



## Haslingfield Cantelupe Road Report

In April 2007 Archaeology RheeSearch Group carried out a magnetometry and resistivity survey on this site at the request of the Cambridge Archaeology Field Group on the basis of a concentration of Roman material discovered during field walking. Following further research on the location by Archaeology RheeSearch, cropmarks seen on an aerial photograph prompted additional surveys in October 2007. The Group would like to thank Mike Coles and members of CAFG for laying out the baselines for both visits.

**Members participating:** Brian Bridgland, Pat Davies, Liz Livingstone, Ian Sanderson, Maureen Storey, Tony Storey.

**Site Liaison:** Mike Coles.

**Site conditions:** April, cereal crop about 30 cm. October, Stubble. Access from Cantelupe Road to the east of the site.

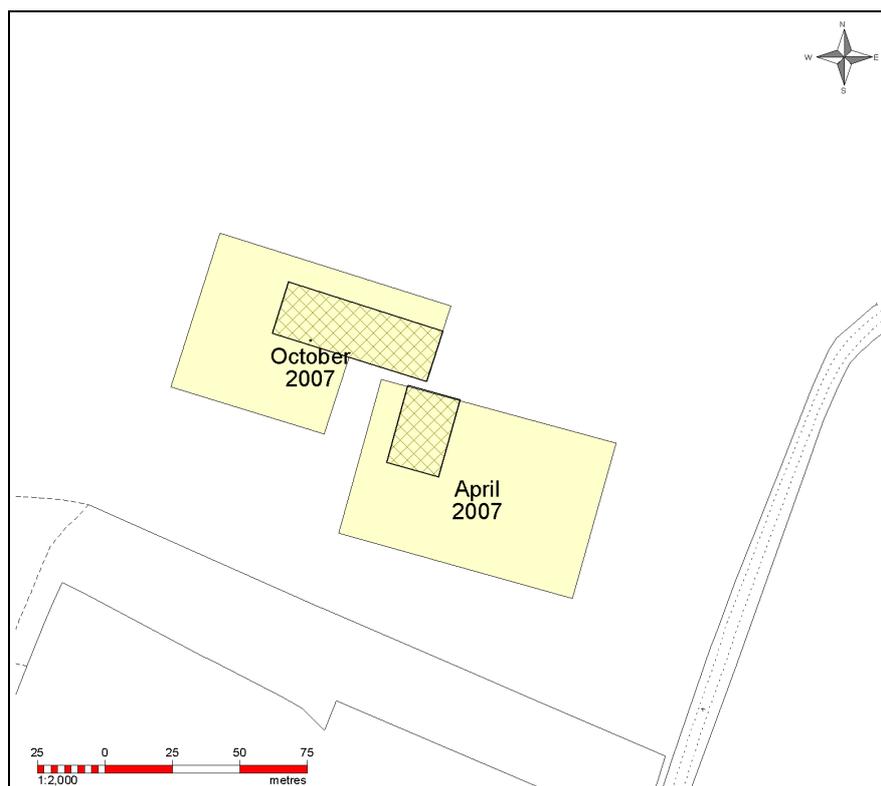
**Equipment:** Bartington 601 gradiometer; TRCIA 50cm twin probe.

**Area covered:**

Magnetometry day 1	six 30 m × 30 m grids
Resistivity day 1	one 20 m × 30 m grid,
Magnetometry day 2	five 30 m × 30 m grids
Resistivity day 2	two 20 m × 30 m grids

**Location:** TL 412 531 150m west of Cantelupe Road, Haslingfield.

*Images are orientated with north to the top of the page except where stated otherwise.*



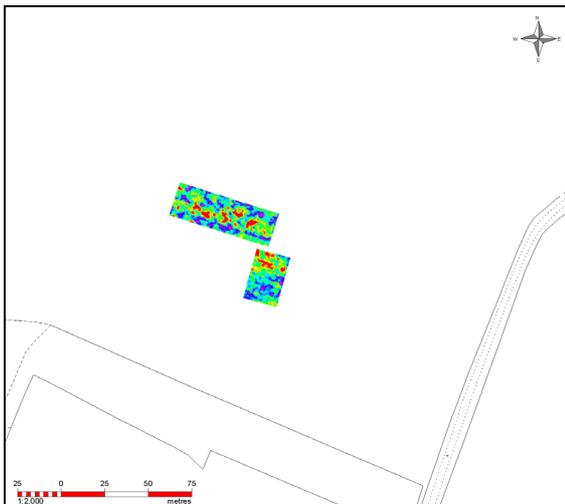
**Location plan: Survey areas with Cantelupe Road to the east.**

(Resistivity survey areas are crosshatched, Magnetometry areas are solid.)

