

Land at School Farm, Churchover, Warwickshire

Geophysical Survey 2014

Prepared by A. Boucher

CONTENTS

1	INTRODUCTION	1
2	OBJECTIVES OF THE SURVEY	1
3	GEOLOGICAL BACKGROUND	1
4	ARCHAEOLOGICAL BACKGROUND	1
5	SURVEY PROCEDURE	1
6	RESULTS	2
7	CONCLUSIONS	3
	REFERENCES	3

Abstract

This geophysical survey is to form part of an archaeological field evaluation of a proposed development site at Churchover, Warwickshire.

The survey has detected possible traces of former ridge and furrow cultivation in parts of the site, and various non-archaeological disturbances, but the findings do not suggest the presence of any more substantial or concentrated archaeological features or activity.

1. Introduction

The survey was commissioned from Bartlett Clark Consultancy, Specialists in Archaeogeophysics of Oxford, by Headland Archaeology (UK) Ltd on behalf of URS Global and Hive Energy Ltd. Fieldwork for the survey was done on 8-10 April 2014. Plots showing the survey data have previously been supplied to Headland Archaeology, and are now included in this report.

The proposed development extends across six arable fields amounting to 24.3ha, and is centred at NGR 452136, 281061. The site is located approximately 500m east of Churchover village, and 6km NE of Rugby.

It is specified in the project WSI as supplied by URS that a magnetometer survey is required across seven defined areas amounting in total to 15.66ha. These were located as indicated by the grid of 30m squares shown (in blue) in Illustration 1.

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 as noted in the WSI are:

- 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. Geological Background

It is mentioned in the WSI that the geology of the site consists of Jurassic rock fragments with lenses of sand and gravel, and also of clay and silty clay. These conditions should not present any particular difficulties for a geophysical survey, and soils on Jurassic bedrock usually respond well to magnetic investigation.

4. Archaeological Background

The archaeological background to the project is reviewed in the WSI. Archaeological sites and findings as listed in the County Heritage Environment Record include a small number prehistoric artefacts found in the surrounding area (including a Bronze Age spear found in 1825 800m to the SE).

The modern A5 immediately to the NE of the site follows the line of the Roman Watling Street, but Roman findings in the vicinity are limited to occasional artefacts and coins at distances of 400m or more from the site.

Nearby medieval archaeological sites include a possible Saxon cemetery 500m to the north. The development area is some distance from the medieval Churchover village.

5. Survey Procedure

The procedure used for the investigation was a recorded magnetometer survey carried out following procedures 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 grey scale plots in Illustrations 2-3 (1:2000 scale @ A3), and as graphical (x-y trace) plots in Illustrations 4-5. 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 (English Heritage 2008). 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 4-5, and is reproduced separately to provide a summary of the findings in Illustration 6. Colour coding has been used in the interpretation to distinguish different interpretations and anomaly types.

6. Results

The fields are numbered on the illustrations in the sequence as used on plans supplied to us by URS.

The main finding, as seen particularly in fields 2, 3, 6 and part of 5, is a parallel pattern of linear cultivation markings. These could in part relate to current cultivation, but their appearance and dimensions could also be consistent with the presence of silted furrows from former ridge and furrow. A more complex pattern of intersecting linear markings in field 1 (and perhaps elsewhere, including field 4) suggests these fields have been ploughed in various directions at different times.

Other findings include iron pipes in fields 4 and 7, and pipes or drains in field 3. A strongly disturbed area (indicated in brown) towards the NE of field 3 suggests a former pit or pond containing modern fill. The gap in the survey to the NE of field 4 is caused by a manure heap.

The broad weak disturbances (outlined in light green) in fields 3 and 5 are typical of magnetic anomalies often seen in wetland areas, and so could perhaps represent naturally silted hollows in a localised area of clay soil.

The only magnetic anomalies (other than the possible ridge and furrow) which show any of the characteristics to be expected from archaeological findings are some small features (outlined in red) which could represent silted pits. These are most clearly visible in field 4. They are small and dispersed, and do not suggest the presence of concentrations of archaeological features.

7. Conclusions

Conditions at the site appear to be favourable for the magnetic detection of archaeological features, as is indicated by the cultivation effects which are clearly visible in the survey plots, but there are few other findings.

There is likely to be an infilled pit or pond in field 3, and some apparently natural silted hollows were detected in fields 3 and 5. A few features which could represent silted pits are indicated in field 4, but they are small and isolated, and are not associated with other findings to suggest the presence of an archaeological site.

