Northamptonshire Archaeology

Archaeological geophysical survey on land west of Drayton, Leicestershire

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Report 10/218

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QUALITY CONTROL

	Print name	Signed	Date
Checked by	P Chapman		
Verified by	A Butler		
Approved by	S Parry		

OASIS REPORT FORM

PROJECT DETAILS		
Project name	Archaeological geophysical survey on land west of Drayton, Leicestershire	
Short description	Northamptonshire Archaeology was commissioned by CgMs Consulting Ltd to carry out a magnetometer survey on 1.3ha of land to the west of the village of Drayton, Leicestershire. The survey revealed possible ditches of unknown date and medieval ridge and furrow cultivation	
Project type	Geophysical survey (detailed magnetometry)	
Site status	N/A	
Previous work	Unknown	
Current Land use	Arable	
Future work	Unknown	
Monument type/ period	Possible undated enclosure, medieval ridge and furrow cultivation	
Significant finds	N/A	
PROJECT LOCATION		
County	Leicestershire	
Site address	Medbourne Road, Drayton, Leicestershire	
Area	1.3 ha	
OS Easting & Northing	482800 292000	
Height OD	65m aOD	
PROJECT CREATORS		
Organisation	Northamptonshire Archaeology	
Project brief originator	-	
Project Design originator	-	
Director/Supervisor	Karl Hanson	
Project Manager	Adrian Butler	
Sponsor or funding body	CgMs Consulting Ltd (Mike Dawson))	
PROJECT DATE		
Start date	6 December 2010	
End date	December 2010	
ARCHIVES	**Location**	**Content**
Physical	NA	
Paper	NA	1 archive box of forms and report
Digital	NA	Dxf data, raw and processed survey files, report
BIBLIOGRAPHY		
Title	Archaeological geophysical survey on land west of Drayton, Leicestershire	
Serial title & volume	10/218	
Author(s)	Mark Holmes	
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ARCHAEOLOGICAL GEOPHYSICAL SURVEY

ON LAND WEST OF DRAYTON

LEICESTERSHIRE

DECEMBER 2010

Abstract
Northamptonshire Archaeology was commissioned by CgMs Consulting Ltd to carry out a magnetometer survey on 1.3ha of land to the west of the village of Drayton, Leicestershire. The survey revealed possible ditches of unknown date and medieval ridge and furrow cultivation.

1 INTRODUCTION

Northamptonshire Archaeology (NA) was commissioned by CgMs Consulting Ltd, to carry out archaeological geophysical investigations, comprising magnetic gradiometer survey, on land to the west of the village of Drayton, Leicestershire (centred on NGR 4828 2920; Fig 1). The area is proposed for a new farmyard and dwelling and the works were designed to inform an Archaeological Impact Assessment requested by the planning authority prior to determination of the planning application.

2 BACKGROUND

The survey area comprises 1.3ha of land occupying two fields which lie approximately 300m to the west of Drayton. The Medbourne Road forms the northern boundary to the survey area which runs along the road frontage and then south-east along the field boundary in the first field. A further survey area was located in the corner of the second, immediately adjacent field to the east.

