

Site at Chain Hill Road, Wantage, Oxfordshire
Report on Archaeological Geophysical Survey 2013

Survey commissioned by:

**CgMs Consulting
Burlington House,
Lypiatt Road,
Cheltenham,
Glos GL50 2SY**

Report by:

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31 January 2013

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Introduction

This geophysical survey has been undertaken as part of an archaeological field evaluation of a proposed development site at Wantage. The survey was commissioned from Bartlett Clark Consultancy, Specialists in Archaeogeophysics of Oxford, on behalf CgMs Consulting Ltd of Cheltenham.

Fieldwork for the survey was completed on 11 January 2011. Plans showing the survey findings have previously been submitted to CgMs, and are now included for the record in this report.

The Site

Location and topography

The survey covers part of an arable field located about 500m to the SE of the centre of Wantage. The site is to the south of Orchard Way, and extends to the east from Chain Hill Road (B4494). The area to be surveyed is centred approximately at NGR SU 403875, as indicated by red cross hatching on the location plan inset in figure 1, and amounts to approximately 4.2ha.

The ground rises from an elevation of 106m OD in the north of the field to 123m at the south. It is on a bedrock of Cretaceous Grey Chalk at its boundary with the Upper Greensand (which extends to the north from the site), and appears to be free of drift deposits. Conditions at the site should therefore be reasonably favourable for the magnetic detection of archaeological features, with little likelihood of magnetic interference from geological sources.

Archaeological background

We have not been told of any previously identified archaeological findings in the vicinity of the site, but any such information which is available to CgMs will be taken into account when assessing the desirability of further investigations following the completion of the geophysical survey. The survey will serve as an initial reconnaissance exercise to test for the presence of unknown or unexpected archaeological sites or features.

Survey Procedure

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

Magnetometer survey

Readings 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. These alternative representations allow the detected magnetic anomalies to be seen 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

Background susceptibility measurements provide evidence relating to soil and site conditions which can be of help in interpreting the magnetometer survey. Readings in this case were taken at 60m intervals using a Bartington MS2 meter. The results are presented as a shaded plot inset in figure 3.

Presentation

An interpretation of the findings is shown superimposed (for comparison) on the graphical plot (figure 2), and is reproduced separately to provide a summary of the findings in figure 3. Magnetic anomalies showing some of the characteristics to be expected from potential archaeological features are outlined in red. Weak magnetic anomalies of probably 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. Apparent cultivation effects are indicated in green.

Survey location

The survey grid was set out and tied to the OS grid using a differential GPS system (with Omnistar satellite correction to give accuracy to c. 10cm). 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

Conditions at the site appear to be favourable for a magnetometer survey, as is indicated by the detection of minor cultivation effects across the site, but there are few other interpretable findings. The magnetic susceptibility readings from the site are unusually high (mean = 79×10^{-5} SI), which confirms that the soil should be magnetically responsive. The survey has detected various features and disturbances, some of which are of uncertain significance, but none of which can be claimed to be of definite archaeological origin on the basis of the survey findings alone. The more conspicuous findings are outlined and labelled on figure 3, as follows:

A – This linear feature is outlined in red because it has the dimensions and appearance of a possible short ditch. There is a strong magnetic response from the feature, which could relate to the nearby disturbances of probably recent origin in the NW corner of the field. The presence of magnetic debris in the fill of a minor trench or hollow could give rise to an anomaly as seen at A.

B – These apparently linear features are narrower and weaker than A, and so might signify only a slight intensification (near to other disturbances) of the overall cultivation pattern.

C, D – These are strong ferrous anomalies (drain covers or similar ?) surrounded by other (probably recent) disturbances.

E – Strong magnetic disturbances of the kind seen in the NE corner of the site can sometimes indicate the nearby presence of an ancient industrial (metal working or pottery making) site, as could also be the case along the western site boundary in the vicinity of features A-D. There is usually, however, some coherence or pattern to the plan of such sites, which is lacking here. The source of the magnetic activity around E is not immediately apparent, but there is commonly a sufficiently dense scatter of magnetic debris (rubble, iron, concrete, tile) in the vicinity of modern buildings, fences or roads to give rise to disturbances of the kind seen at E, and to the west of the survey.