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1 May 2014

The fieldwork for this project was done by C. Oatley, P. Heykoop and N. Paveley.


References

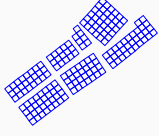
School Farm, Churchover, Warwickshire: WSI for Archaeological Geophysical Survey. Document prepared by URS for HIVE Energy. March 2014.


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


English Heritage 2008b *Professional Services Guideline no. 1, 2nd edn* English Heritage Research.




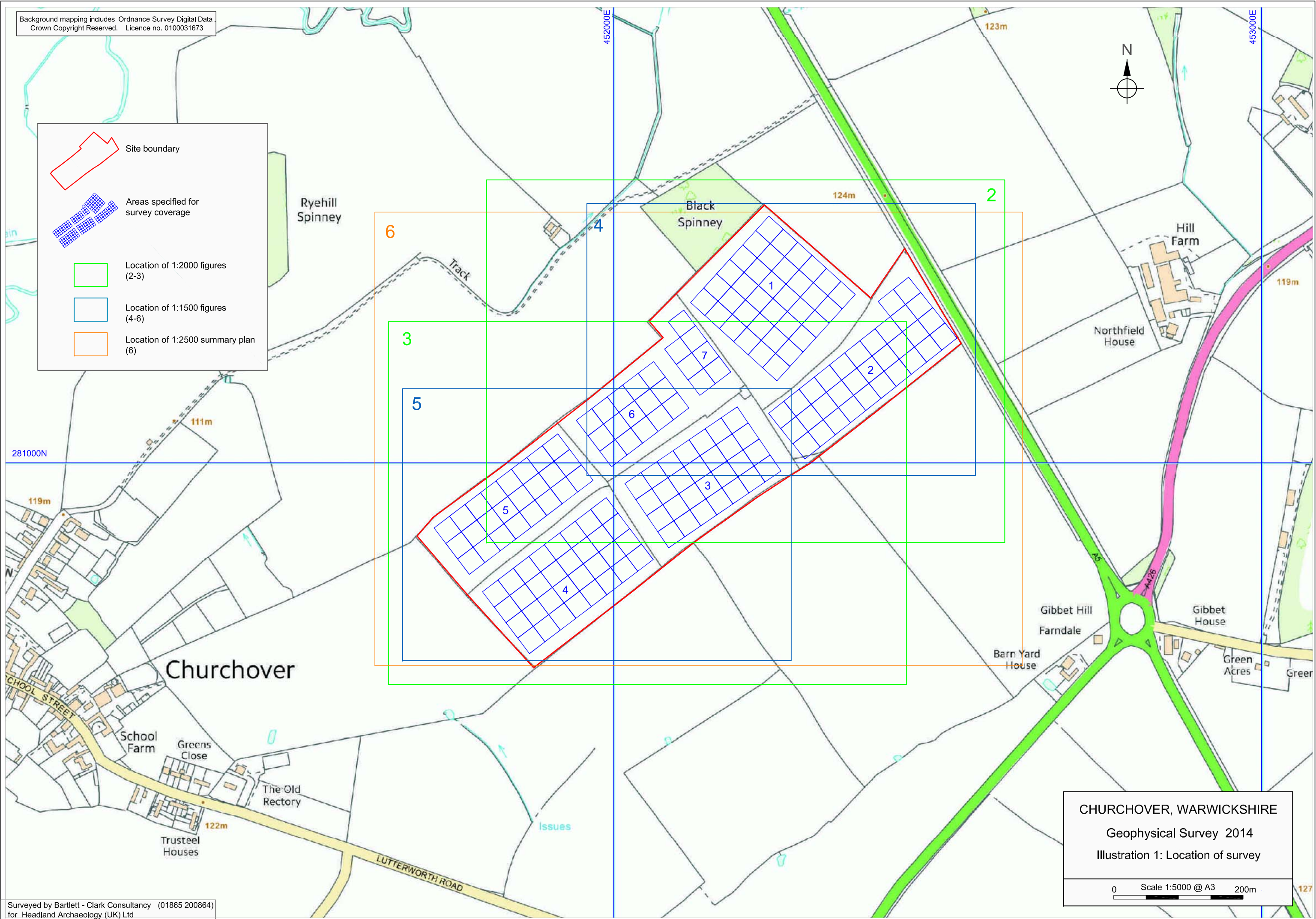
 Site boundary

 Areas specified for survey coverage

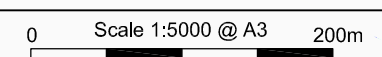
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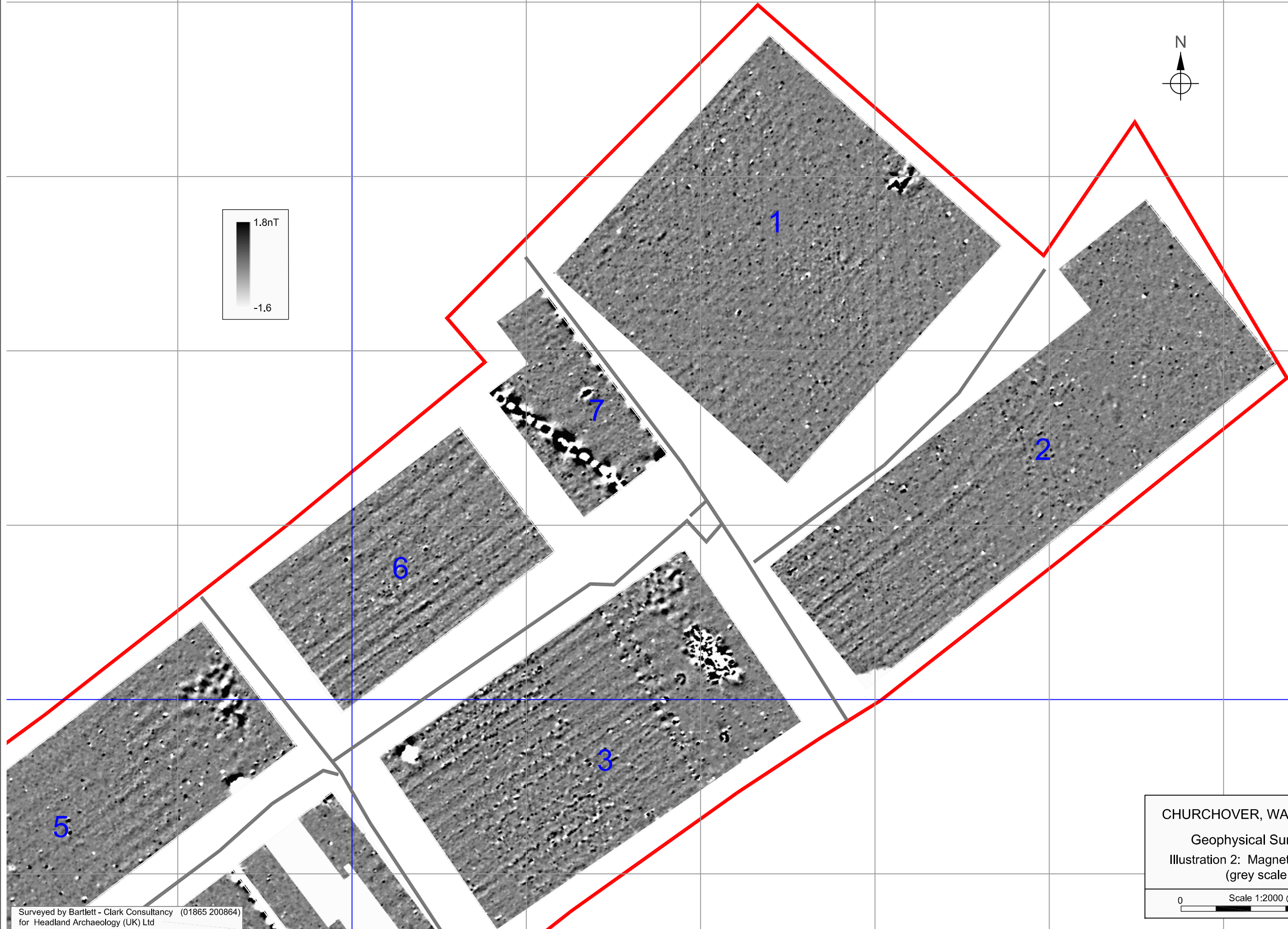
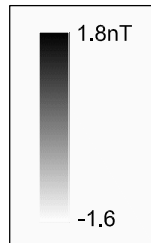
 Location of 1:1500 figures (4-6)