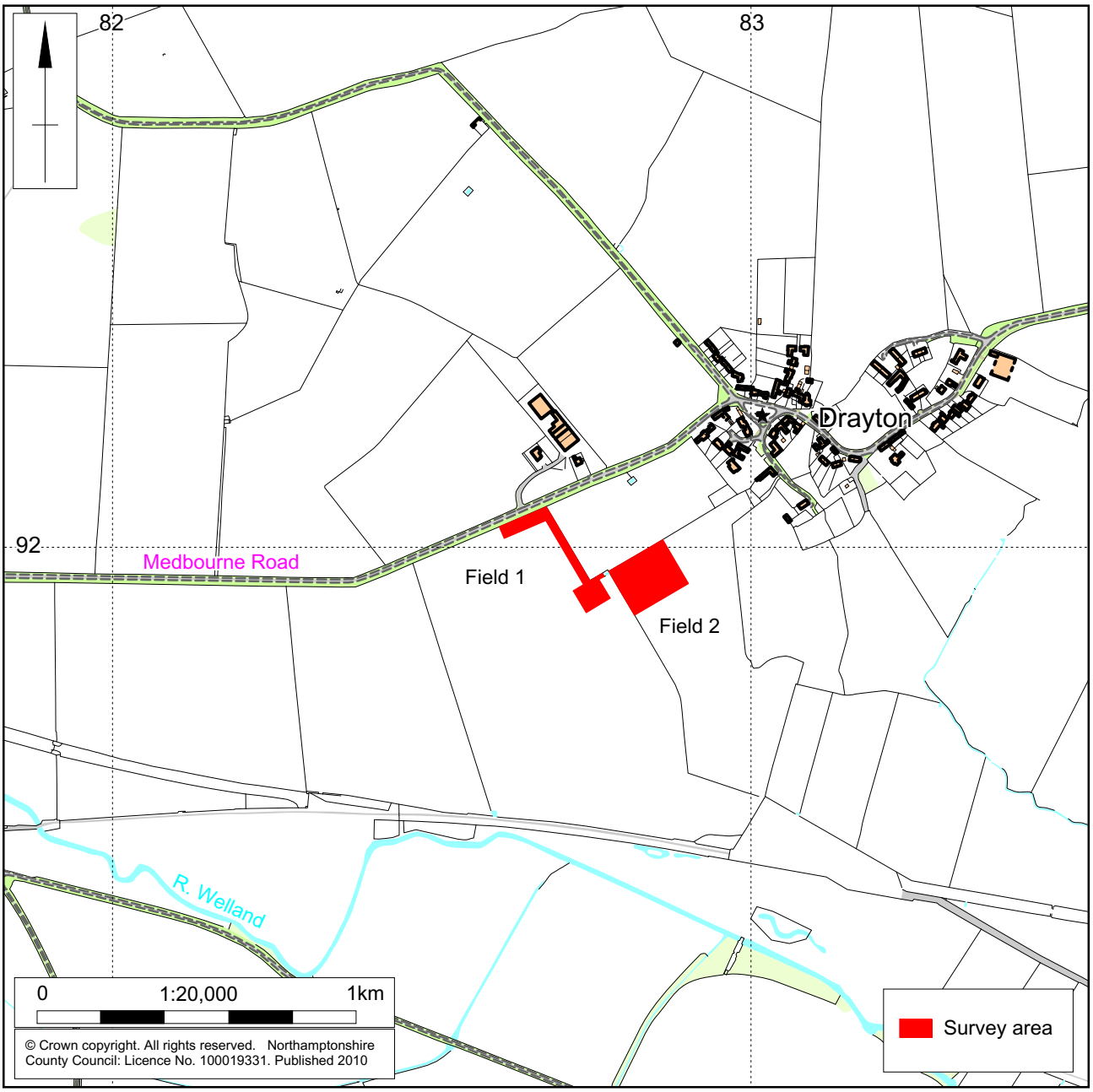
The ground slopes down away from the Medbourne Road towards the River Welland 450m to the south. The survey areas sit on the slope between the 60m and 70m contours. At the top of the slope the underlying geology comprises Dyrham Formation siltstone and mudstone which gives way to Charmouth mudstone on the lower, southern part of the site (BGS Geo Index).

Although no archaeological remains are known from the survey area itself, the proposed development area lies close to the historic settlement core of Drayton village. Stray prehistoric lithics have also been recovered in the vicinity and a Romano-British villa is situated close by.

3 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 survey area was manually divided into 30m grid-squares by means of tape measure and optical square. A total of 36 full and partial grids were surveyed.



