Land at Eastrea Road Whittlesey Cambridgeshire

Report on Archaeological Geophysical Survey 2011

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Surveyed by:

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Introduction

This report describes a geophysical survey which forms part of an archaeological evaluation of a proposed development site at Whittlesey, Cambridgeshire.

The survey was commissioned from Bartlett Clark Consultancy, Specialists in Archaeogeophysics of Oxford, by Cambridge Archaeological Unit (CAU), and fieldwork was done between 5-10 October 2011. Initial data plots showing the survey findings were previously supplied to CAU, and are now incorporated in this report.

The Site

Location and Topography

The evaluation area extends across three fields amounting in total to 11.4ha, as indicated by the red outline on figures 1 and 4. The site is centred at NGR TL 286970 to the south of Eastrea Road, and east of Whittlesey.

A potato crop was recently removed from part of the larger western field, the southern part of which is set-aside. This field and the horse paddock to the east were surveyed in full, but only sample areas could be covered in the smaller field to the south east. This field is partly overgrown, but also obstructed by earthworks, trenches and vehicles, as well as structures (a fort, buildings and metal sheeting) relating to its use for paint-ball fights.

The site is located on an island of river terrace gravels above Oxford Clay, but with a channel of alluvium and fenland peat a short distance to the east. Previous magnetometer surveys in similar geological contexts have usually responded well, and have provided clear evidence for the presence of archaeological features.

Archaeological Background

The archaeological potential of the site and surroundings has previously been reviewed as part of an aerial photographic assessment done for CAU by Air Photo Services of Cambridge (Report no. 2011/9, August 2011). An extract from the summary plan in the AP report is shown inset (at reduced scale) in figure 4, and tracings of some of the more relevant features are shown (in grey) on the interpretative survey plan. The inset AP plan includes findings from an earlier assessment (done in 2001) of the Burdett Nurseries site immediately to the west of the present evaluation area. A dense complex of ditches and enclosures is recorded at the nursery site, but these do not appear to extend eastwards into

the present site. Cropmark features visible in the western survey field include possible ring ditches and a trackway. Numerous periglacial markings are also indicated (in orange/yellow) on the cropmark plan. These natural fissures in the gravel do not contain magnetically differentiated fill, and are not usually detectable in a magnetometer survey. It is mentioned in the AP report that some of the smaller possible ditches (as seen in the south of the field) could also be natural. Some linear cropmarks which could be former field boundaries are shown in blue. No cropmarks are visible in the paddocks to the east of the survey area, but it is suggested in the AP report that the (paint-ball) field to the south east could have been quarried.

Survey Procedure

The survey was carried out following standard magnetometer survey procedures. Magnetometer 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 1:2000 scale in figure 1, and as a graphical (x-y trace) plot at 1:1250 scale in two sections in figures 2-3. An interpretation of the findings is shown superimposed on figures 2-3, and is reproduced separately to provide a summary of the findings in figure 4.

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. The readings in the grey scale plot have additionally been subjected to weak 2D low pass filtering, which is applied to reduce background noise levels.

Colour coding has been used in the interpretation to indicate approximate categories of findings. Magnetic anomalies which perhaps represent pits or other individual features of possible archaeological significance are outlined in red, and potentially natural features in light brown. Disturbances which may be of recent origin are outlined in dark brown, and small strong magnetic disturbances which are likely to be caused by scattered iron objects (and pipes) in blue. Possible cultivation marks are indicated by broken green lines, and ploughing effects in brown.

The survey grid was set out and located at the required national grid co-ordinates by means of a GPS system with differential beacon correction. OS co-ordinates of map locations can be read from the AutoCAD (.dwg) version of the plans which can be supplied with this report.

The magnetometer survey was supplemented by a background magnetic susceptibility survey with readings taken at 30m intervals using a Bartington MS2 meter and field sensor loop. A plot of the readings is inset in figure 4.

Susceptibility readings can 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 may be affected by a number of nonarchaeological factors, including geology and land use.

