



**Northamptonshire  
County Council**

# Northamptonshire Archaeology

Geophysical Survey at  
'Bannaventa', Whilton Lodge,  
Northamptonshire  
April 2006



Adrian Butler

January 2007

Report 07/12

## **Northamptonshire Archaeology**

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**QUALITY CONTROL**

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Approved by	Bill Boismier	<i>WAB</i>	22/01/07

**OASIS REPORT FORM**

<b>PROJECT DETAILS</b>		
Project name		Geophysical Survey at Bannaventa, Whilton Lodge, Northamptonshire
Short description (250 words maximum)	Northamptonshire Archaeology conducted a geophysical survey, on behalf of CLASP, on an area of land of approximately 5.2ha covering the site of a known Roman Small Town – Bannaventa, at Whilton Lodge, Northamptonshire. Magnetometer survey revealed a large sub rectangular town walls and double and triple ditched defences surrounding what appear to be building remains. A road, likely to be the Roman Watling Street was detected passing through the centre of Bannaventa.	
Project type (eg DBA, evaluation etc)		Geophysical Survey
Site status (none, NT, SAM etc)		SAM - NN152
Previous work (SMR numbers etc)		
Current Land use		Pasture
Future work (yes, no, unknown)		Unknown
Monument type/ period		Roman Small Town
Significant finds (artefact type and period)		
<b>PROJECT LOCATION</b>		
County		Northamptonshire
Site address (including postcode)		
Study area (sq.m or ha)		5.2ha
OS Easting & Northing (use grid sq. numbers)		SP646,611
Height OD		120m
<b>PROJECT CREATORS</b>		
Organisation		Community Landscape Archaeological Survey Project (CLASP)
Project brief originator		Steven Young
Project Design originator		NA
Director/Supervisor		Adrian Butler
Project Manager		Adrian Butler
Sponsor or funding body		CLASP
<b>PROJECT DATE</b>		
Start date		05 April 2006
End date		January 2007
<b>ARCHIVES</b>	<b>Location (Accession no.)</b>	<b>Content (eg pottery, animal bone etc)</b>
Digital	NA	Geophysical & GIS data
<b>BIBLIOGRAPHY</b>		
Journal/monograph, published or forthcoming, or unpublished client report (NA report)		
Title	Geophysical Survey at Bannaventa, Whilton Lodge, Northamptonshire	
Serial title & volume	NA Reports 07/12	
Author(s)	Adrian Butler	
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**GEOPHYSICAL SURVEY AT 'BANNAVENTA',  
WHILTON LODGE, NORTHAMPTONSHIRE,**

**APRIL 2006**

*ABSTRACT*

*Northamptonshire Archaeology conducted a geophysical survey on behalf of Community Landscape Archaeological Survey Project, on an area of land of approximately 5.2ha covering the site of a known Roman Small Town – Bannaventa, at Whilton Lodge, Northamptonshire. Magnetometer survey revealed a large sub rectangular town walls and double and triple ditched defences surrounding what appear to be building remains. A road, likely to be the Roman Watling Street was detected passing through the centre of Bannaventa.*

**INTRODUCTION**

Northamptonshire Archaeology conducted a geophysical survey at Whilton Lodge (Bannaventa), 1km west of Norton, Northamptonshire (Fig 1; NGR SP646,611) on behalf of Community Landscape Archaeological Survey Project (CLASP).

**Previous archaeological work**

Whilton Lodge (*Bannaventa*) is known as a Roman small town, located roughly halfway between Caves Inn (*Tripontium*) and Towcester (*Lactodorum*) on Watling Street. It is estimated from aerial photography to cover 16-22ha. The town may have developed in the first century AD. A defensive circuit of ditch and rampart may have been imposed on the core five hectares during the second or third centuries. Limited excavation work has identified a round house, rectangular sill beam structures and stone constructions towards the northern and southern ends of the town. A cemetery lies adjacent to Watling Street, south of the settlement (Taylor 2002, 5). Aerial photography shows a Roman villa north-west of Bannaventa. (RCHME 1981, 153).

**Topography and geology**

The centre of Bannaventa is situated on a prominence of glacial sand and gravel approximately 120m AOD, sloping down to the north, west and south. The survey area was immediately adjacent west of the A5 road, which bisects the town, and north of the Daventry Road. The field surveyed was under pasture at the time.

**GEOPHYSICAL SURVEY**

**Methodology**

Geophysical survey was carried out in accordance with English Heritage and the Institute

of Field Archaeologists Guidelines (EH 1995 & Gaffney, Gater and Ovendon 2002).

### **Magnetometer Survey**

Most materials exhibit a property known as *magnetic susceptibility* (MS) based on their iron oxide (magnetite) content. The contrast in MS between an archaeological feature and the surrounding substratum is often identifiable as a slight perturbation of the geomagnetic field. Such changes can be detected with a magnetometer. Negative cut-and-filled features such as ditches and pits usually are detectable as more highly magnetic because of the inclusion of high MS topsoil and cultural material in the fill and also bacterial processes which convert between none and magnetic iron oxides. Kilns, hearths and furnaces gain a *thermoremanent magnetism* (TRM) from extreme heating and are identifiable from very high magnetic values, other ceramic material such as concentrations of pottery will demonstrate a level of TRM. The greatest magnetism is displayed by iron (ferromagnetic). Stone structures may occasionally be identified, depending on the type of stone, the local geology and the MS contrast between them. Typically a stone wall may be identified as low magnetic anomaly, a depleted MS level compared to the substratum.

