

**LAND AT RATCLIFFE HOUSE FARM, RATCLIFFE CULEY
LEICESTERSHIRE**

**Archaeological Geophysical Survey
2015**

Report by:

A.D.H. Bartlett

**Bartlett-Clark Consultancy
25 Estate Yard, Cuckoo Lane,
North Leigh,
Oxfordshire OX29 6PW
01865 200864**

for:

**CgMs Consulting
Burlington House,
Lypiatt Road,
Cheltenham,
Glos GL50 2SY**

Land at Ratcliffe House Farm, Ratcliffe Culey, Leicestershire

Geophysical Survey 2015

Abstract

This geophysical survey has been undertaken as part of an archaeological evaluation of a proposed development site near Ratcliffe Culey, Leicestershire.

The survey has responded clearly to a number of sub-surface features and disturbances, and has detected cultivation effects which could indicate the survival of traces of ridge and furrow. Other findings include a former pond and possible traces of boundaries and land drains. No other features which could be interpreted as of possible archaeological interest were detected.

1. Introduction

The survey was commissioned from Bartlett Clark Consultancy, Specialists in Archaeogeophysics of Oxford, by CgMs Consulting of Cheltenham. Fieldwork for the survey was done on 17 April 2015.

2. Objectives of the Survey

The purpose of the survey was to test for evidence of archaeological sites or remains, and to provide information which may inform further stages of the archaeological evaluation.

A geophysical survey is usually able to identify the extent and character of any archaeological remains capable of producing a magnetic response. The magnetometer will detect cut features such as ditches and pits when they are silted with an increased depth of topsoil, which usually responds more strongly than the underlying natural subsoil. Fired materials, including baked clay structures such as kilns or hearths are also likely to produce a localised enhancement of the magnetic field strength, and the survey therefore responds preferentially to the presence of ancient settlement or industrial remains. The survey is also strongly affected by ferrous and other debris of recent origin.

3. The Site

Notes on the location and condition of the site and the archaeological background to the project were included the Written Scheme of Investigation submitted to CgMs in advance of the survey [2]. The following comments are reproduced in part from this document.

Topography and geology

The evaluation area lies within an arable field at the southern end of Ratcliffe House Lane, and is about 0.5km SE of Ratcliffe Culey village, and 2km NE of Atherstone, Warwickshire. The evaluation area (as indicated on the location plan inset in figure 1) amounts to 6.23ha, and is centred approximately at NGR SP 334990.

The site is on a bedrock of Gunthorpe Member Mudstone and Siltstone, and appears on BGS mapping to be free of superficial deposits (although the survey response suggests there could be a gravel component in the topsoil). The strength of the magnetic response on mudstone is sometimes not particularly strong, although soil conditions here appear to be favourable.

Magnetic susceptibility readings taken at the site during the survey gave values with a mean of 21 ($\times 10^{-5}$ SI). These readings (which are affected by soil composition together with past and present land use, and indicate the probable strength of response to be expected from a magnetometer survey) are relatively high compared with similar results from other sites on Mudstone bedrock. Conditions at the site should not therefore present any unusual difficulties for a magnetometer survey, and positive archaeological findings have been obtained in previous surveys in similar conditions.

Archaeological background

Previous nearby archaeological sites and findings are shown on the site plan inset in figure 1, which is based on a plan of HER monuments data supplied to us by CgMs. Findings which may indicate the archaeological potential of the site include a possible Roman villa site (MLE9558) in the adjacent field to the north, and an undated mound (MLE9713) 400m to the south. There are also pottery scatters and flint finds in neighbouring fields.

Various additional field boundaries are shown within the evaluation area on historic maps dated between 1888 and 1994. A map of 1886 is shown for comparison alongside the survey interpretation in figure 3.

4. Survey Procedure

The procedure used for the investigation was a fluxgate gradiometer survey across the evaluation area. The survey was supplemented by magnetic susceptibility measurements taken at intervals across the site.

A survey grid was set out at the required locations, and tied to the OS grid using a GPS system with Omnistar 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 grey a scale plot (at 1:1500 scale) in figure 1, and as a graphical (x-y trace) plot in figure 2 (at 1:1250 at A3). Inclusion of both types of

presentation allows the detected magnetic anomalies to be examined in plan and profile respectively.

The graphical (x-y) plot represents 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 adjust background noise levels.

