Land at Moat Farm, Gotherington, Gloucestershire

Archaeological Geophysical Survey 2014

Report by:

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Land off Malleson Road, Moat Farm, Gotherington Gloucestershire

Geophysical Survey 2014

Abstract

This geophysical survey was undertaken as part of an archaeological field evaluation in advance of a planning application for a proposed development at Moat Farm, Gotherington, Gloucestershire.

The main finding from the survey was a distinct linear pattern indicating surviving traces of ridge and furrow cultivation across part of the site. There were also other weak ditch-like features, but these do not form an interpretable pattern of enclosures. These and other findings do not provide any clear evidence for the presence of an identifiable archaeological site.

1. Introduction

The survey was commissioned from Bartlett Clark Consultancy, Specialists in Archaeogeophysics of Oxford, by CgMs Consulting of Cheltenham. Fieldwork for the survey was done on 8-9 May 2014. Plans showing the survey findings have previously been supplied to CgMs, and are now included in this report.

The proposed development site is in the centre of Gotherington village, which is about 2km north of Bishop's Cleeve near Cheltenham. The survey area covers two paddocks to the rear of Moat Farm, and is indicated by blue shading on the attached location plan (reproduced from the CgMs Desk Based Assessment).

The evaluation area amounts to c. 3.3ha centred on National Grid Reference SO 963297. It was surveyed in full with the exception of small wooded or overgrown areas as labelled in figure 3.

2. Objectives of the Survey

The aim of the geophysical survey was to identify the extent and character of any archaeological remains capable of producing a magnetic response. 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. It is also strongly affected by ferrous and other debris of recent origin.

3. Topography and Geology

The elevation of the site varies slightly between c. 57m AOD at the northern end of the smaller paddock to 63m in the south eastern corner of the site. The solid geology is identified (on the BGS website) as mudstone, siltstone and limestone of the early Jurassic Lias formation. The site appears to be free of drift deposits.

Sites on Jurassic bedrock usually provide favourable conditions for magnetometer surveying, and positive archaeological findings have previously been obtained in surveys at sites with similar ground conditions. A magnetic susceptibility reading obtained from topsoil collected at the site was 28 (x 10^{-8} SI/kg). This relatively high value confirms that ground conditions should be responsive to the survey.

4. Archaeological Background

We have not been told of any specific archaeological findings which have previously been recorded within the evaluation area, but both the location of the site within Gotherington village, and the partial survival of a moat near to Moat Farm suggest there is potential for medieval or later settlement activity in the vicinity of the evaluation area.

5. Survey Procedure

The procedure used for the investigation was a fluxgate gradiometer survey across the evaluation area. Results are presented as described below.

A survey grid was set out at the required locations, and tied to the OS grid using a GPS system with VRS correction to provide 0.1m or greater accuracy. The plans are therefore geo-referenced, and OS co-ordinates of map locations can be read from the AutoCAD version of the plans.

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 grey a scale plot in figure 1 (at 1:1250 at A3), and as a graphical (x-y trace) plot in figure 2 (at 1:1000 scale). Inclusion of both types of presentation allows the detected magnetic anomalies to be examined in plan and profile respectively.

The graphical (x-y) plot represents minimally pre-processed magnetometer readings, as recommended for initial presentation of survey data in the 2008 English Heritage geophysical guidelines document [1]. Adjustments are made for irregularities in line spacing caused by variations in the instrument zero setting (as is required for legibility in gradiometer data), but no further filtering or other process which could affect the anomaly profiles or influence the interpretation of the data has been applied. A weak additional 2D low pass filter has been applied to the grey scale plot to adjust background noise levels.

An interpretation of the findings is shown in figure 2, and is reproduced separately to provide a summary of the findings in figure 3. Colour coding has been used in the

interpretation to distinguish different effects. The interpretation is intended to categorize most of the identifiable magnetic anomalies, but cannot reproduce the detail of the grey scale plots.

Features as marked include magnetic anomalies which may show characteristics to be expected from features of potential archaeological significance (in red), and stronger (perhaps recent) disturbances in grey. Small (and mainly natural) background magnetic anomalies are outlined in light brown. Some of the more conspicuous ferrous objects (identifiable as narrow spikes in the graphical plots) are outlined in light blue. Cultivation effects are shown in green.

6. Results

The survey has detected magnetic disturbances from various sources. There are strong magnetic anomalies (outlined in grey in figure 3) near to the farm buildings in the western part of the larger paddock. This part of the site is intersected by a trackway, and also be the line of a former north-south boundary (as is indicated on the location plan inset in figure 1). The magnetic anomalies outlined here must represent a scatter of magnetic debris (probably including rubble or hardcore and ferrous objects) along the line of the former boundary, and near the track and buildings. [It is possible that magnetic anomalies associated with any past occupation activity in the immediate vicinity of the farm could be obscured by these more recent disturbances.]

