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LAND NORTH OF BARTLEWOOD LODGE, OCKBROOK, DERBYSHIRE

Geophysical Survey

commissioned by Fisher German LLP

November 2014

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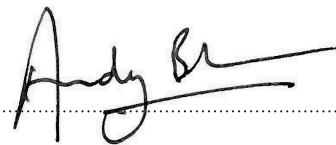
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Local authority: Derbyshire County Council

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Geophysical Survey 2014

Abstract

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

Previous archaeological findings suggest the possibility of Roman activity in the vicinity of the site, but the survey results do not suggest the presence of any substantial or concentrated archaeological activity or remains. Findings from the survey include isolated ditch-like features, and magnetic disturbances which may relate to the presence of a former brick kiln at the southern end of the site.

1. Introduction

Fisher German LLP commissioned Headland Archaeology (UK) Ltd to conduct a geophysical survey on Land North of Bartlewood Lodge, Ockbrook, Derbyshire, the geophysical survey was conducted in co-operation with staff from Barlett Clark Consultancy.

Fieldwork for the survey was done on 18-19 August 2014. Plots of the data were used to assist with the planning of the subsequent evaluation prior to the production of this report. No change in the interpretation of these occurred subsequently.

Background information on the location and condition of the site, and detailed notes on its archaeological potential are included in the Written Scheme of Investigation (WSI) for the project, which was prepared in advance of the survey by Headland Archaeology [1]. The following comments are summarised in part from this document.

2. Objectives of the Survey

The evaluation is required in connection with a planning application to develop the site as a natural burial ground.

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 were:

- to investigate the archaeological potential of the site;
- assess the presence /absence of potential archaeological anomalies that might be present;
- and

- to determine the level of risk that the archaeological resource would present to the proposed development;

3. Topography and Geology

The proposed development area (PDA) is located c. 1.5km north of Ockbrook and centred approximately at NGR SK 424381. It occupies an arable field of 7.5ha to the north of Bartlewood Lodge and c. 150m east of the A6096. The site lies on flat but raised ground at 120m OD. This reduces to 95m OD immediately beyond the northern boundary.

The site is on a bedrock of Triassic (Mercia) Mudstones in the southern part of the field, and Siltstone to the north. This is overlain by glacial Diamicton in the west of the site, but the remainder appears to be free of drift deposits.

Soils on Triassic sandstone or mudstone bedrock are not necessarily strongly responsive to magnetometer surveying, but in this case magnetic susceptibility readings from the site gave relatively high readings of between 23 ($\times 10^{-8}$ SI/kg) in the northern part of the field, and 68 ($\times 10^{-8}$ SI/kg) in the more disturbed south west corner. These readings are comparable with values obtained at numerous sites where productive magnetometer surveys have been undertaken.

4. Archaeological Background

Archaeological findings which are mentioned in the WSI include various flints found in previous field-walking, but may not necessarily be associated with permanent occupation activity of a kind which might be recognised in a magnetometer survey. There is greater evidence, including pottery also found in field walking, of Romano-British activity in the vicinity. [The survey team noted that the farmer mentioned to them that Roman pottery had been found at the site, but in smaller quantities than in other fields nearby. It would be consistent with the survey findings if any nearby Roman settlement was also located outside the PDA.]

The site is thought to have been part of a Medieval deer park, and then remained mainly as open fields in later periods. It is mentioned in the DBA that a former curving field boundary in the south western part of the PDA could have formed part of the deer park boundary.

The northern part of the site is shown as a wood on 18th - 19th century maps. The field walking survey has identified the possible remains of a brick-making kiln in the south western part of the PDA.

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 WSI.

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 plots in Illustration 1 (1:2000 scale @ A3), and as graphical (x-y trace) plots

in Illustrations 2-3. 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 illustrations 2-3, and is reproduced separately to provide a summary of the findings in Illustration 4. Colour coding has been used in the interpretation to distinguish different interpretations and anomaly types.

6. Results

The survey has detected a number of reasonably well-defined findings, but they are dispersed across the field, and do not clearly indicate the presence of an identifiable or interpretable archaeological site.

