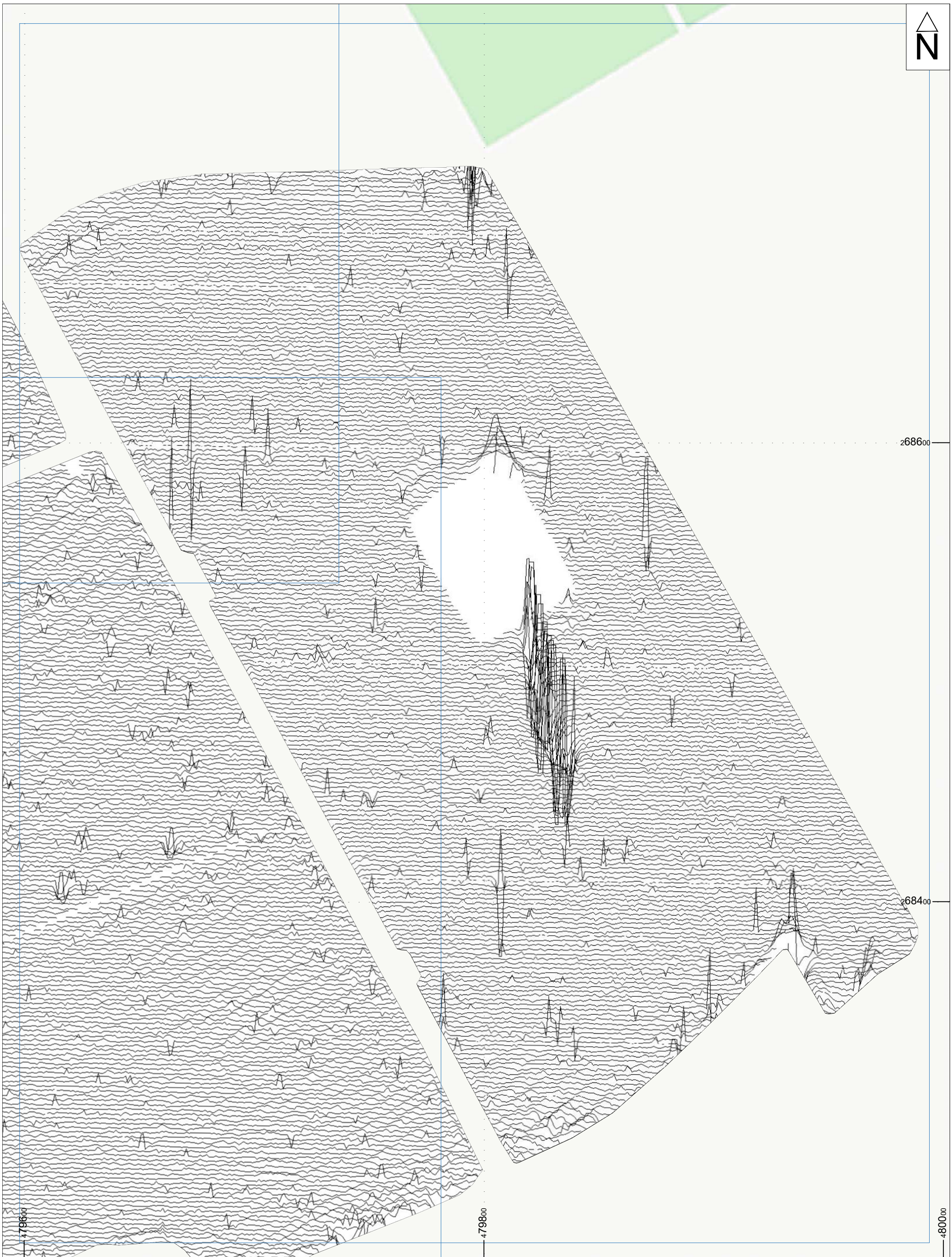
Title


 SECTOR BOUNDARY



1:1500 @ A3







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Project ID: XK77\_EXG23 Site B

XY trace plot of minimally processed magnetometer data;  
Sector 6

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Fig. 21

Title

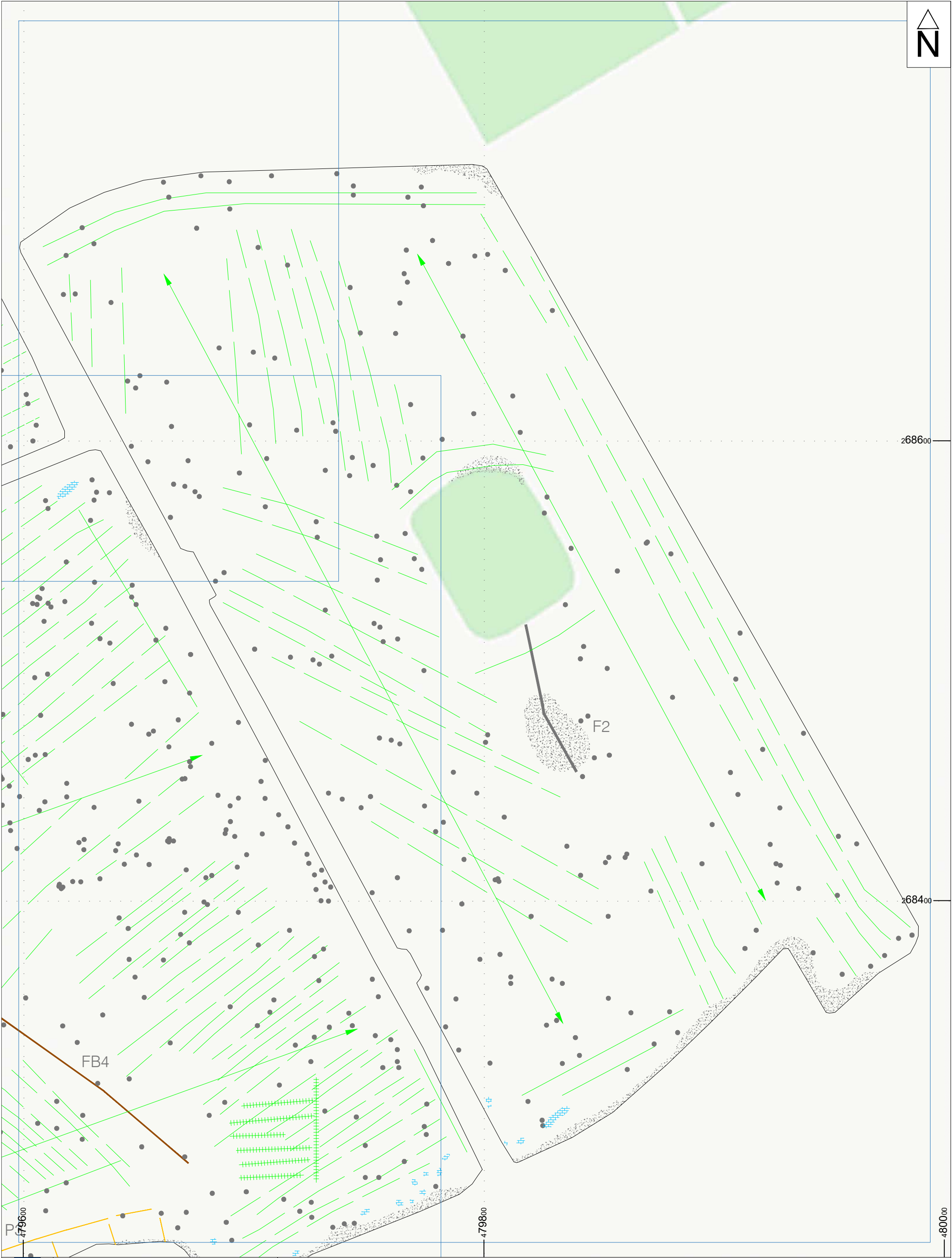
 SECTOR BOUNDARY


15.0 nT/cm

0 50m

1:1500 @ A3
















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Interpretation of magnetometer data; Sector 6

| Interpretation  |                      |   |                |   |                       |
|---|----------------------|---|----------------|---|-----------------------|
|  | FERROUS              |  | FIELD DRAIN    |  | FORMER FIELD BOUNDARY |
|  | SERVICE PIPE         |  | RIDGE & FURROW |  | GEOLOGY               |
|  | MAGNETIC DISTURBANCE |  | AGRICULTURAL   |  | ARCHAEOLOGY?          |

0 50m

1:1500 @ A3

Fig. 22





*Plate 1. General view of BF1, looking northwest*



*Plate 2. General view of BF1, looking west*



*Plate 3. General view of BF2, looking west*



*Plate 4. General view of BF3, looking south*





*Plate 5. General view of BF4, looking west*



*Plate 6. General view of BF5, looking southeast*

## **Appendix 1: Magnetic survey - technical information**

### **Magnetic Susceptibility and Soil Magnetism**

Iron makes up about 6% of the Earth's crust and is mostly present in soils and rocks as minerals such as maghaemite and haemetite. These minerals have a weak, measurable magnetic property termed magnetic susceptibility. Human activities can redistribute these minerals and change (enhance) others into more magnetic forms. Areas of human occupation or settlement can then be identified by measuring the magnetic susceptibility of the topsoil because of the attendant increase (enhancement) in magnetic susceptibility. If the enhanced material subsequently comes to fill features, such as ditches or pits, localised isolated and linear magnetic anomalies can result whose presence can be detected by a magnetometer (fluxgate gradiometer).

In general, it is the contrast between the magnetic susceptibility of deposits filling cut features, such as ditches or pits, and the magnetic susceptibility of topsoils, subsoils and rocks into which these features have been cut, which causes the most recognisable responses. This is primarily because there is a tendency for magnetic ferrous compounds to become concentrated in the topsoil, thereby making it more magnetic than the subsoil or the bedrock. Linear features cut into the subsoil or geology, such as ditches, that have been silted up or have been backfilled with topsoil will therefore usually produce a positive magnetic response relative to the background soil levels. Discrete feature, such as pits, can also be detected. The magnetic susceptibility of a soil can also be enhanced by the application of heat and the fermentation and bacterial effects associated with rubbish decomposition. The area of enhancement is usually quite large, mainly due to the tendency of discard areas to extend beyond the limit of the occupation site itself, and spreading by the plough.

### **Types of Magnetic Anomaly**

In the majority of instances anomalies are termed 'positive'. This means that they have a positive magnetic value relative to the magnetic background on any given site. However some features can manifest themselves as 'negative' anomalies that, conversely, means that the response is negative relative to the mean magnetic background.

Where it is not possible to give a probable cause of an observed anomaly a '?' is appended.

It should be noted that anomalies interpreted as modern in origin might be caused by features that are present in the topsoil or upper layers of the subsoil. Removal of soil to an archaeological or natural layer can therefore remove the feature causing the anomaly.

The types of response mentioned above can be divided into five main categories that are used in the graphical interpretation of the magnetic data:



*Isolated dipolar anomalies (iron spikes)*

These responses are typically caused by ferrous material either on the surface or in the topsoil. They cause a rapid variation in the magnetic response giving a characteristic ‘spiky’ trace. Although ferrous archaeological artefacts could produce this type of response, unless there is supporting evidence for an archaeological interpretation, little emphasis is normally given to such anomalies, as modern ferrous objects are common on rural sites, often being present as a consequence of manuring.

*Areas of magnetic disturbance*

These responses can have several causes often being associated with burnt material, such as slag waste or brick rubble or other strongly magnetised/fired material. Ferrous structures such as pylons, mesh or barbed wire fencing and buried pipes can also cause the same disturbed response. A modern origin is usually assumed unless there is other supporting information.

*Linear trend*

This is usually a weak or broad linear anomaly of unknown cause or date. These anomalies are often caused by agricultural activity, either ploughing or land drains being a common cause.

*Areas of magnetic enhancement/positive isolated anomalies*

Areas of enhanced response are characterised by a general increase in the magnetic background over a localised area whilst discrete anomalies are manifest by an increased response on two or three successive traverses. In neither instance is there the intense dipolar response characteristic exhibited by an area of magnetic disturbance or of an ‘iron spike’ anomaly (see above). These anomalies can be caused by infilled discrete archaeological features such as pits or post-holes or by kilns. They can also be caused by pedological variations or by natural infilled features on certain geologies. Ferrous material in the subsoil can also give a similar response. It can often therefore be very difficult to establish an anthropogenic origin without intrusive investigation or other supporting information.

*Linear and curvilinear anomalies*

Such anomalies have a variety of origins. They may be caused by agricultural practice (recent ploughing trends, earlier ridge and furrow regimes or land drains), natural geomorphological features such as palaeochannels or by infilled archaeological ditches.

**Methodology: Gradiometer Survey**

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

During this survey an eight channel Sensys MX V3 system containing eight FGM650 sensors was also used which was towed across the area using an ATV. Readings were taken every 20MHz (between 0.05 and 0.1m). Data was be recorded onto a device, using a Carlson GNSS Smart antenna, for centimetre accuracy. These readings were stored in the memory of the instrument and downloaded for processing and interpretation.

## **Appendix 2: Survey location information**

Data was recorded onto a device, using a Carlson GNSS BRx7 Smart antenna, for centimetre accuracy. These readings were stored in the memory of the instrument and downloaded for processing and interpretation. The accuracy of the BRx7 is between 0.15cm – 0.8cm. The BRx7 has a built-in tilt sensor to correct collected point coordinates to within 2cm.

The survey data were then super-imposed onto a base map provided by the client to produce the displayed locations. However, it should be noted that Ordnance Survey positional accuracy for digital map data has an error of 0.5m for urban and floodplain areas, 1.0m for rural areas and 2.5m for mountain and moorland areas. This potential error must be considered if co-ordinates are measured off hard copies of the mapping rather than using the digital co-ordinates.

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



### Appendix 3: Geophysical archive and metadata

The geophysical archive comprises:-

- an archive disk containing compressed (WinZip 8) files of the raw data, report text (Microsoft Word 2003), and graphics files (Adobe Illustrator CS6 and AutoCAD 2017) files; and
- a full copy of the report.

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

|                                 |                        |
|---------------------------------|------------------------|
| Area                            | BF1                    |
| UTM Zone                        | 30U                    |
| Survey corner coordinates (X/Y) |                        |
| Northwest corner                | 646859.29, 5797838.669 |
| Southeast corner                | 647324.29, 5797383.669 |
|                                 |                        |
| Dimensions                      |                        |
| Survey Size (meters)            | 465 m x 455 m          |
| X&Y Interval                    | 1 m                    |
| Source GPS Points               | 7447252                |
|                                 |                        |
| Stats                           |                        |
| Max                             | 378.60                 |
| Min                             | -519.41                |
| Std Dev                         | 4.42                   |
| Mean                            | -0.03                  |
| Median                          | -0.09                  |
| Composite Area                  | 21.158 ha              |
| Surveyed Area                   | 13.713 ha              |

|                                 |                         |
|---------------------------------|-------------------------|
| Area                            | BF2                     |
| UTM Zone                        | 30U                     |
| Survey corner coordinates (X/Y) |                         |
| Northwest corner                | 646919.594, 5797539.894 |
| Southeast corner                | 647476.594, 5797084.894 |
|                                 |                         |
| Dimensions                      |                         |
| Survey Size (meters)            | 557 m x 455 m           |
| X&Y Interval                    | 1 m                     |
| Source GPS Points               | 8379223                 |
|                                 |                         |
| Stats                           |                         |
| Max                             | 1311.44                 |
| Min                             | -486.39                 |
| Std Dev                         | 5.99                    |
| Mean                            | -0.03                   |
| Median                          | -0.07                   |
| Composite Area                  | 25.344 ha               |
| Surveyed Area                   | 14.581 ha               |

|                                 |                        |
|---------------------------------|------------------------|
| Area                            | BF3                    |
| UTM Zone                        | 30U                    |
| Survey corner coordinates (X/Y) |                        |
| Northwest corner                | 647341.64, 5797702.045 |
| Southeast corner                | 647881.64, 5797208.045 |
|                                 |                        |
| Dimensions                      |                        |
| Survey Size (meters)            | 540 m x 494 m          |
| X&Y Interval                    | 1 m                    |
| Source GPS Points               | 7748475                |
|                                 |                        |
| Stats                           |                        |
| Max                             | 272.14                 |
| Min                             | -284.76                |
| Std Dev                         | 1.87                   |
| Mean                            | -0.05                  |
| Median                          | -0.07                  |
| Composite Area                  | 26.676 ha              |
| Surveyed Area                   | 14.413 ha              |

|                                 |                         |
|---------------------------------|-------------------------|
| Area                            | BF4                     |
| UTM Zone                        | 30U                     |
| Survey corner coordinates (X/Y) |                         |
| Northwest corner                | 647276.132, 5797984.678 |
| Southeast corner                | 647691.132, 5797553.678 |
|                                 |                         |
| Dimensions                      |                         |
| Survey Size (meters)            | 415 m x 431 m           |
| X&Y Interval                    | 1 m                     |
| Source GPS Points               | 9553667                 |
|                                 |                         |
| Stats                           |                         |
| Max                             | 446.34                  |
| Min                             | -126.09                 |
| Std Dev                         | 4.92                    |
| Mean                            | 0.08                    |
| Median                          | -0.01                   |
| Composite Area                  | 17.887 ha               |
| Surveyed Area                   | 9.17 ha                 |

|                                 |                         |
|---------------------------------|-------------------------|
| Area                            | BF5                     |
| UTM Zone                        | 30U                     |
| Survey corner coordinates (X/Y) |                         |
| Northwest corner                | 647665.285, 5797830.728 |
| Southeast corner                | 648065.285, 5797387.728 |
|                                 |                         |
| Dimensions                      |                         |
| Survey Size (meters)            | 400 m x 443 m           |
| X&Y Interval                    | 1 m                     |
| Source GPS Points               | 5077830                 |
|                                 |                         |
| Stats                           |                         |
| Max                             | 1658.40                 |
| Min                             | -486.24                 |
| Std Dev                         | 11.73                   |
| Mean                            | 0.09                    |
| Median                          | -0.04                   |
| Composite Area                  | 17.72 ha                |
| Surveyed Area                   | 8.4104 ha               |

