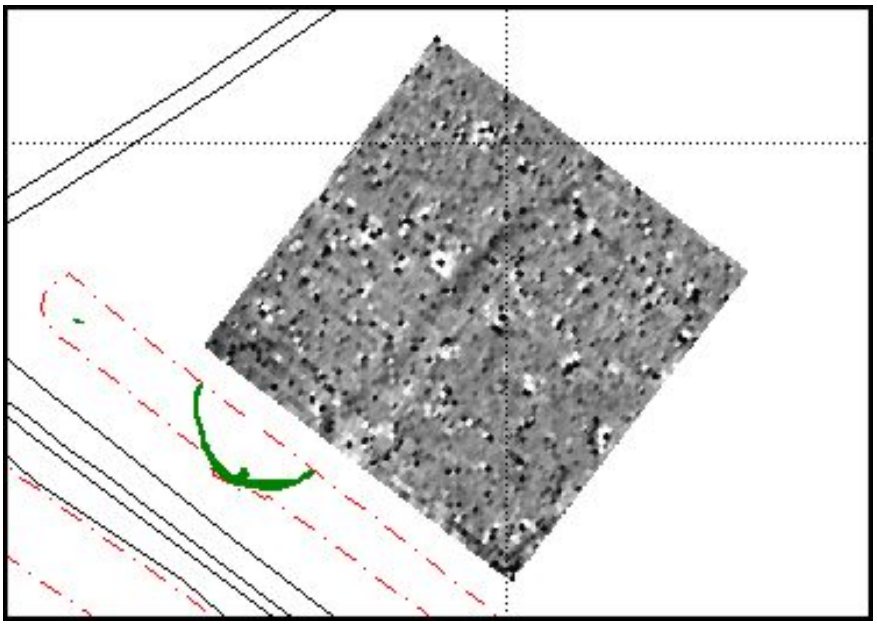

Archaeological geophysical survey at the Peters Village development site Burham, Kent December 2014

Report No. 15/12

Author: John Walford

Illustrator: John Walford

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ARCHAEOLOGY

REGISTERED ORGANISATION CIfA

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Quality control and sign off**:**

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1	30/01/2015	-	-	Steve Parry	Client approval
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Illustrations:	John Walford

OASIS REPORT

PROJECT DETAILS	Oasis No. molanort1-202014	
Project name	Archaeological geophysical survey at the Peter's Village development site, Burham, Kent	
Short description	MOLA Northampton was commissioned to undertake magnetometer and earth resistance surveys on Area 5C of the Peter's Village development site near Burham, Kent. The surveys were intended to trace the full extent of a prehistoric ring ditch that had been partially exposed by excavation of the line of a new road corridor. Both surveys succeeded in detecting the ring ditch and also detected a linear anomaly which probably represents a geological feature. Two other linear anomalies, only detected by the magnetometer survey, are thought to represent other ditches.	
Project type	Geophysical survey (magnetometer and earth resistance)	
Site status	None	
Previous work	Excavation	
Current Land use	Arable	
Future work	No further work is planned	
Monument type/ period	Prehistoric ring ditch	
Significant finds	None	
PROJECT LOCATION		
County	Kent	
Site address	Peter's Village development site, Burham	
Study area	*c* 0.3ha	
OS Easting & Northing	TQ 7236 6185	
Height OD	*c* 40m aOD	
PROJECT CREATORS		
Organisation	MOLA Northampton	
Project brief originator	CgMs Consulting	
Project design originator	MOLA Northampton	
Director/Supervisor	John Walford	
Project Managers	John Walford assisted by Craig Halsey (MOLA London)	
Sponsor or funding body	CgMs Consulting	
PROJECT DATE		
Start date	15 December 2014	
End date	15 December 2014	
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BIBLIOGRAPHY	Journal/monograph, published or forthcoming, or unpublished client report	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 at the Peters Village development site, Burham, Kent, December 2014	
Serial title & volume	MOLA Northampton Reports 15/12	
Author(s)	John Walford	
Page numbers	4	
Date	30 January 2015	

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Archaeological geophysical survey at the Peter's Village development site Burham, Kent December 2014

ABSTRACT

MOLA Northampton was commissioned to undertake magnetometer and earth resistance surveys on Area 5C of the Peter's Village development site near Burham, Kent. The surveys were intended to trace the full extent of a prehistoric ring ditch that had been partially exposed by excavation of the line of a new road corridor. Both surveys succeeded in detecting the ring ditch and also detected a linear anomaly which probably represents a geological feature. Two other linear anomalies, only detected by the magnetometer survey, are thought to represent other ditches.

