



Northamptonshire Archaeology

Archaeological Geophysical Survey of land adjacent to Gill Mill Quarry, near Witney Oxfordshire



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Report 11/67

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GILL MILL QUARRY, NEAR WITNEY

OASIS REPORT FORM

PROJECT DETAILS		
Project name	Archaeological geophysical survey on land adjacent to Gill Mill Quarry, near Witney, Oxfordshire	
Short description	Northamptonshire Archaeology was commissioned to undertake an archaeological geophysical survey on 44ha of land adjacent to Gill Mill Quarry, near to Witney, Oxfordshire. The fieldwork comprised a detailed magnetometer survey and was carried out during February and March 2011. The survey identified three probable Bronze Age ring ditches, part of a probable Iron Age or Romano-British enclosure, an undated pit cluster and an enigmatic elliptical feature of unknown date and function. Evidence for ridge and furrow cultivation of medieval or later date was also detected.	
Project type	Geophysical survey	
Site status	None	
Previous work	Cropmark mapping (Benson and Miles 1974)	
Current Land use	Arable	
Future work	Unknown	
Monument type/ period	Bronze Age ring ditches, Iron Age or Romano-British enclosure, Undated pit cluster, Undated elliptical feature.	
Significant finds		
PROJECT LOCATION		
County	Oxfordshire	
Site address	Gill Mill Quarry	
Study area	c 44ha	
OS Easting & Northing	SU 455 011	
Height OD	c 75m AOD	
PROJECT CREATORS		
Organisation	Northamptonshire Archaeology (NA)	
Project brief originator		
Project Design originator	NA	
Director/Supervisor	Ian Fisher	
Project Manager	Adrian Butler	
Sponsor or funding body	Oxford Archaeology	
PROJECT DATE		
Start date	28 February 2011	
End date	11 March 2011	
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	Journal/monograph, published or forthcoming, or unpublished client report	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 on land adjacent to Gill Mill Quarry, near Witney, Oxfordshire	
Serial title & volume	Northamptonshire Archaeology Reports 11/67	
Author(s)	John Walford	
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Contents

1	INTRODUCTION	1
2	TOPOGRAPHY AND GEOLOGY	1
3	ARCHAEOLOGICAL BACKGROUND	1
4	METHODOLOGY	3
5	SURVEY RESULTS	3
6	CONCLUSION	5
	BIBLIOGRAPHY	5

Figures

Fig 1	Site Location	1:25,000
Fig 2	Cropmarks in and around the survey area	Not to scale
Fig 3	Overview of magnetometer survey results	1:2,500
Fig 4	Magnetometer survey results: Fields 1-2	1:2,500
Fig 5	Magnetometer survey interpretation: Fields 1-2	1:2,500
Fig 6	Magnetometer survey results: Field 3	1:2,500
Fig 7	Magnetometer survey interpretation: Field 3	1:2,500

**ARCHAEOLOGICAL GEOPHYSICAL SURVEY ON LAND ADJACENT
TO GILL MILL QUARRY, NEAR WITNEY, OXFORDSHIRE
FEBRUARY-MARCH 2011**

Abstract

Northamptonshire Archaeology was commissioned to undertake an archaeological geophysical survey on 44ha of land adjacent to Gill Mill Quarry, near to Witney, Oxfordshire. The fieldwork comprised a detailed magnetometer survey and was carried out during February and March 2011. The survey identified three probable Bronze Age ring ditches, part of a probable Iron Age or Romano-British enclosure, an undated pit cluster and an enigmatic elliptical feature of unknown date and function. Evidence for ridge and furrow cultivation of medieval or later date was also detected.

1 INTRODUCTION

Northamptonshire Archaeology (NA) was commissioned by Oxford Archaeology to carry out an archaeological geophysical survey on land adjacent to Gill Mill Quarry, near Witney, Oxfordshire. The survey area comprised 44ha of arable land in the parish of South Leigh, centred on NGR: SP 375077 (Fig 1).

A detailed magnetometer survey was conducted across all suitable parts of the survey area. The fieldwork commenced on 28th February and continued until 9th March 2011.

2 TOPOGRAPHY AND GEOLOGY

The survey area consists of three adjacent fields lying within the Windrush valley, approximately two miles south-east of Witney (Fig 1). These fields are bounded to the north by Cogges Lane, and to the south and east by various active and former quarry pits. At the time of the survey, all three fields were lying fallow.

