Northamptonshire County Council

Northamptonshire Archaeology

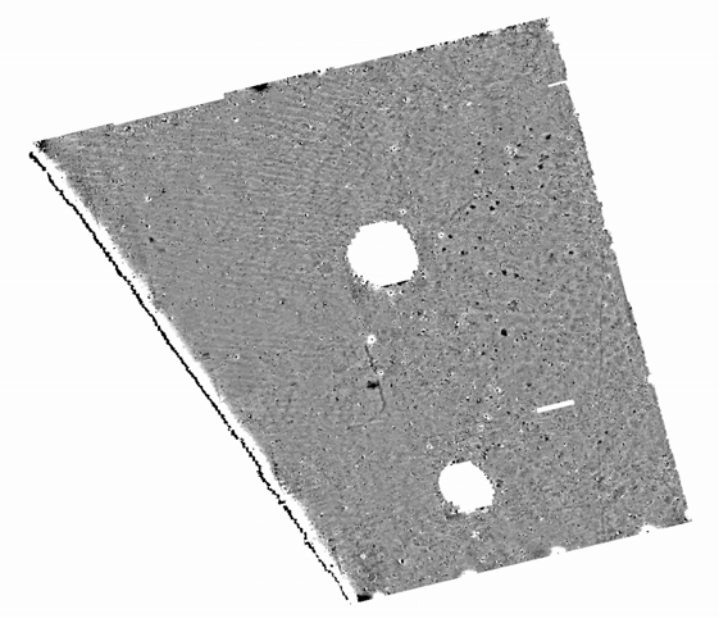
Archaeological Geophysical Survey

on land north of Thetford

Norfolk

May 2009

NHER 52658



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May 2009

Report 09/057

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REGISTERED ORGANISATION IfA

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QUALITY CONTROL

	Print name	Signature	Date
Checked by	P Chapman	*PC*	14/05/09
Verified by	A Chapman	*AC*	15/05/09
Approved by	WA Boismier	WAB	19/05/09

OASIS REPORT FORM

PROJECT DETAILS		
Project name	Archaeological Geophysical Survey on Land North of Thetford, Norfolk	
Short description	Northamptonshire Archaeology was commissioned by RPS Group to conduct an archaeological geophysical survey on land proposed for a new biomass CHP facility to the north of Thetford. A single area of *c* 15ha was surveyed by fluxgate gradiometer. The survey revealed a likely ditch in the east of the site and a U-shaped ditch, possibly part of an enclosure in the west. Up to 17 likely pits have been detected on the eastern half of the field. Periglacial patterned ground was identified in the substrate.	
Project type	Geophysical survey	
Site status	None	
Previous work	Unknown	
Current Land use	Arable	
Future work	Unknown	
Monument type/ period		
Significant finds	None	
PROJECT LOCATION		
County	Norfolk	
Site address	Mundford Road, Thetford	
Study area	15ha	
OS Easting & Northing	58623 28600	
Height OD	30m – 60m AOD	
PROJECT CREATORS		
Organisation	Northamptonshire Archaeology	
Project brief originator	Norfolk Landscape Archaeology	
Project Design originator	RPS Group	
Director/Supervisor	John Walford	
Project Manager	Adrian Butler	
Sponsor or funding body	RPS Group	
PROJECT DATE		
Start date	14th April 2009	
End date	16th April 2009	
ARCHIVES	**Location**	**Content**
Physical	N/A	
Paper	NA. NHER52658	Site survey records
Digital	NA. NHER52658	Geophysical survey & GIS data
BIBLIOGRAPHY	Journal/monograph, published or forthcoming, or unpublished client report	
Title	Archaeological Geophysical Survey on Land North of Thetford, Norfolk	
Serial title & volume	Northamptonshire Archaeology Reports 09/57	
Author(s)	Adrian Butler	
Page numbers	4	
Date	27/4/2009	

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ARCHAEOLOGICAL GEOPHYSICAL SURVEY

ON LAND NORTH OF THETFORD, NORFOLK

APRIL 2009

ABSTRACT

Northamptonshire Archaeology was commissioned by RPS Group to conduct an archaeological geophysical survey on land proposed for a new biomass CHP facility to the north of Thetford. A single area of c 15ha was surveyed by fluxgate gradiometer. The survey revealed a likely ditch in the east of the site and a U-shaped ditch, possibly part of an enclosure in the west. Up to 17 likely pits have been detected on the eastern half of the field. Periglacial patterned ground was identified in the substrate.

1 INTRODUCTION

Northamptonshire Archaeology was commissioned by RPS Group to conduct an archaeological geophysical survey on land on the northern edge of Thetford, Norfolk (NGR TL 8623 8600; Fig 1). The work was undertaken in relation to proposals for a Biomass CHP Facility, a renewable energy facility, (Ref SP/E/3/08/9014, Hamilton 2008).

