

PROPOSED SOLAR PARK AT HILL FARM, STEVENTON, OXFORDSHIRE

Report on Archaeological Geophysical Survey 2013

Surveyed by:

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on behalf of:

Savills and Solar Century

Hill Farm, Steventon, Oxfordshire

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Introduction

This report describes a geophysical survey which has been carried out as part of an archaeological evaluation of the site of a proposed solar array to be constructed near Steventon in Oxfordshire.

The survey was commissioned from Bartlett-Clark Consultancy, Specialists in Archaeogeophysics of Oxford, by Archaeologica Ltd on behalf of Savills and Solar Century. Fieldwork for the survey was done in August – September 2013.

The Site

The following notes are based in part on the Method Statement for the project which was prepared in advance of the survey, and submitted to Archaeologica Ltd by Bartlett Clark Consultancy in July 2013 [1].

Location and topography

The site is an area of arable land at Hill Farm, about 2km south west of Steventon. The evaluation area is centred at NGR SU 452911, and is indicated by a red outline on the location plan inset in figure 1. The survey area (as hatched in red in figure 1) amounts to 31ha. The fieldwork for the survey had to be done in stages because of site conditions. The western part of the larger field was a densely overgrown set-aside area. This was surveyed in part on 4-5 August, and completed after mowing, on 14-15 August. The small north western field and the remainder of the main field were under a barley crop, and were surveyed (on 30 August - 5 September) after it was removed.

The site lies within an area of river terrace deposits likely to be composed mainly of sand and gravel, but perhaps also including silt and clay. These overlie a bedrock of Cretaceous Gault and Upper Greensand. Soils on exposed Greensand are not always strongly responsive to magnetic surveying, but the presence here of drift deposits should mean that conditions are reasonably favourable for magnetic investigation. Previous surveys on river terrace gravels in Oxfordshire and elsewhere (including at various locations along the Thames Valley) have produced clear archaeological findings.

The suitability of the site for magnetic investigation was further confirmed by magnetic susceptibility readings taken during the survey. These gave readings in a range ($10\text{--}25 \times 10^{-5}$ SI) which is comparable with values commonly observed at sites where productive archaeological surveys have been undertaken.

Archaeological background

An extract from a plan showing archaeological findings in the vicinity of the site as notified to us by Archaeologica Ltd is shown inset in the interpretative plan (figure 7). One previously identified finding within the evaluation area is a surface scatter of Roman pottery (SMR 2664) in the southern half of the site. Extensive systems of cropmarks are recorded to the north of the railway, but not in the immediate vicinity of the site. Cropmarks within the site itself are limited to areas of former ridge and furrow, and uncertain traces of a possible rectilinear field system (perhaps of post-medieval date) in the northern half of the evaluation area.

Survey Procedure

The method used for this geophysical investigation was a recorded magnetometer survey, covering all surveyable ground within the evaluation area.

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 a grey scale plot at 1:2000 scale in two section (figures 2 and 3), and as a graphical (x-y trace) plot at 1:1500 in three sections in figures 4-6. Comparison of these alternative presentations allows the detected magnetic anomalies to be examined in plan and profile respectively. An interpretation of the findings is shown superimposed on figures 4-6 (which permits the interpreted magnetic anomalies to be compared with the underlying data), and is reproduced separately to provide a summary of the findings (figure 7).

The graphical plot shows the magnetometer readings after minimal processing to adjust for irregularities in line spacing caused by variations in the instrument zero setting. Additional 2D low pass filtering has been applied to the grey scale plot to adjust background noise levels.

Colour coding has been used in the interpretation to distinguish different effects. Magnetic anomalies of possibly archaeological origin are outlined in red (or indicated more cautiously by broken red lines). Strong magnetic disturbances which are likely to be of recent origin are shown in dark brown. Individual strong magnetic anomalies which appear to represent iron objects are in blue, and potential cultivation effects in green. Small background magnetic anomalies which are likely to be of mainly geological origin are outlined in light brown, and possible land drains in blue/purple.

