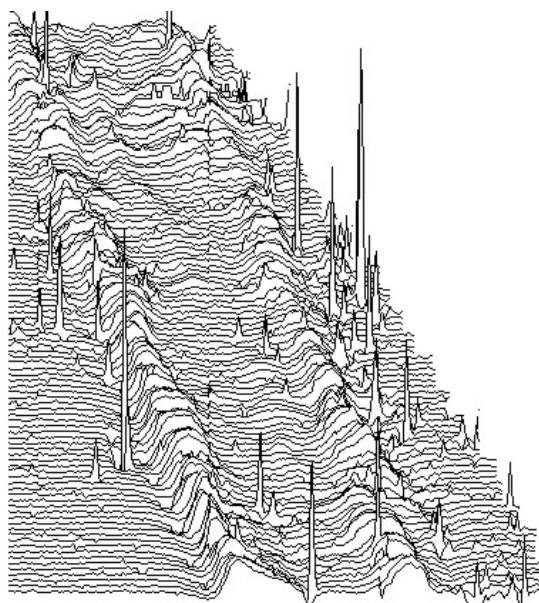




Northamptonshire
County Council

Northamptonshire Archaeology

Archaeological Geophysical Survey for
Overhead Power Lines at Barlings
Lincolnshire
January 2009



Adrian Butler

January 2009

Report 09/09

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QUALITY CONTROL

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Approved by	Bill Boismier	<i>WAB</i>	15/01/09

OASIS REPORT FORM

PROJECT DETAILS		
Project name	Archaeological Geophysical Survey for Overhead Power Lines at Barlings, Lincolnshire	
Short description	Northamptonshire Archaeology was commissioned by Entec UK Ltd, to undertake an archaeological gradiometer survey of a 5ha transect through two fields south of Barlings, Lincolnshire. No obvious evidence was detected of the Romano-British archaeology previously suggested for the location. Ceramic land drains were highly visible through both fields, although with a 90 degree difference in orientation between the fields. It was notable that the magnetic ceramic pipes gave way to less magnetic ducts of some kind part way through each field. The largest feature detected was a complex double anomaly at the eastern end of the survey transect in Field 1. This may indicate a silted water body such as a fish pond or a canal. Likely medieval ridge and furrows was indicated in Field 1, on a similar north-east to south-west alignment to that known in Field 2.	
Project type	Geophysical survey	
Site status	None	
Previous work	Field walking Lincs HER: 53010, 54914, 54916, 54919, 54921	
Current Land use	Agricultural	
Future work	Unknown	
Monument type/ period	None	
Significant finds	None	
PROJECT LOCATION		
County	Lincolnshire	
Site address	Barlings Lane, Barlings, Lincolnshire	
Study area	5 ha	
OS Easting & Northing	TF 075, 745	
Height OD		
PROJECT CREATORS		
Organisation	Northamptonshire Archaeology	
Project brief originator	Stephen Townend, Entec UK Ltd	
Project Design originator	Stephen Townend	
Director/Supervisor	Ian Fisher	
Project Manager	Adrian Butler	
Sponsor or funding body	Entec UK Ltd	
PROJECT DATE		
Start date	January 2009	
End date	January 2009	
ARCHIVES	Location	Content
Physical	n/a	
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 for Overhead Power Lines at Barlings, Lincolnshire	
Serial title & volume	NA Report 09/09	
Author(s)	Adrian Butler	
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Fig 2 Gradiometer Survey Results, 1:2500

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Cover Picture: Trace Plot of Field 1 - East

**ARCHAEOLOGICAL GEOPHYSICAL SURVEY FOR OVERHEAD POWER LINES AT
BARLINGS, LINCOLNSHIRE**

JANUARY 2009

ABSTRACT

Northamptonshire Archaeology was commissioned by Entec UK Ltd, to undertake an archaeological gradiometer survey of a 5ha transect through two fields south of Barlings, Lincolnshire. No obvious evidence was detected of the Romano-British archaeology previously suggested for the location. Ceramic land drains were highly visible through both fields, although with a 90 degree difference in orientation between the fields. It was notable that the magnetic ceramic pipes gave way to less magnetic ducts of some kind part way through each field. The largest feature detected was a complex double anomaly at the eastern end of the survey transect in Field 1. This may indicate a silted water body such as a fish pond or a canal. Likely medieval ridge and furrows was indicated in Field 1, on a similar north-east to south-west alignment to that known in Field 2.

