

The Hub, Swindon, Wiltshire
Report on Archaeological Geophysical Survey 2013

Report by:

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Introduction

The geophysical survey described in this report is to form part of an archaeological field evaluation of land at the proposed Hub Site, Swindon. This investigation forms part of a programme of archaeological works to inform the determination of a planning application. The survey was commissioned from Bartlett Clark Consultancy, Specialists in Archaeogeophysics of Oxford, by Cotswold Archaeology, who are to undertake and co-ordinate the evaluation on behalf of Gleeson Developments Ltd.

Fieldwork for the survey was done on 19-23 August 2013. Data plots showing the survey findings were subsequently supplied to Cotswold Archaeology, and are now included in this report.

The Site

The site is described in the draft Cultural Heritage chapter of an Environmental Statement (ES) which has been compiled by Cotswold Archaeology [1]. This document lists and reviews previously recorded archaeological sites and findings from the site and a surrounding study area. This information was summarised also in the Written Scheme of Investigation for the geophysical survey, which was prepared by Cotswold Archaeology in August 2013, and approved by Melanie Pomeroy-Kellinger, Wiltshire County Archaeologist [2]. The following notes are extracted in part from these documents, and illustrations supplied with the ES have also been reproduced in this report (figures 1i to 1iii).

Topography and geology

The proposed development area amounts in total to 40ha, as indicated by a red outline in the survey location plan (figure 1i). Parts of the site were previously investigated by geophysical surveys done in 2006 and 2008, which covered areas as hatched in figure 1iii. The present survey therefore covered the five fields as indicated by the grey scale plot inset in figure 1i. The area actually surveyed amounts to 25.8ha.

The site is located to the east of Swindon and south of the A420, and is centred approximately at NGR SU197865. The land is an area of intensively managed pasture which slopes gently to the south and south east towards the River Cole from a high point in the north west of the site.

The underlying geology of the site is recorded as Jurassic Ampthill Clay Formation, and Kimmeridge Clay Formation Mudstone. This may be overlain towards the south of the site by alluvial (clay, sand, gravel) deposits. Alluvium is sometimes identifiable in magnetometer

data by an absence of background magnetic activity, giving a highly uniform response. In this case there is a reasonably consistent level of background activity (indicated by small magnetic anomalies outlined in light brown in the interpretation) throughout the survey. This suggests that the alluvial deposits are localised, and that the mainly clay topsoil also contains some gravel. Magnetic susceptibility readings taken at the site during the survey were relatively low ($3-5 \times 10^{-5}$ SI) in each of the fields. The readings may be weakened because they were taken on grass, but are consistent with the presence of a mainly clay soil. It may be the case at a site with low susceptibility values that isolated earthwork features or silted ditches will respond less reliably than features containing magnetically enhanced fill, as is usually associated with ancient settlement or industrial activity.

Archaeological background

Previous findings indicate that the site is located in an archaeologically productive landscape. Nearby archaeological sites include a small Roman town west of Wanborough. This is a Scheduled Ancient Monument, and is located 500m south of the development area. Geophysical surveys in 2004 and 2006 identified additional ditches, pits and other features in the vicinity of the Scheduled site, but did not indicate that the activity continues to the north in the direction of the present site.

Geophysical surveys in 2006 and 2008 covered areas to the north of the A420, and in the north west and south west fields within the proposed development area (as hatched in figure 1iii). The surveys detected extensive occupation and industrial activity of probably late Iron Age or Roman date near Priory Farm (north of A420), and also within the development site. The 2008 survey found two ring ditches (probably barrows) in the south west field within the development area, where there is also an extant mound. A further survey to the east of the present site detected ridge and furrow.

Further undated linear markings, possibly representing earthworks or drainage features, were found in a 2006 survey further to the east at Longleaze Farm.

Archaeological findings recorded within the present survey area include ridge and furrow and possible earthwork features visible in aerial photographs of 1952 and 1970 (ES figures 12.6 and 12.7), and farm buildings at two locations on 19thC maps. The line of the Wiltshire and Berkshire canal (infilled in the 1940s) runs along the northern boundary of the survey area.

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 graphical (x-y trace) plots (figure 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 outlines to be compared with the underlying data), and is reproduced separately to provide a summary of the findings (figure 7).