Surveys were carried out utilising a type of magnetometer common in archaeological usage, a fluxgate gradiometer. The difference is that ‘magnetometers’ tend to be ‘Total Field’ instruments which read the entire geomagnetic field whereas a ‘gradiometer’ is designed only to detect the subtle magnetic field changes (local magnetic gradient between two vertically mounted sensors) where it is located – just above ground level.

Intensive magnetometer survey at Whilton Lodge was undertaken using Bartington Grad601-2 fluxgate gradiometers. The Grad601-2 is constructed as a dual-sensor instrument with two vertical gradiometers separated on a yoke to enable two lines of survey to be recorded in tandem.

A total of 63 separate 30m x 30m grid-squares, totalling c5.2ha, were surveyed in detail, covering the majority of the small town area. Each grid square was traversed at rapid walking pace in zigzag (alternate north-south/south-north) traverses spaced at 1m intervals with data recorded every 0.125m along these (8 readings /m).

The data was analysed using Geoplot 3.00s software. Low (negative) magnetism is shown as black and high (positive) magnetism as white in the resultant greyscale plots. The following processing functions were carried out on the data. The ‘Zero Mean Traverse’ function was applied in order to bring the average level of each line of data into a balanced

zero. Small-scale extreme readings were excised and replaced with the local mean value.

The processed data is presented here in the form of a greyscale highlighting the magnetic anomalies (-15nT / +15nT scale, Fig 3) and interpretative plot (Fig 4) and are referred to directly in the following Survey Results section.

## RESULTS

It is immediately apparent from the dataset that magnetic enhancement of features at Bannaventa is extreme. What is unclear is the source of this enhancement, geological, thermoremanence, other cultural factors, etc.

The most striking aspect of the survey was the double and, in the south-west, triple-ditched defences. These were defined by linear, positive anomalies measuring 250m north-west to south-east and up to 130m perpendicular to that. The more south-easterly anomalies present a highly 'blurred' appearance, amalgamating to a single response over eight metres wide. Given that the features are on a slope and that a similar cropmark can be seen on aerial photography (Taylor 2002), it must be assumed that the defences become more complicated than simple ditch-and-rampart at this point, perhaps with the addition of a town wall. A zone relatively clear of anomalies and bounded by linear positive ditch-type features was detected, aligned almost parallel with the town defences and running through to the north and south. The features is almost certainly a road, probably the original line of the Roman Watling Street, since the current A5 bends around the town (Fig 1).

Intense positive magnetic anomalies, both linear and more amorphous, detected both within the defences and along the road to the south-east, are considered to reflect demolished building remains, stone, brick, tile etc. Unfortunately no significant interpretation of building forms can be made, due to the density and fragmentary nature of anomalies. An 'L'-shaped positive anomaly was detected central to the defended area, adjacent to the modern A5 road. The feature is reminiscent of part of a ditched enclosure. A short, ferrous pipeline was identified in the same area.

Other linear ditches and sub-rectangular, ditched enclosures were located to the north-west, orientated at an acute angle to the defences. A weak but broad, sinuous, positive anomaly interpreted as a trackway, was identified orientated south-east through the enclosures, aligned parallel with the western outer defences. A similar, possible track was recognized aligned towards the south-west, through the building remains in the south of the survey

area.

Extensive evidence of medieval cultivation is apparent in the survey data. Ridge and furrow was detected very clearly in the quieter areas of data, orientated north-east to the south-west. Following the furrow lines it becomes evident that the building remains have been highly affected by ploughing, concentrating along the same alignments.

## **CONCLUSION**

Magnetometer survey at Bannaventa has revealed probable building remains of uncertain form, arranged as a ribbon development along the line of Watling Street. These anomalies comprise major magnetic enhancement over the local background level. Often stone foundations are detected as negative magnetic anomalies, as for example, were encountered at Irchester Roman Town (Butler and Yates 2006). The reversal of the field and scale of the anomalies, may indicate areas of burnt building material such as was suggested for the Northeast Quadrant of the Wroxeter magnetometer survey (Gaffney *et al* 2000, 91). A large area of the survey was dominated by the double and triple ditched defences enclosing the core of Bannaventa. Survey also revealed ditched enclosures and trackway to the north of the town defences. The fact that the line of the more recent A5-Watling Street curves around, apparently respecting the defended part of the settlement and thus shifting up to 150m east of the original road, may be significant in terms of post-Roman activity. The site as a whole appears likely to be heavily truncated by medieval ploughing.