An interpretation of the findings is shown in figure 2, and is reproduced separately to provide a summary of the findings in figure 3. Colour coding has been used in the interpretation to distinguish different effects. The interpretation is intended to categorize most of the identifiable magnetic anomalies, but cannot 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), and recent disturbances in grey. Small (and mainly natural) background magnetic anomalies are outlined in light brown. Some stronger, but probably natural, disturbances are shown in a darker brown, and some of the more conspicuous ferrous objects (identifiable as narrow spikes in the graphical plots) are outlined in light blue. Possible cultivation effects are indicated in green.

5. Results

The survey plots show clearly defined cultivation effects, which may include a combination of broad linear features which could represent traces of ridge and furrow cultivation (as indicated by green broken lines and magnetic anomalies outlined in green in figure 3), and current ploughing. The orientation of the narrower and more precisely linear recent cultivation effects indicated schematically by light green broken lines. Their alignment varies slightly from the possible earlier cultivation effects. The clear response to these disturbances confirms that soil conditions at the site should be favourable for the magnetic detection of any archaeological features which might be present.

Other findings include a group of strong magnetic disturbances in the NE of the site (as outlined in red and labelled A in figure 3). These are shown also on the inset copy of the 1886 map, and correspond to a former pond.

There are strong (negative) magnetic anomalies (marked by circles, as at C) which indicate electricity poles on the line of a recently removed field boundary. The actual former boundary (as shown on the 1886 map) is indicated by a broken red line at C. This is slightly to the east of the electricity poles, which suggests the former boundary has perhaps shifted slightly over time within a strip of disturbed ground in the centre of the survey. The disturbances are indicated by an increase in the strength and density of background magnetic activity in some parts of the site. Areas where this effect is visible (as indicated by magnetic anomalies outlined in a darker brown) include the central part of the survey around C, and towards the NW corner (D). Magnetic effects of this kind are often caused by naturally magnetic stones in topsoil containing gravel as well as clay, although they may also result from a scatter of modern (or older) debris.

The background disturbances include sequences of small magnetic anomalies (as labelled at E, F) which could indicate the presence of clay land drains, but they do not appear to include any larger or more distinct magnetic anomalies which would suggest the presence of archaeological features.

6. Conclusions

The survey has detected cultivation effects, a former pond, and possible land drains, but there are no other clearly interpretable findings of a kind which could indicate the presence of substantial or readily identifiable archaeological features.

Report by:

A. Bartlett BSc MPhil
Bartlett - Clark Consultancy
Specialists in Archaeogeophysics
25 Estate Yard
Cuckoo Lane
North Leigh
Oxfordshire
OX29 6PW 01865 200864

bcc123@ntlworld.com

5 May 2015

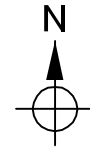
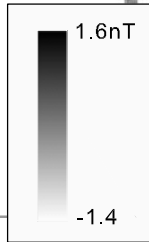
The fieldwork for this project was done by M. Berry and C. Matthews.

