

**Archaeological geophysical survey at
Bedford Road, Northill
Bedfordshire
July 2016**

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Report No: 16/124

Author: John Walford

Illustrator: John Walford



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OASIS REPORT

PROJECT DETAILS		Oasis No. molanort1-257850	
Project name	Archaeological geophysical survey at Bedford Road, Northill, Bedfordshire		
Short description	MOLA (Museum of London Archaeology) were commissioned to undertake a magnetometer survey of c 0.5ha of land to the east of Bedford Road, Northill. The survey detected only a few minor features of uncertain archaeological interest. During the course of the survey a small rectangular earthwork was also recorded, but this seems likely to be of recent date.		
Project type	Geophysical survey		
Site status	None		
Previous work	None known		
Current land use	Pasture		
Future work	Not known		
Monument type/ period	Undated ditches and pits? Modern? earthwork		
Significant finds	None		
PROJECT LOCATION			
County	Northamptonshire		
Site address	Bedford Road, Northill		
Study area	c 0.5ha		
OS Easting & Northing	TL 1475 4665		
Height OD	c 35m - 40m aOD		
PROJECT CREATORS			
Organisation	MOLA		
Project brief originator	Hannah Firth, Central Bedfordshire Council		
Project design originator	MOLA		
Director/Supervisor	Adam Meadows		
Project Manager	John Walford		
Sponsor or funding body	DLA Town Planning		
PROJECT DATE			
Start date	11 July 2016		
End date	11 July 2016		
ARCHIVES			
	Location	Content	
Physical	N/A		
Paper	MOLA Northampton.	Site survey records	
Digital	BEDFM 2016.47	Geophysical survey & GIS data	
BIBLIOGRAPHY			
	Journal/monograph, published or forthcoming, or unpublished client report		
Title	Archaeological geophysical survey at Bedford Road, Northill, Bedfordshire, July 2016		
Serial title & volume	MOLA Northampton Reports 16/124		
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Contents

1	INTRODUCTION	1
2	BACKGROUND	1
	2.1 Topography and geology	
	2.2 Historical and archaeological background	
3	METHODOLOGY	2
4	SURVEY RESULTS	3
	4.1 The magnetometer survey results	
	4.2 The earthwork	
5	CONCLUSION	4
	BIBLIOGRAPHY	4

Figures

Cover	Magnetometer survey results	
Fig 1	Site location	1:2000
Fig 2	Magnetometer survey results	1:1000
Fig 3	Magnetometer survey interpretation	1:1000
Fig 4	Location of earthwork relative to survey results	1:1000
Fig 5	Unprocessed magnetometer data	1:1000
Back cover	Google Earth aerial photograph, showing earthwork on site	

Archaeological geophysical survey at Bedford Road, Northill, Bedfordshire July 2016

ABSTRACT

MOLA (Museum of London Archaeology) were commissioned to undertake a magnetometer survey of c 0.5ha of land to the east of Bedford Road, Northill. The survey detected only a few minor features of uncertain archaeological interest. During the course of the survey a small rectangular earthwork was also recorded, but this seems likely to be of recent date.

1 INTRODUCTION

MOLA (Museum of London Archaeology) was commissioned by DLA Town Planning to conduct a magnetometer survey on a proposed development site to the east of Bedford Road, Northill, Bedfordshire (NGR TL 1475 4665; Fig 1). The survey was commissioned following discussions with Hannah Firth of Central Bedfordshire Council, and was intended to investigate the presence, layout and extent of any archaeological features which may be affected by the proposed development. The survey was undertaken on 11th July 2016 and has been recorded with Bedford Museum under accession number BEDFM 2016.47.

2 BACKGROUND

2.1 Topography and geology

The survey area comprises an almost rectangular pasture field, circa 0.5ha in extent, located immediately east of Bedford Road and west of Northill cemetery on the north-western edge of Northill (Fig 1). It stands on a gentle east-facing slope between 35m and 40m aOD.

The British Geological Survey indicates that the local geology comprises the Stewartby and Weymouth Members of the Oxford Clay, overlain by Oadby Diamicton (boulder clay) and fluvio-glacial terrace deposits (BGS 2016).

