

Northamptonshire Archaeology

Geophysical Surveys at
Barn Close and Harpit
Harpole, Northamptonshire
January 2006 – December 2007



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April 2008

Report 08/70

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**NORTHAMPTONSHIRE ARCHAEOLOGY
NORTHAMPTONSHIRE COUNTY COUNCIL**

APRIL 2008

**GEOPHYSICAL SURVEYS
AT BARN CLOSE AND HARPIT,
HARPOLE, NORTHAMPTONSHIRE
JANUARY 2006 – DECEMBER 2007**

Report 08/70

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QUALITY CONTROL

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OASIS REPORT FORM

PROJECT DETAILS		
Project name	Geophysical Surveys at Barn Close and Harpit, Harpole, Northamptonshire, January 2006 – December 2007	
Short description (250 words maximum)	Northamptonshire Archaeology conducted geophysical survey, on behalf of CLASP, on archaeological sites considered to contain Roman villas at Barn Close and Harpit, near Harpole, Northamptonshire. At Barn Close, gradiometer survey revealed a succession of likely ditched field systems, at the centre of which earth resistance survey identified the remains of a probable Roman courtyard villa. Two kilometres south at Harpit, further field systems were detected by gradiometry, but resistance survey identified few indications of masonry structures.	
Project type	Geophysical survey	
Site status (none, NT, SAM etc)	NCCHER: MNN8652 & MNN3728	
Previous work (SMR numbers etc)	Fieldwalking, Geophysical survey (Fisher 2003; Masters & Bunn 2003), Test pits	
Current Land use	Arable	
Future work	Unknown	
Monument type/ period	Unknown	
Significant finds (artefact type and period)	Roman Villa	
PROJECT LOCATION		
County	Northamptonshire	
Site address (including postcode)		
Study area (sq.m or ha)		
OS Easting & Northing	46890 26200 & 46000 25840	
Height OD		
PROJECT CREATORS		
Organisation	Northamptonshire Archaeology	
Project brief originator	Stephen Young, CLASP	
Project Design originator	NA	
Director/Supervisor	Adrian Butler	
Project Manager	Adrian Butler	
Sponsor or funding body	Clasp / Harpole Parish Council	
PROJECT DATE		
Start date	January 2006	
End date	March 2008	
ARCHIVES	Location (Accession no.)	Content (e.g pottery, animal bone etc)
Physical	ECB2861	
Paper	Northamptonshire Archaeology	Survey notes
Digital	Northamptonshire Archaeology	Geophysical data
BIBLIOGRAPHY		
Journal/monograph, published or forthcoming, or unpublished client report (NA report)		
Title	Geophysical Surveys at Barn Close and Harpit, Harpole, Northamptonshire, January 2006 – December 2007	
Serial title & volume	NA reports 08/70	
Author(s)	Adrian Butler	
Page numbers	16	
Date	17/04/08	

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Cover Image adapted from *Conjectural Model of Whitehall Farm Villa* by Nigel Stillman and Jeremy Cooper <http://www.whitehallvilla.co.uk/htmlfiles/model1.html>

GEOPHYSICAL SURVEYS AT BARN CLOSE AND HARPIT,

HARPOLE, NORTHAMPTONSHIRE

JANUARY 2006 – DECEMBER 2007

ABSTRACT

Northamptonshire Archaeology conducted geophysical survey, on behalf of CLASP, on archaeological sites considered to contain Roman villas at Barn Close and Harpit, near Harpole, Northamptonshire. At Barn Close, gradiometer survey revealed a succession of likely ditched field systems, at the centre of which earth resistance survey identified the remains of a probable Roman courtyard villa. Two kilometres south at Harpit, further field systems were detected by gradiometry, but resistance survey identified few indications of masonry structures.

1 INTRODUCTION

Northamptonshire Archaeology conducted geophysical surveys on behalf of Stephen Young of Community Landscape and Archaeology Survey Project (CLASP), in January 2006 in two areas of land of archaeological interest near Harpole, Northamptonshire ('Barn Close' NGR SP 6895 6195 & 'Harpit' NGR SP 6845 5995; Fig 1). Magnetometer and earth resistance surveys were utilised to expand on previous geophysical and surface surveys at both sites.

2 ARCHAEOLOGICAL BACKGROUND

The area around Harpole is known to form part of a wider Roman landscape dominated by villa estates (S Young pers comm). Most notable are Roman buildings which have been recorded north-west (NCCHER: MNN8652) and south-west (NCCHER: MNN3728) of Harpole adjacent to the A45, in the area of Harpit. Fieldwalking scatters of Roman material have been recovered from both Harpit and Barn Close. Data plots are accessible online for Barn Close (http://www.olioweb.me.uk/clasp/LOCAL/SITE_MAPS/har2/html_pages/har2_frame.html) and Harpit (http://www.olioweb.me.uk/clasp/LOCAL/SITE_MAPS/har1/html_pages/har1_frame.html).

Previous geophysical work has been carried out at both sites. Magnetometer survey by Fisher (2003) at Barn Close revealed extensive evidence of field systems and ditched enclosures. Masters and Bunn (2003) also carried out a 1.65ha survey at Harpit, indicating a series of enclosures and possible building remains.

3 TOPOGRAPHY AND GEOLOGY

Barn Close is situated on a ridge to the north of and overlooking Harpole village, the area of interest consisting of two fields sloping down north and south of the hill top. The site was used for arable agriculture at the time of the survey. The drift geology of Barn Close is predominately Glacial Boulder Clay (British Geological Survey, England and Wales Sheet 185, 2002).

Harpit encompasses a pair of flat fields, also sown to arable crop, to the north of the A45 Northampton Road, on a geology of Marlstone Rockbed.

4 METHODOLOGY

All fieldwork was carried out in accordance with English Heritage (EH 1995) and the Institute of Field Archaeologists Guidelines (Gaffney, Gater and Ovendon 2002). The areas of survey were defined in advance by Stephen Young of CLASP.

Earth Resistance Survey

Prospection by detailed earth resistance was carried out utilising Geoscan Research RM15 resistance meters in a 0.5m spaced 'Twin Probe' electrode array. Samples were taken every 1.0m x 1.0m over a grid of 20m x 20m squares set out using tape and optical square on each site.