On the ground location points – *There were no good reference points within 100 m. Baselines for both surveys were laid out by CAFG.*

**Purpose of survey:** Initially to determine if any subsurface structures were detectable which could account for a concentration of Roman material discovered during field walking. Later to look for subsurface anomalies to account for adjacent crop marks.

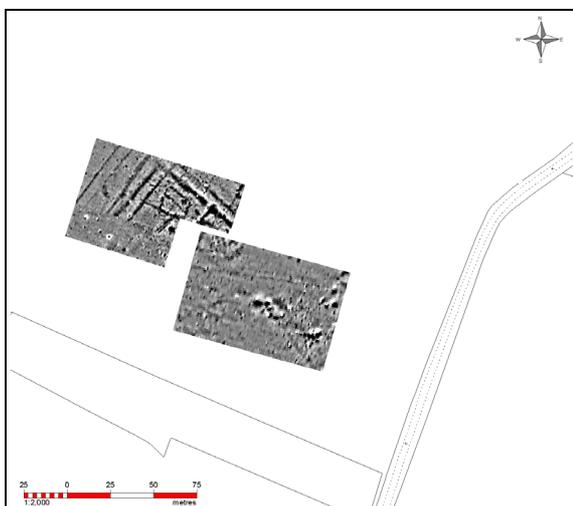
**Results:**



Resistivity October 2007  
20 m x 60 m

Resistivity April 2007  
30 m x 20 m

(purple blue low, red high)



Magnetometry  
60 m x 90 m

October 2007  
5 grids

April 2007  
6 grids

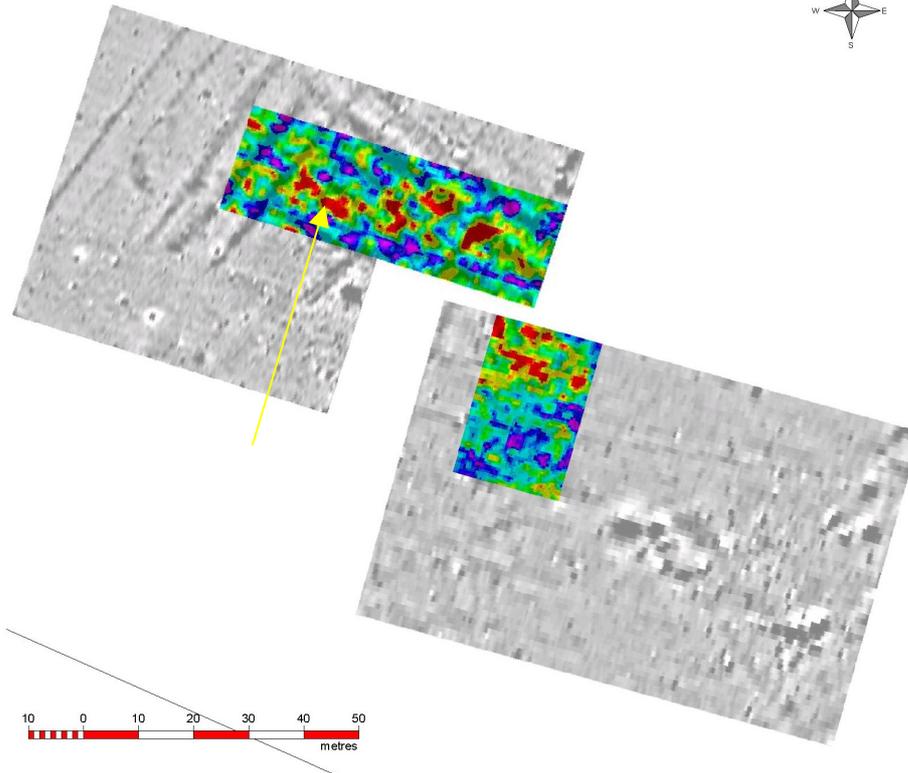
(black high, white low)



Aerial photographs of the survey area (not scaled).

