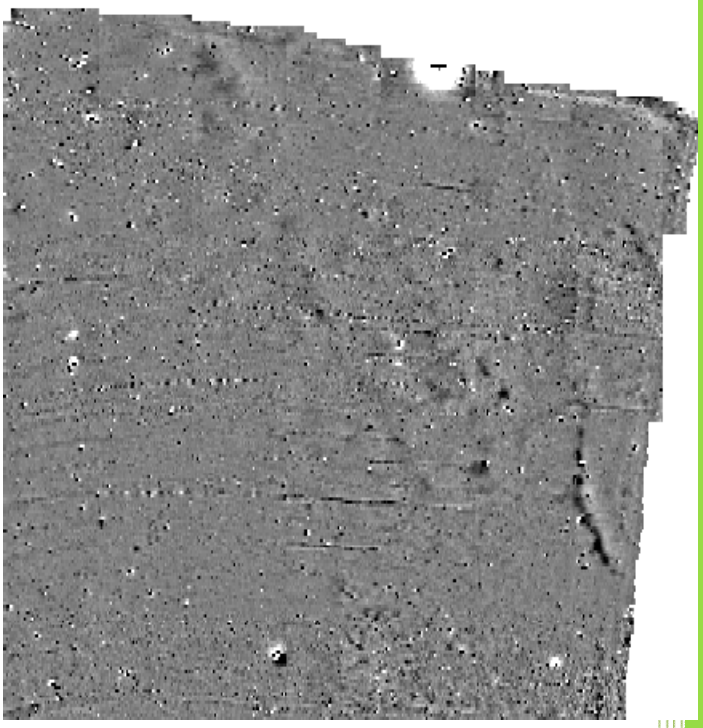
Northamptonshire Archaeology

Archaeological Geophysical Survey on land South of Colpman's Farm, Lowick Northamptonshire



Northamptonshire Archaeology
2 Bolton House
Wootton Hall Park
Northampton NN4 8BE
t. 01604 700493 f. 01604 702822
e. sparry@northamptonshire.gov.uk
w. www.northantsarchaeology.co.uk

Northamptonshire County Council

Paul Clements

Report 11/63

March 2011

STAFF

Project Manager:	Adrian Butler MA BSc AI*f*A
Fieldwork:	Paul Clements BA Ian Fisher BSc Luke Jarvis BA Heather Smith MA John Walford MSc
Text and Illustrations:	Paul Clements BA Carol Simmonds

QUALITY CONTROL

	Print name	Signed	Date
Checked by	Adrian Butler	*AB*	07/03/2011
Verified & Approved by	Andy Chapman	*AC*	07/03/2011

OASIS REPORT FORM

PROJECT DETAILS		
Project name	Archaeological Geophysical Survey on land south of Colpman's Farm, Lowick	
Short description	Northamptonshire Archaeology was commissioned to undertake a magnetometer survey in two fields, totalling an area of 18ha, on land south of Colpman's Farm, Lowick, Northamptonshire. The survey identified one linear anomaly which is likely to be a former field boundary. Ridge and furrow cultivation systems were detected in both fields.	
Project type	Geophysical survey	
Site status	None	
Previous work	Desk Based Assessment (CgMs Consulting 2010)	
Current Land use	Arable	
Future work	Unknown	
Monument type/ period	Undated ditch and ridge and furrow cultivation systems	
Significant finds	None	
PROJECT LOCATION		
County	Northamptonshire	
Site address	Land south of Colpman's Farm, Lowick	
Study area	*c*18 hectares	
OS Easting & Northing	4980 2795	
Height OD	65-70m AOD	
PROJECT CREATORS		
Organisation	Northamptonshire Archaeology (NA)	
Project brief originator	CgMs Consulting Ltd	
Project Design originator	NA	
Director/Supervisor	Ian Fisher	
Project Manager	Adrian Butler	
Sponsor or funding body	CgMs Consulting Ltd	
PROJECT DATE		
Start date	21 February 2011	
End date	07 March 2011	
ARCHIVES	Location	Content
Physical		
Paper	NA	Site survey records
Digital	NA	Geophysical survey & GIS data
BIBLIOGRAPHY	Journal/monograph, published or forthcoming, or unpublished client report	
Title	Archaeological Geophysical survey on land south of Colpman's Farm, Lowick, Northamptonshire	
Serial title & volume	Northamptonshire Archaeology Reports 11/63	
Author(s)	Paul Clements	
Page numbers	8	
Date	7/3/2011	