Scale 1:10,000

Site location Fig 1

The gradiometers were carried at a brisk but steady pace through each grid-square, 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 methods complied with the guidelines issued by English Heritage and by the Institute for Archaeologists (EH 2008; Gaffney, Gater and Ovendon 2002).

The survey data were processed using Geoplot 3.00.v. software. Striping, caused by slight mismatches in sensor balance, was removed using the 'Zero Mean Traverse' function and destaggering of the data was performed as necessary.

The processed data is presented in this report in the form of grey-tone plots, at scales appropriate to the dataset (+/- 2nT black/white). Given the area of the survey, stacked-trace plots have not been included on practical grounds. The grey-tone plots have been scaled, rotated and re-sampled (geo-rectified) for display against the Ordnance Survey base mapping (Fig 2). Interpretative overlays have been produced and are shown in Figure 3.

To aid non-specialist readers, a basic discussion of the main types of magnetic anomaly follows.

Most of the archaeological features encountered consist of features cut into the bedrock or subsoil and subsequently infilled. The magnetic anomalies produced by these will usually be slightly positive (1-5nT) and either linear, in the case of ditches, or more discrete in the case of pits. In theory all these anomalies should exhibit an associated negative response to the north, although in practice this is not always strong enough to be detected. Although linear anomalies will usually relate to ditches, others may relate to plough furrows, field drains or geological features.

Anomalies relating to current or past cultivation regimes can also be present in the survey. Modern plough furrows will often appear as weak, narrow, closely spaced linear anomalies, sometimes with a stronger negative anomaly marking the deep furrow at the edge of the cultivated area. Medieval ploughing has a somewhat different appearance, with broader and more widely spaced linear anomalies marking the silted furrows of ridge and furrow cultivation.

Ferrous materials produce strong magnetic responses, often with a pronounced halo. Most discrete anomalies indicate the presence of modern scrap items (horseshoes, harrow tines, ploughshare tips, etc) in the soil, and are thus insignificant, although dense clusters of such anomalies can be indicative of modern rubbish pits. Often there will be large halos around the edges of the data, reflecting the presence of adjacent fences, gates, troughs and so forth.

Pipeline anomalies are a special category of ferrous anomaly with a very distinctive appearance. They comprise highly magnetic linear anomalies with alternating polarity, reflecting the dipolar magnetism acquired on casting by each individual pipe segment. Larger pipes often cast strong magnetic halos, obscuring anomalies to either side of their routes.

4 SURVEY RESULTS

Adjacent to the frontage and aligned roughly parallel to it is a positive anomaly that may derive from a length of ditch. A further possible short length of ditch, aligned east – west is present at the south of the area in Field 1.

In Field 2 there are a series of positive anomalies which may be associated ditches. A 95m long ditch crosses the survey area on a north-north-east to south-south-west alignment. A second interrupted ditch joins it towards its northern end whilst a return may be visible towards the western edge of the survey area. The magnetic response of these features was low making interpretation difficult, however, it is possible that these ditches taken together may form a small enclosure.