F – A weak linear marking visible in the grey scale plot perhaps indicates a former hedge line or boundary. This aligns with the existing boundary to the west.

Conclusions

An overall E-W linear pattern is visible in the survey plots. This is likely to be caused by modern ploughing, and confirms that the soil here is magnetically responsive. A weak disturbance has been detected on the line of a possible former boundary at F, but other findings are strong magnetic disturbances of a kind often seen near modern buildings and boundaries. It would not be impossible (if surface findings of pottery or slag have been reported from the site) that magnetic disturbances of the kind seen towards the NE and west of the site could derive from ancient industrial activity, but there is no evidence from the survey for associated features, enclosures or structures which would support such an interpretation.

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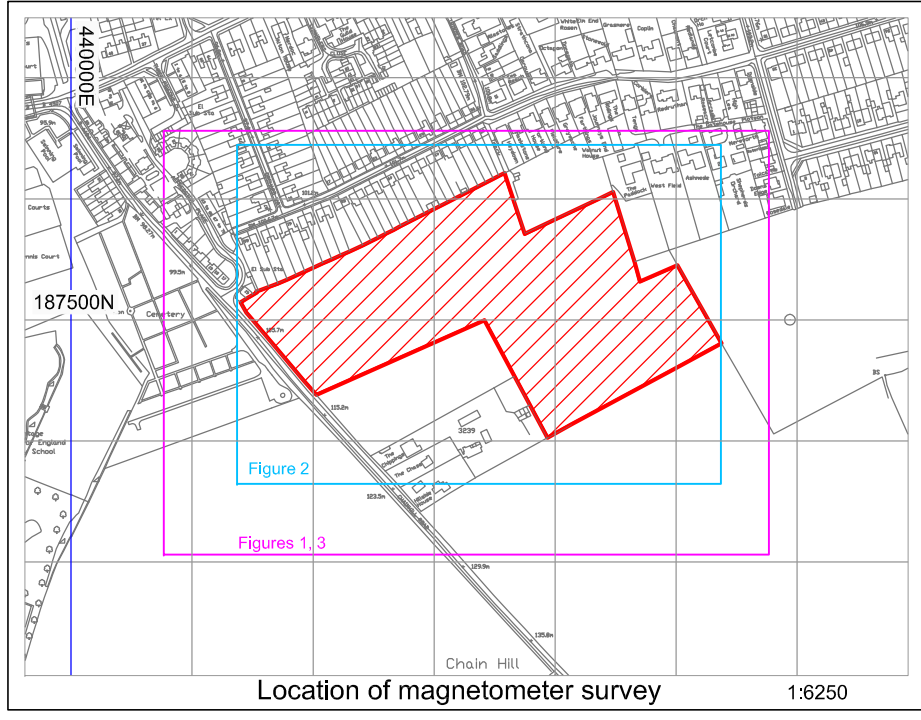
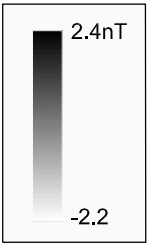
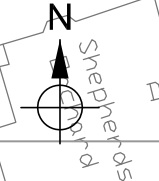
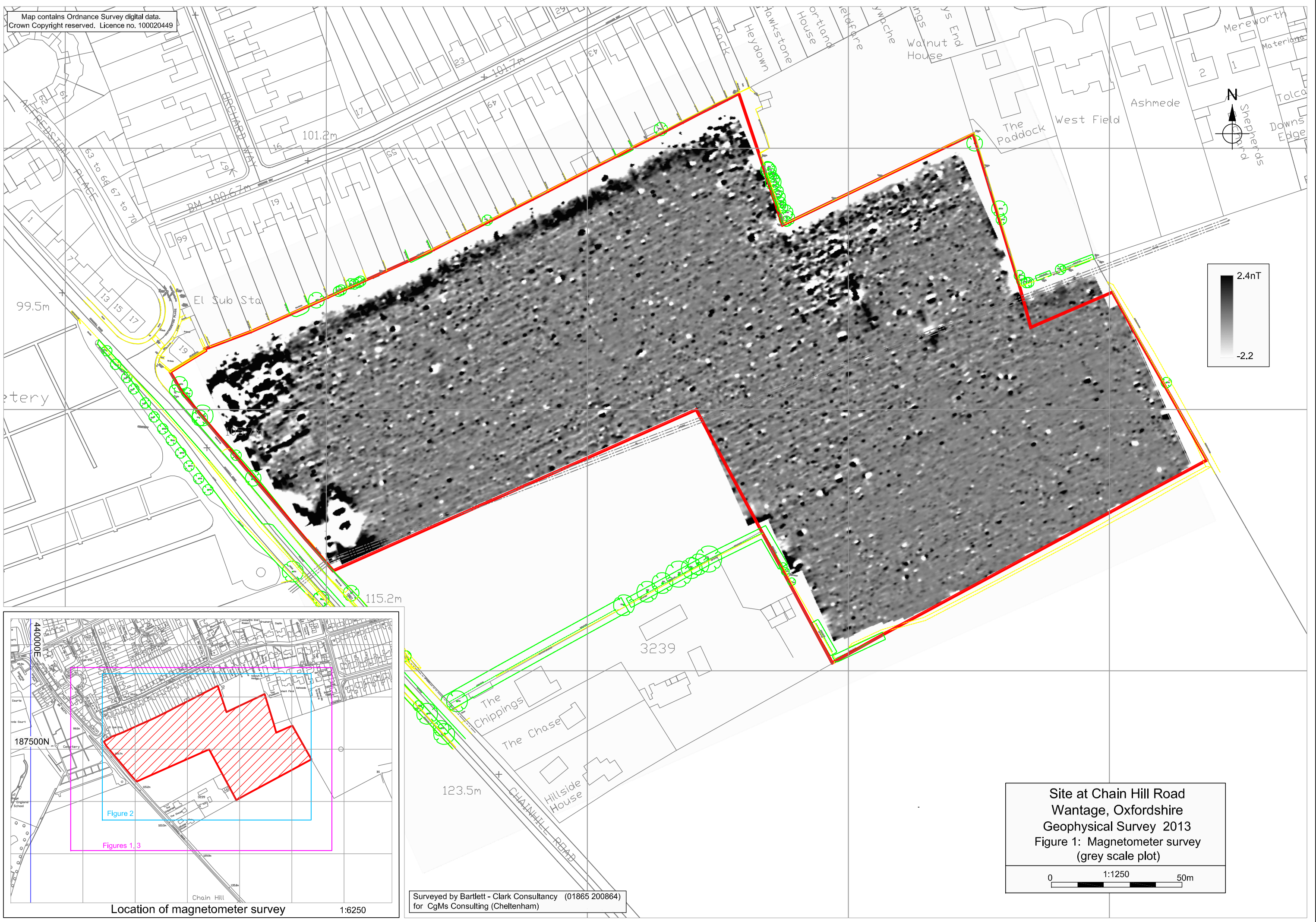
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31 January 2013

