Northamptonshire Archaeology

Archaeological Geophysical Survey at Swallowfield Park, Berkshire

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QUALITY CONTROL

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Checked by	Pat Chapman	*PC*	15/06/2010
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OASIS REPORT FORM

PROJECT DETAILS		
Project name	Archaeological Geophysical Survey at Swallowfield Park, Berkshire	
Short description	Northamptonshire Archaeology was commissioned by Parklands Consortium to conduct an archaeological geophysical survey at Swallowfield Park, Berkshire. The survey investigated three small areas, one on the lawn in front of the main house, and two across the northern and southern parts of a former ornamental canal. The results were generally poor, due to unfavourable geological conditions and a certain amount of modern disturbance. The canal itself produced only very tenuous magnetic anomalies, although a localised patch of noise along its course could perhaps mark the footings of a former bridge or sluice. A few other anomalies were detected which may be of minor archaeological interest.	
Project type	Geophysical survey	
Site status	Registered park	
Previous work	Walk-over survey and earthwork recording	
Current Land use	Park and garden	
Future work	Trial trenching	
Monument type/ period	Post-medieval ornamental canal	
Significant finds	None	
PROJECT LOCATION		
County	Berkshire	
Site address	Swallowfield Park	
Study area	3.4ha	
OS Easting & Northing	SU 731 655	
Height OD	*c* 44m AOD	
PROJECT CREATORS		
Organisation	Northamptonshire Archaeology (NA)	
Project brief originator	Parklands Consortium	
Project Design originator	Northamptonshire Archaeology	
Director/Supervisor	John Walford	
Project Manager	Adam Yates	
Sponsor or funding body	Parklands Consortium	
PROJECT DATE		
Start date	01 March 2010	
End date	15 March 2010	
ARCHIVES	**Location**	**Content**
Physical	N/A	
Paper	NA	Site survey records
Digital	NA	Geophysical survey & GIS data
BIBLIOGRAPHY	Journal/monograph, published or forthcoming, or unpublished client report	
Title	Archaeological Geophysical Survey at Swallowfield Park, Berkshire	
Serial title & volume	Northamptonshire Archaeology Reports 10/92	
Author(s)	John Walford	
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Contents

Figures

ARCHAEOLOGICAL GEOPHYSICAL SURVEY AT SWALLOWFIELD PARK, BERKSHIRE MARCH 2010

ABSTRACT

Northamptonshire Archaeology was commissioned by Parklands Consortium to conduct an archaeological geophysical survey at Swallowfield Park, Berkshire. The survey investigated three small areas, one on the lawn in front of the main house, and two across the northern and southern parts of a former ornamental canal. The results were generally poor, due to unfavourable geological conditions and a certain amount of modern disturbance. The canal itself produced only very tenuous magnetic anomalies, although a localised patch of noise along its course could perhaps mark the footings of a former bridge or sluice. A few other anomalies were detected which may be of minor archaeological interest.

1 INTRODUCTION

Northamptonshire Archaeology was commissioned by Parklands Consortium to carry out a geophysical survey at Swallowfield Park, Berkshire (NGR SU 731 655; Fig 1). The survey was intended to investigate the course of a former ornamental canal and to look for evidence of a previous formal garden on the front lawn. It was particularly hoped that the survey might elucidate the character of the canal cut and locate any culverts or other structures which may have been associated with it.

The chosen survey technique, magnetic gradiometery, was undertaken across three separate areas, totalling *c* 3.4ha. Two of these lay along the line of the canal, whilst the other was sited on the lawn in front of the main house (Fig 1).

2 TOPOGRAPHY AND GEOLOGY

Swallowfield Park lies within the parish of Swallowfield, immediately to the north-east of the village itself. It occupies a low lying expanse of land at about 44m AOD, which is bounded to the north by the river Lodden and to the south and west by its tributary, the Blackwater (Fig 1).