Gradiometer Survey

All intensive magnetometer survey during 2006 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 grid of 30m x 30m squares, were set out by hand at Barn Close and at Harpit. Each grid square was traversed at rapid walking pace in zigzag traverses spaced at 1m intervals, with data recorded every 0.25m along these.

Processing

All data was analysed using Geoplot 3.00s software. Electrical resistance data grids were matched to provide a constant background level, with the 'De-spike' function applied in order to remove extreme outlying data values. The processed data was then resampled from 1.0m x 1.0m to 0.5m x 0.5m to give a smoother appearance.

Gradiometer data was treated with the 'Zero Mean Traverse' function in order to bring the average level of each line of data into a balanced zero and thus the entire dataset onto a constant background level against which anomalies are highlighted. No other processing was necessary.

The processed data is presented here in the form of greyscale images, georectified onto scale Ordnance Survey mapping. Low (negative) data is shown as white and high (positive) data as black in the resultant greyscale plots, for both resistance and magnetic readings (Figs 2, 4, 7 and 9). Interpretive plots have been constructed from the results and are referred to directly in the following Survey Results section (Figs 3, 5, 8 and 10).

5 SURVEY RESULTS: BARN CLOSE

Barn Close Gradiometry (Figs 2 & 3)

Magnetometer survey was used to expand the 2003 survey 60m further down slope to the north-west, from Fisher's (2003) Area 2. The new block (Area 2A) occupies an L-shaped area of 1.14ha.

The palimpsest of magnetic anomalies detected in Areas 1 and 2 was found to continue into 2A. It would appear to represent a rectilinear field system on a north-east to south-west alignment. The boundary of the system may be reflected in ditch F, in the south of Area 2A and a similarly aligned south-west ditch at E in Area 1 which turns to the north-west and crosses into Area 2 near A. A further length of ditch was detected parallel to the 'boundary' 20m down slope to the north. A long sinuous ditch anomaly continues north-west from Area 1, through Area 2 and narrower in Area 2A. In places the sinuous feature resolves into a pair of anomalies and it has been suggested that the feature may represent a trackway (S Young pers comm). The ovoid enclosure B, previously detected in Area 2, was completed along the northern edge in Area 2A.

Taking the possible field and enclosure system in Fields 1 and 2 as a unit, it would appear that it must pre or post- date the greatest expansion of the villa building (centred on A). Ditch anomalies were detected passing through the area believed to contain the building, although several positive magnetic anomalies that aligned well with resistance anomalies are believed likely to represent wall foundations rather than simple ditches.

Re-examination of the 2003 data in the light of results of resistance survey (below) and CLASP surface collection has suggested that areas identified as 'magnetic noise' are likely to reflect

distributions of Roman building waste (stone, tile and tesserae) both *in-situ* and in the ploughsoil. Notably, a large zone covering 50m either side of the field boundary in Areas 1 and 2 can be seen to have a slight magnetic enhancement, indicating the presence of the demolished villa.

Barn Close Resistance (Figs 4 & 5)

A total area of 1.1ha of geoelectrical prospection was carried out in two tranches (2006 & 2007), either side of a north-east to south-west aligned hedged field boundary.

High resistance linear anomalies were detected forming a rectangular structure 40m long by 10m wide orientated south-east from the field boundary in the southern field. Another high resistance anomaly extended this structure a further 10m cell to the south-east. An area of diffuse high readings on the eastern flank of the features may indicate building collapse to this side. Broad resistive anomalies to the west of the building possibly indicate yard surfaces. High resistance anomalies detected in the south-western area of the survey block may indicate a further structure on the corner of the main building.

Survey across the north-west field boundary detected high readings indicating that the rectangular structure extends into the field to the north-west and that a possible range of rooms extends 63m to the north-east at right angles to the first structure. As with the initial building, a 'halo' of high readings around the features may indicate rubble deposits and a broad anomaly a possible floor. Amorphous areas of increased resistance could possibly reflect the presence of surviving floors. The CLASP fieldwalking shows an increase in tesserae and floor tile in this area.

The second tranche of survey extended further north-east in the southern field. This revealed another sub-rectangular high resistance structural feature, again with two possible rooms, on a north-west to south-east orientation, parallel with the first building range. The two ranges were approximately 60m apart, with high resistance anomalies in the south-western half. These linear features are of unknown provenance, but could represent further structural elements such as drains and conduits, or possible smaller buildings.

6 SURVEY RESULTS: HARPIT

Harpit Gradiometry (Figs 7 & 8)

Magnetometer survey at Harpit extended over 0.54ha in the field directly adjacent to the north of Masters and Bunn's (2003) survey. Positive and negative magnetic banding was detected orientated east-west across both fields, and most likely represents medieval ridge and furrow cultivation. The pair of surveys revealed a large number of linear positive magnetic anomalies, indicating ditches,

orientated roughly north-south and east-west, not respecting the current boundary between the two fields.

The southern field was found to contain a large (110m x 80m+) ditched enclosure, aligned approximately east-west, with an entrance on the east side, but the southern extent cut by the A45. Stephen Young (pers comm) has suggested, with good evidence from CLASP surveys, that the villa building was situated towards the south-western corner of the southern field. The large enclosure may then have defined the villa complex, the focus of discrete and small linear positive anomalies in the south of the enclosure indicating building remains (Masters and Bunn 2003, 3-4).

Positive linear anomalies aligned east-west and crossing south to north between fields, are thought likely to reflect ditched field systems of Roman date, though not necessarily all contemporary. Several discrete anomalies indicating pits were identified in the northern field. The field enclosures appear to continue out of the survey area north, east and west, probably part of the larger agricultural landscape around the villa.

Harpit Resistance (Figs 9 & 10)

A small block (120m x 40m) of earth resistance survey was carried out in the south-west of the southern field in an attempt to resolve any substantial remains of Roman structures. A set of higher resistance anomalies were detected, although electrical contrast was found to be low. Those anomalies central and west in the area, though intermittent, could be seen as forming two sets of parallel walls at ninety degrees to each other – east-west and north-south. On the northern edge of the block were three area anomalies that may reflect flooring, large structures or collapse. None of the anomalies are easily comparable to the results of the gradiometer survey, but could be indications of part of a large structure situated in the south-west of the field.