The findings include three separate ditch-like features in the south west corner of the site (outlined in red and labelled A, B, C in Illustration 4). It is unclear whether any of these could relate to the possible deer park boundary mentioned in the WSI.

The ditches surround a corner of the site containing a scatter of strong magnetic anomalies (as outlined in brown). These could be of recent origin, but could also be caused by debris associated with the brick kiln mentioned in the WSI. There is no single strong magnetic anomaly to suggest the presence of an intact kiln within the survey area, but the particularly strong concentrations of magnetic activity at D and E could be consistent with the presence of debris from a kiln.

Two further ditch-like features are visible in the north west corner of the field at F and G, but they do not clearly link or relate to each other. The strong response from F could perhaps mean it is a deliberately filled trench.

There is an increase in the background noise level (as indicated by small magnetic anomalies outlined in light brown) in the north eastern corner of the survey, and to the north of a former ditch or boundary at H. This magnetic activity could perhaps indicate the presence here of tree holes, or other ground disturbances relating to the former woodland. A mainly negative, linear feature at J could perhaps indicate an extant furrow or hollow.

There appears to be a curving land drain at K, and an intersecting sequence of drains in the western half of the field at L. A pattern of parallel cultivation markings (green) is visible in the quieter central part of the site. The survey is intersected by two iron pipes (marked in blue).

7. Conclusions

The survey has detected several distinct ditch-like features of uncertain significance in the north western and south western corners of the field (A-C, F, G). There are also magnetic disturbances which could indicate debris in the vicinity of the suspected former brick kiln in the south west of the site. These disturbances are particularly concentrated around D and E. A slight increase in magnetic activity in the north east of the site could indicate ground disturbances associated with the clearance of woodland from this area.

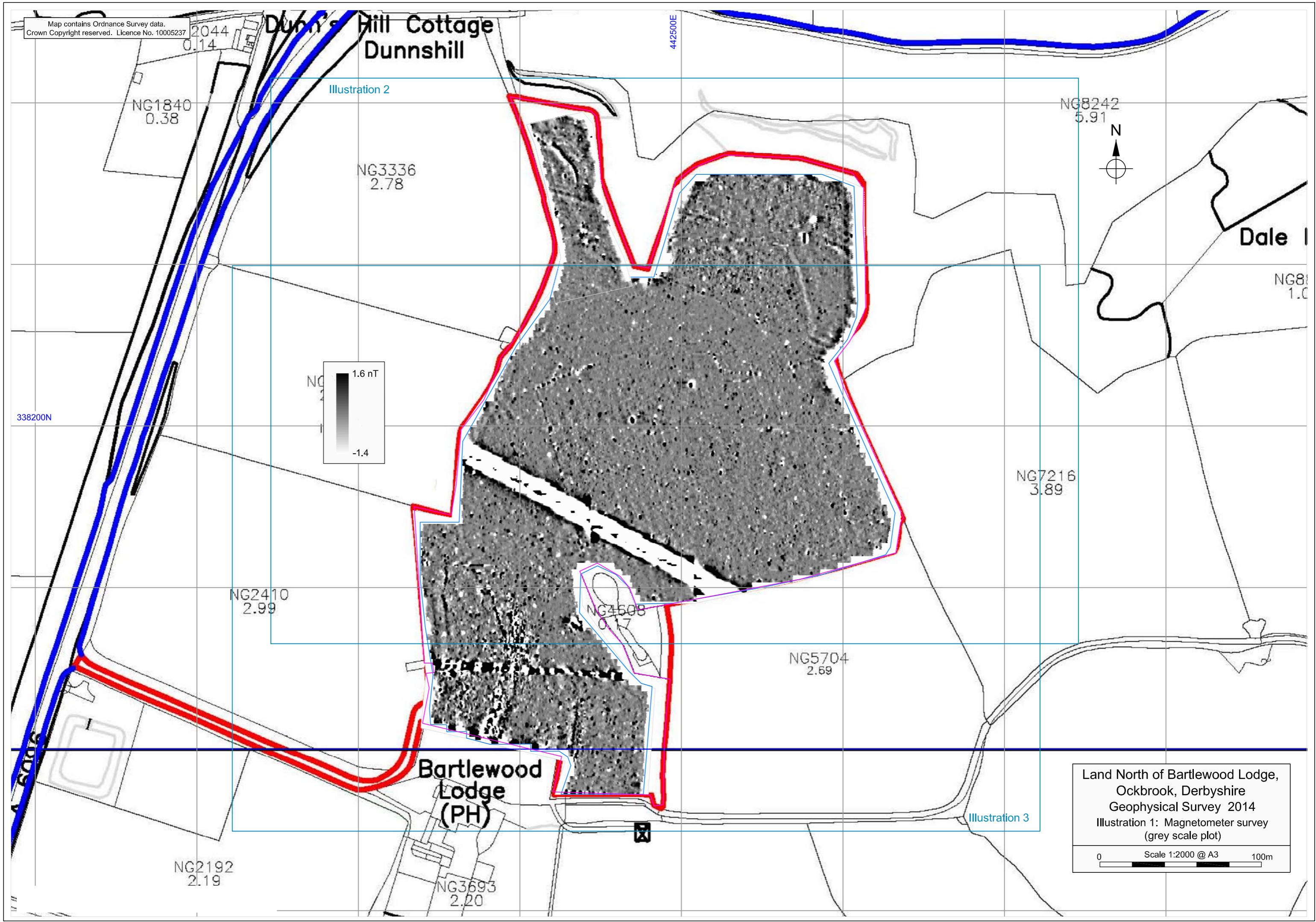
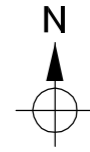









