Northamptonshire County Council

Northamptonshire Archaeology

Archaeological Geophysical Survey and Trial Trench Evaluation at Northycote Farm, Bushbury Wolverhampton

August 2009

Mark Patenall and John Walford

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Report 09/122

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***OASIS* REPORT FORM**

PROJECT DETAILS		
Project name	Geophysical Survey and Trial Trench Evaluation at Bushbury, Wolverhampton.	
Short description (250 words maximum)	Northamptonshire Archaeology undertook a geophysical survey and trial trench evaluation prior to the installation of a car park on a small (0.1ha) pasture field adjacent to farm buildings at Northycote Farm, Bushbury, Wolverhampton. Part of the farm is used for rare breeds of animals with the remaining buildings as offices, storerooms and a café. The surrounding area is open parkland. Earth resistance survey identified some possible building remains but magnetic gradiometer survey provided little useful data. The subsequent excavation of two trenches, totalling 37 linear metres, uncovered the remains of a brick-built barn *c* 19th to 20th century in date and modern building debris.	
Project type (eg DBA, evaluation etc)	Geophysical survey and trial trench evaluation	
Site status (none, NT, SAM etc)		
Previous work (SMR numbers etc)	DBA (McAree 2005)	
Current land use	Pasture	
Future work (yes, no, unknown)	Unknown	
Monument type/ period	Recent farm buildings	
Significant finds (artefact type and period)		
PROJECT LOCATION		
County	West Midlands	
Site address	Bushbury, Wolverhampton	
Study area (sq.m or ha)	0.1ha	
OS Easting & Northing	3 9298 30319	
Height OD	*c* 142m	
PROJECT CREATORS		
Organisation	Northamptonshire Archaeology (NA)	
Project brief originator	Mike Shaw, Black Country Archaeologist	
Project Design originator		
Director/Supervisor	Ian Fisher and Mark Patenall (NA)	
Project Manager	Adrian Butler and Ian Soden, Northamptonshire Archaeology	
Sponsor or funding body	Wolverhampton City Council	
PROJECT DATE		
Start date	20th July 2009	
End date	14 th September 2009	
ARCHIVES	Location (Accession no.)	Content (eg pottery, animal bone etc)
Physical	n/a	
Paper		Site survey records and one archive box of site documents
Digital		Geophysical data, GIS mapping, one CD of digital photographs, report and DXF data
BIBLIOGRAPHY	Journal/monograph, published or forthcoming, or unpublished client report (NA report)	
Title	Archaeological Geophysical Survey and Trial Trench Evaluation at Northycote Farm, Bushbury, Wolverhampton, August 2009	
Serial title & volume	NA Reports 09/122	
Author(s)	Mark Patenall and John Walford	
Page Numbers	6 text, 14 Figures	
Date		

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Back cover: View of the site before excavation, looking north-east

ARCHAEOLOGICAL GEOPHYSICAL SURVEY AND TRIAL TRENCH EVALUATION AT NORTHYCOTE FARM, BUSHBURY, WOLVERHAMPTON, AUGUST 2009

ABSTRACT

Northamptonshire Archaeology undertook a geophysical survey and trial trench evaluation prior to the installation of a car park on a small (0.1ha) pasture field adjacent to farm buildings at Northycote Farm, Bushbury, Wolverhampton. Part of the farm is used for rare breeds of animals with the remaining buildings as offices, storerooms and a café. The surrounding area is open parkland. Earth resistance survey identified some possible building remains but magnetic gradiometer survey provided little useful data. The subsequent excavation of two trenches, totalling 37 linear metres, uncovered the remains of a brick-built barn c 19th to 20th century in date and modern building debris.

1 INTRODUCTION

In August 2009, Northamptonshire Archaeology (NA) undertook an evaluation comprising an archaeological geophysical survey and trial trenches of a pasture field, 0.1h in extent, adjacent to farm buildings at Northycote Farm, Bushbury, Wolverhampton (NGR: SJ 9298 0319, Fig 1). The work was commissioned by Wolverhampton City Council prior to the construction of a car park. The aim of the project was to investigate the possible existence of a *c* 17th-century tithe barn or contemporary structures on the site.