References

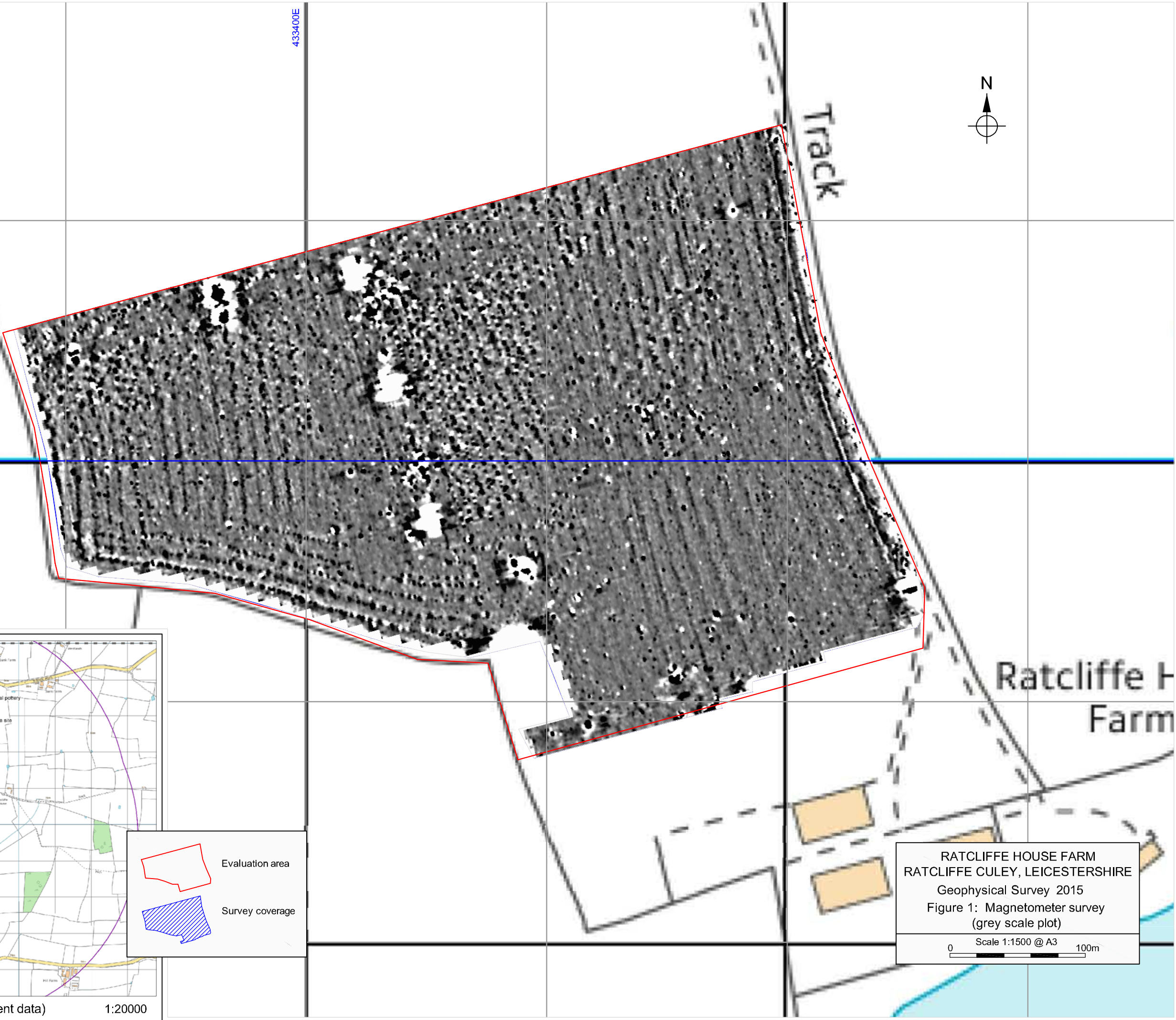
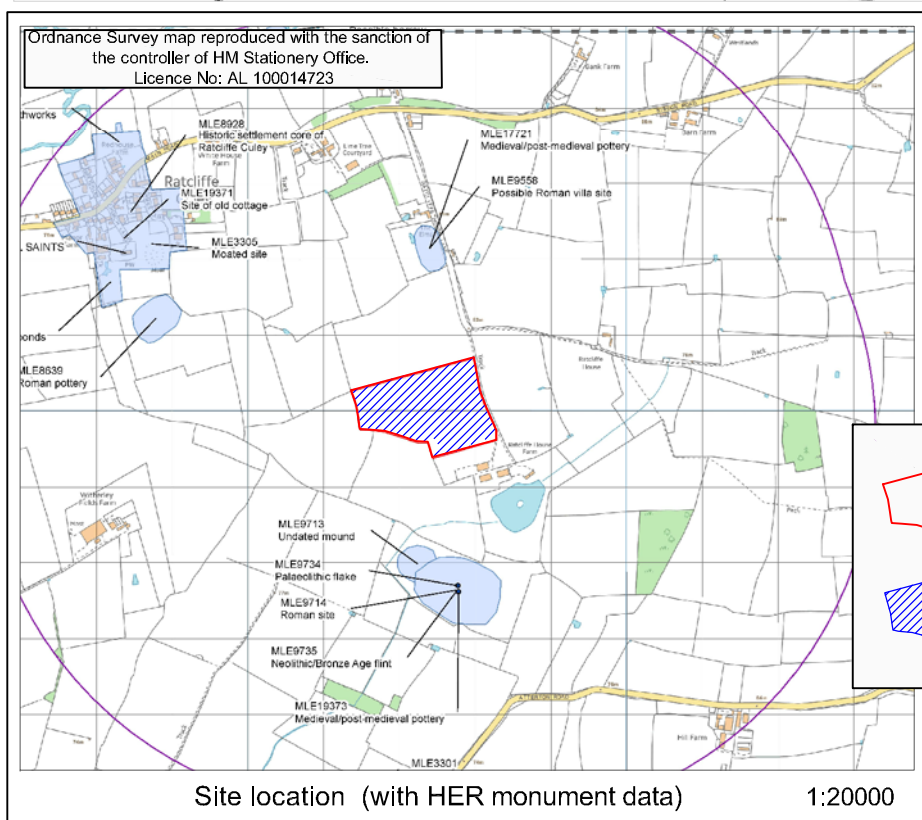
- [1] *Land at Ratcliffe House Farm, Ratcliffe Culey, Leicestershire: Written Scheme of Investigation for Archaeological Geophysical Survey 2015*. Document submitted to CgMs by Bartlett Clark Consultancy; 15 April 2015.
- [2] English Heritage 2008 *Geophysical Survey in Archaeological Field Evaluation* [online facsimile] (English Heritage: Swindon, 2008), English Heritage Research.

