

**Archaeological geophysical survey
of land west of Sundon Road
Harlington
Bedfordshire
February 2022**

Report No. 22/017

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Illustrator: Chris Manktelow



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Project Manager: John Walford

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Project: Harlington, Sundon Road		OASIS No: molanort1-504756	
ACTIVITY TYPE			
Project/Activity type	Geophysical survey		
Reason for investigation	Planning: Pre-application		
Development type	Residential / Housing		
Planning reference ID	-		
PROJECT LOCATION			
National grid ref	TL 037 299		
Site name	Harlington, Sundon Road		
REVIEWERS/ ADMIN			
HER for project	Central Bedfordshire		
National organisation	Historic England		
WORK UNDERTAKEN			
Methodological summary	Magnetometer survey with a cart-mounted array of Bartington Grad-01-1000L fluxgate gradiometers.		
Previous work?	No	Future works?	Not known
Dates - Start date:	10-02-22	End date:	10-02-22
GEOPHYSICS			
Geology	Gault Formation Mudstone		
Land use (i.e. arable)	Pasture		
Survey type	Magnetometer survey		
Size of survey area	c6ha		
Instrumentation	Bartington Grad-01-1000L	Fluxgate – Multiple sensor	
Configuration	Pushed cart survey (6-probe)		
Spatial resolution	Traverse spacing	0.8m	Reading interval 0.225m
Resolution (data values)	0.1nT		
BIBLIOGRAPHY			
Title	Archaeological geophysical survey of land west of Sundon Road, Harlington, Bedfordshire, February 2022		
Author(s)	Chris Manktelow		
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Organisation	MOLA		
Project manager	John Walford		
Project supervisor	Chris Manktelow		
Funding body	Redrow Homes Ltd		
KEYWORDS			
Monuments found/ date	None		
RESULTS			
Description of outcomes	Only a few possible archaeological features were detected in the survey area and the actual likelihood that these are of archaeological origin is low. The survey also found a known historic field boundary and part of a ridge and furrow field system. An area of strong magnetic disturbance was detected in the west of the survey area and has been attributed to recent groundworks alongside the Midland Mainline railway.		
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Archaeological geophysical survey of land to the west of Sundon Road Harlington, Bedfordshire February 2022

ABSTRACT

MOLA (Museum of London Archaeology) was commissioned by Redrow Homes Ltd to undertake a magnetometer survey across c6ha of land to the west of Sundon Road, Harlington. Only a few possible archaeological features were detected in the survey area and the actual likelihood that these are of archaeological origin is low. The survey also found a known historic field boundary and part of a ridge and furrow field system. An area of strong magnetic disturbance was detected in the west of the survey area and has been attributed to recent groundworks alongside the Midland Mainline railway.

1 INTRODUCTION

MOLA (Museum of London Archaeology) was commissioned by Redrow Homes Ltd to undertake an archaeological geophysical survey of c6ha of land to the west of Sundon Road, Harlington (NGR TL 037 299) (Fig 1) in response to a requirement (ref. CB/21/05335/PAPC) from Richard Havis the Central Bedfordshire Archaeological Advisor. The aim of the survey was to identify and map any archaeological remains which may be affected by a proposed development scheme.

The survey comprised a magnetometer survey and was conducted on 10th February 2022. It followed a Written Scheme of Investigation (MOLA 2022) and was also conducted in accordance with Chartered Institute for Archaeologists and European Archaeological Council guidelines (ClfA 2014 and Schmidt *et al* 2015).

2 BACKGROUND

2.1 Location, geology and topography

The survey area comprises three adjacent pasture fields located to the west of Sundon Road, south of Harlington, Bedfordshire. Hedgerows bound and subdivide the survey area, with a modern housing estate located to the north, agricultural land to the south and the Midland Mainline to the west (Fig 1).

The three fields which make up the survey area have been numbered from Field 1, in the west, to Field 3, in the east, for ease of reference in this report, as indicated on Figures 2-4.

The survey took place on gentle undulating land measuring between 92m and 95m above Ordnance Datum.

