

**SITE AT BEVERIDGE LANE, COALVILLE,  
LEICESTERSHIRE**

**Report on Archaeological Geophysical Survey 2012**

**A. Bartlett**

**Surveyed by:**

**Bartlett-Clark Consultancy**

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**for:**

**CgMs Consulting  
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Birmingham B2 5LS**

## Site at Beveridge Lane, Coalville, Leicestershire

### Report on Archaeological Geophysical Survey, 2012

#### Introduction

This geophysical was carried out as part of an archaeological evaluation of a proposed development site at Bardon near Coalville, Leicestershire. The survey was commissioned from Bartlett Clark Consultancy, Specialists in Archaeogeophysics of Oxford, by the Birmingham office of CgMs Consulting. Fieldwork for the survey was done on 6-8 June 2012.

#### The Site

##### *Topography and geology*

The evaluation area includes two fields located between Beveridge Lane and South Lane near Bardon (as outlined in red on the map inset in figure 1), and centred at NGR SK456117. The site is arable and was under a young crop at the time of the survey. The evaluation area amounts in total to 5.8ha, and was surveyed in full except for a strip of roadside land outside the northern field boundary which was too overgrown for magnetometer coverage. The elevation slopes down gently (by about 10m overall) from the NE to the SW corners of the site.

The bedrock at the site is Mercia Mudstone, possibly with a cover of Boulder Clay glacial drift. These conditions should not present any unusual difficulties for a magnetometer survey, although the strength of magnetic anomalies on mudstone and clay is liable to be weak. Magnetic susceptibility values from the site (as indicated on the plot inset in figure 3) are relatively, but not exceptionally, low (with a mean value of  $12.4 \times 10^{-8}$  SI/kg). This suggests that archaeological features associated with ancient occupation or industrial activity should be detectable, but the response to earthworks or ditches lacking magnetically enhanced fill may be less reliable.

The site is located within 1-2km of the Charnwood Forest granite outcrops, and small pieces of granite are present on the ground surface. Samples gave widely varying magnetic susceptibility readings when measured (from 32 to 1200 SI), and it is therefore possible that some of the background magnetic activity visible in the survey is caused by near-surface fragments of granite.

##### *Archaeological Background*

We were supplied by CgMs with a listing from the Leicestershire and Rutland Historic Environment Record of previously recorded archaeological sites and findings within a 1km radius of the evaluation area, some of which are indicated on the map extract reproduced in figure 3.

Nearby archaeological features (excluding listed buildings and isolated flint artefacts) include two Roman roads. The evaluation area is located immediately to the SW of the junction of an E-W road (MLE16545) which follows the line of Beveridge Lane to the north of the site, and another (MLE9876) to the east. There is therefore a possibility that any Roman settlement or other activity near to the junction could extend into the evaluation area.

## **Survey procedure**

The method used for the geophysical survey was a full recorded magnetometer survey supplemented by background magnetic susceptibility testing.

### *Magnetometer survey*

Readings for the magnetometer survey were collected using Bartington 1m fluxgate magnetometers, and are plotted at 25cm intervals along transects 1m apart. The results of the survey are shown as a grey scale plot at 1:1250 scale in figure 1, and as a graphical (x-y trace) plot in figure 2. The grey scale and graphical plots display the detected magnetic anomalies in plan and profile respectively. The x-y plots represent the readings after minimal pre-processing operations. These include adjustment for irregularities in line spacing caused by heading errors (direction sensitivity in the instrument zero setting), and truncation of extreme values. The grey scale plots show a processed version after additional low pass filtering to control background noise levels.

The magnetometer responds to cut features such as ditches and pits when they are silted with topsoil, which usually has a higher magnetic susceptibility than the underlying natural subsoil. It also detects the thermoremanent magnetism of fired materials, notably baked clay structures such as kilns or hearths, and so responds preferentially to the presence of ancient settlement or industrial remains. The readings are also strongly affected by ferrous and other debris of recent origin.