7 CONCLUSION

Geophysical surveys on two suspected Roman villa sites at Barn Close and Harpit, Harpole have succeeded in identifying parts of a probable enclosed Roman farming landscape. At Barn Close, survey characterised the likely footprint of a possible courtyard villa, including an eastern and western wing and areas of magnetic response from building material remains. A synthesis of the geophysical evidence from both techniques (Fig 6) shows that the ditches that define the putative field systems align well with the villa footprint. Finds of building stone, floor, roof and box flue tile, and tesserae made by CLASP fieldwalking all agree extremely well with the suggested villa shape. The overlapping character of the anomalies indicates some degree of chronological

stratigraphy in the development of the villa building and the fields. The overall north-west to south-east orientation of the features, including later ridge-and-furrow is a function of the topography of the site. The villa was situated astride the ridge with a pleasing aspect, land falling away on both sides on the aforementioned alignment.

Survey at Harpit expanded the mapping of ditched field systems north of Masters and Bunn's 2003 survey adjacent to the A45. Earth resistance survey was of limited success in locating masonry structures in the south-west of the site, although a possible 'T-shape' of parallel walls was identified. It would appear likely that any building remains may be located further west or more to the east, within the large sub-rectangular enclosure. The possibility exists that the structure was entirely removed by 19th-century antiquarian excavation, or the construction of the A45 dual carriageway.

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Gaffney, C, Gater, J, and Ovendon, S, 2002 *The Use of Geophysical Techniques in Archaeological Evaluations*, Institute of Field Archaeologists Technical Paper, **6**

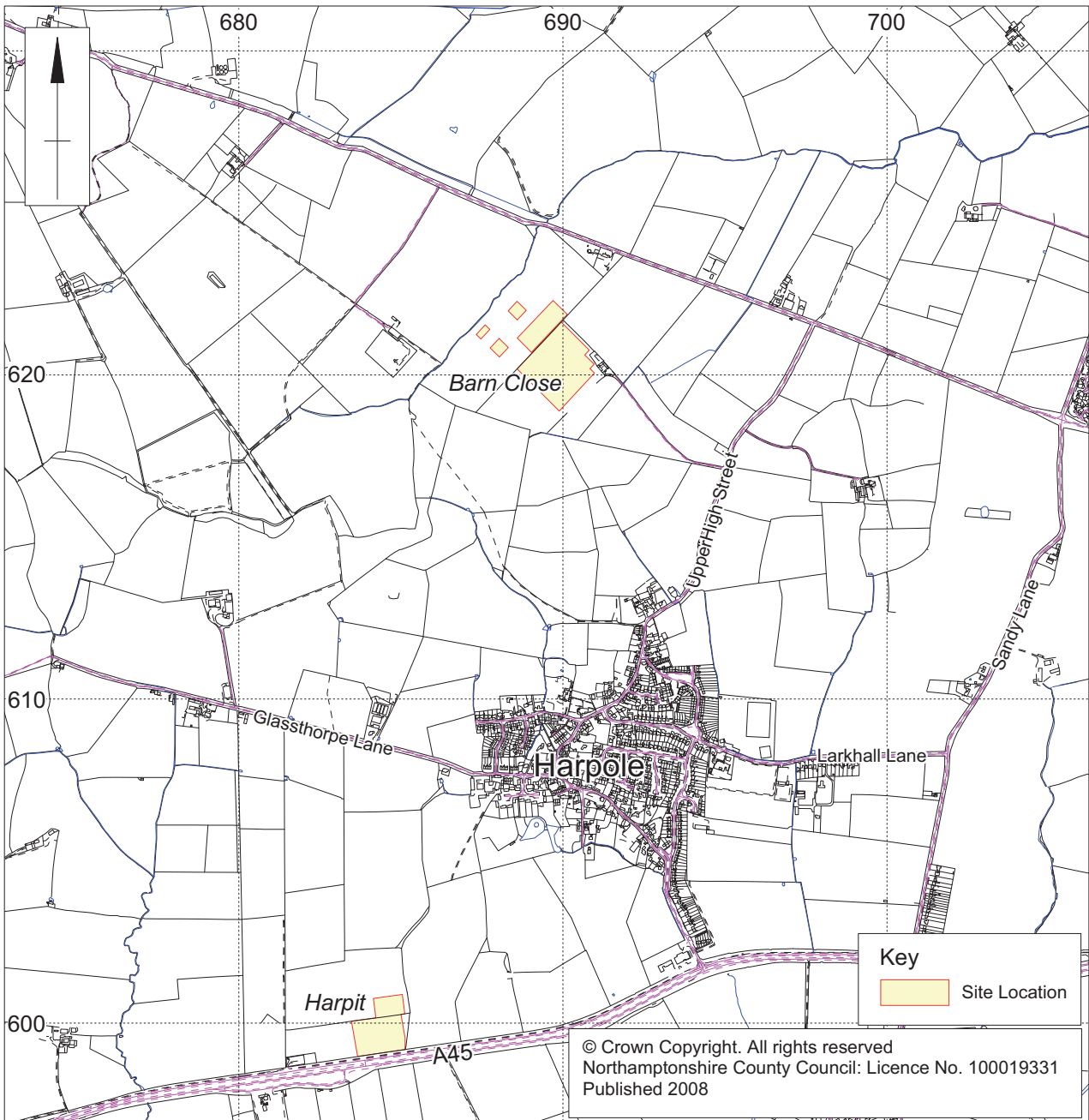
Masters, P, and Bunn, D, 2003 *Fluxgate Gradiometer Survey: Land at Harpole, Northamptonshire*, Pre-Construct Geophysics

