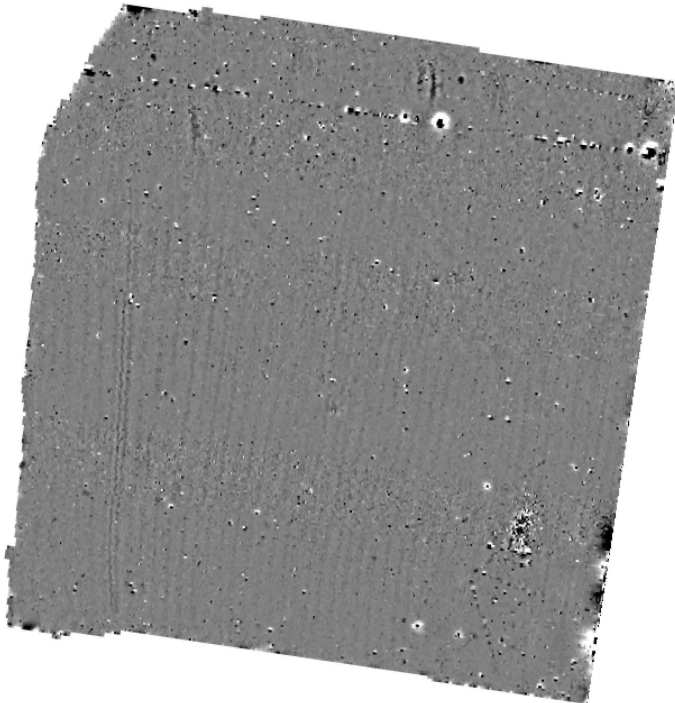




Northamptonshire Archaeology

Archaeological geophysical survey of land to the
south-east of Earl Shilton, Leicestershire
October to November 2012



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

John Walford

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STAFF

Project Manager: Mark Holmes BA MA MifA

Fieldwork: Ian Fisher BSc
John Walford MSc
Garreth Davey BA
Adam Meadows BSc

Text and Illustrations: John Walford

Polished stone axe: Andy Chapman BSc MifA FSA

QUALITY CONTROL

	Print name	Signed	Date
Checked by	Pat Chapman	<i>PC</i>	27/11/2012
Verified by	Mark Holmes	<i>MH</i>	28/11/2012
Approved by	Andy Chapman	<i>AC</i>	27/11/2012

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PROJECT DETAILS		
Project name	Archaeological geophysical survey of land to the south-east of Earl Shilton, Leicestershire	
Short description	Northamptonshire Archaeology was commissioned to carry out a detailed magnetometer survey of a proposed development site at Earl Shilton, Leicestershire. The survey mapped extensive areas of ridge and furrow, and identified some other features of possible, but unproven, archaeological significance. During the course of the survey, a polished 'Langdale' axe, of Neolithic date, was discovered	
Project type	Geophysical survey	
Site status	None	
Previous work	None	
Current Land use	Mixed agriculture	
Future work	Unknown	
Monument type/ period	Ridge and furrow	
Significant finds	Neolithic polished axe (Langdale greenstone)	
PROJECT LOCATION		
County	Leicestershire	
Site address	Clickers Way, Earl Shilton, Leicestershire	
Study area	c 50 ha	
OS grid reference	SP 473 972	
Height OD	c 90-100m aOD	
PROJECT CREATORS		
Organisation	Northamptonshire Archaeology (NA)	
Project brief originator		
Project Design originator	NA	
Director/Supervisor	John Walford and Ian Fisher	
Project Manager	Mark Holmes	
Sponsor or funding body	Amec Environment and Infrastructure UK Ltd	
PROJECT DATE		
Start date	15 October 2012	
End date	28 November 2012	
ARCHIVES		
	Location	Content
Physical	X.A107.2012	Neolithic polished axe
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 of land to the south-east of Earl Shilton, Leicestershire, October to November 2012	
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**ARCHAEOLOGICAL GEOPHYSICAL SURVEY OF LAND
TO THE SOUTH-EAST OF EARL SHILTON, LEICESTERSHIRE
OCTOBER TO NOVEMBER 2012**

ABSTRACT

Northamptonshire Archaeology was commissioned to carry out a detailed magnetometer survey of a proposed development site at Earl Shilton, Leicestershire. The survey mapped extensive areas of ridge and furrow, and identified some other features of possible, but unproven, archaeological significance. During the course of the survey, a polished 'Langdale' axe, of Neolithic date, was discovered.

1 INTRODUCTION

Northamptonshire Archaeology (NA) was commissioned by Amec Environment and Infrastructure UK Ltd to conduct an archaeological geophysical survey in advance of a proposed development at Earl Shilton, Leicestershire (NGR SP 473 972; Fig 1). The purpose of the survey was to provide information on the likely archaeological impact of the development.

