

Archaeological geophysical survey of land near Badcock Way, Fleckney, Leicestershire June 2018

Accession number: X.A71.2018

Report No: 18/77

Author: John Walford

Illustrator: John Walford



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OASIS Report

PROJECT DETAILS			
OASIS ID: molanort1-320940			
Project Name	Archaeological geophysical survey of land near Badcock Way, Fleckney, Leicestershire, June 2018		
Short description	MOLA was commissioned to undertake an archaeological geophysical survey of c 12ha of land near Badcock Way, Fleckney, Leicestershire. The survey detected ridge and furrow of medieval to early post-medieval date and one other anomaly which has been tentatively interpreted as a post-medieval brick clamp. Other detected features included field drains, a pipe, former telegraph poles and an area of recently disturbed ground.		
Project reference	X.A71.2018		
Project start date	20-06-2018	Project end date	22-06-2018
Previous work	Yes (Browning 2016)	Future work	Not known
Type of project	Field evaluation / Geophysical survey		
Instrumentation	Bartington Grad601	Fluxgate	Multiple sensor
Resolution	0.1nT		
Traverse separation	0.75m	Reading interval	0.25m
Notes	Cart survey. Reading intervals and traverse separation above are notional figures based on probe separation and average survey speed.		
Survey extent	12ha		
Geology (solid)	Charmouth Mudstone (Lower Lias)	Geology (drift)	Glacial till
Site status	None		
Current land use	Pasture		
Monuments	Monument type	Monument date	
	Ridge and furrow	Medieval to post-medieval	
	Brick clamp kiln?	Post-medieval	
Significant finds	None		

PROJECT LOCATION			
County	Leicestershire		
District	Harborough		
Parish	Fleckney and Saddington parishes		
Site name	Badcock Way		
Site co-ordinates	SP 651 925		
Height aOD (min)	125m	Height aOD (max)	130m

PROJECT CREATORS			
Organisation	MOLA Northampton		
Project designer	MOLA Northampton		
Brief originator	Leicestershire County Council		
Project manager	Mo Muldowney	Project supervisor(s)	Graham Arkley
Project sponsor	CgMs Heritage		

PROJECT ARCHIVES			
Archive recipient	Leicestershire County Council	Archive ID	X.A71.2018
Archive contents	Physical - None Digital - Geophysical data, GIS files and text Paper - Report		

BIBLIOGRAPHY	
Author(s)	John Walford
Title	Archaeological geophysical survey of land near Badcock Way, Fleckney, Leicestershire, June 2018
Report number	MOLA Northampton report no. 18/77
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ABSTRACT

MOLA were commissioned to undertake an archaeological geophysical survey of c 12ha of land near Badcock Way, Fleckney, Leicestershire. The survey detected ridge and furrow of medieval to early post-medieval date and one other anomaly which has been tentatively interpreted as a post-medieval brick clamp. Other detected features included field drains, a pipe, former telegraph poles and an area of recently disturbed ground.

1 INTRODUCTION

MOLA (Museum of London Archaeology) was commissioned by CgMs Heritage to undertake an archaeological geophysical survey on land to the south and west of Badcock Way, Fleckney, Leicestershire (NGR SP 651 925; Fig 1). The purpose of the survey was to identify and map any archaeological remains which may be affected by a proposed residential development.

The fieldwork was undertaken from 20th to 22nd June 2018. It comprised a magnetometer survey which was conducted according to the project's written scheme of investigation (Walford 2018) and conformed to ClfA and Historic England guidelines for geophysics (ClfA 2014, EH 2008). The Senior Planning Archaeologist for Leicestershire, Teresa Hawtin, was notified of the work, and it has been recorded with Leicestershire Museums Service under accession number X.A71.2018

2 BACKGROUND

2.1 Topography and geology

The survey area lies partly in Fleckney parish and partly in the adjacent parish of Saddington. It is c12ha in extent, encompassing three full pasture fields and parts of two others. Fleckney Lodge stands at its north-western corner and its eastern boundary is defined by Fleckney Road. To its north are houses fronting onto Badcock Way, Fell Close and Lodge Road (Fig 1).

The survey area lies below the crest of a ridge, straddling the 130m and 125m contour lines on a moderately gentle north to north-easterly facing slope. A small dry valley, leading north-eastwards, coincides with the southern boundary of the area. The geology of the area is mapped as Charmouth Mudstone (Lower Lias) concealed beneath a sheet of glacial till (BGS 2018).