## **Appendix 4: Oasis form**



# OASIS Summary for archaeol11-524381

|                                   |   |
|-----------------------------------|---|
| OASIS ID (UID)                    | archaeol11-524381   |
| Project Name                      | Geophysical Survey at Green Hill Solar Project - Area B   |
| Sitename                          | Green Hill Solar Project - Area B   |
| Sitecode                          | EXG23   |
| Project Identifier(s)             |   |
| Activity type                     | Geophysical Survey, MAGNETOMETRY SURVEY   |
| Planning Id                       |   |
| Reason For Investigation          | Planning: Pre application   |
| Organisation Responsible for work | Archaeological Services WYAS  |
| Project Dates                     | 02-Oct-2023 - 14-Feb-2024   |
| Location                          | Green Hill Solar Project - Area B<br>NGR : SP 79290 68400<br>LL : 52.30800024189757, -0.838458007423047<br>12 Fig : 479290,268400   |
| Administrative Areas              | Country : England<br>County/Local Authority : West Northamptonshire<br>Local Authority District : West Northamptonshire<br>Parish : Holcot  |
| Project Methodology               | The cart-based survey was undertaken using an eight channel SenSYS MX V3 system containing eight FGM650 sensors. Readings are taken every 20MHz (between 0.05 and 0.1m). Data were recorded onto a device, using a Carlson GNSS Smart antenna, for centimetre accuracy. These readings were stored in the memory of the instrument and downloaded for processing and interpretation. DLMGPS and MAGNETO software, alongside bespoke in-house software was used to process and present the data.   |
| Project Results                   | A geophysical (gradiometer) survey was undertaken on approximately 64 hectares of land associated with Area B of the Green Hill Solar Project, Wellingborough, Northamptonshire. The majority of the anomalies recorded are agricultural including former field boundaries, medieval/post-medieval ridge and furrow cultivation, modern ploughing and land drains. Archaeological and possible archaeological responses have been recorded within the south of the area in the form of discrete linear and curvilinear features which may form enclosures. Uncertain anomalies recorded within the data may also have an anthropogenic origin. Geological responses seen within the dataset reflect either the topography of the site, a former water course or discrete pockets of natural variations. Magnetic disturbance can be attributed to adjacent tracks and metal fencing with smaller areas corresponding to infilled ponds or former fencing. Based on the geophysical survey, the archaeological potential of this area is deemed to be moderate in the south where there are areas of activity and low elsewhere. |
| Keywords                          |   |
| Funder                            | Private or public corporation Green Hill Solar Park   |
| HER                               | Northamptonshire SMR - unRev - STANDARD   |
| Person Responsible for work       | Emma Brunning   |
| HER Identifiers                   |   |
| Archives                          |   |

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## Appendix C

### Green Hill C, D and E Geophysical Survey Report



**WYAS**  
**Archaeological  
Services**

**Green Hill Solar Project**  
**Area C, D and E**  
**Northamptonshire**

**Geophysical Survey**

Report no. 4245  
February 2025

**Client:** Green Hill Solar Project



# **Green Hill Solar Project**

## **Sites C, D, and E**

### **Northamptonshire**

## **Geophysical Survey**

### *Summary*

*A geophysical (gradiometer) survey was undertaken on approximately 406 hectares of land associated with Areas C, D and E of the Green Hill Solar Project, Northamptonshire. Numerous archaeological anomalies have been recorded which include large settlements, double ditched large enclosures, ring ditches, trackways and field systems along with ditches and pits indicative of activity over a probable prehistoric to medieval timeframe. Agricultural anomalies include former field boundaries, medieval/post-medieval ridge and furrow cultivation, modern ploughing and land drains. Magnetic disturbance within the dataset can be attributed to adjacent tracks and metal fencing within field boundaries. Service pipes originating from a modern substation in Green Hill E have also been recorded. Uncertain anomalies recorded within the data are generally considered to be geological or caused by agricultural activity. Geological responses seen within the dataset reflect either the topography of the site, possible quarrying, sub-surface fluid dynamics, desiccation cracking or discrete pockets of natural variations. Based on the geophysical survey, the archaeological potential of this Site is deemed to be high where there are areas of archaeological activity and low elsewhere.*

## Report Information

|                        |  |
|------------------------|--|
| Client:                | Green Hill Solar Project   |
| Report Type:           | Geophysical Survey   |
| Location:              | Bozeat, Northampton, Northamptonshire  |
| County:                | Northamptonshire   |
| Grid Reference:        | SP 8494 6615 (approximate Site centre)   |
| Period(s) of activity: | Prehistoric - post-medieval  |
| Report Number:         | 4245   |
| Project Number:        | XK77   |
| Site Code:             | EXG23  |
| OASIS ID:              | archaeo111-531703  |
| Date of fieldwork:     | September 2023 – September 2024  |
| Date of report:        | February 2025  |
| Project Management:    | Emma Brunning BSc MCIfA  |
| Fieldwork:             | Amy Chatterton BSc MA<br>Jake Freeman BA<br>Jacob Hurst-Myszor BA<br>Cameron Whitley BA<br>Claire Stephens BA MA |
| Illustrations:         | Emma Brunning  |
| Photography:           | Amy Chatterton, Jake Freeman   |
| Research:              | Emma Brunning  |
| Report:                | Emma Brunning & Jake Freeman   |



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## Document Issue Record

| Ver | Author(s) | Reviewer | Approver | Date   |
|-----|-----------|----------|----------|--------|
| 1.0 | EB & JF   | DW       | JR       | Aug 24 |
| 2.0 | EB & JF   | DW       | JR       | Feb 25 |

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## 1 Introduction

Archaeological Services ASWYAS has been commissioned by Lanpro on behalf of the Green Hill Solar Project to undertake a geophysical survey on land for the proposed Green Hill Solar Project, located predominantly within the administrative boundary of Northampton, Northamptonshire.

This report details Sites C, D, and E of the project, hereafter referred to collectively as the ‘Site’. The survey was undertaken in line with current best practice (CIfA 2020; Schmidt *et al.* 2015). Survey was undertaken over numerous visits between September 2023 and September 2024 as a results of wet weather and young crops.

### Site location, topography and land-use

#### *Green Hill C*

Site C comprises approximately 56 ha of predominantly arable land across 10 fields (CF1 – CF10), located to the immediate northeast of the Sywell Aerodrome, Sywell, Northamptonshire, with an approximate site centre at SP 83451 68460 (see Fig. 1). Site C is bounded by Sywell Road to the south, by the Sywell Aerodrome to the west, and by woodland and pre-existing solar infrastructure to the north and east. Field CF3 was unsuitable for survey as it had been left overgrown.

Ground coverage within the area at the time of survey comprised a mixture of young cover crop and stubble. Elevation within the area varies from approximately 123m above Ordnance Datum (aOD) in the west to 112m aOD in the southeast. The lowest point is in Field CF4 with 110m aOD.

#### *Green Hill D*

Site D comprises approximately 42 ha of arable land across four fields (DF1 – DF4), located to the northeast of the Mears Ashby, Northamptonshire, with an approximate site centre at SP 84263 67850 (see Fig. 1). Site D is bounded by Sywell Road and Moonshine Gap to the north, Highfield Road to the east and a water course to the west.

Ground coverage within the area at the time of survey comprised stubble. Elevation within the area varies from approximately 116m aOD in the north, to 109m aOD in the south.

#### *Green Hill E*

Site E comprises approximately 308 ha of predominantly arable land across 34 fields (EF1 – EF34), located to the east of Mears Ashby, Northamptonshire, with an approximate site centre at SP 84817 66236 (see Fig. 1). Site E is bounded by arable land to the north, a watercourse to the east, the A4500 to the south and Mears Ashby Road to the west. Wilby Road bisects the area running east to west. Field EF29 was unsuitable for survey due to it consisting of horse paddocks and being steep towards the south. The eastern section of Field EF33 was also unsuitable due to the steep terrain.

Ground coverage within the area at the time of survey comprised stubble and young crop. Elevation within the area varies from approximately 114m aOD in the north, to 76m aOD in the south.

## **Soils and geology**

### *Green Hill C*

Three different bedrock geologies are recorded within this area and comprise: Stamford member - sandstone and siltstone, interbedded, a sedimentary bedrock that formed between 170.3 and 166.1 million years ago during the Jurassic period: Northampton Sand formation - ironstone, ooidal, a sedimentary bedrock that formed between 174.1 and 170.3 million years ago during the Jurassic period and the Wellingborough Limestone member - limestone and mudstone, interbedded, a sedimentary bedrock that formed between 168.3 and 166.1 million years ago during the Jurassic period. Superficial sedimentary deposits have been recorded as belonging to the Oadby Member – Diamicton, formed between 480 and 423 thousand years ago during the Quaternary period (BGS 2025).

Soils in the west of this area consist of slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils (Soilscape 18) whilst soils in the east consist of Lime-rich loamy and clayey soils with impeded drainage (Soilscape 9). Soils recorded in the northwest of Field CF1 are freely draining slightly acid but base-rich soils (Soilscape 7) (LandIS 2025).

### *Green Hill D*

The underlying solid geology of Site D comprises Stamford member - sandstone and siltstone, interbedded, Wellingborough Limestone member - limestone and mudstone, interbedded and Rutland formation – mudstone. The latter is a sedimentary bedrock that formed between 170.3 and 166.1 million years ago during the Jurassic period. In addition, Northampton Sand formation – ironstone, ooidal is present along the western edge of Fields DF3 and DF4 only and Whitby Mudstone formation – mudstone is present in a small areas of Field DF4. Superficial deposits have been recorded as belonging to the Oadby Member – Diamicton and Bozeat Till – diamicton (BGS 2025).

Soils in this parcel of land mainly consist of Soilscape 9 (see Area C). Soils towards the western edges of Fields DF3 and DF4 are freely draining lime-rich loamy soils (Soilscape 5) and freely draining slightly acid but base-rich soils (Soilscape 7) (LandIS 2025).

### *Green Hill E*

The underlying solid geology of Site E comprises several formations which generally increase in age from north to south (BGS 2025). At the north is the Blisworth Limestone Formation – limestone (present in EF1 - EF3) which overlies the Rutland Formation – mudstone (present in EF1 - EF8 and EF11 – EF12). This formation includes the Wellingborough Limestone Member - limestone and mudstone, interbedded (present in EF1, EF3, EF6, EF7, EF8 and EF11), and beneath this the Stamford Member - sandstone and siltstone, interbedded which extends across much of the central part of Site E (present in EF3 - EF5, EF9 – EF17, EF20 –

EF25, EF31, EF33 and EF34). The oldest formations within Site E are the Northampton Sand Formation - ironstone, ooidal (present in EF4, EF13, EF16 – EF20, and EF22 – EF34) and the underlying Whitby Mudstone Formation – mudstone (present in EF17 – EF20, EF22 – EF27, EF29 - EF30 and EF32 – EF 34).

Overlying superficial deposits cover much of the northern and central parts of Site E, comprising Oadby Member – Diamicton (present in EF1 – EF14 and EF20 – EF22 and EF24 – EF25) and Bozeat Till – Diamicton (present in Field EF9 only). In addition, there are a few parcels containing discrete deposits of Alluvium - Clay and Silt where these include parts of the valleys around the southern edges of Site E (present in EF23, EF27, EF29, EF30 and EF33) and there are also two discrete areas of Glaciofluvial Deposits, Mid Pleistocene - sand and gravel which are present in EF33 and EF34 only (BGS 2025).

Soils of this area comprise Soilscape 9 in the north, Soilscape 5 in the centre and Soilscape 7 - freely draining slightly acid but base-rich soils in the south (LandIS 2025).

## **2 Archaeological Background**

The following information is a summary of an archaeological background provided by Lanpro Services based on a 1km search area.

### **Prehistoric**

The earliest evidence for prehistoric activity within the search area comprises the numerous worked flints that have been recovered during fieldwalking. These include twelve pieces of worked flint found within Field CF1 (HER 7902/0/0) and 32 pieces within CF5 (HER 8335/0/0) within Green Hill C. These were all struck flakes with no tool types present. Fieldwalking by Mr Callis at Mears Ashby during the 1960s, 1970s and 1980s recovered 176 worked flints, nearly all of which have been identified as Neolithic or Early Bronze Age, although 42 microliths of likely Mesolithic date have also been recovered. Other tool types present include two axe heads, six arrowheads, one fabricator, four blades, 34 scrapers and 42 flakes.

Unstratified prehistoric flints have also been discovered within Site E, including a flint scraper in Field EF15 (HER 1977/0/1), a Neolithic/Bronze Age axe fragment in Field EF17 (HER 3866/0/1), worked flint and a scraper in Field EF20 (HER 1977/0/18), a Neolithic flint arrowhead in Field EF25 (HER 1977/0/23), worked flint in Field EF27 (HER 3872/0/1, HER 3873/0/1), and a flint scraper in Field EF30 (HER 9805/0/0).

Early Bronze Age activity is attested by the round barrow on Low Hill, at the southern end of Field EF33 (HER 1985/0/1). This was visible as a low mound spread by ploughing in 1979, but since that time it has evidently been ploughed out. While it is not visible in the current LiDAR dataset a slight rise was noted at this location during the site visit. There are two further postulated barrows within Field EF33 identified as cropmarks (HER 1990/0/1 and

HER 1990/0/2). One of which (HER 1990/0/2) is at the precise location of a windmill depicted on Jeffreys map of 1779, the surrounding fence for which survived at the time of the OS 1st edition map of 1885. A ring ditch cropmark immediately to the north of this has been interpreted as a Saxon-medieval windmill (HER 1990/0/3). Likewise, a possible Bronze Age round barrow and prehistoric enclosures are recorded by the HER in Field EF23 (HER 01/01/1980).

Cropmarks in the field to the west of Low Hill, outside of the scheme, have previously been interpreted as a possible barrow cemetery (HER 1987/1/1). Similarly, numerous ring ditches have been identified as cropmarks within the Site and, whilst most are likely to be Iron Age or Romano-British roundhouses, some of the larger examples might relate to Early Bronze Age or earlier funerary activity, for example the ring ditch straddling the boundary between Fields EF30 and EF32 (HER 1983/0/1). Other possible Bronze Age barrows within the wider 1km search area have been identified *c.* 775 to the southwest of Green Hill C near to Sywell Aerodrome (HER 2017), *c.* 100m to the west of Field EF22 (HER 1981/0/0), *c.* 280m to the east of Field EF3 (HER 7625/0/1), and *c.* 775m to the west of EF34 (HER 1997/0/0).

### **Iron Age and Roman**

Two areas of probable Iron Age activity were recorded within Fields CF8, CF9 and CF10 (HER 1524/0/1 and 1524/0/2) by a programme of archaeological trial trenching (Event ENN108117). Late Roman period records relate to a possible prehistoric and Roman site (HER 7902) with unstratified prehistoric and Roman material in Field CF1 (HER 7902/0/0), as well as a sparse scatter of worked flint and Roman pottery identified in Field CF5 (HER 8335/0/0).

There are no Iron Age or Roman sites within Green Hill D, but within Green Hill E there are 44 HER entries assigned a general ‘prehistoric’ date, many of which are likely to relate to Iron Age activity. In addition, there are two HER entries which have been assigned an Iron Age date, five have been assigned an Early Iron Age to Late Roman date, and four that have been assigned a Lower Palaeolithic to Late Roman date.

Air photo analysis of Middle to Late Iron Age rural settlement in Northamptonshire has identified a dispersed pattern of single hut circles and other open settlement evidence (commonly comprising loose groups of hut circles together with rectilinear, polygonal or curvilinear enclosures) throughout most of the county. An example of an open settlement has been identified at Sywell Aerodrome, *c.* 875m to the southwest of Green Hill C, where a probable Iron Age farmstead was excavated, having been identified previously as a series of cropmarks of grouped and linked oval enclosures and open sided C-shaped ditched features (HER 9514). The excavated features were interpreted as stock pens by the excavators, with occupation possibly occurring beyond the excavated area. The small rectilinear and curvilinear enclosures thought to be stock pens are ubiquitous at open settlement as well enclosed sites, and this may attest to the predominance of pastoralism during this period. An area of possible open settlement has also been identified within Field EF23 of Green Hill E,



comprising rectilinear and curvilinear enclosures adjacent to a possible roundhouse (HER 5888).

Large double ditched enclosures are numerous in Northamptonshire. Whilst it has been suggested that these may have been defensive in nature, they could also have been an expression of higher status. Two such enclosures have been identified within Green Hill E, the smaller of the two, in Field EF19, measuring *c.* 60m by 60m (HER 1977/0/10). Fieldwalking in this field and the field to the west has recovered large quantities of Roman pottery as well as a coin (an Antoninianus of Volusianus, AD 251-253). However, these finds were concentrated around the multiple conjoined and overlapping enclosures immediately to the north and west of the larger enclosure, but not from within it, which suggests the possibility that this may represent later Romano-British settlement accreting to an earlier, possibly Iron Age, high status farmstead.

The larger of the two double-ditched enclosures within Green Hill E is located further to the south, straddling Fields EF28 and EF29, and this rectangular enclosure measures *c.* 120m by 90m (HER 1984/0/1). Whilst it is possible that this could have Iron Age origins, the large quantities of non-local stone, roof tiles, tesserae, Roman pottery, and a coin recovered from the ploughsoil above the cropmark indicate that this was the likely site of a high-status Roman building, possibly a villa. The coin was identified as a barbarous radiate, which most likely dates it to the later 3rd century AD. Another relatively large (though single ditched) enclosure has been identified by cropmarks in Field EF25 (HER 1982/0/5), and this is associated with large quantities of Roman pottery, and a scatter of non-local stone, suggesting the possible location of a Romano-British stone building.

Within the wider 1km search area there are several other examples of possible prehistoric and/or Romano-British settlement activity identified from cropmarks, for example to the south of Mears Ashby Road *c.* 300m to the east of Field EF18 (HER 5889), on the western side of Mears Ashby, *c.* 600m to the west of Field EF9 (HER 1996), and adjacent to Cromwell Spinney, *c.* 670m to the east of Field EF4 (HER 3593). An area of Late Iron Age/Romano-British settlement has also been identified *c.* 200m to the south of Field EF30 (HER 2035), and possible Iron Age pits (HER 8161) and Romano-British settlement (HER 8718) have been recorded at separate locations within Earls Barton.

In addition to these areas of possible settlement activity, excavations at Appleby Lodge in 2014, *c.* 610m to the northeast of Field EF2, identified a series of parallel cultivation trenches potentially dated by pottery recovered from their fills to the 2nd century AD. These were interpreted as part of a vineyard, due to their similarity with other possible vineyards excavated further to the south at Grendon and Woollaton. These sites were all located within the hinterland of the Roman town of Irchester, *c.* 6km to the east of Green Hill E, which has been postulated as being a major wine-producing region during the Romano-British period.