Fieldwork was undertaken from 15 October to 8 November 2012, and comprised the detailed magnetometer survey of c 50ha of land on the south-east side of the town.

2 TOPOGRAPHY AND GEOLOGY

The proposed development area comprises an irregular block of land, extending from Breach Lane in the south to Mill Lane in the north, bounded by the A47 Clickers Way to the south-east and backing onto residential properties to the north-west (Fig 1). The southern and eastern parts of this area are mainly under arable cultivation, and the remaining area is divided into a number of small, irregularly-shaped, grass fields. The latter had been mown shortly before the survey took place, but still had extensive strips of brambles and other rough vegetation around their margins.

The southernmost part of the proposed development area lies upon the top of a minor interfluvium, at an elevation of c 105m aOD. Northwards, the ground drops away into a small stream valley, at c 90m aOD, then rises again to attain a height of just over 100m aOD at Mill Lane. The stream in the valley bottom flows to the east, ultimately feeding into the river Soar.

The solid geology of the area is mapped as mudstones and siltstones belonging to the Edwalton Member of the Mercia Mudstone Group (formerly the Keuper Marl). This is largely concealed by glacial drifts, consisting variously of till, sands and gravels (BGS 2012).

3 ARCHAEOLOGICAL BACKGROUND

There is little archaeology recorded from within the proposed development area, but a number of pieces of fieldwork have been conducted nearby, revealing various remains of largely prehistoric date (Fig 2).

The most significant finds have come from land to the north and north-east of the area. An evaluation on the north side of Mill Lane identified an Iron Age enclosure, a field system of probable Iron Age or Romano-British date, and the footings of a medieval windmill (previously mis-identified as a prehistoric henge) (Morris 2010). Open area excavations to the immediate east, during the construction of Clickers Way, investigated two Bronze Age ring ditches and an Iron Age pit alignment (Jarvis 2008).

Further evaluation took place on the line of Clickers Way to the north of Breach Lane (Jarvis 2008). Fieldwalking identified a diffuse scatters of prehistoric flints and medieval pottery in this area, but subsequent trenching revealed no significant archaeological features. Other largely unproductive evaluations have occurred to the south of Breach Farm (Hyam 2008), and to the north at Tom Eatough Court (Morris 2006).

During the present survey, a Neolithic polished axe was found at NGR SP 4697 9707 (Fig 2). Further details of this artefact may be found in Appendix 1.

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).

An independent system of 30m grids was established within each of the fields to be surveyed. The grids were established with a tape measure and optical square and were tied in to the Ordnance Survey National Grid by measurement to the surrounding field boundaries. 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 square.

All fieldwork methods complied with the guidelines issued by English Heritage and by the Institute for Archaeologists (EH 2008; IfA 2011).

The survey data were processed using Geoplot 3.00v 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 a scale of +/- 4nT black/white. These have been scaled, rotated and resampled (georectified) for display against the Ordnance Survey base mapping (Figs 3, 4, 6 and 8). Interpretative overlays have been produced, and are presented in Figures 5, 7 and 9.

5 SURVEY RESULTS

5.1 Possible archaeological features

Although the survey data indicates no indisputable archaeological features, it does contain a number of anomalies which are of potential archaeological significance, as described below.

At the northern end of Fields 4 and 15, there is a set of three linear anomalies which lie approximately at right angles to each other (Fig 9). These probably represent a group of ditches, and could plausibly be related to the Iron Age enclosure and field system identified immediately across Mill Lane (Morris 2010).

A little further south in Field 4 there is a pair of parallel linear anomalies, aligned approximately north to south and spaced about 5m apart. They are generally quite weak and hard to discern against the overlying ridge and furrow, but two segments of the western anomaly are more enhanced (up to c 10nT). The most plausible interpretation is that they represent the side ditches of a trackway, with the enhancement indicating an area where burnt soil or other magnetic debris has been incorporated into the ditch fill.

At the south-western end of Field 1, adjacent to Clickers Way, there is a weak negative curvilinear anomaly which encompasses an area at least 40m across (Fig 5). Its significance is not immediately obvious, but there is a slight chance that it represents part of an enclosure ditch. It would, admittedly, be unusual for a ditch to have a negative magnetic signature, but such a phenomenon is not entirely unprecedented (one precedent occurs in unpublished NA survey data from Broad Oak, Kent).

Further west, in Field 7, there is a very weak circular anomaly which measures about 25m across. It is scarcely perceptible on the main data plot (Fig 4), but can be seen a little more clearly when the same data is presented at a tighter display range (Fig 4, inset). The size and shape of the anomaly might be consistent with a prehistoric ring ditch, but its extreme magnetic weakness means that such an interpretation can only be offered with a very low degree of confidence.

Isolated positive linear anomalies occur widely across the survey area, with examples in Fields 2, 3, 4, 8, 10 and 12. The majority are likely to represent ditches of indeterminate date, although stone-filled field drains may sometimes have a similar magnetic signature (Morris 2006).