HARPOLE: BARN CLOSE AND HARPIT

Northamptonshire Archaeology

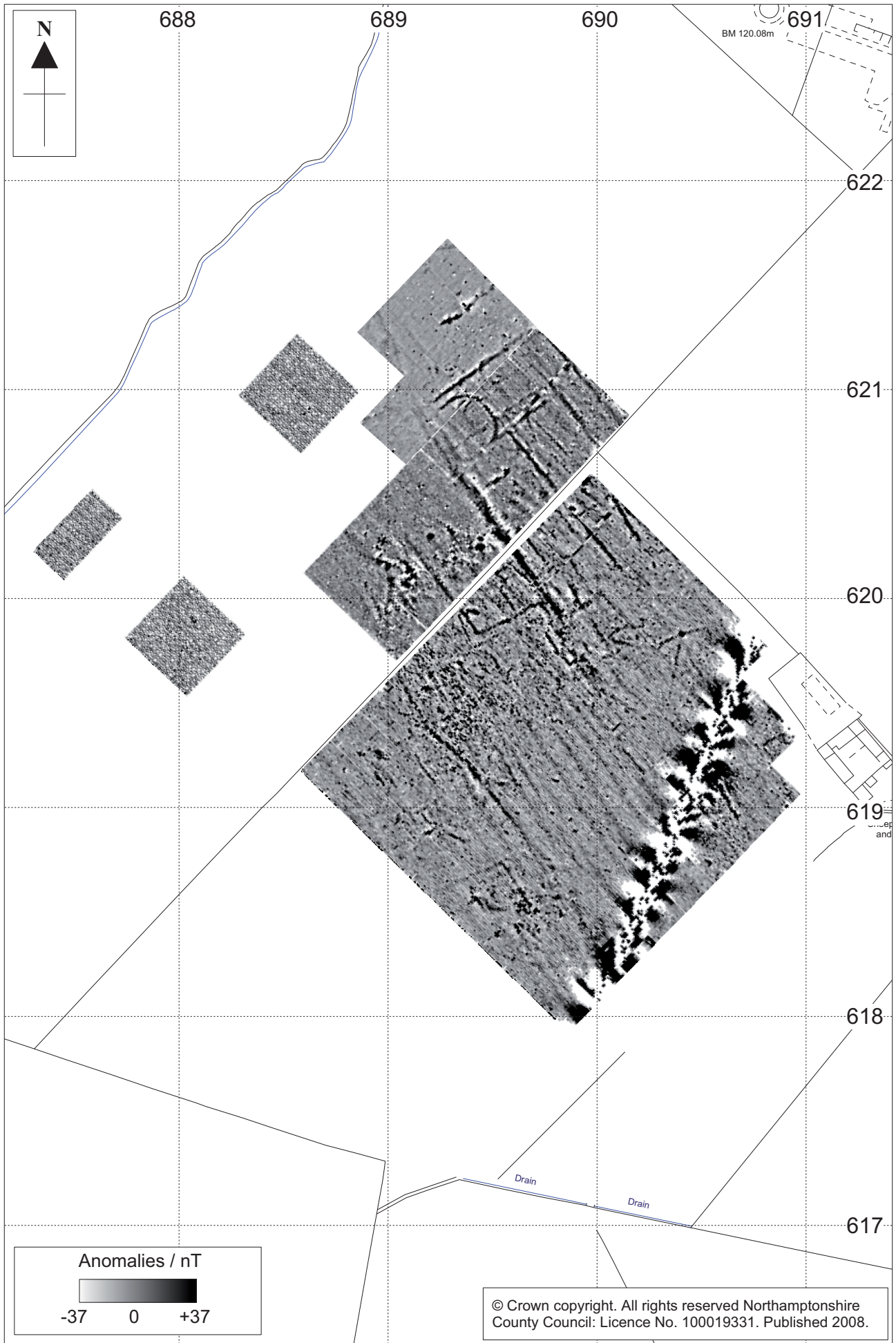
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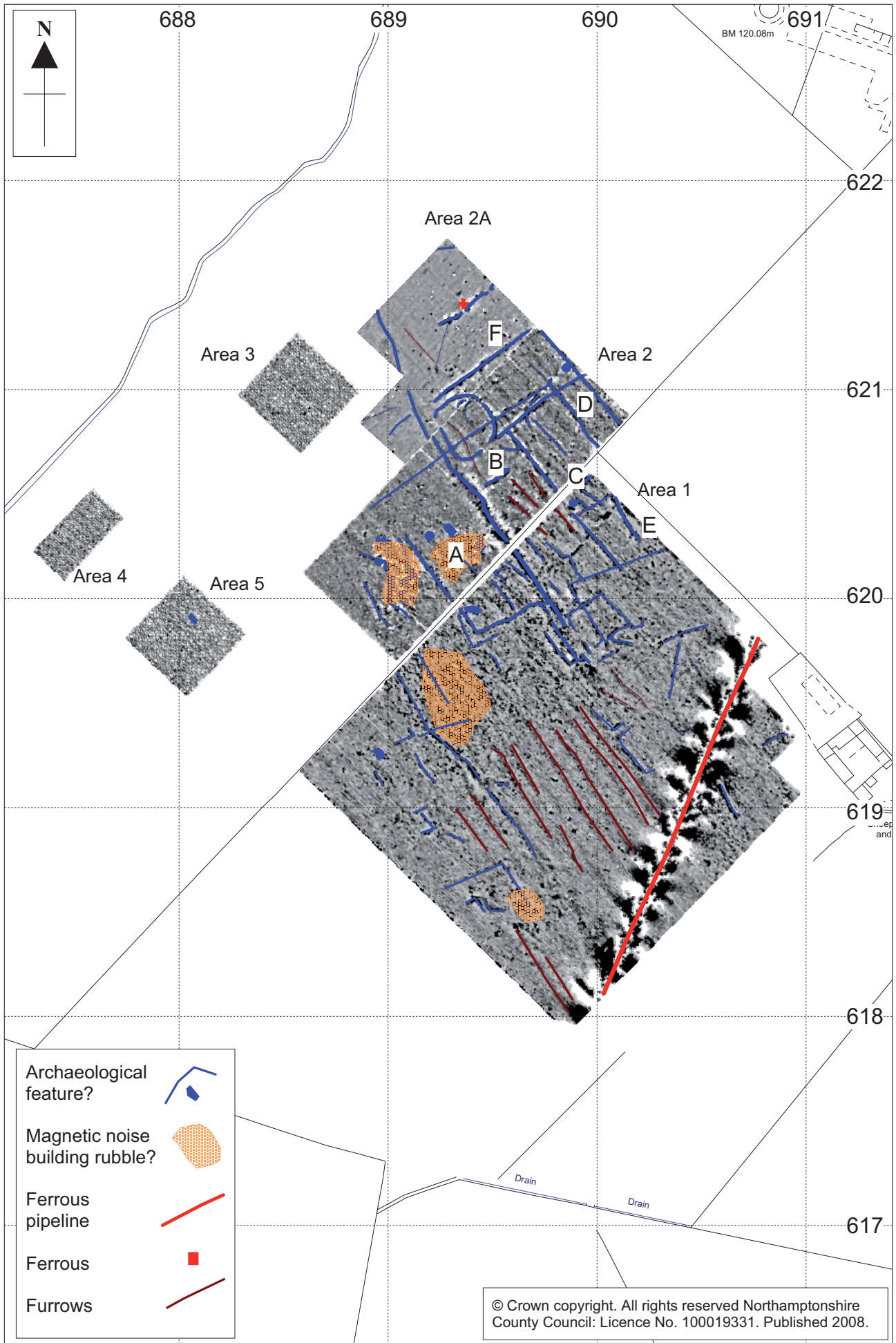