Two forms of geophysical survey were undertaken, namely earth resistance survey and magnetic gradiometry. This work was followed by the excavation of two trial trenches, totalling 37 linear metres. The positions of these trenches were determined by Mike Shaw, Black Country Archaeologist, in collaboration with Northamptonshire Archaeology.

This report presents the findings of the investigation and complies with Appendix 4 of the English Heritage procedural document *Management of Archaeological Projects 2* (EH 1991), relevant sections of *Management of Research Projects in the Historic Environment* (EH 2006), and appropriate national standards and guidelines, as recommended by the Institute for Archaeologists (IfA).

2 SITE BACKGROUND

2.1 Archaeological and historical background

The site was the subject of a desk based assessment prepared by NA (McAree 2005). The farm dates back to at least 1600 when it belonged to the Underhill family

(McAree 2005). It originally faced north, with the present street frontage at the back of the house. The farm was built as two houses of two stories with two bays to the west forming one dwelling and three bays forming the other dwelling. The three-bay structure had a chimney block between the two western rooms; the eastern room was open to the roof, while all the others had first floor rooms for sleeping and/or storage.

Charles (1979) and Litherland and Jones (1990) have argued that Northycote Farm once formed a gatehouse to the Moseley Court Estate. Chatwyn (1983) does not record this and there is nothing in the documentary evidence to support this contention. The farm was operated by the Underhill family until its purchase in 1815. The building of the new lodge immediately behind the farm indicates that it was not in use as a gatehouse and, as a working farm, would have been inappropriate for that use. It remained as a home farm for the estate until its sale in 1922. The farm and extensive outbuildings now form the core of the Northycote Farm Country Park and are used as offices, storage, workshops, toilet and a coffee shop.
There are few early depictions of the farm but it was twice mapped in the nineteenth century. A detail from the Tithe map of the 1840's shows buildings on the south and east of the evaluation site, (Fig 2: figure supplied by Mike Shaw, Black Country Archaeologist). Later in 1884, the 1st Edition Ordnance Survey map shows new buildings to the north of the site with the evaluation area appearing empty, (Fig 3).

2.2 Geology and topography

Norhtycote Farm lies to the north of Underhill Lane, Bushbury, approximately 5km to the north of Wolverhampton City Centre. The area surrounding the farm comprises a wedge of undulating agricultural and parkland, surrounded to the east, south and west by the housing estates of Bushbury and Westcroft.

The geology is mapped as soft Triassic sandstone with pebble beds, overlain by glacial till (Boulder clay), (BGS 1978).

3 METHODOLOGY

3.1 Geophysical methodology

The survey area was divided into grid squares, which were set out by tape measure and optical square. Tie-in measurements were taken to the standing buildings. Grid units measuring 20m x 20m were used for the earth resistance survey and a single 30m grid square for the magnetic gradiometry. Both grids shared a common origin and baseline.

All fieldwork was carried out in accordance with the guidelines issued by English Heritage and by the Institute for Archaeologists (EH 2008, Gaffney *et al* 2002).

Magnetic gradiometer survey

The magnetic survey was conducted with a Bartington Grad 601-2, twin sensor array, vertical component, fluxgate gradiometer (Bartington and Chapman 2003). This is a standard instrument for archaeological survey and can resolve magnetic variations as slight as 0.1 nanotesla (nT).

The instruments were carried at a brisk but steady pace through the single 30m grid square, collecting data along 1m spaced traverse lines. Measurements were automatically triggered every 0.25m along the traverses, giving a total of 3600 measurements per grid.

The data was imaged using Geoplot 3.00s software. No processing was performed, as the data was dominated by intense magnetic anomalies which would have biased many commonly used algorithms such as the 'Zero Mean Traverse' destriping function.