The solid geology of the survey area comprises Gault Formation Mudstone of the Cretaceous period with no drift geologies recorded (BGS 2022).

2.2 Historical and archaeological background

A detailed desk-based assessment (MOLA 2021) was created in preparation for this project; what follows is a summary of its findings:

Neolithic flint flakes have been recovered c900m to the south-west of the survey area (HER15300) and a further 26 struck flint flakes of prehistoric date have been recovered c1km to the south-west during a fieldwalking exercise (EBD40).

The remains of a possible Iron Age structure and farmstead, comprising pits, gullies and postholes within an enclosure ditch, was observed during a watching brief conducted c265m west of the survey area (EBD797). A findspot for an Iron Age coin is recorded c700m north-west of the survey area (HER18751).

The site is located between two Roman roads: the Marston Mortaine to Limbury road c2.7km east of the site and the Tilsworth to Hexton road c2.6km south of the site (Margary 1967). The more renowned Watling Street Roman road is located c7km to the west.

Roman cremation burials have been discovered on Sheepwalk Hill c645m west of the survey area, found alongside structural remains of a similar date. It is thought that this site represents an Iron Age settlement that was subsequently Romanised (HER101).

Large quantities of Roman pottery were uncovered at a mound known as Foxburrow, c1.1km south-west of the survey area, in 1874. Much of the recovered material was locally sourced, but some Samian ware fragments were also recovered alongside fired clay and burnt stone. This site is thought to be that of a Roman pottery kiln (HER95)

Spot finds of Roman pottery litter the surrounding area with sherds recorded c700m to the south-east, c855m to the north-east and 1km to the south-west of the survey area (HER15298, HER15299, EBD40). Further localised finds include a Roman coin discovered c575m to the north-east (HER18512) and a roof tile fragment located c35m to the northeast of the eastern tip of the survey area (HER20832). All these finds indicate the presence or Roman activity in the area, though perhaps largely agricultural.

Anglo-Saxon objects found within proximity of the site comprise an Anglo-Saxon harness mount found on the site of an Iron Age farmstead (EBD797) and Anglo-Saxon burials found on Sheepwalk Hill alongside several Roman cremation burials (HER101).

The historic core of Harlington village is located near to the crossroads of Station Road, Church Road, Westoning Road and Sundon Road, c570m to the north of the site (Page 1912, 379-382). Early medieval and medieval pottery was recovered from a series of pits excavated at 32 Sundon Road, c430m north of the survey area (EBD1155). This material is likely to have been waste material dumped on the periphery of a settlement area.

3 METHODOLOGY

3.1 Fieldwork

The magnetometer survey was undertaken with a Bartington magnetometer cart. This is a two-wheeled, lightweight sensor platform designed to be pushed by hand. It incorporates a bank of six vertically-mounted Bartington Grad-01-1000L magnetic sensors (fluxgate gradiometers), spaced at 0.8m intervals along a bar aligned crossways to the direction of travel. These sensors were calibrated ('zeroed') at the start of each day's survey to minimise heading errors and offsets in their zero values.

The cart also carries a Leica Geosystems Viva GNSS antenna, mounted on its central axis 1.02m astern of the sensors. The magnetic sensors each output data at a rate of eight readings per second and the GNSS antenna outputs NMEA format data (GGA messages) at a rate of one position per second. These data streams are compiled into a single raw data file by MultiGrad601 logging software specifically developed for that purpose.

The cart was propelled along straight and parallel traverses across the survey area, with data logging being 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 typical speed of coverage was under 1.8m/s, with the effective data resolution thus approximating to better than 0.225m x 0.80m.

3.2 Data processing and presentation

The raw survey data was initially processed with MLGrad601 software, which calculated a UTM co-ordinate for each data point by interpolating the GNSS 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 minor striping caused by slight mismatches in the calibration of the individual magnetic sensors. This was removed in TerraSurveyor by applying the median de-stripe function to runs of data from each sensor.

