APTG15

LAND AT APPERLEY, GLOUCESTERSHIRE

Archaeological Geophysical Survey 2015

8 May 2015

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Hereford HR4 9NZ

Land at Apperley, Gloucestershire

Geophysical Survey 2015

Abstract

This geophysical survey was undertaken as part of an archaeological field evaluation of a proposed development site at Apperley, Gloucestershire.

Traces of ridge and furrow cultivation are recorded in the vicinity of the site, but there are no other previously known archaeological findings. The survey results are consistent with these expectations. The survey detected a distinct ridge and furrow cultivation pattern in the western half of the field, but no other findings of clear archaeological significance.

1. Introduction

The survey was commissioned from Bartlett Clark Consultancy, Specialists in Archaeogeophysics of Oxford, by Headland Archaeology (UK) Ltd on behalf of Bloor Homes. Fieldwork for the survey was done on 8 April 2015. A plot showing the survey findings has previously been supplied to Headland Archaeology, and is now included for the record in this report.

Background information on the location and condition of the site, and its archaeological potential are included in a Project Design, which was prepared in advance of the survey by Headland Archaeology [1]. The following comments are reproduced in part from this document.

2. Objectives of the Survey

The general aim of the geophysical survey was to identify the extent and character of any archaeological remains capable of producing a magnetic response; these can include ditches, large pits, kilns, ovens etc. Specific aims are:

- to investigate the archaeological potential of the site;
- assess the presence /absence of potential archaeological anomalies that might be identified; and
- to determine the level of risk that the archaeological resource would present to the proposed development;

3. Topography and Geology

The site is located on the northern edge of Apperley (as shown on the location map inset in Illustration 1). The proposed development area comprises a single field bounded by mature hedgerows. The site is centred on NGR 386520, 228650, and is approximately 1.3ha in size.

The solid geology of the site comprises Triassic Mudstone and Sandstone of the Branscombe Mudstone Formation. No superficial deposits are recorded for the site. (British Geological Survey website).

Soils on Triassic sandstone or mudstone bedrock are not necessarily strongly responsive to magnetometer surveying, and in this case magnetic susceptibility readings from the site gave moderate readings (mean = 9.8 x 10^{-8} SI/kg). This is a relatively low value, but is comparable with readings obtained at sites where productive magnetometer surveys have been undertaken, and suggests conditions here should not present any unusual difficulties for a magnetometer survey.

4. **Archaeological Background**

It is stated in the Project Design [1] that:

"There is no record of any known archaeology on this land. However, Apperley is not an area which has seen any previous investigation. That factor, and the presence of extensive ridge-and-furrow, may explain the absence of any archaeological information in this locality. The Severn Vale generally is known to contain extensive archaeological remains relating to prehistoric and Roman settlement and activity, and indeed a major area of Roman settlement is known to be present just up the road in Deerhurst."

5. Survey Procedure

The procedure used for the investigation was a recorded magnetometer survey carried out following a standard methodology for a survey of this kind, as specified in the Project Design.

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 a grey scale plot in Illustration 1 (1:1000 scale @ A4), and as graphical (x-y trace) plots in Illustration 2. Inclusion of both types of presentation allows the detected magnetic anomalies to be examined in plan and profile respectively.

The graphical (x-y) plots represent minimally pre-processed magnetometer readings, as recommended for initial presentation of survey data in the 2008 English Heritage

geophysical guidelines document [2]. 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 reduce background noise levels.

An interpretation of the findings is shown in illustration 2, and is reproduced separately to provide a summary of the findings in Illustration 3. Colour coding has been used in the interpretation to distinguish different interpretations and anomaly types. [Magnetic anomalies of potential archaeological interest are usually outlined in red in the interpretation, but no relevant findings (other than cultivation effects shown in green) were identified in the present survey.]

6. Results

The survey has detected strong magnetic anomalies caused by adjacent buildings and fences along the southern field boundary. The strongest interference (as outlined in grey in figure 3) is labelled A, but it continues elsewhere along the field boundary. Ferrous debris in the remains of bonfires was detected at B and C, but the remainder of the site appears to be relatively undisturbed, and suitable archaeological features (if present) should therefore be detectable.

The only other identifiable findings which are visible in the plots are parallel cultivation markings, which are clearly marked in the western half of the field, and fade towards the east. These are of suitable dimensions to represent traces of former ridge and furrow cultivation. This often responds more strongly in a magnetometer survey when it is wholly or partially levelled (so that there is an increased depth of fill in the furrows) than when it survives intact. It is probable that the positive magnetic anomalies (indicated by green broken lines, as at D) represent silted furrows, and negative anomalies (shown as light green outlines, as at E) represent former ridges.

Other magnetic anomalies visible in the survey plots are limited to minor background disturbances of natural or recent origin.

7. Conclusions

The clear response to ridge and furrow across part of the site confirms that soil conditions here should be reasonably favourable for the magnetic detection of archaeological features, but no other clearly interpretable archaeological findings can be identified in the survey plots.