1 INTRODUCTION

Northamptonshire Archaeology was commissioned by Entec UK Ltd to undertake an archaeological geophysical survey of land south of Barlings, Lincolnshire (NGR TF 0750 7455, Fig 1). The work was undertaken to support a proposal for the construction of an overhead power line between Lincoln and Hatton (NA 2008, 1).

The objective of the geophysical survey was to identify the presence or absence of archaeological remains along the proposed development line. The programme consisted of a detailed magnetic gradiometer survey conducted over an area of approximately 5 hectares. Fieldwork was carried out in January 2009.

2 TOPOGRAPHY AND GEOLOGY

Barlings is a hamlet 10km east of Lincoln, and the development site is a further 200m south of Barlings. The survey area was situated on an east – west alignment within two fields south of ‘The Old Vicarage’ (Fields 1 & 2; Fig 1). The fields were bounded to the north-west and to the north-east by Barlings Lane. Field 2 was defined on the south-west by a bank and drain and both fields by

a curving hedge to the south-east. Fields 1 and 2 were separated by a narrow drain on a south-east to northwest orientation. A pond was situated 50m south-east from the Barlings Lane end of the drain. The land was arable and flattish with a slight gradient to the west.

Fiskerton Moor lies immediately to the west of Field 2. The drift geology of the area consists of Diamicton Till and undifferentiated River Terrace (sand and gravel) deposits. An alluvial channel exists further to the east, along a tributary of the River Witham. The underlying solid geology is Oxford Clay and Kellaways Beds (source: www.bgs.ac.uk/geoindex/index.html 1:650,000 scale geology mapping accessed 14/01/09).

3 ARCHAEOLOGICAL BACKGROUND

The Lincolnshire Historic Environment Record (HER) and Cultural Constraints map supplied by the client (Entec 2008) note a number of points of archaeological interest in the immediate vicinity of the survey area. Earthwork remains of the former Barlings Priory, founded 1154AD, are situated 750m south-east of the site (www.magic.gov.uk accessed 13/01/01; National Monument Number: LI103). Directly south-east of Field 1 are earthworks (HER:53010) representing a moated grange and field system that may indicate the original site of the abbey.

Within Field 1, an artefact scatter and cropmark of a possible enclosure (HER:54921) and fragment of Roman floor tile (HER:54919) suggest a Roman occupation site towards the centre of the field. Across Barlings Lane to the east an undated enclosure, and find spots of Roman pot sherds and tile fragments are also suggestive of more substantial archaeology (HER:53014; 54914; 54915).

4 METHODOLOGY

Geophysical survey was carried out in accordance with English Heritage and the Institute of Field Archaeologists Guidelines and following the Written Scheme of Investigation (EH 2008; Gaffney, Gater and Ovendon 2002 & NA 2008). The geophysical survey was carried out in two semi-continuous areas.

The detailed magnetometer survey was undertaken using Bartington Grad601-2 fluxgate gradiometers. The Grad601-2 is constructed as a dual-sensor instrument with two vertical gradiometers separated on a yoke to enable two lines of survey to be recorded in tandem.

The gradiometer coverage was composed of a total of 75 whole and partial 30m x 30m grid-squares forming a strip, 100m wide through the two fields. The survey area was set-out using a Leica System 1200 dGPS, and manually divided 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. All fieldwork was carried out in accordance with the aforementioned guidelines (EH 2008 & Gaffney, Gater and Ovendon 2002).

The data was analysed using Geoplot 3.00u 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. The 'Zero Mean Traverse' function was applied in order to bring the average level of each data line into a balanced mean of zero.

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 (Fig 2). An interpretative plot has been generated from the results (Fig 3), and both figures are referred to directly in the following section.