The processed magnetometer data is displayed in this report as greyscale plots (range of +/-5nT) that have been rotated and scaled to fit against topographic base-mapping at a scale of 1:2000 (Fig 2). An interpretive overlay has been produced to highlight notable anomalies for discussion (Fig 3). Minimally processed data plots are presented at a range of +/- 10nT (Fig 4) as a comparison to the final de-striped results.

4 SURVEY RESULTS

The geophysical survey detected a few magnetic anomalies which have been interpreted as possible archaeological features, albeit with very low confidence.

Towards the north of Field 1, there is a three-sided rectangular feature formed from an alignment of individual small, weak anomalies. This has been interpreted as a possible archaeological feature, due to its regular form and the lack of any indisputable modern explanation. However, it does resemble, on a small scale, the response from a known modern fenceline further south in the same field (described below) and a similar interpretation, as the remnants of a small fenced compound, might prove to be correct.

Three short, linear anomalies have been marked as possible archaeology in Field 2. The anomalies could represent fragmentary traces of ditches but, the isolated nature of the anomalies and their short lengths casts some doubt on this and they may, instead, represent minor natural features such as seams or channels in the geology.

Field 3 has a possible collection of pits located in the northern corner. Several anomalies form a distinct cluster of stronger responses compared with the surrounding weak geological patterning. However, the isolated nature of the suspected pits creates uncertainty about their archaeological significance.

A series of, equally spaced, north-west to south-east oriented anomalies found in Field 2 represents part of a medieval to post-medieval ridge and furrow field system. The

anomalies are most visible in the south and north of the field with only a couple of sections being identified in the centre where geological patterning, formed of weak, incoherent blotches, is most prominent.

A broad, faintly negative anomaly in the south of Field 2 corresponds to a historic field boundary depicted on late 19th-century Ordnance Survey mapping. The boundary formerly joined the field boundary to north-west which is still extant.

A number of weak, alternating, linear anomalies represent modern field drains. Field 1 contains a north to south aligned drain, which seemingly forms the 'missing', western side of the adjacent rectangular feature, further adding to the uncertainty of its interpretation. A north-east to south-west drain follows the western edge of Field 2 part-way along the boundary. Two other drains meet a north-west to south-east orientated drain which continues out of the survey area. A section of field drain is also visible in Field 3. The drain is angled south-east turning to head north-east.

A strong, magnetically alternating anomaly that follows the curvature of Sundon Road along the north-eastern edge of Field 3 can confidently be attributed to a modern pipe.

The small dipolar anomalies scattered throughout the data are an indication of small metal fragments, possibly originating from modern agricultural equipment or general litter.

The areas of intense magnetic disturbance in Field 1 are characteristic of densely concentrated ferrous debris, such as might occur in patches of modern hardcore or made ground. The ferrous debris found along the western extent of Field 1 matches well with the extent of recent groundworks along the adjacent railway line, as visible on aerial imaging from 2013 (GE 2022). A temporary fenceline around these works, (also visible on the 2013 imagery), is marked in the data by a distinct line of small ferrous anomalies, perhaps representing the surviving bases of fence posts. A separate patch of intense noise along the northern edge of Field 1 might represent debris from the construction of the houses to the north or from the re-cutting of the substantial ditch at the edge of the field.

5 CONCLUSION

The magnetometer survey has detected potential archaeological features in all three fields, but these are very slight and widely scattered so little significance can be attributed to them. The possible feature located in Field 1 has a relatively low chance of being archaeology due to the similarity of its response to that from a former fenceline in the south of the field. The possible archaeological features in Fields 2 and 3 are also doubtful as their magnetic responses are too slight to support a secure interpretation.

An aerial photo of the survey area in 2013 shows areas of disturbed ground along the railway line in the west, perhaps relating to a temporary works compound. The survey data confirms that this area has been disturbed, detecting dense areas of ferrous debris that are typical of patches of hardcore or modern construction spoil. A similar area of ferrous debris occurs in the north of Field 1. These areas of land will have been heavily disturbed and therefore their archaeological potential could have been reduced significantly.