The solid geology of the area is mapped as Eocene deposits belonging to the 'Thames Group' (formerly known as 'London Clay'). These are overlain in places by recent alluvium (BGS 2010). This is significant, because both London Clay and alluvium are acknowledged to be unfavourable substrates for magnetic survey (EH 2008, 15; Weston 2001). The soils formed above London Clay rarely develop good magnetic contrasts, and alluvium can bury features to a depth where they are magnetically invisible. Furthermore, the mobility of ferrous minerals in low lying, waterlogged soils can reduce the magnetic enhancement of archaeological features and can create spurious pedological ones.

3 ARCHAEOLOGICAL BACKGROUND

Swallowfield Park has been inhabited since medieval times, but the present house dates only from 1689-90 (VCH 1923, 267-74). It was surrounded by extensive landscape gardens which went through a number of phases of development during the 18th and 19th centuries and up to the present day.

A particularly notable feature of the gardens at Swallowfield Park was an ornamental canal. This ran north-north-west from the river Blackwater to the river Lodden, with a north-westerly bend at its far northern end (Fig 1). It is currently derelict and abandoned but survives as a shallow depression, parts of which still hold water in times of flood (*pers obs*).

4 METHODOLOGY

The survey was conducted in two stages. The initial fieldwork occurred on 1st and 2nd March 2010, at which time the rivers Blackwater and Lodden were in flood. Area 3 was largely underwater and the extreme northern part of Area 2 was also unfit to survey. A return visit was therefore made on 15th March 2010, when Area 3 was reported to have dried out. Upon arrival, however, it was found that the majority of the canal basin still contained ponded floodwater in excess of one foot deep. Only the southernmost part of the area was in a surveyable condition.

The fieldwork comprised a detailed magnetometer survey, which was conducted with Bartington Grad 601-2, twin sensor array, vertical component fluxgate gradiometers (Bartington and Chapman 2003). These are standard instruments for archaeological survey and can resolve magnetic variations as slight as 0.1 nanotesla (nT).

Each survey area was set out manually, using a tape measure and optical square, and was divided into a network of 30m x 30m grid squares which formed the basic unit of survey The instruments were carried at a brisk but steady pace through each grid, 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 survey grids for Areas 1 and 2 were tied into the Ordnance Survey National Grid by means of a Leica System 1200 dGPS. This equipment was unavailable when Area 3 was surveyed, but a sufficiently accurate tie-in was achieved by tape measurement to an adjacent fenceline.

All fieldwork was carried out in accordance with the guidelines issued by English Heritage and by the Institute for Archaeology (EH 2008; Gaffney, Gater and Ovendon 2002).

The survey data was processed using Geoplot 3.00u software. Striping, caused by slight mismatches in sensor balance, was removed using the 'Zero Mean Traverse' function. Destaggering of the data was performed as necessary.

The processed data is presented in this report in the form of greyscale plots (scale +4nT to -4nT black ~ white, unless otherwise stated). These have been scaled, rotated and resampled (georectified) for display against the Ordnance Survey base mapping (Figs 2 & 4). An interpretative plot has been produced and is shown overlain onto the data in Figures 3 and 5.

5 SURVEY RESULTS

Area 1 (Figs 2-3)

The data from this area exhibits much random magnetic noise and contains several large gaps where the surveyors had to work around vegetation and parked vehicles. These deficiencies hinder the interpretation of the data, but it is nonetheless possible to identify a few features of interest.

Towards the centre of the lawn there is a sub-rectangular cluster of strong magnetic dipoles, measuring approximately 10m across. Such noise is consistent with a concentration of ceramic building rubble (brick, tile, etc), and it is possible that this feature marks the footprint of a small demolished structure or, less probably, an infilled pit or pond.

To either side of the rectangular feature there are ill defined linear trends in the data, aligned north-east to south-west. The western one of these coincides with a wall and path recorded on the 1817 enclosure map of the parish (Berkshire Record Office Q/RDC/37B). The eastern one does not relate to any known feature but, by analogy, is suggested to indicate another path of broadly contemporary date.

