LAND AT BARTLOW ROAD LINTON, CAMBRIDGESHIRE

Archaeological Geophysical Survey 2015

Report by:

A.D.H. Bartlett

Bartlett-Clark Consultancy 25 Estate Yard, Cuckoo Lane, North Leigh, Oxfordshire OX29 6PW 01865 200864

for:

Oxford Archaeology East 15 Trafalgar Way Bar Hill Cambridge CB23 8SQ

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Abstract

This report describes a geophysical survey which has been undertaken as part of an archaeological field evaluation of a proposed housing development site on the eastern edge of Linton, Cambridgeshire.

The site is considered (on the basis of cropmarks and previous findings) to be of high archaeological potential, and the survey has produced a number of positive findings. These include linear markings which correspond to a probable former roadway identified in aerial photographs, and enclosures which could be of post-medieval (or earlier) date. There is also a relatively high level of background magnetic activity, much of which is likely to be of natural origin.

1. Introduction

The survey was commissioned from Bartlett Clark Consultancy, Specialists in Archaeogeophysics of Oxford, by Oxford Archaeology East on behalf of Bidwells. Fieldwork for the survey was done on 10 November 2014.

Plans showing the survey findings were supplied to Oxford Archaeology shortly after completion of the survey, and in advance of the subsequent trial trenching. These are now included for the record in this report.

The proposed development area (PDA) covers two arable fields located to the north and south of Bartlow Road to the east of Linton, and with a total area of 4.67ha. The surveyable area (excluding boundaries and woodland) is outlined in blue in figure 3, and amounts to 4.08ha. The larger southern field (labelled field 2 on plans in this report) is centred approximately at NGR TL 571464.

The conditions at the site, and its archaeological potential, are described in the Desk Based Assessment (DBA) prepared as part of this evaluation by Oxford Archaeology East [1]. The site has also been the subject of an aerial photographic (AP) assessment [2]. The notes in the following sections are summarised in part from these documents.

2. Topography and Geology

The site is on an underlying chalk bedrock. River terrace sand and gravel, and alluvial deposits, are indicated on BGS mapping in the vicinity of the River Granta, which forms the

southern boundary to the site. Soils on chalk and gravel usually respond favourably to magnetometer surveys, although natural variations in the distribution of alluvial material may give rise to detectable magnetic anomalies, as appear to be present in parts of the survey.

3. Archaeological Background

It is mentioned in the DBA that the site has high potential for archaeological remains of prehistoric, Roman and Saxon or later date. The most substantial nearby archaeological finding is the Linton Roman villa (CHER 09841), which has been identified through aerial photographs and excavations (in the 1850s and 1990s), and is located c. 150m to the south of the PDA. The excavations showed that the villa was an extensive stone building with outbuildings. Iron Age pits and ditches were also found during excavations at the villa site.

The remains of a walled Roman cemetery, probably associated with the villa, are thought to be present in the southern part of the PDA (CHER 06198). Findings from the site, including inhumations, were recorded in 1852 and 1926. The exact location of the cemetery, however, remains uncertain, and it is possible that it lies close to the villa outside the PDA. The magnetometer survey alone is unlikely to resolve this question because stone walls and graves are not usually good targets for detection by this technique (which responds preferentially to such findings as ditches or enclosures, or features associated with settlement activity). It is possible also that archaeological features at the site have been disturbed or eroded by cultivation and previous excavations.

Findings identified in the aerial photographic interpretation [2] are shown on the plan inset in figure 3. They include a possible former roadway which appears in older aerial photographs as a linear hollow, and a number of enclosures or field boundaries.

4. Objectives of the Survey

The purpose of the survey was to test for evidence of archaeological sites or remains, and to provide information which may inform further stages of the archaeological evaluation.

A geophysical survey is usually able to identify the extent and character of any archaeological remains capable of producing a magnetic response. The magnetometer will detect cut features such as ditches and pits when they are silted with an increased depth of topsoil, which usually responds more strongly than the underlying natural subsoil. Fired materials, including baked clay structures such as kilns or hearths are also likely to produce a localised enhancement of the magnetic field strength, and the survey therefore responds preferentially to the presence of ancient settlement or industrial remains. The survey is also strongly affected by ferrous and other debris of recent origin.

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 (at 1:2000 scale) in figure 1, and as a graphical (x-y trace) plot in figure 2 (at 1:1250 at A3). 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 [3]. 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, and larger natural disturbances in light green. Some of the more conspicuous ferrous objects (identifiable as narrow spikes in the graphical plots) are outlined in light blue, and possible cultivation effects are also marked.

6. Results

This survey plots indicate the presence both of archaeological features, particularly in the southern field (field 2), and other magnetic disturbances.

Field 1

No archaeological features were identified in the northern field in the aerial photography report, and the survey plots are similarly blank. There is a large pipe at the east side of the field (as indicated in blue in figure 3), together with uncertain and indistinct linear markings (green), which could be cultivation effects. Some possible small pit-like features have been outlined in red, but these are not clearly distinguishable from the (slightly noisy) background magnetic activity. They are isolated, and do not represent strong evidence for the presence of archaeological features.

Field 2

Findings in the southern field include a number of distinct ditch-like linear markings, some of which relate clearly to cropmarks. The parallel linear features at A (as labelled in figure 3) are likely to represent ditches alongside the road mentioned in the aerial photography report. Part of a rectilinear ditched enclosure at B, and a linear disturbance at C are also identifiable in the AP plan. A possible earthwork or enclosure at D does not appear to be represented in the AP plan , and a cropmark (E) is not identifiable in the survey. These ditches and enclosures are described in the aerial photography report as probably representing post-medieval boundaries, although similar magnetic anomalies often indicate field systems in the vicinity of Iron Age or roman settlements.

Other findings include strong (recent) magnetic anomalies at F and G, and numbers of broad amorphous magnetic anomalies of a kind commonly seen on alluvial or wetland soils (as outlined in light green). These are most concentrated around H, and are likely to result from alluvial deposition close to the river.

It is difficult to distinguish any smaller or more distinct pit-like features among these disturbances. It is not impossible that such features could be present, but the overall characteristics of the magnetic activity do not suggest the presence of any dense concentrations of settlement features or remains. Ferrous objects (blue outlines) are scattered across the site, but there do not appear to be any abnormal clusters or concentrations.

7. Conclusions

The survey has produced findings which compare well with the AP interpretation, although with some detailed variation. Both interpretations suggest the presence of a roadway and ditched enclosures in the southern field, together with an absence of archaeological findings in the northern field. It remains uncertain whether the (relatively high) level of natural and other background magnetic activity in the larger field could obscure (or contain) additional archaeological findings. There are a few isolated magnetic anomalies which could perhaps represent pits containing magnetic fill (as marked in the northern field), but they are dispersed and isolated. There are no groups or clusters of such features in either field of a kind which would suggest the presence of concentrations of settlement remains.

Report by:

A. Bartlett BSc MPhil

Bartlett - Clark Consultancy Specialists in Archaeogeophysics 25 Estate Yard Cuckoo Lane North Leigh Oxfordshire OX29 6PW 01865 200864

bcc123@ntlworld.com

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The fieldwork for this project was done by N. Paveley and P. Heykoop.

References

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- [2] *Land at Linton, Cambridgeshire: Aerial Photographic Assessment.* Report No. 2014/5; October 2014. Air Photo Services, Cambridge.
- [3] English Heritage 2008 *Geophysical Survey in Archaeological Field Evaluation* [online facsimile] (English Heritage: Swindon, 2008), English Heritage Research.