1 INTRODUCTION

MOLA Northampton was commissioned to conduct a geophysical survey on 0.3ha of land at the Peter's Village development site, Burham, Kent (NGR TQ 7236 6185; Fig 1). The aim of this work was to trace the full extent of a prehistoric ring ditch which had been partially exposed by excavation of the line of a new road corridor. Two different techniques, magnetometer survey and earth resistance survey, were employed on the site in order to maximise the chances of a successful result.

The fieldwork was undertaken on the 15 December 2014, in dry but cloudy weather. The ground conditions at this time were reasonably dry and firm, but not so dry as to pose difficulties for the earth resistance survey.

2 BACKGROUND

2.1 Location and geology

The survey area is located *c* 400m south-west of Burham and 50m west of the junction of Court Road and Church Road. It lies near the corner of an arable field which was under a very low crop at the time of the survey. Immediately to the south, a low bund of topsoil separated the arable land from the partially backfilled excavation area in which the ring ditch had been discovered (Fig 2).

The survey area lies at *c* 40m AOD on a low shoulder of land that overlooks the river Medway to the west. It is overlooked by a scarp of much higher ground that rises up steeply to the east, attaining a maximum elevation of *c* 170m AOD (Fig 1).

The geology of the survey area is mapped as West Melbury Chalk formation overlain by Quaternary gravels, clays and sands (BGS 2014). However, the excavation showed that in the vicinity of the ring ditch the chalk outcropped immediately below the ploughsoil and that drift deposits were absent (Howell *pers com*).

2.2 Historical and archaeological background

The survey was prompted by the discovery of a partial prehistoric ring ditch during the stripping of a road easement in Area 5C of the Peter's Village development site (MOLA *forthcoming*). The ditch had a projected diameter of *c* 22m and its excavated sections had a typical depth of 1m. However, most of the ditch fill comprised redeposited chalk, and only the shallow upper fill had a clear contrast with the surrounding natural (Howell *pers com*). A small number of widely spaced pits and ditches were excavated in the same general area and these were broadly Late Iron Age or early Roman in date.

The excavation of Area 5C formed one part of a much wider programme of archaeological works associated with the Peter's Village development. The details of this are not immediately relevant to the present survey, but will be fully discussed in the main Post-Excavation Assessment report (MOLA *forthcoming*).

3 METHODOLOGY

3.1 Survey extent and grid establishment

Both survey techniques were undertaken within a common site grid set out as close as possible to the anticipated location of the ring ditch. The earth resistance survey covered only a small and closely targeted area, 20m by 30m across, but the magnetometer survey covered a total area of 60m square, expanding both north and east from the site of the ring ditch. The difference in coverage reflects the differing speeds of the two survey techniques, with the magnetometer survey being the much faster of the two.

The survey grid comprised a block of four contiguous grid squares, each 30m across. These were set out manually by tape measure and optical square, and were tied in to the Ordnance Survey National Grid by plotting the locations of the grid corners with a Leica Viva RTK GPS. All grid locations were accurate to a tolerance of better than +/- 10cm.

3.2 Magnetometer survey

The magnetometer survey was conducted with a Bartington Grad 601-2, twin sensor array, vertical component fluxgate gradiometer (Bartington and Chapman 2003). This is a standard instrument for archaeological survey and can resolve magnetic variations as slight as 0.1 nanoTesla (nT). The gradiometer was carried at a brisk but steady pace through each grid square, collecting data along 1m spaced traverse lines. Measurements were automatically triggered every 0.25m along the traverses, giving a total of 3600 measurements per square.