The survey data is presented in this report in the form of a greyscale plot (Fig 4, scale +80nT to -80nT, black ~ white). This unusually wide range was selected because of the predominance of intense anomalies mentioned above. No stacked trace plot is provided, as it was felt that in this case it would not significantly aid the interpretation of the data (cf EH 2008, 10).

Earth resistance survey

The earth resistance was carried out with a Geoscan Research RM15 resistance meter, which is a standard instrument for such work. It was deployed in twin probe configuration with a mobile probe spacing of 0.5m and the remote probes spaced a similar distance apart. Readings, to a precision of 0.1Ohms (Ω) were taken at 1m intervals along traverses spaced 1m apart, resulting in a total of 400 readings per grid.

The data was combined and displayed using Geoplot 3.00s software. The only processing required was an edge match function, which removed a slight grid bias caused by repositioning of the remote probes. The processed data is presented in this report in the form of a greyscale plot (Fig 6, scale 0 Ω to 60 Ω black ~ white).

3.2 Excavation methodology

Two trenches, with a combined length of 37m and a total area of 59m², were mechanically excavated using a wheeled JCB mechanical excavator, fitted with a 1.6m wide toothless ditching bucket, operating under archaeological supervision. The trenches were positioned in accordance with the approved trench location plan and related to Ordnance Survey National Grid.

All contexts and features were recorded using NA *pro-forma* sheets, with each deposit, fill or cut given its own unique context number. All trenches were planned at 1:50 and sections were drawn at 1:20. A photographic record was maintained using 35mm black and white negative and colour slide film, supplemented with digital images. Levels were taken on the trenches, major features and sections and related to Ordnance survey Datum. A summary of the contexts and deposits in the trenches is presented in the Appendix.

The archive consists of one box of site records and supporting documents and one CD/DVD of digital data.

All works were carried out in accordance with the Institute for Archaeologists (IfA) *Code of Conduct* (IfA 1985, revised 2008) and *Standard and Guidance for Archaeological Field Evaluation* (IfA 1994 revised 2008).

4 EVALUATION RESULTS

4.1 Geophysical survey results

Magnetic gradiometry survey

The magnetic data provides no useful archaeological information. It is dominated by a dense cluster of intermingled high intensity dipolar anomalies (Fig 4). These are of ferrous origin and indicate a substantial quantity of iron or steel debris buried within the site. Should any archaeological features be present, their magnetic signatures would be indistinguishable beneath this magnetic 'noise' (Fig 5).

Earth resistance survey

The earth resistance data is somewhat noisy and disturbed, probably reflecting the presence of demolition rubble and made ground across the site (see Section 5.2, below). The dryness of the ground at the time of the survey may also have had an adverse affect on the data quality (Fig 6).

Several roughly rectangular areas of enhanced resistance may be seen in the data (Fig 7). These may be tentatively interpreted as marking the sites of former buildings associated with the farm. Other, lesser, anomalies cannot be satisfactorily explained but are unlikely to be of any archaeological significance.

4.2 Excavation results

The excavation of Trench 2 uncovered the floor and walls of a brick-built barn dated to the 19th/20th century and modern building debris. There were no features in Trench 1.

Trench 1

Trench 1 was 22m long and aligned south-west to north–east across the approximate centre of the field (Fig 8). The natural substrate consisted of light grey to reddish-brown sandy clay (102) with degraded sandstone fragments and water-worn glacial pebbles and cobbles (Fig 9). This was overlain by topsoil (101), a dark grey loam, up to 0.79m thick, heavily mixed with building debris. There were no features or artefacts present.

Trench 2

Running parallel to, and *c* 3m from the north-west boundary of the field, Trench 2 was 17m long and aligned south–east to north-west (Fig 8). The natural substrate was the same as in Trench 1, but contained large glacial boulders (207) at the north-west end (Figs 10 and 13).

