A Gradiometer Survey of land at St Michael's CE Primary School, Marston Road, Oxford

For The East Oxford Archaeology and History Project

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heritage lottery fund
UNIVERSITY OF OXFORD
DEPARTMENT FOR Continuing Education

1. Summary Of Results.

The East Oxford Archaeology and History Project conducted 0.04 hectares of gradiometer survey on land immediately to the south east of St Michael's CE Primary School, Marston Road, Oxford. Interference from ferrous reinforcing in a nearby area of concrete hard-standing caused magnetic interference across much of the small survey area. Several strongly magnetic signals probably caused by ferrous materials on the eastern side of the survey area coincide approximately with a removed boundary shown on historic mapping. No traces of earlier activity were encountered.

2. Introduction.

2.1 Background.

The survey was carried out as one of a number of geophysical surveys undertaken by the East Oxford Archaeology and History Project or ARCHEOX. ARCHEOX is a community archaeology project hosted by Oxford University's Department for Continuing Education, and funded by the Heritage Lottery Fund and Oxford University's John Fell Fund.

2.2 Survey Aims

The survey was carried out with 2 principle aims:

- To locate and map archaeological subsurface archaeological features in a green space in East Oxford
- To demonstrate and teach archaeological survey techniques to year 5 pupils at the school.

2.3 Survey Location

The survey area measured 20x20m and was located in a level grass playing field immediately to the south east of the St Michael's Primary School buildings, off Marston Road, Oxford (see figures 1 and 6). The site lies at approximately 65m OD and is underlain by Jurassic mudstone of the West Walton and Oxford Clay formations. St Michael's School is located immediately to the east of Marston Road, approximately 400m to the east of the river Cherwell.

2.4 Survey area history and archaeological potential

The survey area is within the historic parish of Marston and lies between the historic settlements of St Clements (1.2km to the south) and Marston (1.7km to the north). No archaeological investigations have previously been conducted within the survey area. Archaeological investigations in advance of construction on nearby sites have produced no evidence of pre 19th century activity.

3. Methodology

3.1 Date of fieldwork

The survey was conducted on 13/06/2012

3.2 Grid Location

The survey grid was established using 50m tapes. Grid pegs locations were then located with a survey grade GPS to within +/- 0.01m of the OS national grid.

3.3 Survey Configuration

Date of survey	13/06/2012
Grid size	20x20m
Area of survey	0.04 ha
Traverse direction	West/East
Traverse separation	1m
Reading interval	0.25m
Instrument type	Fluxgate gradiometer
Instrument model	Bartington Instruments Grad 601 (1)
Sensor element separation	1m
Number of sensors	1
Sensor separation	N/A
Sample range	1nT
Processing software	Geoplot version 2.5.16
Processes	Clip at 1.00 SD, Despike, Interpolate (X Doubled)

3.4 Data collection and volunteers

It had been hoped that pupils from the school would be able to collect the survey data. In practice it was found that year 5 students were physically too small to use the gradiometer, lacking the height to keep the sensor tube clear of the ground and the hand/wrist strength to keep it level and up right. As a result the project team recollected the survey data. The surveyor was scanned with the gradiometer to ensure good magnetic hygiene prior to re-zeroing the instrument and conducting the survey.

3.5 Processing and presentation of results.

Survey data was downloaded to a laptop computer, roughly processed and checked for operator error on site. Data was downloaded, assembled and processed using Archeosurveyor version 2.5.16.0. Full processing of the data was undertaken on completion of the survey using the clip, despike, and interpolate processes in Archeosurveyor. Once processed data was exported to ArcGIS 10.0 as a georeferenced ASCII file and combined with other datasets for presentation.

3.6 Interpretation

Unprocessed data is shown in figure figure 3 (stacked trace). Once processed (see figure 4) magnetic anomalies were digitised and assigned to one of the following two interpretative categories (see figures 5-7).

- Hard standing: very high readings across the western area of the survey grid probably caused by ferrous reinforcing in a nearby area of concrete mesh hard standing. Shown in green in figures 5-7.

- Ferrous material: extremely strong magnetic anomalies, probably caused by buried ferrous objects. Shown in yellow in figures 5-7.

4. Results

4.1 Ferrous anomalies

Other than the significant area of magnetic disturbance caused by the hard standing

outlined in section 3.6 above, 4 point focuses of strong magnetic readings were encountered. These are thought likely to relate to ferrous items associated with a removed boundary shown in historic mapping between the 1930s and late 1950s.

5. Discussion.

The survey was unsuccessful in locating any pre 1930s sub-surface archaeological features. However, the survey was a useful learning experience for the project staff in conducting geophysical survey with children of primary school age.

6. Acknowledgements

The survey was supervised by Olaf Bayer, data was collected by Joanne Robinson assisted by year 5 pupils from St Michael's School. Particular thanks are due to Sue Grundy head of St Michael's Primary School for inviting the project to carry out a survey on school grounds.