Survey location

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

The main finding from the survey is a distinct and well-defined group of archaeological features at a location consistent with, but extending to the south of, the surface finds of Roman pottery. There is no clear evidence for the presence of archaeological features from the remainder of the site.

The main group of findings, as outlined in red in figure 7, lies close to the south eastern edge of the evaluation area, and extends about 80m from the boundary (which lies within the field, and is not marked on the ground). The survey here detected a complex pattern of superimposed curving and rectilinear ditched enclosures of a kind commonly seen at late prehistoric or Romano-British settlement sites. There are also smaller circles (including examples labelled A, B, C in figure 7, and others) which are of suitable dimensions to represent hut circles (c. 10-14m diameter). Other small magnetic anomalies could represent such features as pits or hearths associated with the structures. One strong magnetic anomaly (D) is represented by a broad peak in the graphical plot (figure 5), and so could perhaps indicate a kiln, or a pit containing magnetically enhanced burnt fill. The site is otherwise largely free of unusually strong magnetic disturbances, and so is more likely to represent a settlement than a centre of industrial activity.

The archaeological features are intersected in part by narrow parallel markings orientated as indicated by broken green lines. This could be an effect of modern cultivation, which may be more clearly visible here because of soil magnetic enhancement in the vicinity of the settlement. Weak background linear markings elsewhere in the survey are aligned more nearly north-south (as indicated by lines around E and F). The markings are weak and inconsistent, and do not reflect the varying orientations of the former ridge and furrow (as seen in the aerial photograph supplied to us by Archaeologica). Ridge and furrow is often detectable in magnetometer surveys, and its absence here could mean it has been substantially eroded by cultivation since the aerial photographs were taken. There are also no linear markings in the survey which can be clearly identified with the cropmark enclosures mentioned previously. This would be consistent with the possibility, as noted, that the cropmark features could be former field boundaries, and so not necessarily associated with other archaeological features.

Other findings include various linear sequences of small magnetic anomalies of a kind which commonly represent land drains. The strongest of these runs along the north of the survey at G. There are less distinct examples towards the south, but others may be obscured in the south western part of the survey by an increase in the background noise level. The much greater density of small background magnetic anomalies here (as indicated by light brown outlines in figure 7) must be a geological effect, and is likely to represent an increase in the proportion of gravel (containing naturally magnetic stones) in the soil. Effects of this kind are commonly seen on exposed gravel, but not on silt or clay.

Concentrations of magnetic activity which could indicate recent disturbances near field boundaries and electricity poles are outlined in a darker brown in figure 7. No concentrations of ferrous anomalies (blue) of a kind which could suggest a focus of recent activity are visible.

A linear sequence of disturbances (in red) at H lies close to an undefined boundary marked on

the OS map. This could indicate magnetic debris marking a former ditch or track next to part of a former field boundary. (Boundaries previously defined by hedges are often undetectable in magnetometer surveys.)

A few magnetic anomalies which could represent silted pits of potential archaeological origin (i.e. with rounded profiles as seen in the graphical plots) are marked in red (as at J). These are isolated and not clearly differentiated from the background magnetic activity. They do not therefore suggest the presence of any further concentrations of archaeological features.

Conclusions

The survey has located a well-defined group of enclosures and other features close to the south eastern boundary of the evaluation area. This must represent a settlement site of date consistent with the surface pottery finds (SMR 2664). Findings elsewhere in the survey are limited to land drains, recent disturbances and possible weak cultivation effects. There are no clearly identifiable findings to confirm the presence of additional cropmark enclosures, other than the enclosures which define the newly identified settlement site.

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

Reference

- [1] *Proposed Solar Park at Hill Farm, Steventon, Oxfordshire: Method Statement for Archaeological Geophysical Survey.* Document prepared by Bartlett Clark Consultancy for Archaeologica Ltd; 29 July 2013.