There are small, localised positive anomalies scattered across the survey area in Fields 1, 3, 4, 6 and 7. These anomalies, which have typical peak intensities in the range of 5nT to 15nT, perhaps indicate pits or small concentrations of ceramic debris, but they could also be caused by igneous erratics in the underlying gravel and boulder clay.

5.2 Ridge and furrow

Much of the survey data contains weak, slightly curving, parallel linear anomalies indicating the presence of ridge and furrow. The majority of the furrows are aligned from north to south, following the general slope of the land.

5.3 Former field boundaries

A number of linear anomalies can be securely correlated with field boundaries shown on the first edition of the Ordnance Survey 6" map. One, which consists of little more than a string of ferrous dipoles, crosses the northern half of Field 3 (Fig 5). Several others, of varying character, occur in the southern half of Field 4 (Fig 9). The most conspicuous of these coincides with a pronounced lynchet which may have originated as a medieval plough headland (pers obs).

Other linear anomalies, although not relating to any mapped feature, can be interpreted as former field boundaries because of the way they relate to the present pattern of fields. Examples occur in Fields 9, 10 and 12 (Fig 5). That in Field 9, like that in Field 4, coincides with a lynchet that may be of medieval origin (pers obs).

5.4 Field drains

Ceramic field drains have been detected at various locations across the survey area. They are represented by weak, and often fragmented, linear anomalies which typically exhibit an alternating magnetic polarity. In places, they are closely aligned with the ridge and furrow, having presumably been laid along the furrows when these were still conspicuous earthworks.

5.5 Pipeline

An intensely magnetic linear anomaly with a broad negative halo extends across the northern ends of Fields 10 and 11 (fig 7). This represents a pipeline leading towards the nearby sewage works.

5.6 Other recent features

Near to the south-eastern corner of Field 3, there is an area of magnetic noise which correlates with the location of a pond recorded on early editions of the Ordnance Survey map (Fig 5). It lies within the floor of a much larger hollow, which may have originated as a quarry pit (pers obs).

There are two diffuse areas of magnetic noise in the southern half of Field 4, each representing a concentration of brick rubble or other ceramic debris within the ploughsoil (Fig 9). One lies midway along the former boundary that bisects the modern field, and corresponds with a small barn or animal shelter shown on the first edition Ordnance Survey 6" map. The other, which lies to the south-east, adjacent to Clickers Way, does not correspond with any known building.

In the southern half of Field 10 there is a pronounced linear anomaly which follows the line of a footpath (Fig 7). The strength of this anomaly is probably due to the path having been re-enforced with hardcore where it crosses the floor of the stream valley.

Various intense dipolar anomalies occur across the survey area, mainly indicating buried pieces of ferrous scrap. There is also a magnetic halo at the western edge of Field 8 (Fig 5), caused by an adjacent fence, and smaller halos elsewhere due to gates, fences and other substantial metal objects.

5.7 Geological anomalies

In the western part of the survey area, and especially in Fields 5 and 6, there is weak and amorphous patterning of the magnetic background. This probably represents variations in the depth or composition of the underlying sands and gravels.

6 CONCLUSION

The survey has identified an area of possible archaeological interest in the north of the proposed development area, extending across Field 4 and into Field 15 (Fig 9). Several weak anomalies suggest the presence of field boundary ditches and a trackway, possibly relating to the Iron Age enclosure and field system which lie immediately across Mill Lane (Morris 2010).

The survey results may also indicate a ditched enclosure in Field 1, a prehistoric ring ditch in Field 7 and various pits and ditches elsewhere across the proposed development area. However the identification of these features rests on anomalies that are often weak or poorly diagnostic, and it is likely that further investigation will prove at least some of them to be spurious.

Other than these features, and a number of areas of ridge and furrow, the results were generally negative. This may have been influenced by the nature of the local soils and geology as Mercia Mudstone or boulder clay can have a variable or poor response to magnetometer survey (EH 2008, 15). Previous magnetometer survey, involving magnetic susceptibility and gradiometer survey, on land to the west appears not to have identified a group of archaeological features later identified by trial trenching (Jarvis 2008).