The fieldwork for the survey was done by C. Oatley and R. Ainslie.

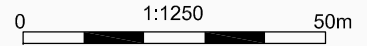
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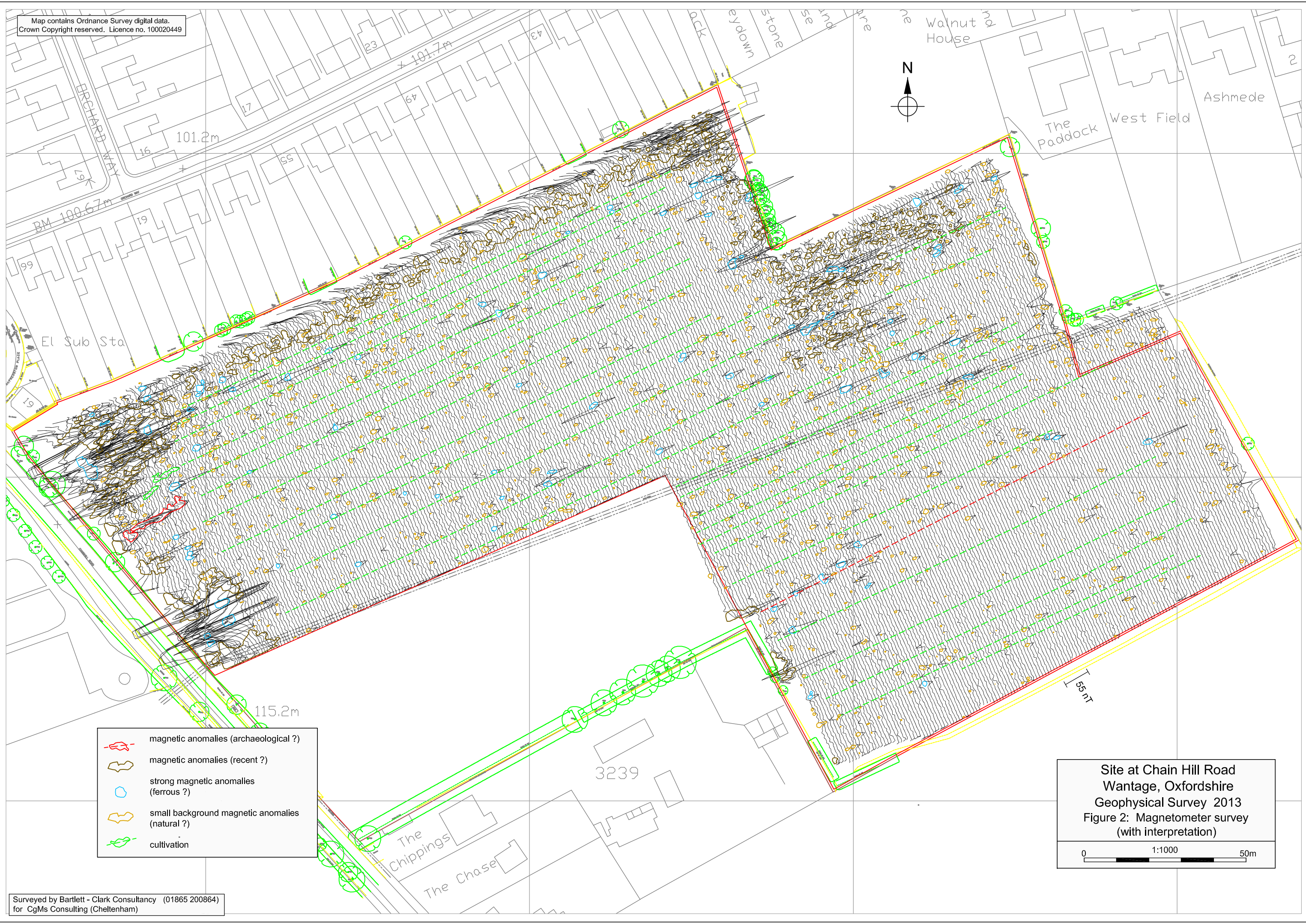
Location of magnetometer survey 1:6250

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Site at Chain Hill Road
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Figure 1: Magnetometer survey
(grey scale plot)



