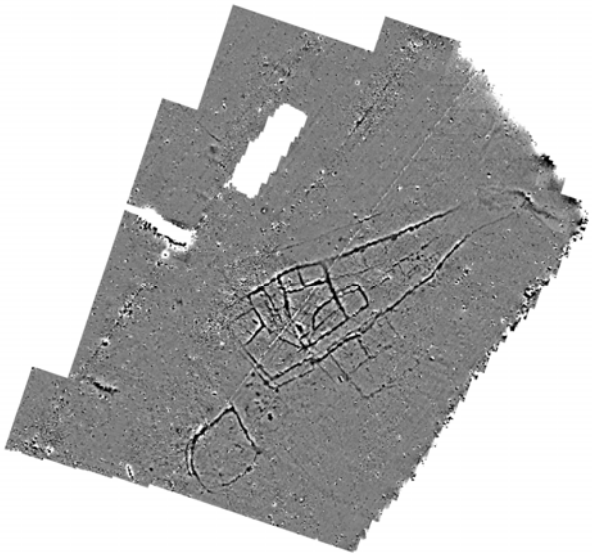
Northamptonshire Archaeology

Archaeological Geophysical Survey on land at High Flyer Farm, Ely, Cambridgeshire Phase 3



Northamptonshire Archaeology
2 Bolton House
Wootton Hall Park
Northampton NN4 8BE
t. 01604 700493 f. 01604 702822
e. sparry@northamptonshire.gov.uk
w. www.northantsarchaeology.co.uk

Northamptonshire County Council

John Walford

Report 11/84

March 2011

STAFF

Project Manager:	Adrian Butler MA BSc AIfA
Fieldwork:	John Walford MSc Robin Foard Heather Smith MA Angela Warner BSc
Text and Illustrations:	John Walford Ian Fisher BSc

QUALITY CONTROL

	Print name	Signed	Date
Checked by	Pat Chapman	*PC*	30/03/2011
Verified by	Mark Holmes	*MH*	30/03/2011
Approved by	Andy Chapman	*AC*	30/03/2011

OASIS REPORT FORM

PROJECT DETAILS		
Project name	Archaeological Geophysical Survey on land at High Flyer Farm, Ely, Cambridgeshire: Phase 3	
Short description	Northamptonshire Archaeology was commissioned to carry out further magnetometer survey at High Flyer Farm, Ely, Cambridgeshire, following on from earlier work undertaken between August 2010 and January 2011. Three new blocks of land were surveyed; 9ha to the north-west of the farm, 7ha to the south-east and 11ha to the north-east. This work revealed a complex of settlement enclosures of probable Romano-British date, a large square enclosure with annex, which may represent a shrine or a military site of Iron-Age to Romano-British date, and part of another enclosure of unknown date. Further anomalies were detected which may represent kilns or similar small industrial features.	
Project type	Geophysical survey	
Site status	None	
Previous work	Fieldwalking (Fenland Survey, Hall 1996) Geophysical Survey (Walford 2010; Walford & Smith 2011)	
Current Land use	Arable	
Future work	Unknown	
Monument type/ period	Iron Age or Romano-British settlement and enclosures, Undated possible kilns	
Significant finds		
PROJECT LOCATION		
County	Cambridgeshire	
Site address	High Flyer Farm, Ely	
Study area	*c* 27ha	
OS Easting & Northing	TL 554 824	
Height OD	10 – 15 m AOD	
PROJECT CREATORS		
Organisation	Northamptonshire Archaeology (NA)	
Project brief originator	Northamptonshire County Council	
Project Design originator	NA	
Director/Supervisor	John Walford	
Project Manager	Adrian Butler	
Sponsor or funding body	CgMs Consulting	
PROJECT DATE		
Start date	14 March 2011	
End date	31 March 2011	
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 on Land at High Flyer Farm, Ely, Cambridgeshire: Phase 3	
Serial title & volume	Northamptonshire Archaeology Reports 11/84	
Author(s)	John Walford	
Page numbers	9	
Date	31 March 2011	