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 reduce 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 show characteristics to be expected from features of potential archaeological significance (in red). Weak background magnetic anomalies are indicated in light brown, and stronger (perhaps recent) disturbances are in a darker brown. Cultivation markings are in green, and possible land drains in blue/purple. A possible pipe is shown in blue, and some of the more conspicuous ferrous objects (identifiable as narrow spikes in the graphical plots) are outlined in light blue.

Survey location

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

Fields within the survey area have been numbered (1-5) for reference, as indicated in figure 7. The survey has detected various subsurface features and disturbances, and has responded clearly to the ridge and furrow which is present across much of the site, but has not produced any findings which suggest a continuation of the dense settlement activity seen to the north west of the site in the 2008 survey. Findings were as follows.

Field 1

The north west-south east pattern of parallel markings representing ridge and furrow has responded clearly in spite of the low magnetic susceptibility values. The ridge and furrow terminates in the south west corner of the field at a location corresponding to an east-west earthwork feature visible in the 1970 AP (ES figure 12.6). This earthwork forms a southern boundary to the ridge and furrow, but has not itself been detected in the survey (for reasons as noted in the comments on geology, above).

Other findings include disturbances (at A as labelled on figure 7) at a location corresponding to a pond shown on the 1886 OS map (ES 12.5), and a nearby building also shown on an 1840 tithe map (ES 12.4). A disturbed strip (B) along the northern edge of the field must represent part of the bank which covers the adjacent former canal.

Fields 2-3

These fields are located to the south of the settlement site identified in the 2008 survey, but there are no findings to suggest that any substantial archaeological activity extends into the present survey area.

Ridge and furrow was detected in both fields, but is absent in the north west corner of field 2 (where the 1970 AP shows a former paddock free of ridge and furrow). The survey detected a number of ditch-like linear features (C) at the north of field 3. These could indicate a stronger than usual response from the ridge and furrow, or could perhaps be features similar to the possible enclosures or drains seen in the survey at Longleaze Farm (47 in ES 12.1). The linear features at C do not appear to be associated with any findings to suggest the nearby presence of settlement remains. Other similar linear markings (shown in red at D and E) in field 3 are irregular and intermittent in appearance. They could perhaps indicate traces of ditches or enclosures, or they could represent naturally silted erosion channels. Other more fragmentary linear features (shown in blue) could represent clay land drains.

Fields 4-5

Ridge and furrow was detected in field 4 and the southern part of field 5, but cannot be clearly identified in the northern part of field 5 where it runs east-west, and so aligns with the survey transects. Strong disturbances at F in field 5 suggest a pipe (or possibly remains of metal fence posts) on the line of a former boundary.

There is a slight increase in the density of background magnetic activity (light brown) around G in field 5 (and also near C at the north of field 3), but this is likely to be natural. Such effects are often caused by a localised increase in the gravel content of the soil. A nearby group of possible pit-like features (H) are not very clearly distinguishable from this background activity.

One finding of possible interest is a small circular feature at J. This is made up of weak magnetic anomalies, but forms a distinct circular shape (about 7m in diameter) in the grey scale plot. Disturbances at K represent a spread of debris near to the site of a 19th C building.

Conclusions

The survey has responded well to the extant ridge and furrow, some of which remains visible on the ground. It has also detected various intermittent linear markings (C, D, E) in field 3. These could perhaps indicate traces of a field system or enclosures, but are perhaps more likely to be drainage features or natural. There are no findings to suggest that enclosures or other features associated with the settlement site seen in the adjacent 2008 survey extend into the present survey. (Insubstantial traces of ditched enclosures might not be reliably detectable, but settlement features should usually respond.) A number of magnetic anomalies of suitable size to represent silted pits (of potential archaeological interest) are indicated in red in the survey interpretation, but they are widely dispersed across the site, and there are no distinct groups or clusters to suggest concentrations of archaeological features.

One feature of potential interest is as isolated but apparently circular magnetic anomaly at J in field 5. Other findings are limited to drains, a former boundary, and disturbances corresponding to former buildings and the canal.

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

References

- [1] *Environmental Statement on behalf of Gleeson Development Limited and Portfolio Holdings; Volume 2.* Project Number/Doc Ref: JBB8067.C1103; May 2013.
- [2] *The Hub, Swindon, Wiltshire; Written Scheme of Investigation for a Geophysical Survey.* CA Project 4416. Document prepared by Gail Stoten, Principal Heritage Consultant, Cotswold Archaeology for Gleeson Developments Ltd; August 2013.