



**Archaeological geophysical survey at
Leighton Middle School
Leighton Buzzard
Bedfordshire
July 2015**

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OASIS REPORT

PROJECT DETAILS		Oasis No. molanort1-219454	
Project name	Archaeological geophysical survey at Leighton Middle School, Leighton Buzzard, Bedfordshire		
Short description	MOLA Northampton was commissioned to carry out magnetometer and earth resistance surveys prior to the construction of new tennis courts at Leighton Middle School, Leighton Buzzard. The survey area lay adjacent to All Saints' Church and comprised a part of the former grounds of the prebendal manor house. The results were archaeologically uninformative, being dominated by anomalies relating to made ground, buried services and modern structures. Two weak parallel linear trends of uncertain origin were also apparent in the earth resistance data.		
Project type	Geophysical survey		
Site status	None		
Previous work	Ad-hoc watching brief (Manuscript notes in Bedfordshire HER)		
Current land use	Playing field		
Future work	Unknown		
Monument type/ period	None		
Significant finds	None		
PROJECT LOCATION			
County	Bedfordshire		
Site address	Leighton Middle School, Leighton Buzzard		
Study area	c 0.25ha		
OS Easting & Northing	SP 918 248		
Height OD	c 85m aOD		
PROJECT CREATORS			
Organisation	MOLA Northampton		
Project brief originator	Hannah Firth, Central Bedfordshire Council		
Project design originator	MOLA Northampton		
Director/supervisor	Olly Dindol & Adam Meadows		
Project manager	John Walford		
Sponsor or funding body	David Turnock Architects		
PROJECT DATE			
Start date	21 July 2015		
End date	21 July 2015		
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BIBLIOGRAPHY	Journal/monograph, published or forthcoming, or unpublished client report		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 Leighton Middle School, Leighton Buzzard, Bedfordshire, July 2015		
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Archaeological geophysical survey at Leighton Middle School, Leighton Buzzard Bedfordshire July 2015

ABSTRACT

MOLA Northampton was commissioned to carry out magnetometer and earth resistance surveys prior to the construction of new tennis courts at Leighton Middle School, Leighton Buzzard. The survey area lay adjacent to All Saints' Church and comprised a part of the former grounds of the prebendal manor house. The results were archaeologically uninformative, being dominated by anomalies relating to made ground, buried services and modern structures. Two weak parallel linear trends of uncertain origin were also apparent in the earth resistance data.

1 INTRODUCTION

MOLA Northampton was commissioned by David Turnock Architects to carry out an archaeological geophysical survey at Leighton Middle School, Leighton Buzzard, Bedfordshire (NGR: SP 918 248; Fig 1). The work was required to fulfil a brief issued by Hannah Firth, the Central Bedfordshire Development Management Archaeologist, and was intended to identify and map any archaeological remains which may be affected by the proposed construction of new tennis courts.

The fieldwork was undertaken on 21 July 2015. Due to the small extent of the survey area, it was possible to deploy two complementary techniques, magnetometer survey and earth resistance survey, in a single day

2 BACKGROUND

2.1 Location, topography and geology

Leighton Middle School is located at the western end of Leighton Buzzard town centre, adjacent to All Saints Church. The survey area lies at the western end of the school playing field and comprises a triangular corner of land less than 0.5ha in extent (Fig 1).

The survey area is located on the eastern side of the River Ouzel, at an elevation of c. 85m aOD. Its natural geology is mapped as alluvial deposits and terrace gravels overlying Woburn Sand (BGS 2015). However, test pit investigation has shown that at least a part of the area is underlain by made ground of apparently recent date (geotechnical data via David Turnock Architects).

2.2 Historical and archaeological background

The survey area is located adjacent to the 13th-century All Saints' Church, and incorporates part of the site of the prebendal manor. Little is known about the layout of the manor in the medieval period, but the plan of the post-medieval manor house and grounds has been established with some confidence (McQueen and Edgeworth 2005, fig 10). It would appear that the manor house itself stood in what is now part of the churchyard and that the survey area extends across part of the former gardens.

The main evidence for pre-medieval archaeology in the vicinity of the survey area comprises Roman coins found in All Saints' churchyard and Roman pottery found west of the school between the River Ouzel and the Grand Union Canal (Bedfordshire Historic Environment Record numbers 9659 and 819). Other records purportedly show Iron Age coins to have been found east of the school, in Leighton Buzzard town centre (HER 17 and 19241), but these appear to be no more than notional findspots for coins only loosely provenanced as 'from Leighton Buzzard'.