Contents

Figures

ARCHAEOLOGICAL GEOPHYSICAL SURVEY ON LAND AT HIGH FLYER FARM, ELY, CAMBRIDGESHIRE PHASE 3: MARCH 2011

ABSTRACT

Northamptonshire Archaeology was commissioned to carry out further magnetometer survey at High Flyer Farm, Ely, Cambridgeshire, following on from work undertaken between August 2010 and January 2011. Three new blocks of land were surveyed; 9ha to the north-west of the farm, 7ha to the south-east and 11ha to the north-east. This work revealed a complex of settlement enclosures of probable Romano-British date, a large square enclosure with annex, which may represent a shrine or a military site of Iron-Age to Romano-British date, and part of another enclosure of unknown date. Further anomalies were detected which may represent kilns or similar small industrial features.

1 INTRODUCTION

Northamptonshire Archaeology (NA) was commissioned by CgMs Consulting to carry out a third phase of archaeological geophysical prospection at High Flyer Farm, Ely, Cambridgeshire (NGR TL 554 824 ; Fig 1), following on from earlier work undertaken between August 2010 and January 2011 (Walford 2010; Walford and Smith 2011). Three areas were surveyed. One lay to the west of the farm buildings and comprised an elongated strip of land, *c* 9ha in extent, straddling Fields 5-8. The second, lying to the south east of the farm, comprised a block of *c* 7ha in the western end of Field 1. The third comprised a block of *c* 11ha in the eastern end of Field 9.

All three blocks of land were subject to magnetic gradiometer survey, in accordance with the Method Statement issued by NA (NA 2010). This fieldwork was undertaken during March 2011.

2 TOPOGRAPHY AND GEOLOGY

High Flyer Farm lies to the north of Ely, close to the north-eastern edge of the fen island on which the town stands. The farm itself and the three present survey areas all stand close to or between the 10m and 15m contours. The western survey area (Fields 5-8) is centred upon a small valley which drains northwards towards the Fen edge. The central area (Field 1a) occupies a plateau at about 15m aOD, and the eastern area (Field 9) stands on a flattish shoulder of land, the edges of which drop northwards and eastwards towards the Fen edge.

The Isle of Ely is largely composed of Jurassic clays, with a capping of Cretaceous Lower Greensand on the higher ground. These deposits are overlain in places by a superficial deposit of boulder clay (BGS 2010).

3 ARCHAEOLOGICAL BACKGROUND

A fieldwalking survey which was conducted around High Flyer Farm as part of the Fenland Project did not recover any finds of particular note (Hall 1996, 30). But other evidence, including archaeological excavations and various chance discoveries, demonstrates that the proposed development area and its immediate environs do have considerable archaeological potential.

Neolithic occupation of the area is suggested by a number of flint scatters and individual finds, although no substantial remains have been discovered thus far (Dawson 2010, 12-13). Bronze Age finds have also been reported from the vicinity, and a mound associated with a Beaker burial once stood just outside the south-western part of the proposed development area (Hall 1996, 35).

Iron Age and Romano-British burials and settlement remains have been excavated immediately adjacent to the proposed development area, at Prickwillow Road (Atkins & Mudd 2003, Fig 1), and the northern continuation of this site was traced during the first phase of geophysical survey at High Flyer Farm (Walford 2010; this report Fig 2). Several other sites of Iron Age and Romano-British date have been found within the wider landscape (Hall 1996, 35-6; Dawson 2010, 14).

An early Anglo-Saxon cemetery was encountered to the south-west of the proposed development area in the 1950s, during housing development at High Barns (Dawson 2010, 14). There are, however, no known Late Saxon remains within the area, and no medieval remains except for traces of ridge and furrow cultivation (Dawson 2010, 14-15).

4 METHODOLOGY

The survey 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 manually divided into 30m grid squares by means of a tape measure and optical square. These grids were tied into the National grid by measurements taken with a Leica System 1200 dGPS. The gradiometers were carried at a brisk but steady pace through each 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.

All fieldwork methods complied with the guidelines issued by English Heritage and by the Institute for Archaeologists (EH 2008; Gaffney, Gater and Ovendon 2002). Work also complied with a Method Statement produced by NA (NA 2010).