The foundations of two walls, (208) and (210), and a third not quite midway between the two, (209), of a brick-built barn were slightly cut into the natural substrate (Figs 10 plan and section 1, 12 and 1). The walls had been reduced to one course above the former floor and had been bonded with a lime mortar. Layer (206), a thin black

deposit 0.15m thick and possibly some sort of granular industrial by product, had been used as a levelling/bedding layer for a sequence of extensive brick floor surfaces (204) (Figs 12 and 13). These were all 19th-century bricks, many of them frogged and dated to *c* 1870 and later (Fig 11). These brick surfaces were up to two courses on the north-west side and had been laid beyond the outer wall (210). These were laid flat, and in places were bonded with lime mortar. The bricks were typically 230mmx110mmx70mm.

A demolition layer (205), comprising whitish grey, reddish brown to black soil and building debris covered the entire floor area. Overlying the demolition layer was a single course of flat-laid bricks 2.50m long (203). A patch of hard lime mortar lay over exterior wall (208) (Fig 10, section 1). This surface probably acted as hard-standing for farm machinery. The final deposit was the topsoil which was the same as in Trench 1 (Figs 10 -13).

5 DISCUSSION

The magnetic gradiometer survey demonstrated the presence of ferrous debris across the site but was otherwise uninformative. The earth resistance survey was of slightly more value, indicating several areas of possible building remains, including the brick platform in Trench 2.

Excavation of the trial trenches in the area did not locate any evidence of a tithe barn or any features predating the 19th century. The ground of this small field had been heavily disturbed by later building and subsequent demolition of farm structures and the movement of soil and debris to level the site.

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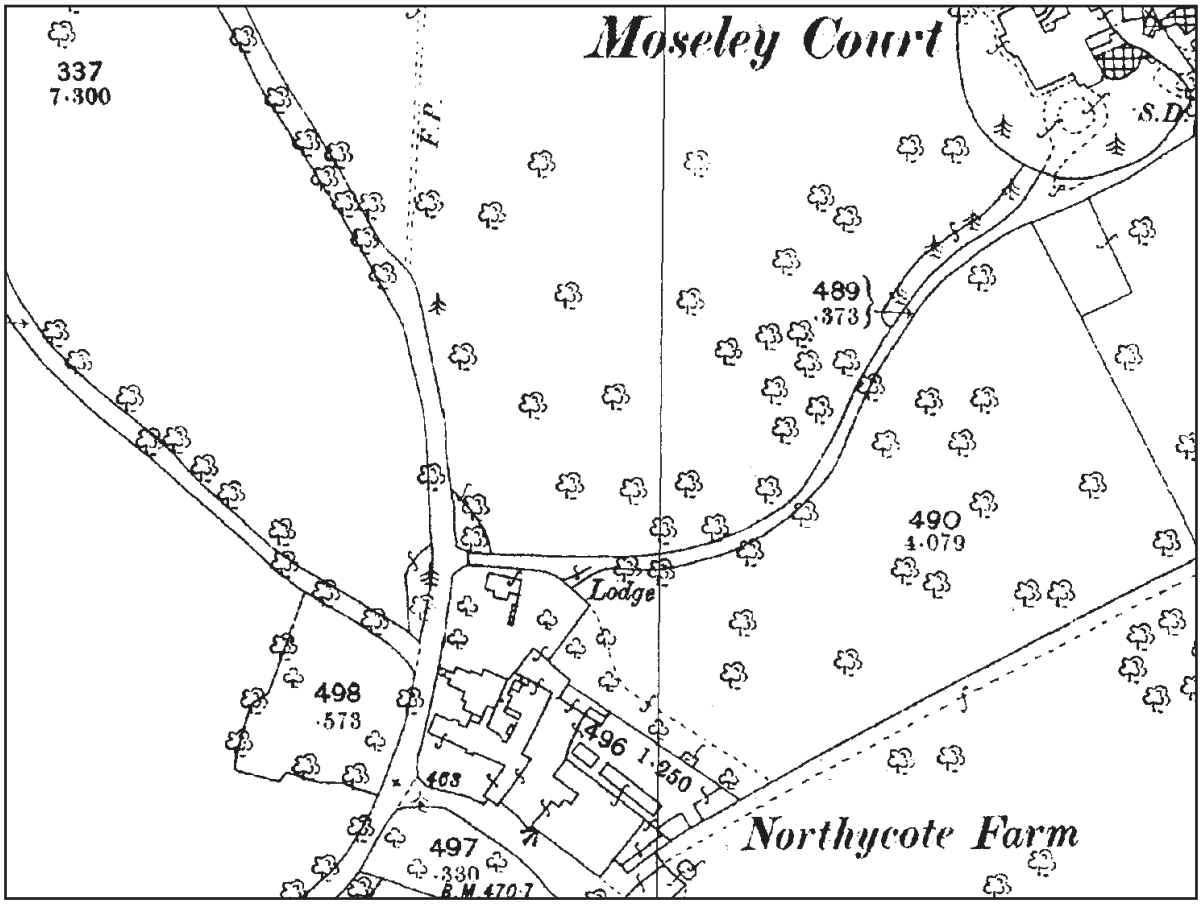
APPENDIX 1: Summary of contexts and deposits