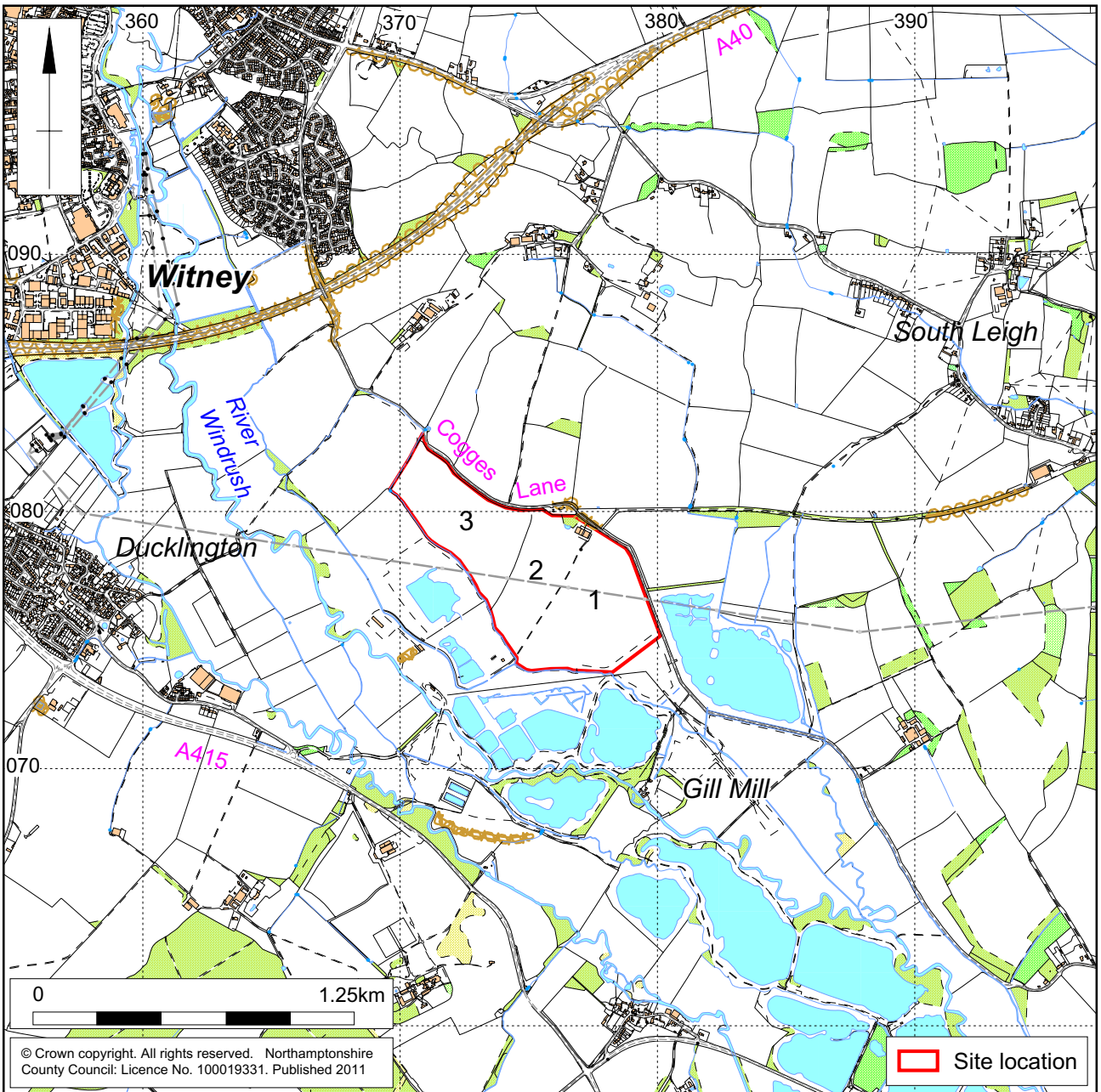
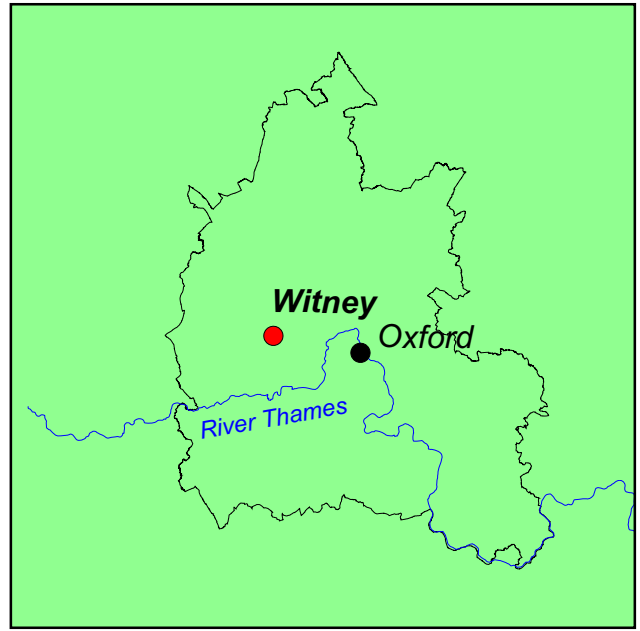
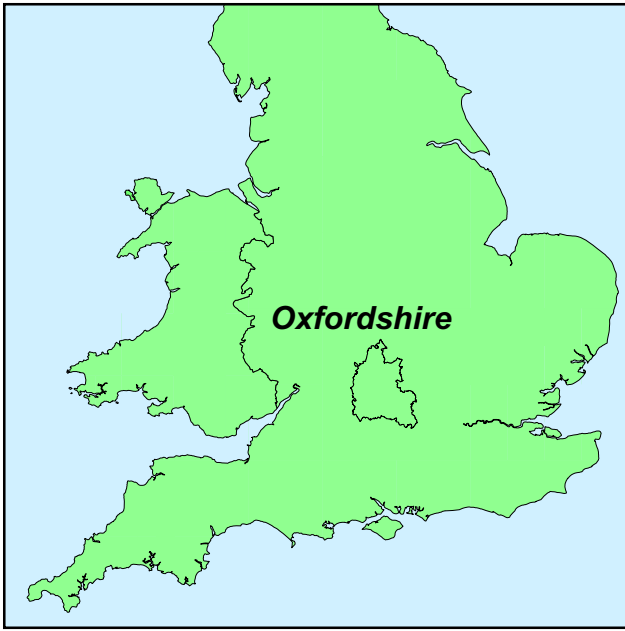
The fields extend across a low terrace surface which stands just above the floodplain at an elevation of c 75m aOD. The land is almost entirely flat, with only a slight rise of about 2m towards the northern edge of Field 3.