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 and destaggering of the data was performed as necessary.

The processed data is presented in this report in the form of grey-tone plots, at scales appropriate to the dataset (+/- 4nT black/white). The grey-tone plots have been scaled, rotated and resampled (georectified) for display against the Ordnance Survey base mapping (Figs 2, 3 & 5). Interpretative overlays have been produced and are shown in Figures 4 and 6.

5 SURVEY RESULTS

Field 1a (Figs 5-6)

The survey of this field revealed a group of positive linear anomalies which represent a large, double-ditched square enclosure with an eastern annex and an internal T-shaped partition. This site extends beyond the northern edge of the survey area, so that its full extent remains unknown.

Both the inner and outer ditches of the enclosure are square in plan, with rounded corners. Their internal diameters are *c* 50m and *c* 70m respectively. The main entrance into the inner enclosure occurs mid-way along its north-eastern edge, and there appears to be a second, smaller entrance near its eastern corner. The latter is aligned with a larger entrance gap in the outer enclosure ditch.

Three parallel ditches extend north-eastwards from the enclosure. Two terminate against a shorter cross-ditch, thus defining an annex approximately 80m long by 20m wide. The third ditch, which extends beyond the edge of the survey area, perhaps forms part of a second annex.

The function of this site is uncertain, but it does not resemble the enclosures found in Fields 2 and 9 and is unlikely to represent a simple settlement site. Its regular square shape is particularly striking and, suggests a specialist function of some kind. It may be a small Roman military site or, more probably, an enclosure around an Iron Age or Romano-British shrine. An approximate parallel for the latter is provided by the almost square, double ditched shrine enclosure discovered in the nearby parish of Haddenham (Frere 1984, 298).

To the south of the enclosure there are a number of discrete positive anomalies, some of which perhaps represent infilled pits. In the same area is a weakly positive linear anomaly, aligned towards the south-west, which may be a continuation of one of the similarly aligned anomalies detected in Field 2 (Fig 2). These are thought to represent the side ditches of a trackway that connected the double-ditched enclosure with the Romano-British settlement site to the south.

The discontinuous linear anomaly running north-east to south-west across the centre of the field indicates the location of a former field boundary which is recorded on the first

edition Ordnance Survey map. There is a small sub-circular patch of weak magnetic noise along its line, which may indicate a spread of bonfire debris. A negative linear anomaly along the western edge of the field relates to the modern cultivation regime and may be disregarded.

Field 5a (Figs 3-4)

There are two large positive magnetic anomalies against the western edge of this field, each with a peak value of *c* 100nT. The breadth of these anomalies, and their moderate peaks, suggests that they are not of ferrous origin. It is more probable that they represent kilns or similar small industrial features. They are comparable in form to a similar anomaly which was found *c* 160m to the south, in Field 5, during the previous phase of survey.

To the west of these anomalies is an area of subdued magnetic noise, the significance of which is uncertain. It perhaps indicates a scatter of hardcore, bonfire debris, or other weakly magnetic material.

Two linear anomalies occur towards the south of this survey area. One, which is aligned from north-west to south-east, coincides with the location of a former field boundary shown on the first edition Ordnance Survey map. The other, which runs north-eastwards from the small pond, probably represents a modern drainage pipe. To the west of the latter is an amorphous positive anomaly which is of uncertain origin but seems unlikely to be of archaeological significance.

Field 6a (Figs 3-4)

The data from this field contains one discrete positive anomaly, probably indicating a pit, and some weakly positive linear anomalies, aligned north-west to south-east, which represent ridge and furrow cultivation of medieval origin. There are also some areas of magnetic noise, probably caused by a scatter of modern hardcore carried onto the field from the adjacent farm track.

Field 7 (Figs 3-4)

The data from this field contains a group of positive linear anomalies which seem to define part of a ditched enclosure of uncertain date. Otherwise the data is dominated by parallel linear anomalies which represent the remains of ploughed out ridge and furrow. Two furrow directions occur; north to south in the northern part of the field and south-

east to north-west elsewhere. There is also a small area of magnetic noise in the south-eastern corner of the field which probably represents a concentration of modern hardcore.

