

**Harlands Farm,  
Uckfield, East Sussex**

**Report on Archaeological Geophysical Survey  
2011**

**Surveyed by:**

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## **Harlands Farm, Uckfield, East Sussex**

### **Report on Archaeological Geophysical Survey 2011**

#### **Introduction**

This geophysical survey was carried out as part of an archaeological field evaluation of a proposed development site at Harlands Farm near Uckfield. The survey is required to satisfy a condition attached to planning application WD/2006/2171/MAO, and has been commissioned by The Environmental Dimension Partnership (EDP) of Cirencester on behalf of Gallagher Estates. Results from these investigations will help determine whether further archaeological works are necessary. The present report relates only to the geophysical component of the evaluation.

#### **The Site**

The site has been the subject of an Archaeological Desk Based Assessment [DBA] by The Environmental Dimension Partnership [1]. The following notes on site conditions and previous archaeological findings are reproduced and summarised from this report.

#### *Location and Topography*

The site forms an irregularly shaped parcel of land to the north of Harlands Farm. It consists of a single field of recently cut grassland, and is situated on relatively high ground to the east of a modern housing estate and immediately south of a small community hospital and car park. The western and southern boundaries are defined by mature hedgerows, whilst the northern boundary is defined by a metal fence and some remaining hedgerow, separating the site from the hospital car park. The land slopes gently to the east, falling from about 40m to 35m AOD, down to a strip of mature woodland within a shallow stream valley, which forms the eastern boundary of the site. A strip of between 5 and 10m adjacent to this woodland and within the application boundary has been fenced off and was too overgrown to survey. The site is centred on NGR TQ 480 205 and its location and layout are shown in Figure 1.

The underlying geology of Uckfield and its surrounding area comprises mainly sedimentary sandstones, siltstones and mudstones of the Hastings Beds. To the south of the town the geological formation comprises successive narrow bands of Ardingly Sandstone, the Grinstead Clay Member and the Upper Tunbridge Wells Sand Formation. There are alluvial drift deposits by the River Uck, and their extent suggests that the river was formerly more extensive than it is today. Within the site itself, alluvium deposits are likely to be concentrated in the east, where two small streams flow side by side north past the boundary.

The response to be expected from a magnetometer survey on clay and sandstone geology is unlikely to be particularly strong, but equally there should be little natural background magnetic

activity to interfere with or obscure the findings. It is unlikely that a significant archaeological site, particularly one of Roman or late prehistoric date as mentioned below, would remain entirely undetected, but it may be the case that settlement or industrial features will be more readily identifiable than isolated boundaries or earthworks which may lack magnetically enhanced fill.

### *Archaeological Background*

There are no known archaeological sites or findings recorded in the East Sussex HER from prehistoric or Romano-British periods within the site or the wider study area which was reviewed in the DBA (with the exception of a Mesolithic flint find spot recorded to the south west of the site).

There is evidence beyond the study area to indicate both prehistoric and Roman activity in the general environs of the site. This includes Neolithic and late Bronze Age activity in the river valleys, and later Iron Age and Roman activity focused on the Wealden iron industry, particularly where deposits of ore were exposed by river and stream valleys. Although none are recorded in the immediate or wider area of the site, Roman mineral extraction sites are recorded (perhaps c. 2km) further north along the shallow stream valley that forms the eastern boundary.

It is therefore concluded in the DBA that the site has low potential to contain archaeological remains, although it is recognised that its topography, on high ground adjacent to the Chalybeate Spring, may indicate that it possesses some limited potential for deposits associated with prehistoric and/or Romano-British settlement or industrial activity.

The site appears to have been in agricultural use from at least the Middle Ages onwards. Maps dated from 1782 to 1874 show a now-removed field boundary towards the north of the site, but the evaluation area is now a single pasture field. This appears to be the case also in aerial photographs taken in the 1940s and later.

### **Survey Procedure**

The methods used for this geophysical investigation were recorded magnetometer surveying, supplemented by background magnetic susceptibility testing. Procedures for both techniques were as described in the Written Scheme of Investigation for the project [2].

#### *Magnetometer survey*

The magnetometer readings were collected along transects 1m apart using Bartington 1m fluxgate gradiometers, and are plotted at 25cm intervals along each transect. The results of the survey are presented as a grey scale plot (figure 1), and as a graphical (x-y trace) plot at 1:1250 scale in figure 2. An interpretation of the findings is shown superimposed on figure 2, and is reproduced separately to provide a summary of the findings (figure 3).