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APPENDIX 1: A POLISHED STONE AXE by Andy Chapman

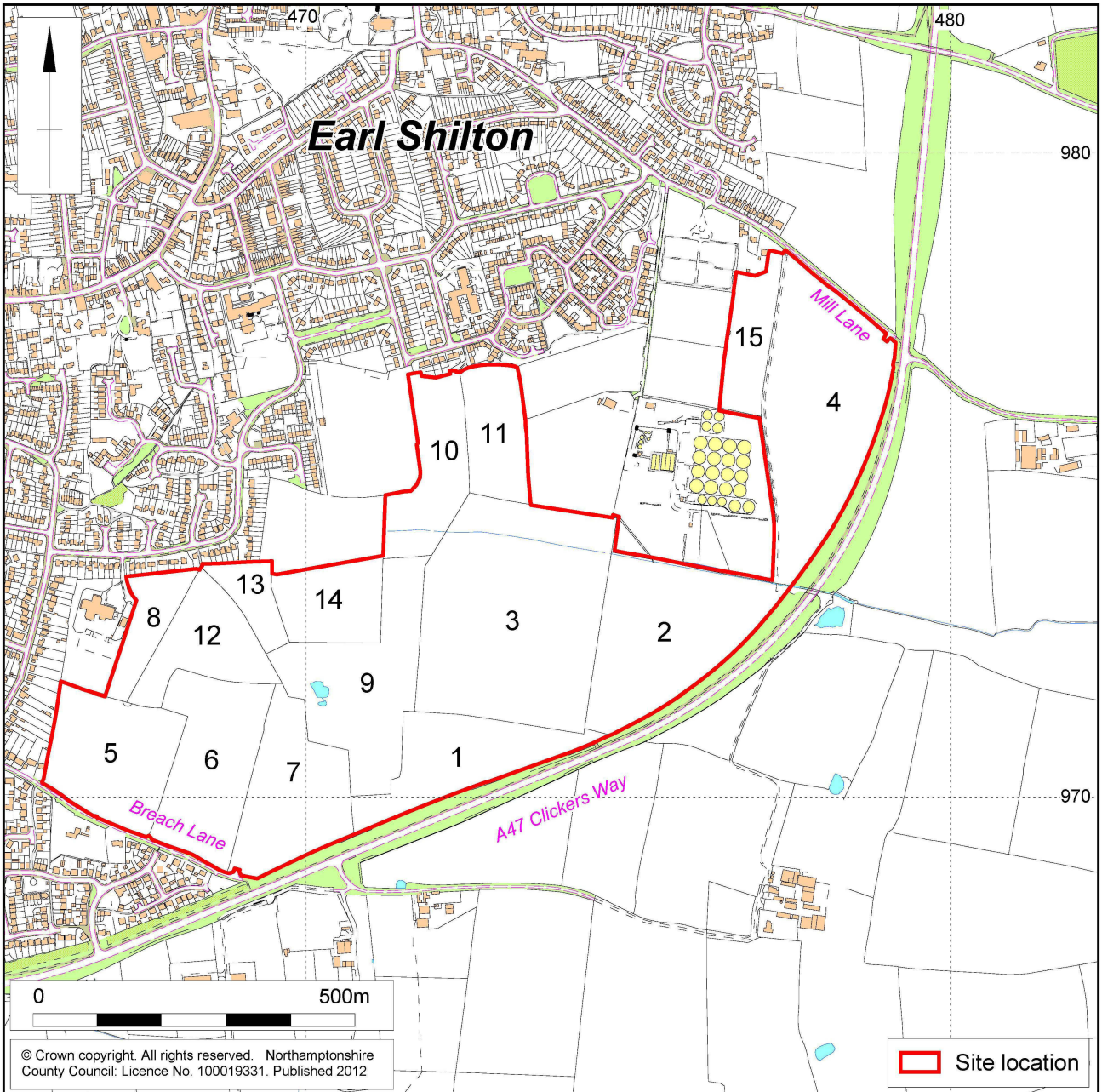
During the geophysical survey, a near complete polished stone axe of Neolithic date was recovered by John Walford. It was found at SP 4697 9707, on the ploughed surface of Field 7.

The axe is from Group VI, an epidotised tuff from the volcanic rocks of Langdale, Cumbria, with its distinctive uniform green hue. The axe is a small example that is near complete, at 101mm long by 49mm wide, tapering to 25mm wide at the butt, and up to 25mm thick. It also has straight flattened side facets, which are characteristic of Langdale axes.

There is considerable old damage around the butt end, but only a little length has been lost. There are also three substantial old overlapping flakes taken out of the concave cutting edge and some minor nicks, perhaps use damage, and two small recent scars have removed the otherwise weathered surface.