3.3 Earth resistance survey

The earth resistance survey was conducted with a Geoscan Research RM15 resistance meter. It was deployed in twin probe configuration with mobile probe spacing of 0.5m and the remote probes spaced a similar distance apart. Measurements of earth resistance were recorded to a precision of 0.1 Ohms (Ω) at 1m intervals across the grid. This instrument configuration and survey resolution is standard for archaeological survey and its use accords with the guidelines issued by English Heritage and by the Institute for Archaeologists (EH 2008; IfA 2011).

3.4 Data processing and presentation

The magnetometer survey data was visualised and processed using Geoplot 3.00v software. Striping, caused by slight imbalance between the two sensor probes, was removed using the 'Zero Mean Traverse' function and destaggering of the data was

performed where necessary. The earth resistance data was also visualised in Geoplot, but did not require the application of any processing functions.

Both sets of survey data are presented in this report in the form of a greyscale plots scaled, rotated and resampled (georectified) for display against the Ordnance Survey base mapping (Figs 2 to 3). Interpretative overlays are presented in Figures 5 to 6, and a plot of the unprocessed magnetometer data is presented in Figure 7.

4 SURVEY RESULTS

4.1 Magnetometer survey

This survey detected a weak semi-circular positive magnetic anomaly that corresponds to the unexcavated northern half of the ring ditch. The weakness of the anomaly is likely to reflect the poor magnetic contrast between the natural chalk and the re-deposited chalk which forms the bulk of the ditch fill.

A broad, sinuous, slightly diffuse positive linear anomaly extends north-eastwards from adjacent to the ring ditch. It is likely to represent a continuation of a natural periglacial feature which was identified on the same alignment during the excavations within Area 5C (Howell *pers com*). Two shorter positive linear anomalies in the southern corner of the survey area may also represent natural features or possible ditches.

A substantial number of small dipolar anomalies and monopolar 'spikes' are scattered throughout the magnetic data set. Anomalies such of these are typically caused by pieces of modern ferrous debris (*eg* horseshoes, harrow tines) scattered within the ploughsoil.

4.2 Earth resistance survey

This survey has detected a very subtle low resistance anomaly on the anticipated line of the ring ditch. It has also detected a low resistance linear anomaly corresponding to the possible geological feature identified by the magnetometer survey. Both of these anomalies would be consistent with cut and backfilled features possessing fills slightly more damp and conductive than the surrounding chalk.

A series of slight linear anomalies have been detected running from north-west to south-east along the direction of the survey traverses. The most plausible interpretation of these would be that they represent modern ploughing or tram-lines.

5 CONCLUSION

The magnetometer and earth resistance surveys both succeeded in detecting the northern half of the ring ditch which had been partially exposed by the Peter's Village Area 5C excavation. They have also identified a small number of linear features which may represent other ditches of indeterminate date.