The site was the subject of both geophysical survey and a fieldwalking/metal detecting survey (Burrow 2009), the scope of both which have been set out in a brief issued by Norfolk Landscape Archaeology, dated 20 June 2008 (Hamilton 2008).

The objectives of the geophysical survey were to identify the presence or absence of archaeological remains within the proposed development area. The fieldwork consisted of a magnetic gradiometer survey covering approximately 15 hectares of land. Norfolk Historic Environment Record (NHER) issued the code NHER52658 to the survey.

2 TOPOGRAPHY AND GEOLOGY

The survey area occupies the north facing slope of an arable field approximately 1km north of Thetford. It is bounded to the west by the A134 Mundford Road. To the south, on top of the ridge, is a farm track and narrow spinney (Box Covert). Thetford Forest bounds the north of the site. Two former quarries, now overgrown, are situated in the mid southern and northern parts of the field. The maximum elevation is approximately 60m AOD, at the south-eastern corner of the site. Drift geology is believed to consist of

Breckland sands and gravel and the solid geology, white chalk (source: www.bgs.ac.uk/geoindex/index.html 1:650,000 scale geology mapping accessed 11/05/09). At the time of the fieldwork the field had recently been sown with sugar beet.

3 ARCHAEOLOGICAL BACKGROUND

The brief (Hamilton 2008) reports an archaeological watching brief along the western edge of the development area, that took place in 2003. The investigation recorded quantities of prehistoric lithic debris, indicating the production of flint tools. A single fragment of Bronze Age pottery was also discovered.

The Archaeology Data Service (ADS: ADS.AHDS.ac.uk/catalogue accessed 12/05/09) records the find spot of a Roman vessel in the extreme south-west of the development area. In the wider archaeological landscape, a settlement area dating from the Bronze Age through to the Roman period and a Roman temple were excavated at Fisons Way, 1200m to the west of the area. Excavations 1km south of the development area revealed an Iron Age to early 1st-century AD complex of rectangular enclosures, hut sites (possibly shrines) and burials (ADS as above).

4 METHODOLOGY

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 entire site was divided into a single network of 120 contiguous 30m x 30m grid squares. These were set out manually by tape measure and optical square, and were tied in by measurement to the field boundaries. The instruments were carried at a brisk but steady pace through each grid, collecting data along 1m spaced traverse lines. Measurements were automatically triggered every 0.25m along the traverses, giving a total of 3600 measurements per grid.

All fieldwork was carried out following the Project Brief and Written Scheme of Investigation (Hamilton 2008; NA 2008) and in accordance with the guidelines issued by

English Heritage and by the Institute for Archaeology (EH 2008; Gaffney, Gater and Ovendon 2002).

The majority of the data was processed using Geoplot 3.00u software. Striping, occasionally caused by slight mismatches in sensor balance, was removed using the 'Zero Mean Traverse' function (ZMT) and destaggering of the data was performed as necessary.

The processed data is presented in this report in the form of a greyscale plot (scale +4nT to -3nT black ~ white). This has been scaled, rotated and resampled (georectified) for display against the Ordnance Survey base mapping (Fig 2). An interpretative plot has been produced and is shown overlain onto the data in Figure 3.

5 SURVEY RESULTS

The background level of magnetic intensity was found to be fairly constant over the survey area. However, broad structure within the data at a sub-nanoTesla level was interpreted as evidence of periglacial patterned ground within sands in the south-east of the site (West 1977, 253). Similarly, positive and negative magnetic striations in the north-eastern half of the survey area was likely to be evidence of further patterned ground rather than past ploughing on the field.

Four particularly intense magnetic anomalies were detected along the track bounding the south of the survey. These were a product of four iron irrigation standpipes situated at those points. An intense positive linear anomaly, detected adjacent and parallel to the road west of the field is likely to indicate a buried iron pipeline, or possibly a power cable. Considerable numbers of small dipolar anomalies, indicative of ferrous debris in the plough soil, were detected over the field in concentrations increasing towards the south.

Survey of the western half of the area revealed a U-shaped linear positive magnetic anomaly possibly reflecting a buried ditch. The western limb of the feature was represented by a weaker anomaly. The feature as a whole may indicate part of a ditched enclosure. A discrete positive anomaly was identified inside the eastern arm of the 'U' feature. This anomaly may indicate a rectilinear pit approximately 3m in diameter. A further positive linear anomaly was located, orientated south to north in the east of the field. The ditch feature was less well detected centrally, possibly due to surveying

inconsistencies.

Approximately 16 discrete positive magnetic anomalies, possibly reflecting pits of various sizes, were detected across the eastern half of the field. The pits were without a recognisable pattern and so a likely date and function cannot be estimated.

6 CONCLUSION

Gradiometer survey of a 15ha field north of Thetford identified a probable ditch of unknown function in the east of the site. On the western side a U-shaped ditch was detected, possibly the southern half of a large enclosure. A rectangular pit was located on the interior of this enclosure. Sixteen further pits were detected scattered along the eastern side of the survey area. Appraisal of the first and later editions of Ordnance Survey mapping for the area (1885 onwards) identified none of the features recorded by survey (www.old-maps.co.uk accessed 11/05/09). Little concordance was identified with the results of the fieldwalking survey (Burrow 2009).