The Langdale polished stone axe (Scale 50mm) Plate 1

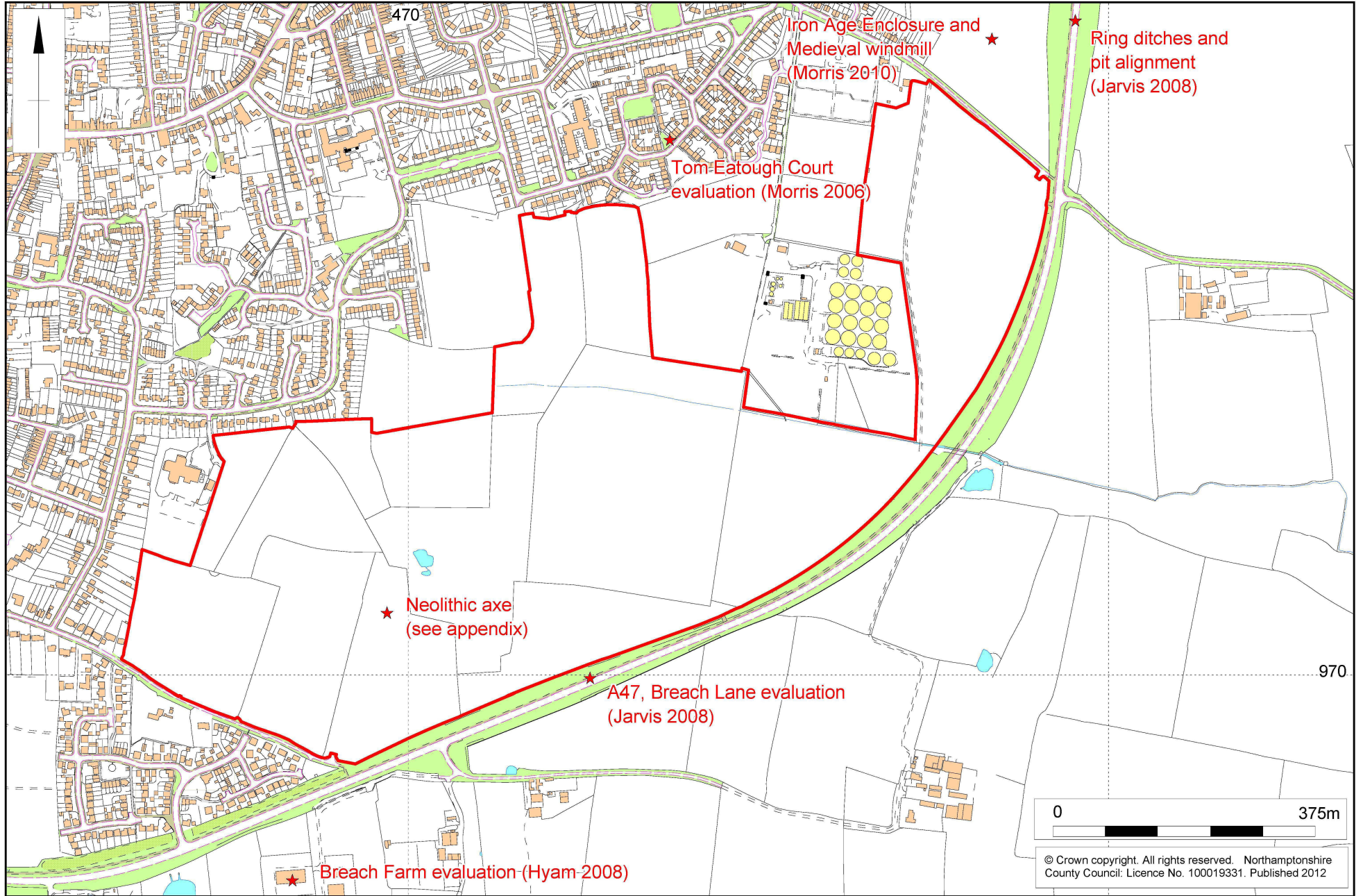


Scale 1:10,000

Site Location Fig 1

Scale 1:7500

Archaeological background Fig 2