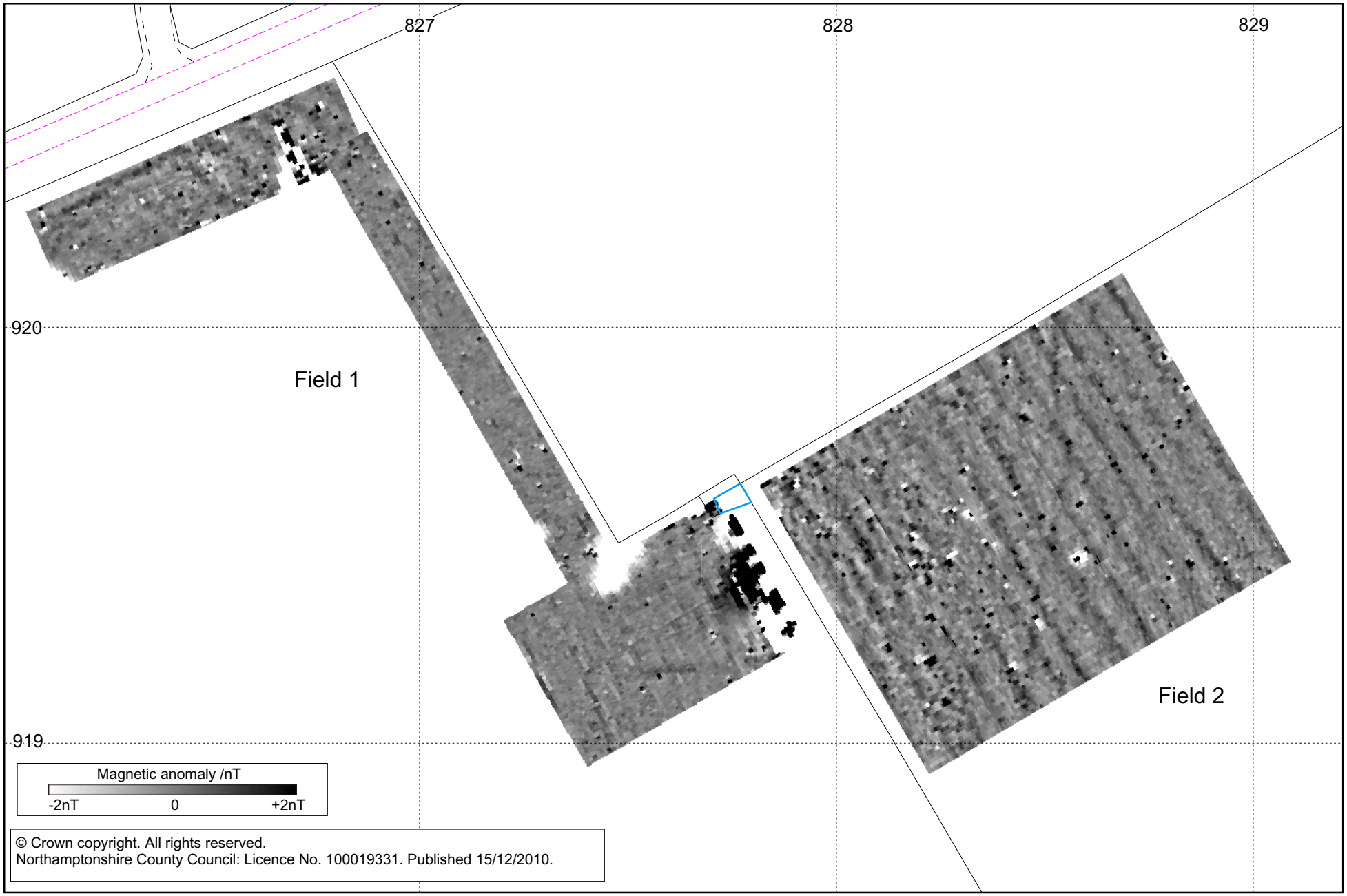
Magnetic anomalies representing the remains of ridge and furrow cultivation aligned north-west to south-east are visible throughout the surveyed areas in both Fields 1 and 2. Areas of magnetic disturbance due to possible buried pipes, ferrous items or other detritus are also present.

5 CONCLUSIONS

The survey detected a series of possible ditches, some of which may form the remains of a rectilinear enclosure. It is not possible to suggest a date or function for these features. The survey area was also crossed by medieval ridge and furrow cultivation.