The school playing field was terraced in 1984 without any adequate archaeological record being made. A brief handwritten note in the Bedfordshire HER (labelled "SMR 11109, Ref.6") describes an impromptu site visit, following the reported discovery of a culvert. It was reported that the higher part of the field had been reduced by up to 1.5m, with the spoil being re-deposited to build up the lower-lying ground in the south and west. Thus any archaeological remains in the higher part of the site would have been severely truncated or destroyed, and those lower down buried by made ground.

3 METHODOLOGY

3.1 Survey grid establishment

A single survey grid, divided into 20m square units, was used for both survey techniques. The grid was set out by means of a tape measure and optical square, and the locations of the grid points were recorded with a Leica Viva RTK GPS to a tolerance of better than +/- 10cm.

3.2 Magnetometer survey

The magnetometer survey was conducted with Bartington Grad 601-2, twin sensor array, vertical component fluxgate gradiometers (Bartington and Chapman 2003). These are standard instruments 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 1600 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 a 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 0.1Ω at 1m intervals across each survey grid square. This instrument configuration and survey resolution is standard for archaeological survey and its use accords with the guidelines issued by Historic England and by the Chartered Institute for Archaeologists (HE 2015; ClfA 2014).

3.4 Data processing and presentation

Both sets of survey data were visualised and processed using Geoplot 3.00v software. The magnetometer data was processed with the 'Zero Mean Traverse' function to remove the striping caused by slight imbalance between the two sensor probes, and the 'Destagger' function to correct reading displacements caused by an uneven survey pace. The earth resistance data was processed with the 'Edge Match' function, which levelled out biases in the mean value of adjacent grids arising from the re-locating of the remote probes.

All sets of survey data are presented in this report in the form of greyscale plots scaled, rotated and resampled (georectified) for display against the Ordnance Survey base mapping (Figs 2 and 4). Interpretative overlays are presented in Figures 3 and 5, and plots of the unprocessed survey data in Figure 6.

4 SURVEY RESULTS

4.1 Magnetometer survey (Figs 2-3)

The magnetometer survey has detected no anomalies of archaeological interest. Those anomalies which have been detected are clearly related to modern features and areas of disturbance.

A pair of magnetic halos, one positive and one negative, flank either side of a metal fence which crosses the survey area from north to south along the edge of the terraced sports field. The data to the east of this contains a dense and random scatter of intense dipolar anomalies ("magnetic noise"), characteristic of made ground containing pieces of ferrous scrap and other magnetic debris. To the west the data is less disturbed, but contains a series of linear anomalies of alternating polarity which are likely to indicate underground pipes or cables.

4.2 Earth resistance survey (Figs 4-5)

The results of the earth resistance survey divide into two portions, with the dividing line more or less corresponding to the edge of the terraced area. To the east, the make-up layers of the terrace have resistance values which are broadly in the range of 70 Ω to 120 Ω . To the west, values of 10 Ω to 40 Ω are more typical. This contrast presumably reflects the fact that the lower part of the field lies closer to the water-table and is more likely to contain fine alluvial sediments, whereas the makeup layers will be drier and more likely to contain redeposited sand and stone.

Three small gaps in the western part of the survey area indicate areas where readings could not be taken across a long-jump track and a pair of cricket nets. At the western end of the long-jump track there is a small area of elevated resistance arising from its associated sand pit.

Two very slight low resistance trends are aligned roughly parallel to the southern edge of the survey area, across the area of the cricket nets. The cause of these is uncertain; they could potentially represent infilled ditches, but other causes such as field drains are also possible.

5 CONCLUSION

The survey has identified no anomalies of certain archaeological interest. In the eastern portion of the survey the results are dominated by modern anomalies associated with made ground, whilst in the west the anomalies relate to sports infrastructure and modern pipelines. The only anomalies of possible archaeological interest are a pair of low resistance linear trends which run parallel to the southern edge of the survey area. These could represent former ditches, although an interpretation as field drains or other modern features is more probable on balance.

Although the results of this survey appear largely negative, it is important to note that there are certain limitations to archaeological geophysical surveys. Deep overburden can mask features from detection and small, ephemeral features such as postholes can be difficult targets even when lying close to the surface. For these reasons, this report should be considered alongside all other available sources of archaeological evidence, and its findings should not be relied upon in isolation.