Illustration 2

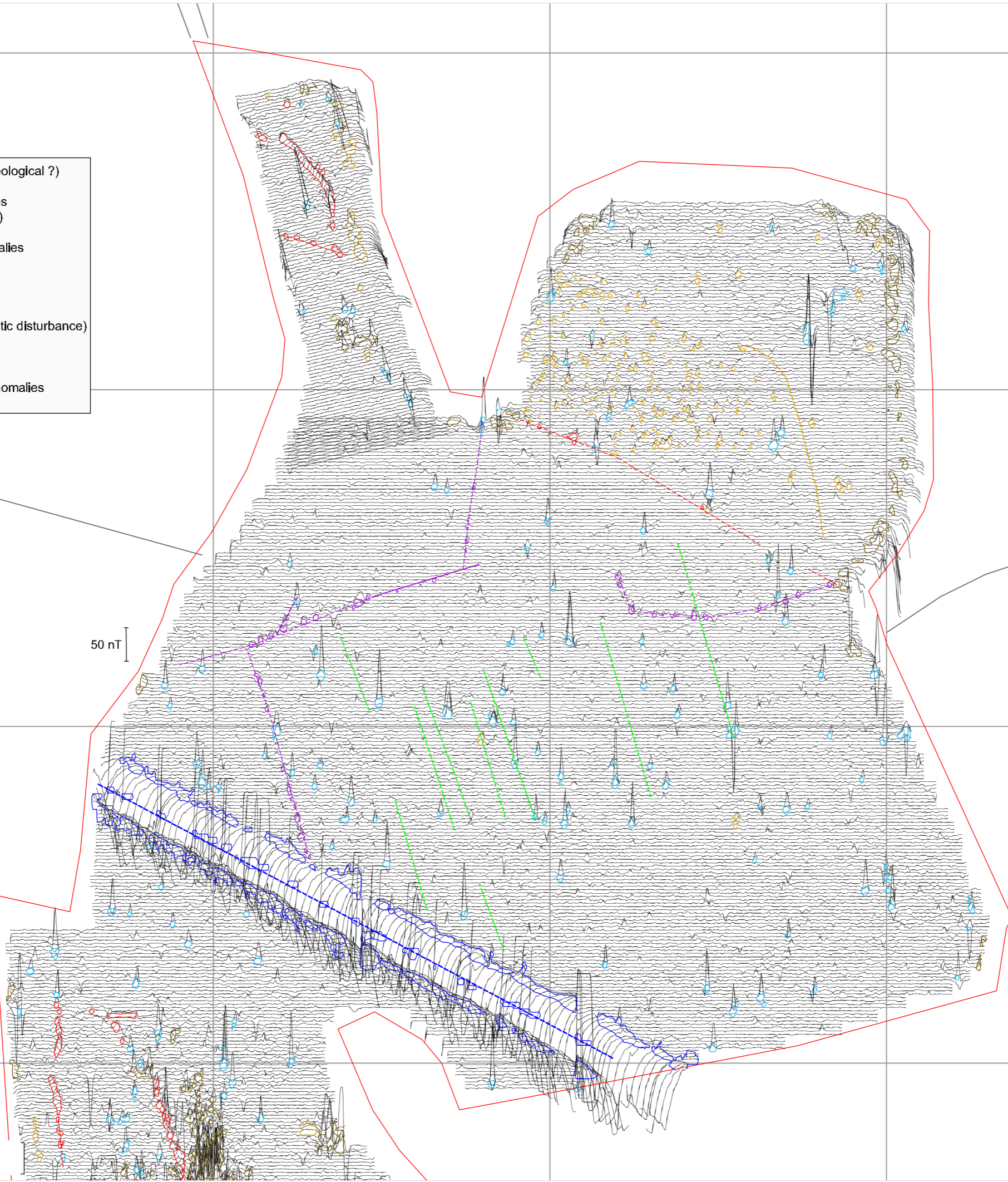
Land North of Bartlewood Lodge,
Ockbrook, Derbyshire
Geophysical Survey 2014
Illustration 1: Magnetometer survey
(grey scale plot)