2.2 Historical and archaeological background

The survey area lies just outside the historic core of Northill, c 150 m north-west of the 14th-century parish church and a similar distance north of the former site of the manor house. Historic maps of 19th to 20th century date do not show any buildings or other significant features within the survey area and it contains no previously recorded archaeological features or findspots. A small rectangular earthwork is apparent on aerial photographs of the area (see back cover image) but this is thought most likely to be modern (see Sections 4 and 5, below).

Roman coins have been found c 300m north-east of the survey area (Bedfordshire Historic Environment Record No. 15993), and Roman pottery c 300m to the south west, around the Holm Wood fishponds (BHER 1430). Roman burials have been found south of Home Wood, in Church Fields (BHR 425).

3 METHODOLOGY

The survey was undertaken with the MOLA magnetometer cart. This is a two-wheeled, lightweight structure designed to be pushed by hand. It incorporates a bank of six vertically-mounted Bartington Grad601 magnetic sensor tubes, spaced at half-meter intervals along a bar aligned crossways to the direction of travel, and also incorporates a Leica Geosystems Viva GPS antenna mounted on the central axis, 0.5m astern of the sensors. The magnetic sensors each output data at a rate of six readings per second and the GPS antenna outputs NMEA format data (GGA messages) at a rate of one position every second. These data streams are fed into a laptop computer where they are compiled into a single raw data file by MultiGrad601 logging software specifically designed for that purpose.

The cart was pushed along straight and parallel traverses across the survey area, with data logging being manually toggled on and off at the start and end of each traverse to avoid the collection of spurious data whilst turning. Traverse ends were marked with ranging poles to aid even coverage, and the evenness of coverage was further checked by monitoring the positional trace plotted in real time by the MultiGrad601 logging software. The average speed of coverage was *c* 1.5m/s and the effective data resolution thus approximated to 0.25m x 0.50m.

The raw survey data was initially processed with MLGrad601 software, which calculated an actual UTM co-ordinate for each data point by interpolating the GPS readings and applying offset corrections based on the array geometry and calculated heading direction. This produced an output file in XYZ format which could be imported into TerraSurveyor software for data visualisation and further processing.

The raw XYZ data exhibited striping caused by slight mis-matches in the calibration of the individual magnetic sensors. This was removed in TerraSurveyor by applying the median destripe function to runs of data from each sensor. A despiking routine was also used to remove some small, spurious negative readings cause by a probe fault.

The processed data is presented in this report as a greyscale raster plot (range +4nT to -4nT / black to white), rotated and scaled for display against the Ordnance Survey base mapping (Fig 2). An interpretative plot is provided as Figure 3 and a greyscale raster plot of the unprocessed data as Figure 5.

4 SURVEY RESULTS

4.1 The magnetometer survey results

The survey has detected three weak linear anomalies which can be provisionally interpreted as representing sections of infilled ditch. The most convincing of these occurs in the north-western part of the survey and comprises a positive linear anomaly, c 12m long, aligned roughly north to south. To the south-west of this is an indistinct sinuous linear trend running through the southern half of the field, for which an interpretation as a ditch is less confidently offered. The third anomaly, which is c 10m long and aligned east to west, lies near the south-eastern corner of the survey area. It is stronger than the other two, at c 10 - 15nT, but still within the usual range of variability for ditch anomalies.

There are a few small, weakly positive magnetic anomalies in the data. Such anomalies are frequently detected by geophysical surveys, but are generally hard to attribute to a specific cause. Some may represent infilled pits, but others can relate to natural geological variations and a few may be no more than random noise. A few have been highlighted indicatively on Figure 3, but their suggested interpretation as pits is very tentative.

Three very weak linear anomalies of alternating magnetic polarity are aligned north-west to south-east across the survey area. Such anomalies are highly characteristic of modern field drains.

A tight concentration of moderately intense (c 15 - 45nT) amorphous dipolar anomalies, c 10m across, occurs close to the centre of the survey area. Anomalies of this strength typically arise from burnt soil or other weakly magnetised materials, so an interpretation as an area of ground scorched by a bonfire would be plausible. An alternative interpretation of an old pond or other hollow infilled with rubbish is also possible, although the absence of the intense ferrous anomalies typical of modern made ground makes this less probable.