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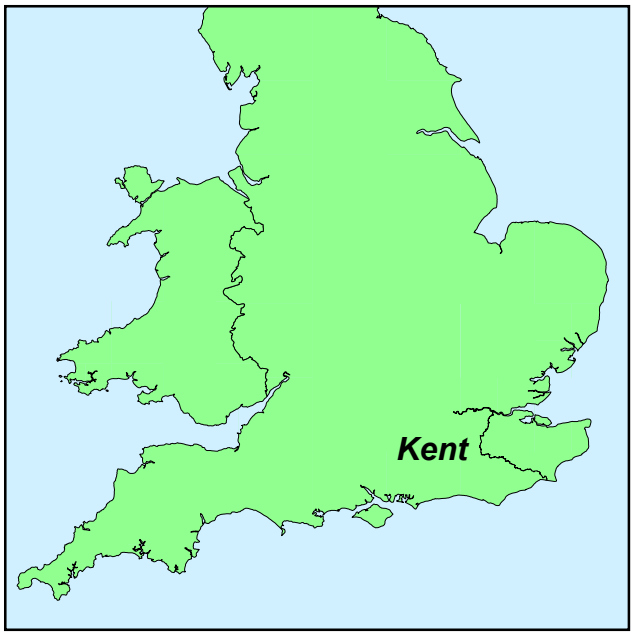
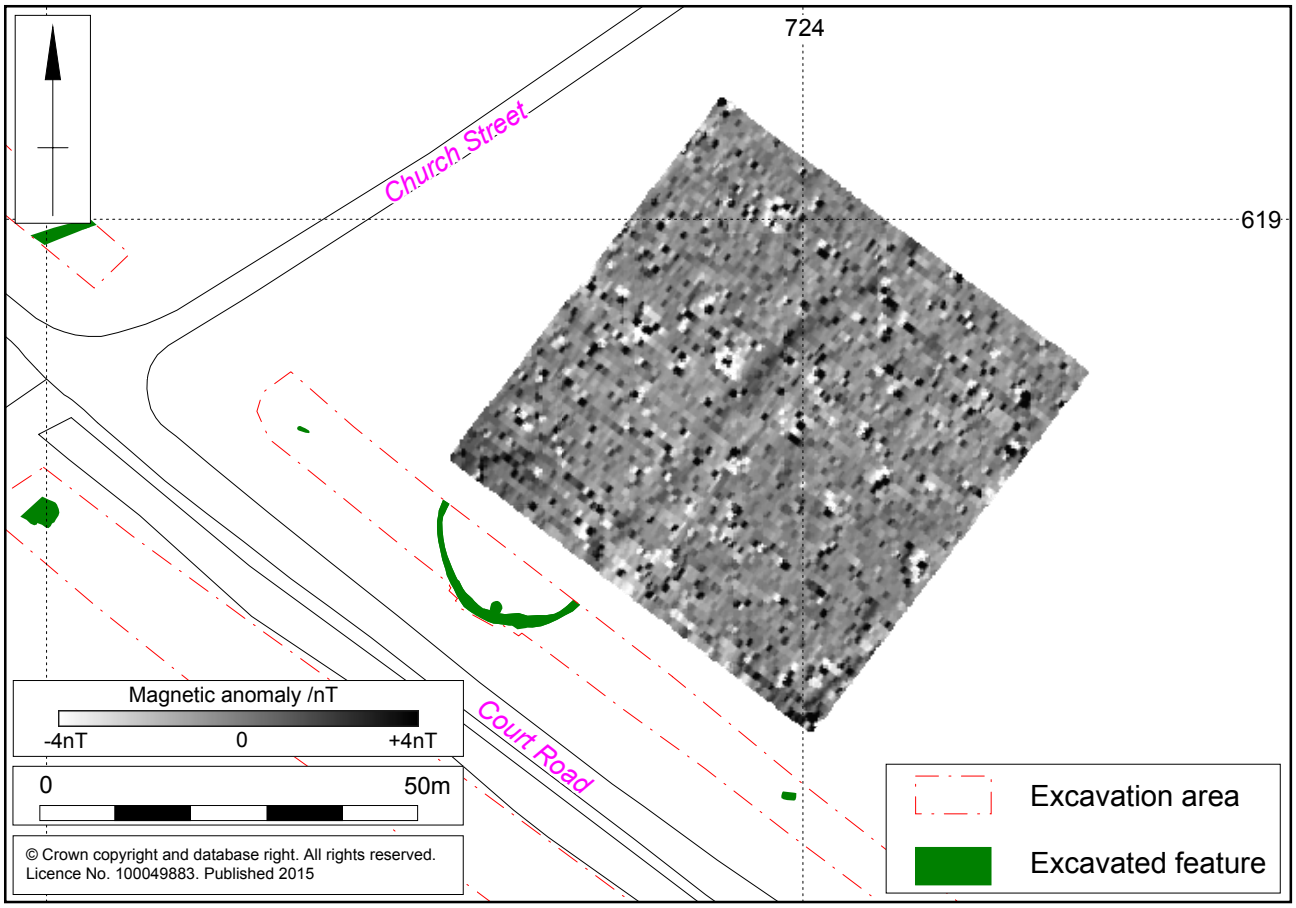
MOLA forthcoming, *Peter's Village and Medway Crossing: Post-excavation assessment and updated project design*, MOLA report