Contents

Figures

ARCHAEOLOGICAL GEOPHYSICAL SURVEY
ON LAND SOUTH OF COLPMAN'S FARM, LOWICK, NORTHAMPTONSHIRE
FEBRUARY 2011

ABSTRACT

Northamptonshire Archaeology was commissioned by CgMs Consulting to undertake a magnetometer survey in two fields, totalling an area of 18ha, on land south of Colpman's Farm, Lowick, Northamptonshire. The survey identified one linear anomaly which is likely to be a former field boundary. Ridge and furrow cultivation was detected in both fields.

1 INTRODUCTION

Northamptonshire Archaeology (NA) was commissioned by CgMs Consulting Ltd to undertake archaeological geophysical survey on land south of Colpman's Farm, Lowick, Northamptonshire (centred NGR SP 980 795, Fig 1). The fieldwork comprised a detailed gradiometer survey which took place in February 2011.

2 TOPOGRAPHY AND GEOLOGY

The survey area comprises of two arable fields on a high ridge west of the River Nene. At the time of survey no crop was in the field. The north-eastern corner of Field 2 had a visible spread of modern debris on the surface. An electricity pylon is situated towards the south-eastern corner of Field 2.

The site stands approximately 65-70m aOD. It is underlain by Great Oolite Ironstones, limestone and mudstones (www.bgs.ac.uk/geoindex). The soils comprise of clay and ironstone topsoil with a clay and limestone subsoil (Dawson 2010).

3 ARCHAEOLOGICAL BACKGROUND

A desk-based assessment was carried out by CgMs Consulting prior to the fieldwork which identified archaeological features and finds in the surrounding area from the Mesolithic to modern periods (Dawson 2010). It assessed that the archaeological potential within the survey area was low for all periods. Remains of a tramway track from former ironstone quarrying once ran along the eastern edge of the survey area.

4 METHODOLOGY

The geophysical survey was carried out in accordance with the guidelines of English Heritage and the Institute for Archaeologists (EH 2008 & Gaffney, Gater and Ovendon 2002).

The survey was conducted with Bartington Grad 601-2, twin sensor array, vertical component fluxgate gradiometers (Bartington and Chapman 2003). These are standard instruments for archaeological survey and can resolve magnetic variations as slight as 0.1 nanotesla (nT).

The gradiometer coverage comprised a total of 202 whole and partial 30m x 30m grid-squares. Each survey area was set-out using a combination of Leica System 1200 survey-grade GPS, and manual division into grid squares by tape measure and optical square. Each grid square was traversed at rapid walking pace in zigzag mode and magnetic data was recorded every 0.25m along traverses spaced at 1m intervals.

The data was analysed using Geoplot 3.00v software. Low (negative) magnetism is shown as white and high (positive) magnetism as black in the resultant greytone plots. Minimal manipulation was carried out on the data as the raw data is generally of high quality, ensuring that the data-set is uniform (EH 2008, 41-44). Thermal drift in the four fluxgate sensors may slightly alter the balanced level of the gradiometer over a survey, causing 'heading' errors visible as striping along traverses in the data. The 'Zero Mean Traverse' function was applied in order to bring the average level of each data line into a balanced mean of zero. This function retains the gradient of the magnetic field whilst reducing the mean so that each traverse is directly comparable.

The processed data was examined for weak magnetic anomalies under a variety of viewing regimes. The data is presented here in the form of a grey tone image highlighting a broad magnetic anomaly scale (-4.0nT / +4.0nT) which in turn was rectified to the Ordnance Survey base (Figs 2,). Interpretative plots have been generated from the results (Figs 3).

5 SURVEY RESULTS

5.1 Field 1

A set of weak positive linear anomalies parallel on north-east alignments across the field represent ridge and furrow cultivation of likely medieval origin (Figs 2 & 3, F1). On similar alignments are chains of positive negative magnetic anomalies. These probably represent ceramic land drains of post medieval to modern date.

