

Archaeological geophysical survey at Hughenden Manor, High Wycombe, Buckinghamshire November 2016

National Trust event number: ENA8319

Report No: 16/203

Author: Graham Arkley

Illustrator: John Walford



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OASIS REPORT

PROJECT DETAILS		Oasis No. molanort1-269129	
Project name	Archaeological geophysical survey at Hughenden Manor, High Wycombe, Buckinghamshire		
Short description	MOLA (Museum of London Archaeology) were commissioned to undertake a magnetometer survey of c 2.3ha of land immediately south-west of Hughenden Manor, High Wycombe, comprising two sections lying to the north and west of Coates Lane. The survey detected two modern service pipes, with no evidence of features of archaeological interest.		
Project type	Geophysical survey		
Site status	National Trust land		
Previous work	None known		
Current land use	Cattle pasture		
Future work	Not known		
Monument type/ period	None		
Significant finds	None		
PROJECT LOCATION			
County	Buckinghamshire		
Site address	Hughenden Manor, High Wycombe		
Study area	c 2.3ha		
OS Easting & Northing	SU 8599 9505		
Height OD	c 93m - 115m aOD		
PROJECT CREATORS			
Organisation	MOLA		
Project brief originator	Gary Marshall, The National Trust		
Project design originator	MOLA		
Director/Supervisor	Graham Arkley		
Project Manager	John Walford		
Sponsor or funding body	The National Trust		
PROJECT DATE			
Start date	1st November 2016		
End date	1st November 2016		
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	Journal/monograph, published or forthcoming, or unpublished client report		
Title	Archaeological geophysical survey of land south-west of Hughenden Manor, High Wycombe, Buckinghamshire, November 2016		
Serial title & volume	MOLA Northampton report 16/203		
Author(s)	Graham Arkley		
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Archaeological geophysical survey of land south-west of Hughenden Manor, High Wycombe, Buckinghamshire, November 2016

ABSTRACT

MOLA (Museum of London Archaeology) were commissioned to undertake a magnetometer survey of c 2.3ha of land immediately south-west of Hughenden Manor, High Wycombe, comprising two sections lying to the north and west of Coates Lane. The survey detected two modern service pipes, with no evidence of features of archaeological interest.

1 INTRODUCTION

MOLA (Museum of London Archaeology) were commissioned by Gary Marshall of the National Trust to conduct a magnetometer survey of c 2.3ha of land lying either side of Coates Lane, to the south-west of Hughenden Manor, High Wycombe, Buckinghamshire (NGR SU 8599 9505; Fig 1). The purpose of the survey was to investigate the nature and extent of any archaeological remains that may have been present within this area. This information was then to be used to ascertain whether any further archaeological works would be required prior to the laying of a new sewer pipe from the Manor House.

The survey was undertaken on the 1st November 2016, following the methodological standards and guidance from Historic England and the Chartered Institute for Archaeologists (EH 2008, ClfA 2014). The project has been assigned National Trust event number: ENA8319.

2 BACKGROUND

2.1 Topography and geology

The survey area comprises a strip of land a minimum of 30m wide, following a proposed pipeline easement to the south-west of Hughenden Manor on land owned and managed by The National Trust. It is c 2.3ha in extent and covers two fields of cattle-grazed pasture, one to either side of Coates Lane. The survey area in the southern field lies along the eastern hedge. The survey area in the northern field follows a dog-legged route, heading north-east from the south-western gateway of the field to meet the eastern fence, where it then bends north to follow the fence to the north-eastern corner of the field.

The proposed pipeline easement included an additional area of approximately 0.2ha in a third field to the north-west of the southern section. This was found to have a well-developed crop of turnip (see back cover image) and was unable to be surveyed. Similarly, the northern field included a c 5m wide track alongside the western fence from the gate. Owing to its composition and heavy use through the day by farm traffic and maintenance staff, this small area was also not surveyed.

The line of the survey area follows the north-west to south-east base of a shallow valley floor, before turning north-east to climb the eastern face of the valley towards the headland on which Hughenden Manor sits. The southern end of the area, in the valley, stands at c 93m aOD and the northern end, on the valley side, stands at c 115m aOD.

The local geology is predominantly chalk bedrock of New Pit Chalk Formation, with sporadic flint nodules and seams. No superficial deposits are recorded within 500m of the survey area (BGS 2016).

2.2 Historical and archaeological background

The survey area has not previously been investigated archaeologically. An earlier geophysical survey and watching brief by MOLA Northampton across the site of a car park to the north of Hughenden Manor, c 650m to the north of the present survey area, found no surviving features of archaeological significance (Finn & Fisher 2014; Walford 2014).