Trench	Context	Type	Description	Thickness (m)
1	101	Topsoil	Friable dark grey soil with modern building debris	0.28 to 0.79
	102	Natural	Firm light grey to reddish-brown sandy clays with degraded sandstone fragments and water worn glacial pebbles and larger stones	0.20+
2	201	Topsoil	Same as 101	0.20 to 0.79
	202	Natural	Same as 102	0.05 +
	203	Upper brick surface	Hard red bricks with lime bonding and pebbles in patches, bricks laid flat. Brick size 230mmx110mmx70mm	0.07
	204	Lower brick surface	Hard orange-red to grey bricks with lime bonding and pebbles in patches, bricks laid flat, brick size 230mmx110mmx70mm	0.07
	205	Layer	Friable whitish-grey, reddish-brown to black soil and building debris including metal	0.22
	206	Layer	Friable dark grey granular bedding layer, possible industrial waste	0.05 to 0.15
	207	Natural	Friable light reddish-brown silty sand with frequent stones 0.01m to 0.10m	0.2 to 0.3
	208	Brick wall	Hard orangey-red exterior brick wall of upper floor surface bonded with hard lime mortar	0.32
	209	Brick wall	As 208 but more fragmentary, middle internal dividing wall	0.40
	210	Brick wall	Same as 208 but poorly bonded bricks	0.46