Surveyed by Bartlett - Clark Consultancy (01865 200864)
for CgMs Consulting (Cheltenham)

433400E

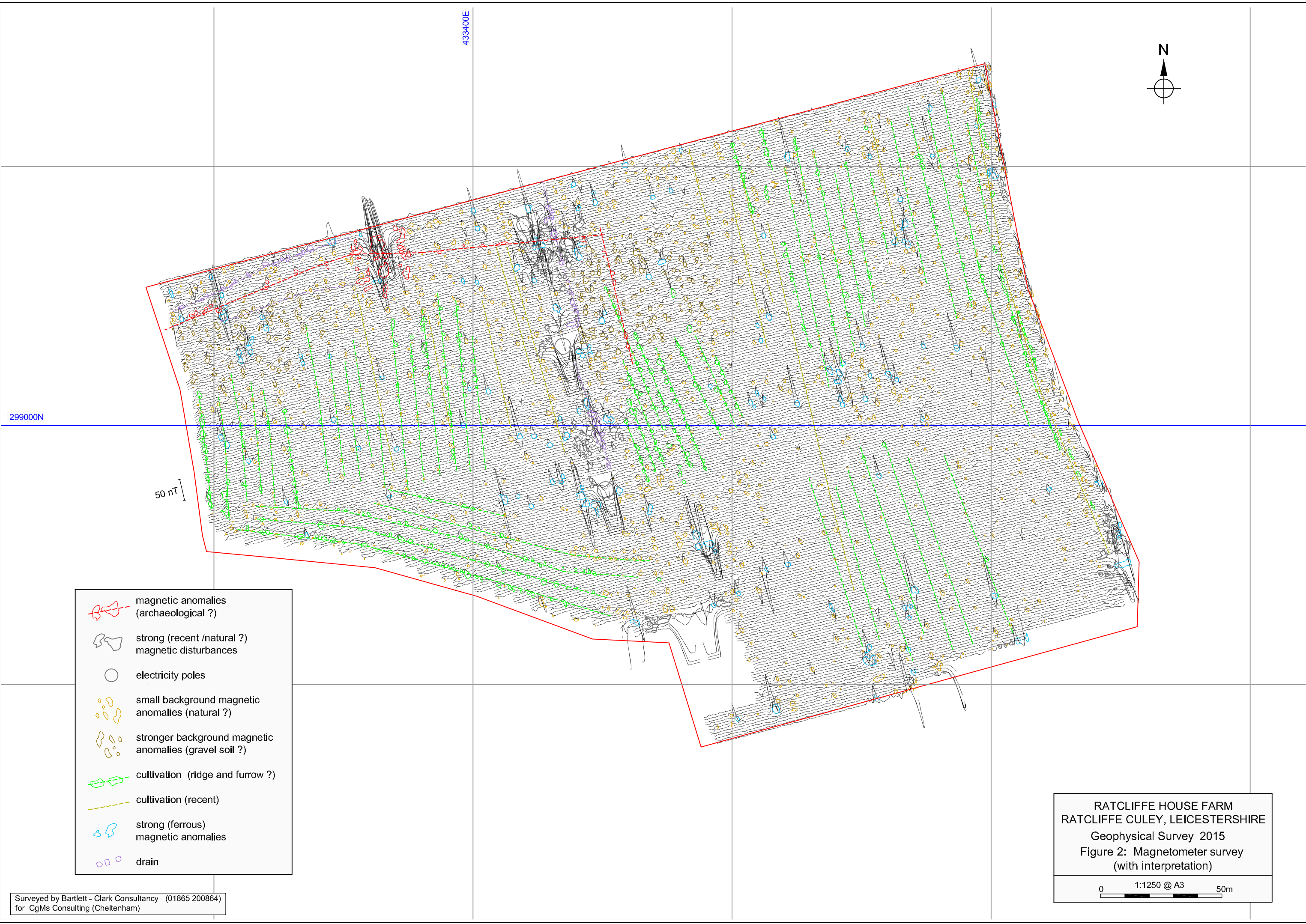
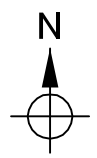