Report by:

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on behalf of:

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8 May 2015

The fieldwork for this project was done by R. Organ and C. Matthews.

References

[1] *Land at Apperley, Gloucestershire: Project Design for Archaeological Evaluation by Geophysical Survey and Trial Trenching.* Document prepared by Headland Archaeology (UK) Ltd for Bloor Homes. Draft 18/03/15.

[2] English Heritage 2008a *Geophysical Survey in Archaeological Field Evaluation* (English Heritage: Swindon, 2008), English Heritage Research

Background mapping based on site plan by Siteline Land Survey and Engineering

386500E

228600N

N

fallen tree

1.6 nT

-1.4

Site location 1:20000

Surveyed by: Bartlett-Clark Consultancy 01865 200864
for: Headland Archaeology (UK) Ltd

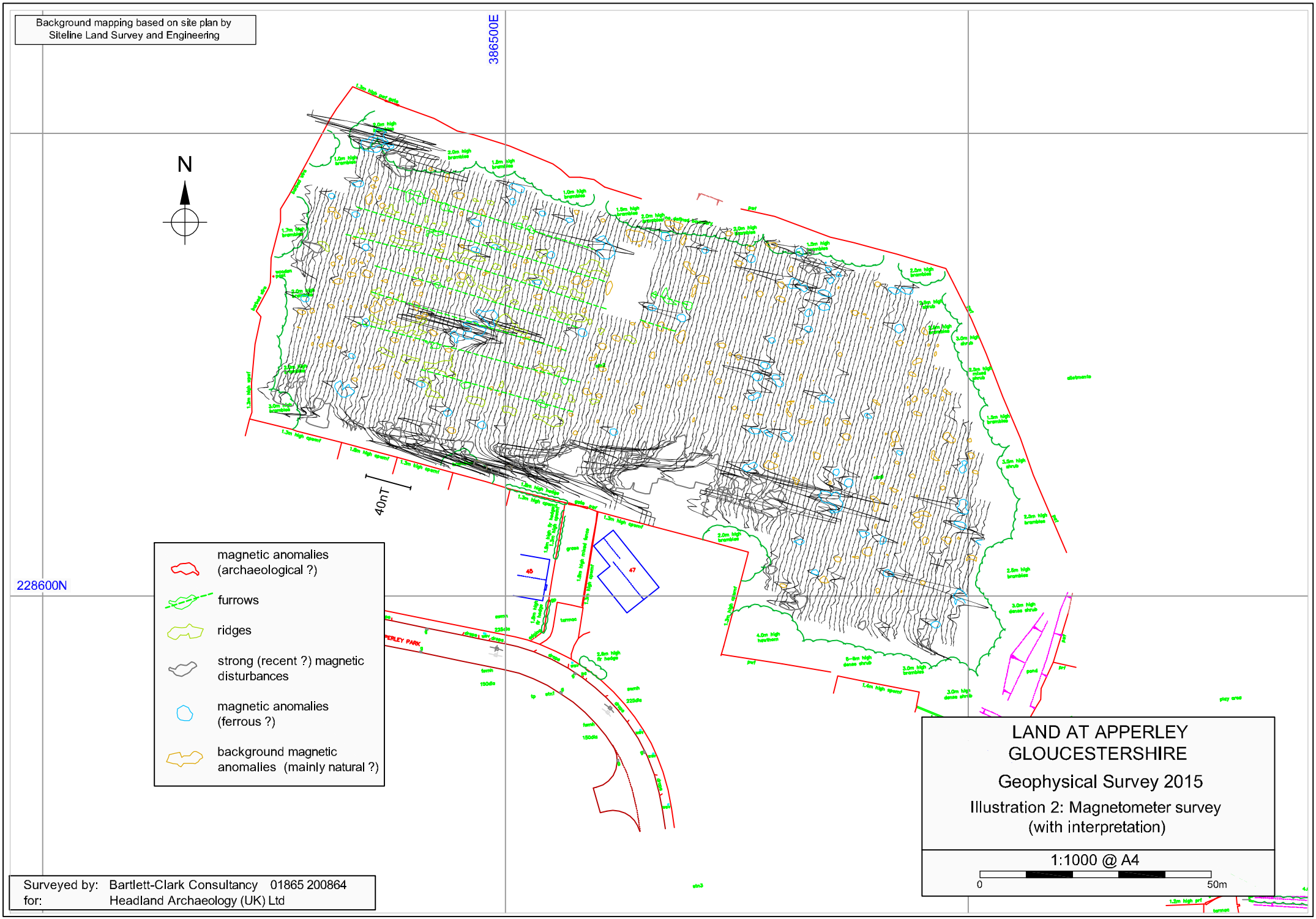
LAND AT APPERLEY GLOUCESTERSHIRE

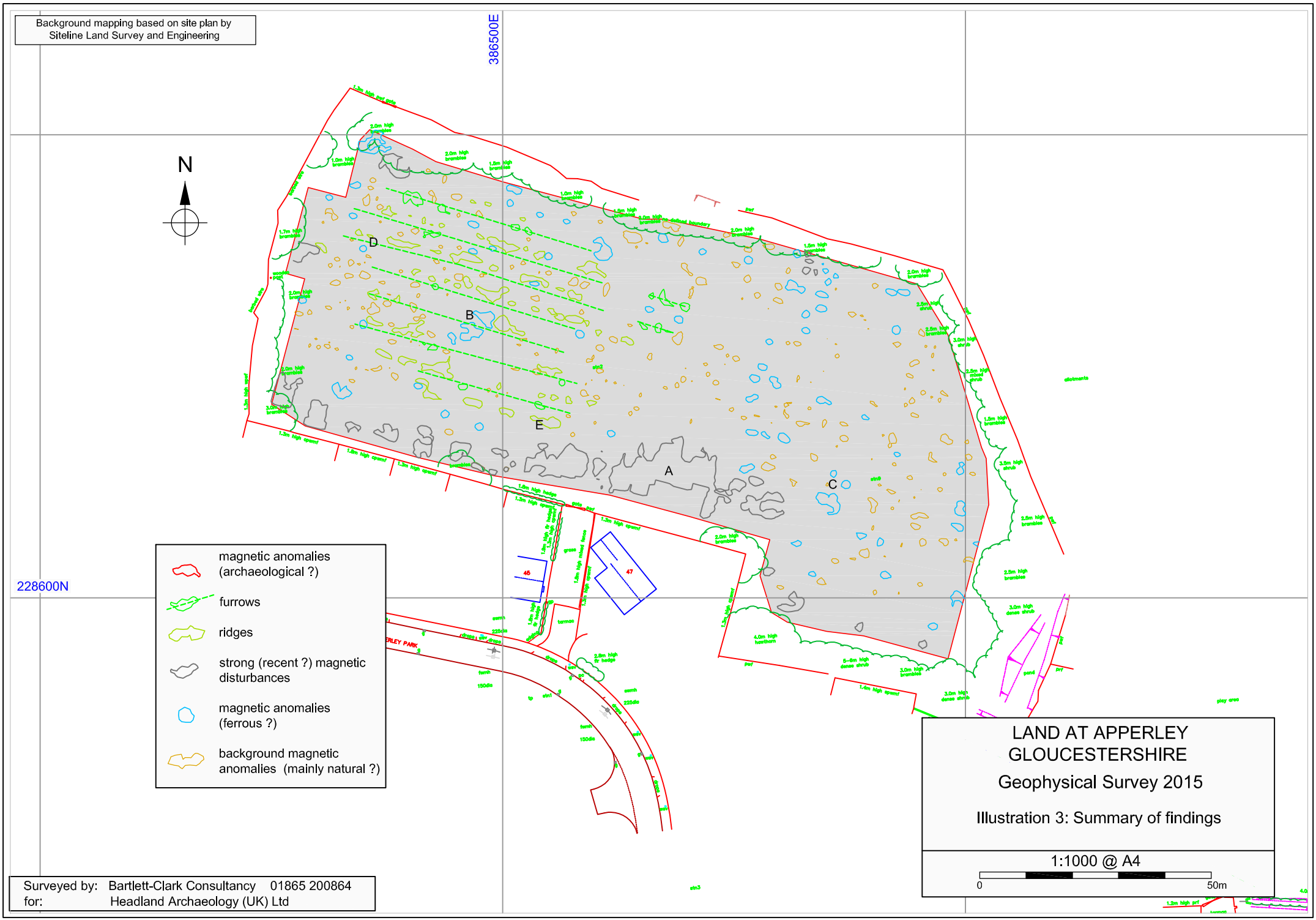
Geophysical Survey 2015

Illustration 1: Magnetometer survey (grey scale plot)

1:1000 @ A4

0 50m


Background mapping based on site plan by Siteline Land Survey and Engineering
386500E
228600N
N
40nT
magnetic anomalies (archaeological ?)
furrows
ridges
strong (recent ?) magnetic disturbances
magnetic anomalies (ferrous ?)
background magnetic anomalies (mainly natural ?)
LAND AT APPERLEY
GLOUCESTERSHIRE
Geophysical Survey 2015
Illustration 2: Magnetometer survey (with interpretation)
1:1000 @ A4
0
50m
Surveyed by: Bartlett-Clark Consultancy 01865 200864
for: Headland Archaeology (UK) Ltd


Background mapping based on site plan by Siteline Land Survey and Engineering
386500E
228600N
N
A
B
C
D
E
magnetic anomalies (archaeological ?)
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magnetic anomalies (ferrous ?)
background magnetic anomalies (mainly natural ?)
LAND AT APPERLEY
GLOUCESTERSHIRE
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Illustration 3: Summary of findings
1:1000 @ A4
0
50m
Surveyed by: Bartlett-Clark Consultancy 01865 200864
for: Headland Archaeology (UK) Ltd