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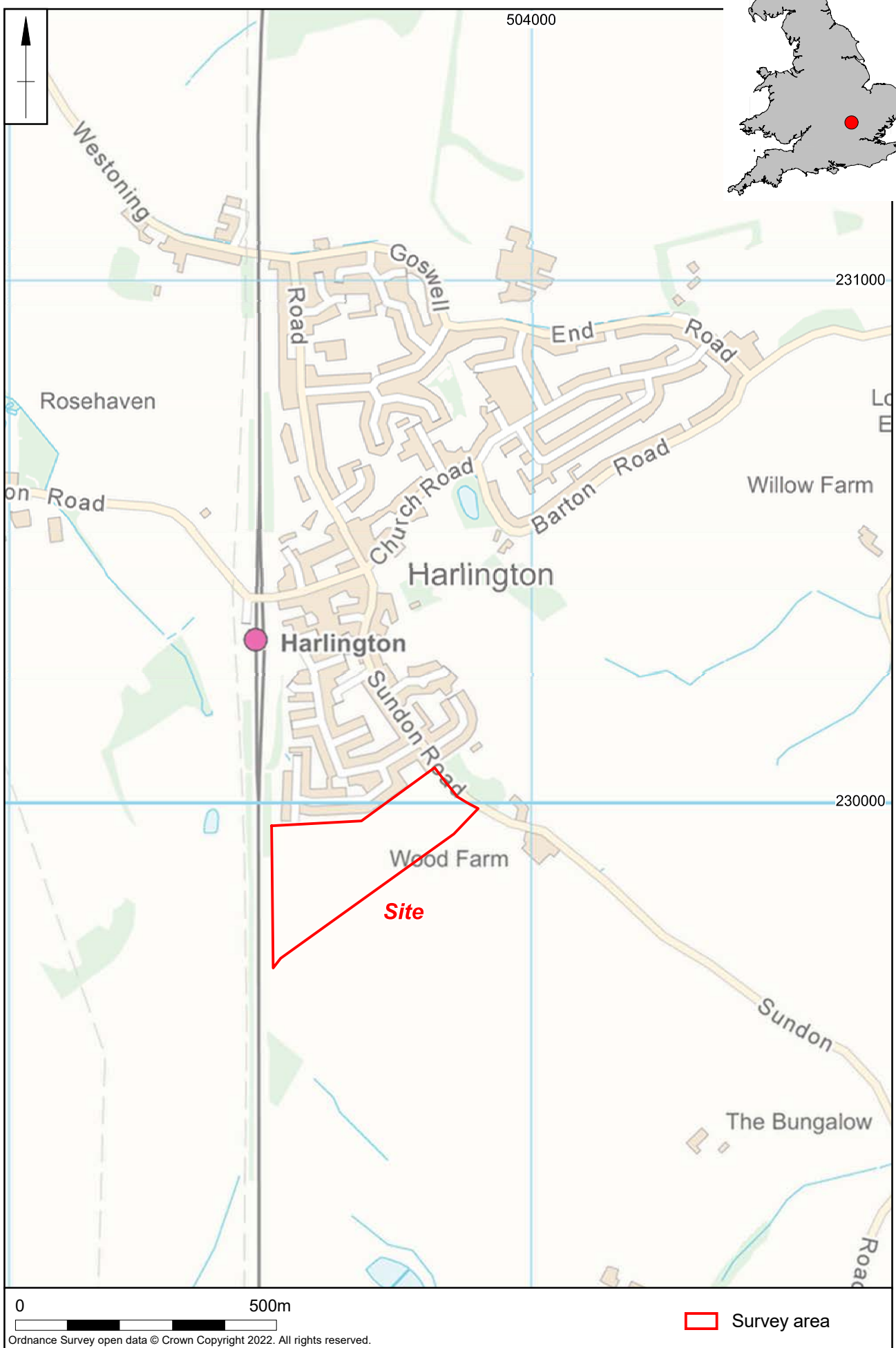
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MOLA

25th February 2022



Scale 1:10,000 (A4)

Site location Fig 1





Scale 1:2000 (A3)

Magnetometer survey interpretation Fig 3



Scale 1:2000 (A3)

Unprocessed magnetometer survey results Fig 4



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