



Archaeological geophysical survey of the 'Northern Gateway' development site Wolvercote, Oxford February 2014

Report No. 14/48

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OASIS REPORT FORM

PROJECT DETAILS		molanort1-172519	
Project name	Archaeological geophysical survey of the 'Northern Gateway' development site, Wolvercote, Oxford		
Short description	MOLA was commissioned to carry out a detailed magnetometer survey on the proposed 'Northern Gateway' development site, between the Peartree and Wolvercote roundabouts in north Oxford. The survey detected medieval or post-medieval ridge and furrow and some areas of recently disturbed ground.		
Project type	Geophysical survey		
Site status	None		
Previous work	Desk-based assessment (Featherby 2014)		
Current Land use	Pasture		
Future work	Unknown		
Monument type/ period	Medieval ridge and furrow		
Significant finds	None		
PROJECT LOCATION			
County	Oxfordshire		
Site address	Woodstock Road, Wolvercote, Oxford		
Study area	c22.7ha		
OS Easting & Northing	SP 494 105		
Height OD	c 67 m aOD		
PROJECT CREATORS			
Organisation	MOLA		
Project brief originator	Oxfordshire County Council		
Project Design originator	MOLA		
Director/Supervisor	Adam Meadows		
Project Manager	Mark Holmes		
Sponsor or funding body	Kier Property		
PROJECT DATE			
Start date	3 February 2014		
End date	26 February 2014		
ARCHIVES	Location	Content	
Physical	N/A		
Paper	MOLA Northampton	Site survey records	
Digital		Geophysical survey & GIS data	
BIBLIOGRAPHY	Journal/monograph, published or forthcoming, or unpublished client report		
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ARCHAEOLOGICAL GEOPHYSICAL SURVEY OF THE 'NORTHERN GATEWAY' DEVELOPMENT SITE, WOLVERCOTE, OXFORDSHIRE

FEBRUARY 2014

ABSTRACT

MOLA was commissioned to carry out a detailed magnetometer survey on the proposed 'Northern Gateway' development site, between the Peartree and Wolvercote roundabouts in north Oxford. The survey detected medieval or post-medieval ridge and furrow and some areas of recently disturbed ground.

1 INTRODUCTION

MOLA was commissioned by Kier Property to conduct a geophysical survey on the proposed 'Northern Gateway' development site, lying between the Peartree and Wolvercote roundabouts in north Oxford (NGR SP 494 105; Fig 1). The aim of the survey was to determine if the site contained any underlying archaeology that might be affected by the proposed development. The fieldwork was undertaken on 3-11 February 2014, and consisted of a detailed magnetometer survey of c 22.7ha of land.

2 TOPOGRAPHY AND GEOLOGY

The survey area consists of a block of pasture land which lies between the Peartree and Wolvercote roundabouts in north Oxford and is split into three sections by the A40 Northern Bypass and the A44 Woodstock Road (Fig 1). The land is bordered to the north-west by the embankment of the A34, to the north by the Peartree Park and Ride, to the east by a disused railway cutting and to the south by residential properties, a garage and hotel. The south western boundary of the site lies close to the Oxford Canal, on the edge of the Thames floodplain.

The survey area generally tilts down to the south-west with its highest peak at the eastern edge at an approximate height of 70m aOD. This gradual slope levels out at around 67m aOD in between the A40 and A44. Then the trend resumes with a sharper decline down towards the River Thames floodplain on the south western side of the A40, reaching a minimum height of c 58m aOD.

Not all of the area was in a surveyable condition at the time the survey was carried out (Fig 2). There was standing water across one corner of the easternmost field and several of the south-western fields were obstructed by livestock and overgrown vegetation. One other plot in the south-west was excluded from the survey because it was surfaced with tarmac.

The survey area mostly lies upon the Oxford Clay formation, though the south-western edge lies partly on alluvium deposited by the nearby River Thames. Towards the south-eastern part of the area the Oxford Clay is overlain by a deposit of Wolvercote Terrace Gravel (BGS 2014).