Various small but intense dipolar magnetic anomalies are scattered across the survey area, representing insignificant pieces of ferrous debris in the topsoil. One larger dipolar anomaly in the southern half of the site has a composite form and probably represents two larger pieces of ferrous debris buried close together. There are also some strong positive and negative magnetic halos around the margins of the survey area, due to adjacent fences and other metal structures.

4.2 The earthwork

The rectangular earthwork visible on aerial photographs (see back cover image) was observed in the field by the survey team and the locations of its corners were recorded by GPS. It measures c 7m wide by 11m long, with a small north-western projection, and is defined by a shallow linear depression, c 0.10-0.15m deep and 0.30m wide. A line of dark, lush grass runs along this depression. The earthwork did not produce any coherent magnetic anomaly but, when its location is plotted against the magnetic survey results (Fig 4) the coincidence of its north-eastern corner with the large double ferrous anomaly is clearly apparent.

5 CONCLUSION

The survey has detected some minor anomalies which possibly represent ditches and pits, but nothing which can be firmly interpreted as archaeological. Given the weakness and incoherent arrangement of these anomalies, no further discussion can be meaningfully offered.

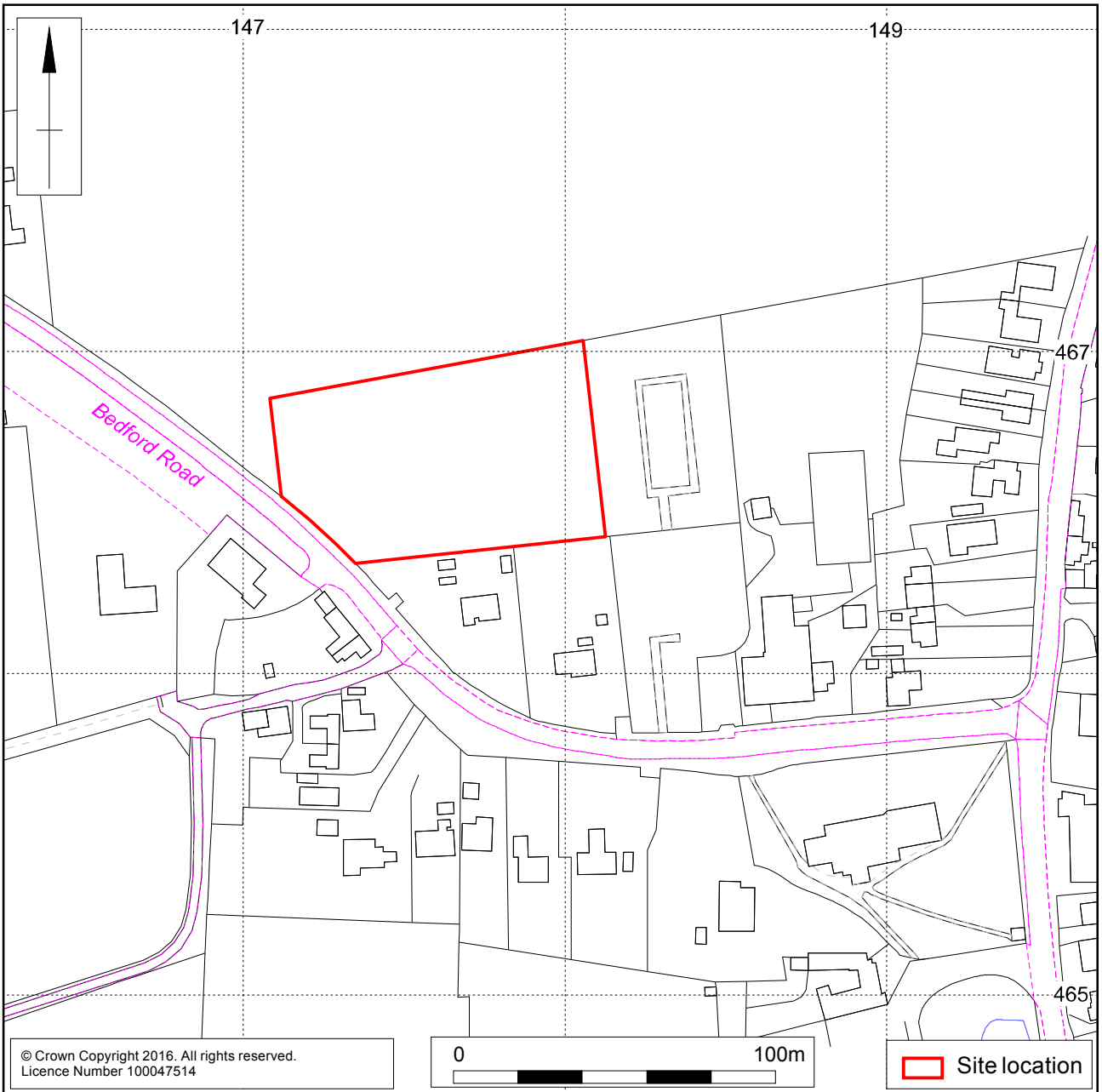
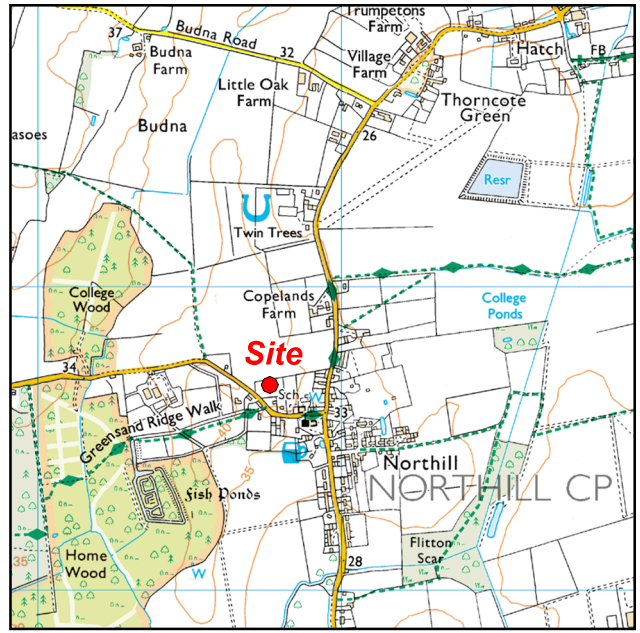
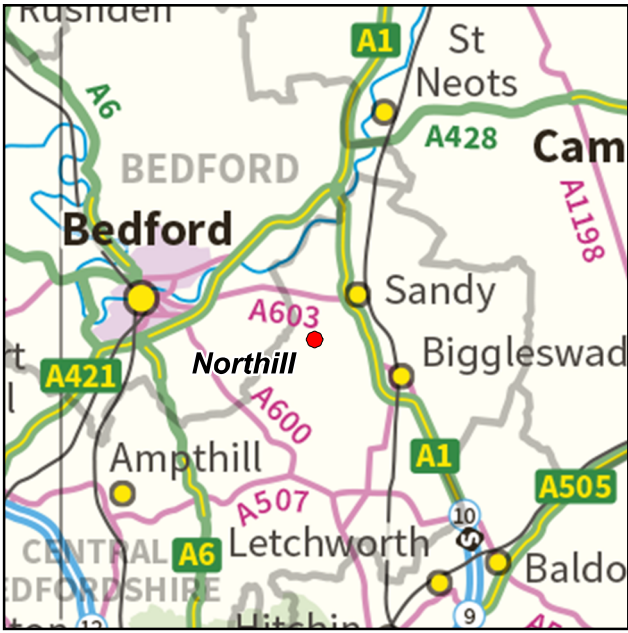
A small rectangular earthwork occurs within the survey area, and was briefly investigated by the surveyors. Although its origin is not known with certainty, a plausible interpretation would be that it is modern and represents an abortive foundation trench for a building. Its size and shape would certainly be consistent with the footprint of a house, a stable or a similarly sized structure, and the character of the earthwork is more consistent with a backfilled and subsided trench than with a ditch. Further circumstantial evidence for a modern date is the fact that it is squarely aligned to the southern field boundary and to the standing buildings to the south.