2.2 Historical and archaeological background

The survey area has been the subject of an archaeological desk-based assessment (Browning 2016) upon which the following summary is based. This report notes that no archaeological sites or finds pre-dating the medieval period are known in the vicinity of the survey area although this may, in part, reflect a lack of prior archaeological investigation.

The survey area contains ridge and furrow earthworks, indicating that it was in arable use during the medieval and early post-medieval periods and that it has not been significantly disturbed since the enclosure of the medieval open fields. The 1886 Ordnance Survey map shows the survey area as enclosed agricultural land, with field boundaries similar to those currently present. A bridleway is shown crossing the centre of the site, following the parish boundary between Fleckney and Saddington.

The nearest known foci of medieval and later settlement are the historic centres of Fleckney and Saddington, which lie c1km north and south of the survey area respectively. Fleckney underwent significant growth in the early 19th century, developing as a centre of brick-making, whereas Saddington remained smaller and more agricultural. Fleckney Lodge, which stands adjacent to the survey area, is a 19th-century building and does not appear on any historic map pre-dating the first edition Ordnance Survey map (1886).

3 METHODOLOGY

This survey was conducted with a magnetometer cart, which is a two-wheeled, lightweight sensor platform designed to be pushed by hand. It incorporates a bank of six vertically-mounted Bartington Grad601 magnetic sensor tubes, spaced at 0.75m 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, 0.92m astern of the sensors. The magnetic sensors each output data at a rate of eight 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 between 1.5m/s and 2m/s, so the effective data resolution thus approximated to 0.25m x 0.75m.

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 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. Once processed the magnetometer data collected during the survey was output as greyscale raster plots (range +4nT to -4nT / black to white) which have been rotated and scaled for display against Ordnance Survey Master Map base mapping (Fig 2). An interpretative overlay is presented in Figure 3 and plots of the unprocessed survey data (+10nT to -10nT) are presented in Figure 4.

4 SURVEY RESULTS

The survey has detected sets of parallel linear anomalies which relate to ridge and furrow cultivation of medieval to early post-medieval date. These anomalies are most distinct in Fields 3 and 5, where the ridge and furrow earthworks are relatively well preserved, but can also be seen in Fields 1 and 4. The furrows have the typical form of ridge and furrow, lying in coherent blocks and following gentle 'reversed-S' curves.

In the south of Field 2 there is an almost rectangular positive anomaly, measuring c2m by 3m, surrounded by a negative halo. It has an intensity of c25nT. Considering its shape and relatively low intensity (compared to a typical ferrous dipole of such size), it is possible that it could indicate the scorched base of a small post-medieval brick clamp. Such features are occasionally detected by magnetic survey, one prior example being at Mulbarton in Norfolk (Walford 2013, Muldowney 2013).

The only other possible archaeological features are represented by a pair of small positive anomalies in Field 3. These are irregularly shaped and between 5 and 15nT in strength. They could represent pits, and this is the interpretation shown on Figure 3, but other causes would also be plausible; for instance deeply buried pieces of iron or pockets of weakly magnetic minerals in the natural substrate.

A linear anomaly that crosses the centre of Field 4 corresponds to a former field boundary depicted on Ordnance Survey maps dating up to the 1960s. It is aligned east-north-east to west-south-west, linking between the corners of two extant boundaries.

Various field drains have been detected across the survey area, mostly in its western half. They are most often represented by weak linear anomalies of alternating magnetic polarity, arranged in parallel or radial sets. Some, in Fields 1 and 5, are laid along the bases of the medieval plough furrows, and most of the others are aligned with the natural direction of slope.

An intense linear anomaly of alternating magnetic polarity, flanked by negative halos, represents a modern pipe which crosses the centre of the survey area from north-east to south-west. Another modern service, perhaps a cable trench or plastic pipe, may be represented by the very weak negative linear anomaly which follows a curving course through parts of Fields 1 and 4.

A large zone of densely intermingled dipolar anomalies ('magnetic noise') occurs at the north-western end of Field 2, adjacent to Fleckney Lodge. This indicates an abundant scatter of ferrous debris, such as would occur in a layer of modern hardstanding or made ground. A much smaller area of noise at the north-western corner of Field 4 could represent another patch of hardstanding material or perhaps, given its shape and size, the backfill of a former pond. An even smaller area of noise on the boundary of Fields 4 and 5 relates to a patch of modern hardcore reinforcing the ground around a gateway.

Individual dipolar anomalies occur widely across the survey area. Three correspond to telegraph poles standing in Field 5 and four more, in Fields 1 and 5, are likely to indicate the bases of former telegraph poles (Fig 3). The other dipoles represent miscellaneous ferrous objects, most of which will be insignificant pieces of agricultural debris buried in the topsoil.