The geology of the survey area comprises a drift of sand and limestone gravel overlying Oxford Clay.

3 ARCHAEOLOGICAL BACKGROUND

There are a number of cropmarks of archaeological significance within the survey area (Benson and Miles 1974, 42-3; Fig 2 below). Parts of several ditched enclosures of probable Iron Age or Romano-British date have been identified in Field 1 and three probable Bronze Age ring ditches have been identified in Fields 2-3. Cropmarks of medieval or later ridge and furrow have also been noted, and a former plough headland of presumably similar date survives as a broad ridge across Field 2 (*pers obs*).

During the 19th and 20th centuries, Fields 2 and 3 of the survey area were crossed by the route of the Witney and East Gloucestershire railway. This line opened in 1861 and



Scale 1:25,000

Site Location Fig 1

operated until 1970 (Howse 2003). The tracks have since been removed, and the land returned to cultivation, but their former course is still marked by a dense scatter of clinker and other hardcore in the ploughsoil (*pers obs*).

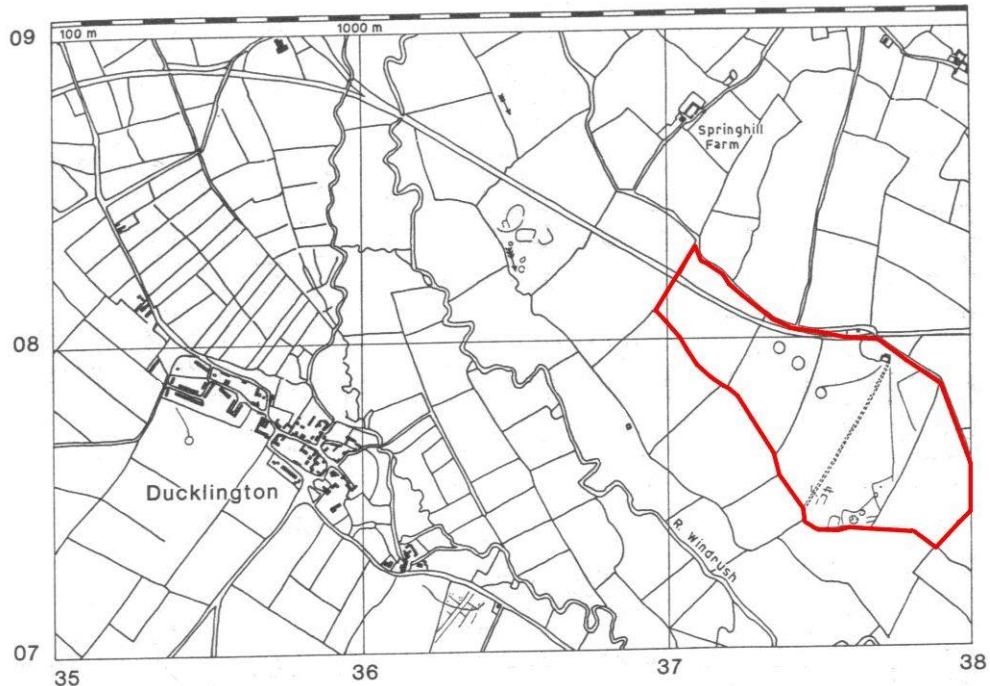


Fig 2 Cropmarks in and around the survey area (after Benson and Miles 1974, 43)

Immediately to the south-east of the survey area there is a Roman 'small town' at Gill Mill. This site, which was centred upon the crossing of a minor road over the River Windrush, is thought to have been a local market centre and may have contained a shrine or small temple (Henig and Booth 2000, 72-3). Several Iron Age enclosures have also been found in the immediate vicinity (Oxon HER, PRN D14099 & PRN 11636).