## Medieval

There are two records relating to activity of a medieval date within Green Hill C, comprising a possible medieval/post-medieval ditch and bank (HER 6599/1/3) and a medieval pottery scatter (HER 4520/0/0). Within Green Hill D there is one record relating to medieval to post-medieval water management, comprising a possible Early Saxon to late medieval pond that is located adjacent to the Swanspool Brook (HER 3483/0/1). Within Green Hill E there is a possible Early Saxon to late medieval windmill (HER 1990/0/3), and an Early Bronze Age to post-medieval site comprising an Early Bronze Age barrow later used as a hundred meeting place in 1565 and probably earlier (HER 1985/0/1). There are also 30 HER records assigned an ‘unknown’ date within Green Hill E, some of which could be of medieval origin.

The placename ‘Ashby’ is a common one, and means ‘Ash-tree farm’, the ‘by’ indicating that this is a placename with Norse origins. The Domesday Book records that at the time of the Norman Conquest Mears Ashby was part of a larger estate held by the Anglo-Saxon thegn Bondi which included Earls Barton, Great Doddington and Wilby. Earls Barton was the seat of this estate, and the ditch surrounding the Norman motte at Earls Barton, known as Berry Mount (NHLE 1009510; HER 3738/1/1), may have been a defensive ditch surrounding the Anglo-Saxon manor house adjacent to the Church of St Mary, which has a 10th-century tower (NHLE 1294226). Possible Early Saxon to late medieval enclosures have also been identified from cropmarks on the western edge of Earls Barton (HER 2147), and a medieval ditch has been recorded within the village (HER 8161).

In Mears Ashby, a series of low earthworks to the west of Low Lane are thought to represent medieval house platforms and closes (HER1995/0/4) of the shrunken village (HER 1995), and earthworks to the west of the church are thought to be part of the manorial enclosure of North Manor (HER 1995/3/1) and a possible manorial fishpond fed by Swanspool Brook also survives in this vicinity (HER 1995/3/2). Other medieval evidence from the village includes a possible medieval cross (HER 1995/0/1) and a chalice (HER 1995/0/0) recovered from a medieval tomb (HER 1995/1/2). Pottery dating to the 13th-15th centuries has also been recovered from the village (HER1995/0/3). Earthworks of an enclosure thought to be associated with the South Manor house have been identified (HER 1995/2/2), and a hollow way approaching these earthworks from the west is likely to represent a route named as ‘the Saltway’ in 1577 (HER 1995/0/5).

Apart from the main two areas of medieval settlement within the 1km search area at Mears Ashby and Earls Barton, the search area also contains parts of the medieval parishes of Saywell, Wilby, Hardwick and Ecton. Fields CF1 and CF2 are within the historic parish of Sywell, and Fields EF1 – EF7 are all in the parish of Wilby, but all of the remaining fields within the Green Hill E are within the parish of Mears Ashby. The village of Wilby is located just beyond the western edge the 1km search area, but a medieval settlement named Wilby Thorpe, is also referenced in 13th and 14th-century documents, and it has been suggested that this might have been located at Wilby Hall, immediately to the northwest of Field EF2 (HER

1975). Possible medieval remains within the 1km search area within the parish of Sywell include several medieval boundary ditches (HER 2001/0/2) evidence for ridge and furrow cultivation (HER 5989/06 and HER 5989/0/7) HER 5989/0/7) and a possible medieval moat (HER 2001/0/1) all of which were identified within Sywell Aerodrome. The settlement at Hardwick is outside the 1km search area, but a linear earthwork that extends into the search area (HER 1974/0/7) is thought to be associated with the shrunken medieval village (HER 1974).

A manorial survey of Mears Ashby in 1577 provides a snapshot of the village and parish in the immediate post-medieval period, but also provides information regarding the layout of the surviving medieval open field system, as well as confirming the likely locations of the North and South Manor houses and the origins of the routeways into, out of, and across the parish. There were eight fields surrounding the medieval village core, at the north of the parish Wood Field occupied the area north of the route known at the time as the Portway (now Sywell Road), and Fields CF3 – CF10 of Green Hill C are all located within this former medieval field. Part of the field was also occupied by Ashby Wood, a block of woodland that was classed as ‘extra-parochial’ i.e. not in any parish. This the remnants of a much larger area of Medieval woodland of which Sywell Wood to the west was also a remnant. This area of woodland covered the high clay ground between Northampton and Kettering and was considered to be part of Rockingham Forest in the 13th century, and once spread into Mears Ashby to the south and Walgrave to the north. There were two fields in between the Portway and the village, to the west the Haden Field (later ‘Headland Field’), and to the east of this the Hall Field, which extended north-eastwards from the village. The whole of Green Hill D is located within this field, and the field’s eastern edge is coterminous with the western edge of Green Hill E, abutting Fields EF1, EF7, EF8 and EF9).

### **Post-medieval and modern**

There are two HER records of post-medieval to modern date within Green Hill C, one associated with a possible medieval / post medieval ditch and bank (HER 6599/1/3) and the other Sywell Airfield (HER 8445/1). There is one ‘Post-medieval or Modern’ HER record within Green Hill D, relating to a possible medieval/post-medieval water management in the north of Field DF1 (HER 3483). In Green Hill E is one entry with a date range spanning the ‘Late Bronze Age to post-medieval’ periods, three assigned a ‘post-medieval to Late 20th century’ date, one assigned a ‘post-medieval to modern’ date, and one assigned a ‘Second World War to 21st century’ date.

Within the surrounding 1km search area, there are 173 HER records for the post-medieval and modern periods. These are largely characterised by heritage assets relating to buildings or monuments of a well-defined extent that do not contribute to the understanding of the study site’s archaeological potential. The understanding of settlement, land-use and the utilisation of the landscape is enhanced by cartographic and documentary sources which can give additional detail to data contained within the HER and, notably, to the search site.

The HER records that a civilian airfield run by the Northamptonshire Flying Club was established to the north of Sywell 1928 and extended in 1932, and this became a military airfield during the Second World War but was closed in 1953 (HER 8445/1). The HER polygon for the airfield extends across Field CF1 within the search site, but the OS map of 1952 depicts the extent of the airfield just prior to its closure, and it is shown as abutting the north-western and south-eastern boundaries of Field CF1. An Air Ministry Record Site Plan of Sywell Aerodrome dating to 1944 provides a detailed catalogue of the buildings and areas within airfield, the edge of which is demarcated by a dashed line, and this shows that Field CF1 was abutting the boundary of the airfield but was outside of it. The legend to the plan provides details of buildings within the airfield immediately adjacent to Field CF1, including two blister hangars immediately to the north-west (nos. 155 and 158), and another to the south-west (no.154) which was adjacent to two Nissen huts for ‘Dispersal’ and a ‘50 men blast shelter’ (no. 98). To the south of Wood Lodge Farm was another cluster of small buildings including a ‘Cloak room & lavatories – female ground staff (no. 97), a ‘Dispersal hut’ (no. 83 and a ‘Latrine’ (no. 85) and a pillbox (no.71) Field CF1 is also referenced as one of three ‘Dispersal Areas M.U.’ It is unclear as to whether these areas external to the airfield were for the dispersal of military personnel or military assets, but it appears likely that it was for the use personnel during potential bombing raids, due to the presence of the aircraft hangars immediately adjacent.

### **3 Aims, Methodology and Presentation**

The aims and objectives of the programme of geophysical survey were to gather sufficient information to establish the presence/absence, character and extent, of any archaeological remains within the specific area and to inform an assessment of the archaeological potential of the site. To achieve this aim, a magnetometer survey covering all amenable parts of the Site was undertaken (see Fig. 2).

The general aims of the geophysical survey were:

- to provide information about the nature and possible interpretation of any magnetic anomalies identified;
- to therefore determine the presence/absence and extent of any buried archaeological features; and
- to prepare a report summarising the results of the survey.

#### **Magnetometer survey**

The cart-based survey was undertaken using an eight channel SenSYS MX V3 system containing eight FGM650 sensors. Readings are taken every 20MHz (between 0.05 and 0.1m). Data were recorded onto a device, using a Carlson GNSS Smart antenna, for

centimetre accuracy. These readings were stored in the memory of the instrument and downloaded for processing and interpretation. DLMGPS and MAGNETO software, alongside bespoke in-house software was used to process and present the data. Further details are given in Appendix 1.

## **Reporting**

A general site location plan, incorporating the 1:50000 Ordnance Survey (OS) mapping, is shown in Figure 1. Figure 2 displays the survey areas at a scale of 1:10000 whilst Figure 3 shows an overview of the processed magnetometer data and Figure 4 shows an overview of the interpretation both at a scale of 1:10000. Processed and minimally processed data, together with interpretation of the survey results are presented in Figures 5 to 55 inclusive at a scale of 1:1500.

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

The survey methodology, report and any recommendations comply with guidelines outlined by the European Archaeological Council (Schmidt *et al.* 2015) and by the Chartered Institute for Archaeologists (CIfA 2020). All figures reproduced from Ordnance Survey mapping are with the permission of the controller of His Majesty's Stationery Office (© Crown copyright).

*The figures in this report have been produced following analysis of the data in processed formats and over a range of different display levels. All figures are presented to most suitably display and interpret the data from this site based on the experience and knowledge of Archaeological Services staff.*

## **4 Results and Discussion (see Figures 5 to 55)**

### **Ferrous anomalies and magnetic disturbance**

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

Linear dipolar trends have been recorded in Fields DF3, DF4, EF3, EF5, EF6, EF8, EF10, EF11, EF12, EF17, EF19, EF25, EF26, EF28, EF30 and EF31 which relate to service pipes.

Magnetic disturbance along the limits of the survey areas is due to interference from metal fencing and adjacent tracks.

### **Geological anomalies**

The survey has detected anomalies that have been interpreted as geological in origin. It is thought that the responses have been detected because of the variation in the composition and depth of the deposits of superficial material in which they derive.

Sinuuous bands of geological responses primarily concentrated in the east of Fields EF4, EF17, EF18, EF27 and EF32 correspond to a change in the recorded soils and most likely reflect infilled cracks and fissures between the differing sedimentary geologies which have formed as a result of the historic movement of water through the soils. Often, these can mimic archaeological responses, so whilst a geological origin is expected, an archaeological origin cannot be ruled out entirely.

Within Fields EF23 and EF33, multiple sinuous branching geological responses have been detected which are also likely to be as a result of desiccation fissures and water movement through the soils.

### **Agricultural anomalies**

Former field boundaries (**FB1 – FB19**) have been recorded within Fields CF7, CF8, DF2, DF3, EF1, EF2, EF4, EF6, EF20, EF21, EF23, EF27 and EF33. The majority of these boundaries correspond to historic mapping dating from 1884 (NLS 2025). Boundary **FB15** in Fields EF20/EF21 is a farm track which is also present on the 1884 mapping and remains extant up to the present.

Medieval or post-medieval ridge and furrow cultivation has been recorded within the majority of the fields.

A handful of field drains have been recorded in Fields CF7, CF8, DF1, EF1, EF3, EF9 and EF11. These have quite a low magnetic strength, and it is likely that their construction is of a non-fired clay construction.

Other parallel linear trends can be seen within most of the areas and are associated with modern ploughing. Only a selection of these have been highlighted on the interpretation diagrams to show the direction of the plough lines.

### **Uncertain anomalies**

A handful of anomalies within the dataset have been interpreted as having an uncertain origin.

Within Site C, faint linear responses have been detected in CF1 and CF2. These anomalies are in proximity to, and appear to share alignment with, more convincing archaeological responses. Their relative weakness precludes a firmer interpretation.

Faint linear responses which appear to create a sub-rectangular enclosure with internal divisions (**U1** and **U2**) can be seen within Field DF1, many of the linear anomalies, which have been interpreted as being a part of the wider enclosure, align with surrounding agricultural responses of similar magnetic strengths. A similar series of fragmented linear anomalies which form a partial rectangle (**U3**) are also present within DF2.

The majority of anomalies given an uncertain designation within Green Hill E are either weakly responsive linear or curvilinear anomalies likely to be agricultural or geological in nature, or small clusters of increased magnetic response which are most likely to be geological in nature or related to modern disturbance.

Within the northern part of Field EF25 several evenly spaced parallel linear anomalies have been detected which appear to be bounded by a fragmentary curvilinear ridge to their east (**U4**). Whilst they may form part of the agricultural use of the land and sit at a different orientation to the modern and historic ploughing trends, their proximity to and seeming alignment with nearby archaeological responses has led to an uncertain designation.

Several clusters of pit-like responses and linear trends (**U5-U13**) are spread across Fields EF25, EF27, EF28, EF30 and EF31 and lie within proximity to large settlement complexes and may also be archaeological in origin. They also lie close to clear geological features, however, so a geological or natural origin is also possible.

A ditch-like response (**U14**) in Field EF23 is perhaps a continuation of the possible archaeological responses **P7** in the field to the east. It has been interpreted as *Uncertain* as a geological origin is also possible.

Multiple linear responses in the north of Field EF34 are almost certainly associated with geological desiccation cracking, but an *Uncertain* interpretation has been reached due to the proximity of the archaeological responses.

### **Possible and definite archaeological anomalies**

Anomalies of both an archaeological and possible archaeological origin have been recorded across the Site, but often following linear, ladder-style arrangements with areas devoid of



(archaeological) anomalies between and/or around them. There is the possibility of multiple phases of activity within some of the areas.

The survey data have recorded part of a complex of archaeological anomalies within the western part of Field CF1. These anomalies form part of a settlement that likely extends out of the survey area. These anomalies are composed of several irregularly shaped sub-rectangular and sub-circular enclosures (**A1**), with possible further rectangular enclosures recorded directly east of **A1**. Within the southeast of the field, a rectilinear enclosure has been detected containing possible internal features and an internal ring ditch (**A2**) measuring approximately 11m in diameter which shows a clear entrance. The HER records possible prehistoric activity within this field specifically due to the presence of twelve worked flints retrieved during an earlier phase of fieldwalking (HER 7902/0/0).

Further archaeological responses are present to the east in Field CF2 as a cluster of irregularly shaped, fragmentary enclosures (**A3**). Several possible archaeological linear anomalies are present in proximity to the stronger archaeological responses and are likely to represent a wider system of enclosure.

Isolated and fragmentary rectangular and sub-rectangular enclosures are also present within Fields CF3, CF5, and CF6 (**A4**, **A5**, **P1**, and **P2**) which are likely form part of a larger landscape of activity that includes the anomalies in Fields CF1 and CF2. The interpretation of prehistoric enclosure (**A5** and **P1**) in CF5 specifically is supported by HER records as 32 worked flints were retrieved from this field during an earlier phase of fieldwalking (HER 8335/0/0).

A small complex of very weak linear responses in the southwest of Field CF7 appear to create a cross-shaped intersection with fragmentary enclosed branches. The majority of features within this complex are incredibly faint and fragmentary. A geophysical survey was undertaken here in 2013-14 as part of an assessment for the Sywell Road Solar Farm (ENN108117) where possible Iron Age enclosures and other features were identified. Subsequent trenching (ENN108116) confirmed Iron Age activity.

Another area of archaeological activity has been recorded in Field EF9, consisting of a curvilinear ditch response with two partially D-shaped rectilinear enclosures appended on its northern side (**A7**), and fragmentary, smaller sub-circular and sub-rectangular enclosures. Further anomalies likely represent short segments of infilled ditches, with pits to the south, southeast, and east. A partially double ditched, large sub-circular enclosure (**A8**) measuring 28m in diameter is located to the south of **A7** and contains a large area of magnetic disturbance in its centre. Whilst this disturbance may be modern in nature, it may be possible that it has an archaeological given its location in the centre of **A8**. A single irregularly shaped ring ditch (**A6**) measuring 12.6m in diameter has been recorded to the west of **A7** and **A8**.

A group of anomalies within close proximity to each other have been detected within the east of Field EF4. These consist of a ring ditch measuring 11.8m in diameter (**A9**) and a partial square enclosure measuring 18m by 18m (**A10**). A larger three-sided enclosure measuring 40m in length, with an appended circular enclosure in its south-eastern corner (**A11**) is located directly south of **A9** and **A10**. Other linear anomalies and trends in the vicinity of **A9**, **A10**, and **A11** have been recorded as possible archaeology due to either their weak magnetic nature, incomplete patterns, or alignment with various modern cultivation trends.

A large complex of archaeological anomalies (**A12**) has been recorded in Field EF13 covering an area of approximately 142m by 70m and extends to the south in Field EF22. The archaeological anomalies are almost certainly settlement features that are located to the west of a southeast-northwest oriented trackway measuring 5.75m in width. The archaeological responses are clustered with numerous irregularly shaped enclosures, with some showing clear entrances and internal pit-like responses also present.

Several of the large areas of archaeological settlement activity which have been detected across Fields EF13 – EF22, EF24 - EF26, EF28 and EF31 are centred around a large complex of settlement features (**A20**) in EF20 and EF21 covering approximately 111m by 134m. Area **A20** contains multiple rectangular and sub-rectangular enclosures with internal features and smaller appended enclosures, which connect to other clusters of settlement features to the northwest (**A13-A16**), northeast (**A17-A19**, **A22**, and **A23**) and south/southeast (**A21**, **A24**, and **A25**) via a network of appended linear and curvilinear ditches.

A further larger complex of settlement features (**A22**) located to the east of **A20** primarily consist of several overlapping sub-rectangular enclosures and linear ditch alignments, some of which continue to the north into Field EF15 forming a further enclosure with internal subdivisions (**A17**). Of particular note is a large double ditched rectilinear enclosure measuring 60m by 60m in EF19 (**A23**) with an entryway on the western side and multiple possible internal pit-like responses. This group of anomalies has previously been recorded in the HER (HER 1977/0/10).

Directly to the east of **A22**, a strongly responsive pair of parallel linear anomalies oriented southeast-northwest (**P3**) have been detected which may be a large trackway or hollow-way which extends southeast into EF18 and north into EF16. The nature of the responses is similar to nearby geological responses, and interruption by a modern service pipe causes further uncertainty while an archaeological anomaly cannot be fully ruled out it may have been a natural landscape feature that has been used as a trackway.

A group of anomalies (**A18**) in the east of Field EF16 appear to form a large, fragmented enclosure with fragmentary internal subdivisions, with a smaller square enclosure appended to its southern edge, and a northeast-southwest oriented trackway which utilises part of the large, fragmented enclosure as its western boundary. In the west of Field EF17, a similar

array of archaeological settlement responses has been detected, consisting of several square and rectangular enclosures appended to each other. Unfortunately, a modern extant substation is situated between Fields EF16 and EF17, with several modern buried services branching out from it, which have masked part of both **A18** and **A19** making it difficult to establish whether there is a relationship between them.

A long curvilinear ditch response has been detected across Fields EF25, EF26, and EF18 in an east to west direction. This has multiple enclosures appended to its northern side (**A24**) along its western span and then to south (**A25**) along the eastern span. Enclosure **A24** is sub-rectangular, measures 38.1m by 23.8m, contains internal ditch and pit-like features, and has appended ring ditches on its west and east, each with an approximate diameter of 8.1m. A further set of rectangular enclosures appended to the north of the long curvilinear response are located to the east of **A24** within the boundary of EF25 and EF26. Whilst the western limits of these enclosures are clearly defined, a modern buried service masks the possible eastern extent.