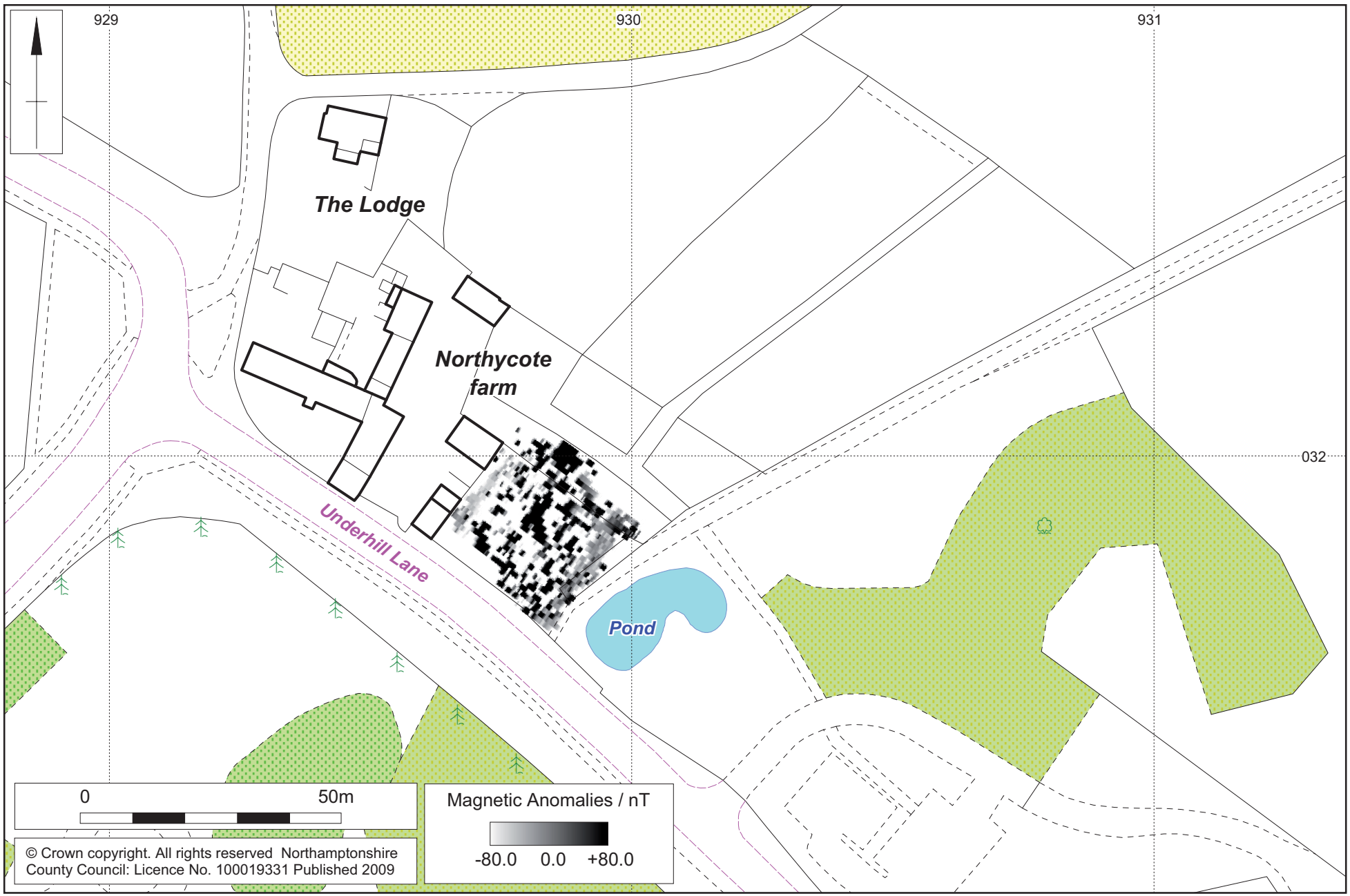
1:2500

Site location Fig 1

Detail from 1840s Tithe map (*Staffordshire Record Office*) Fig 2



Detail from 1st Edition Ordnance Survey map 1884 Fig 3



1:1000

Magnetic gradiometer survey results