0 Scale 1:2000 @ A3 100m

Illustration 3










-  magnetic anomalies (archaeological ?)
-  strong magnetic disturbances (recent / non-archaeological)
-  background magnetic anomalies (mainly natural ?)
-  cultivation
-  pipe (and associated magnetic disturbance)
-  drain ?
-  strong (ferrous) magnetic anomalies



Land North of Bartlewood Lodge,
Ockbrook, Derbyshire
Geophysical Survey 2014
Illustration 2: Magnetometer survey
(with interpretation)

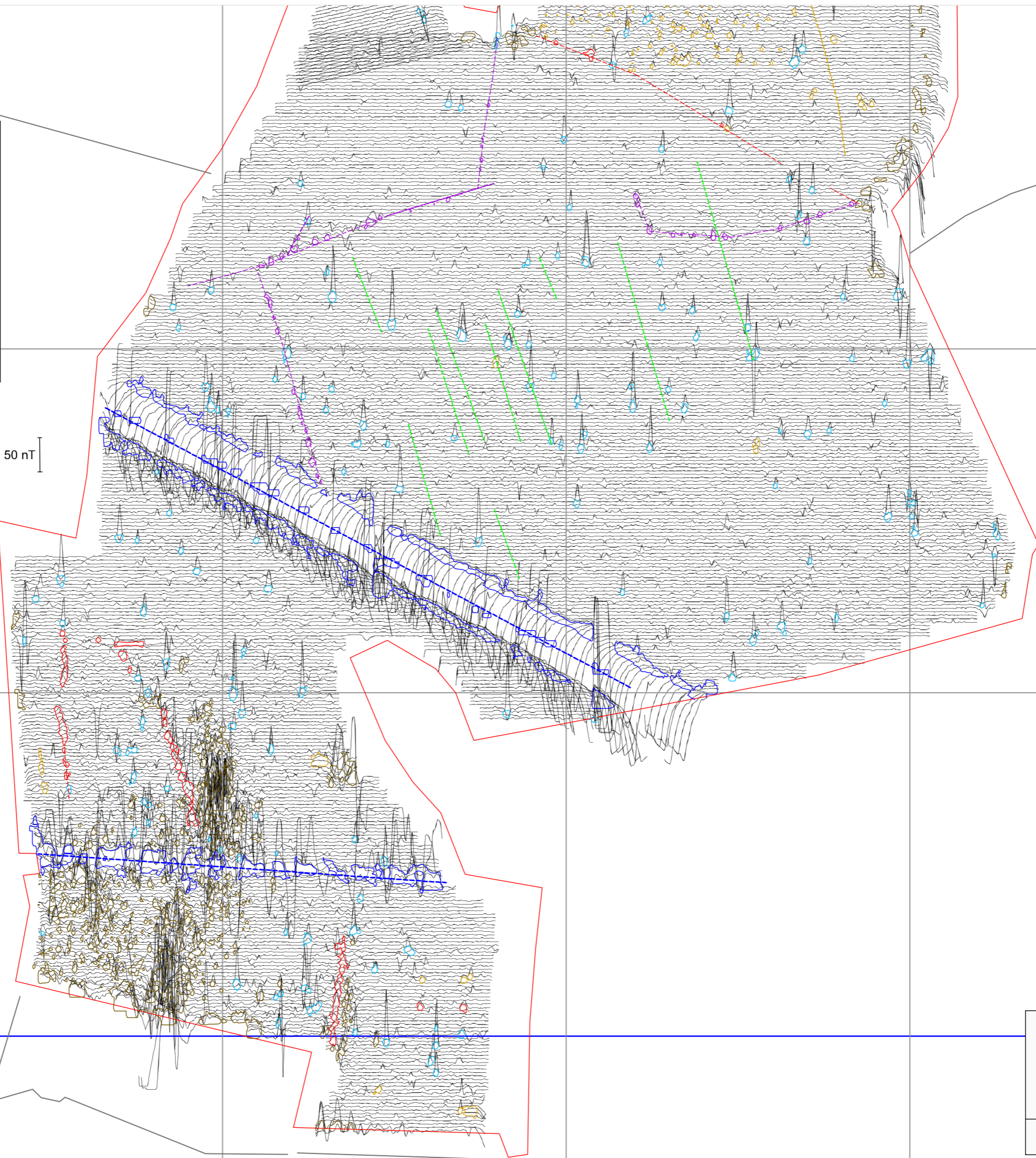
0 Scale 1:1250 @ A3 50m

Map contains Ordnance Survey data.
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-  magnetic anomalies (archaeological ?)
-  strong magnetic disturbances (recent / non-archaeological)
-  background magnetic anomalies (mainly natural ?)
-  cultivation
-  pipe (and associated magnetic disturbance)
-  drain ?
-  strong (ferrous) magnetic anomalies



50 nT



Land North of Bartlewood Lodge,
Ockbrook, Derbyshire
Geophysical Survey 2014
Illustration 3: Magnetometer survey
(with interpretation)

0 Scale 1:1250 @ A3 50m

G2044
0.14

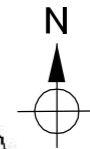
Dunn's Hill Cottage
Dunnshill

442500E

NG1840
0.38

NG3336
2.78

NG8242
5.91



Dale

NG 1

- magnetic anomalies (archaeological ?)
- strong magnetic disturbances (recent / non-archaeological)
- background magnetic anomalies (mainly natural ?)
- cultivation
- pipe (and associated magnetic disturbance)
- drain ?
- strong (ferrous) magnetic anomalies

NG2823
2.06

NG7216
3.89

338200N

NG2410
2.99

NG4508
0.77

NG5704
2.69

Bartlewood
Lodge
(PH)