3 ARCHAEOLOGICAL BACKGROUND

The survey area is located within the historic parish of Wolvercote and, prior to the completion of a recent desk-based assessment (Featherby 2014), had not been the subject of any archaeological research. However, there are records of various archaeological discoveries having been made in the surrounding area.

The Wolvercote Terrace Gravels which underlie part of the survey area are known to be a source of Palaeolithic worked flints. The Wolvercote brick pit, c 140m to the east, contained pointed handaxes and waste debitage (Beckley *et al* 2012), and other handaxes have been found were in another pit c 270m to the north (Featherby 2014, 8-9).

Late Iron Age and Roman settlement remains have been discovered very close to the survey area, on the opposite side of the A34, during works to replace the Wolvercote Viaduct. Other Iron Age and Roman remains are known from the wider vicinity, and there appears to have been a moderate scatter low status rural settlements across the Oxford area. There is a possible Roman road c 1km east of the survey area, and there is evidence for a substantial Roman pottery industry with foci in south-east Oxford and at Yarnton, 2.5km to the north-west (Featherby 2014, 11-12).

In the medieval period the survey area was under arable cultivation. This is demonstrated by the presence of ridge and furrow earthworks, which survive most prominently in the eastern field. The land has continued in largely agricultural use until the present day, although increasingly affected by road developments and suburban encroachment. One recent structure of note is a Second World War pillbox which stands alongside the A40, towards the centre of the survey area.

4 METHODOLOGY

The magnetometer 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 network of 30m grid squares was established within each of the fields to be surveyed. The grids were set out with a tape measure and optical square and were tied in to the Ordnance Survey National Grid by means of a Leica 1200 dGPS. 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) and with the method statement for the project (MOLA 2014).

The survey data were largely processed using Geoplot 3.00v software. Most of the striping was removed using the 'Zero Mean Traverse' function but some areas had to be de-striped separately, using a spreadsheet based routine, in order to preserve linear anomalies lying parallel to the traverse direction. Destaggering of the data was performed where necessary.

The processed data is presented in this report in the form of greyscale plots at a range of +4nT to -4nT (black / white) (Fig 2). An interpretative overlay is presented in Figure 3, and Figure 4 presents the unprocessed survey data.

5 SURVEY RESULTS

5.1 The eastern field

The survey results from the eastern field show a series of magnetically positive linear anomalies which correspond to the ridge and furrow earthworks visible on the surface. Two distinct directions of furrowing are present. At the southern end of the field there are a number of furrows that run from south-west to north-east, and across the remainder of the field there are furrows which run north-westwards before turning onto a more westerly heading. There appears to be a very slight overlap at the boundary of these two directions of furrows.

Near to the western edge of the field, parallel with the A44 there is an intense linear magnetic anomaly, alternating between positive and negative polarity. This represents a pipe line. It terminates close to a concrete foundation slab of a demolished building. The small, densely intermingled, magnetic dipoles (magnetic noise) detected around this slab suggests that it is surrounded by a halo of demolition rubble and other modern debris.

5.2 The central fields

The parallel linear anomalies detected in the two northernmost central fields correspond to residual ridge and furrow earthworks. These continue the line of the furrows in the eastern field, running south-south-west then curving onto a more south-westerly heading. Little trace of ridge and furrow has been detected in the next field to the south, but the small southern field has two well defined furrows aligned north-east to south-west.

A former field boundary of recent date has been detected in the north-central field, where it is represented by a thin discontinuous line of magnetic noise and two small, slightly elongated positive anomalies. To the south-west of this boundary, alongside the A40, lies the Second World War pillbox which has given rise to a small negative magnetic halo.

In the northern field there are extensive areas of magnetic noise representing scatters of modern debris. The noise at the south-western end of the field, for instance, occurs in an area where there are lumps of concrete and brick and pieces metal protruding from the ground. The noise at the opposite end of the field may represent debris from works on the A44, or from dredging of the adjacent stream. Two short linear anomalies in the same area, one more intense and more clearly defined than the other, probably represent a pair of drains discharging into the stream.