5 SURVEY RESULTS

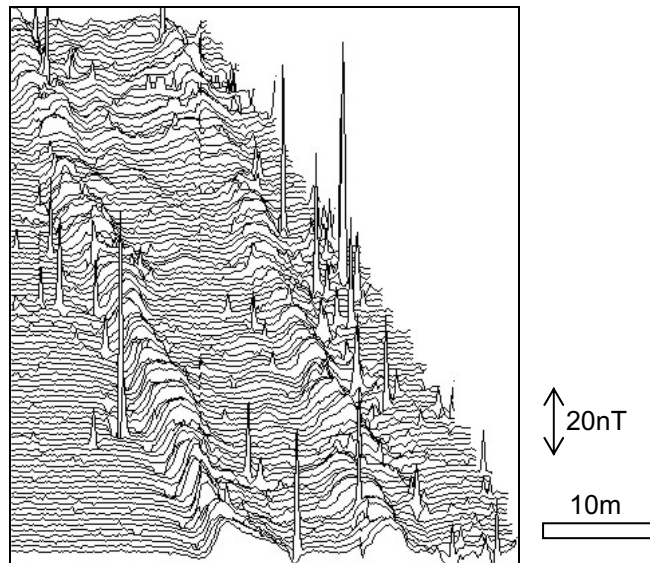
Field 1 (Figs 2 & 3)

The gradiometer transect in Field 1 crossed the area of highest archaeological potential in terms of previously recovered artefacts (Section 3, above). The results were dominated by positively magnetised, parallel linear anomalies. These features were likely to reflect buried ceramic field drains, orientated west-north-west to east-south-east at an average of 10m apart. The drains appear connected at the western end by a weakly positive linear anomaly, probably a header pipe, aligned parallel with the western field boundary. At a similar point towards the east of the transect, the character of each of the anomalies changes to a much weaker – sub-nanoTesla – level. We can assume that this change reflects the difference between land drain types, such as from ceramic pipes to gravel-filled slots.

Small, dipolar, magnetic anomalies, indicating ferrous and thermoremanent debris buried at various depths, were detected across the majority of Field 1. Two, much larger, discrete positive magnetic anomalies were located in the field, indicating ferrous objects such as vertical steel pipes buried

close to the surface.

The most intriguing results came from the east of the survey transect. A pair of irregularly linear positive anomalies were identified, parallel approximately 30m apart (peak to peak) crossing the transect on a north-east to south-west orientation, not aligned with the adjacent road.



Inset 1: Trace-Plot of Field 1 – East

By examining the data in detail (see Inset 1) it is possible to estimate that this is in fact a single magnetic anomaly representing a theoretical ‘flat sheet’ or laminar body (Breiner 1999, 23). Archaeologically, such a feature may indicate a silted former water body such as a fish pond or a canal, the variations within the magnetic structure of the anomaly reflecting differences in fill.

Slight parallel lineations are visible in the data from Field 1, at a level barely above zero nT. The anomalies are on a north-east to south-west alignment and may represent the medieval ridge and furrow cultivation pattern.

Field 2 (Figs 2 & 3)

In the western field, linear anomalies representing ceramic field drains were detected once again, although in this field the drains align north – south. The change from more to less magnetic field drain type is more pronounced in Field 2, occurring in an east – west arc along the transect, and the weak anomalies continue south to the edge of the survey. As with Field 1, a general spread of random ferrous debris was identified.

A linear positive anomaly was detected aligned with, but 15m from, the south-western boundary of Field 2. The anomaly shares most of the characteristics of the ceramic drains of Field 1. The feature appears to change from the stronger to the weaker form of anomaly some 10m from the edge of survey. It must be assumed that this feature represents a header drain for the field.

6 CONCLUSION

Gradiometer survey of a 5ha transect through two fields at Barlings produced no obvious evidence of the Romano-British archaeology previously suggested. Ceramic land drains were highly visible through both fields, although with a 90 degree difference in orientation between the fields. It was notable that the magnetic ceramic gave way to less magnetic ducts of some kind part way through each field. The largest feature detected was the double anomaly at the eastern end of the survey transect in Field 1. It is postulated that it represents a laminar body that may indicate a silted water body such as a fish pond or a canal. Likely medieval ridge and furrows was indicated in Field 1, on a similar north-east to south-west alignment to the cropmark evidence in Field 2 (Entec 2008).