### *Magnetic susceptibility survey*

We usually supplement a magnetometer survey with background magnetic susceptibility readings, which in this case were based on soil samples taken at locations corresponding to the shaded squares plotted in figure 3. Susceptibility measurements can provide a broad indication of areas in which archaeological debris, and particularly burnt material associated with past human activity, has become dispersed in the soil. They are also affected by non-archaeological factors, including geology, past and present land use, and modern disturbances, and so provide evidence relating to soil and site conditions which can be of help in interpreting the magnetometer survey.

### *Presentation*

An interpretation of the findings is shown superimposed on the graphical plot (figure 2), and is reproduced separately to provide a summary of the findings in figure 3. Features of potential archaeological significance are marked in red.

Weak background magnetic anomalies of possibly natural or non-archaeological origin are outlined in light brown. Probable recent or non-archaeological disturbances are indicated in a darker brown and ferrous debris in blue. A possible pipe is also marked in blue.

### *Survey location*

The survey was located by reference to a temporary site grid which was set out and tied to national grid co-ordinates by means of a differential GPS system. OS co-ordinates of map locations can be read from the AutoCAD 2008 version of the plans which can be supplied with this report.

## **Results**

The survey has detected magnetic anomalies and disturbances from a variety of sources, although only a few of the findings appear to be of potential archaeological origin.

Features visible in the survey data plots include various strong magnetic disturbances as outlined in brown in figure 3. These are mainly near boundaries, although some (e.g. A, B as labelled on figure 3) clearly relate to a line of electricity poles.

Other strong disturbances indicate a pipe or cable (C) which crosses the SW corner of the larger field, and continues along the southern boundary. (The strength of this disturbance is consistent with a pipe, although the dense and irregular pattern of variations could indicate a track or ditch containing magnetic infill.)

There is a scattering of ferrous objects (as outlined in blue), which are indicated by narrow spikes in the graphical plot (figure 2). A clear alignment of such features corresponds to the line of a former E-W field boundary as indicated by a grey line at D. This line is traced from the 1884 OS map (as supplied to us by CgMs), and remains visible on maps until 1929. The strong disturbances suggest there could perhaps have been metal fence posts along this boundary. There are no comparable disturbances along the N-S footpath (E) in the adjacent field to the east. (The path is marked on the modern site plan, and on OS maps to 1960.) Other smaller background disturbances (as outlined in light brown) could in part indicate scattered small pieces of granite, as noted above.

A small number of remaining magnetic anomalies are visible which show some of the characteristics which may be expected from archaeological features. These include features as outlined in red, and the examples labelled F – J in figure 3. These have rounded profiles (as seen in figure 2), which may indicate silted pits, and are also of suitable dimensions. Such features may possibly (but not necessarily) be of archaeological origin. In this case they are widely dispersed across the site, and there are no groups or clusters as might be expected at an ancient settlement site. There is also no evidence for associated ditches or enclosures as might typically be expected at a Roman roadside settlement.

## Conclusions

Various magnetic disturbances of mainly natural or recent origin have been detected by the survey. These include magnetic anomalies on the line of a former field boundary (D on figure 3), and other disturbances near boundaries and electricity poles. Some scattered magnetic anomalies which could indicate silted pits of potential archaeological origin were detected (F-J), but they are widely dispersed across the site, and there are no groups or clusters of such features which could suggest a concentration of ancient settlement remains.