The survey plots show the magnetometer readings after standard treatments which include adjustment for irregularities in line spacing caused by variations in the instrument zero setting, and

slight linear smoothing. Additional 2D low pass filtering has been applied to the grey scale plot to reduce background noise levels.

Colour coding has been used in the interpretation to distinguish different effects. The interpretation is intended to be schematic and illustrative, and not to reproduce the detail of the grey scale plots. Features are indicated by coloured outlines, or broken lines.

A small number of magnetic anomalies which are not of clearly recent or natural origin are outlined in red. Features of uncertain, and possibly natural, origin are shown in a light brown. Groups of strong magnetic anomalies which are likely to be of recent origin are shown in dark brown. Other linear markings representing cultivation effects are indicated by broken green lines. Strong magnetic anomalies which appear to represent iron objects, and pipes, are in blue.

### *Magnetic susceptibility tests*

The magnetometer survey was supplemented by a background magnetic susceptibility survey based on readings taken at 30m intervals with a Bartington MS2 meter. Susceptibility readings can (sometimes) be used to provide a broad indication of previously occupied or disturbed areas in which burning associated with past human occupation has enhanced the magnetic susceptibility of the topsoil, although the readings are usually affected also by non-archaeological factors, including geology and land use. A background survey of the kind done here is unlikely to provide any direct evidence for the presence or otherwise of archaeological features, but is undertaken to test the (largely) geologically determined magnetic properties of the soil. This information provides an indication of the strength of magnetic response to be expected from the site, and can be of help when interpreting the magnetometer survey. Susceptibility readings are shown on a plot inset in figure 3.

### *Survey location*

The survey grid was set out and tied to the OS grid using a differential GPS system. The plans are therefore geo-referenced, and OS co-ordinates of map locations can be read from the AutoCAD version of the plans which can be supplied with this report.

## **Results**

The survey findings confirm that conditions at the site should be reasonably responsive to a magnetometer survey. The mean value of the magnetic susceptibility readings (inset in figure 3) is  $14 \times 10^{-5}$  SI. This is consistent with the geology, and is sufficient to suggest that earth-filled archaeological features should usually be detectable, particularly if there is magnetic enhancement associated with past settlement or industrial activity.

Magnetic features and disturbances have been detected throughout the site, but only a few appear to display any archaeological characteristics. The most conspicuous findings are a pipe running roughly N-S through the centre of the field, and a number of very strong magnetic anomalies

which correspond to the positions of steel bore-hole covers, as indicated on figure 3.

Strong magnetic anomalies of probably recent origin are found mainly near boundaries, but there is a cluster of such disturbances (including ferrous debris) around A (as labelled on figure 3). This group of disturbances is less strong or concentrated than would be expected from an ancient industrial site, and probably indicates a sparse scatter of recent debris. Other ferrous anomalies (blue) are dispersed across the site, and do not appear to form any significant concentrations.

A few magnetic anomalies which could be interpreted as silted pits have been outlined in red. These include a short linear feature at A, and a few individual pit-like anomalies, as at C and D. These features are of moderate strength, and have rounded profiles (as seen in the graphical plot, figure 2), and could in a suitable context be interpreted as archaeological features. In this case they are widely dispersed across the site, and are not always clearly distinguishable from the background magnetic activity (as indicated in light brown). It is possible therefore that these features represent only minor natural silted hollows or variations in topsoil depth.

A few weak linear markings can be seen in the grey scale plot, and have been indicated in green. and probably represent previous cultivation. They may relate to previous cultivation of the site. The former field boundary, as noted from historic map evidence in the DBA, does not appear to have been detected. [It was perhaps therefore marked by a hedge, which leaves little evidence when removed, rather than a ditch.]

## **Conclusions**

The magnetometer survey has detected features which appear mostly to have a modern origin. These include a pipe, bore hole covers, and scattered ferrous debris. A slight concentration of such disturbances at A is unlikely to be archaeologically significant. Other magnetic anomalies (including possible pit or ditch-like features at B, C, D) are dispersed across the site, with no apparently significant clusters or concentrations. A faint pattern of linear anomalies probably represents former cultivation at the site.

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13 May 2011

The fieldwork for this project was done by P. Cottrell and C. Oatley.