Field 8 (Figs 3-4)

Towards the southern end of this field is a small zone of disturbed data, containing one anomaly which reaches a peak of *c* 60nT and several smaller anomalies with a typical strength of 5-10nT. These would be consistant with a small kiln, or other industrial feature, surrounded by a scatter of intensely burnt sediment or ceramic debris. An ill-defined linear anomaly, which extends north-westwards from this area, may represent a ditch.

The other anomalies in this field are not of archaeological interest. The parallel linear anomalies of alternating polarity represent field drains, and the area of noise along the western field edge probably indicates a spread of modern hardcore or similar material.

Field 9 (Figs 5-6)

The survey of this field has detected a dense network of positive linear anomalies which extend across an area of *c* 2.75ha and represent a complex of ditched enclosures. The fact that there are many rectilinear elements within the complex suggests it to be of Romano-British date, and this suggestion is re-enforced by the observation of Romano-British pottery on the field surface (pers obs).

At the southern end of the complex is a D-shaped enclosure of slightly irregular form. This has three breaks in its perimeter, perhaps representing entrances. On its western side, a second ditch runs parallel with the main enclosure, thus defining a small and elongated annex approximately 4m wide but nearly 30m long. There are a number of internal anomalies, suggesting the presence of small pits and gullies

A broad but diffuse positive linear anomaly intersects the D-shaped enclosure, passing between two of the possible entrance gaps before continuing towards the south-east. It seems likely that this represents the silted course of a hollow-way. Further to the west is a more strongly magnetic anomaly which shares the same alignment and may represent a continuation of the same feature

Immediately to the north-east of the D-shaped enclosure is a concentration of discrete positive anomalies, probably representing a pit cluster. Three weakly positive linear anomalies occur in the same area, and seem to define fragments a sub-circular enclosure measuring *c* 30m across.

To the north again lies the main group of enclosures, consisting of a large, approximately wedge-shaped outer ditch encompassing a mass of smaller conjoined enclosures. Most of the latter are rectangular or sub-rectangular in form. The overall dimensions of the complex are *c* 225m along its main axis, from north-east to south-west, and *c* 75m along its short axis.

The outer, wedge shaped enclosure tapers towards the north-east but, so far as can be told from the data, it does not come to a properly defined end. Instead it appears to merge with a geological anomaly, which may indicate a small natural gully or hollow leading down towards the Fen edge.

Projecting from the east side of the main enclosure group is a square enclosure which measures *c* 50m across. It is subdivided into two square units and a larger rectangular one. It appears to belong to a separate phase from the main enclosure, as the two features overlap with each other.

Away from these enclosures, towards the north-west of the survey area, there are several short positive linear anomalies and one discrete anomaly which probably represent ditches and a large pit or hollow. They are of uncertain date.

The remaining anomalies in Field 9 are all of more recent date. There are some very weak traces of ridge and furrow, most conspicuously where it cuts through the magnetically enhanced soil of the enclosure complex, and also two parallel linear anomalies which relate to former field boundaries recorded on the first edition Ordnance Survey map. The latter are poorly defined, and are represented in places by a linear trend of magnetic noise rather than a distinct anomaly.

There are several different alignments of field drain apparent in the data, indicated by groups of parallel linear anomalies with weakly alternating magnetic polarities. There are also two short but strongly magnetic linear anomalies which most probably represent lengths of iron pipe.

A very pronounced negative linear anomaly cuts through the middle of the enclosure complex on a north-easterly to south-westerly heading. This was caused by a modern furrow at the boundary between two separate areas of cultivation. Many other weak positive anomalies on the same alignment also relate to the modern ploughing regime.

6 CONCLUSION

The survey has discovered a large, square, double-ditched enclosure, of Iron Age or Romano-British date lying to the south-east of High Flyer Farm, in Field 1, and a more substantial enclosure complex of probable Romano-British date lying further to the east, in Field 9. Part of another possible enclosure was detected in Field 7, to the north of the farm, and possible industrial anomalies were detected closer to the farm in Fields 5 and 8.