One other linear trend, again somewhat ill-defined, runs from north to south through the western part of the survey area. It is undiagnostic, but the fact that it is unconformable with the modern landscape would seem to preclude a recent origin.

Many of the remaining anomalies in Area 1 relate to modern features. A band of weak dipolar anomalies coincides with a modern track, which presumably contains magnetic hardcore or chippings in its make-up. Elsewhere there are some discrete dipolar anomalies which were caused by modern features, such as sign posts and wire fences. The remainder of the noise in the data suggests the presence of much buried magnetic debris, perhaps including brick fragments, cinders and ferrous scrap.

Area 2 (Figs 4-5)

There are two very weak and diffuse positive linear anomalies in this data which coincide in general terms with the line of the canal. They are archaeologically uninformative and cannot be interpreted in any detail.

To the north of the linear anomalies there is a group of moderately strong positive anomalies, the largest of which has a peak height of approximately 50nT. They seem too subdued to be of ferrous origin, and are more like the responses which would be expected from coherent masses of buried brickwork. Such an interpretation is strengthened by the location of the anomalies, which correlates well with an unspecified feature (probably a bridge or a sluice gate) recorded on the 1817 enclosure map.

At the far north of the survey area there is a positive linear anomaly, aligned from north-east to south-west, which seems likely to represent an infilled ditch. Its position, close to, and parallel with, the expected line of the canal (*cf* Fig 1), indicates that the two features are related. Unfortunately the nature of this relationship, and the precise function of the ditch, cannot be resolved on the present evidence.

Area 3 (Figs 2-3)

Two very weakly positive linear anomalies were detected, flanking the line of the canal. Like the similar anomalies in Area 2, they defy any detailed interpretation. One other possible archaeological feature, a small pit, was detected as a small discrete positive anomaly close to the south-west of the survey area

Some other, more amorphous, weakly positive anomalies at the southern end of the survey area are likely to be of geological or pedological origin. The same is true of the band of weak and amorphous dipoles which flank the edge of the modern river channel.

The scatter of stronger dipolar anomalies across the survey area relate to various pieces of ferrous debris, some on the surface and others buried. One cluster of weaker dipolar anomalies coincides with a modern track, and, as in Area 1, is presumably indicative of magnetic hardcore.

6 CONCLUSION

The survey has only partially achieved its primary aim, which was to elucidate details of the canal's structure. It detected very few significant anomalies, probably because of the magnetically unfavourable local geology. The only confident conclusion which can be drawn is that the infilling of the canal is generally quite clean. The data does not exhibit the intense magnetic noise which is typical of brick rubble or recent landfill.

Towards the northern end of the canal there is a cluster of strong magnetic anomalies close to a point where historic maps appear to show either a bridge or a sluice. This suggests that remains of this structure probably survive below ground.

The data provides no clear evidence for any culverts or other such features associated with the canal. This does not, however, preclude their existence. Magnetic anomalies decline away from their source according to an inverse cube law (Clark 1996, 78), which severely restricts the depth to which magnetic survey may 'see'. As a rule of thumb, only the very strongest anomaly sources will be detected at a burial depth in excess of 1.5m.

Like the survey of the canal, the survey of the front lawn achieved only a limited measure of success. It identified one possible structural feature, of indeterminate date, and three ill-defined undiagnostic linear anomalies.