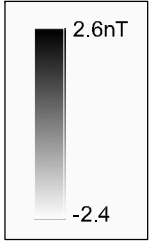
**References**

- [1] Harland Farm, Uckfield, East Sussex. Archaeological Assessment by D Lewis, Environmental Dimension Partnership. Unpublished Report No. EDP1454\_01a.; 15 April 2011
- [2] Written Scheme of Investigation for Archaeogeophysical Survey by A. Bartlett, Bartlett-Clark Consultancy, for The Environmental Dimension Partnership; 27 April 2011.

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Area proposed for magnetometer survey

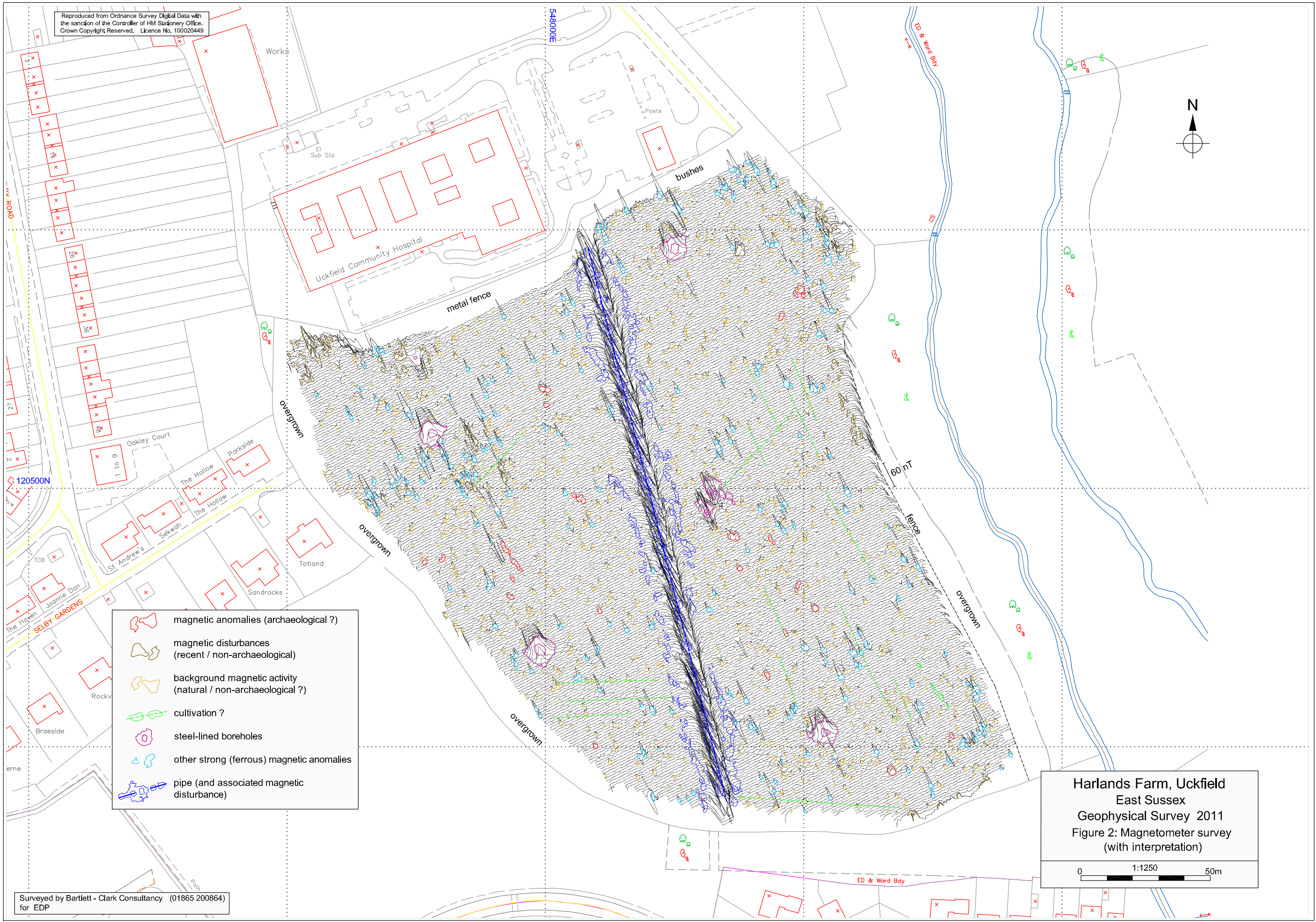


Harlands Farm, Uckfield  
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Figure 1: Location of magnetometer survey (grey scale plot)