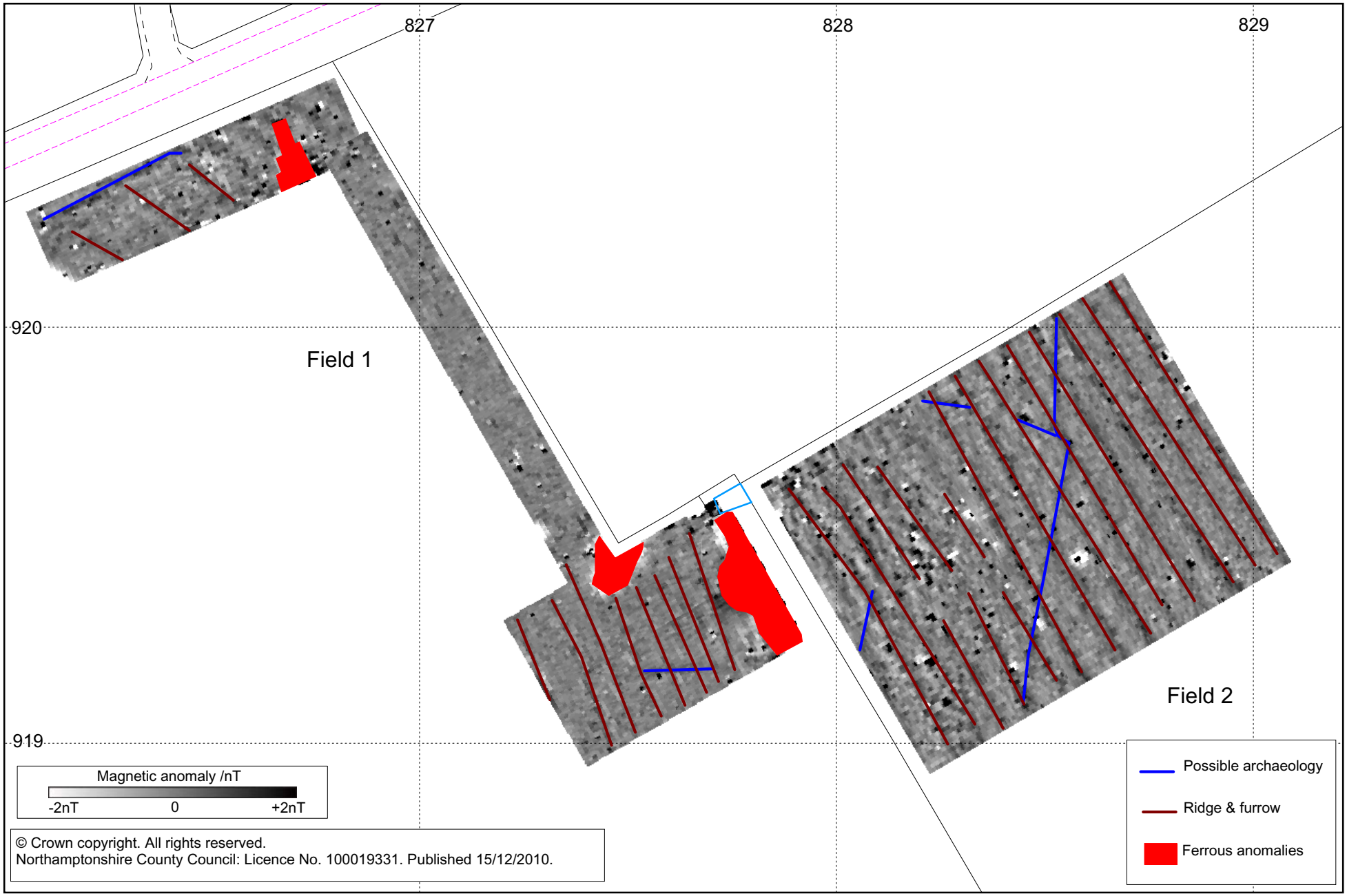
As with all such surveys, feature detection is at the mercy of ground resolution (1.0m x 0.25m) and magnetisation levels. Small features, such as postholes, may exist in the vicinity of the larger features but be undetectable by this survey.

Scale 1:1250 @ A4



Magnetometry Survey Results Fig 2

Scale 1:1250 @ A4



Magnetometry Survey Interpretation Fig 3

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