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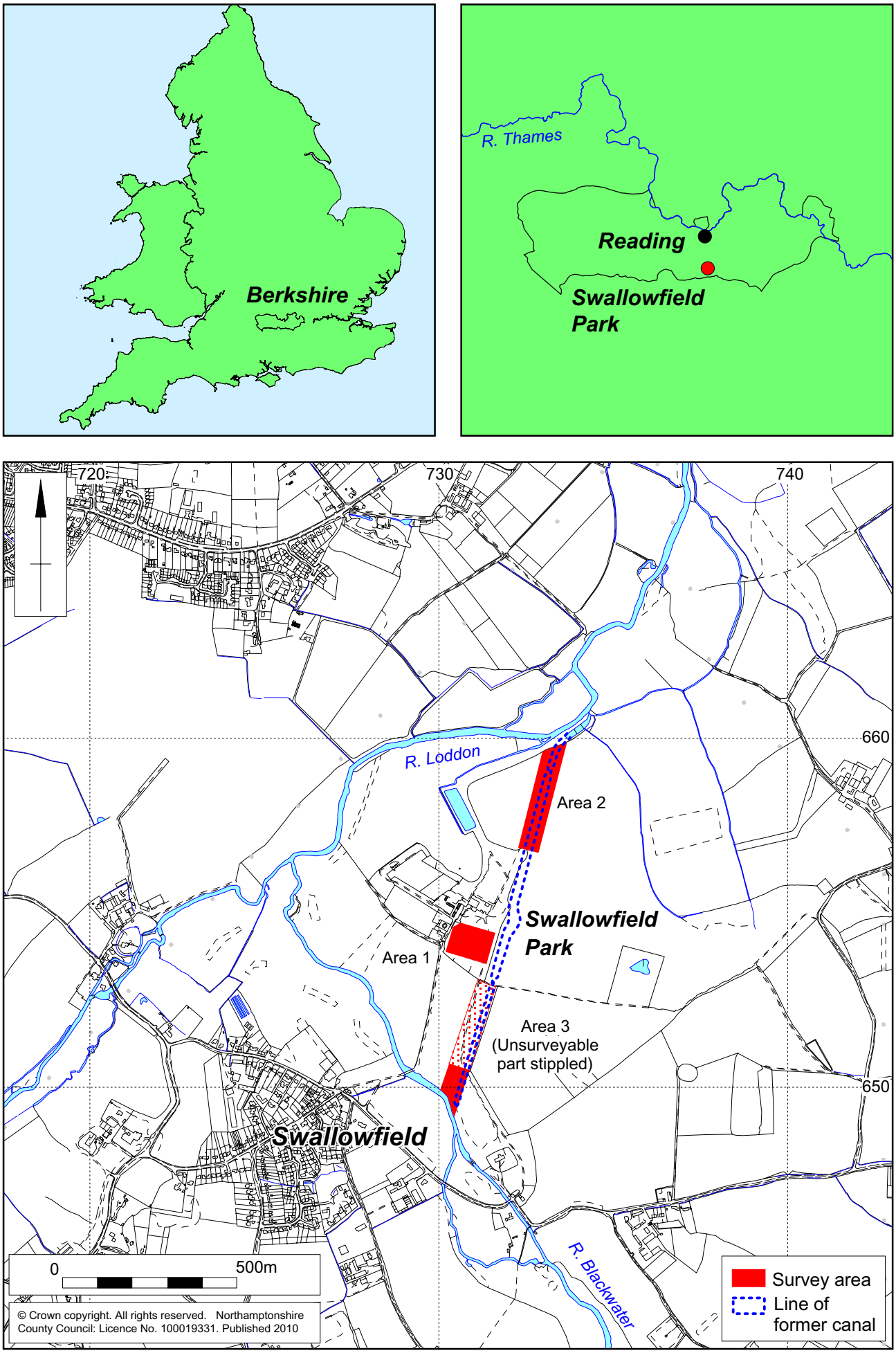
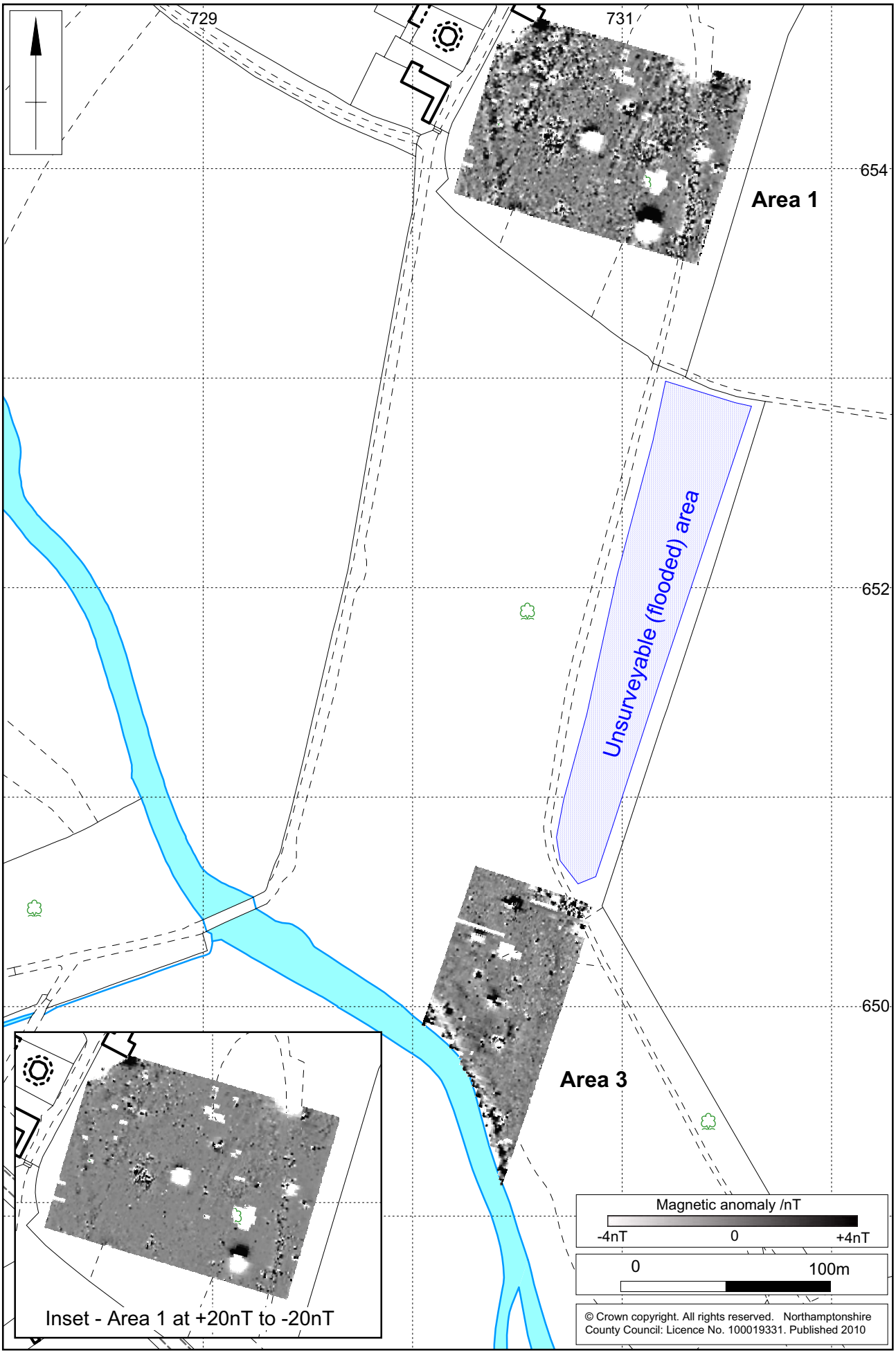