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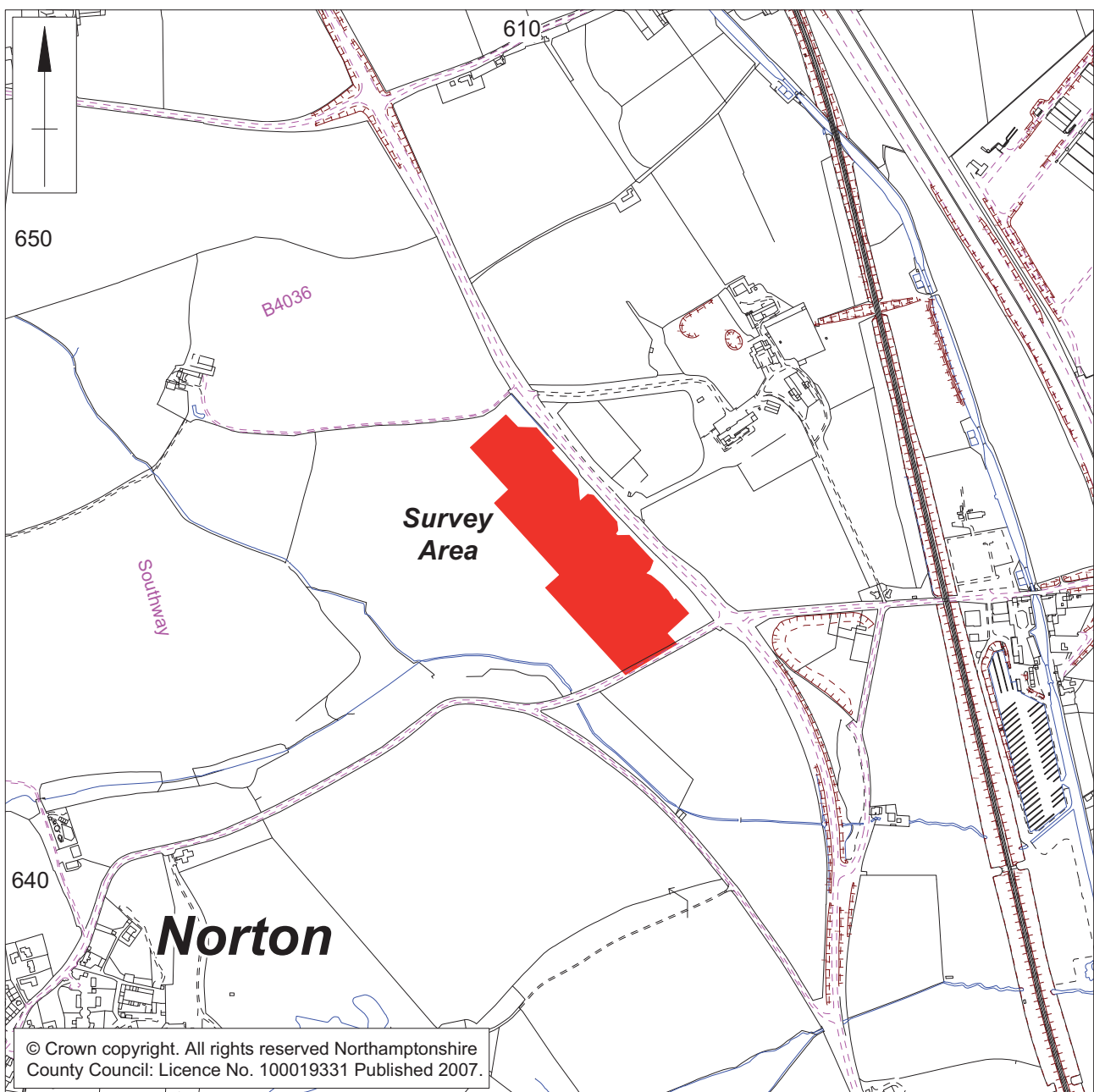
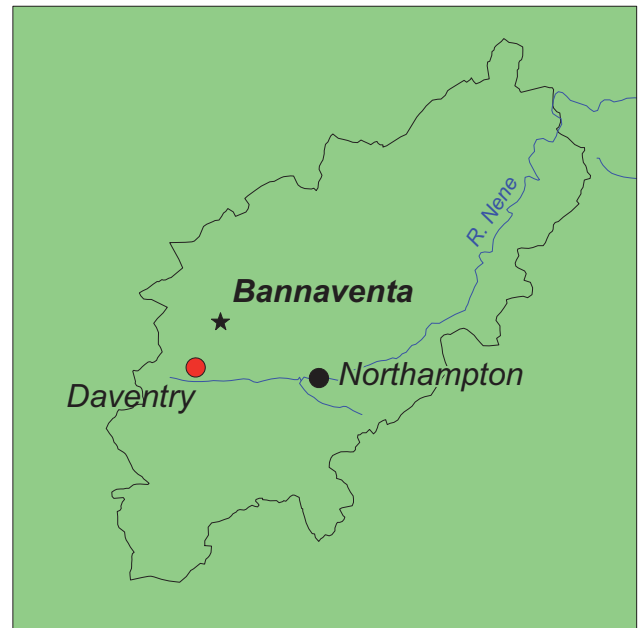
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Scale 1:10,000

Site Location Fig 1



Scale 1:2500

Gradiometer Survey Results, Fig 2

