SHELLEY FIELDS FARM PEASE POTTAGE, CRAWLEY, WEST SUSSEX

Report on Archaeological Geophysical Survey 2014

Report by:

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Shelley Fields Farm, Pease Pottage, Crawley, West Sussex Report on Archaeological Geophysical Survey, 2014

Introduction

A geophysical survey has been undertaken as part of an archaeological evaluation of land at Shelley fields Farm at Pease Pottage near Crawley, West Sussex. The survey was commissioned from Bartlett Clark Consultancy, Specialists in Archaeogeophysics of Oxford, on behalf of clients by CgMs Consulting Ltd of Cheltenham. The fieldwork for the survey was done during the last two weeks of May 2014.

The Site

Topography and geology

The proposed development area is centred at NGR TQ 249315, and extends across three arable fields surrounded by woodland at Shelley Farm, which is located about 1km south west of Pease Pottage, and 3km south of Crawley. Much of the site is at a uniform elevation of c. 127m AOD, but the ground slopes down towards the northern and south western boundaries of the survey area.

The total evaluation area (as indicated by a red outline on the enclosed site plan, figure 1) amounts to 48.4ha. This includes overgrown areas at some of the field margins, and trackways. The survey coverage (as indicated in blue in figure 1) therefore amounted to 45.4ha.

The site is on a bedrock of Cretaceous Wealden Group sandstone and siltstone, and appears to be free of drift deposits. Soil magnetic susceptibility measurements from the site gave relatively high readings (in a range 40-122 x 10^{-8} SI/kg, and with a mean of 55). This should usually indicate that conditions at the site are favourable for the magnetic detection of archaeological features (although it is possible at sites on magnetically responsive soil that minor or superficial disturbances or displacements of the topsoil will give rise to detectable magnetic anomalies).

Archaeological background

A number of archaeological findings and features have previously been recorded within and near to the evaluation area, and are indicated on figure 1 (which is based on plan showing HER data, and reproduced from Appendix 1 of the Desk Based Assessment prepared by CgMs as part of the archaeological evaluation).

Findings marked within the site boundary in figure 1 include Mesolithic and Neolithic flint findspots (MWS5480 and MWS713), and items of Roman pottery (MWS963). The former site of Shelley church and deserted medieval village (MWS957) is labelled towards the south of the evaluation area, and there is a further site (Shelley plain south; MWS4583) towards the

north. [Additional worked flints, including scrapers and small blades, were seen by the survey team in each of the three fields during the course of the survey.]

Survey Procedure

The site was investigated by means of a recorded magnetometer survey. 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 at 1:2000 scale as a grey scale plot (figures 2-3), and as a graphical (x-y trace) plot at 1:1500 (figures 4-8). 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 4-8 (which permits the interpreted outlines to be compared with the underlying data), and is reproduced separately to provide a summary of the findings (figures 9-10).

The graphical plots show the magnetometer readings after minimal pre-processing which includes adjustment for irregularities in line spacing caused by variations in the instrument zero setting, and slight linear smoothing. Additional 2D low pass filtering has been applied to the grey scale plots to adjust background noise levels.

Colour coding has been used in the interpretation to distinguish different effects. The interpretation is intended to be schematic and illustrative, and not to 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). Stronger (perhaps recent) disturbances are in grey. Cultivation markings are shown as green broken lines, and some of the more conspicuous ferrous objects (identifiable as narrow spikes in the graphical plots) are outlined in light blue. Small background disturbances are outlined in light brown, and clusters of slightly stronger magnetic anomalies in a darker brown.

Survey location

The survey grid was set out and tied to the OS grid using a GPS system (with VRS differential 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

The survey has detected considerable numbers of magnetic features and disturbances, including concentrations of magnetic anomalies which may indicate areas of the site where further investigation is most likely to be productive. There are, however, few individual findings which can be claimed unambiguously to be of archaeological significance.

One conspicuous characteristic of the survey data is the presence of a relatively dense scatter of small background magnetic anomalies (as indicated by light brown outlines in the survey interpretation: figures 9-10). Background activity of this kind is usually of geological origin, and is most commonly seen on gravel soils containing individual stones of igneous origin (although similar effects are seen also on limestone and other bedrock when it is exposed at the ground surface with only a shallow topsoil cover; such sites also characteristically give high susceptibility readings, as seen here). No drift material is indicated on the geological map (BGS website), but an extended spread of background magnetic disturbances as seen here remains likely to be of geological origin.

The same might not be true of various groups of larger or stronger magnetic anomalies which may be present within the overall background activity. Magnetic anomalies at locations where they appear to be stronger or more densely clustered than elsewhere are outlined in a darker brown. The difficulty in assigning an archaeological interpretation to these findings is that none of them are clearly associated with any large individual magnetic anomalies (of the kind which could represent hearths or pits containing magnetically enhanced fill), or with ditched enclosures which often define or enclose ancient settlement sites. Some of the individual magnetic anomalies as outlined have rounded profiles (as seen in the graphical plots, and which could indicate infilled pits of archaeological origin), but they are small and not clearly distinguishable from the natural background magnetic activity.

It would be unusual for individual flint findspots (of Mesolithic or Neolithic date as recorded here) to be directly associated with substantial and clearly detectable settlement features of the kind often found in surveys of later prehistoric or Roman sites. Medieval village sites (where house remains might be limited to shallow beam slots or small post holes, and the pits found at prehistoric sites are lacking) might also give rise to only limited and indistinct magnetic disturbances. The possibility that scattered clusters of magnetic anomalies, as seen in this survey, could be of archaeological relevance cannot therefore be excluded.

One such group of magnetic disturbances (labelled A in figure 9) is located towards the north of the survey area, and corresponds to HER site MWS4583. The group is intersected (but not enclosed by) ditch-like linear features B and C. They are marked in red because ditched enclosures could be of archaeological origin, but in this case they are more precisely linear than would be expected from features of any antiquity. It is possible therefore that B and C represent relatively recent field boundaries, or perhaps land drains. The surrounding group of magnetic anomalies (A) could perhaps include a number of small pits or other disturbances of archaeological origin (or could perhaps alternatively represent an intensification of the geological background activity which is visible across the site).

Other concentrations of magnetic anomalies are seen around D, E and F in the two southern fields. There is no distinct concentration of features near to the Roman pottery findings at MWS963, although F is located a short distance to the south. The anomalies around F are also near to the medieval site (MWS957), as indicated in figure 1.

Other findings visible in the survey include a few additional short ditch-like features (indicated in red) of uncertain significance. Those around G at the south of the site could perhaps combine to indicate an irregular enclosure, but the evidence is inconclusive. (They could perhaps be naturally silted gullies on sloping ground.)

The orientations of various weak linear cultivation markings visible in the grey scale plots are indicated in the interpretation by broken green lines. Strong disturbances and gaps in the survey (labelled P) represent a line of pylons across the site.

Conclusions

Most of the magnetic anomalies detected by the survey are small and irregularly distributed, and not always clearly distinguishable from the overall natural background magnetic activity. It is unlikely therefore that the site contains any substantial or well-defined archaeological sites or remains of late prehistoric or Roman date, but the possibility cannot be excluded that some of the observed magnetic activity could be of archaeological origin.

Any further investigations at the site could perhaps therefore in part be targeted to test whether or not the magnetic disturbances around A, D, E, F are of archaeological relevance.

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The fieldwork for the survey was done by C. Oatley and P. Heykoop.

















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