Scale 1:20,000

Site Locations Fig 1

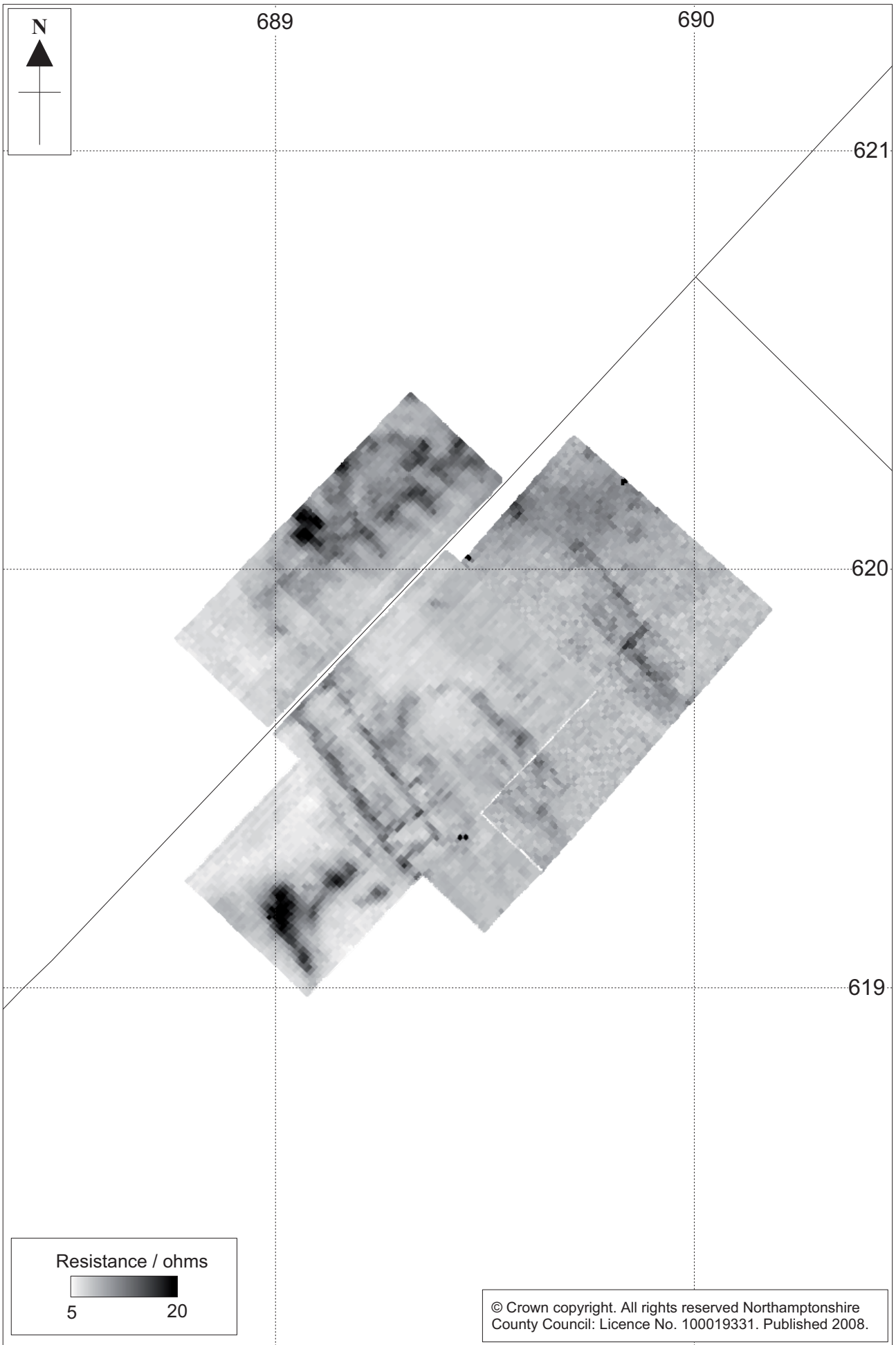


Scale 1:2500 Barn Close Intensive Gradiometer Survey Results with 2003 survey Fig 2