 Location of 1:2500 summary plan (6)

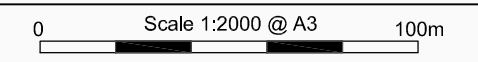


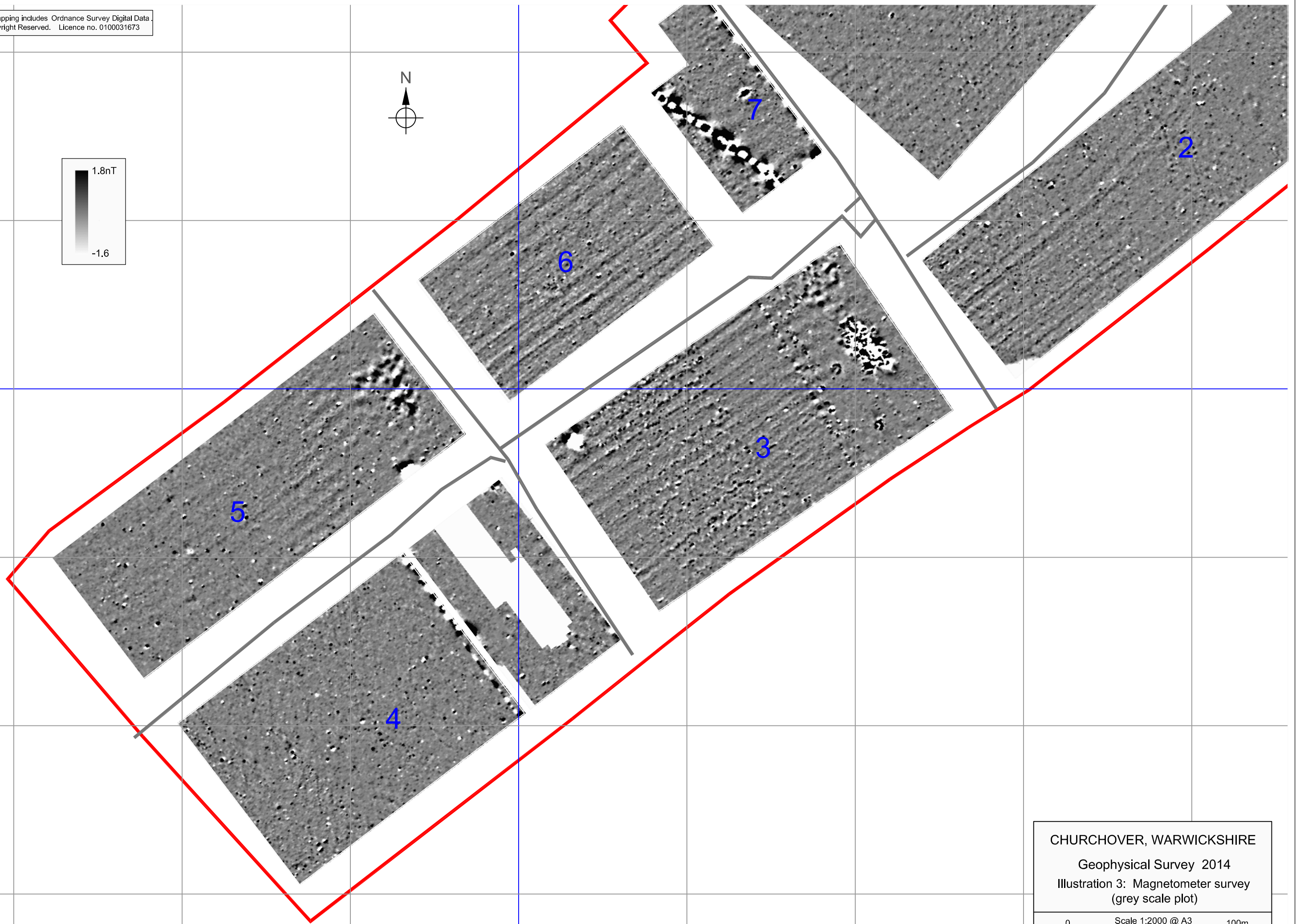
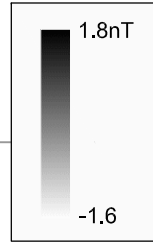
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Illustration 1: Location of survey



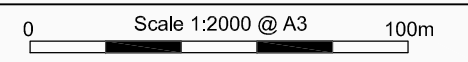


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Illustration 2: Magnetometer survey
(grey scale plot)