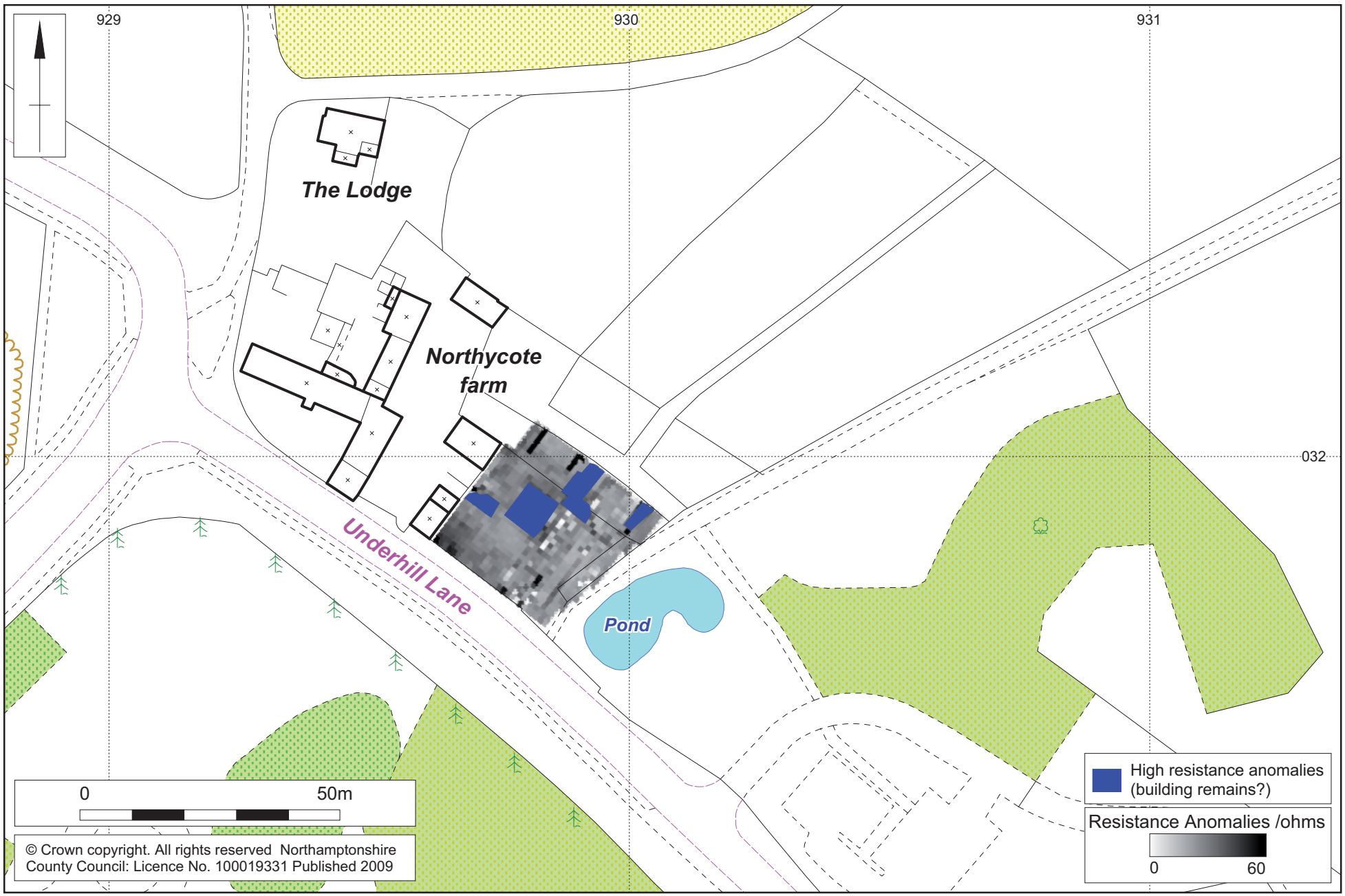
Fig 4

1:1000

Magnetic gradiometer survey interpretation Fig 5

1:1000

Earth resistance survey results Fig 6



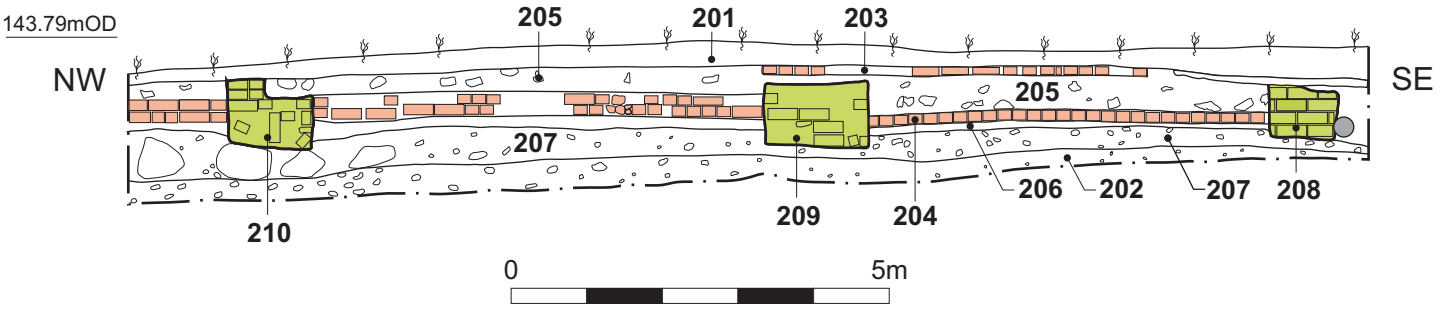
Earth resistance survey interpretation Fig 7