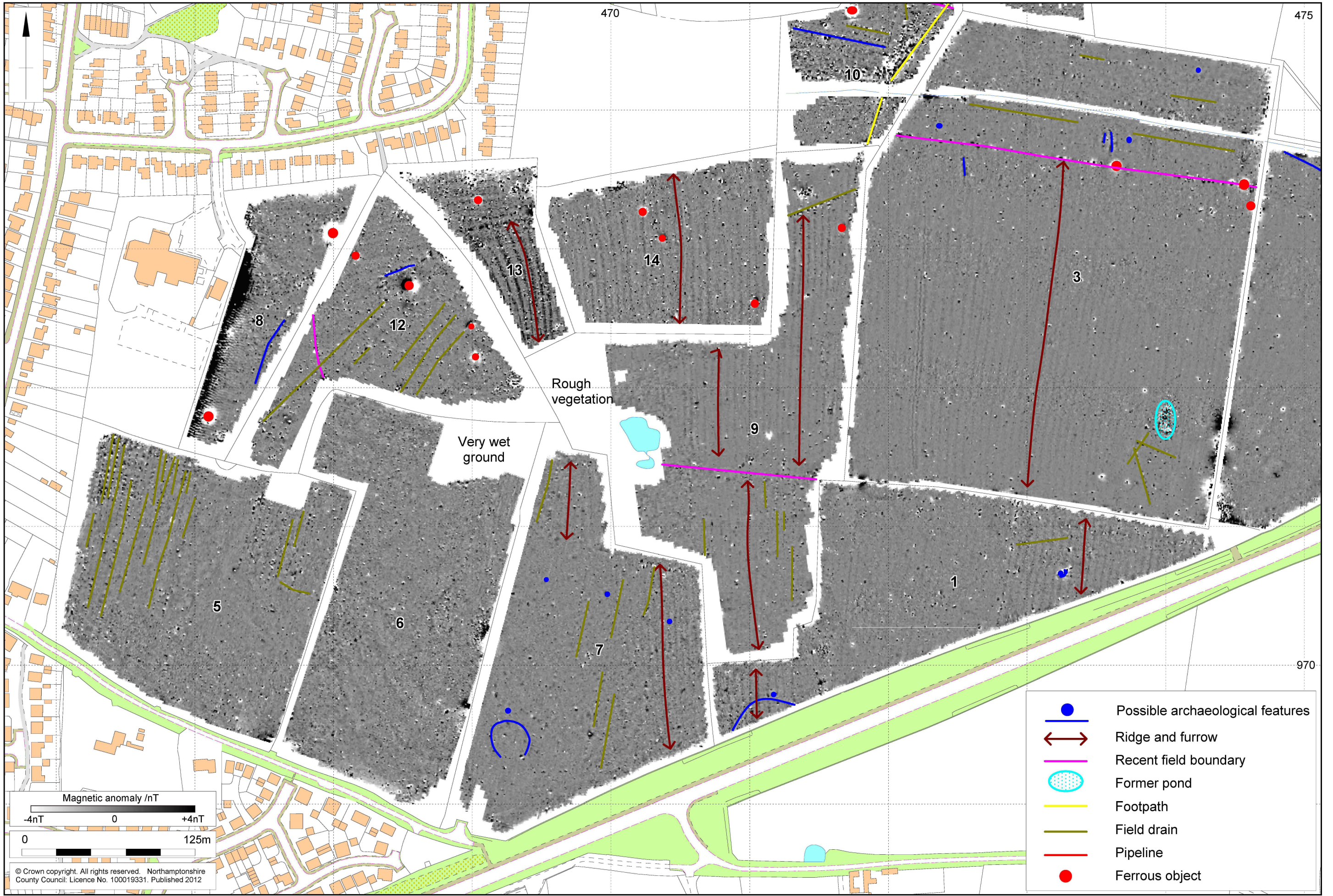
Scale 1:5000

Overview of magnetometer survey results Fig 3



Scale 1:2500

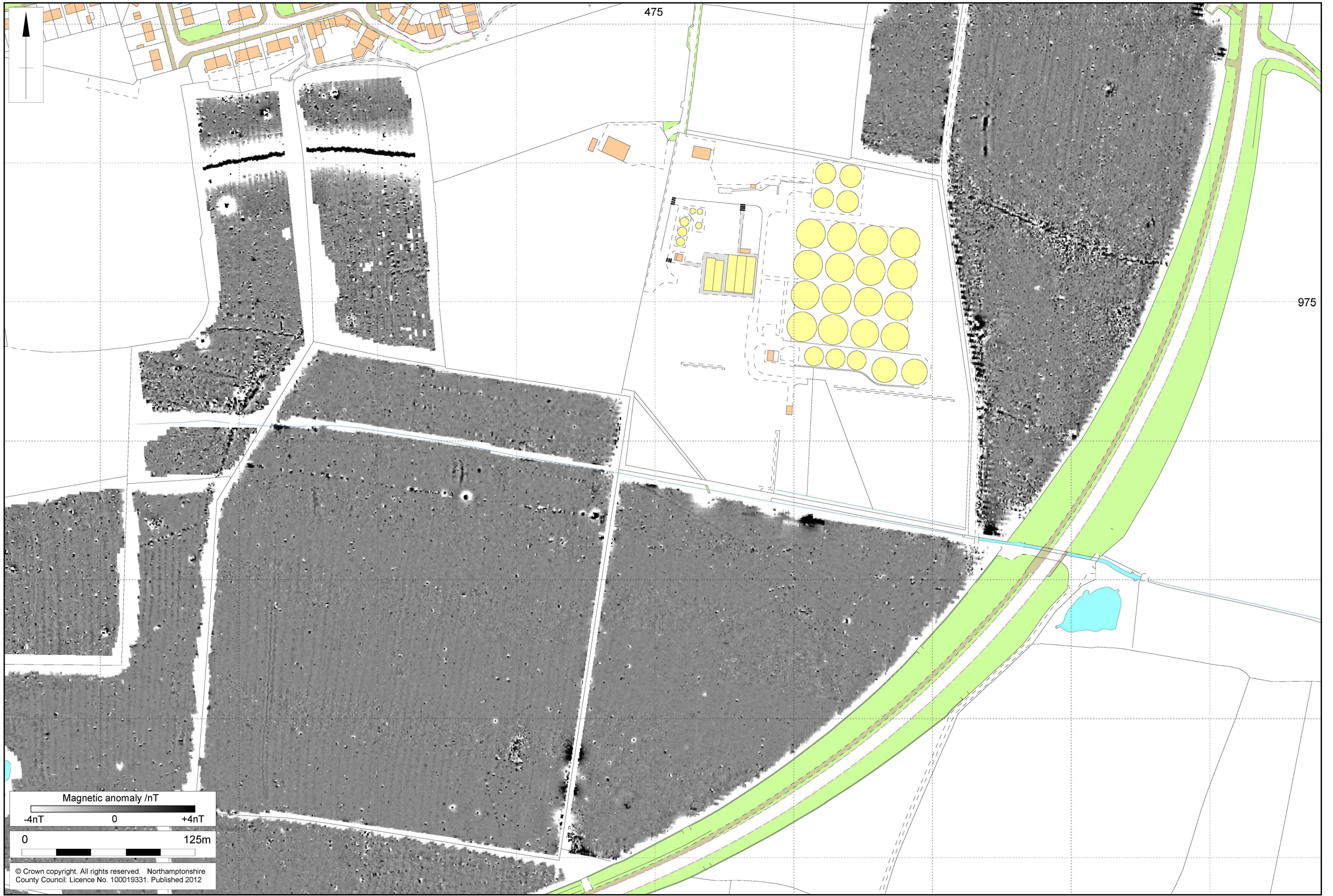
Magnetometer survey results (west) Fig 4