5.3 The south-western fields

Clear evidence of ridge and furrow has only been detected in the easternmost of the south-western fields, where the furrows are represented by parallel linear anomalies aligned from north-east to south-west. The only other anomalies of note are the extensive areas of magnetic noise in the eastern and western fields and the smaller areas of noise in the two central fields.

The magnetic noise in the western field can be attributed to the scatter of hardcore and modern rubbish left behind from its recent use as a roadwork compound. That in the eastern field probably represents a scatter of similar material deriving from the construction of the adjacent hotel, but also incorporates magnetic halos from the boundary fencing. The smaller areas of noise in the central fields probably also represent modern debris, but cannot be attributed to a more specific cause.

6 CONCLUSION

The survey did not identify any archaeological remains other than medieval to early post-medieval ridge and furrow. Nor did it identify any palaeochannels or other geological features which might contain significant Palaeolithic material. This suggests that no substantial archaeological sites are likely to exist within the areas surveyed. However the presence of small or ephemeral remains (eg inhumations, timber structures) cannot be firmly excluded, as these often present very difficult targets for geophysical survey to identify (EH 2008, 14).

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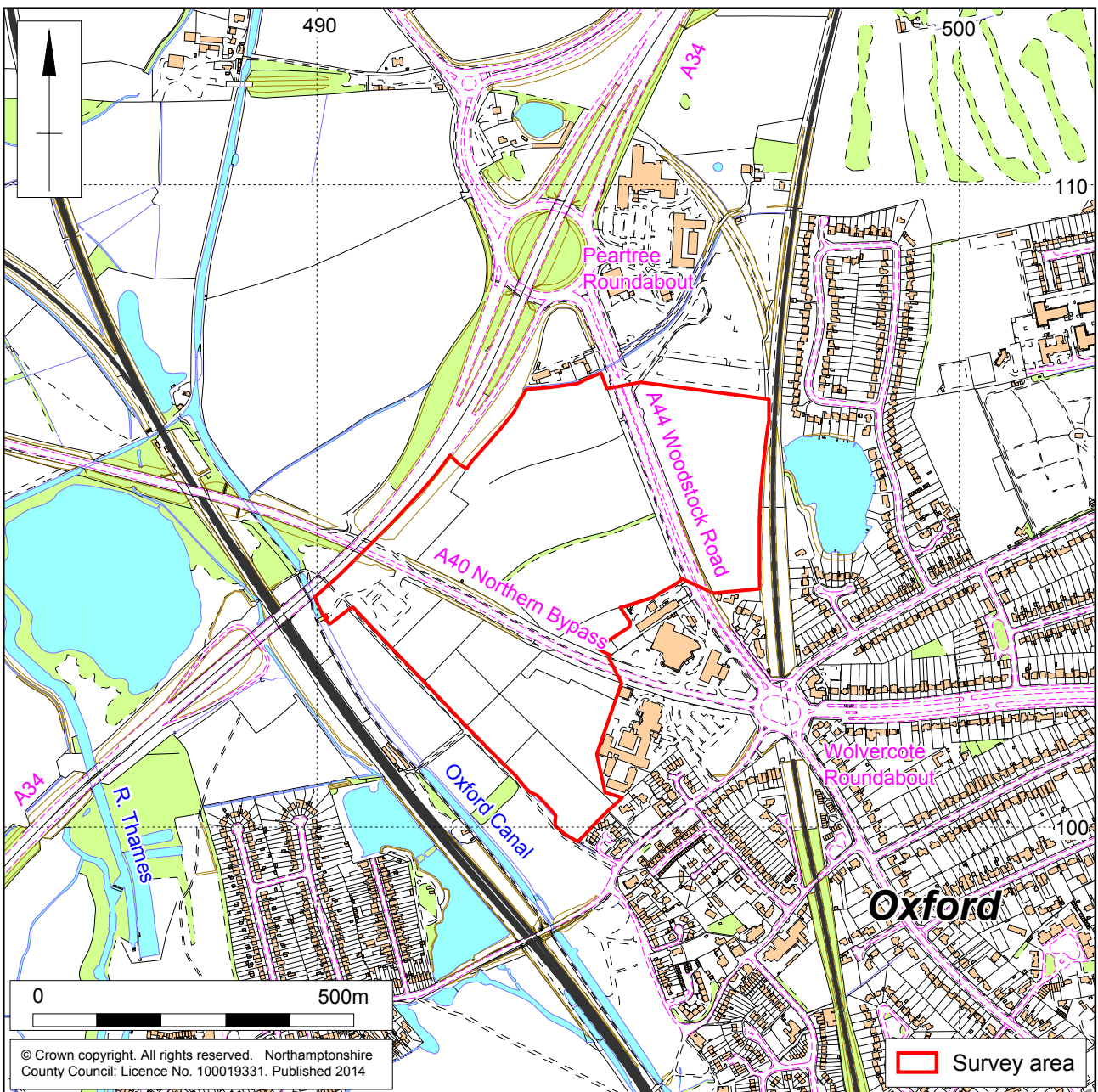
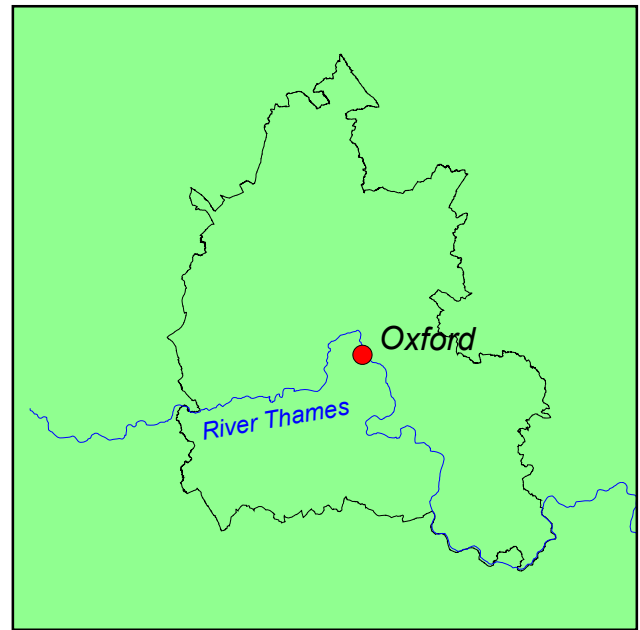
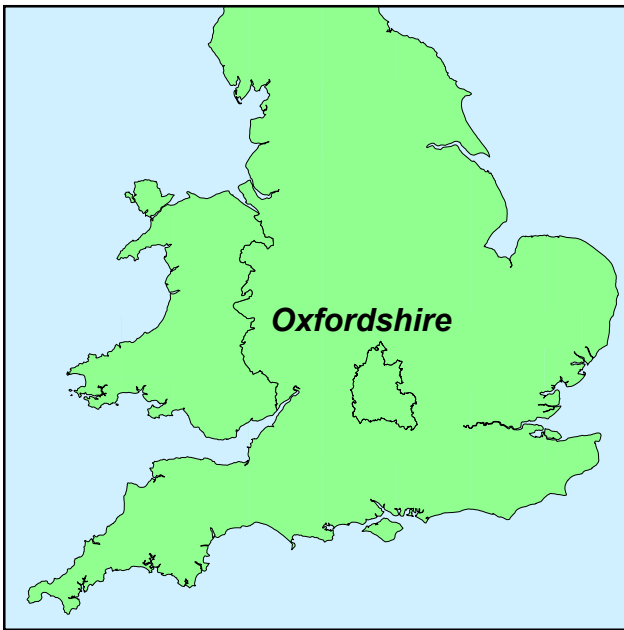