The enclosures (**A25**) appended to the south of the long curvilinear ditch response (**A24**) in EF25, EF26 and EF18 are all appended to each other and contain an internal appended D-shaped enclosure measuring 11m by 18m, six separate internal ring ditches ranging from 6.5m diameter to 11.5m diameter, linear subdivisions, and multiple pit-like responses.

Directly to the north of **A25**, a separate trapezoid shaped enclosure (**A26**) has been detected measuring 31m by 19m at its wider end, narrowing to 31m by 10m at its narrower end. The southern side of **A26** has a clear entrance.

A large cluster of anomalies (**A27a**) have been recorded within the southwestern corner of Field EF25 and the northeast of Field EF31 (**A27b**). This group of anomalies consists large enclosures with internal divisions and internal discrete responses, with surrounding smaller sub circular, linear, and discrete responses. It is likely that the large enclosure **A27a** is the single ditched enclosure visible as a crop mark in the HER data (HER 1982/0/5). A small group of linear responses (**P4**) to the northeast may represent a different phase of occupation as they appear to be partially masked by the responses which make up **A27a**.

A further trackway is also recorded on the eastern side of the enclosure (**A27a**). This appears to be formed out of two linear anomalies that are approximately 6m apart, which may extend to the southeast and into Field EF28. The eastern ditch continues southeast to connect with a further group of archaeological responses (**A28** and **A29**). The western ditch turns southwest in EF28 to run parallel with a further northeast-southwest aligned linear ditch response, continuing as a double ditched trackway, although this is partly masked by a modern service pipe toward the western boundary of Field EF28. Within the northwest of Field EF28, possible archaeological anomalies (**P6**) in the form of partial square enclosures can be seen to

the west of the trackway. Responses which are part of **P6** did, however, share an orientation and magnetic strength with nearby agricultural responses.

Within the south of Field EF28, a large trapezoid shaped double ditched feature (**A28**) has been detected. This group of anomalies is likely to be related to the Roman ‘villa’ previously mentioned in the HER data (HER 1984/0/1). Directly to the east of **A28**, several large sub-rectangular appended enclosures (**A29**) have been detected which are very likely to be part of the same complex of settlement as **A28**.

In the northwest corner of Field EF27, several short linear responses appear to form a fragmentary rectangular enclosure (**P5**). These are partially masked by response **U6** and as such can only be suggested as possible archaeological responses.

Archaeological responses (**A29** and **A31**) recorded through Fields EF22 and EF24 consist of several large and small enclosures, linear ditches and pit-like anomalies lying to the west of an axial ditch to which the enclosures appear to be appended. This is likely to be connected to the complex of features **A27b** in Field EF31. A weaker linear trend (**P7**) runs on an approximate east to west orientations and is likely to be associated with **A27b** and **A31**.

A magnetically weak liner trend (**A30**) runs from the north of **A29** in Field EF22 to the southwest corner of the field EF22 and into EF24. It is likely to be a boundary of some sort as no archaeological responses have been recorded beyond this (within the immediate vicinity).

An isolated enclosure (**A32**) in Field EF24 measures approximately 18m by 18m and has a clear entrance in the west. A similar sized enclosure (**A33**) has also been recorded in Field EF31, again with an entrance in the west.

Further archaeological (**A34 - A37**) and possible archaeological features (**P8 - P11**) are located in the south of Field EF31, EF30 and EF32 forming fragmentary ditches and enclosures. Responses **A35** appear to form a double ditched enclosure surrounding a large circular feature which measures approximately 31m in diameter and also shows a central pit.

A large length of ditch (**P10**), on a southwest to northeast orientation through Field EF30, is almost certainly associated with the ditches in Field EF28. Due to the location of the service pipe, **P10** has been categorised as *possible archaeology*. Anomalies **P11** also within EF30 likely represent a rectangular enclosure, but due to the service pipe truncating it, the interpretation is cautious.

A rectangular enclosure (**A38**) has been recorded within Field EF23 and measures approximately 40m by 37m with a possible entrance along its southern arm. There is a clear ‘U’ shaped anomaly within the enclosure and some ditch-like responses, with latter interpreted as uncertain. It is unclear if these ditches are of a modern origin such as drains or are archaeological.

In the south of Field EF23, a rectangular enclosure (**A39**) along with smaller enclosures, ring ditches and pits can be seen. The larger enclosure measures approximately 27m by 70m and shows some internal features.

Several areas of archaeological activity have been recorded in Field EF33 which primarily consist of both complete and fragmentary ring ditches ranging between 4.5m in diameter to 9.5m in diameter (**A40**, **A41**, and **A42**) and a curvilinear ditch with appended enclosures directly south of **A40**. A larger ring ditch measuring 28m in diameter (**A43**) has also been identified at the southern boundary of the field which is almost certainly the remains of a ploughed out barrow mentioned in the HER (HER 1985/0/1). The majority of these features lie in an area of geological responses which is of a similar magnetic strength to the archaeological responses. Due to this, several responses which may be archaeological in nature have been suggested as possible archaeology or uncertain in nature.

The archaeological responses in Field EF34 proved difficult to unravel due to likely geological desiccation cracking. The archaeological activity consists of ditches **A44** showing at least two rectilinear enclosures and an oval shaped one. Towards the south of the field, enclosures **A45** and **A46** appear to be connected by a curving ditch (**A47**). A number of responses have also been recorded as possible archaeology due their difference in alignment to the *uncertain* anomalies.

Unfortunately, modern service pipes have masked part of the archaeology within Fields EF16, EF17, EF19, EF26, and EF28, making it difficult to obtain a full picture of the archaeological landscape within Green Hill E.

## 5 Conclusions

The geophysical survey has detected a number of magnetic anomalies associated with archaeological and possible archaeological responses, with a very high concentration within the southern half of Site E, with sporadic areas within Site C and to the north of Wilby Road in Site E. These comprise complex interconnected and multiphase settlement features, double ditched enclosures, ring ditches, linear ditches and trends, rectilinear enclosures, trackways, pit-like responses, and discrete features. The settlement activity detected is likely to be largely of an Iron Age/Roman date, but there is potential for anomalies identified in EF34 to relate to shrunken medieval village remains associated with Thorpe Wilby (HER 1975).

Many responses indicative of an active agricultural landscape including former field boundaries, medieval/post-medieval ridge and furrow cultivation, modern ploughing and land drains have been detected throughout.

Magnetic disturbance within the dataset can be attributed to adjacent tracks and metal fencing within field boundaries. A modern substation and the buried service pipes associated with it have also been recorded. Uncertain anomalies recorded within the data are generally considered to be geological or caused by agricultural activity.

Geological responses seen within the dataset reflect either the topography of the site, possible quarrying, sub-surface fluid dynamics, discrete pockets of natural variations and geological desiccation cracking.

Based on the geophysical survey, the archaeological potential of this Site is deemed to be high within the southern half of Site E and where there are sporadic areas of activity, and low elsewhere.

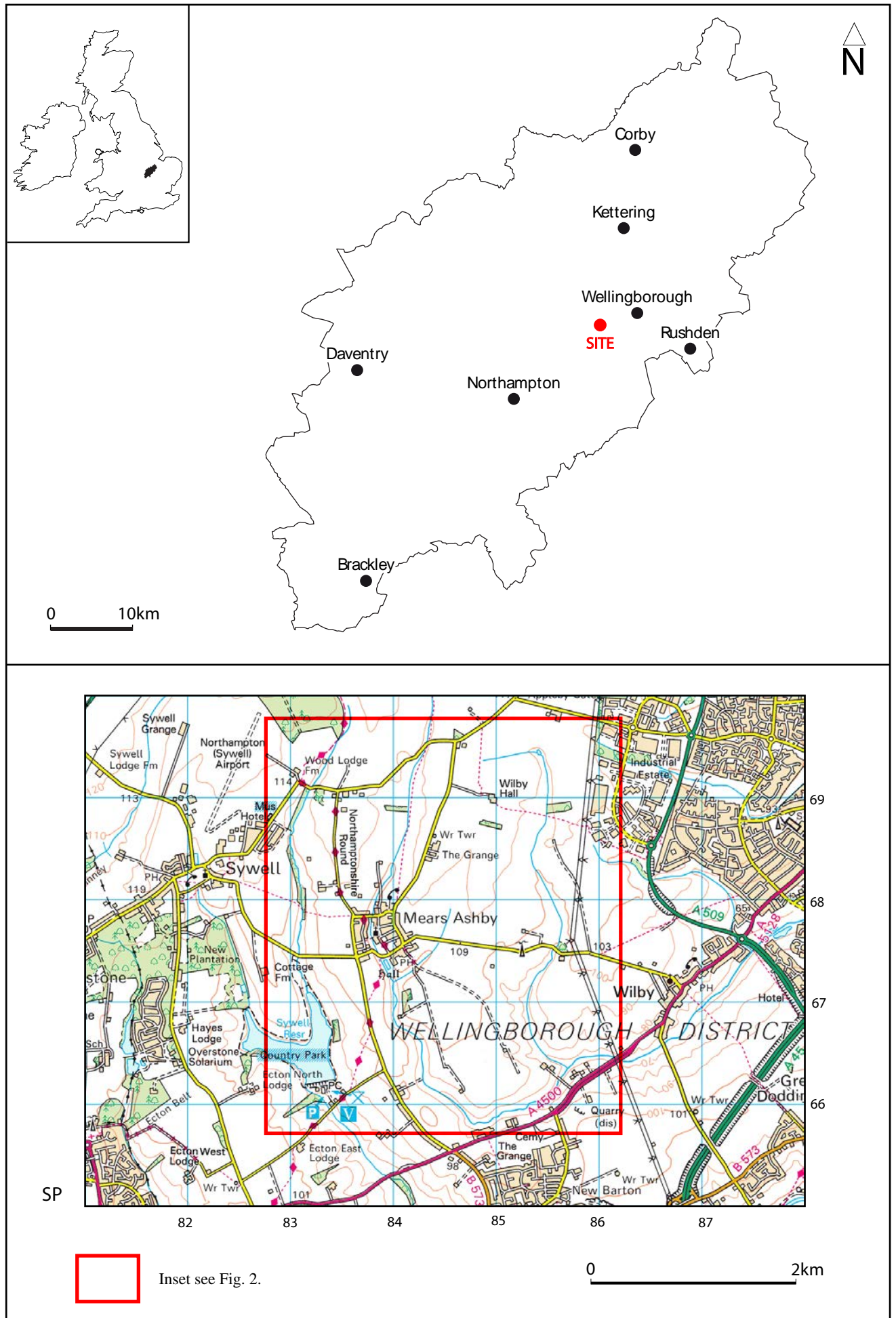
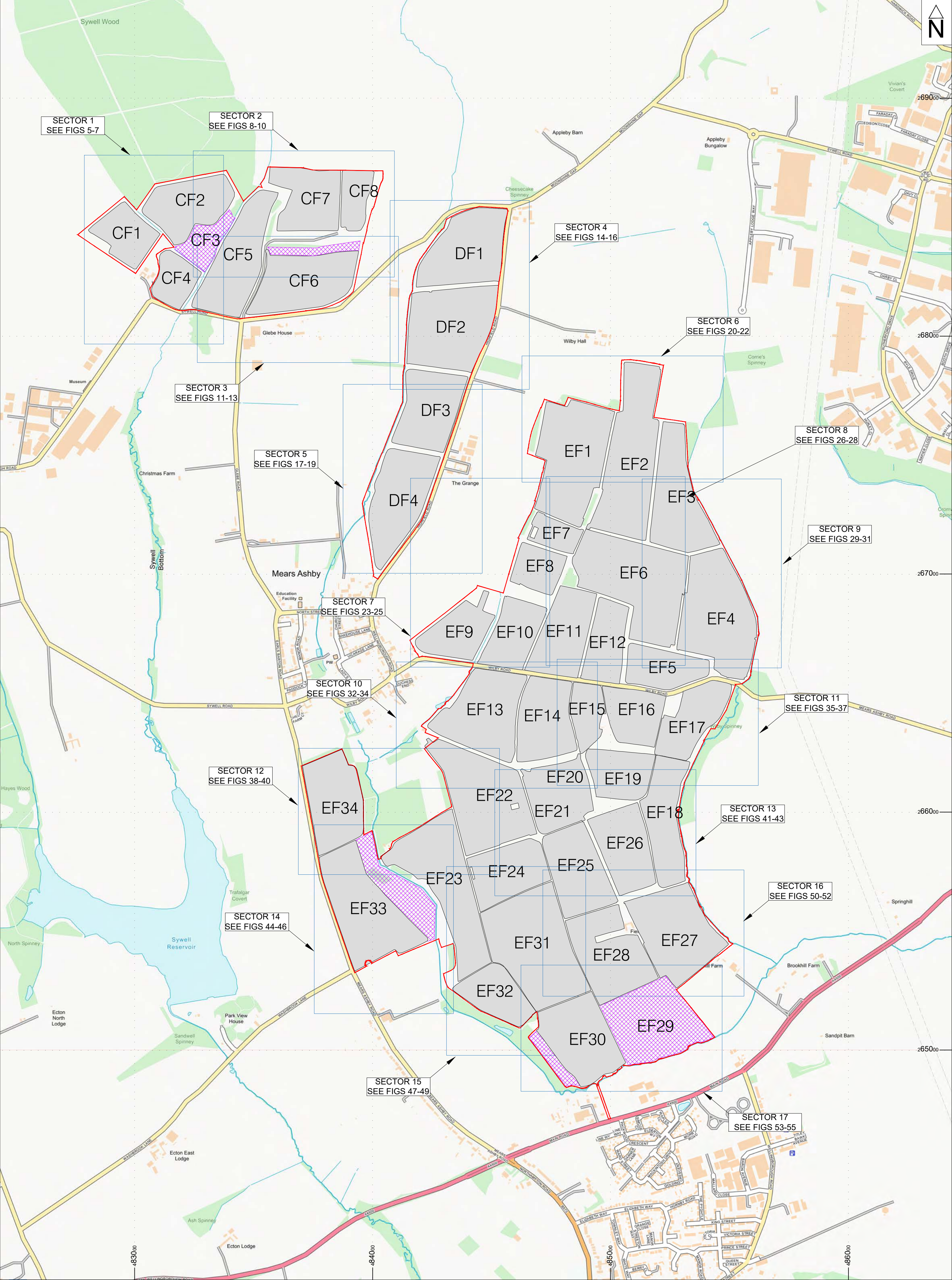