A set of ferrous halos near the eastern end of Field 5 were caused by a parked vehicle and other equipment not under MOLA's control. There are also ferrous halos at the edges of some of the fields, due to adjacent fences and other magnetic objects.

5 CONCLUSION

The survey has detected only scant archaeological remains. Apart from the medieval to early post-medieval ridge and furrow, which was already known before this survey, there is one possible post-medieval brick clamp in the north-west of the survey area and a pair of uncertain features, possibly pits, in the south-east. Other detected features are recent in date, including a pipeline and an extensive spread of hardcore or made ground.

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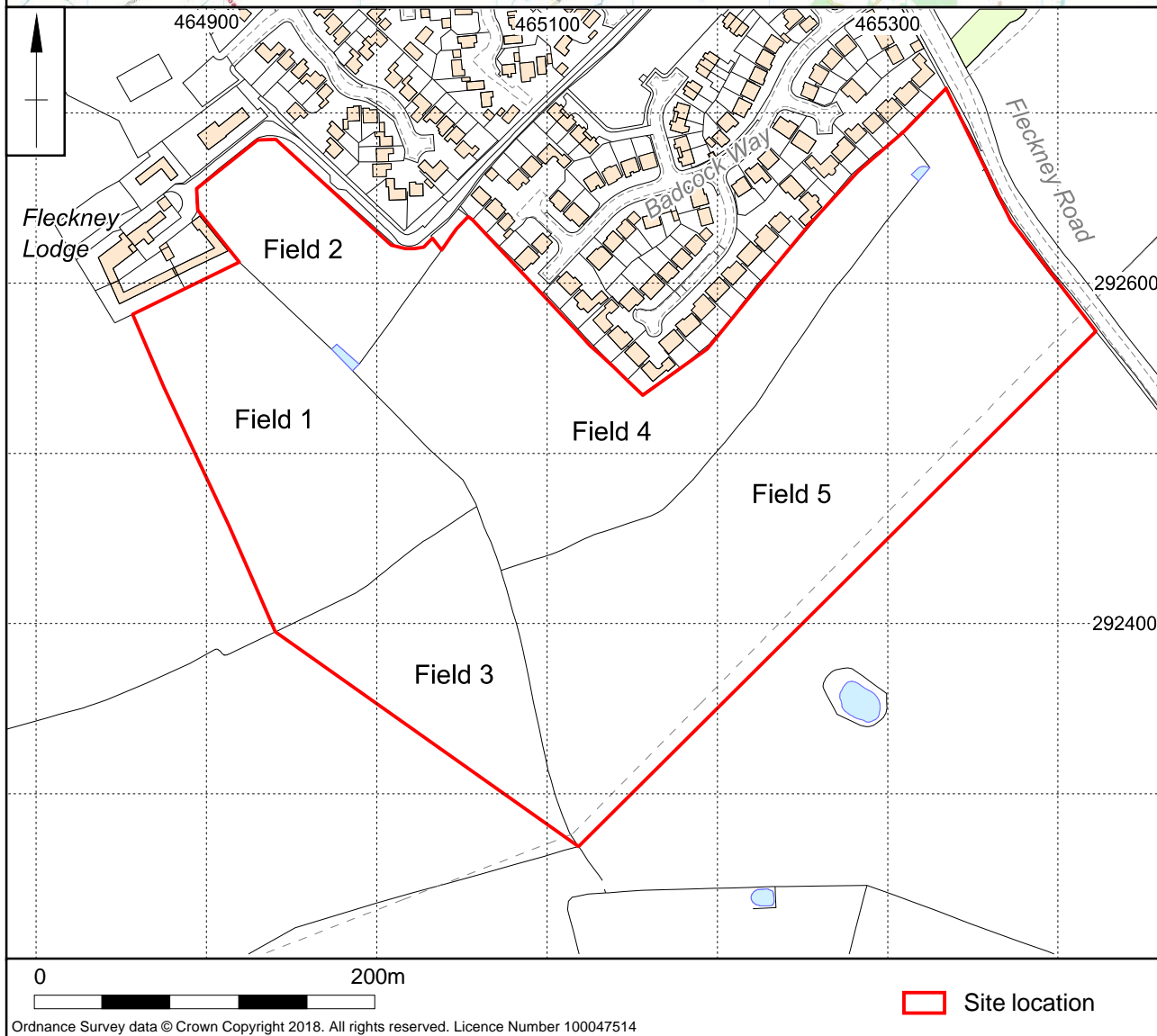
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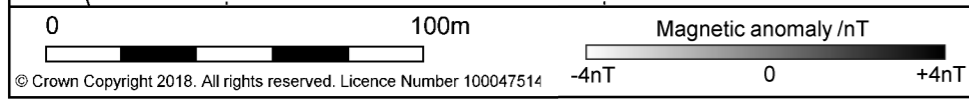
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27 June 2018