Results

The survey has produced findings of potential archaeological interest, but they are mainly in the eastern paddock where AP evidence is lacking. Results from the three fields are as follows:

NW field (Lattersey Field)

Much of the observed magnetic activity relates to recent land use rather than any underlying archaeological features. The magnetic susceptibility readings taken here during the survey were unusually and uniformly high (in a range 60-100 SI), which confirms that soils at the site should be responsive to a magnetometer survey.

The most clearly visible magnetic disturbances appear to be caused by deep ploughing or subsoiling (which the field team were told by the farmer has been done in the northern 2/3 of the field). This has created a strong north-south linear pattern visible in the grey scale plot (figure 1), and which is indicated schematically by brown lines in the interpretation (figure 4).

Only a few other magnetic anomalies are visible in the subsoiled area. They include an area of disturbed readings (indicated by brown outlines at A, as labelled on figure 4). These correspond to a possible former quarry as indicated (in black) on the AP plan. The magnetic anomalies suggest the ground here has been disturbed, but they are less strong than would be expected from a large pit infilled with modern debris.

Other scattered magnetic anomalies in the northern part of the field (as at B) correspond only very approximately to the line of the AP trackway, and could be natural. The cropmark ring ditches are not visible in the survey, and are probably obscured by the heavy ploughing.

The north-south deep ploughing terminates at a NE-SW headland (C). The field south of C is uncultivated, but linear markings (green) indicate the direction of previous cultivation. None of the linear markings in the survey align with the possible former boundaries suggested in the AP report. The cropmark ditches in the southern part of the field (grey lines in fig 4) were not detected, which could mean they are natural.

A number of individual magnetic anomalies are outlined in the interpretation, particularly in the south east corner of the field. Most are weak and irregular and likely to be natural (as marked in light brown), but some stronger ones are indicated in red. These (as at E in the eastern field) could be silted pits or hollows, but they are dispersed and not clearly distinguishable from background activity. It is perhaps therefore unlikely they are archaeologically significant.

East field (horse paddock)

The survey plots do not show any of the cultivation effects to be seen in the arable field to the west, and potentially significant features are therefore more easily visible. [The measuring coil gave lower susceptibility readings on the grass in this field than on the bare earth in the field to the west, but soil conditions are likely to be similar.]

The main finding is a distinct group of ditch-like magnetic anomalies, perhaps with pit-like features nearby, towards the east of the field around D. The plan of these features may be interrupted by a strip of disturbed readings (outlined in light brown) near the eastern field boundary. This could indicate a change in soil depth or composition near to the adjacent fen edge. It is not therefore clear whether the findings at D form part of an enclosure extending to the east, but the possibility cannot be excluded.

Other possible pit-like magnetic anomalies which are indicated in red (at E) form part of a possibly natural north-south sequence of disturbances, and so could perhaps also be natural. Other findings in the field include recent disturbances and an iron pipe in the north east corner. There is also a weak narrow north-south feature which could be a non-ferrous pipe (as indicated by a light blue line).

South east field (paint-ball site)

The magnetic disturbances which are visible in the areas surveyed between the numerous obstacles appear to be mainly recent or ferrous. The background activity is not excessively disturbed, which suggests (as at A) that any former quarry in this area has not been backfilled with strongly magnetic debris. Some small magnetic anomalies at F could be interpreted as pits, but in this context they are not necessarily significant.

Conclusions

The survey has detected features of potential archaeological interest, particularly at D in the paddock at the east of the site. It is possible that the magnetic anomalies here could represent part of an enclosure with associated features, but their plan is perhaps truncated by the field boundary to the east, and their significance cannot be fully determined on the basis of the survey evidence alone. Other magnetic anomalies (e.g. E) could indicate silted pits, but they are less clearly differentiated from nearby (probably) natural background activity than the findings at D.

The cropmark ring ditches and trackway in the west field are obscured by plough marks and were not detected, but there are disturbances at A which correspond to a possible former quarry. The lack of response from cropmark features in the south of the field suggests they could be natural. There is no clear evidence for a former quarry in the limited coverage from the paint-ball field.

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