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).

Each field within the survey area was divided into 30m grid squares by means of a tape measure and optical square, and the baseline of each grid system was tied into the Ordnance Survey national grid by measurement with a Leica 1200 dGPS. The gradiometers 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 methods complied with the guidelines issued by English Heritage, and by the Institute for Archaeology (EH 2008; Gaffney, Gater and Ovendon 2002).

The survey data was 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 greyscale plots (scale +3nT to -3nT black ~ white) which have been scaled, rotated and resampled (georectified) for display against the Ordnance Survey base mapping (Figs 3, 4 and 6). An interpretative plot has been produced and is shown overlain onto the data (Figs 5 and 7).

5 RESULTS

Field 1

The survey has identified a number of probable archaeological anomalies in this field, most of which are concentrated towards its southern edge. There is one irregular and weakly positive linear anomaly, which appears to represent part of an enclosure ditch, a group of more strongly positive discrete anomalies, suggestive of a pit cluster and, more enigmatically, an elliptically shaped negative linear anomaly.

The enclosure ditch anomaly is approximately 'M' shaped, and appears to extend southwards beyond the limits of the present survey area. Its form and location correlates well with the cropmark evidence, as do some of the internal features (Fig 2). There is, however, no sign of the other enclosures which were plotted as part of the same group.

To the east of the enclosure is a concentration of small but distinct positive anomalies of a type which usually represent infilled pits. Several are rectangular in form, and the largest measures 7m by 3.5m across. Unfortunately, they are not diagnostic enough to permit any confident interpretation, and there are no reliable grounds on which to suggest a date.

To the east of, and partially intersecting with, these pits is a thin and weakly negative linear anomaly of uncertain significance. It can be traced around rather more than half of an elliptical circuit and has dimensions of at least 30m north to south, by approximately 22m east to west. Generally speaking, negative anomalies such as this may be caused by modern agricultural features, by buried wall footings, or by plastic or concrete pipes, but the unusual elliptical form of this particular anomaly seems to rule out most of these options. An interpretation as a wall footing seems the most plausible, but even that is not entirely convincing. The only structure likely to have an elliptical wall is an arena, but an arena would be expected to produce a much more substantial anomaly (as, for instance, did the Roman arena at Frilford, Oxon, (Lock *et al* 2002, 71)).

There are a number of other possible archaeological anomalies in this field, as indicated on Figure 4. They probably indicate isolated pits and sections of ditch, but they are too scattered and fragmentary to interpret in detail. One linear anomaly, which runs parallel with the southern field boundary, is of indeterminate origin. It has been plotted as a ditch, but may alternatively represent a modern agricultural feature.

A linear anomaly, largely defined by a scatter of small magnetic dipoles, bisects Field 1 from north to south. It correlates with the position of a former field boundary, recorded on the first edition Ordnance Survey map. The dipolar anomalies indicate a concentration of small ferrous objects along the line – probably a combination of agricultural debris and the remains of wire fencing. Another linear anomaly branches east from this former boundary. It is of quite different character, being much more strongly magnetic (typical strength 10-12nT), and does not match with any mapped feature. It might represent a large ceramic pipe, or other drainage feature.

On the western side of the former field boundary there are traces of many regularly spaced linear anomalies, aligned from north-west to south-east, which represent ridge and furrow cultivation of medieval origin. The much more tightly spaced lineations on the other side relate to modern cultivation.

At various points across the field there are broad and diffuse magnetic anomalies of geological origin, indicating near-surface variations in sediment type or mineralogy. Where these are most densely concentrated, at the northern end of the field, they perhaps indicate a spread of alluvium or the fill of a broad palaeochannel.

Two very large positive magnetic halos occur around the bases of the electricity pylons in this field. A smaller halo towards the north of the field, against the track to the barns, was caused by a derelict wind pump. Another, against the southern field edge, was caused by a parked vehicle.