299000N



RATCLIFFE HOUSE FARM
RATCLIFFE CULEY, LEICESTERSHIRE
Geophysical Survey 2015
Figure 1: Magnetometer survey
(grey scale plot)










0 Scale 1:1500 @ A3 100m



299000N

433400E










50 nT

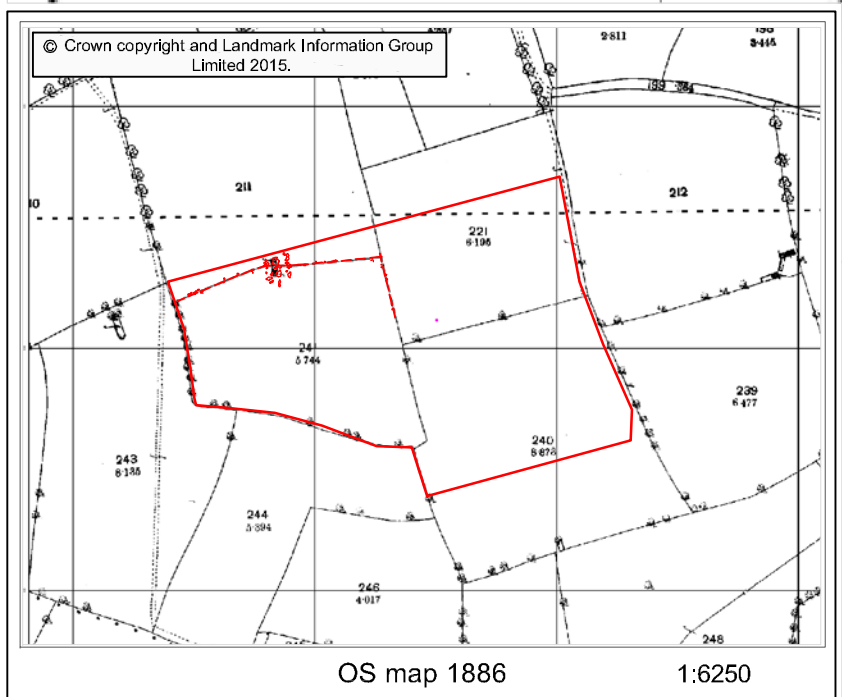
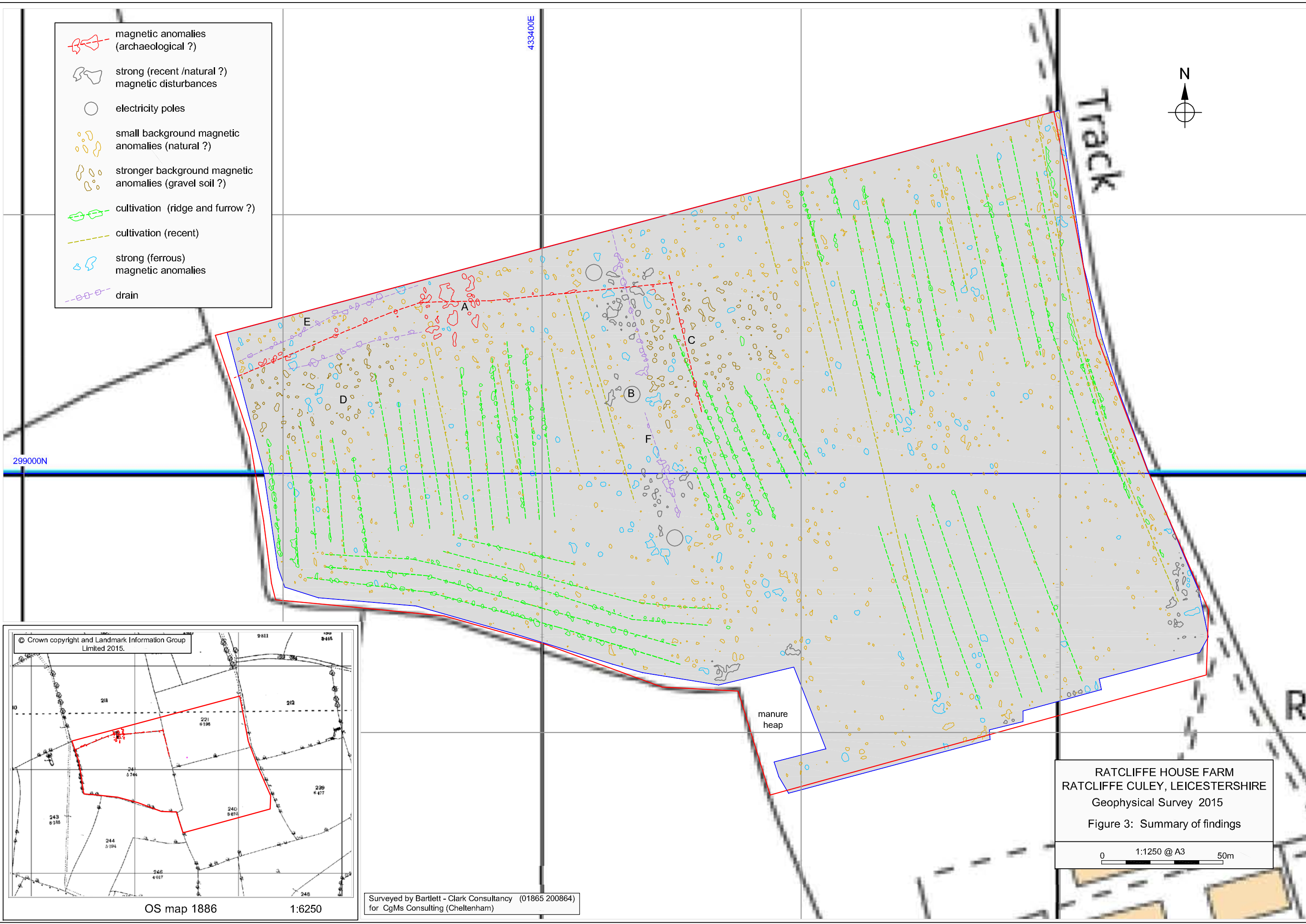
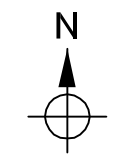
-  magnetic anomalies (archaeological ?)
-  strong (recent /natural ?) magnetic disturbances
-  electricity poles
-  small background magnetic anomalies (natural ?)
-  stronger background magnetic anomalies (gravel soil ?)
-  cultivation (ridge and furrow ?)
-  cultivation (recent)
-  strong (ferrous) magnetic anomalies
-  drain

Surveyed by Bartlett - Clark Consultancy (01865 200864)
for CgMs Consulting (Cheltenham)

RATCLIFFE HOUSE FARM
RATCLIFFE CULEY, LEICESTERSHIRE
Geophysical Survey 2015
Figure 2: Magnetometer survey
(with interpretation)

0 1:1250 @ A3 50m

-  magnetic anomalies (archaeological ?)
-  strong (recent /natural ?) magnetic disturbances
-  electricity poles
-  small background magnetic anomalies (natural ?)
-  stronger background magnetic anomalies (gravel soil ?)
-  cultivation (ridge and furrow ?)
-  cultivation (recent)
-  strong (ferrous) magnetic anomalies
-  drain



Surveyed by Bartlett - Clark Consultancy (01865 200864)
for CgMs Consulting (Cheltenham)

RATCLIFFE HOUSE FARM
RATCLIFFE CULEY, LEICESTERSHIRE
Geophysical Survey 2015
Figure 3: Summary of findings