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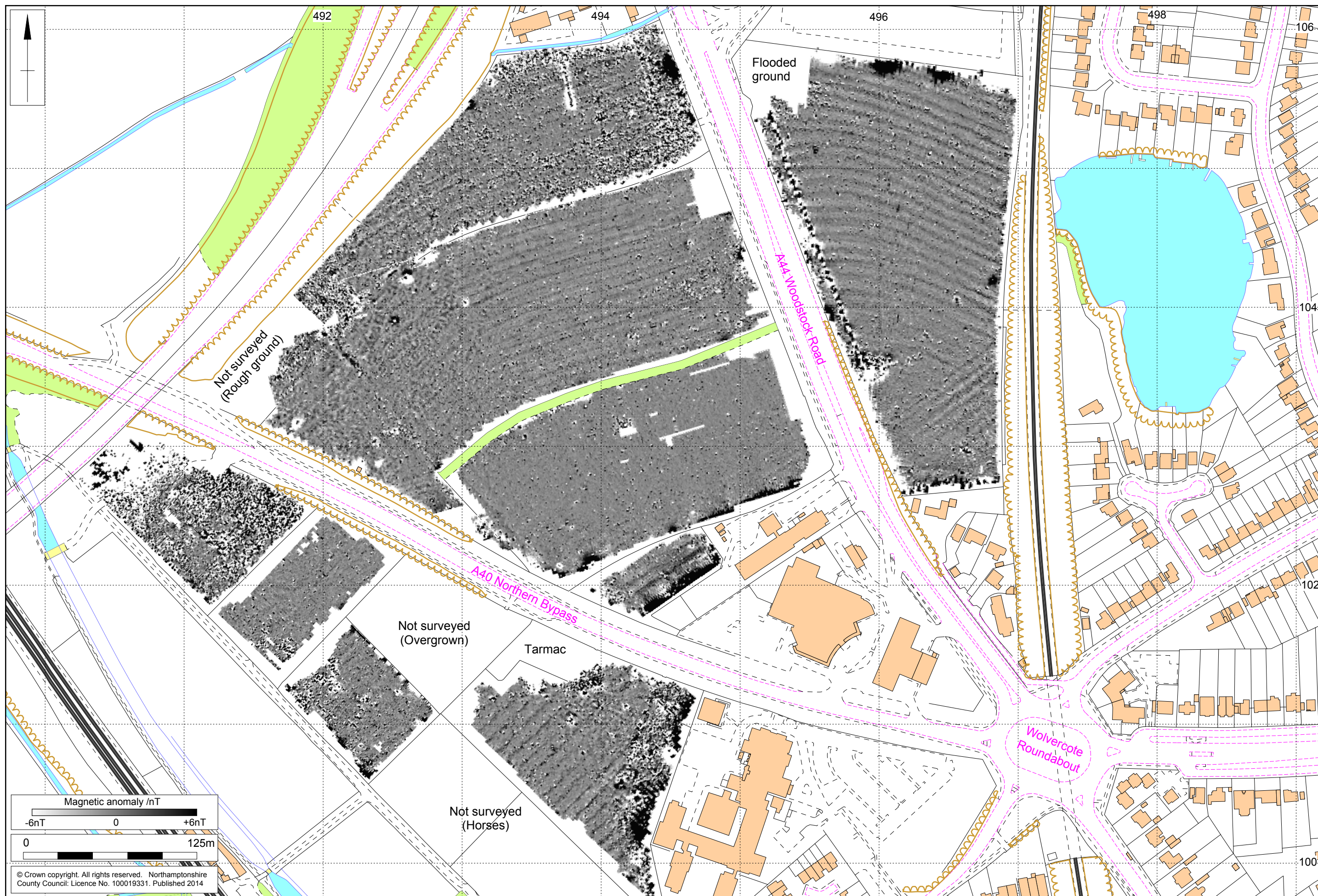
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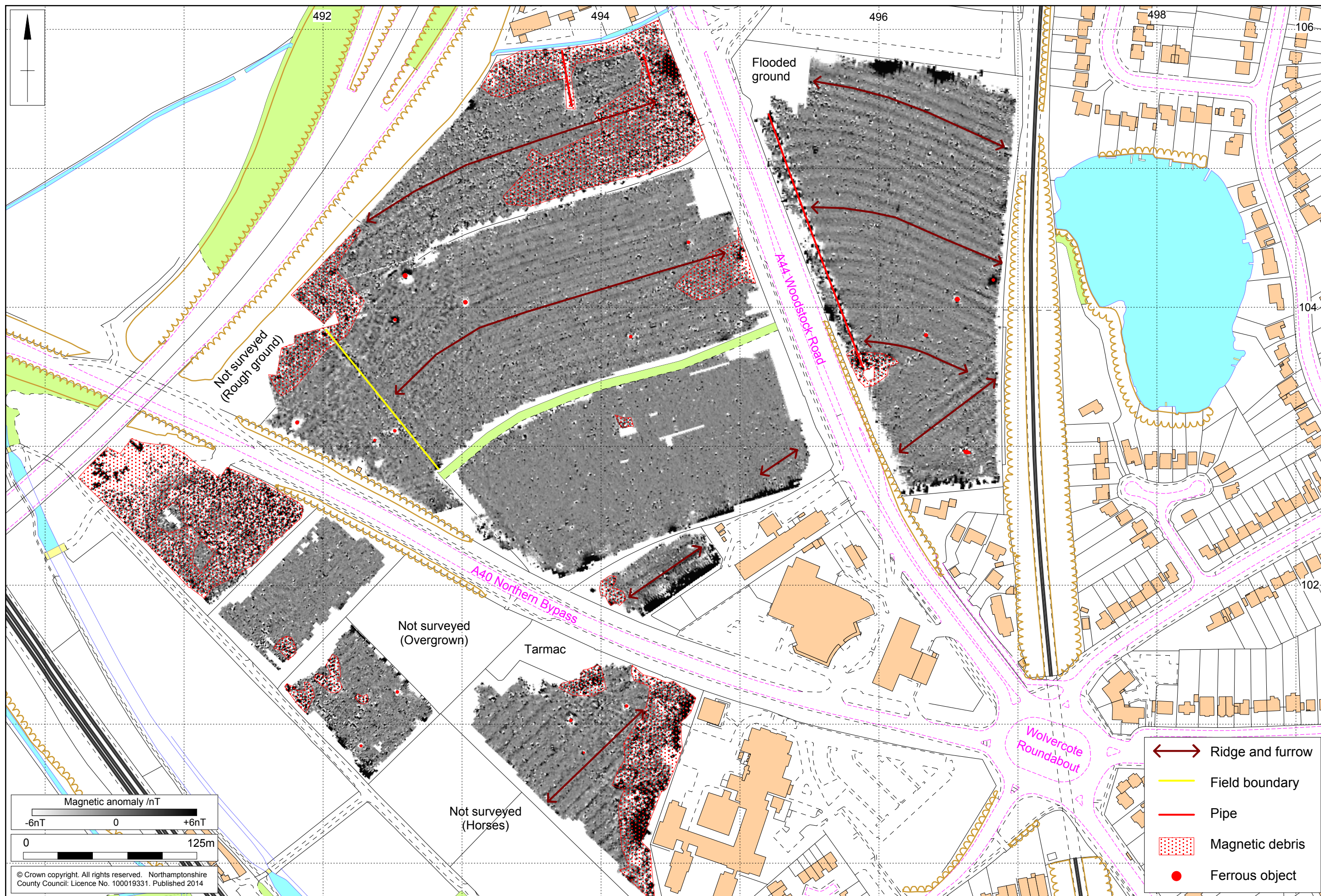
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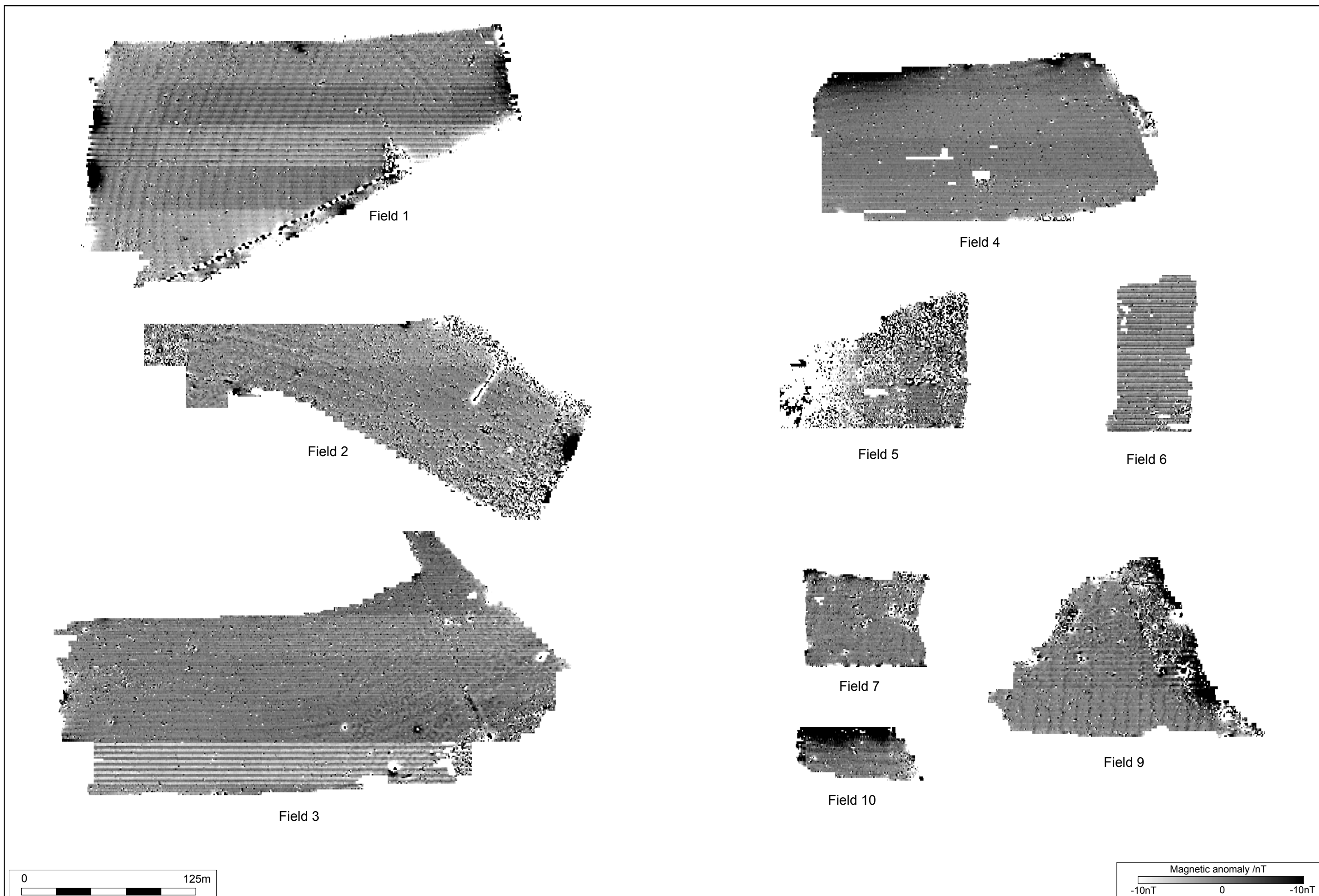
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Site Location Fig 1





Magnetometer survey interpretation Fig 3



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