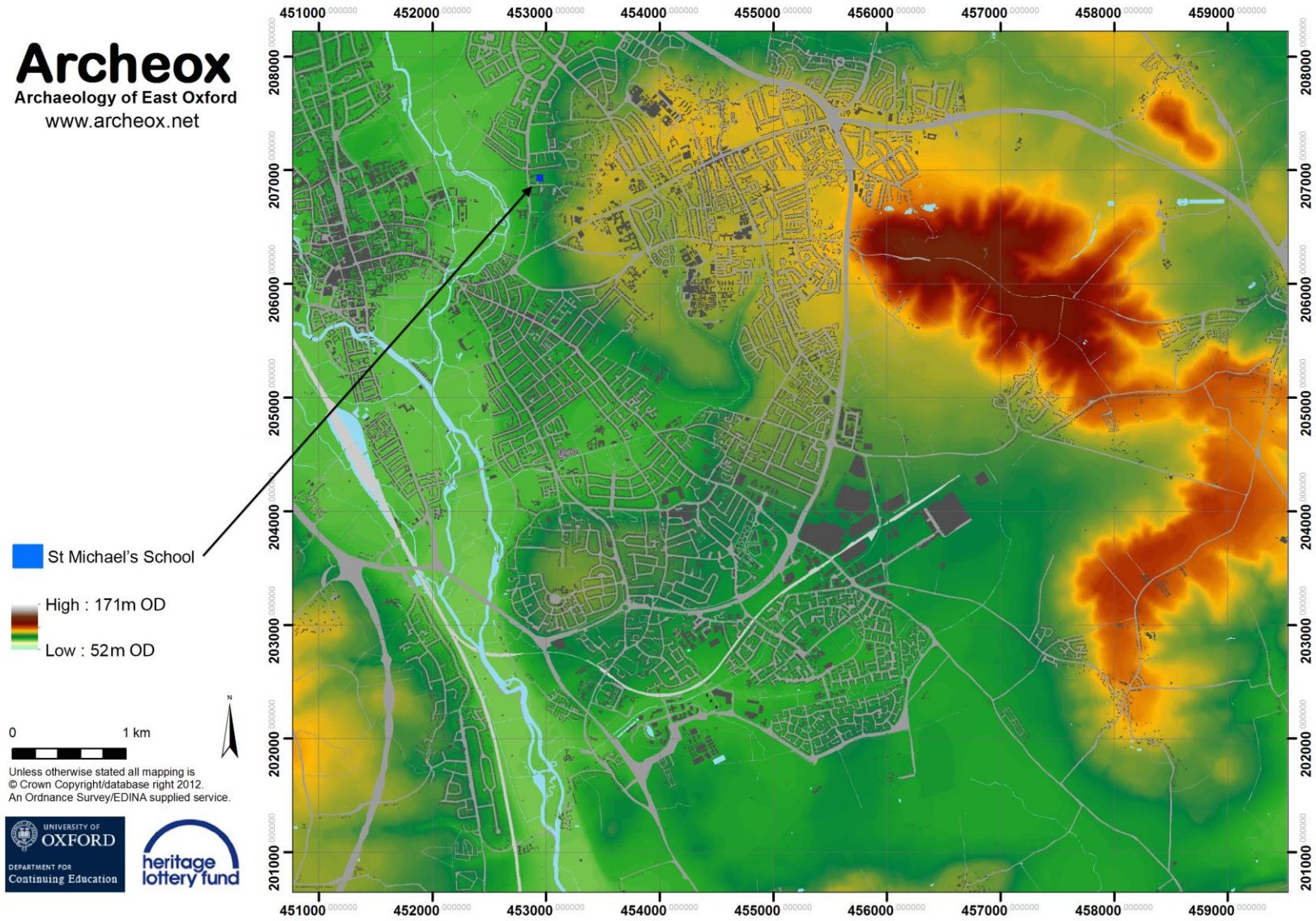

Figure 1: Survey location

Figure 2: Survey grid

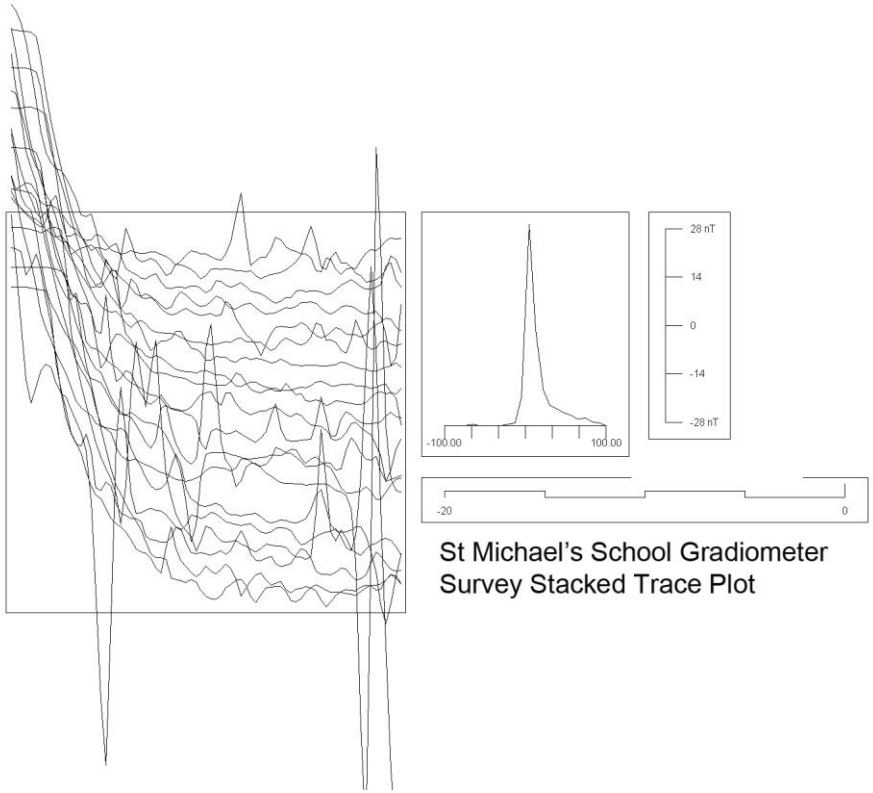

Figure 3: Raw survey data