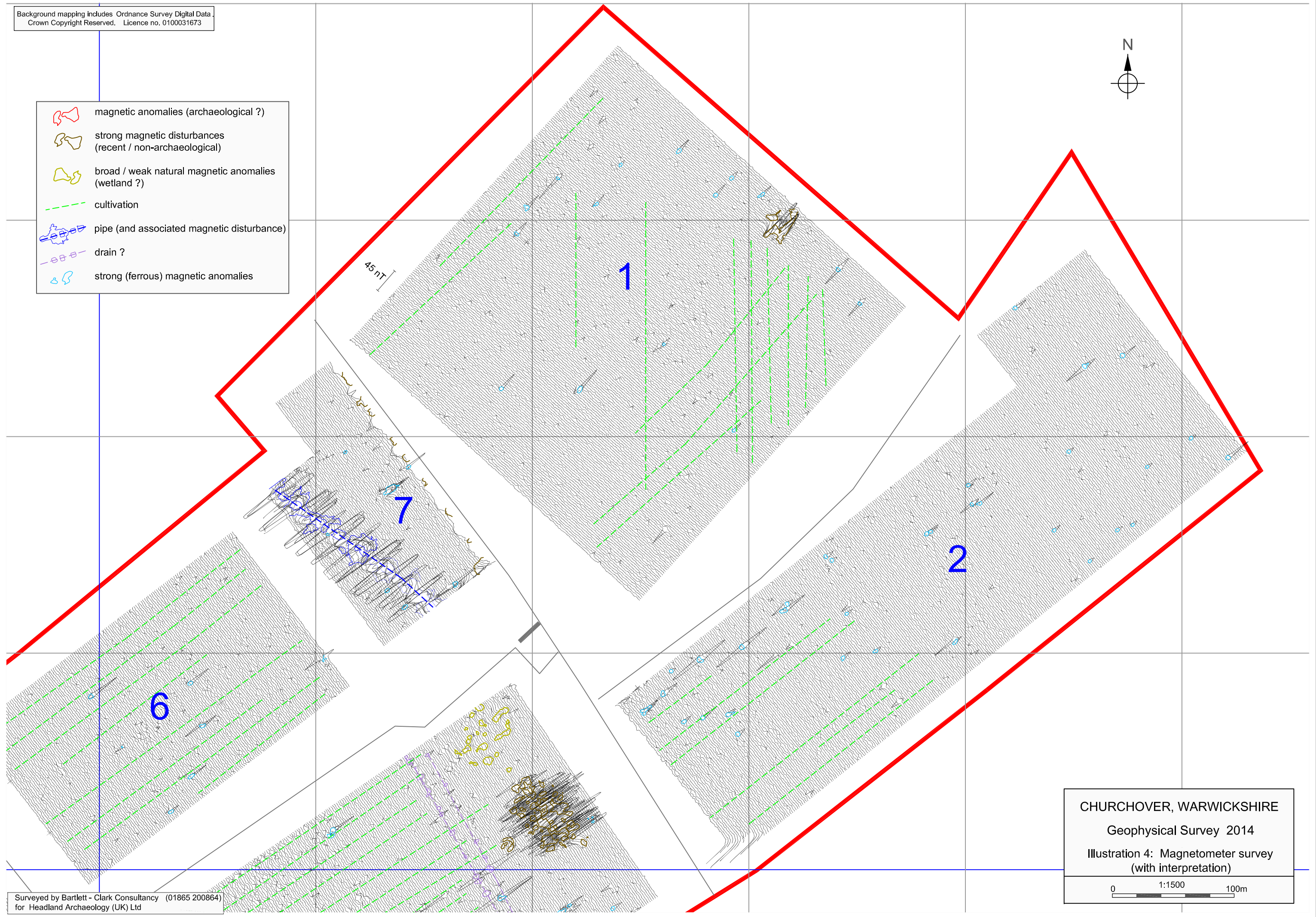


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Illustration 3: Magnetometer survey
(grey scale plot)





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










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Illustration 4: Magnetometer survey
(with interpretation)

0 1:1500 100m

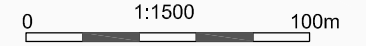
45 nT



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










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Illustration 5: Magnetometer survey
(with interpretation)



452000E



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

281000N



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Illustration 6: Summary of findings