Scale 1:2500

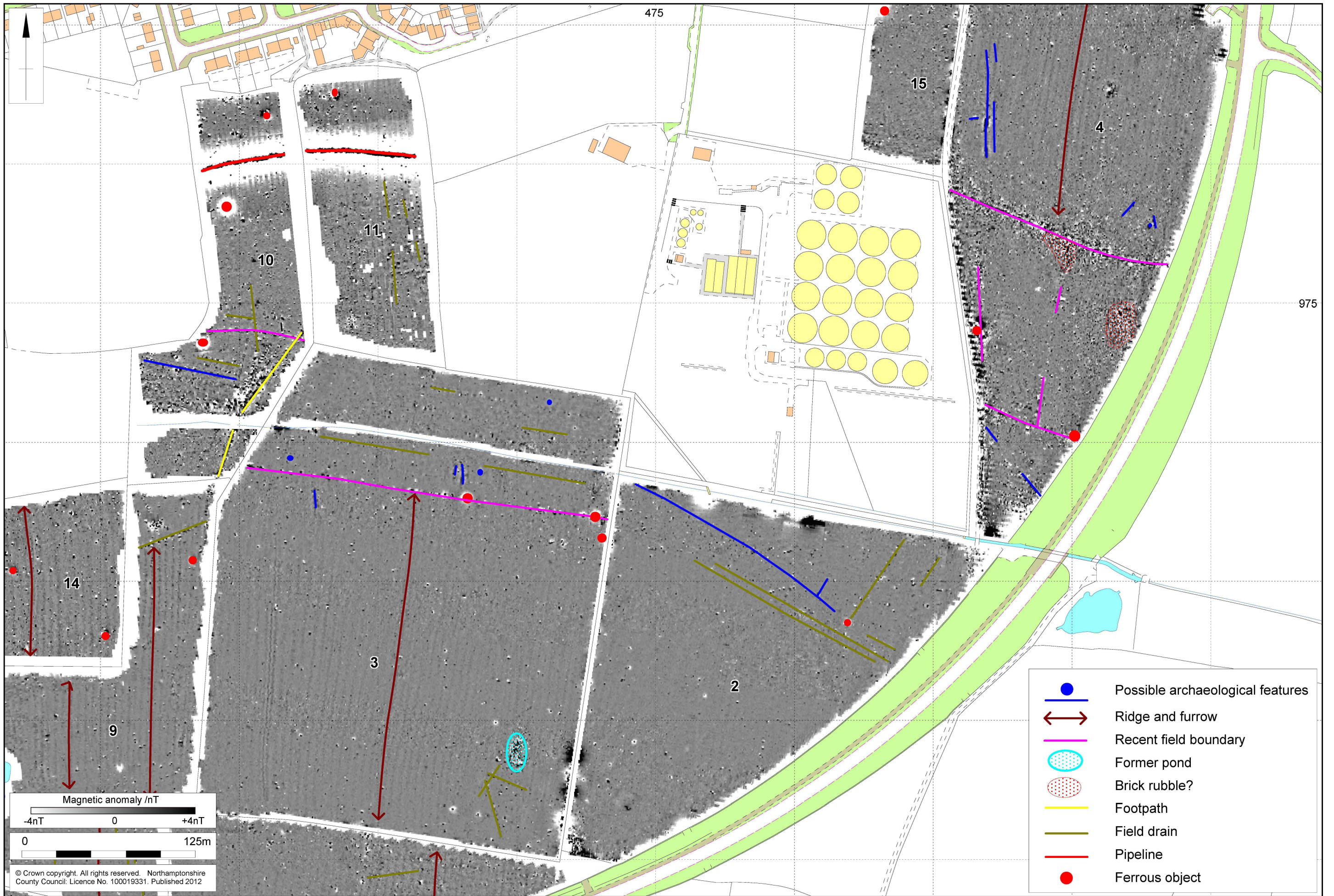
Magnetometer survey interpretation (west) Fig 5