The enclosures in Field 9 seem to constitute a typical settlement site, but that in Field 1 is more unusual. Its size and regular shape are suggestive of a small Roman military site, or, more probably, a shrine enclosure. The possible enclosure in Field 7 is undiagnostic.

Whilst the results of the survey are generally good, with clear anomalies from all the main sites, it is possible that some slight or ephemeral features, such as inhumations or post-built structures have been overlooked. Features like these are very rarely detected by magnetic survey, as they do not normally produce clear and diagnostic anomalies (EH 2008, 14).

BIBLIOGRAPHY

Atkins, R, and Mudd, A, 2003 An Iron Age and Romano-British settlement at Prickwillow Road, Ely, Cambridgeshire: Excavations 1999-2000, *Proceedings of the Cambridgeshire Antiquarian Society*, **XCII**, 5-55

Bartington, G, and Chapman, C, 2003 A high-stability fluxgate magnetic gradiometer for shallow geophysical survey applications, *Archaeological Prospection*, **11**, 19-34

BGS, 2010 *www.bgs.ac.uk/geoindex*; accessed 24th November 2010, British Geological Survey

Dawson, M, 2010 *Heritage Assets Desk Based Assessment in respect of High Flyer Farm, Ely, Cambridgeshire*, CgMs Consulting report, **MD/11557**

EH 2008 *Geophysical Survey in Archaeological Field Evaluation*, English Heritage

Gaffney, C, and Gater, J, 2003 *Revealing the Buried Past: Geophysics for Archaeologists*, Tempus Publishing

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

Frere, S, S, 1984 Roman Britain in 1983: Sites Explored, *Britannia*, **XV**, 265-323

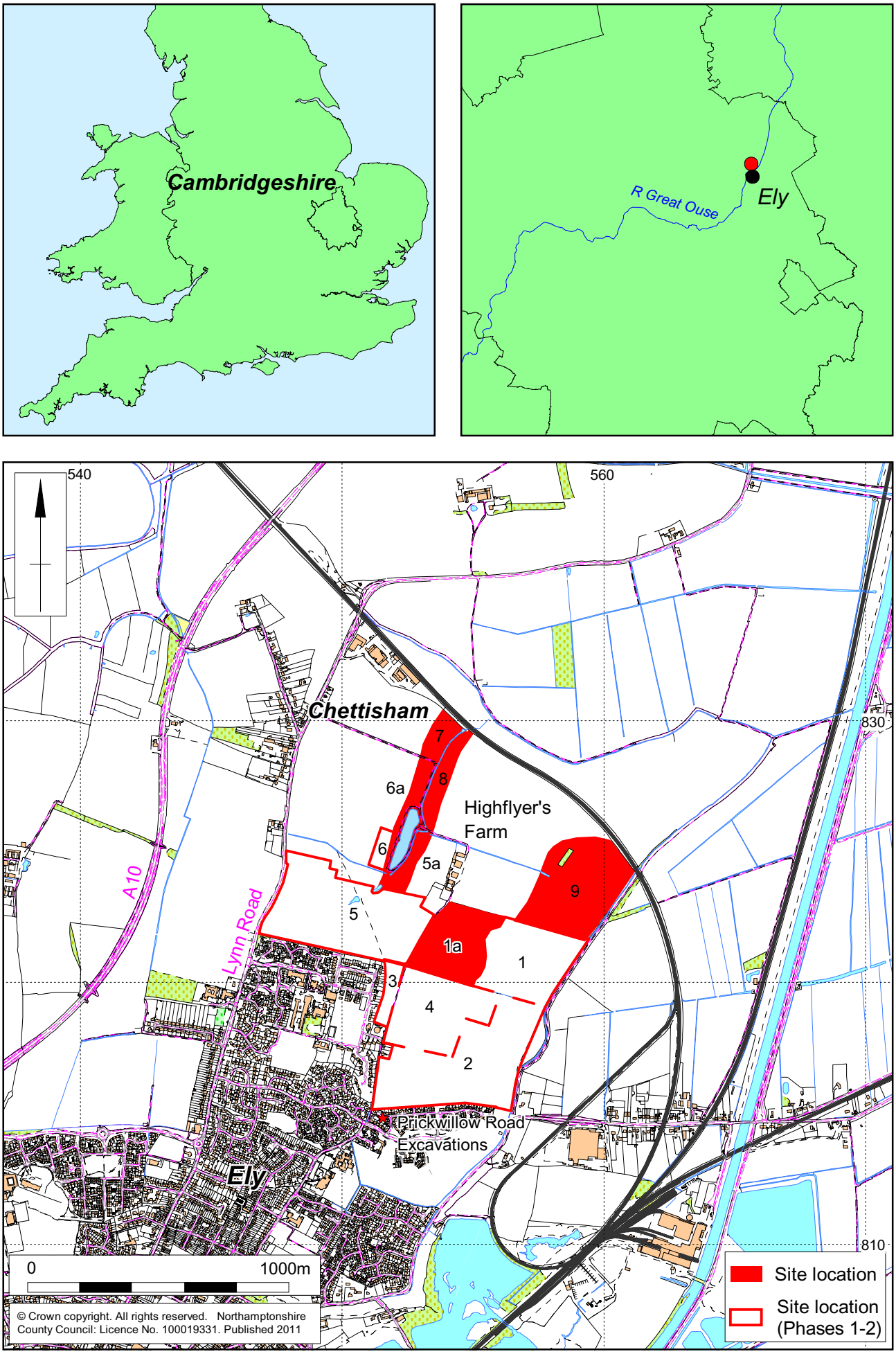
Hall, D, 1996 *The Fenland Project, number 10: Cambridgeshire Survey, Isle of Ely and Wisbech*, East Anglian Archaeol, **79**