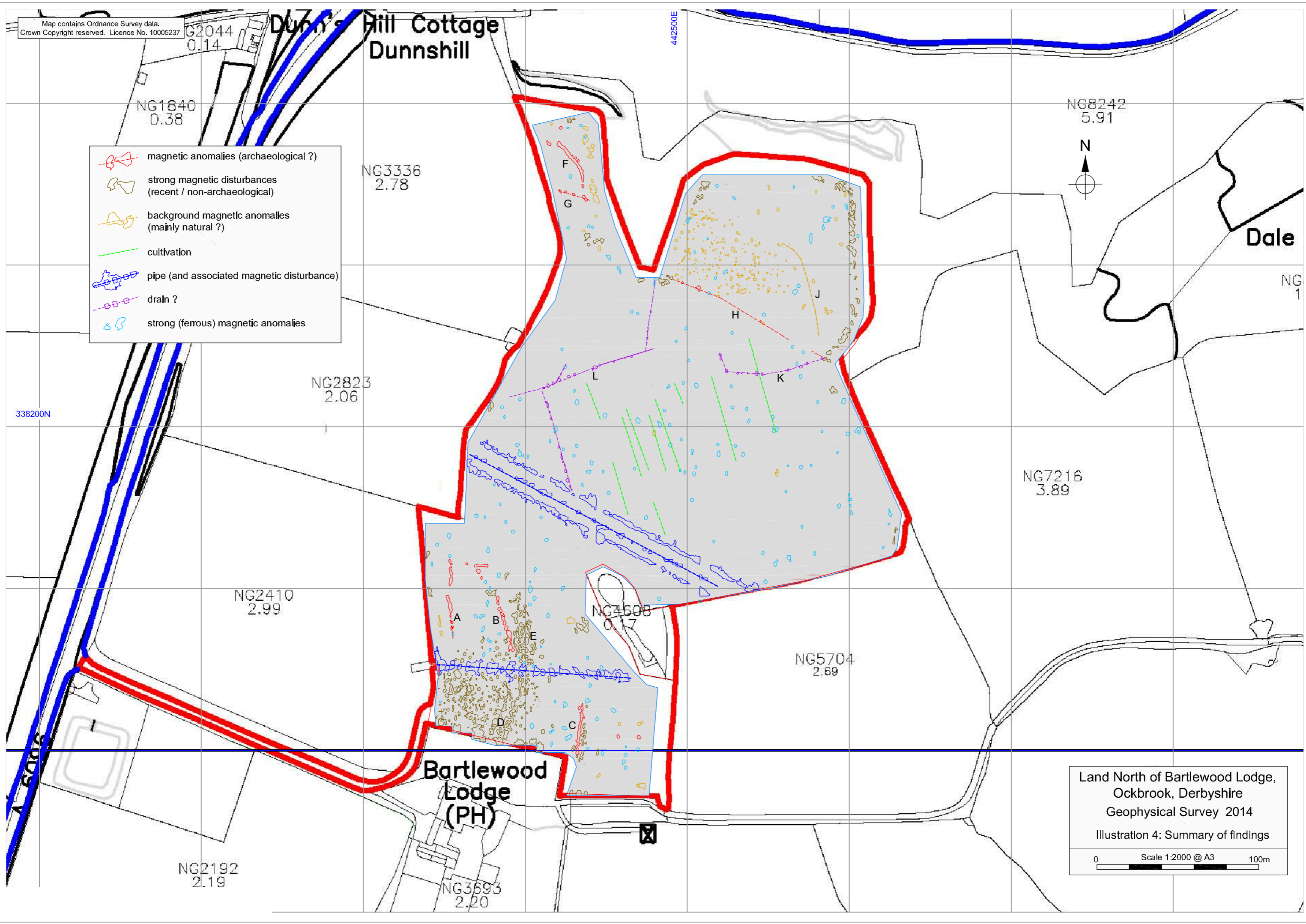
NG2192
2.19

NG3693
2.20

Land North of Bartlewood Lodge,
Ockbrook, Derbyshire
Geophysical Survey 2014

Illustration 4: Summary of findings

0 Scale 1:2000 @ A3 100m



References

- [1] *Land north of Bartlewood Lodge, Ockbrook, Derbyshire: WSI for Archaeological Geophysical Survey*. Document prepared by Headland Archaeology (UK) Ltd for Fisher German LLP. August 2014.
- [2] English Heritage 2008a *Geophysical Survey in Archaeological Field Evaluation* [online facsimile] (English Heritage: Swindon, 2008), English Heritage Research



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