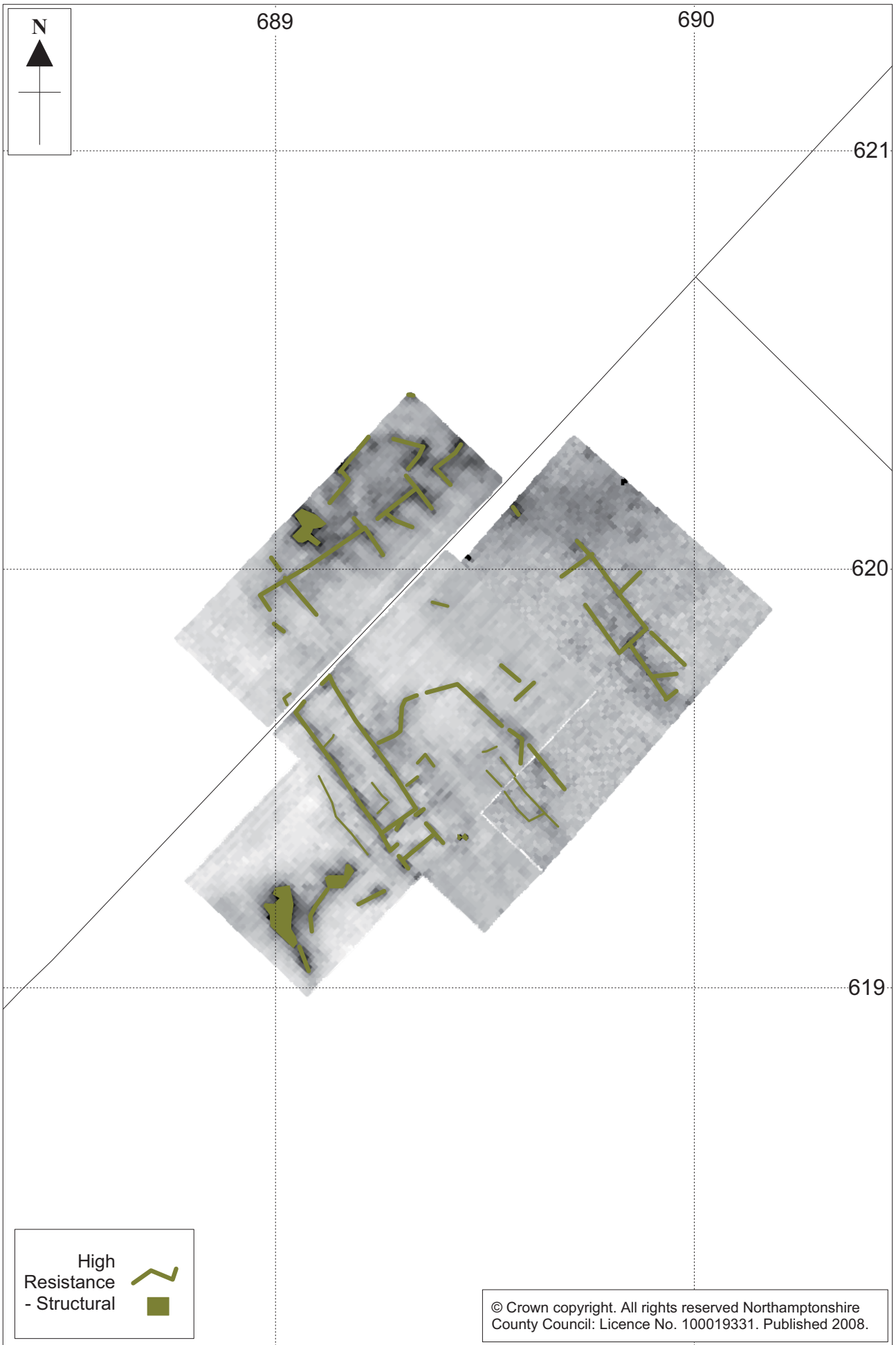
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Barn Close Intensive Gradiometer with Interpretation Fig 3



Scale 1:1250

Barn Close Detailed Resistance Survey Results Fig 4



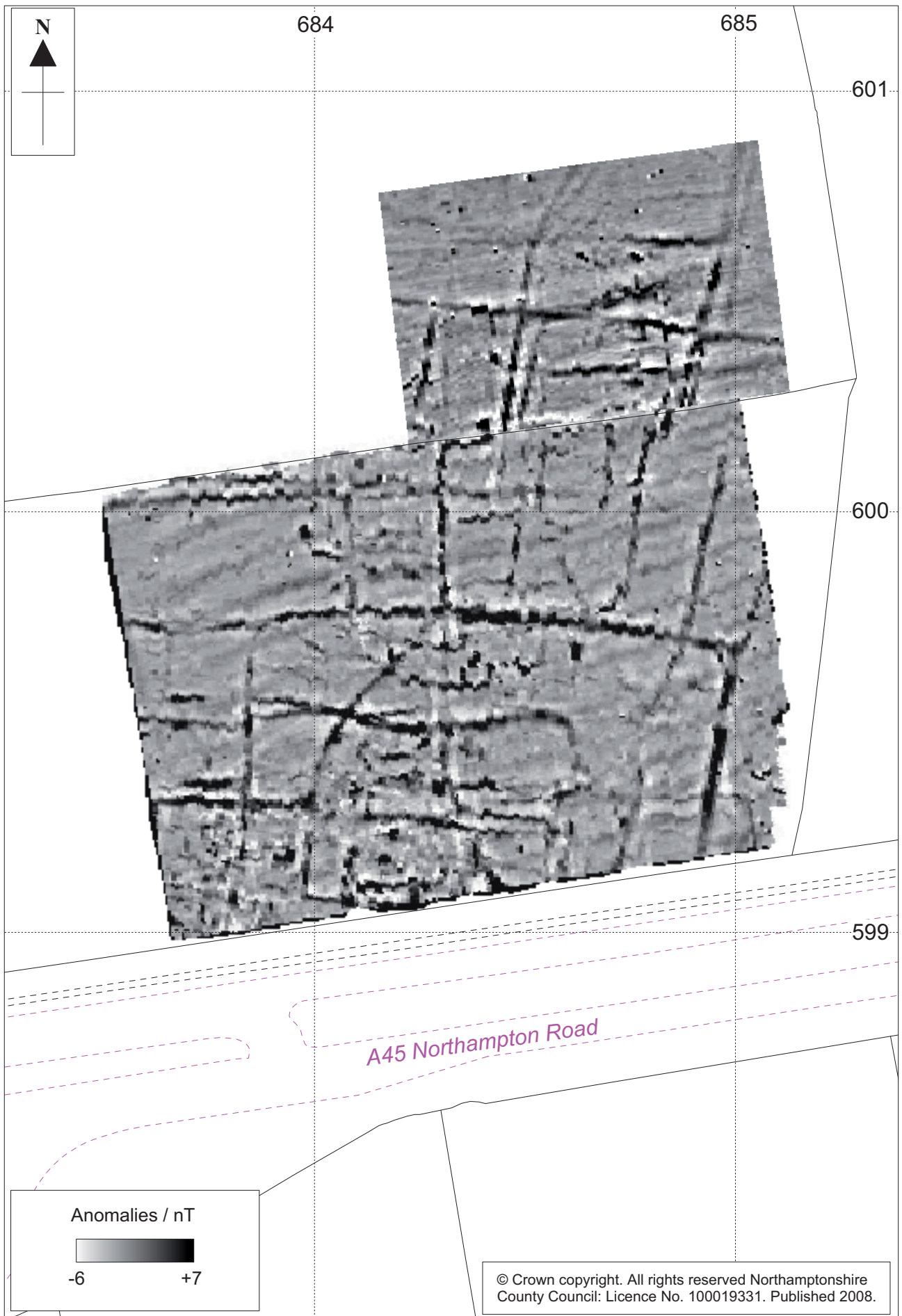
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Barn Close Detailed Resistance Survey with Interpretation Fig 5