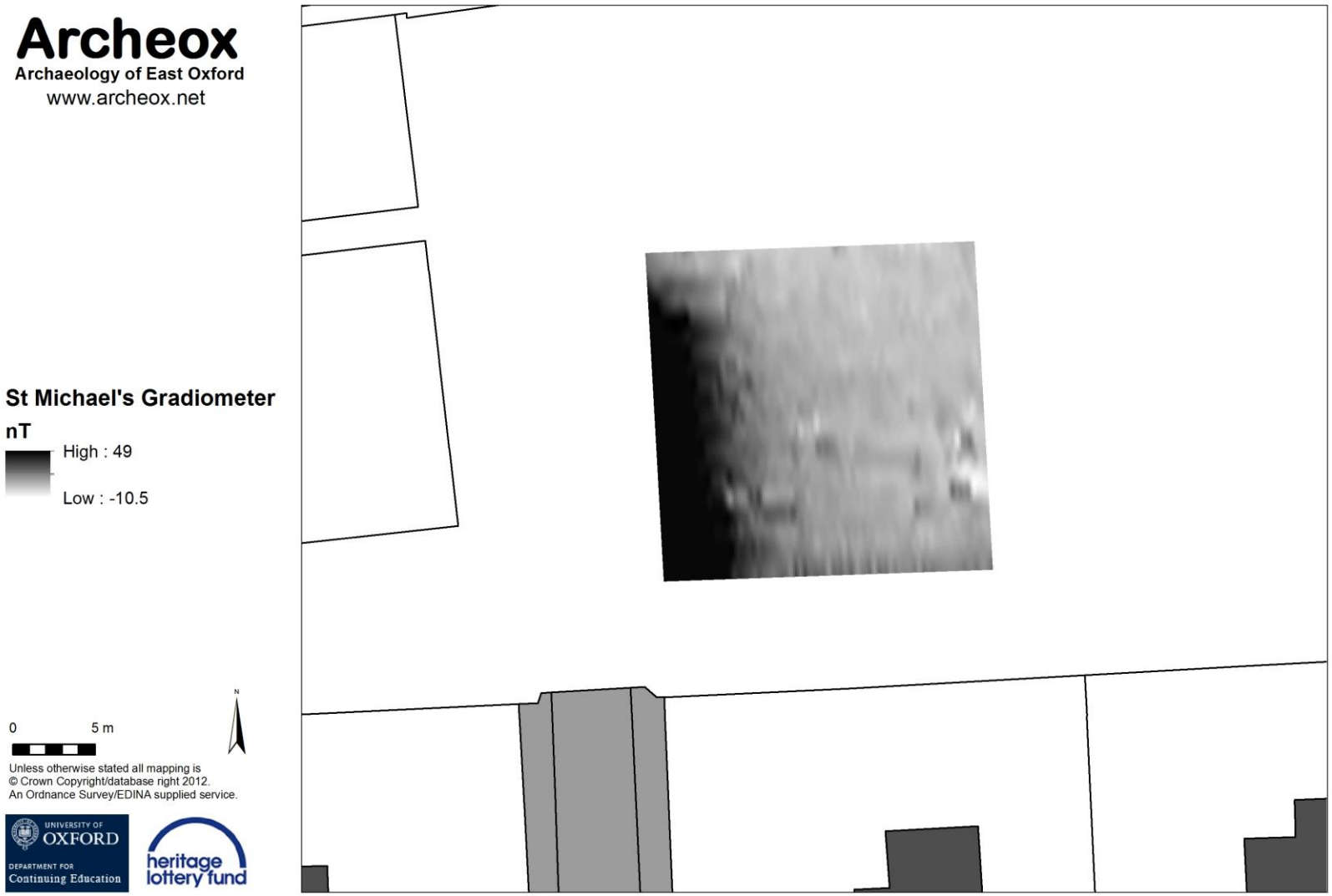

Figure 4: Processed survey data

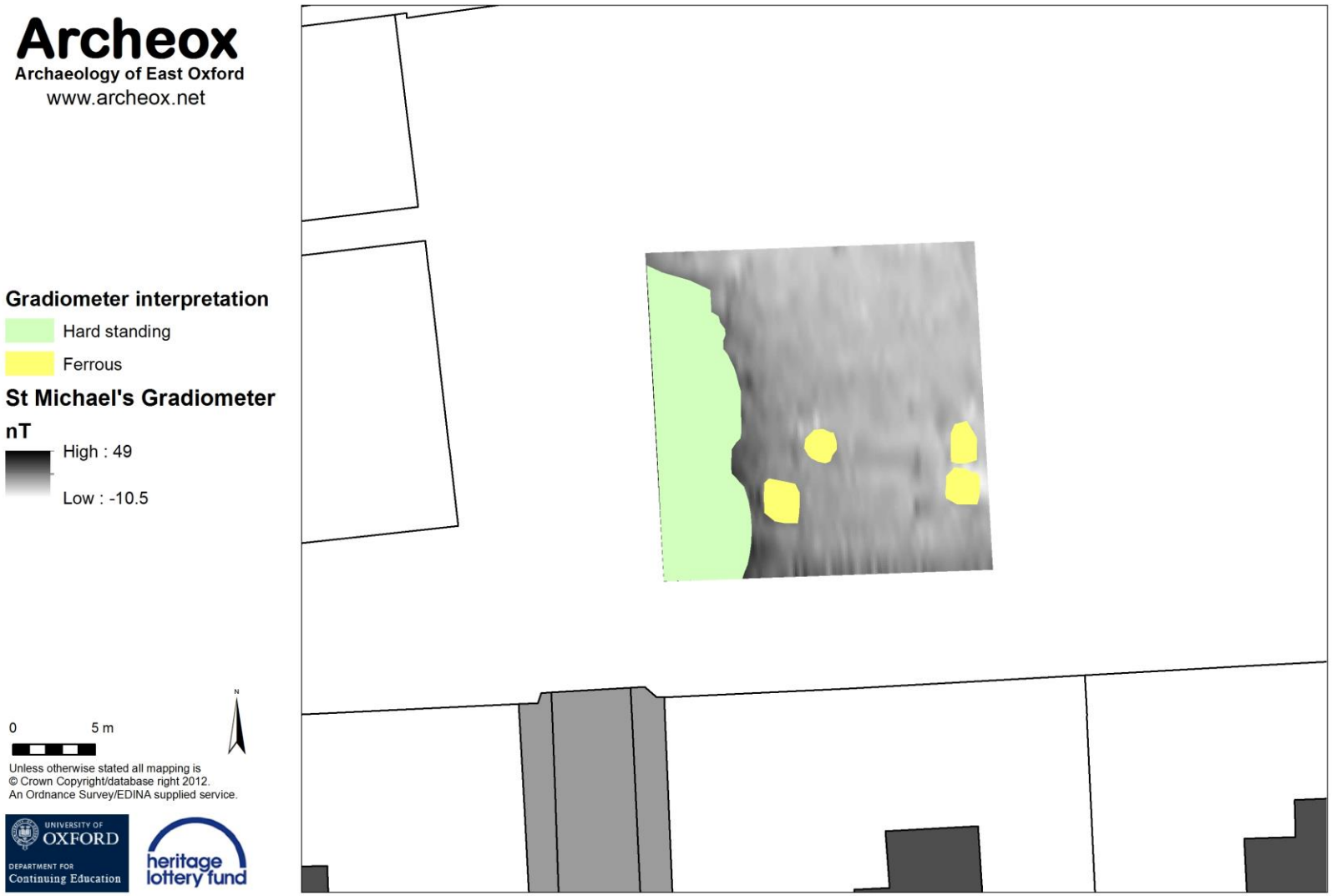

Figure 5: Interpreted survey data

Figure 6: Interpreted survey data and site overview

Figure 7: Interpreted survey data and historic mapping. Ordnance survey - National Survey 1:2500 1956-58.