The survey area lies in the western portion of a landscape dominated by Hughenden Manor since the late 17th century. The nearest designated assets comprise the Grade II* Hughenden Manor Farmhouse (List Entry ID 1125184) and its attendant Grade II barns (List Entry IDs 1332347 & 1310831 respectively). Beyond this are Hughenden Manor itself, to the north-east of the survey area, and the Disraeli monument located due west of the survey area, near the crest of the western flank of the valley. These are assets of Grade II and Grade II* status respectively (List entry IDs 1000318 & 1125201).

A number of find spots of Roman tile and associated material illustrate the presence of Roman occupation in the area. The nearest one is located some 500m east, to the side of a stream (MNA130377).

Some 250m to the south-west, in Great Tinker's Wood (HER: MNA130060), is a findspot for a single Saxon coin, which represents the only known Saxon evidence in the vicinity.

Miscellaneous archaeological earthworks comprising earth-banks, saw pits and lynchets lie c 300m – 700m north-west and south-west of the survey area (HER: MNA129152, MNA129371, MNA129407, MNA129620, MNA129826, MNA129895, MNA130080, MNA130107). These are largely attributed to 18th-19th century plantation management originating from the Manor.

3 METHODOLOGY

The survey was undertaken with the MOLA magnetometer cart. This is a lightweight, two-wheeled structure designed to be pushed by hand, with no impact upon the survey area's surface or flora. It incorporates a bank of six vertically-mounted Bartington Grad601 magnetic sensor tubes (Bartington and Chapman 2003), 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 per 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 route of the survey area was determined from a digitised plan of the proposed pipe easement (Water Maxim drawing number 1046-01, obtained via Gary Marshall). The central path of the pipe was located in the field using a Leica Geosystems Viva GPS with handheld datapad, and the survey area was extended to either side of this as equally as hedges and other obstructions would permit.

The cart was pushed along straight and parallel traverses along the pipeline corridor, 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. The processed data is presented in this report as greyscale raster plots (range +10nT to -10nT / black to white), rotated and scaled for display against the Ordnance Survey base mapping (Fig 2). An interpretive overlay is presented in Figure 3 and plots of the unprocessed survey data in Figure 4.

4 SURVEY RESULTS

Two strong magnetically alternating positive / negative linear anomalies appear across the survey area, one each in the northern and southern fields. Such anomalies often represent service trenches with magnetic pipes or cables, and these particular examples correlate with known water pipes (Water Maxim drawing number 1046-01, obtained via Gary Marshall).

The northern field was found to have a light coverage of magnetic noise across the whole area. This is typically a signature of arable fields that have been treated with "green waste" (a mixture of recycled biological matter from household food and garden waste, agricultural waste and/or civic amenities maintenance). Such waste is often poorly sorted and contaminated with small metallic debris, resulting in a multitude of small but intense magnetic anomalies being detected. The sparseness of the component anomalies in this case may indicate either a very sparse coverage of material or a better than average filtering during the production. While magnetic noise from green waste may sometimes mask archaeology, this is thought unlikely to be a major consideration in this case because the noise is only slight and any substantial archaeological features cut into chalk should normally produce relatively clear and strong magnetic anomalies.

The series of magnetically negative halos at the perimeter of the northern field arise from the adjacent fences and gates. The larger, alternately positive and negative halo in the southern field is directly associated with the pipeline anomaly.

Small, discrete dipolar anomalies are scattered across the site. Those in the northern field constitute the green waste 'noise' discussed above, whereas the few examples in the southern field represent a more typical background scatter of minor agricultural debris (eg horseshoes, plough fittings, etc) in the topsoil.

5 CONCLUSION

The survey results indicate the presence of two service pipes, one of which runs directly towards the Manor House, the other of which follows the route of Coates Lane. No indications of archaeological features have been identified by this survey. There is a reasonably high degree of confidence in the results, qualified only by the sporadic magnetic noise across the northern field.