## Report by:

A. Bartlett BSc MPhil

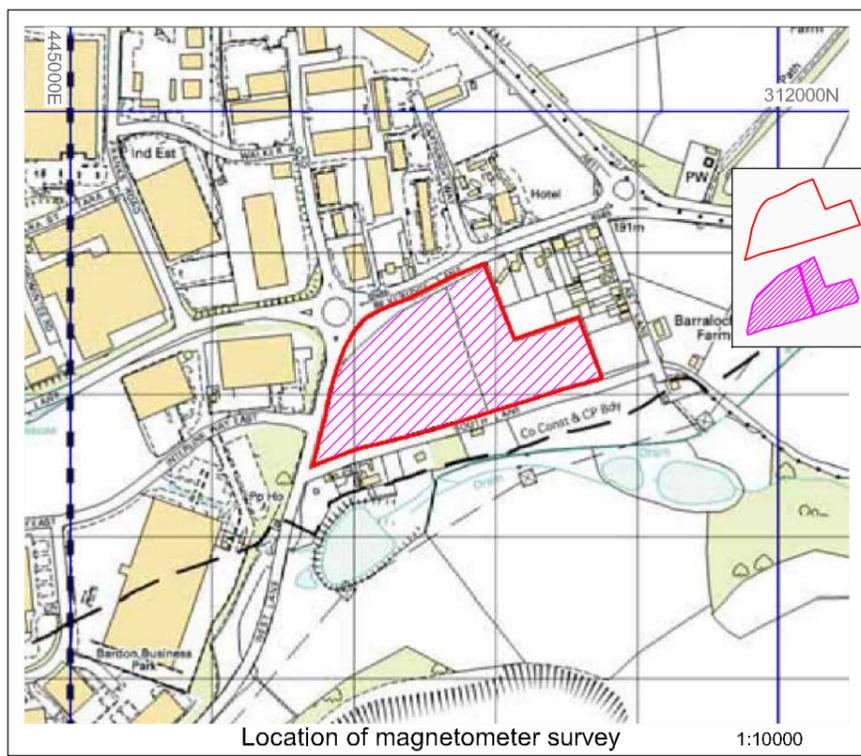
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19 July 2012

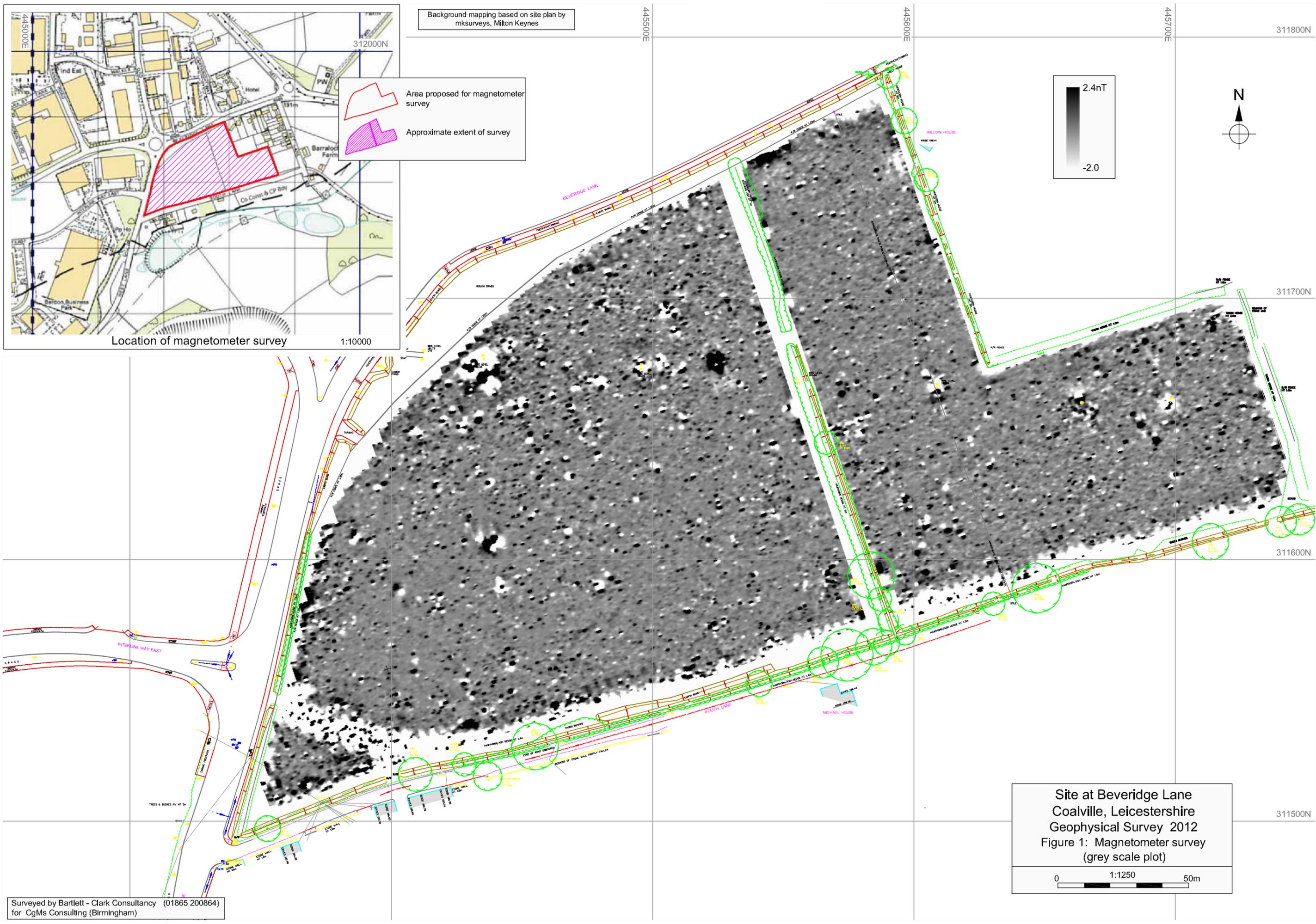
The fieldwork for this survey was done by R. and S. Ainslie.