Field 2

There is one weakly positive curvilinear anomaly in this field which defines part of a ring ditch 30m in diameter (Figs 4 & 5). This correlates with a cropmark (Fig 2), and almost certainly represents a Bronze Age round barrow. Interestingly, this anomaly coincides with a surviving plough headland, suggesting that the barrow may have been employed as boundary mark when the medieval field system was set out.

The line of the plough headland is marked by a fragmentary linear anomaly in the data. To either side of it are a set of parallel, slightly sinuous, linear anomalies, aligned south-west to north-east, which represent the ploughed out remnants of ridge and furrow cultivation.

As in Field 1, there are a number of broad and diffuse magnetic anomalies of geological origin. These cannot be interpreted in detail, but may indicate pockets of alluvium or the approximate lines of palaeochannels.

At the northern edge of this field there is a very strongly magnetic linear anomaly of alternating polarity. This represents a buried pipe, which runs from a derelict wind-pump towards Cogges Bridge Cottage, with a spur branching off towards the nearby barns.

The Witney and East Gloucestershire railway ran through the north-western extremity of Field 2, and is represented in the data by a band of magnetic noise. For further discussion of this feature, see the following section on the results from Field 3.

An electricity pylon stands near to the boundary of Fields 2 and 3, and has produced a large positive halo which extends into both fields.

Field 3

There are two positive annular magnetic anomalies in this field (Figs 6 & 7). One, which is quite indistinct, has a diameter of *c* 28m, whilst the other, which is much more obvious, measures *c* 20m across. Both relate to cropmarks (Fig 2) and are likely to represent Bronze Age round barrows. A few other anomalies may represent pits and ditches of archaeological interest, as indicated on Figure 7, but all are undiagnostic and impossible to date or interpret in detail.

At the western end of this field is a group of large, weakly positive anomalies of somewhat irregular form. These probably represent an area of ground disturbed by

small-scale gravel quarrying. Other large, but less well defined, positive anomalies occur elsewhere in the field. These are more likely to be of geological origin.

There are at least two sets of parallel linear anomalies which represent different directions of ploughing. Unfortunately they are much more fragmentary and confused than those in the other fields, and it is not possible to determine whether they relate to ridge and furrow, to modern ploughing, or to a combination of the two.

The line of the Witney and East Gloucestershire railway is very apparent in the data, being represented by a broad band of magnetic noise, within which several discrete anomalies can be discerned. The main linear trends are presumed to represent the track bed or beds, and perhaps also track-side ditches with backfill rich in clinker and hardcore. There are also four regularly spaced ferrous anomalies on the north side of the track. One of these was seen to coincide with a modern survey pin, and it is possible that the other anomalies are of like origin.

6 CONCLUSION

The results of this survey broadly coincide with the pre-existing cropmark evidence (Fig 2), confirming the presence of three probable Bronze Age round barrows and a probable Iron Age or Romano-British enclosure. A group of previously unidentified archaeological features has also been mapped near to the south-eastern corner of the survey area. This group comprises a cluster of large pits, of indeterminate date, and an enigmatic anomaly which may indicate a wall footing of elliptical form. The survey also identified evidence for medieval or later ridge and furrow cultivation, and noted the survival of a probable medieval plough headland.

It is possible that further archaeological remains exist which have not been identified by this survey. Many of the magnetic anomalies detected were weak and indistinct, which suggests that the local soil conditions are not particularly favourable for geophysical survey. Furthermore, there are certain types of small and ephemeral feature, such as cremation burials and post-built structures, which no geophysical technique can reliably detect (EH 2008, 14). The reader is advised to bear these issues in mind when considering the results presented here.