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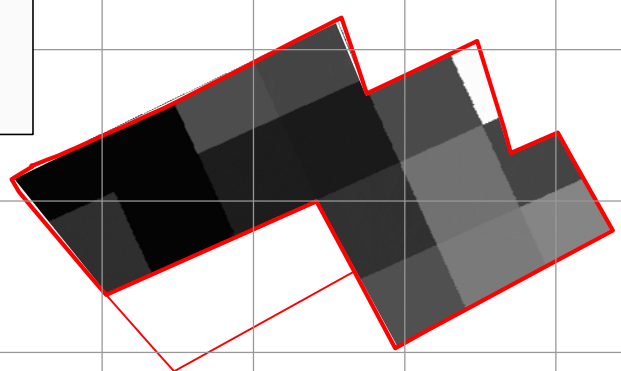
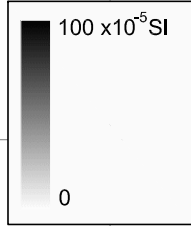
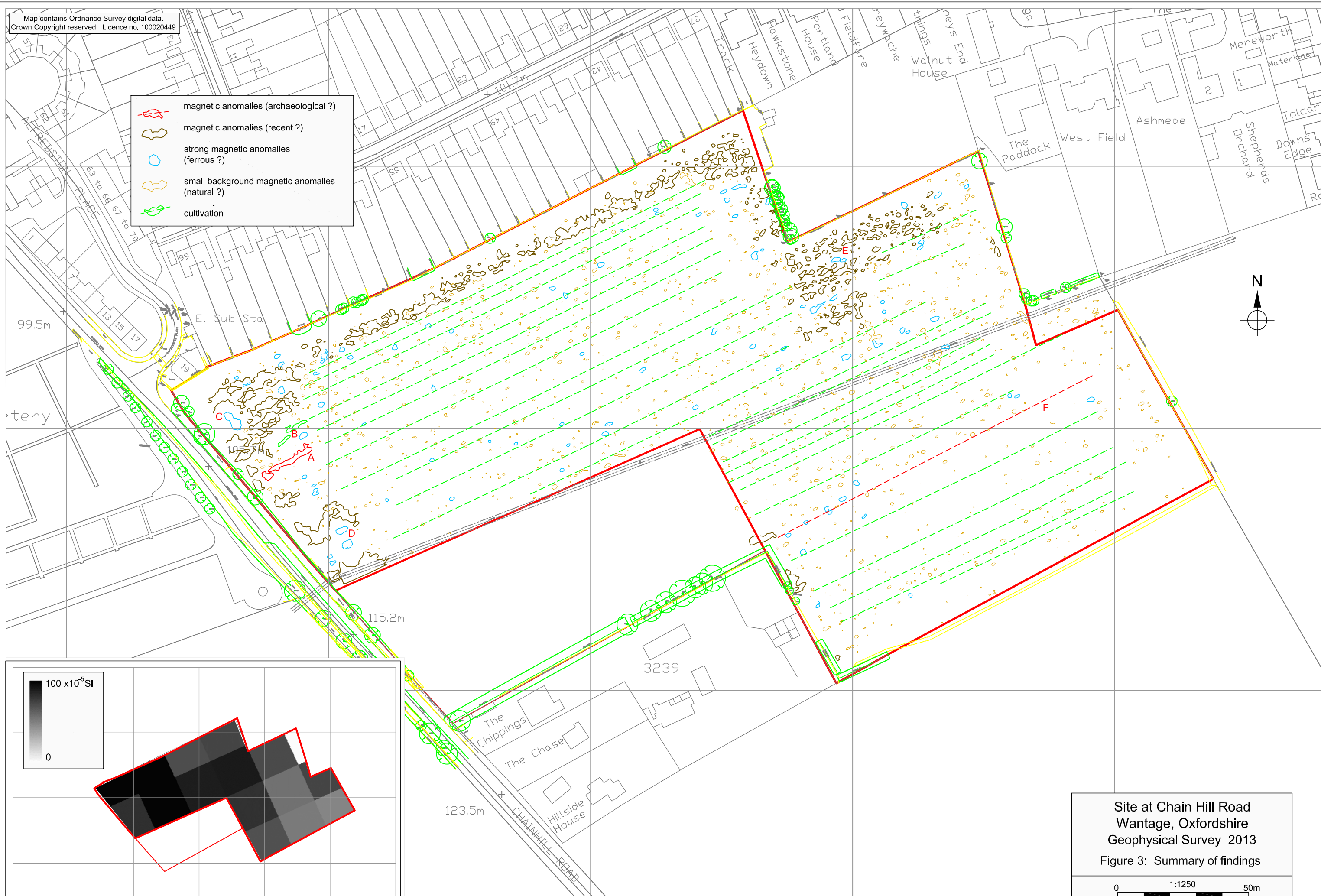
- magnetic anomalies (archaeological ?)
- magnetic anomalies (recent ?)
- strong magnetic anomalies (ferrous ?)
- small background magnetic anomalies (natural ?)
- cultivation

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Figure 2: Magnetometer survey
(with interpretation)

0 1:1000 50m

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-  magnetic anomalies (archaeological ?)
-  magnetic anomalies (recent ?)
-  strong magnetic anomalies (ferrous ?)
-  small background magnetic anomalies (natural ?)
-  cultivation



Magnetic susceptibility readings 1:5000

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Figure 3: Summary of findings