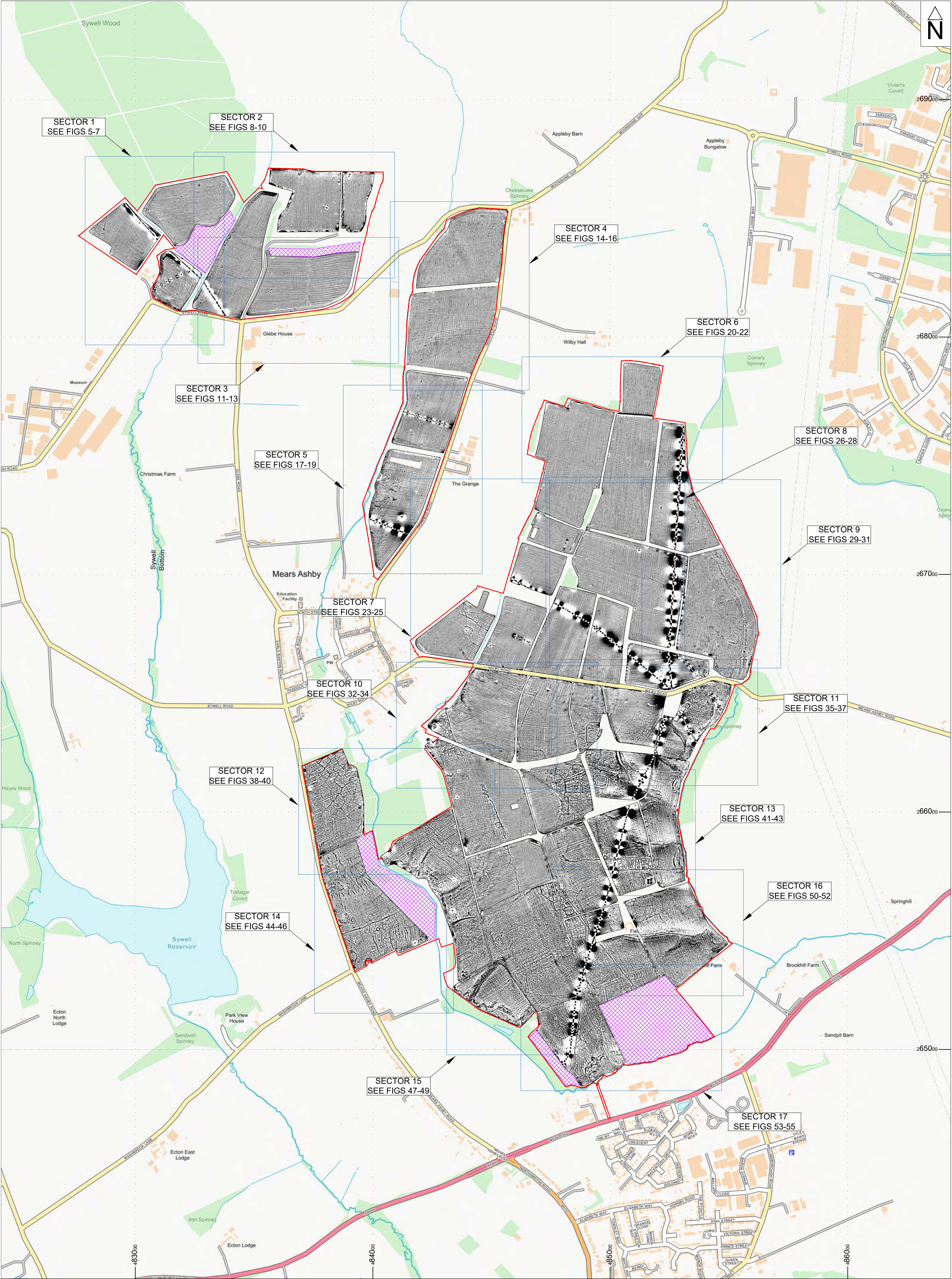
Fig. 1. Site location

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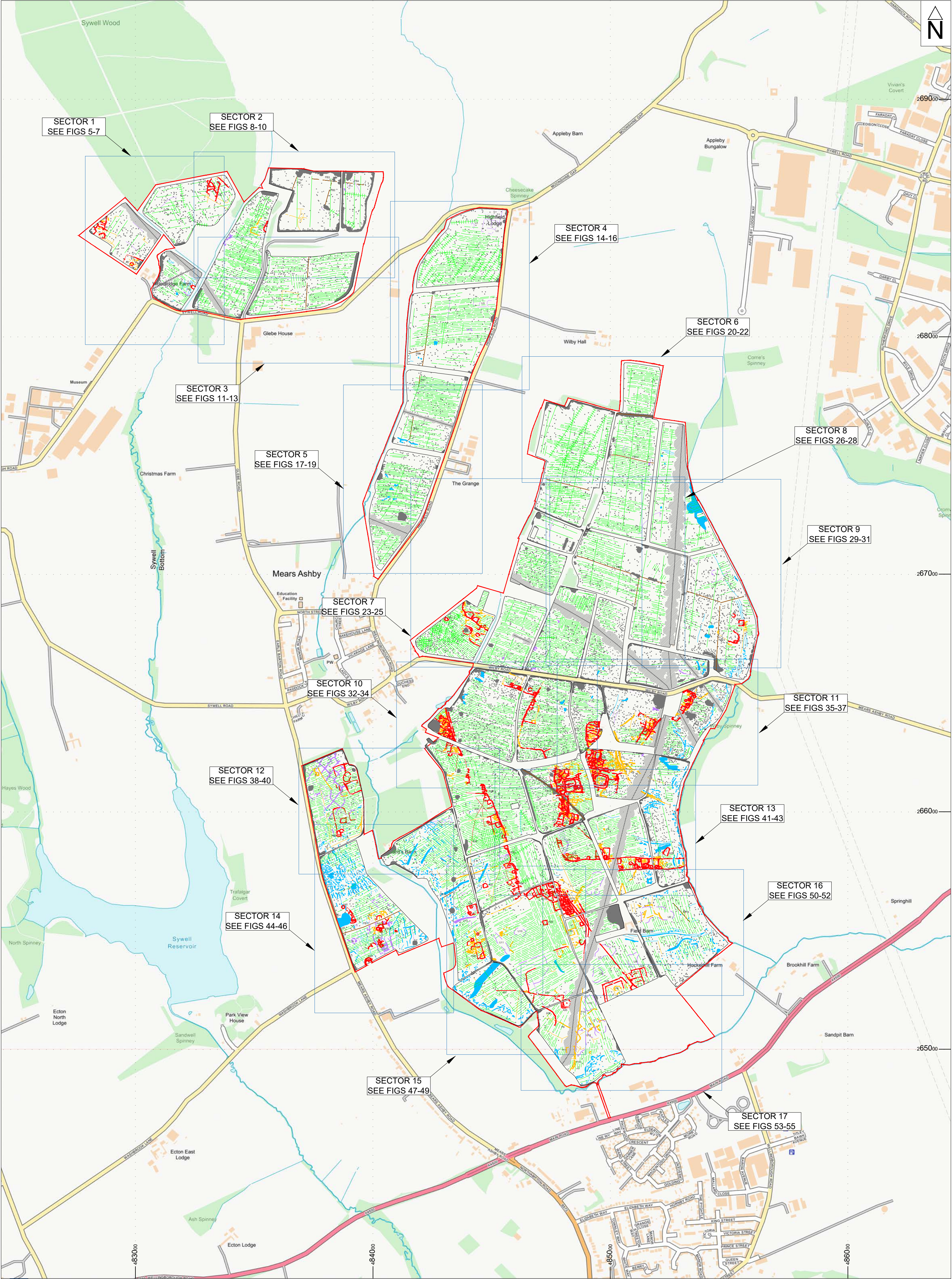



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Fig. 3




















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Project ID: XK77\_EXG23 Areas C,D,E

Overall Interpretation of magnetometer data

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| Title   |                 | Interpretation  |                      |   |                |   |                       |   |              |
|---|-----------------|---|----------------------|---|----------------|---|-----------------------|---|--------------|
|  | SURVEY AREA     |  | FERROUS              |  | FIELD DRAIN    |  | FORMER FIELD BOUNDARY |  | ARCHAEOLOGY? |
|  | SECTOR BOUNDARY |  | SERVICE PIPE         |  | RIDGE & FURROW |  | GEOLOGY               |  | ARCHAEOLOGY  |
|   |                 |  | MAGNETIC DISTURBANCE |  | AGRICULTURAL   |  | UNCERTAIN             |   |              |



0 400m

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Fig. 4

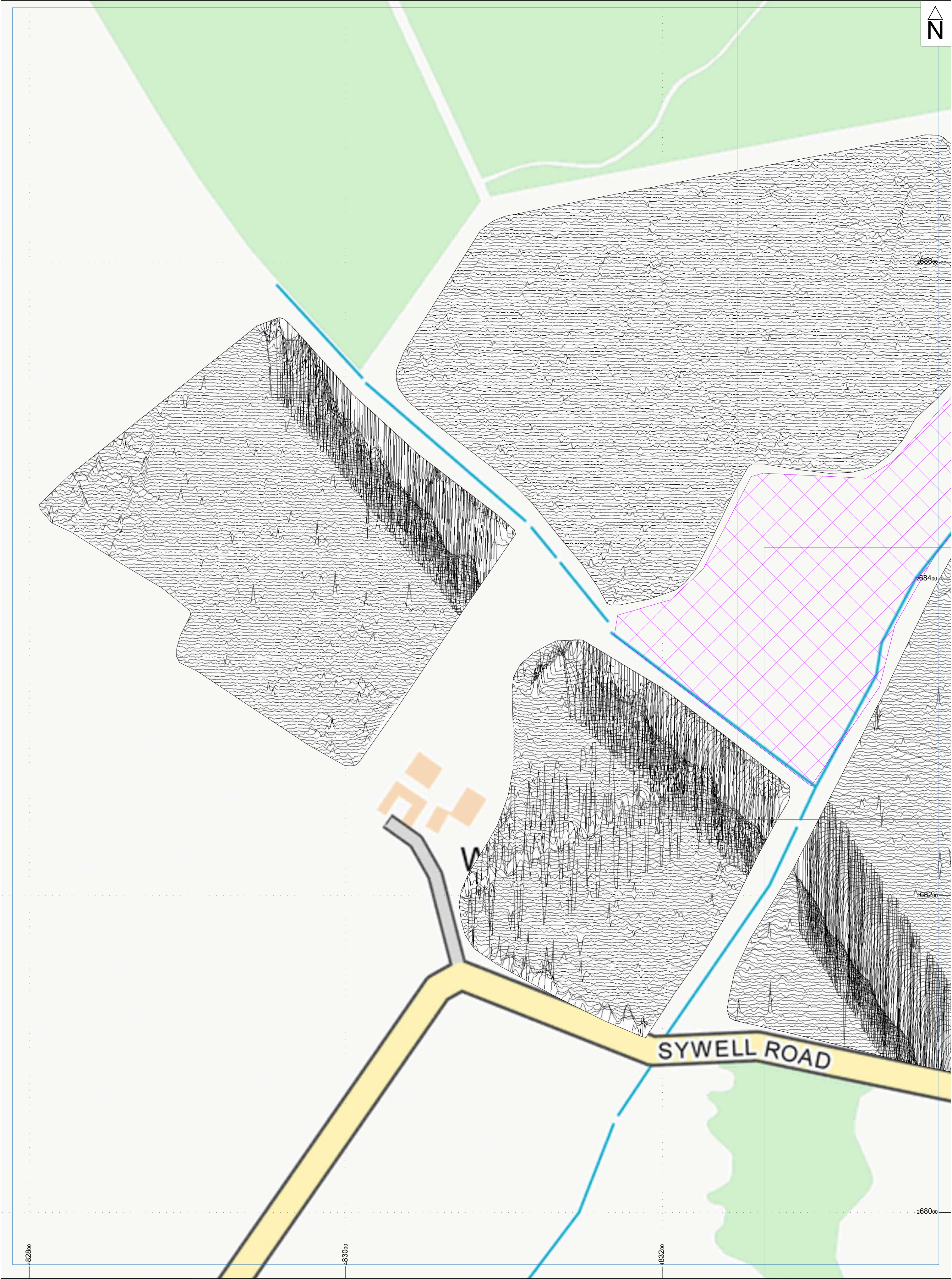




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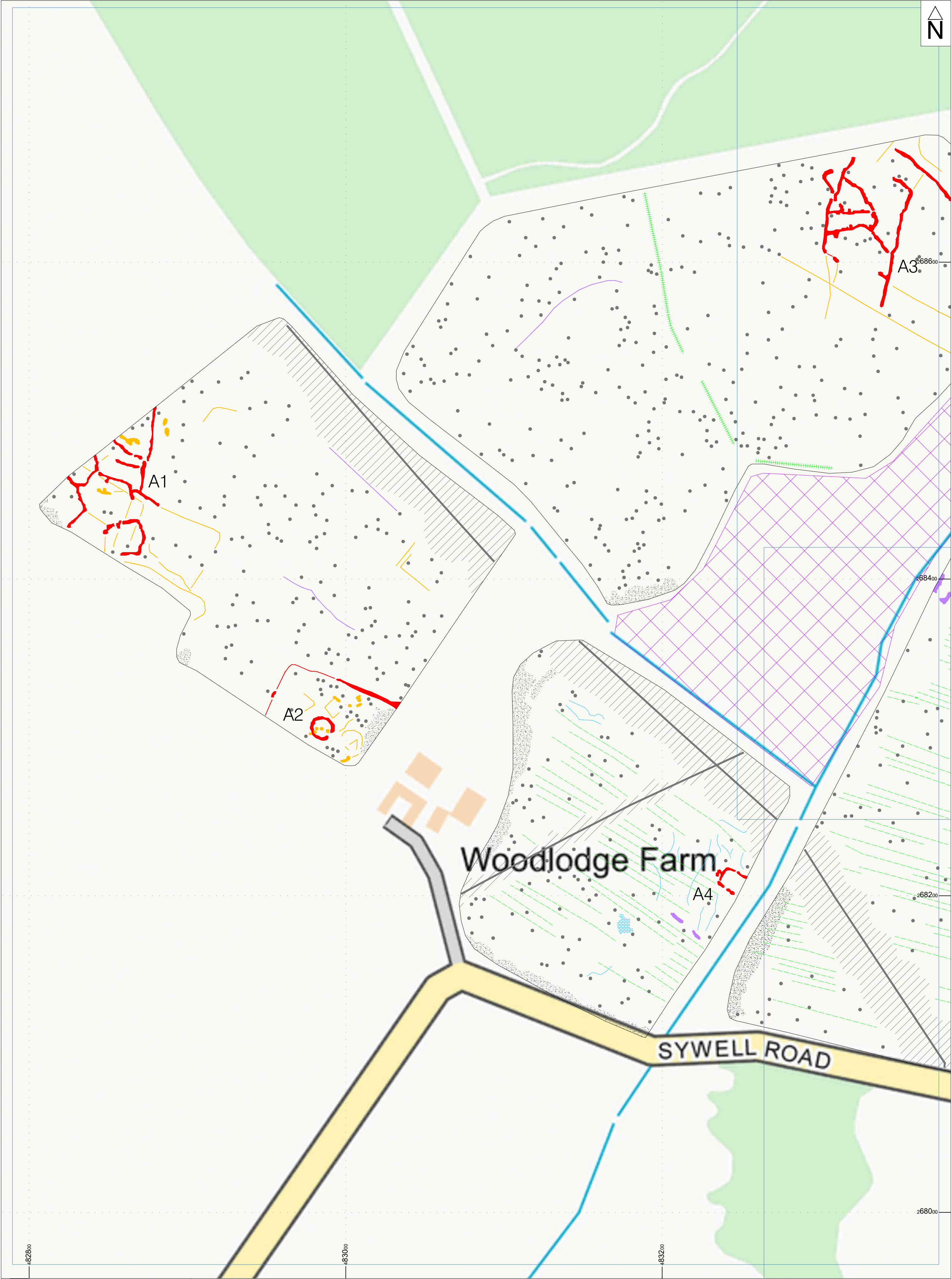














| Title |                       |
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| Title   |                       | Interpretation  |                      |   |                |
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|  | SECTOR BOUNDARY       |  | FERROUS              |   | FIELD DRAIN    |
|  | UNSUITABLE FOR SURVEY |  | SERVICE PIPE         |   | RIDGE & FURROW |
|   |                       |  | MAGNETIC DISTURBANCE |   | AGRICULTURAL   |
|   |                       |   |                      |  | GEOLOGY        |
|   |                       |   |                      |  | UNCERTAIN      |
|   |                       |   |                      |  | ARCHAEOLOGY?   |
|   |                       |   |                      |  | ARCHAEOLOGY    |





| Title |                       |
|-------|-----------------------|
|       | SECTOR BOUNDARY       |
|       | UNSUITABLE FOR SURVEY |





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Fig. 8





| Title   |                       |
|---|-----------------------|
|  | SECTOR BOUNDARY       |
|  | UNSUITABLE FOR SURVEY |

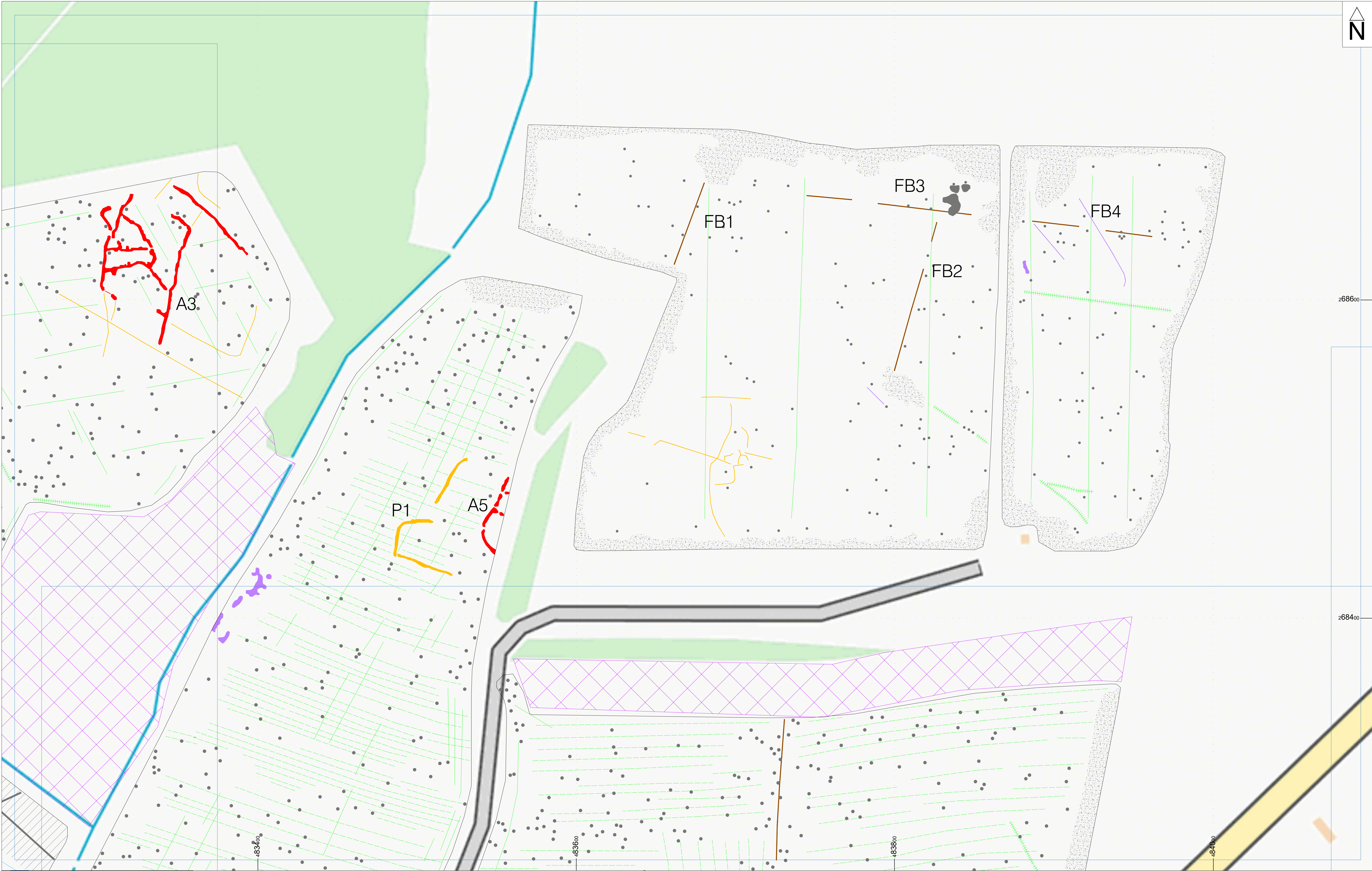
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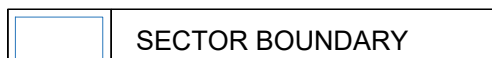
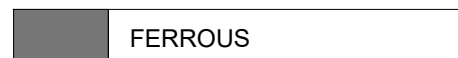

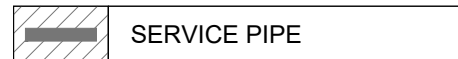
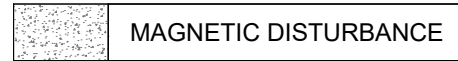

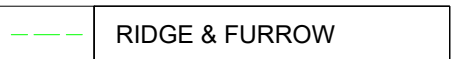


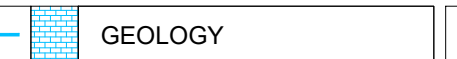


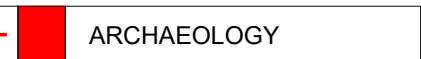
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Fig. 9





| Title   |                       | Interpretation  |                       |
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|  | UNSUITABLE FOR SURVEY |    | SERVICE PIPE          |
|   |                       |    | MAGNETIC DISTURBANCE  |
|   |                       |   | FIELD DRAIN           |
|   |                       |   | RIDGE & FURROW        |
|   |                       |   | AGRICULTURAL          |
|   |                       |  | FORMER FIELD BOUNDARY |
|   |                       |  | GEOLOGY               |
|   |                       |  | UNCERTAIN             |
|   |                       |  | ARCHAEOLOGY?          |
|   |                       |  | ARCHAEOLOGY           |





| Title |                       |
|-------|-----------------------|
|       | SECTOR BOUNDARY       |
|       | UNSUITABLE FOR SURVEY |