MOLA
12 February 2015



Scale 1:25,000

Site location Fig 1



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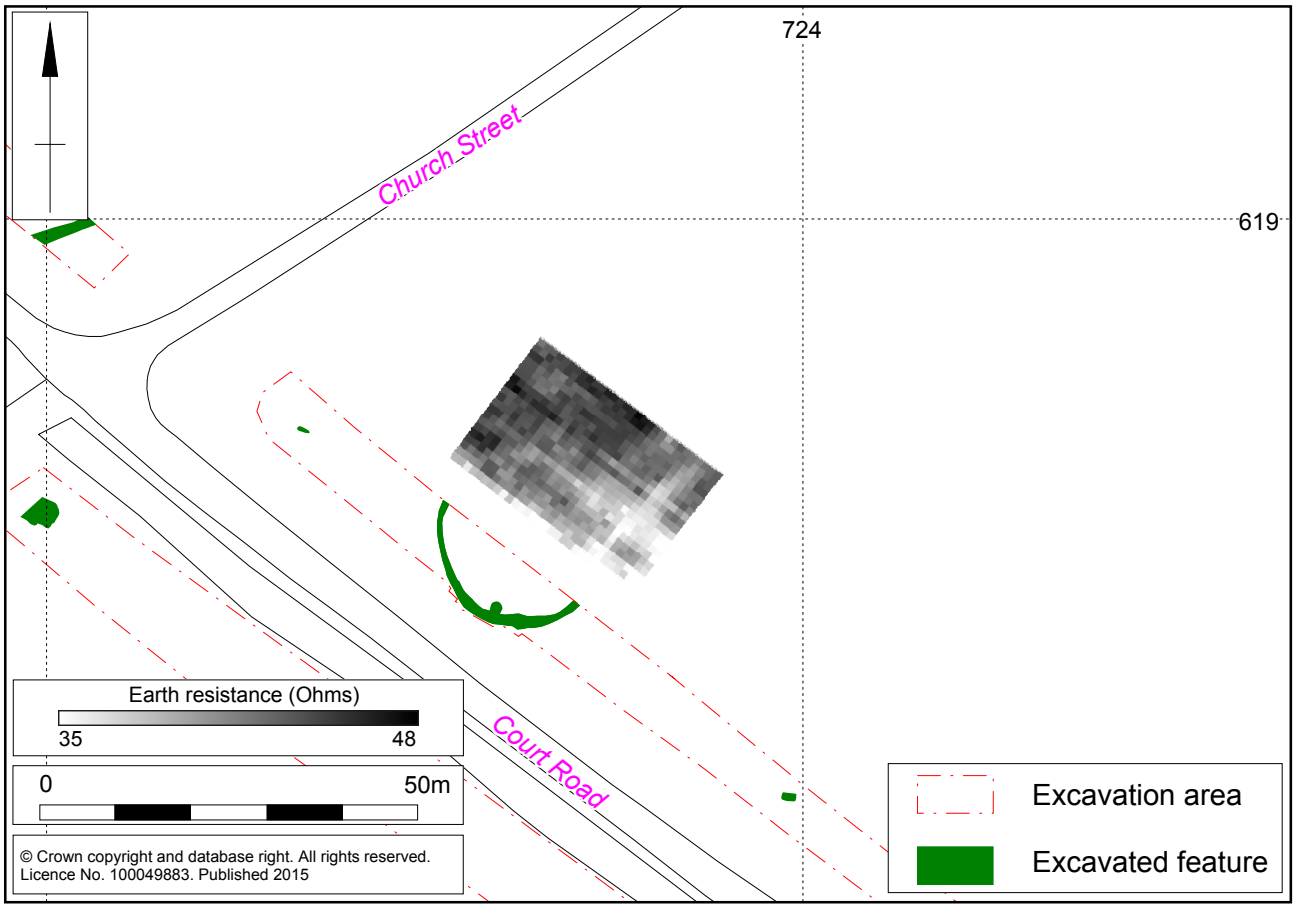
Magnetometer survey results Fig 2