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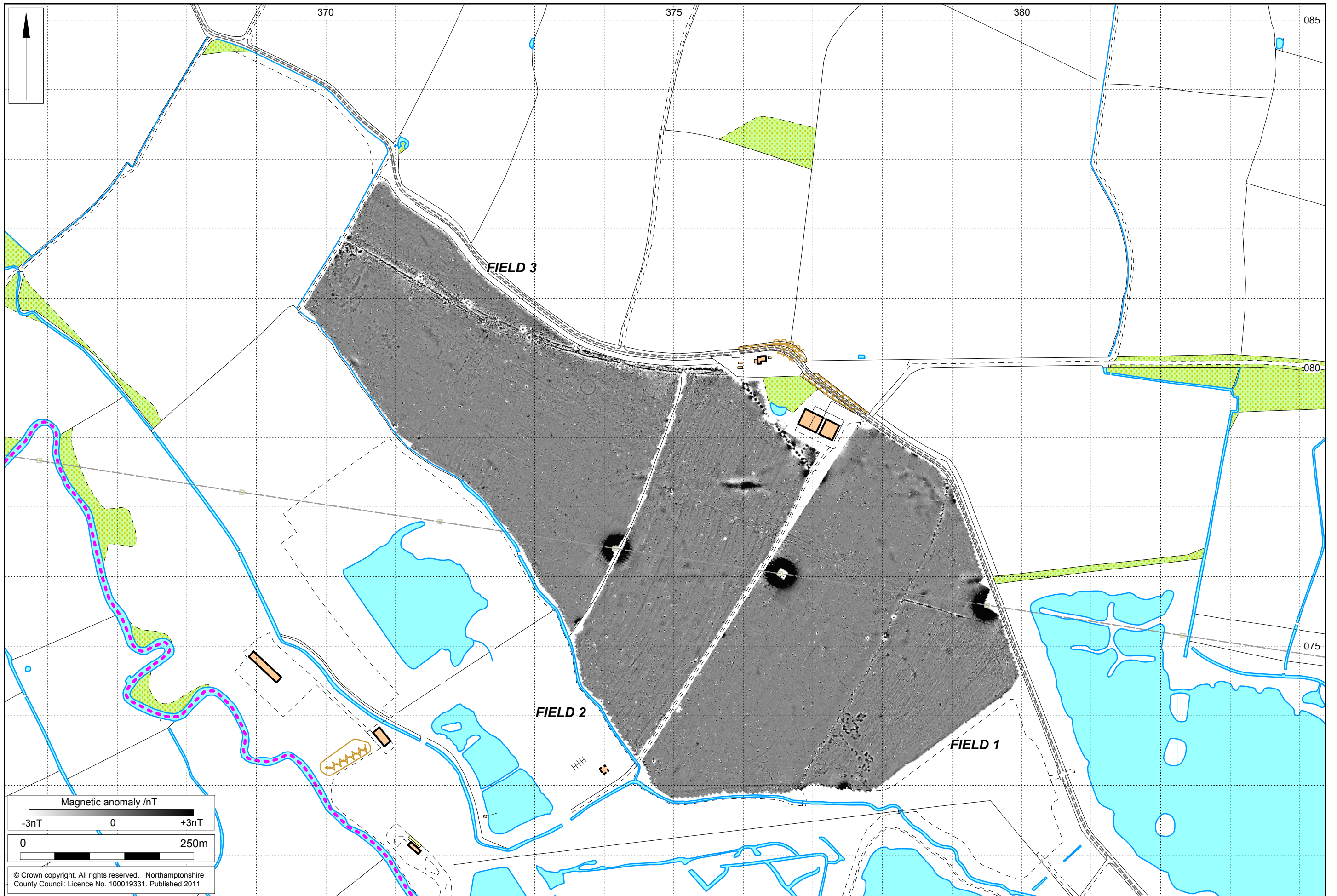
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