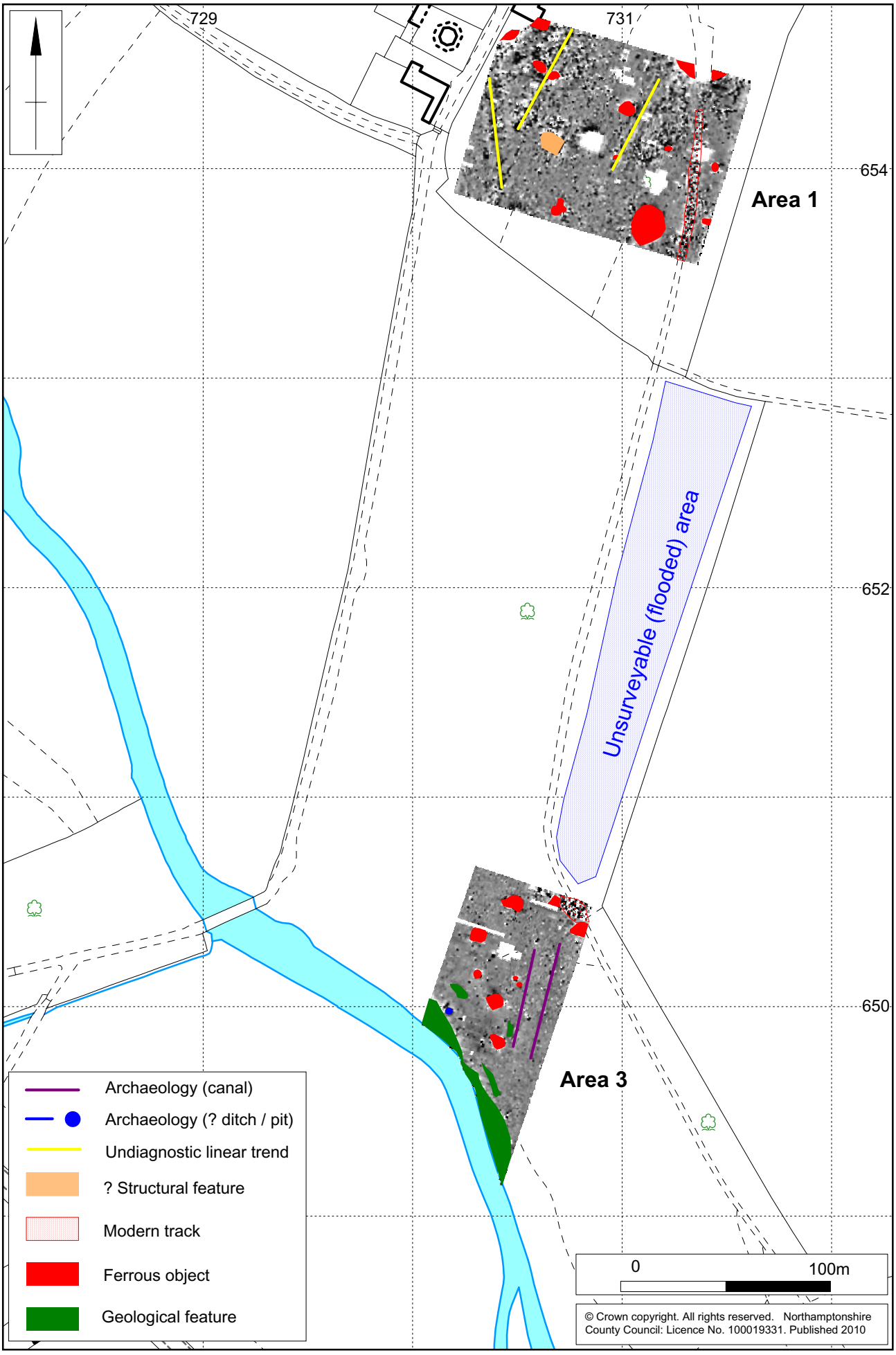