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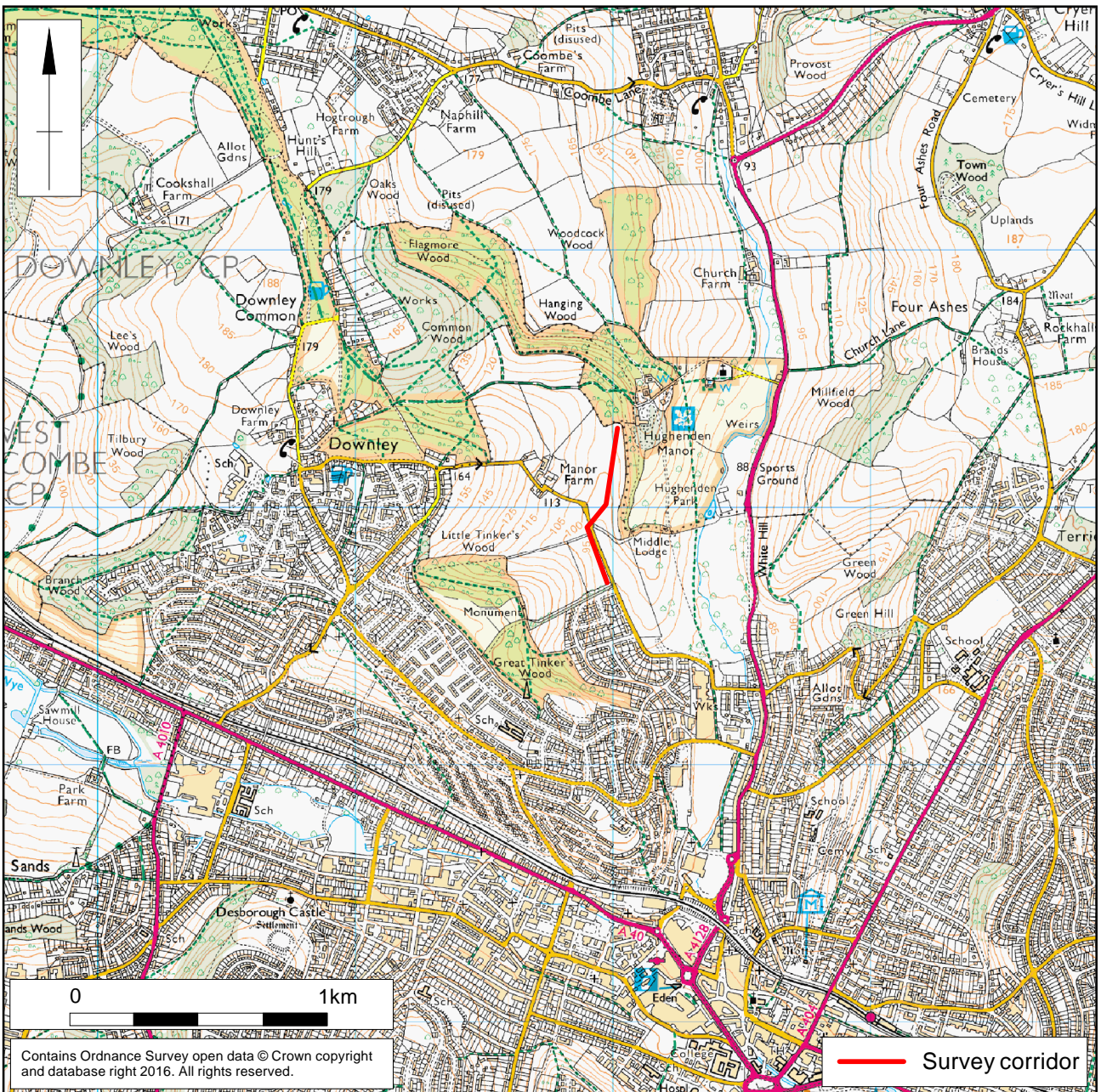
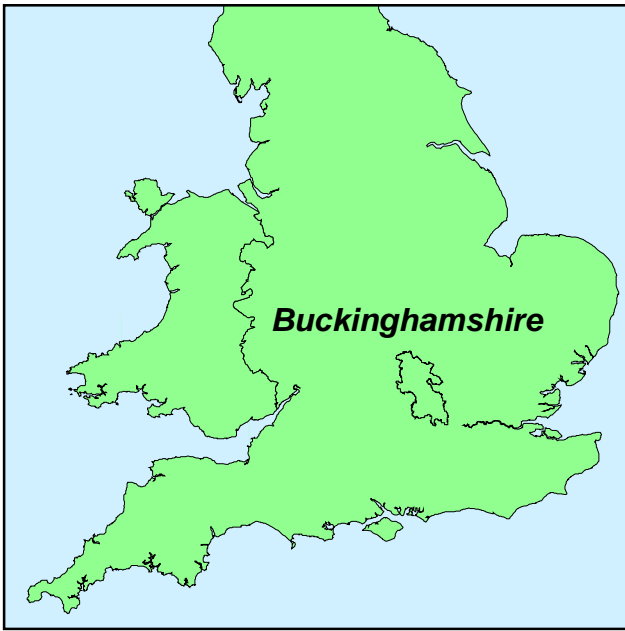
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MOLA
21st November 2016