BIBLIOGRAPHY

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

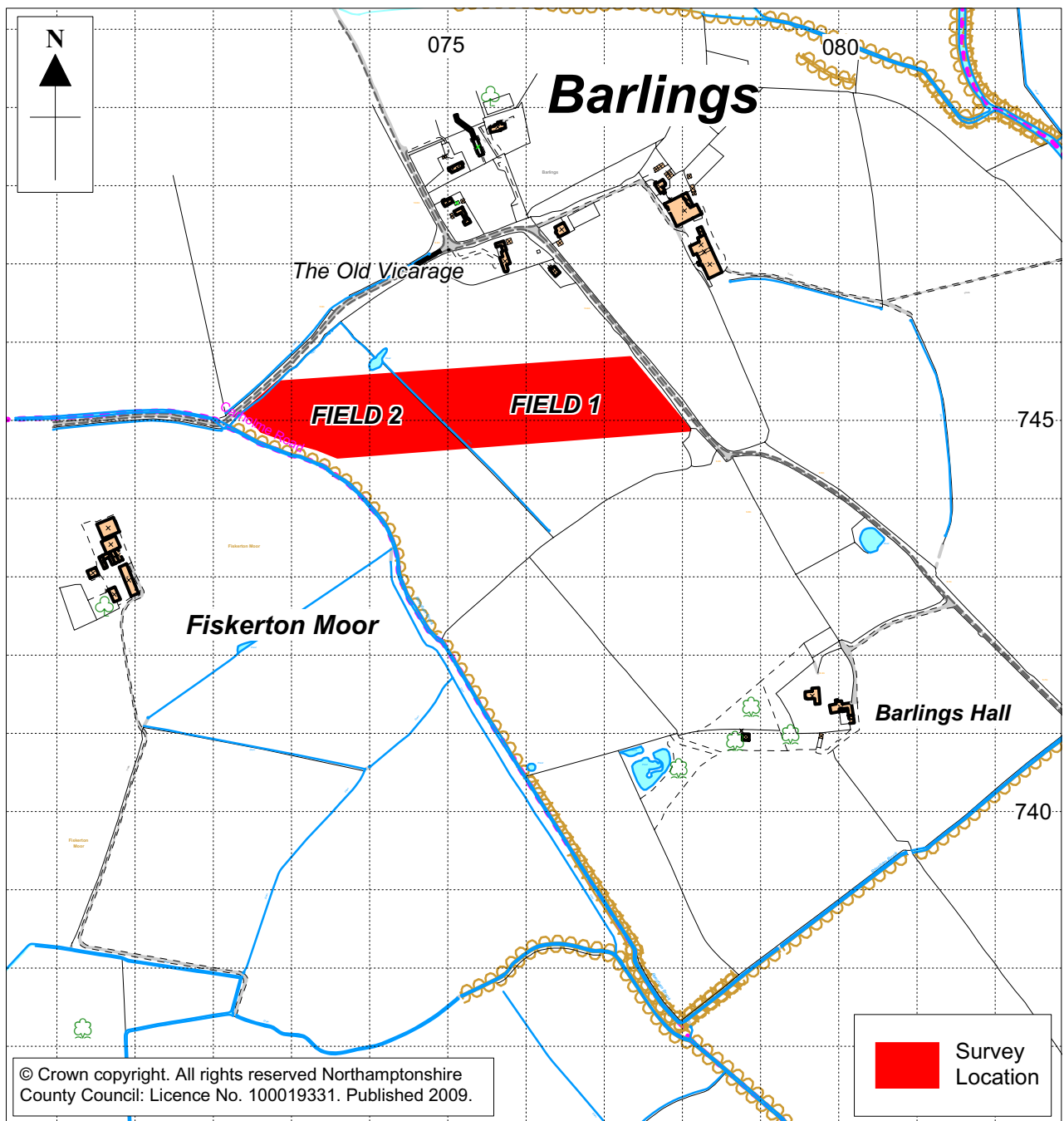
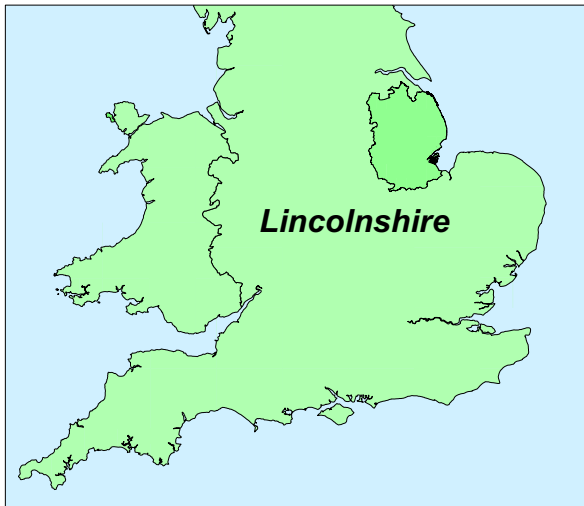
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