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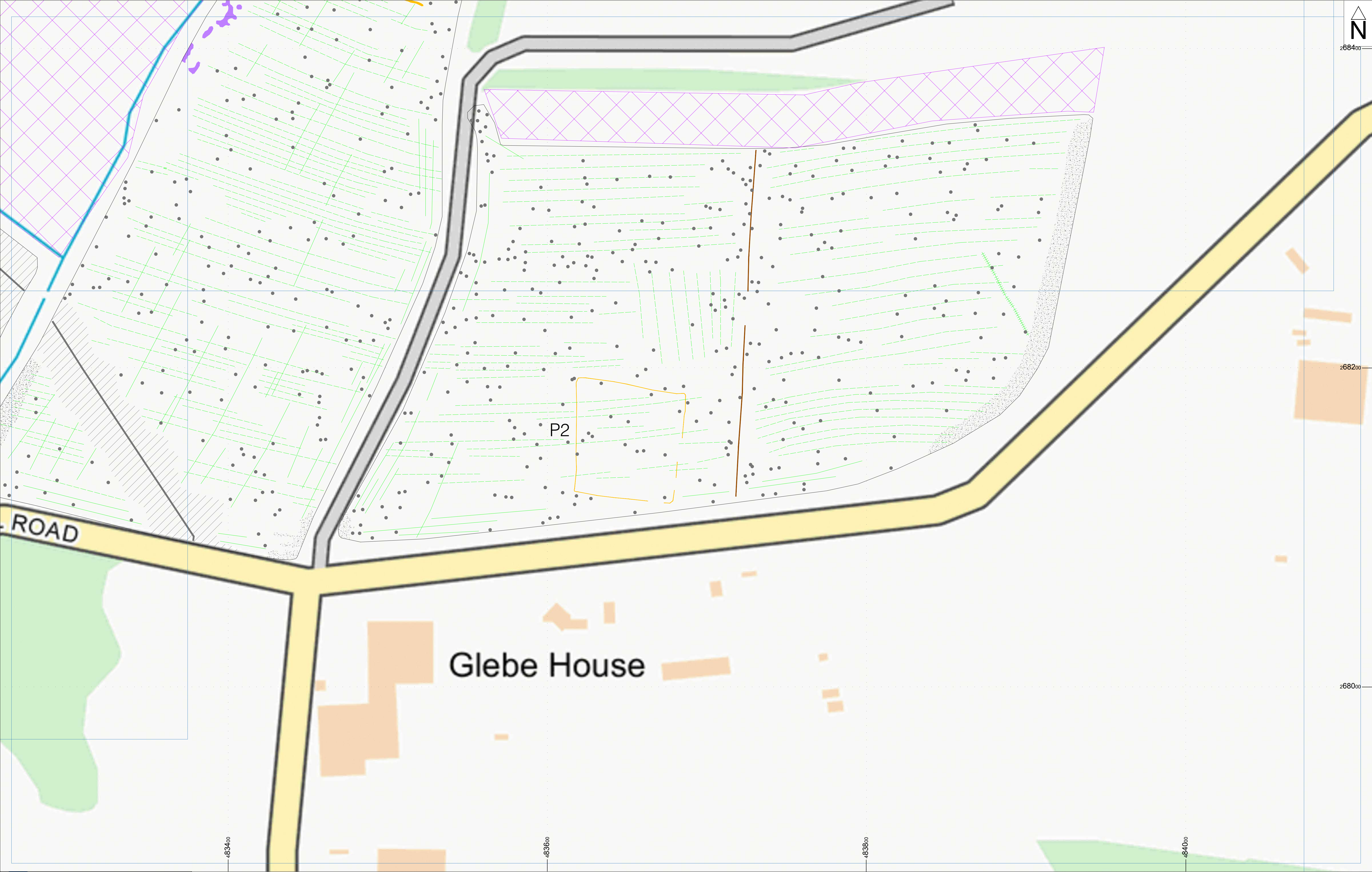
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Fig. 11



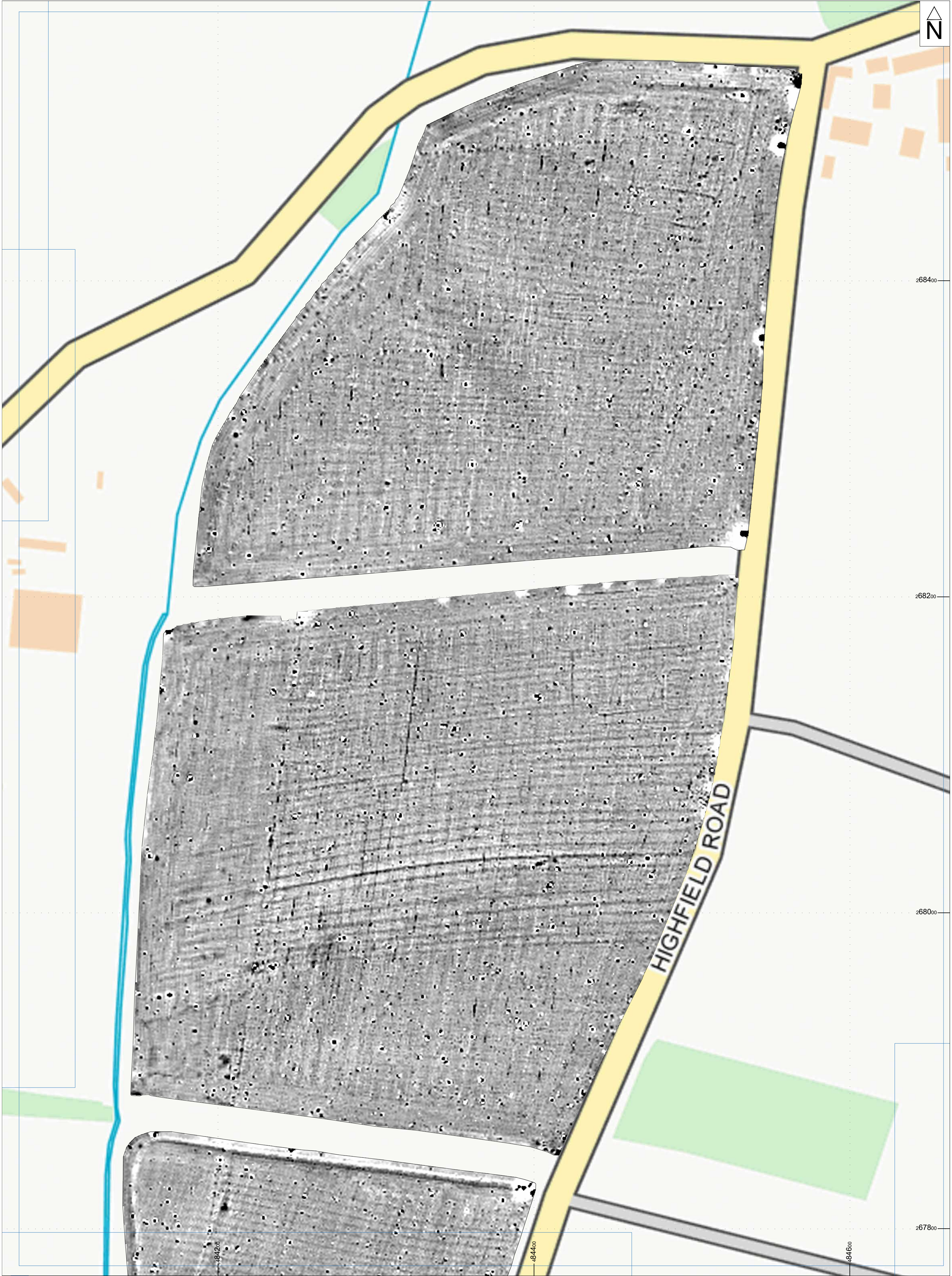




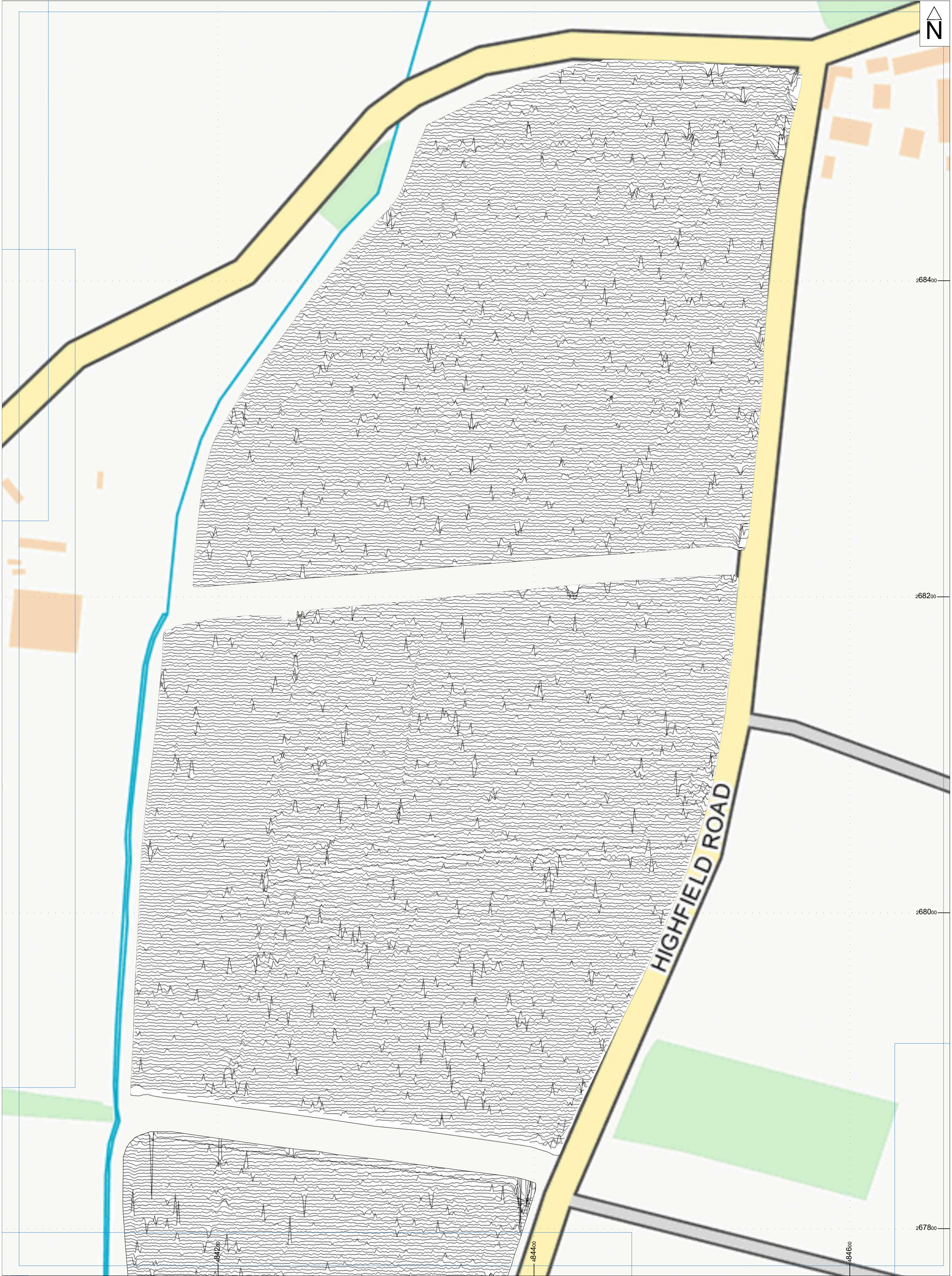


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|       | UNSUITABLE FOR SURVEY |                | SERVICE PIPE          |  | RIDGE & FURROW |
|       |                       |                | MAGNETIC DISTURBANCE  |  | AGRICULTURAL   |
|       |                       |                | FORMER FIELD BOUNDARY |  | UNCERTAIN      |
|       |                       |                | ARCHAEOLOGY?          |  |                |









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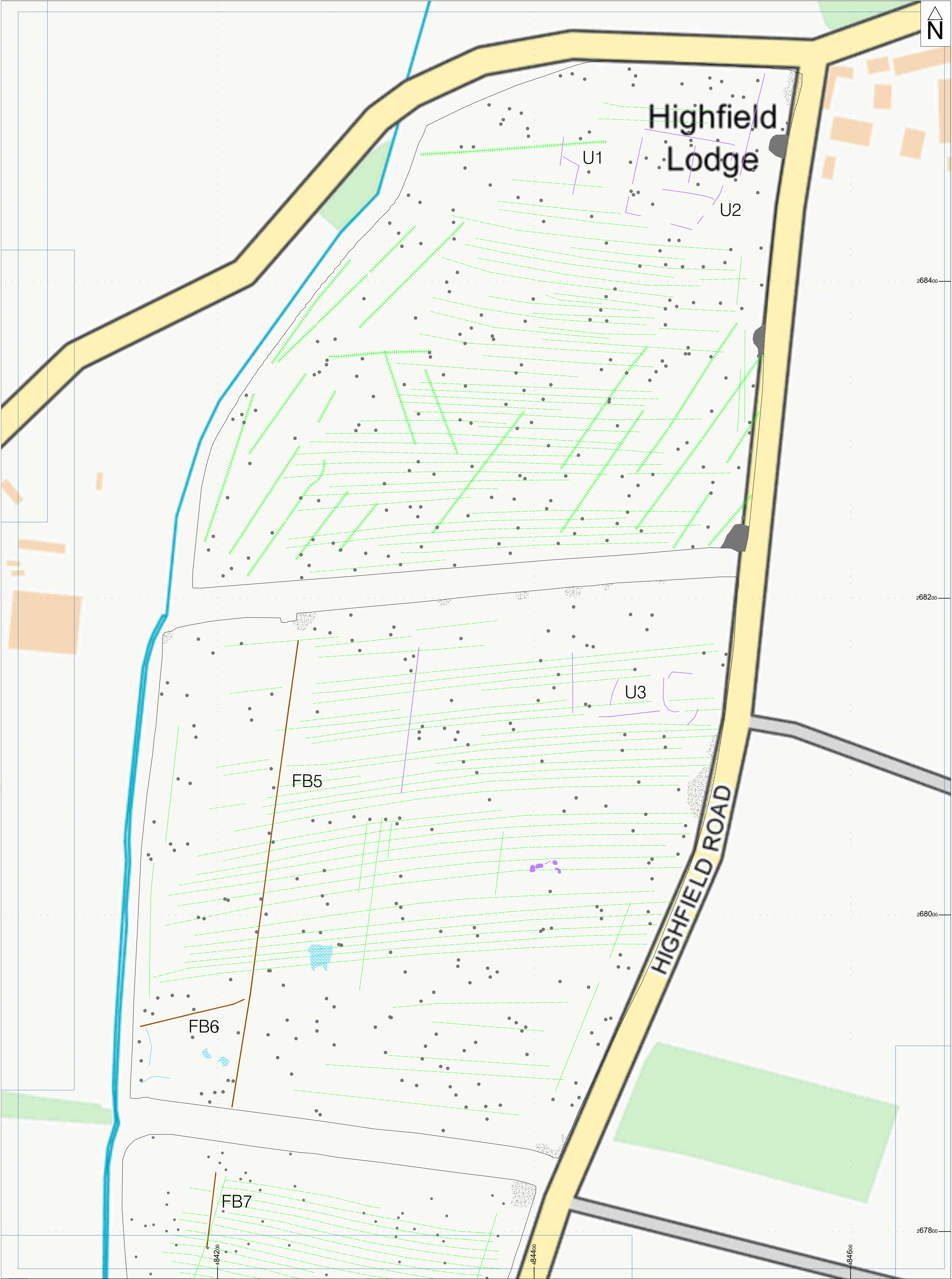
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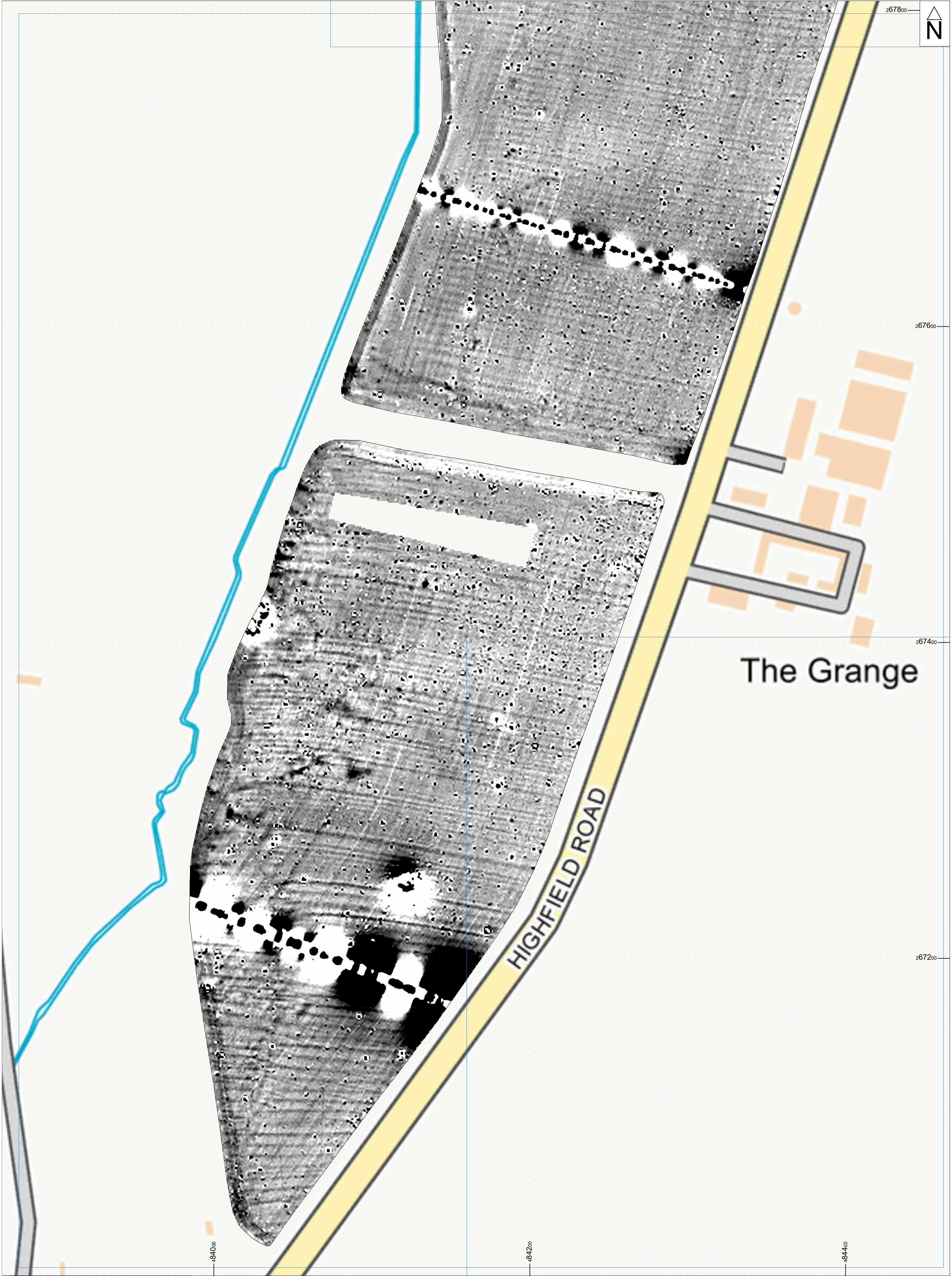
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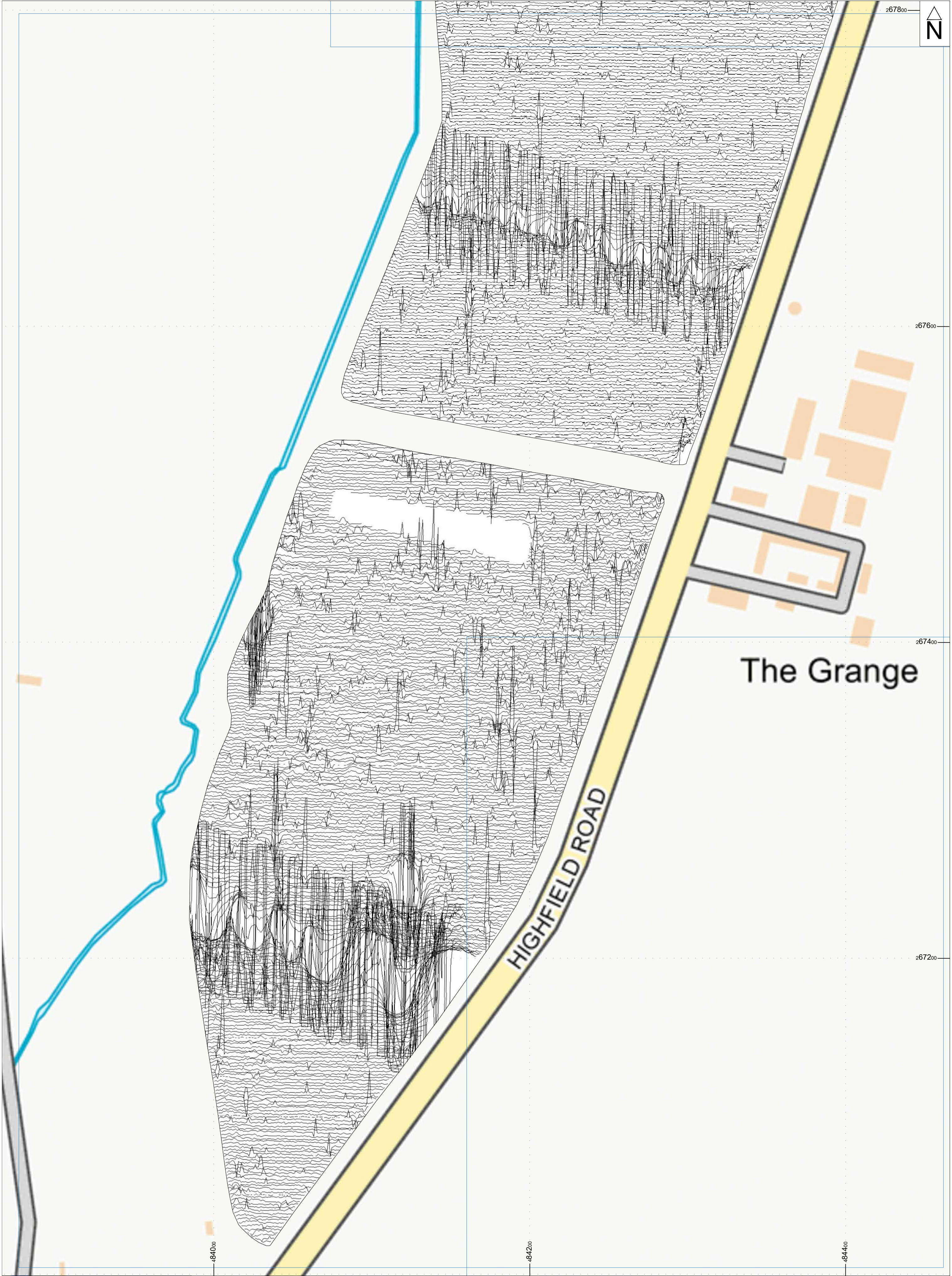