In the north-west corner of Field 1 variations in the natural geology have caused a series of weak positive anomalies.

Dipolar anomalies across the field, seen as positive anomalies with a negative 'halo', represent ferrous debris of likely modern origin in the topsoil.

5.2 Field 2

Ridge and furrow cultivation extends into this field on the same north-east to south-west alignments as in Field 1, and seen again as weak positive linear anomalies (Figs 2 & 3, F2).

A weakly positive segmented linear anomaly cuts across the north-west corner on an east-north-east course. It does not continue into Field 1. It is potentially a ditch of indeterminate date the segmentation caused by the ridge and furrow.

The ferrous anomalies in this field are likely to be modern debris. The larger of these to the south-east is an electricity pylon.

The north-east corner contains an area of magnetic disturbance coincide with an area noted to have modern debris spread through the topsoil.

6 CONCLUSION

The survey has identified one possible ditch of archaeological interest in Field 2. It is of an unknown date and is potentially part of earlier field boundary. Evidence of plough-levelled medieval ridge and furrow cultivation systems have been detected across the whole of the survey area

The survey has also identified potential geological variations in the north-western corner of Field 1

The lack of magnetic anomalies across the survey are does not of necessity rule out the presence of archaeological features. Targets smaller than the sampling resolution of 1.0m x 0.25m are unlikely to be detected, unless highly magnetised. The weakness of the anomalies of potential archaeological features and ridge and furrow suggest that geological conditions may not good for identifying low contrast magnetic changes.

BIBLIOGRAPHY

Bartington, G, and Chapman, C, 2003 *A high-stability fluxgate magnetic gradiometer for shallow geophysical survey applications*, Archaeological Prospection, **11**, 19-34

Dawson, M, 2010 *Heritage assessment, Land at Colpman's Farm, Lowick, Northamptonshire*, CgMs Consulting Ltd

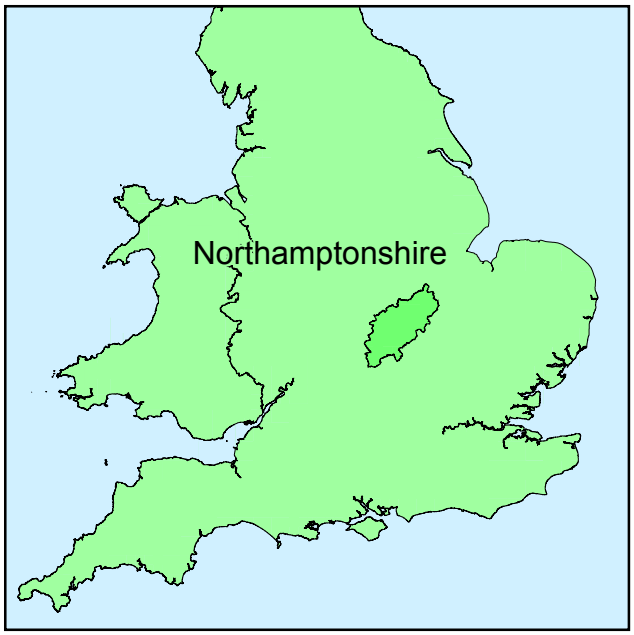
EH 2008 *Geophysical Survey in Archaeological Field Evaluation*, English Heritage