1:500

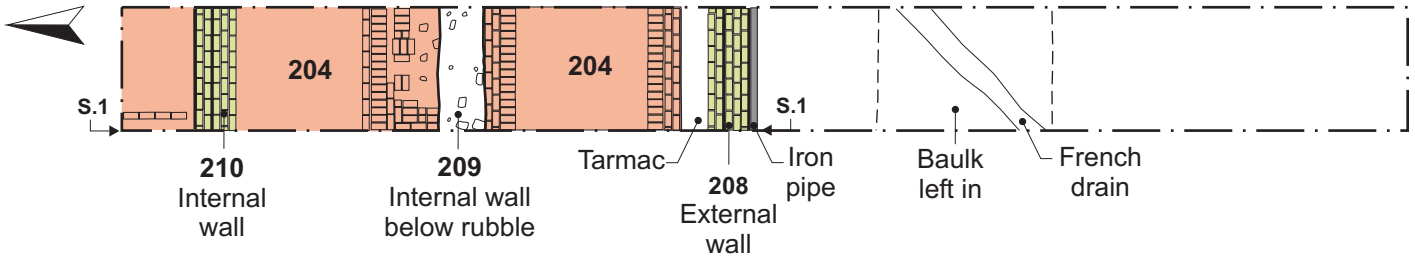
Trench location plan Fig 8

Trench1, made up ground and cable, looking south-east Fig 9

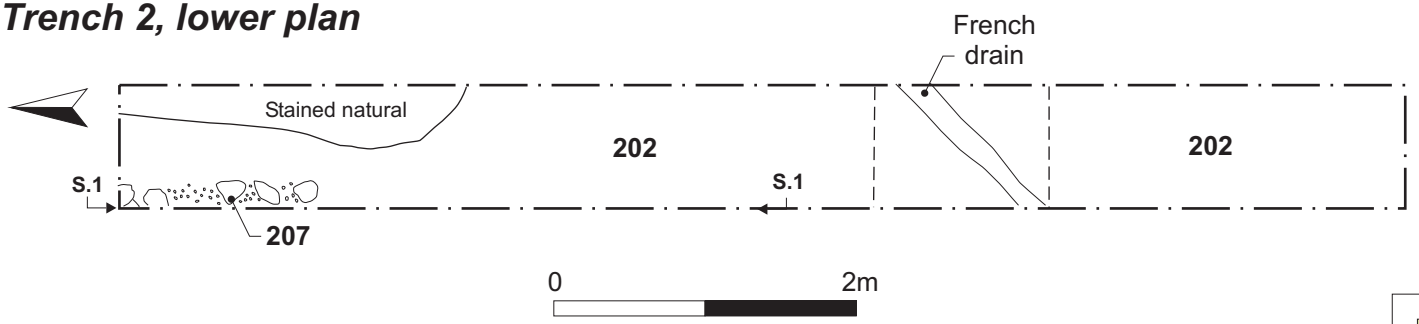
Section 1 (reversed)



Trench 2, upper plan



Trench 2, lower plan



Brick walls
Brick surfaces

Trench 2, plans and section Fig 10

Trench 2, brick surfaces 203 and 204, looking south-east Fig 11

Trench 2, north-east facing section, looking south Fig 12

Trench 2, north-west end of trench showing glacial erratics, looking south-east Fig 13

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