NA 2010 *Land at High Flyer Farm, Ely, Cambridgeshire: Archaeological Geophysical Survey Method Statement*, Northamptonshire Archaeology, unpublished document

Walford, J, 2010 *Archaeological Geophysical Survey on land at High Flyer Farm, Ely, Cambridgeshire*, Northamptonshire Archaeology report, **10/217**

Walford, J, and Smith, H, 2010 *Archaeological Geophysical Survey on land at High Flyer Farm, Ely, Cambridgeshire: Phase 2*, Northamptonshire Archaeology report, **11/26**

Northamptonshire Archaeology
A Service of Northamptonshire County Council 31 March 2011

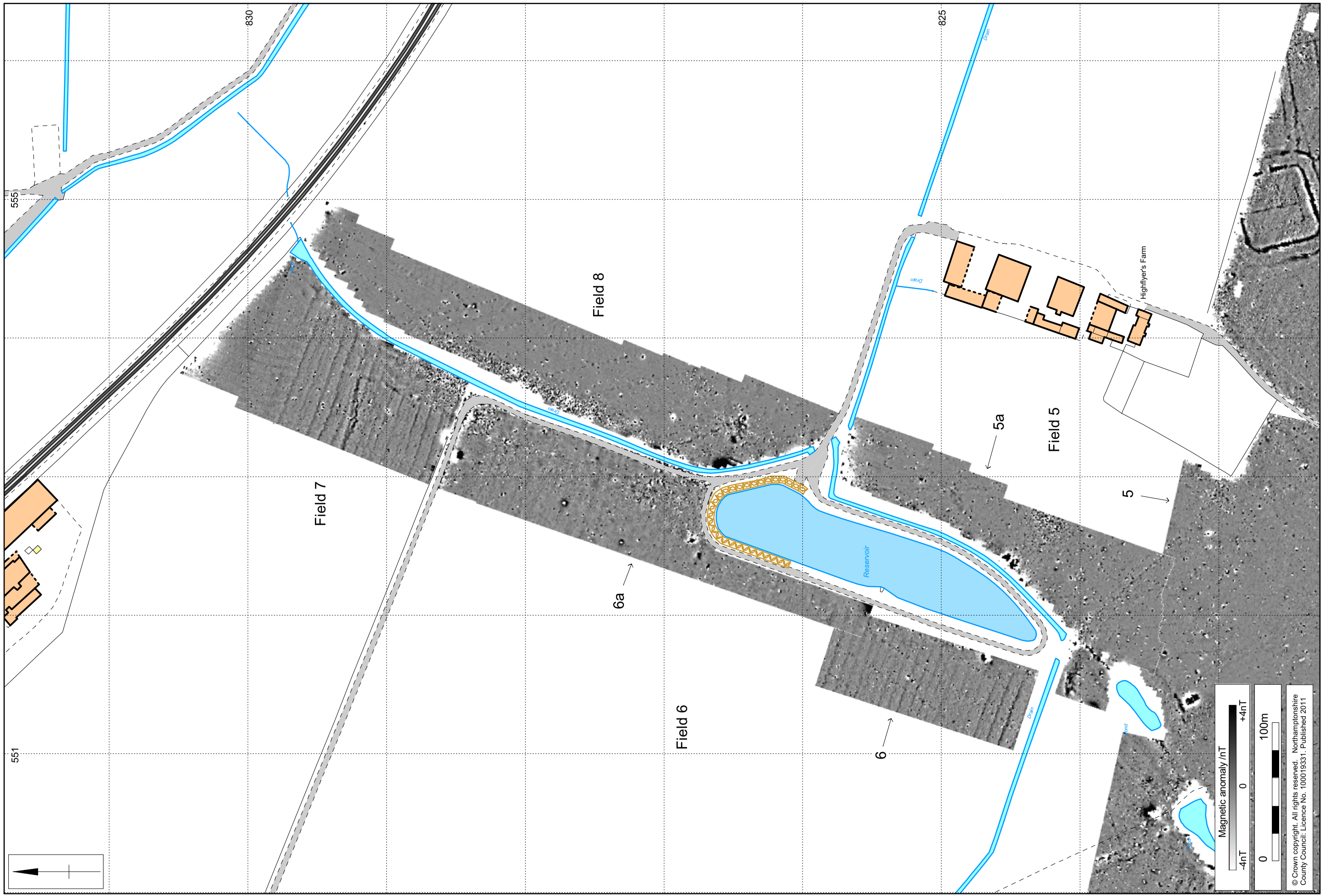


Scale 1:20,000

Site Location Fig 1

1:6000

Overview of magnetometer survey results, phases 1-3 Fig 2



1:2500

Magnetometer survey results, Fields 5-8 Fig 3

1:2500

551

555

830

Field 7

Field 8

6a

Field 6

6

Reservoir

Drain

825

5a

Field 5

5

Pond

Pond

Highflyer's Farm

Archaeology? (pit, ditch)

Thermoremnant feature (?kiln, oven, etc)

Weakly magnetic debris (hardcore, ceramics, etc)

Old field boundary