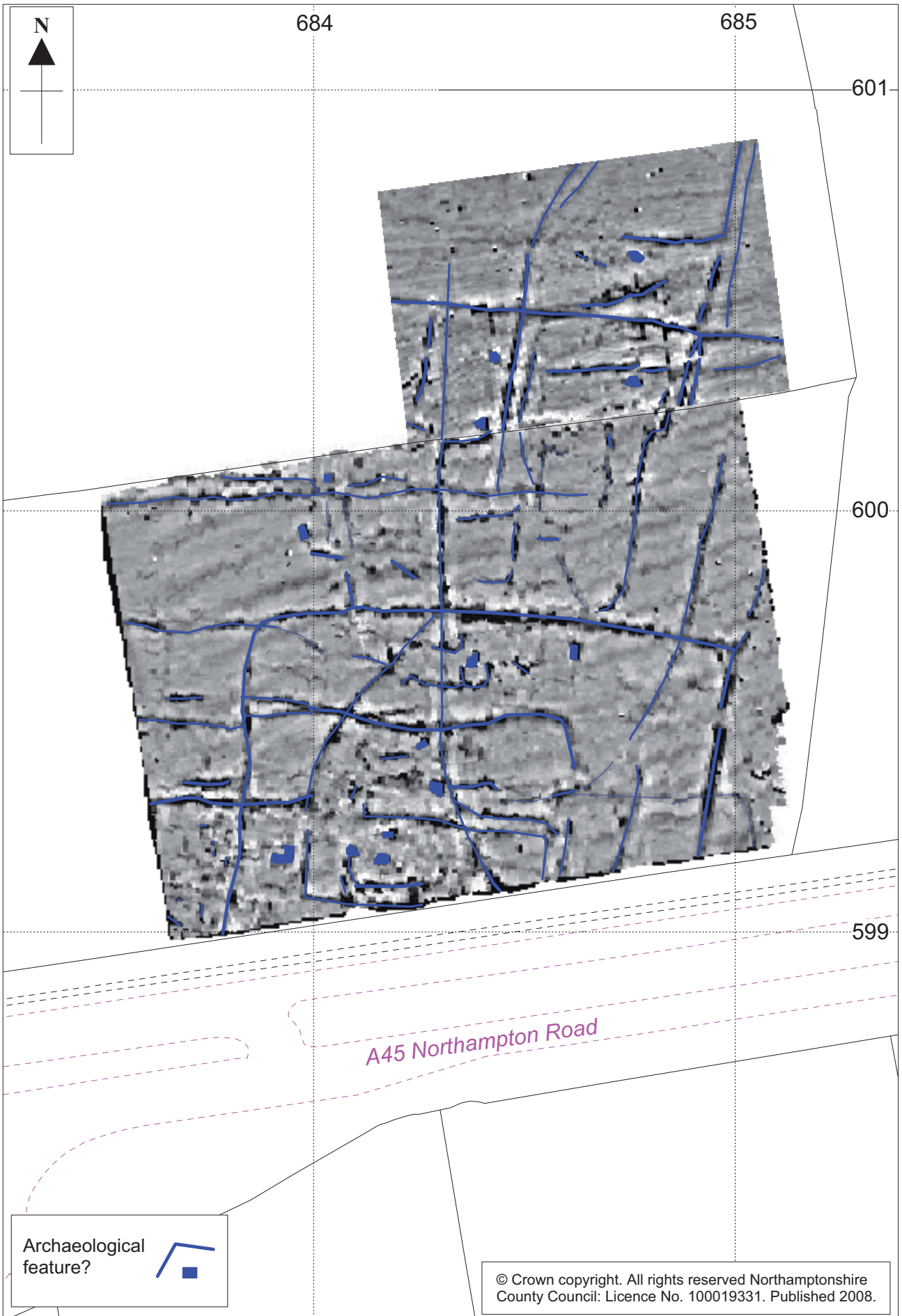
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Barn Close Synthesis of Survey Interpretations Fig 6