Location of magnetometer survey 1:10000

Background mapping based on site plan by mksurveys, Milton Keynes

-  Area proposed for magnetometer survey
-  Approximate extent of survey

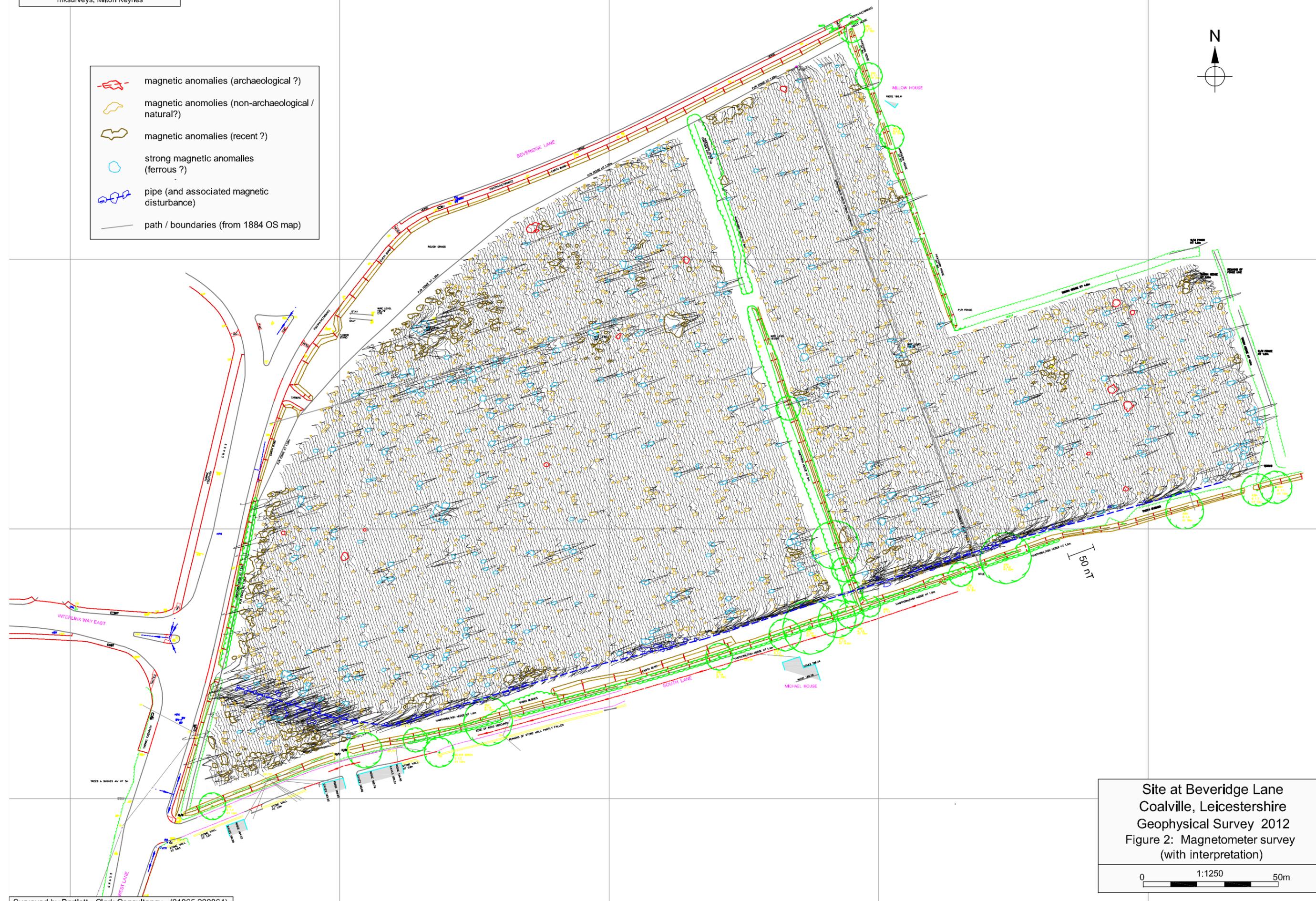


Site at Beveridge Lane  
Coalville, Leicestershire  
Geophysical Survey 2012  
Figure 1: Magnetometer survey  
(grey scale plot)