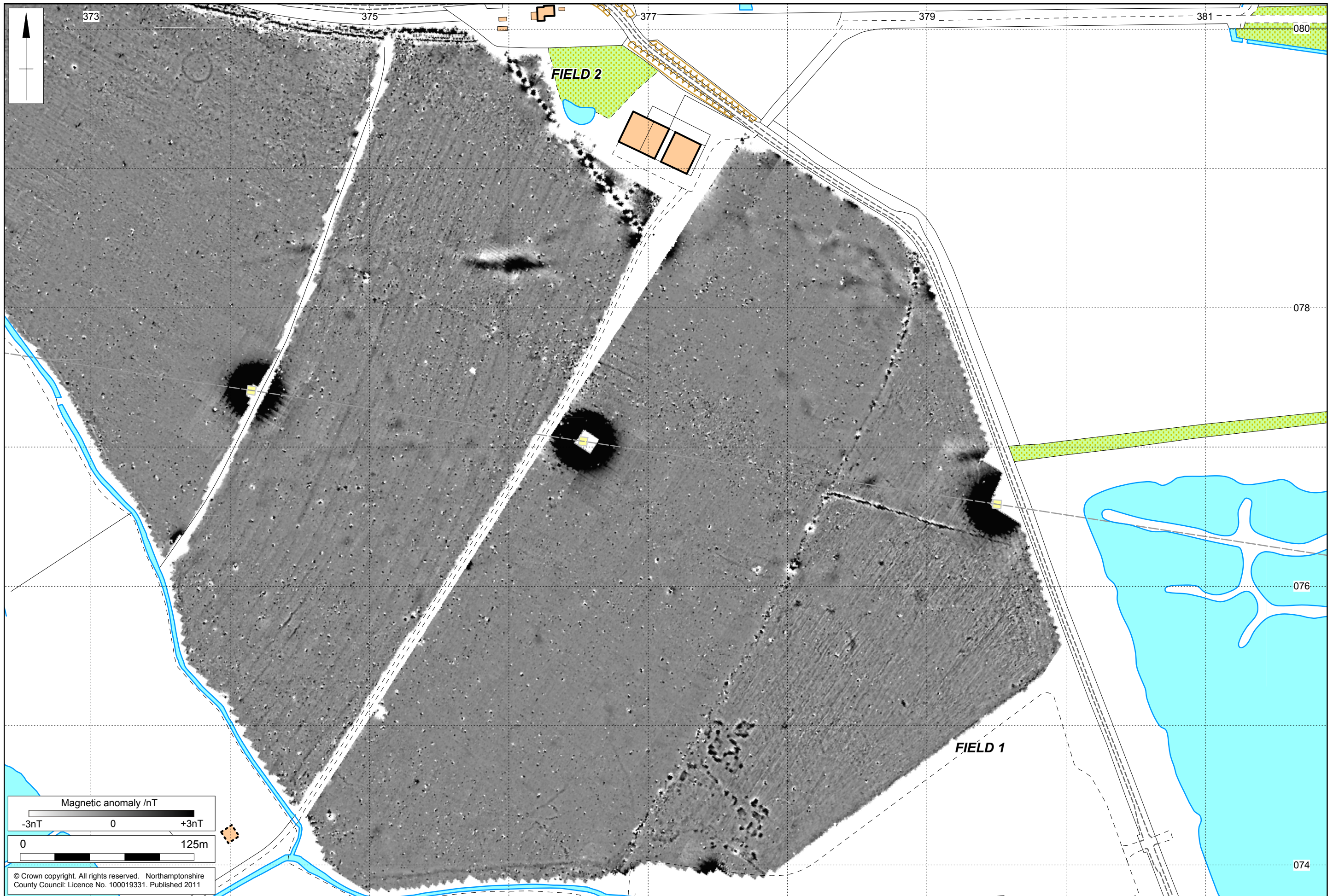
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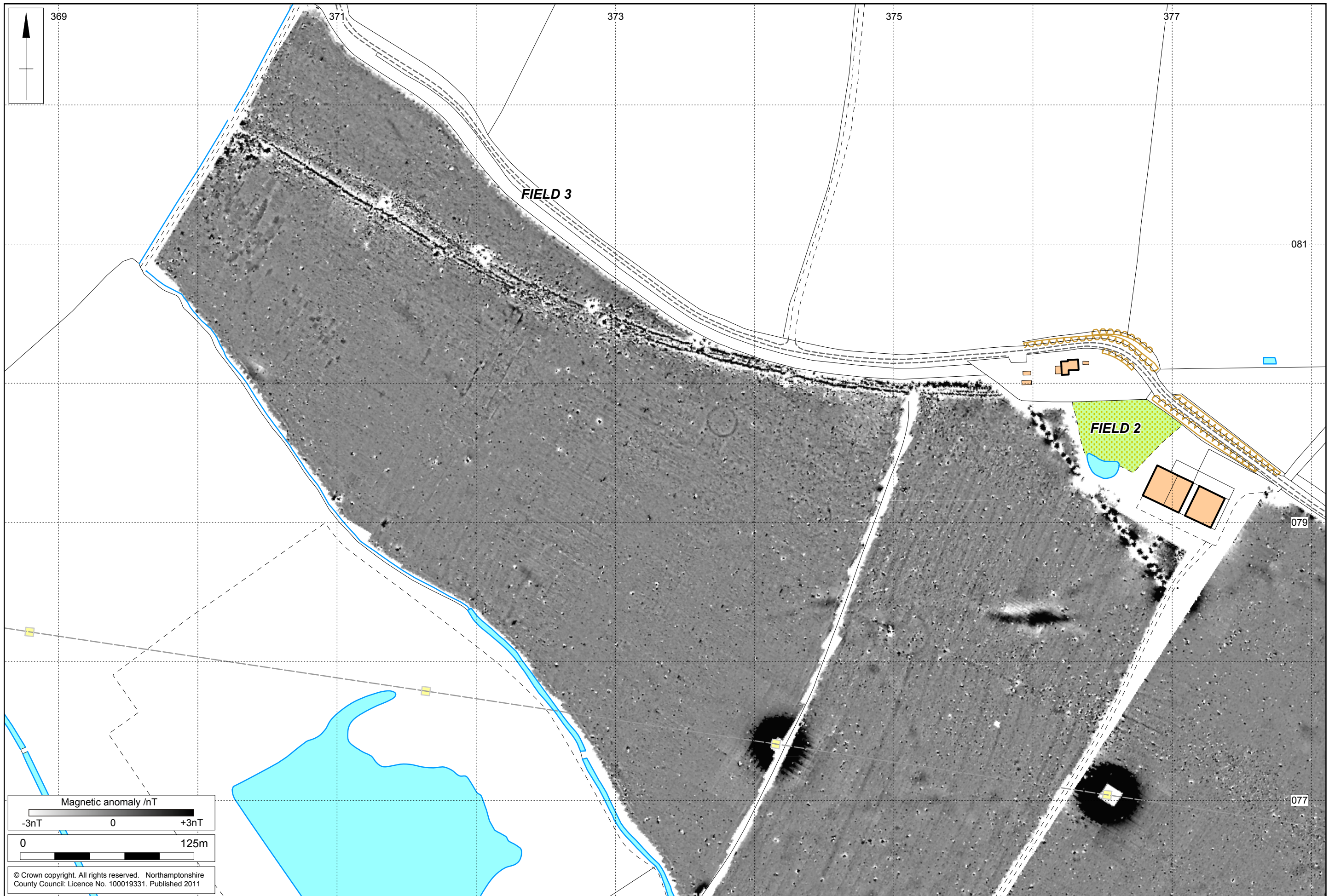