BIBLIOGRAPHY

BGS 2016 *Geology of Britain Viewer*, <http://mapapps.bgs.ac.uk/geologyofbritain>, British Geological Survey, consulted May 2016

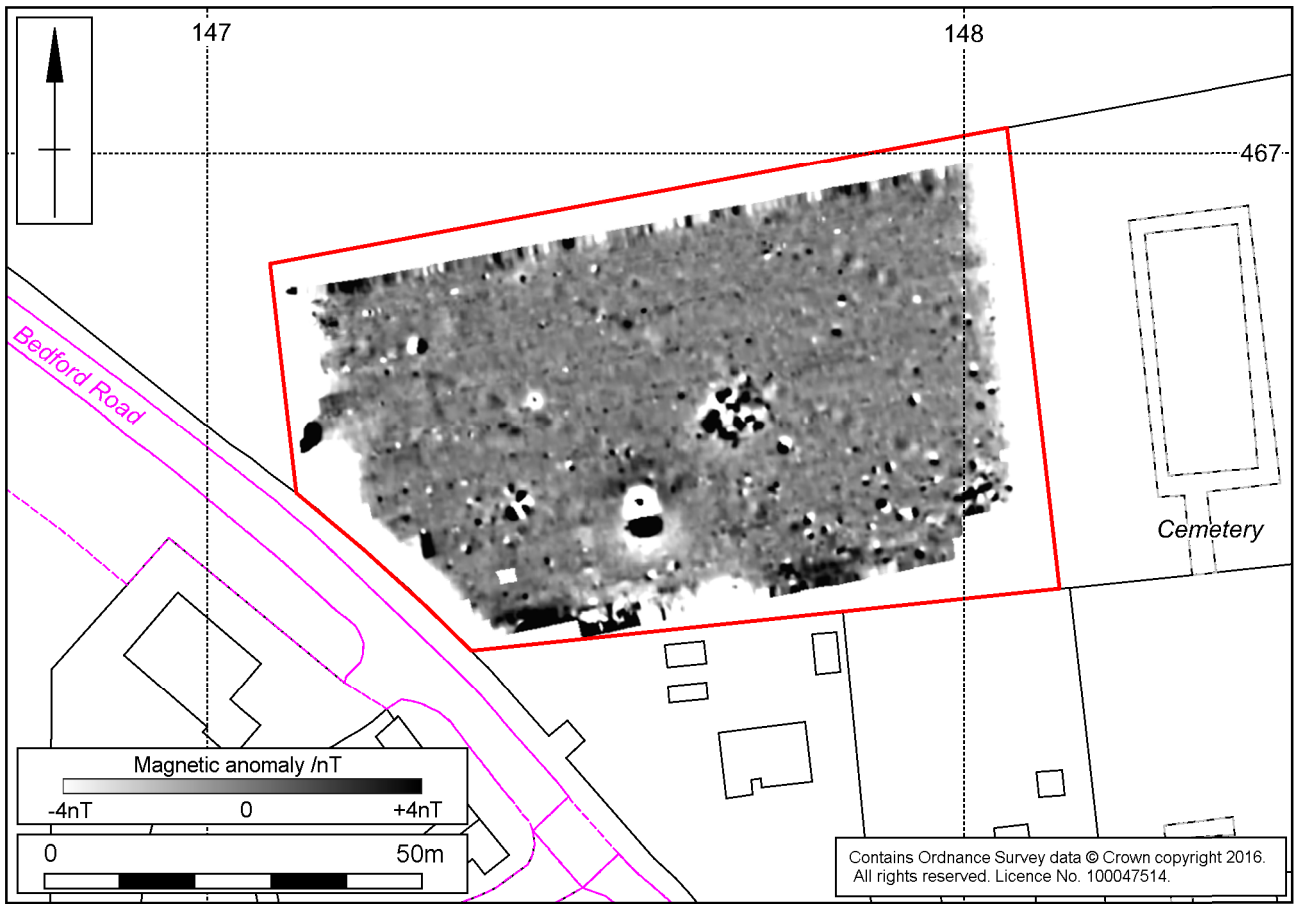
ClfA 2014 *Standard and Guidance for Archaeological Geophysical Survey*, Chartered Institute for Archaeologists