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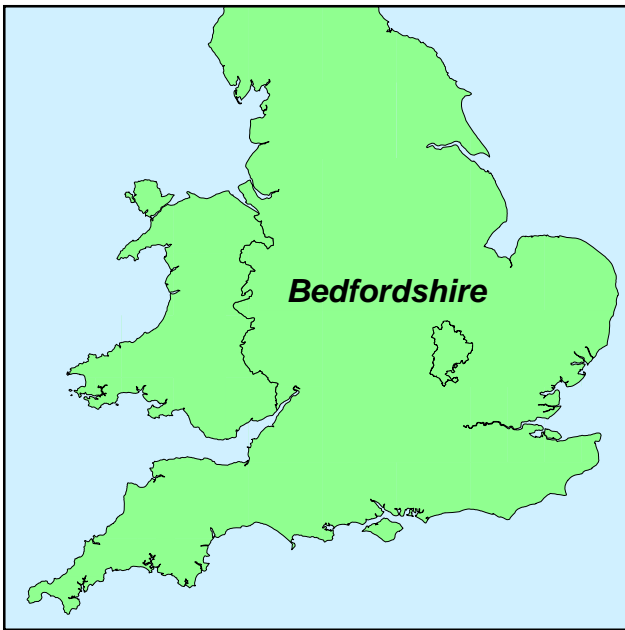
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MOLA
5 August 2015