Scale 1:25,000

Site location Fig 1

Scale 1:2000



Magnetometer survey results Fig 2

Magnetic anomaly /nT

-5nT 0 +5nT

0 100m

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Scale 1:2000



Magnetometer survey interpretation Fig 3

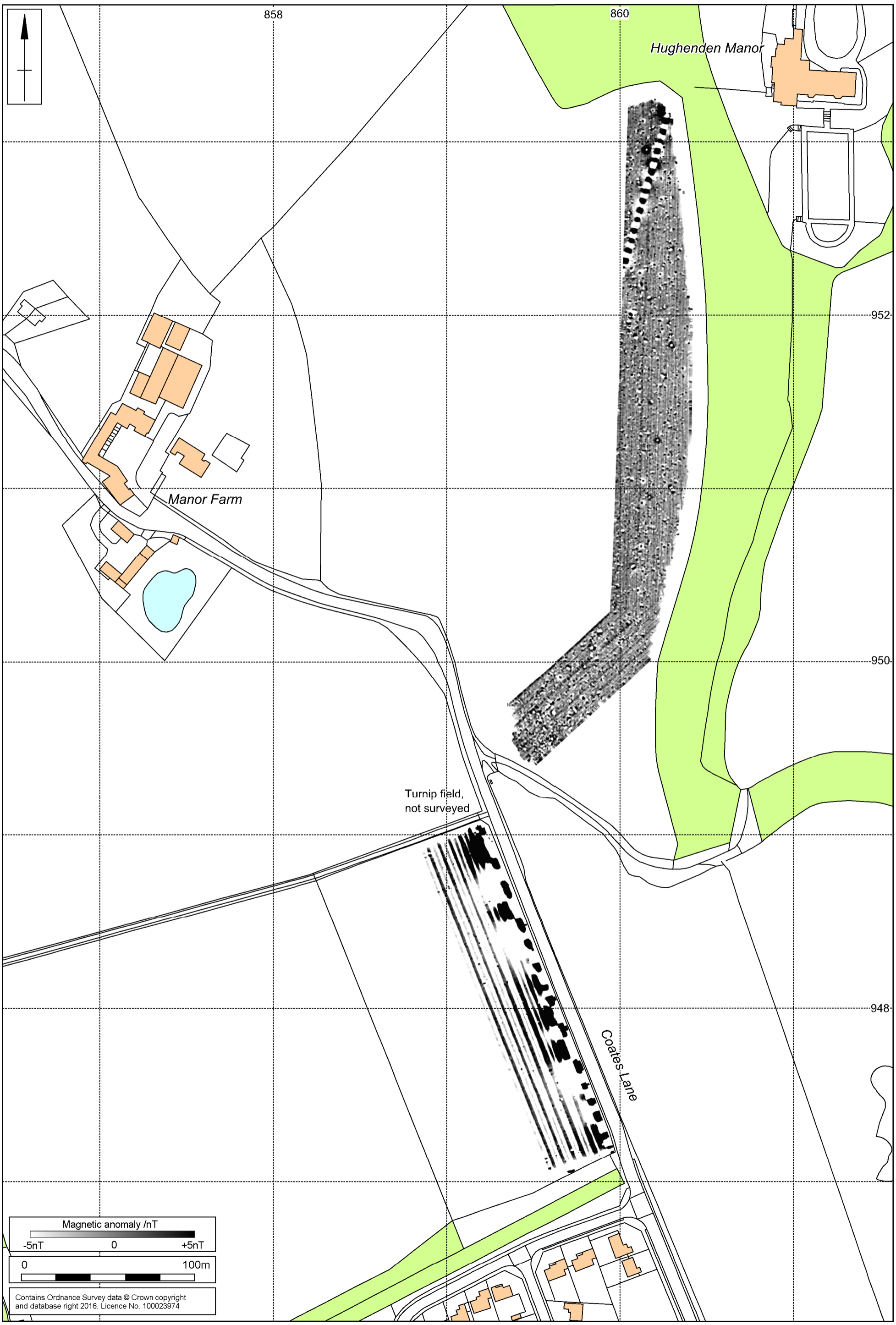
Magnetic anomaly /nT

-5nT 0 +5nT

0 100m

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Scale 1:2000



Unprocessed magnetometer data Fig 4



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