HE 2015 *Geophysical Survey in Archaeological Field Evaluation*, Historic England



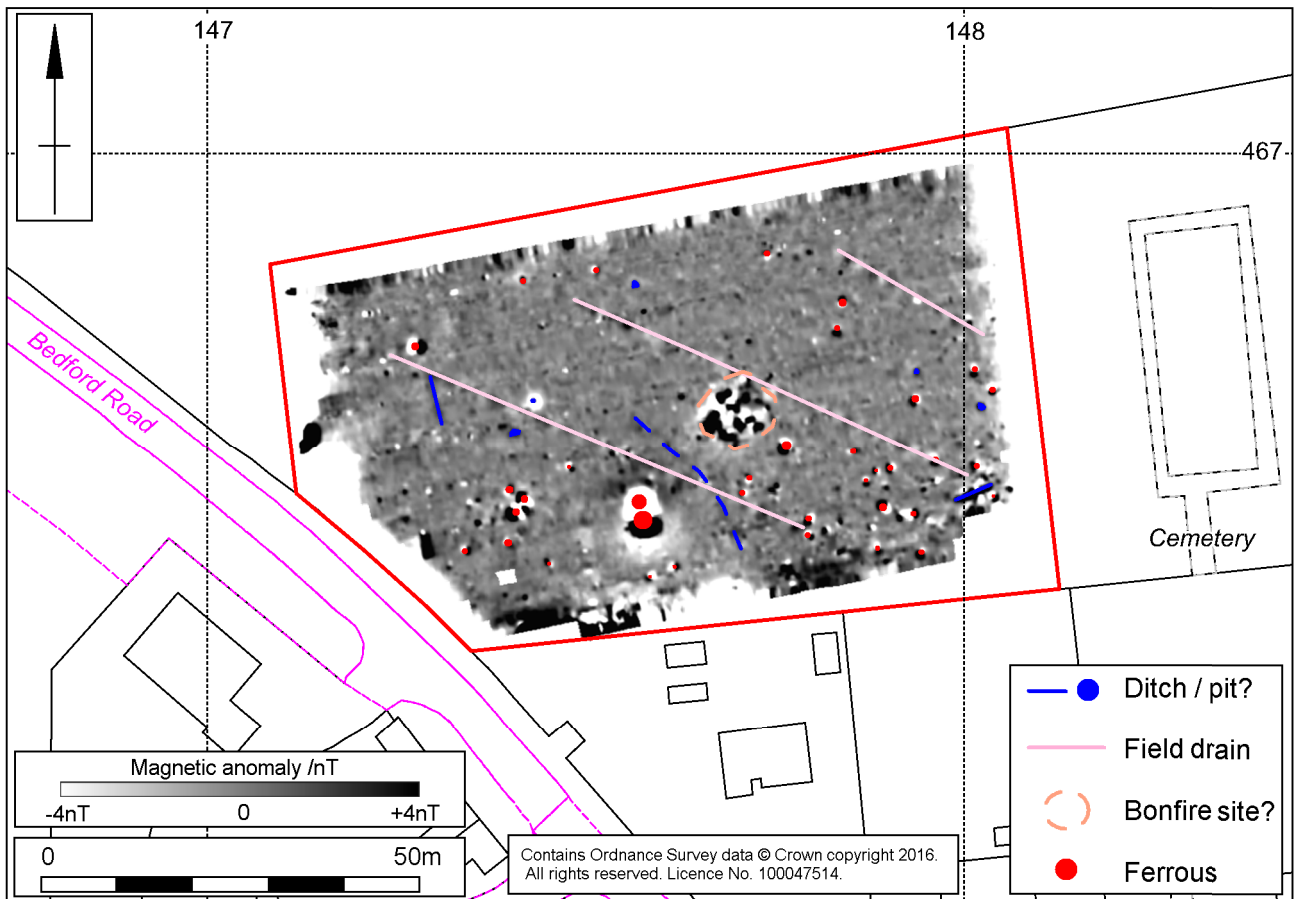
Scale 1:2000

Site location Fig 1



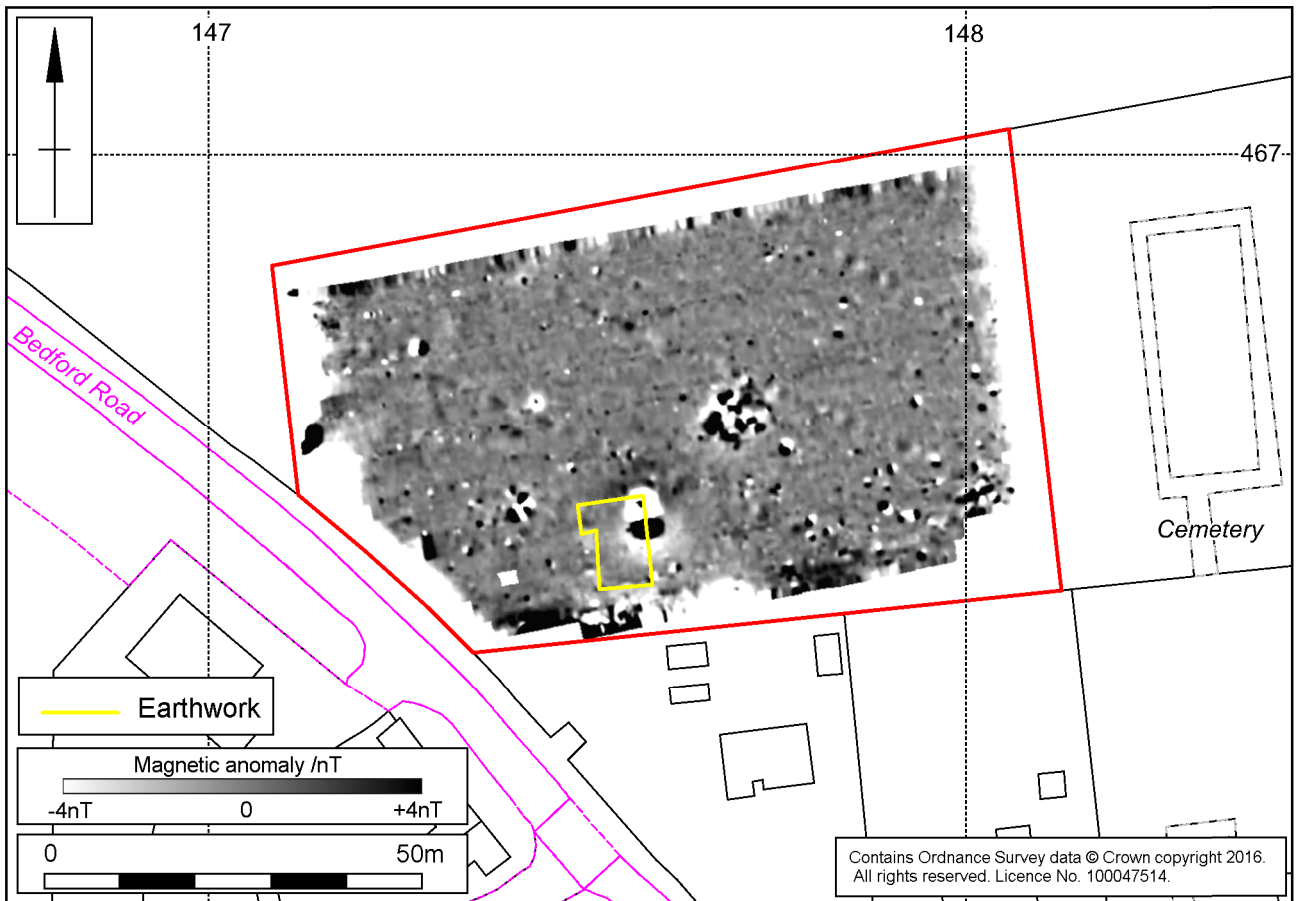
1:1000

Magnetometer survey results Fig 2



1:1000

Magnetometer survey interpretation Fig 3



1:1000

Location of earthwork relative to survey results Fig 4



1:1000

Unprocessed magnetometer data Fig 5



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