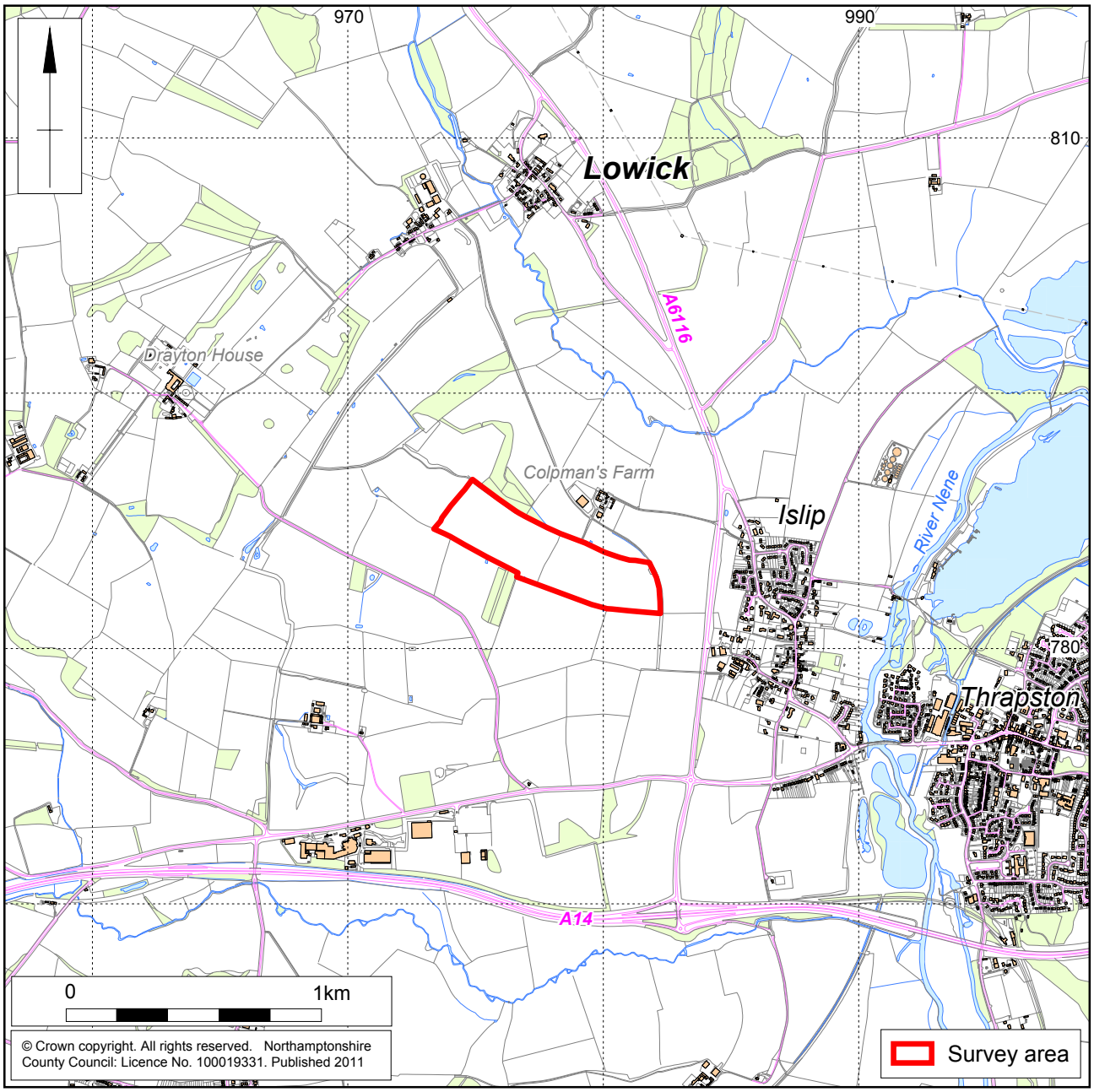
Gaffney, C, Gater, J, and Ovendon, S, 2002 *The Use of Geophysical Techniques in Archaeological Evaluations*, Institute for Archaeologists Technical Paper, **6**

Websites

BGS 2009 http://www.bgs.ac.uk/geoindex/home.html British Geological Survey website, accessed 7/3/2011

Northamptonshire Archaeology
A Service of Northamptonshire County Council 7 March 2011





Scale 1:25,000

Site location Fig 1

975

980

796

792

Colpman's Farm

F1

F2

Magnetic anomaly /nT

-4nT 0 +4nT

0 100m

1:2,500

Magnetometer Survey Results Fig 2

975

980

796

792

Colpman's Farm

F1

F2

Survey area
Geological?
Archaeology?
Land drain?
Ridge and furrow?
Ferrous

Magnetic anomaly /nT
-4nT 0 +4nT

0 100m

1:2,500

Magnetometer Survey Interpretation Fig 3

Northamptonshire County Council

Northamptonshire Archaeology

Northamptonshire Archaeology
2 Bolton House
Wootton Hall Park
Northampton NN4 8BE
t. 01604 700493 f. 01604 702822
e. sparry@northamptonshire.gov.uk
w. www.northantsarchaeology.co.uk