Modern features included irrigation stand pipes along the track on the south of the area and a utility adjacent to the A134 Mundford Road.

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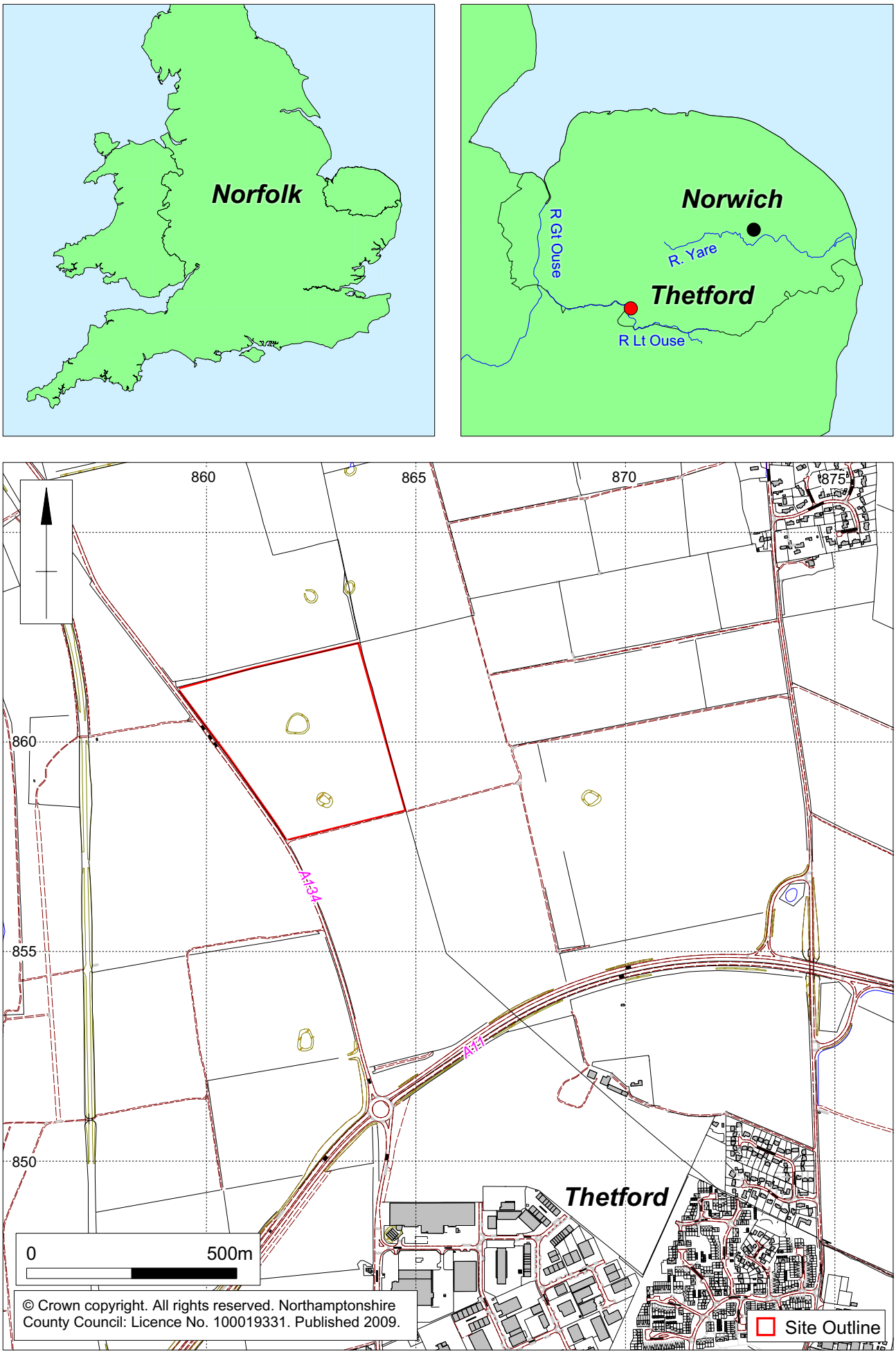

Scale 1:12,500

Site Location Fig 1

860
862
864
864
862
860
858
A 134
A 134
A 134
Box Culvert
Breck Plantation
Breck Plantation
Track

Magnetic Anomalies / nT
-3.0
+4.0
Scale 1:2500
Gradiometer Survey Results Fig 2

860
862
864
864
862
860
858
A 134
A 134
A 134
Box Covert
Breck Plantation
Breck Plantation
Track
Archaeology: ditch ?
Archaeology: pit ?
Ferrous: pipe/cable
Ferrous: debris/
installation
Magnetic Anomalies / nT
-3.0
+4.0

Scale 1:2500

Gradiometer Survey Interpretation Fig 3