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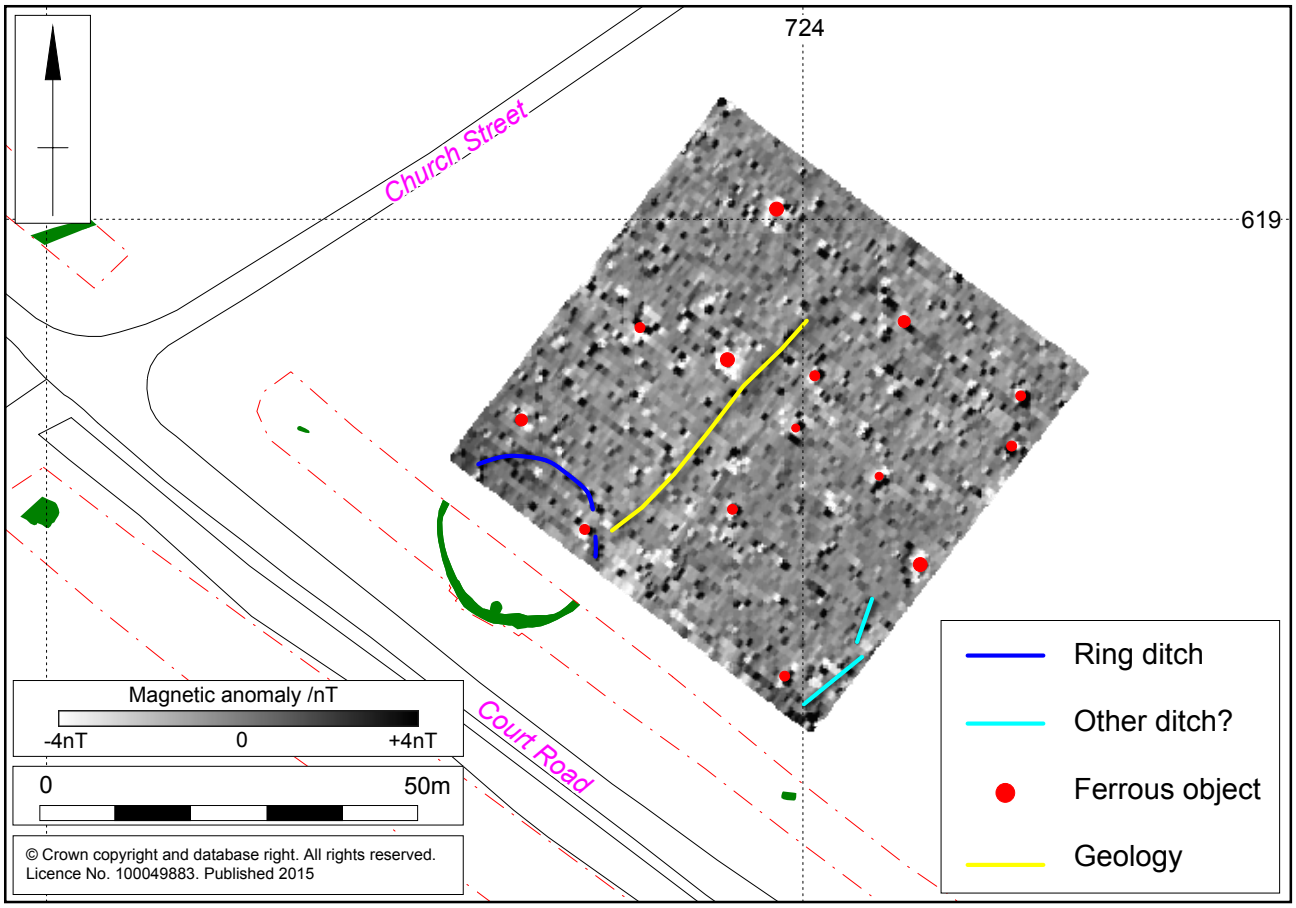
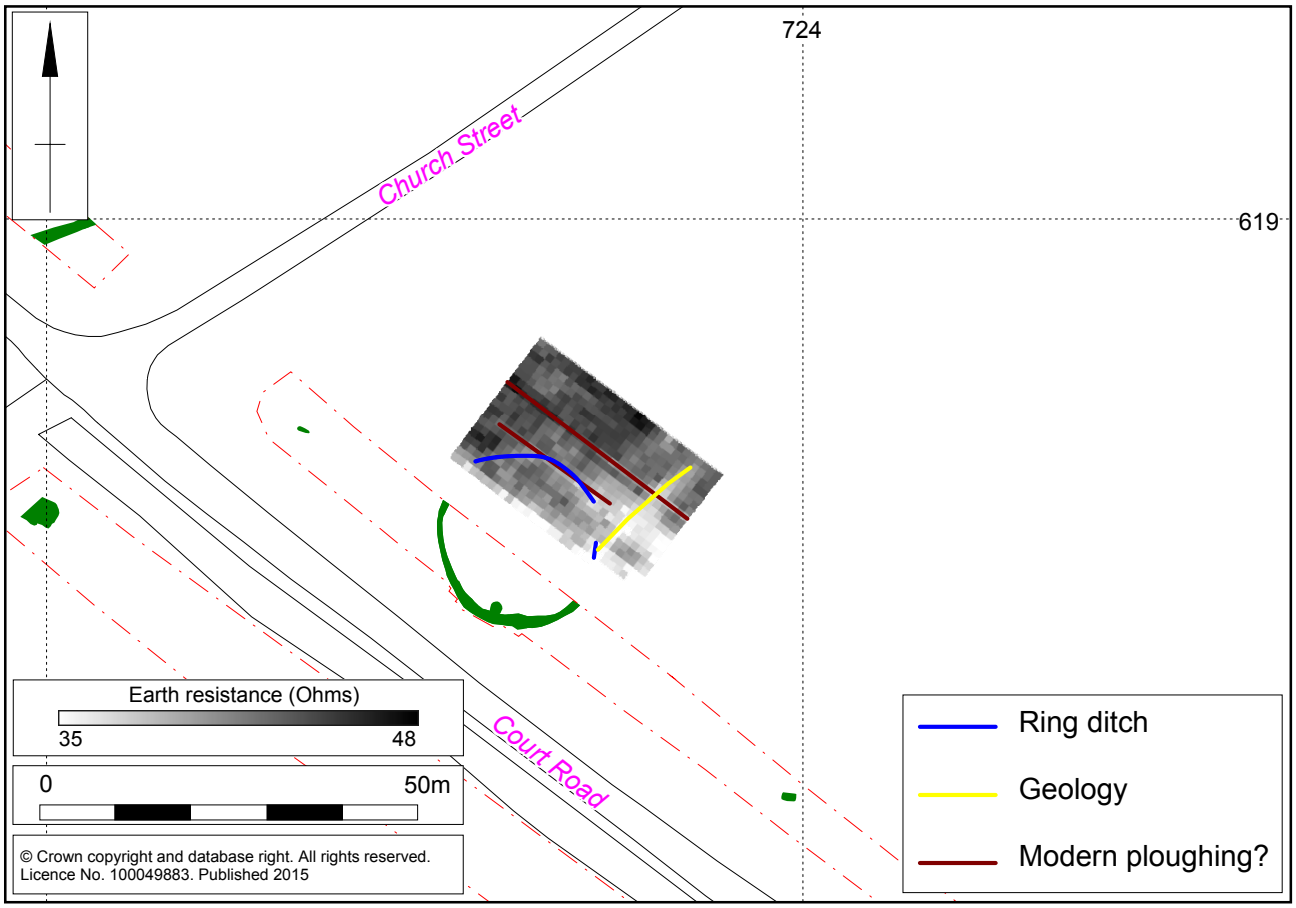