Findings elsewhere in the larger (eastern) paddock include a distinct north-south linear pattern (marked in green) of a kind which usually indicates the survival of traces of ridge and furrow cultivation.

An additional narrower and more distinct linear feature appears to be superimposed on the cultivation pattern at A (as labelled in figure 3). This follows a slightly different alignment to the furrows, and could be an infilled ditch or trench. There could also perhaps be a similar but weaker linear feature at B. These do not appear to be linked, or to form part of an identifiable system of boundaries or enclosures.

Some individual magnetic anomalies are outlined in red because they could perhaps represent silted pits of potential archaeological significance, but they do not form a distinctive group, and are not very clearly distinguishable from the background magnetic anomalies (outlined in brown). Some of the stronger examples (as labelled at C, D) could simply be disturbances associated with the cultivation pattern.

Linear sequences of magnetic anomalies could perhaps indicate land drains in the south east corner of the survey, and at the southern end of the smaller (western) paddock. The only other findings in the western paddock (other than recent disturbances near boundaries) are faint linear markings as labelled at E and F. These are weaker than the ditch-like feature at A.

7. Conclusions

The clear response to the ridge and furrow cultivation pattern in the eastern paddock confirms that ground conditions at the site should be responsive to the survey, but few

archaeologically relevant findings were detected.

Magnetic anomalies which are visible in the survey plots (other than clearly recent disturbances near buildings and boundaries) include a narrow ditch-like feature at A, together with less well-defined linear markings (at B, E, F). These linear features do not appear to define a system of enclosures, and there are no groups or clusters of individual magnetic anomalies (as seen at C, D) to suggest the presence of an archaeological site.

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

Reference

[1] English Heritage 2008 *Geophysical Survey in Archaeological Field Evaluation* [online facsimile] (English Heritage: Swindon, 2008), English Heritage Research.

Background mapping based on site plan supplied by K. J. Hall Chartered Surveyors

2.4nT

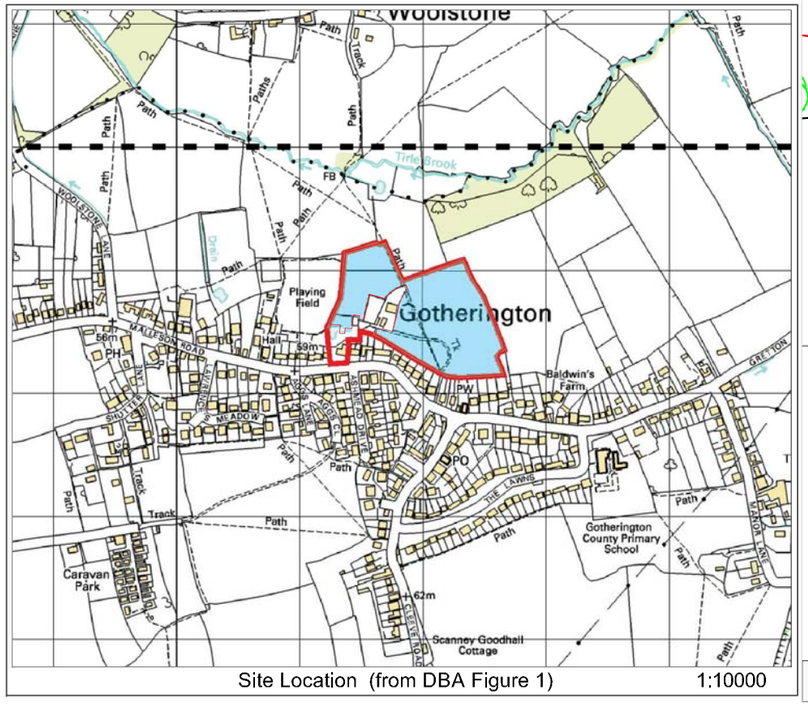
-2.0

evaluation area

396400E

N

229700N



Site Location (from DBA Figure 1) 1:10000

Surveyed by Bartlett - Clark Consultancy (01865 200864) for CgMs Consulting (Cheltenham)

MOAT FARM, GOTHERINGTON
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Figure 1: Magnetometer survey (grey scale plot)

0 Scale 1:1250 @ A3 50m

Background mapping based on site plan supplied by K. J. Hall Chartered Surveyors

396400E

229700N

N

50 nT

magnetic anomalies (archaeological ?)

cultivation

recent magnetic anomalies

background magnetic anomalies (natural ?)

field drains

strong (ferrous) magnetic anomalies

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Figure 2: Magnetometer survey (with interpretation)

0 Scale 1:1000 @ A3 50m

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Background mapping based on site plan supplied by K. J. Hall Chartered Surveyors

396400E

229700N

N

overgrown

overgrown

E

F

C

B

D

A

magnetic anomalies (archaeological ?)

cultivation

recent magnetic anomalies

background magnetic anomalies (natural ?)

field drains

strong (ferrous) magnetic anomalies

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Figure 3: Summary of findings

0 Scale 1:1000 @ A3 50m

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