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|       |                 |                | MAGNETIC DISTURBANCE |  | AGRICULTURAL          |
|       |                 |                | FIELD DRAIN          |  | FORMER FIELD BOUNDARY |
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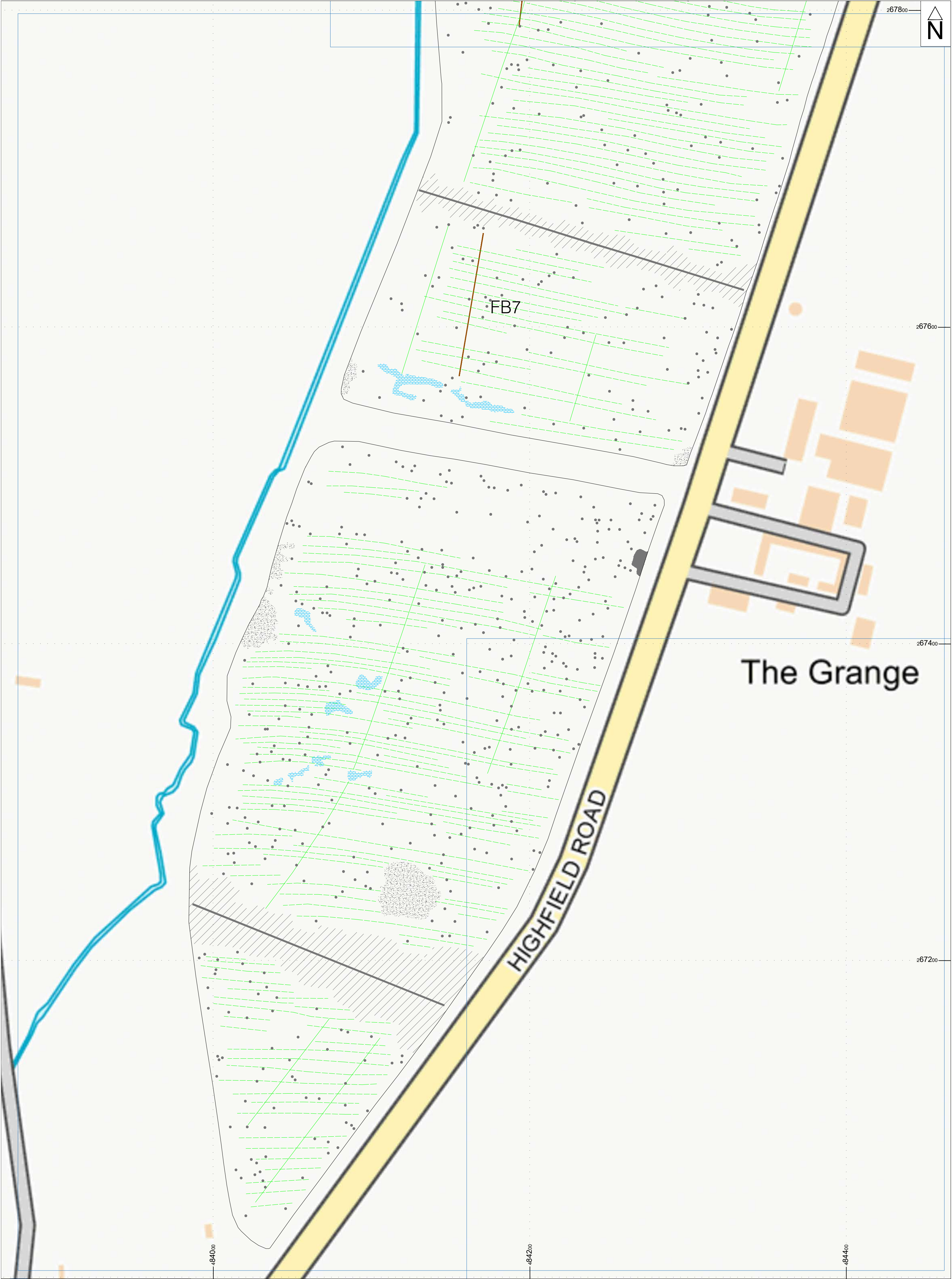













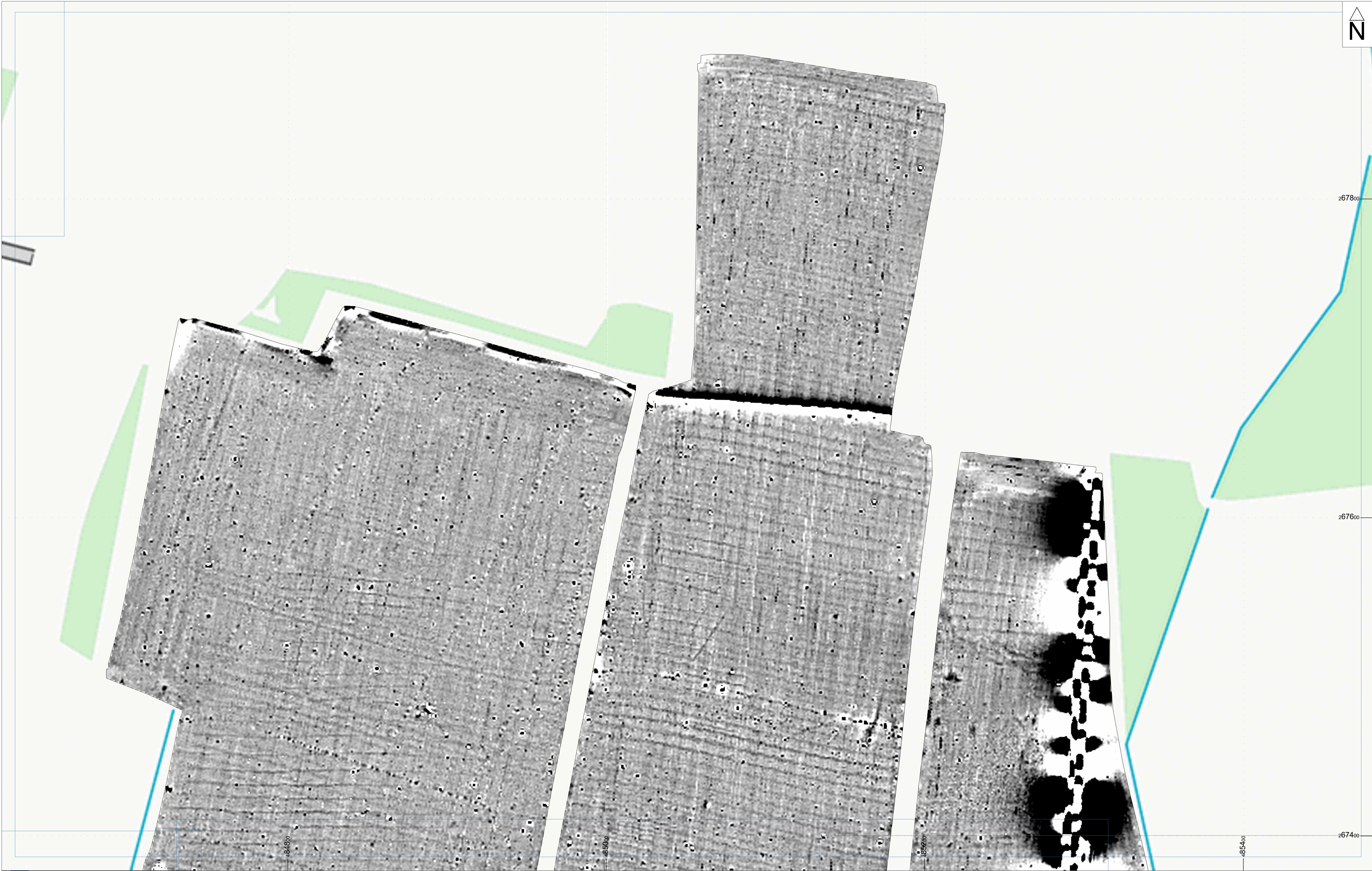







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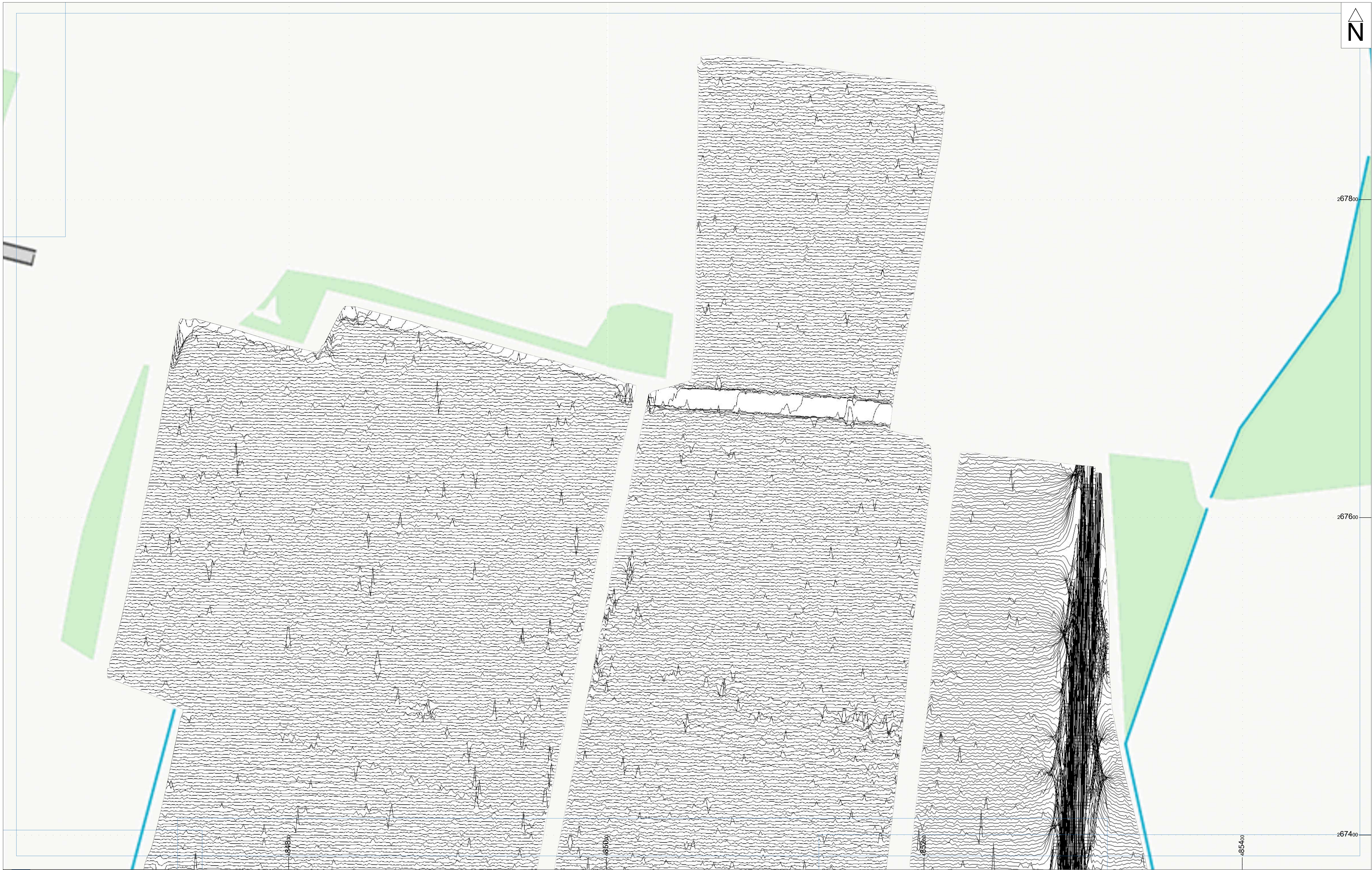


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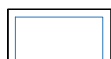