0 1:1250 50m

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- magnetic anomalies (archaeological ?)
- magnetic disturbances (recent / non-archaeological)
- background magnetic activity (natural / non-archaeological ?)
- cultivation ?
- steel-lined boreholes
- other strong (ferrous) magnetic anomalies
- pipe (and associated magnetic disturbance)

Harlands Farm, Uckfield  
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Figure 2: Magnetometer survey  
(with interpretation)

0 1:1250 50m

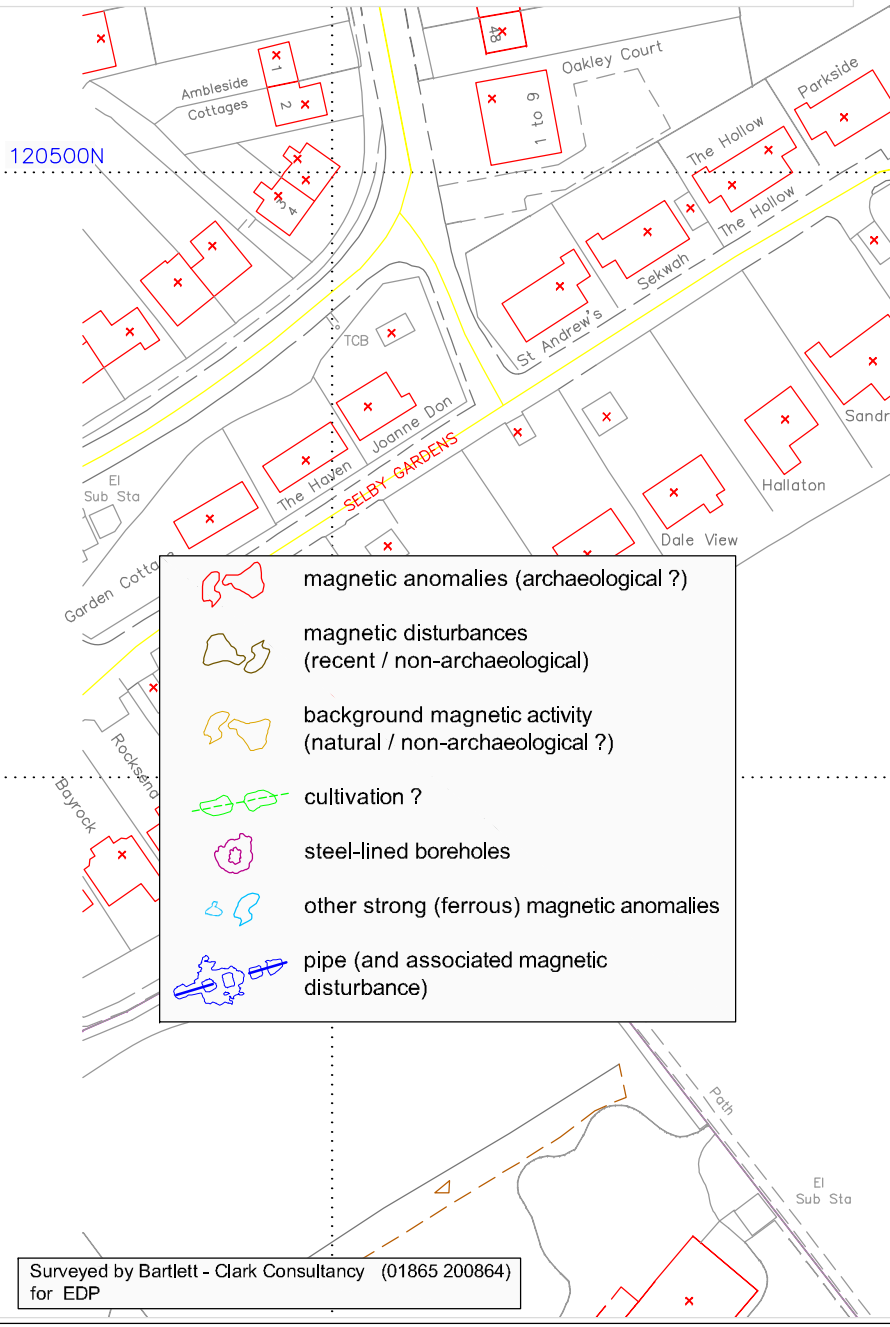