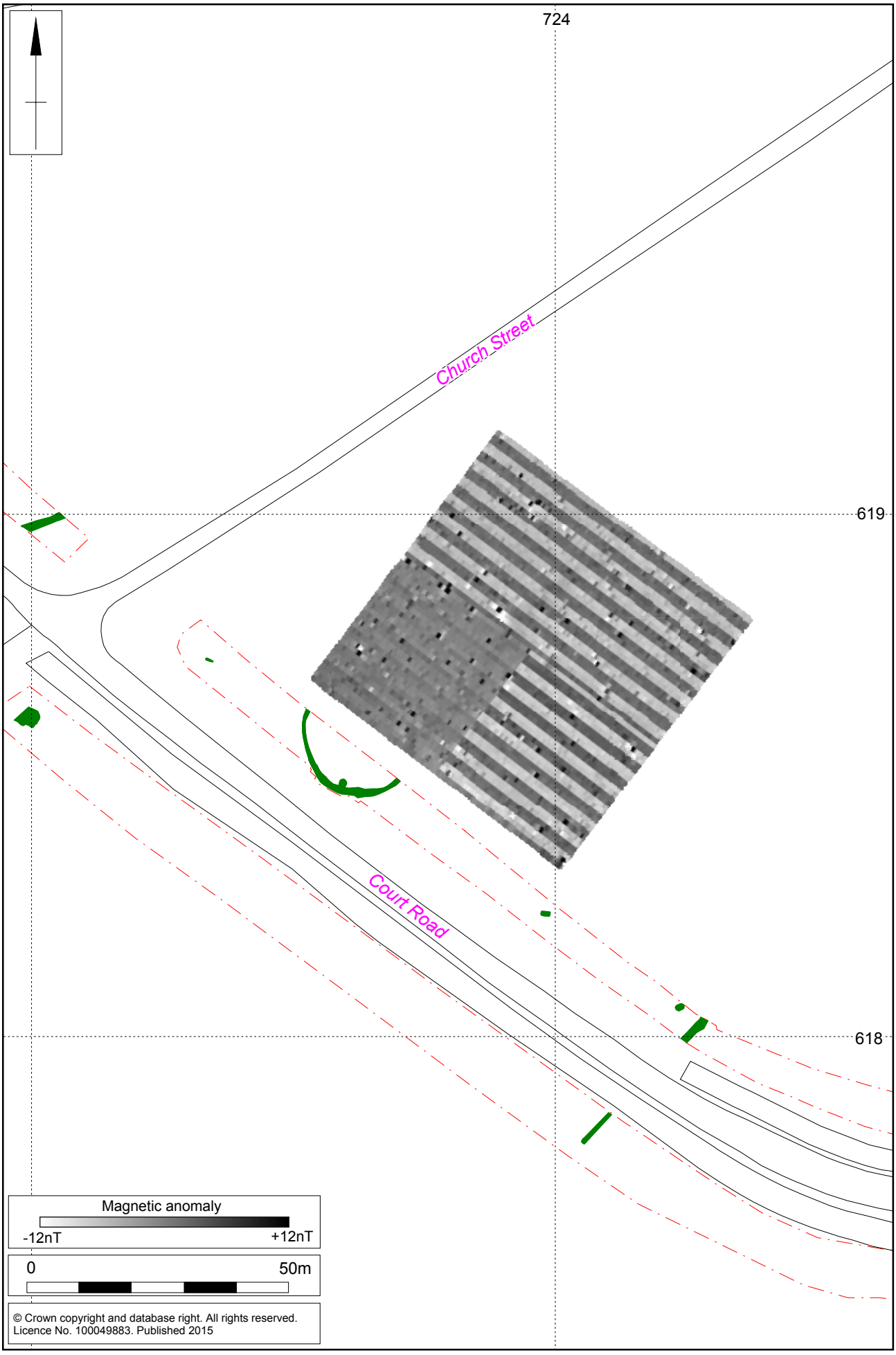
Earth resistance survey results Fig 3



1:1000 Magnetometer survey interpretation Fig 4



1:1000 Earth resistance survey interpretation Fig 5



1:1000 Unprocessed magnetometer data Fig 6

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