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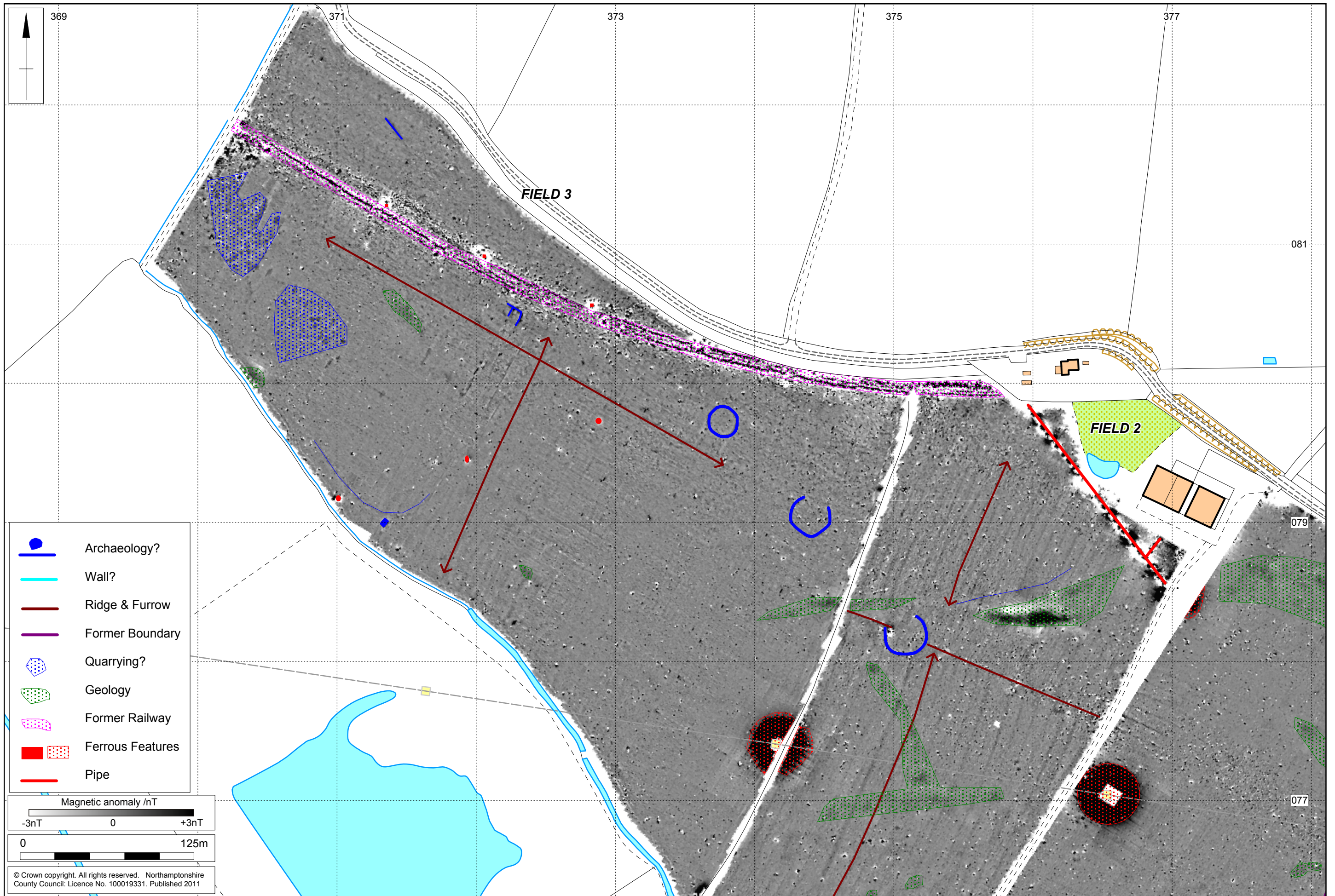
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