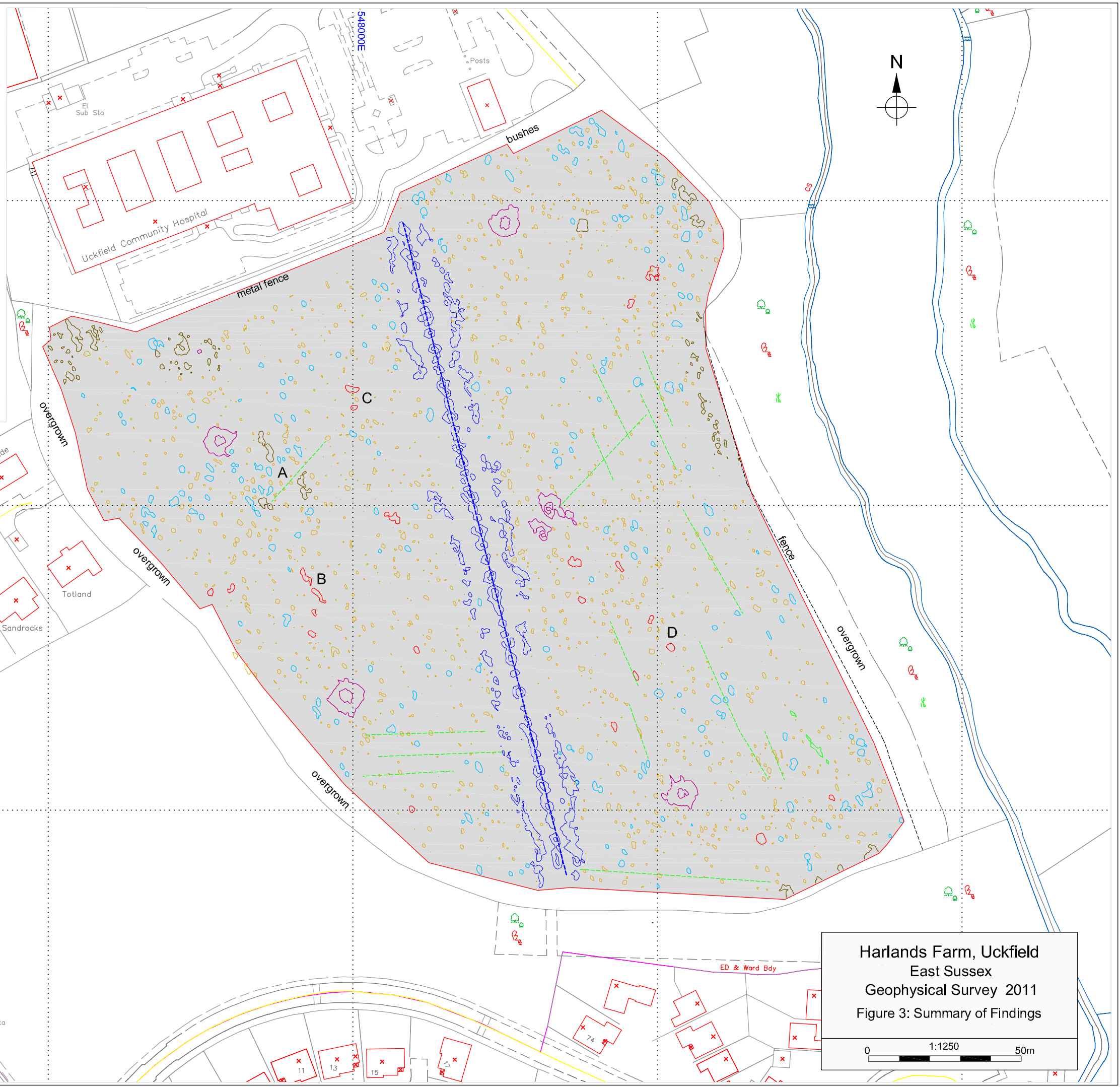
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Magnetic Susceptibility Survey 1:5000



- magnetic anomalies (archaeological ?)
- magnetic disturbances (recent / non-archaeological)
- background magnetic activity (natural / non-archaeological ?)
- cultivation ?
- steel-lined boreholes
- other strong (ferrous) magnetic anomalies
- pipe (and associated magnetic disturbance)

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Figure 3: Summary of Findings