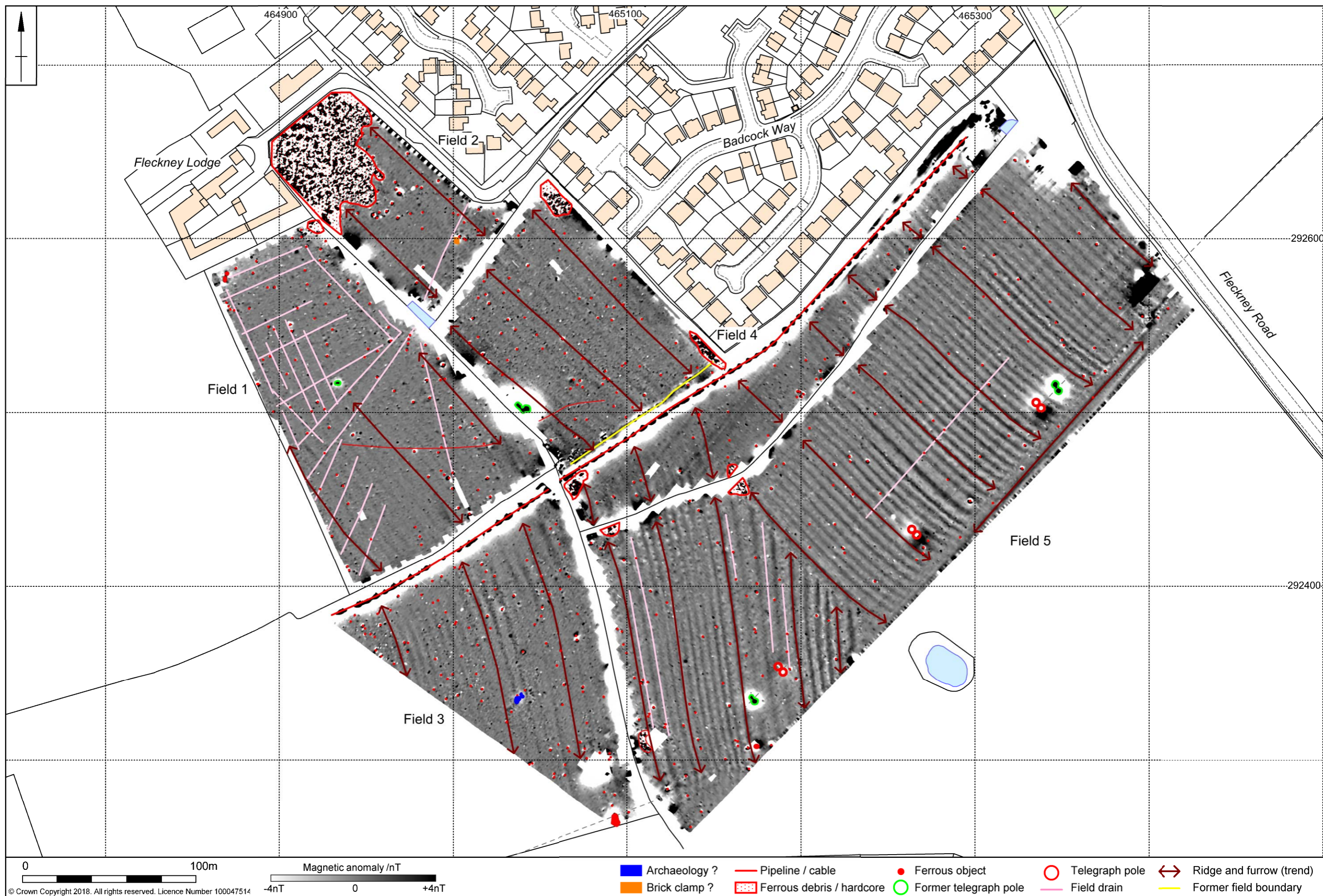


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Scale 1:4000

Site location Fig 1





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Scale 1:2000 (A3)

Magnetometer survey interpretations Fig 3





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