0 1:1250 50m

Background mapping based on site plan by  
mksurveys, Milton Keynes

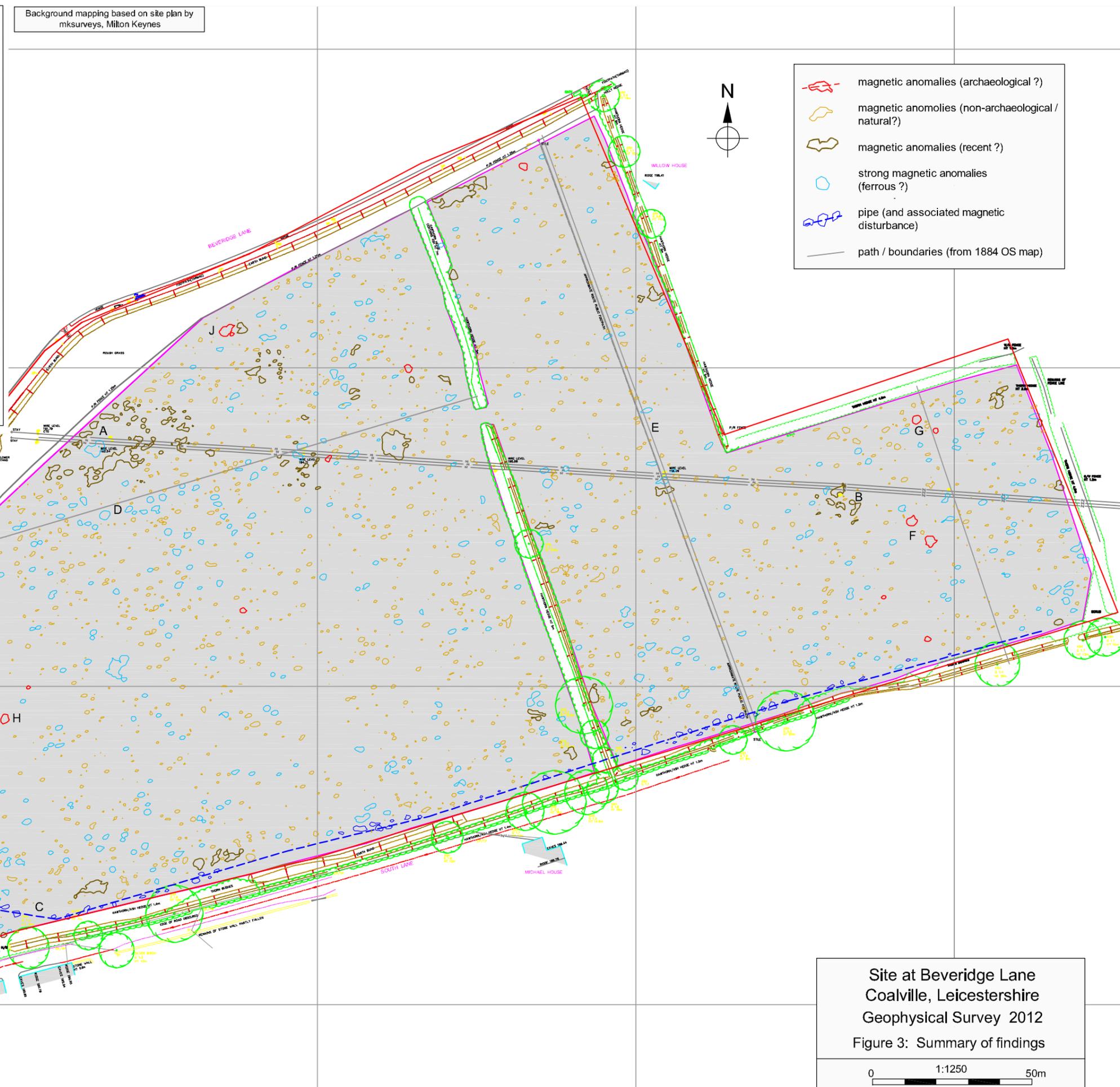
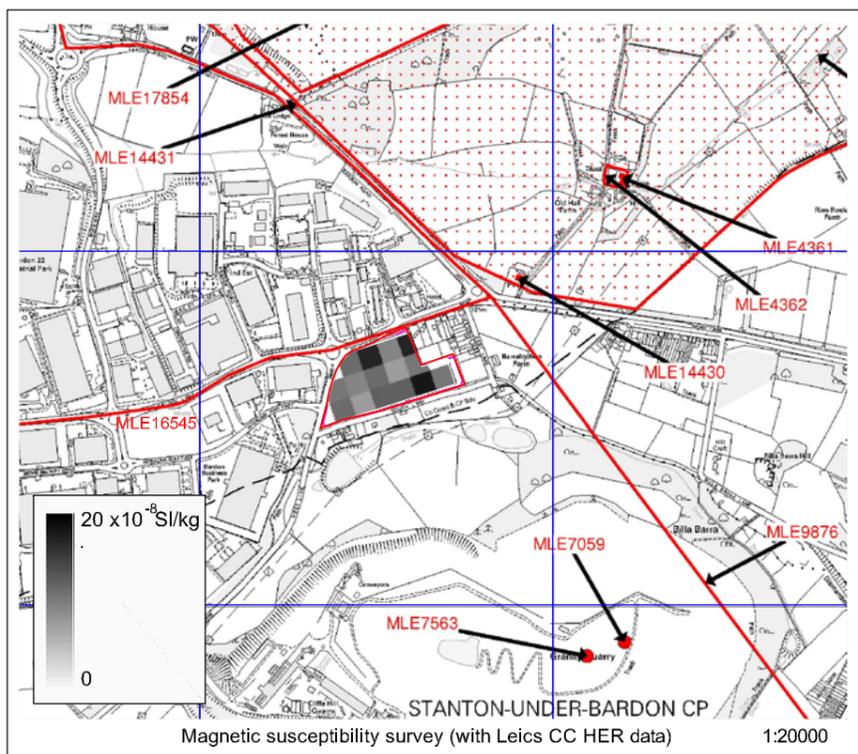
-  magnetic anomalies (archaeological ?)
-  magnetic anomalies (non-archaeological / natural?)
-  magnetic anomalies (recent ?)
-  strong magnetic anomalies (ferrous ?)
-  pipe (and associated magnetic disturbance)
-  path / boundaries (from 1884 OS map)



Site at Beveridge Lane  
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Figure 2: Magnetometer survey  
(with interpretation)

0 1:1250 50m

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