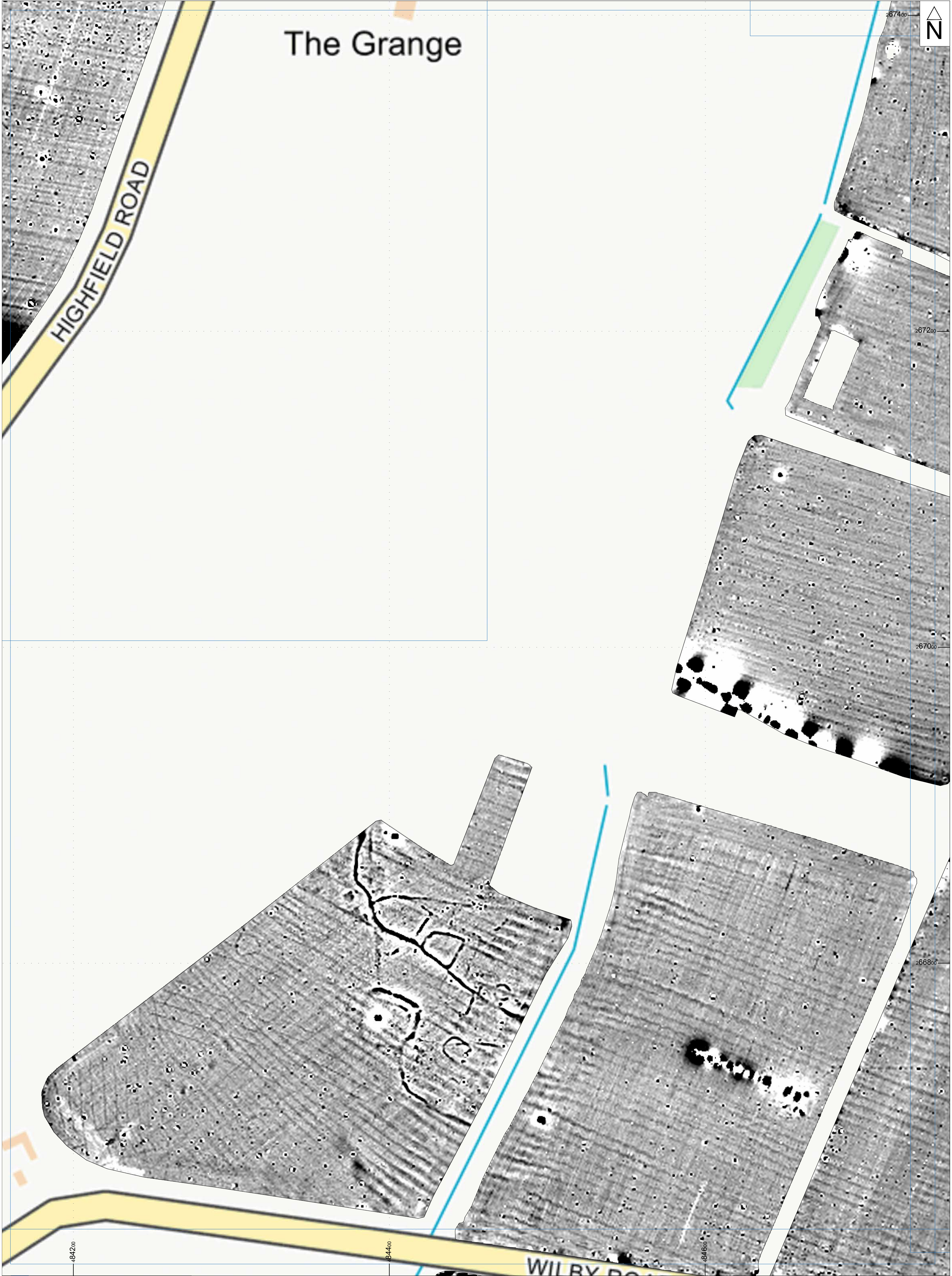




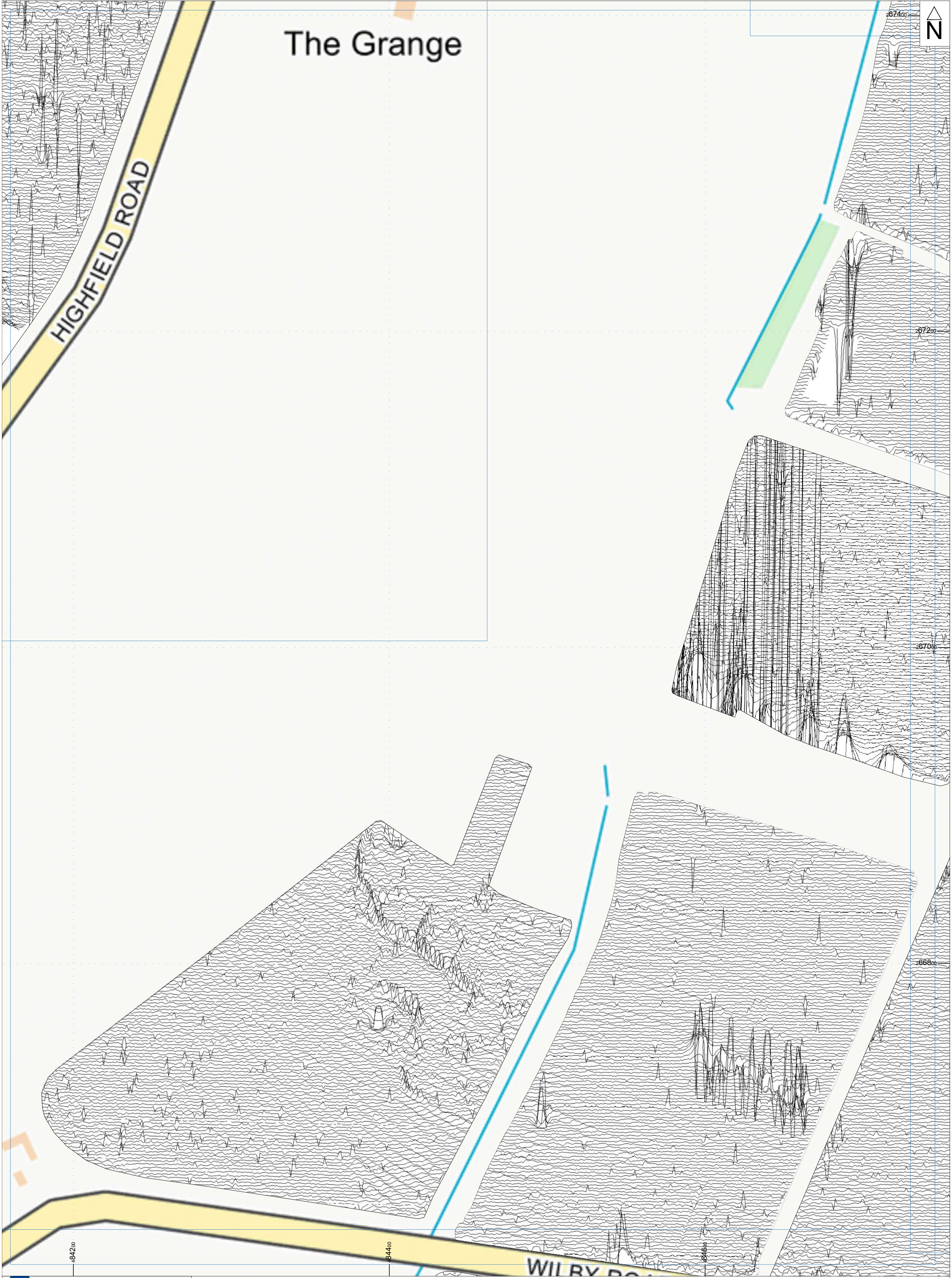


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|   |                 |  | MAGNETIC DISTURBANCE |   | AGRICULTURAL          |
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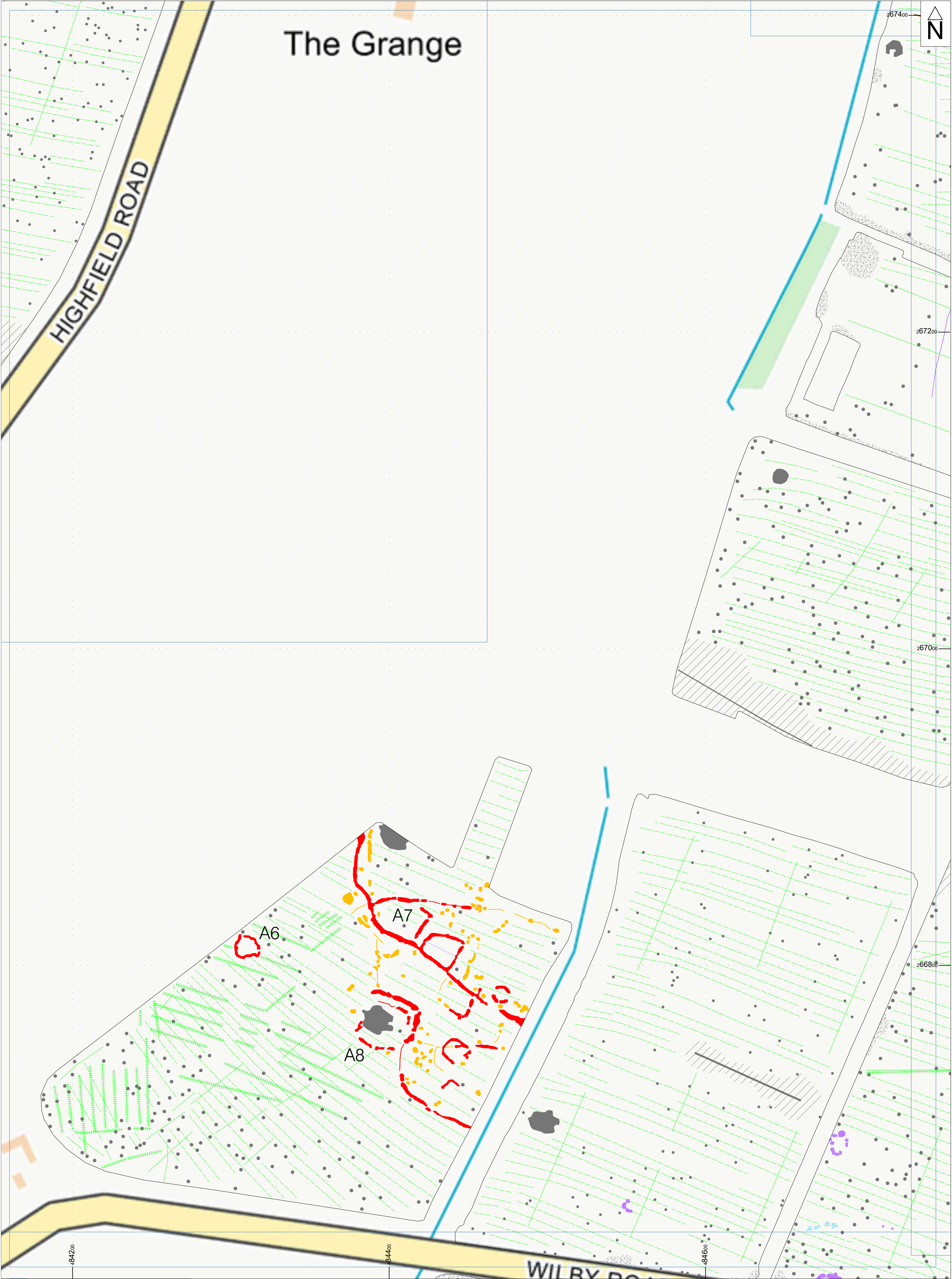
























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|  | SERVICE PIPE         |  | RIDGE & FURROW |  | GEOLOGY     |  | ARCHAEOLOGY?          |
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Title

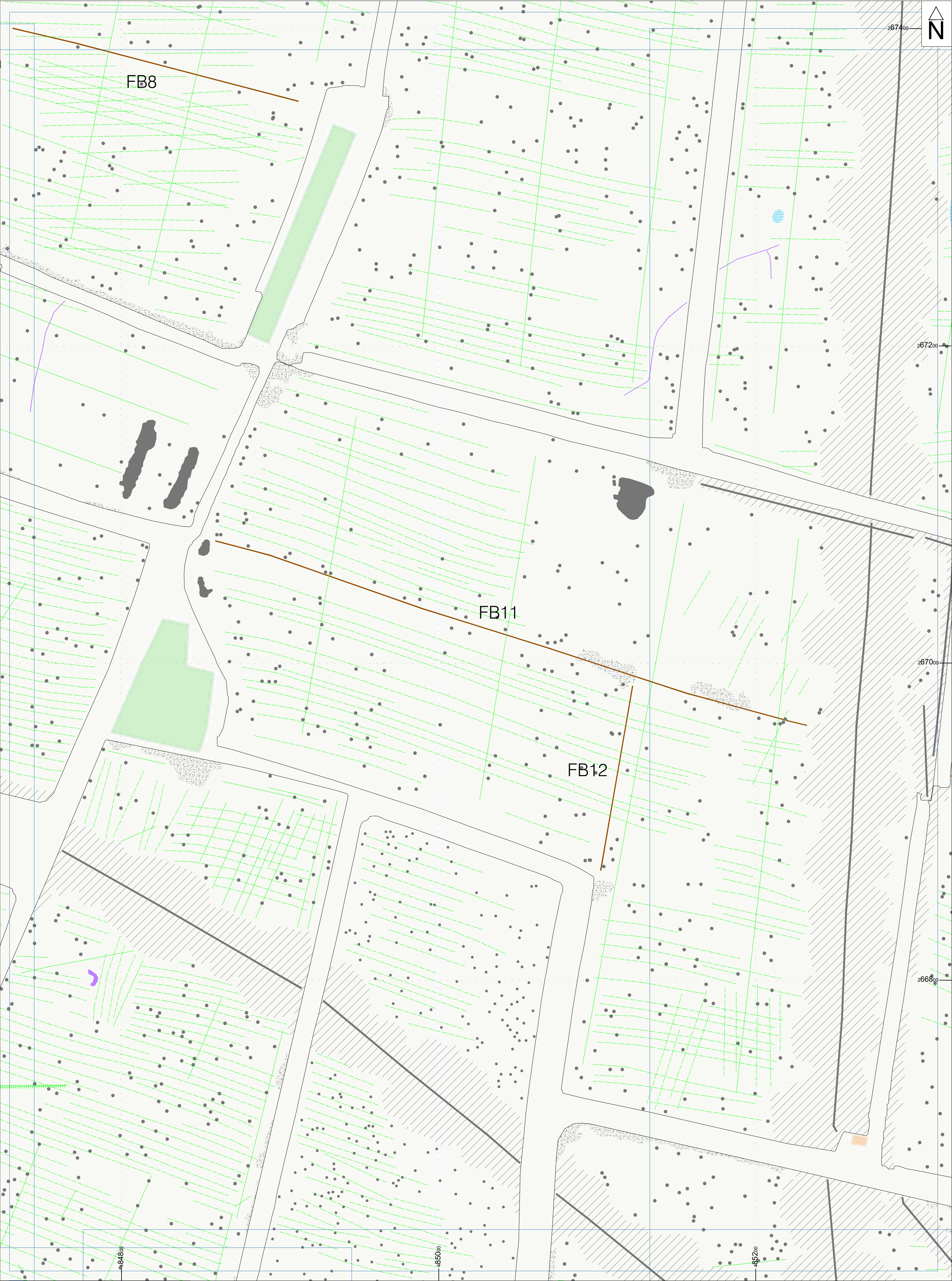
 SECTOR BOUNDARY











15.0 nT/cm

0 50m

1:1500 @ A2





| Title   |                 | Interpretation  |                      |  |                |   |                       |
|---|-----------------|---|----------------------|--|----------------|---|-----------------------|
|  | SECTOR BOUNDARY |  | FERROUS              |  | FIELD DRAIN    |  | FORMER FIELD BOUNDARY |
|   |                 |  | SERVICE PIPE         |  | RIDGE & FURROW |  | GEOLOGY               |
|   |                 |  | MAGNETIC DISTURBANCE |  | AGRICULTURAL   |  | UNCERTAIN             |





Title

SECTOR BOUNDARY



0 50m

1:1500 @ A2





Title

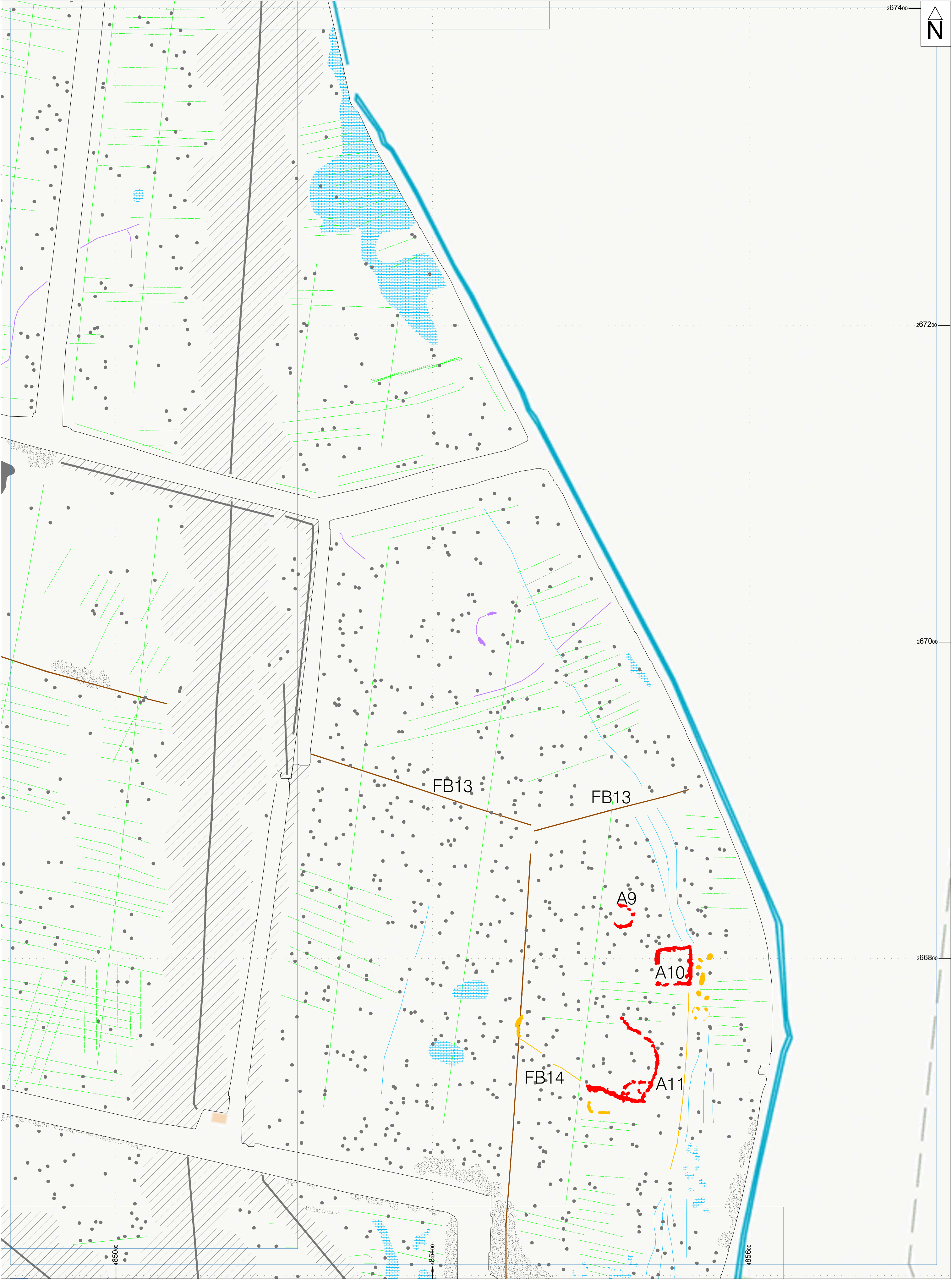
SECTOR BOUNDARY


15.0 nT/cm

0 50m

1:1500 @ A2



















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Project ID: XK77\_EXG23 Areas C,D,E

Interpretation of magnetometer data; Sector 9

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Fig. 31

| Title   |                      | Interpretation   |                |   |             |   |                       |
|---|----------------------|--|----------------|---|-------------|---|-----------------------|
|  | SECTOR BOUNDARY      |   | FERROUS        |   | FIELD DRAIN |  | FORMER FIELD BOUNDARY |
|  | SERVICE PIPE         |  | RIDGE & FURROW |  | GEOLOGY     |  | ARCHAEOLOGY?          |
|  | MAGNETIC DISTURBANCE |  | AGRICULTURAL   |  | UNCERTAIN   |  | ARCHAEOLOGY           |

0 50m  
1:1500 @ A2