Individual survey area results (rotated for presentation).

	<p>Resistivity October 2007 60 m x 20 m</p>
	<p>Resistivity April 2007 (interpolated and corrected) 20 m x 30 m</p>
	<p>Magnetometry October 2007 90 m x 60 m</p>
	<p>Magnetometry April 2007 90 m x 60 m</p>



Superimposition of resistivity and magnetometry results.

### Resistivity

The resistivity measurements taken during April 2007 showed a very distinct and marked difference between the north (average  $19.5 \Omega$ ) and south (average  $14.5 \Omega$ ) parts of the survey area. This extreme and unusual degree of difference in one survey area results in considerable difficulty in discerning any pattern in the data. A  $3 \Omega$  correction factor has therefore been added to the southern part of the survey area to offset this difference.

Both sets of resistivity data show elements of horizontal lines across the images which broadly correspond with the tractor wheel ruts noted during surveying. No other features are recognisable but the overall pattern suggests groupings of high resistance areas caused by residual foundations from extensively modified buildings.

### Magnetometry

The magnetometry results from April 2007 show a variety of features including a faint but distinct signal running almost horizontally across the image, and the edges of a more structured area in the top left corner. There is also a strong signal in the centre of the survey area with no discernible structure. The magnetometry results from October 2007 show virtually nothing in the bottom third of the survey area, but the top part suggests an extensive array of building foundations. Rectilinear patterns predominate with apparent displacements of the same basic shapes.

### Aerial photographs.

These clearly show a rectilinear structure, sharply truncated in the south.



### Correlations

Magnetometry and resistivity detect different aspects of subsurface structures and should not therefore be expected to show the same features. The differences and coincidences in what is detected can sometimes add further information about those structures.

Superimposing the resistivity and magnetometry results shows that within the N (October 2007) survey area there is a strong association between the areas of high resistivity and some of the stronger magnetometry lines. The longest line of high resistivity, (marked by the yellow arrow), appears to be displaced from a parallel magnetometry line and has a central break where another magnetometry line crosses at right angles to the resistivity line. The other high resistivity signals all occur at the junction of crossing magnetometry lines.

Within the S (April 2007) survey area, a faint magnetometry line seems to pass between areas of low resistivity. The areas of high resistivity are all to the N near to the possible extension of the rectilinear features of the N survey area. There does seem to be some coincidence between the position of the high resistivity areas and the magnetometry features in this region.

### **Discussion:**

There is an area marked as ‘Copolite Works’ on an 1877 rail plan about 350 m E of Cantelupe Road almost opposite the survey areas. In many cases the exact position of fields dug for coprolites were not recorded. In these surveys the most plausible explanation of the sharp attenuation of clear rectilinear features is that a dividing line between a ‘worked’ area and an ‘unworked’ area runs almost parallel to the long side of the survey area, crossing through both magnetometry survey areas and particularly noticeably through the S resistivity survey area. The faint line across the S magnetometry survey probably represents the remains of a coprolite working structure. Given its position very near the edge of the cut off line this could be either a particularly deep starting ditch or perhaps the footings of a tramway to convey material to the works to the E. The latter may be more likely given that this track is of slightly higher resistivity and is not quite aligned with the attenuation seen in the N survey area. Any responses S of the dividing line are almost certainly related to the 19<sup>th</sup> century workings. Two moderate isolated ferrous type responses are visible in the N survey within the ‘worked’ area.

North of the dividing line, given the field walking finds and the general shape of the magnetometry and crop mark features, the structure would seem to be the remains of a Roman villa which was extensively modified or extended. The resistivity results suggest that originally solid foundations have been largely robbed out leaving only odd corner pieces which were not easy to remove. The longest, but broken, line of high resistance is perhaps the most interesting. This is crossed by a magnetometry line at the break indicating a later wall line, and is parallel to a magnetometry line suggesting that the residual foundations shown by the high resistance signal were not visible when the material of the magnetometry line was removed. This might therefore represent the earliest phase of the villa.

Raw data are available as separate appendices.

Magnetometry readings: 4/m, 1 m separation.

Resistivity readings: 1 m interval, 1 m separation.

Report by I Sanderson