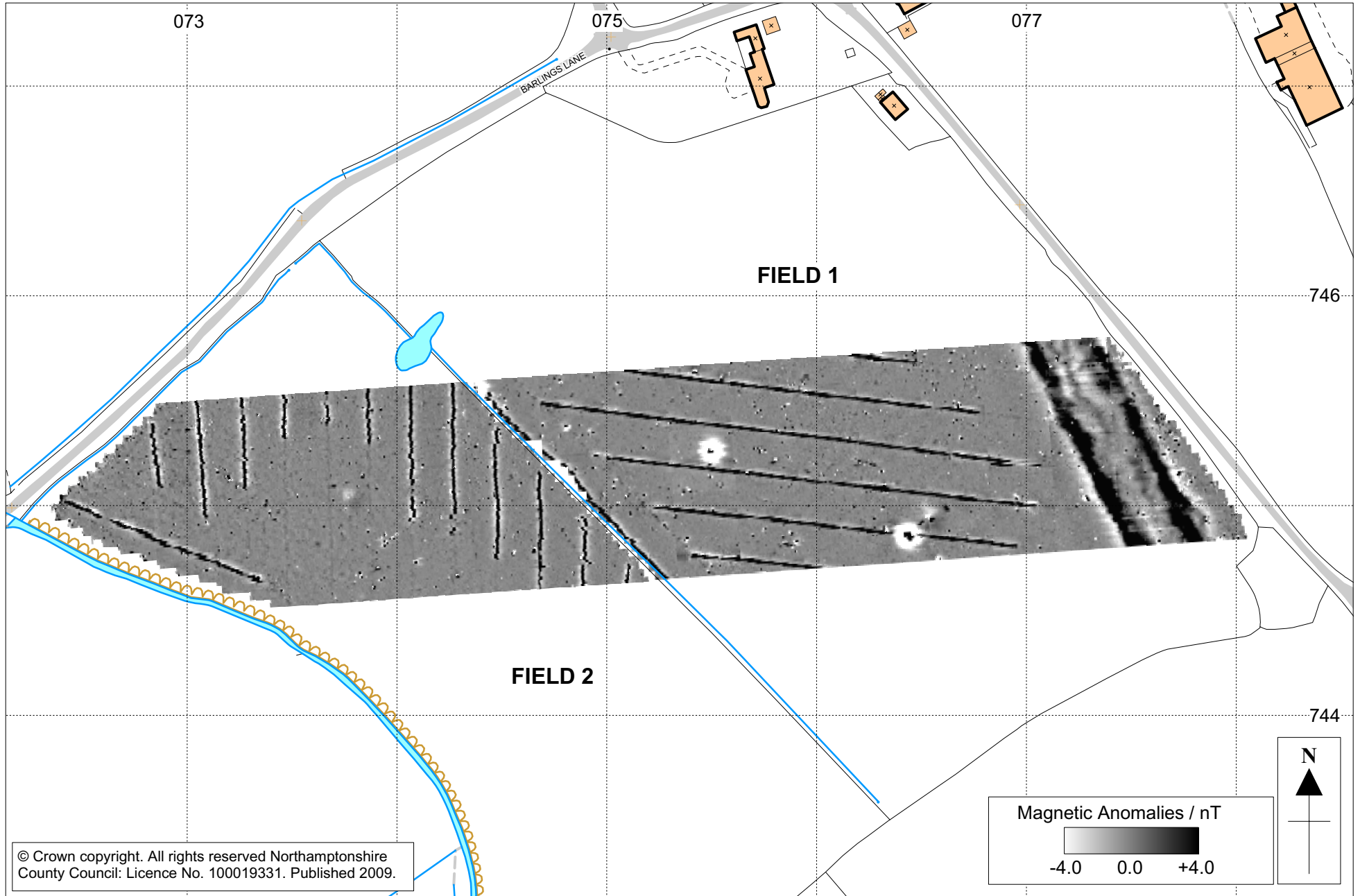
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15 January 2009





Scale 1:2500 @ A4

Gradiometer Survey Interpretation

Fig 3