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Scale 1:2500

Magnetometer survey results (south-east) Fig 6



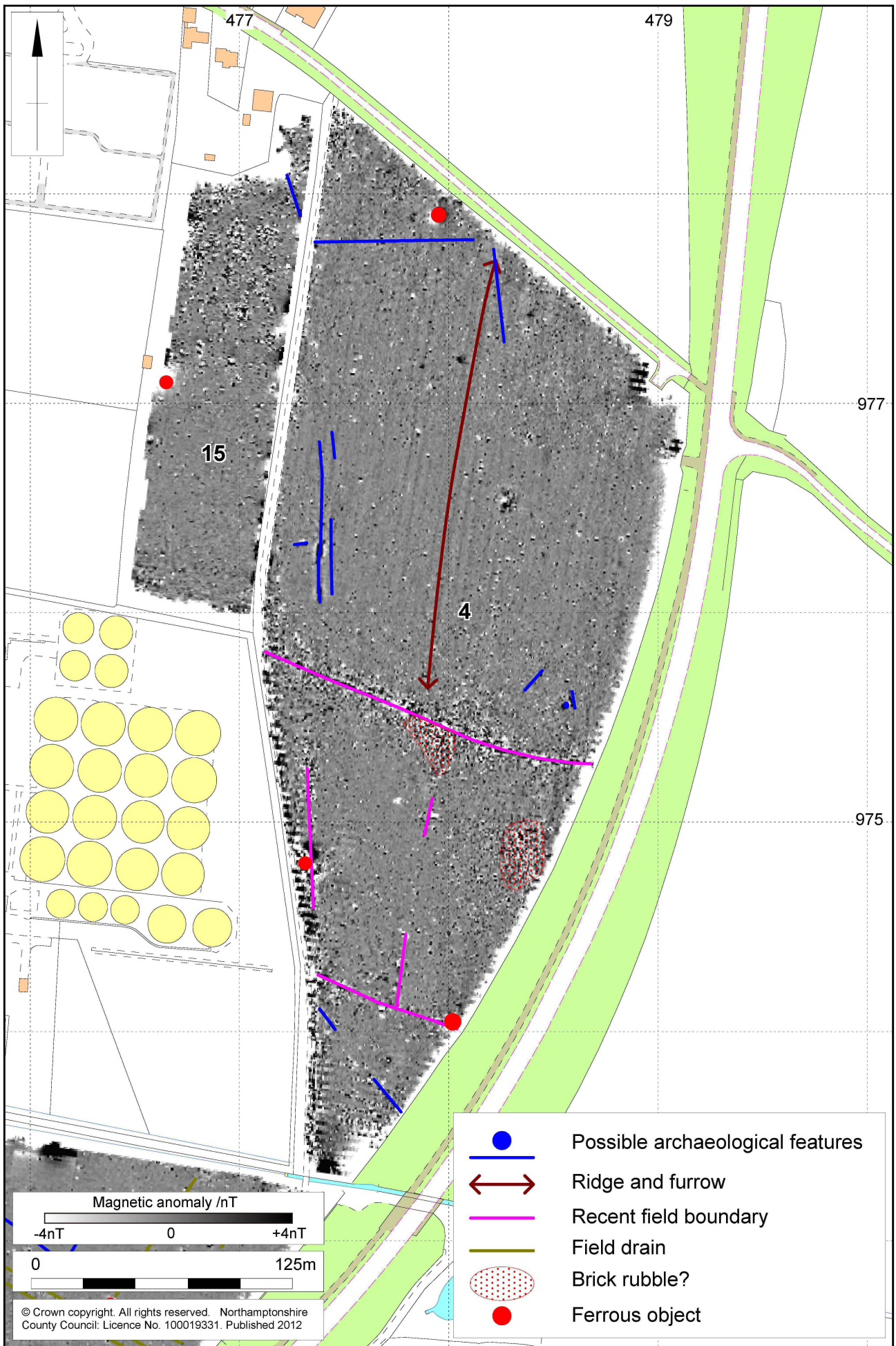
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Magnetometer survey interpretation (south-east) Fig 7



Scale 1:2500

Magnetometer survey results (north-east) Fig 8



Scale 1:2500

Magnetometer survey interpretation (north-east) Fig 9



Northamptonshire County Council

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2 Bolton House
Wootton Hall Park
Northampton NN4 8BE

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