Scale 1:15,000

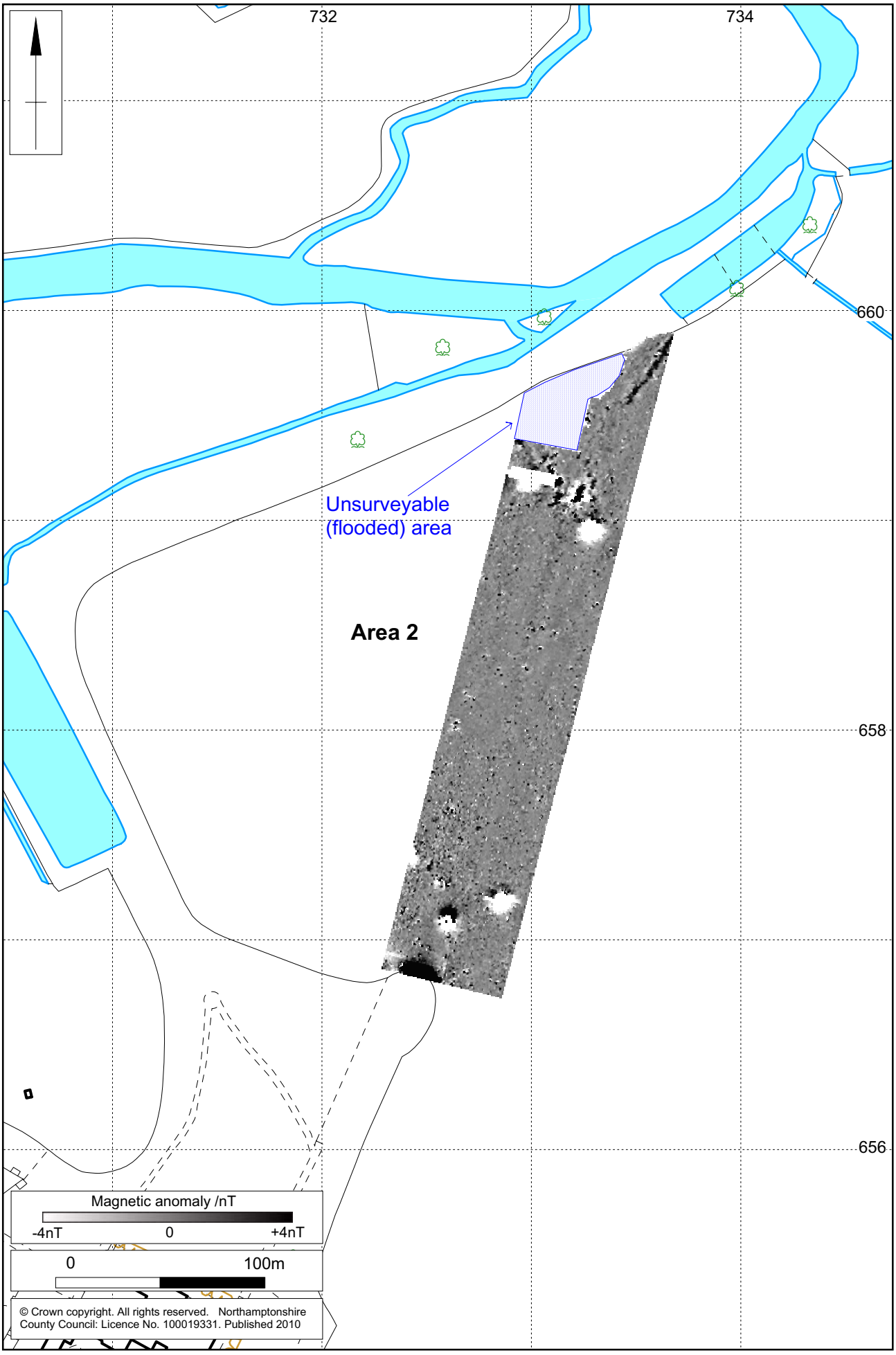
Site Location Fig 1



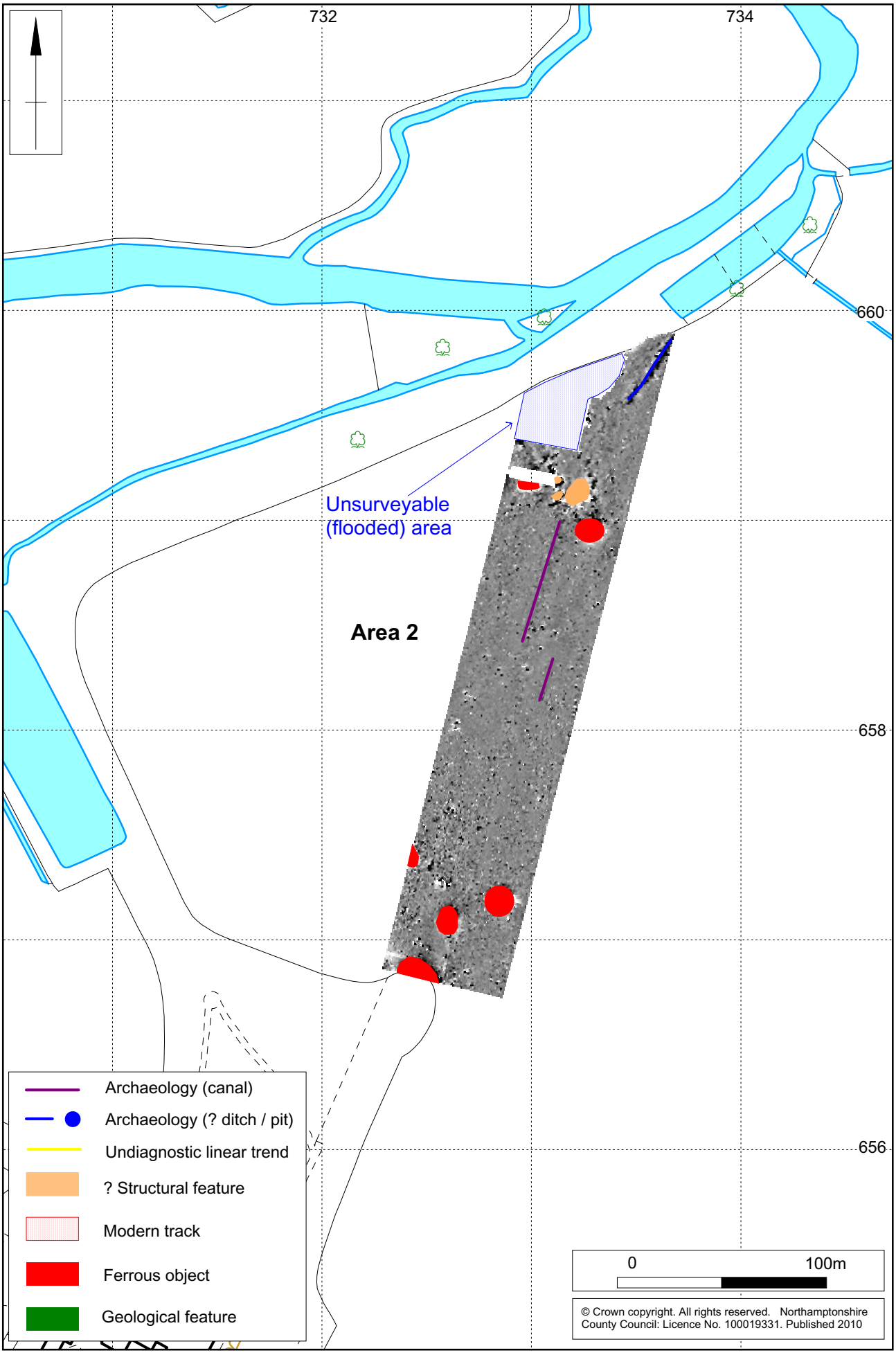
1:2500 Magnetometer survey results, Areas 1 and 3 Fig 2



1:2500 Magnetometer survey interpretation, Areas 1 and 3 Fig 3



1:2500 Magnetometer survey results, Area 2 Fig 4



1:2500 Magnetometer survey interpretation, Area 2 Fig 5

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