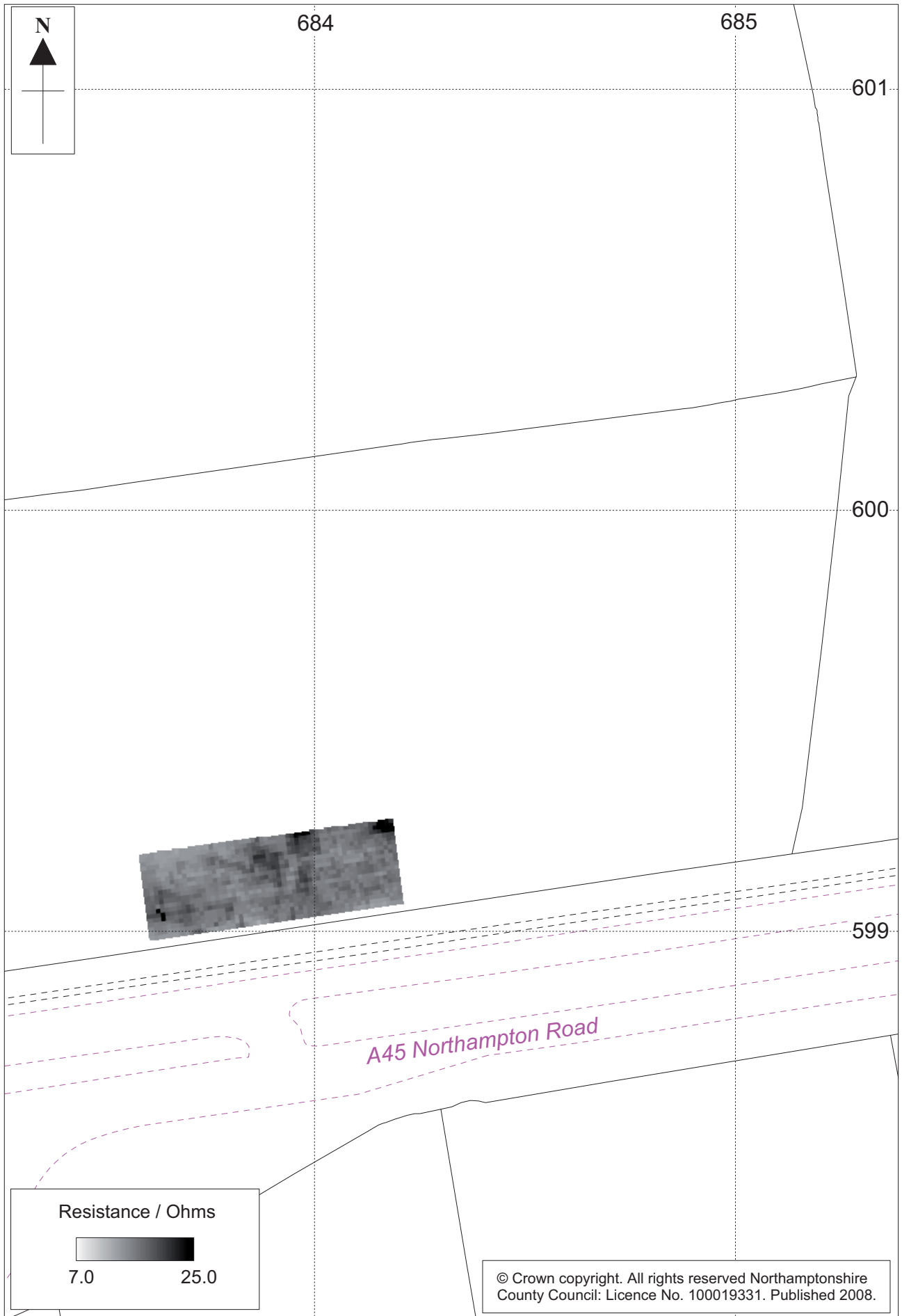
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Harpit Intensive Gradiometer Survey Results Fig 7



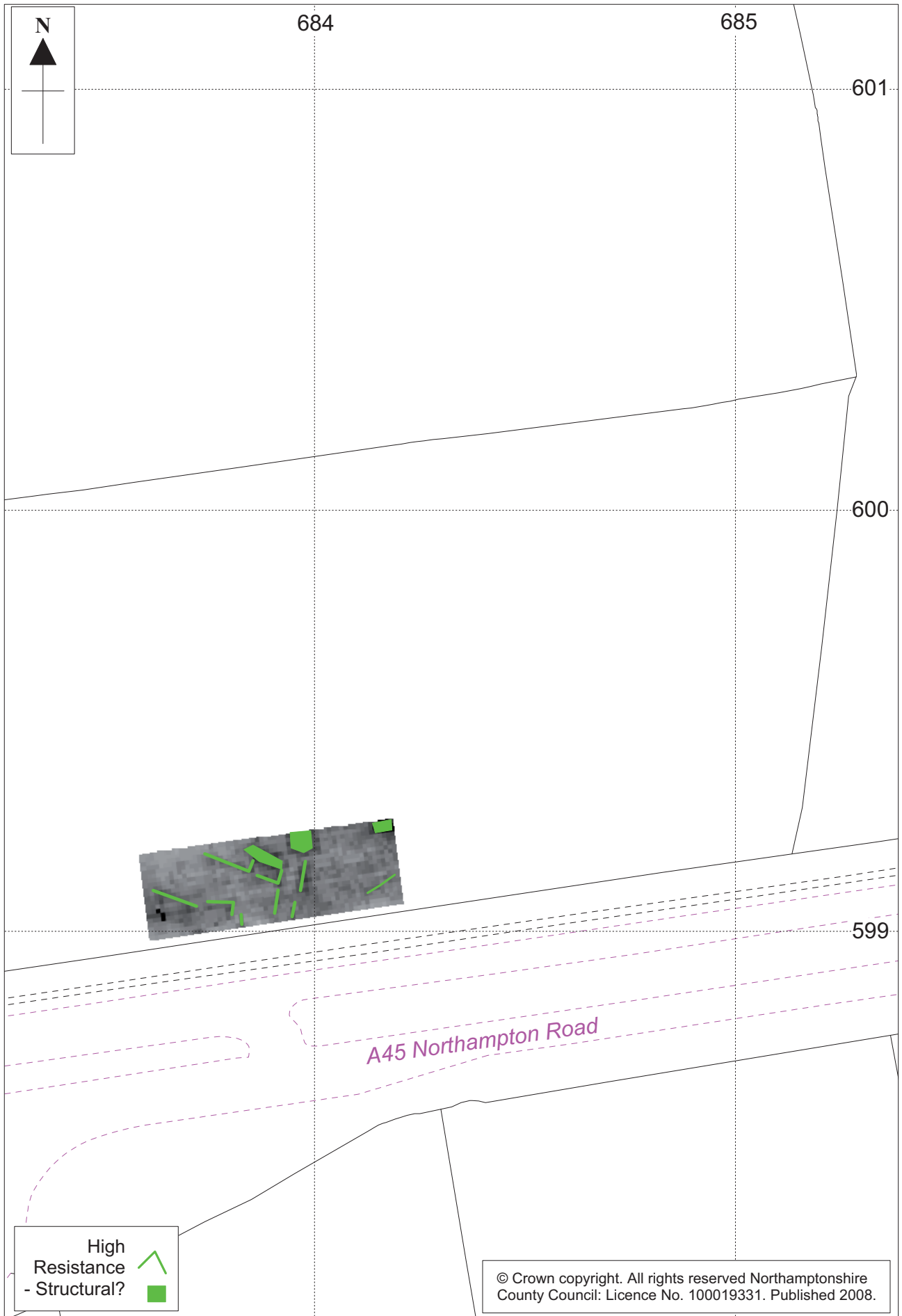
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Harpit Intensive Gradiometer Survey with Interpretation Fig 8



Scale 1:1250

Harpit Detailed Resistance Survey Results Fig 9



Scale 1:1250

Harpit Detailed Resistance Survey with Interpretation Fig 10