Ridge and furrow

Cultivation edge (recent)

Field drain

Geology?

Ferrous object

Ferrous halo

Magnetic anomaly /nT

-4nT 0 +4nT

0 100m

Magnetometer survey interpretation, Fields 5-8 Fig 4

554
556
558
590
824
822
5a
9
1a
5
1
Highflyer's Farm
Drain
Drain
Drain
Drain
Drain
Magnetic anomaly /nT
-4nT
0
+4nT
0
100m

1:2,500

Magnetometer survey results, Fields 1 & 9 Fig 5

554
556
558
590
824
822
5a
Field 5
5
Highflyer's Farm
Field 9 →
1a
Field 1
Drain
Archaeology? (pit, ditch)
Thermoremnant feature (?kiln, oven, etc)
Weakly magnetic debris (hardcore, ceramics, etc)
Old field boundary
Ridge and furrow
Cultivation edge (recent)
Field drain
Geology?
Ferrous object
Ferrous halo
Magnetic anomaly /nT
-4nT
0
+4nT
0
100m

1:2,500

Magnetometer survey interpretation, Fields 1 & 9 Fig 6

Northamptonshire County Council

Northamptonshire Archaeology

Northamptonshire Archaeology
2 Bolton House
Wootton Hall Park
Northampton NN4 8BE
t. 01604 700493 f. 01604 702822
e. sparry@northamptonshire.gov.uk
w. www.northantsarchaeology.co.uk