Scale 1:20,000

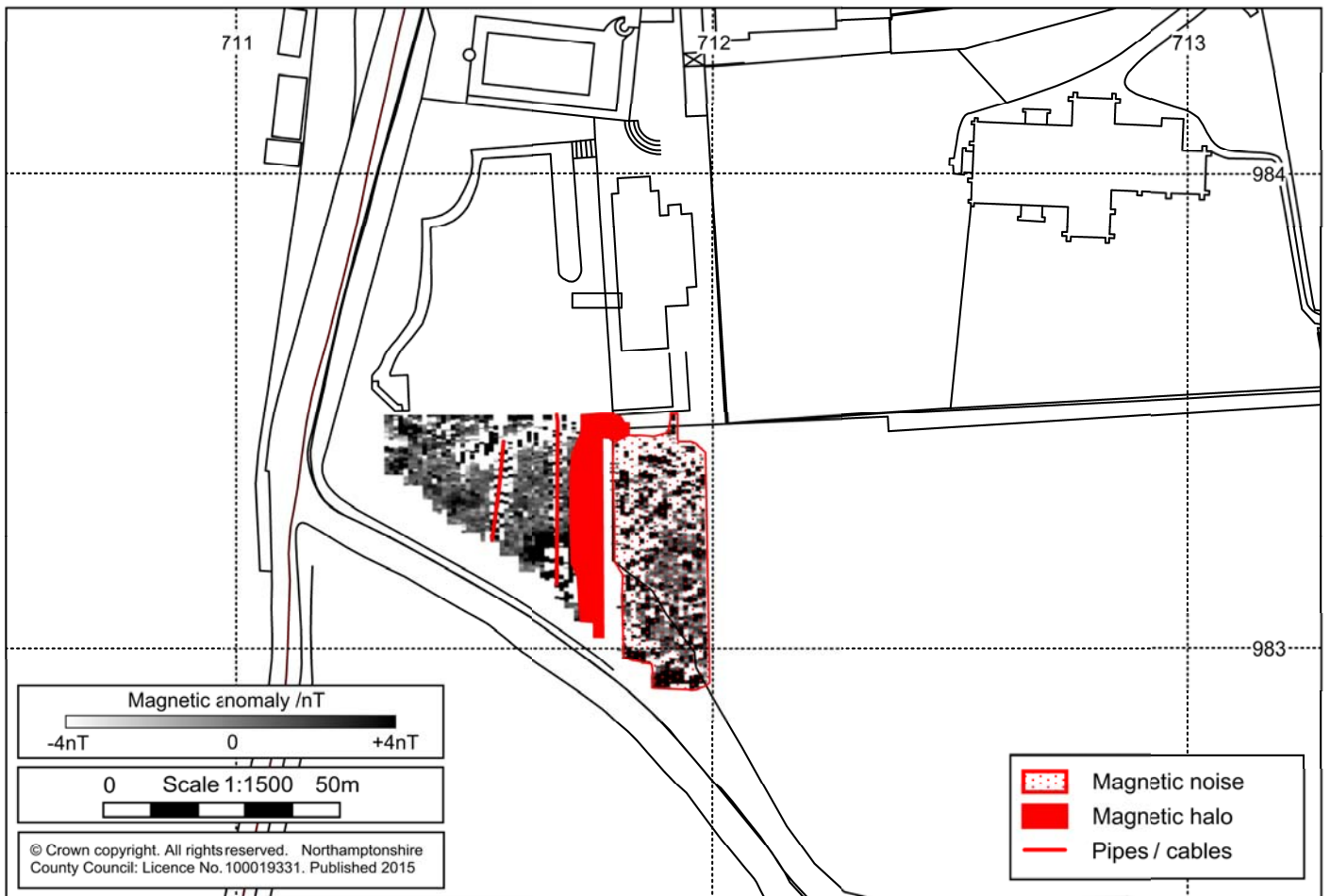
Site Location Fig 1



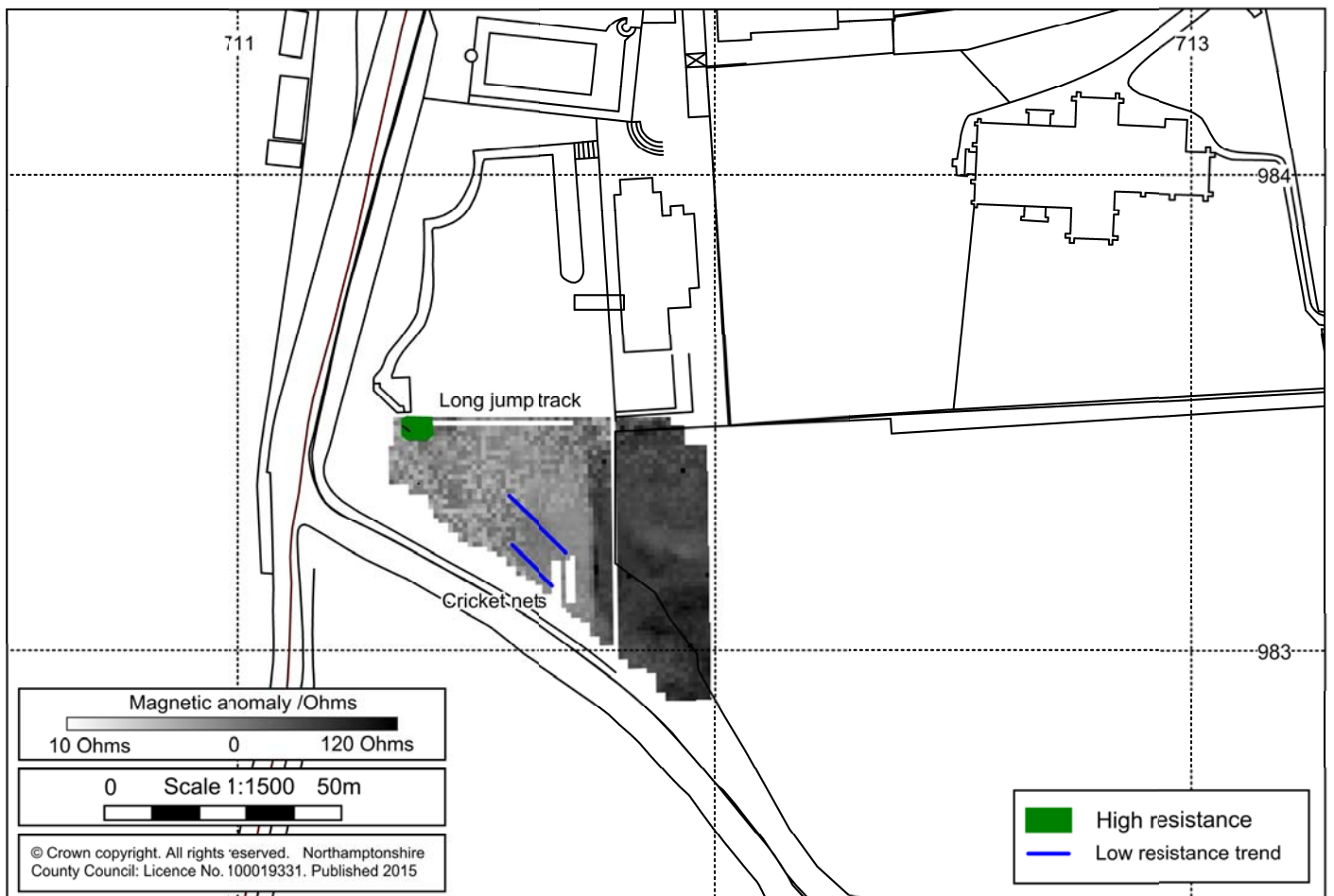
Magnetometer survey results Fig 2



Earth resistance survey results Fig 3



Magnetometer survey interpretation Fig 4



Earth resistance survey interpretation Fig 5



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