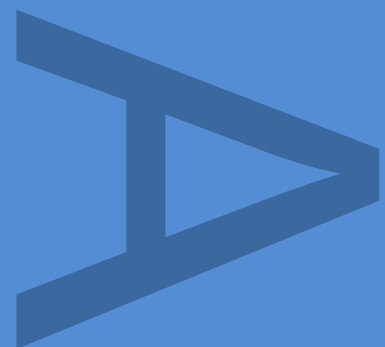


**A GEOPHYSICAL SURVEY AT
HINCKLEY GOLF CLUB,
LEICESTER ROAD, HINCKLEY,
LEICESTERSHIRE, LE10 3DR**

**ARCHAEOLOGICAL
GEOPHYSICAL SURVEY**

X.A63.2013

JUNE 2013



PRE-CONSTRUCT ARCHAEOLOGY

A GEOPHYSICAL SURVEY AT HINCKLEY GOLF CLUB, LEICESTER ROAD, HINCKLEY, LEICESTERSHIRE, LE10 3DR

Site Code: X.A63.2013

Central NGR: SP 4425 9461

Local Planning Authority: Hinckley and Bosworth

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PCA Report Number:R11442

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ABSTRACT

A fluxgate gradiometer survey was carried out on the practice area of Hinckley Golf course, Hinckley, Leicestershire. The work was undertaken in May 2013. The purpose of the survey was to locate the nature and extent of any archaeological remains that may lie within the proposed area of investigation.

Two ephemeral curvilinear magnetic anomalies of archaeological significance were detected that may represent ditches. However, due to the nature of the area of investigation it is more likely that these probably denote variations in the underlying soils and geology.

Other anomalies detected are of a modern nature indicating features such as existing services and modern ferrous debris as well as flag poles in the practice area.

No other anomalies of an archaeological nature were detected within the proposed area of investigation.

1. INTRODUCTION

- 1.1 Pre-Construct Archaeology Ltd commissioned the Centre for Archaeological and Forensic Analysis, Cranfield University to undertake a fluxgate gradiometer survey on the practice area of Hinckley Golf Course, Hinckley, Leicestershire (Fig 1). This work was carried out in May 2013.
- 1.2 The purpose of the survey was to determine the nature and extent of any archaeological deposits that lie within the proposed area prior to soil stripping and re-landscaping this part of the golf course.
- 1.3 The survey methodology described in this report was based upon guidelines set out in the English Heritage document '*Geophysical Survey in Archaeological Field Evaluation*' (EH 2008).

2. LOCATION AND DESCRIPTION

- 2.1 The information contained within sections 2 and 3 of this report is based on information supplied by Pre-Construct Archaeology Ltd.
- 2.2 The site is situated on the eastern edge of the town of Hinckley, just off the B4666 Leicester Road, to the east of the larger town of Nuneaton and to the south-west of Leicester. The geophysical survey covers an area of c.2ha in extent (centred on NGR SP 4425 9461).
- 2.3 The area of investigation is situated between Holes 2 and 7 and is lined with trees down either side of the practice area fairway and is under permanent grass. The ground undulates at the north end of the survey area and slopes fairly gently up slope to the south towards Hole 2. At the north end of the survey area extant ridge and furrow earthworks are clearly visible and have amplitude of c.0.5m. These could also represent artificial ridges created when the golf course was designed.
- 2.4 The underlying geology of the site is comprised of Mercian Mudstone overlain by superficial deposits of Wolstan Clay and Wolstan Sands and Gravel (Geological Map Data ©NERC 2013). The magnetic susceptibility of these types of geologies is generally good to average.

3. ARCHAEOLOGICAL BACKGROUND

- 3.1 Archaeological remains have been found within the surrounding vicinity of the application site according to the Leicestershire and Rutland Historic Environment Record (HER).
- 3.2 The potential for archaeological remains date from the prehistoric period where a ditch containing burnt stones and a posthole producing daub was excavated during a trial trench evaluation in 2010 (MLE: 18322). Roman occupation is represented by the discovery in a watching brief during 1982 of various Roman finds that included pottery, building material, a quern and tesserae (MLE: 2834).
- 3.3 The application area is situated within the environs of a possible medieval beacon on Brick Kiln Hill (MLE: 2869) that was documented in a reference dating to 1811. The site is presently occupied by domestic residence and paddocks.
- 3.4 The place-name 'Hinckley' has Saxon origins, and it is likely that it began to develop as a notable settlement in the 11th century. The Domesday Book of 1086 records that in the Guthlaxton Wapentake 'Earl Aubrey holds 14c. of land in lordship 4 ploughs, 8 slaves. 42 villagers with 16 smallholders and 3 Freemen have 9½ ploughs. Meadow, 6 furlongs in length and 3 furlongs wide; woodland 1 league long and 3 furlongs wide. The value was £6; now £10.
- 3.5 During the post-medieval period Mill Close is documented on field name evidence (SP 442945) as the site of a windmill (MLE: 2838). Later post-medieval activity is marked on the 1st edition Ordnance Survey Map on Brick Kiln Hill as the site of Outwoods Brickyard (MLE: 2870).
- 3.6 A trial trench evaluation was undertaken in 2005 on land to the rear of 21-33 Bradgate Road. The results of the evaluation only produced modern activity that included a 20th century gully (X.A183.2005).

4. METHODOLOGY

Gradiometry

- 4.1 Gradiometry is a non-intrusive scientific prospecting technique used to determine the presence/absence of some classes of sub-surface archaeological features (eg pits, ditches, kilns, and occasionally stone walls). By scanning the soil surface, geophysicists identify areas of varying magnetic susceptibility and can interpret such variation by presenting data in various graphical formats and identifying images that share morphological affinities with diagnostic archaeological as well as other detectable remains (Clark 1990; Gaffney and Gater 2003).
- 4.2 The use of gradiometry is used to establish the presence/absence of buried magnetic anomalies, which may reflect sub-surface archaeological features.
- 4.3 The area survey was conducted using a Bartington Grad 601 dual fluxgate gradiometer with DL601 data logger set to take 4 readings per metre (a sample interval of 0.25m). The zigzag traverse method of survey was used, with 1m wide traverses across 30m x 30m grids. The sensitivity of the machine was set to detect magnetic variation in the order of 0.1 nanoTesla.
- 4.4 The data was processed using *Archeosurveyor v.2*. The results are plotted as greyscale and trace plot images (Figs. 3-5).
- 4.5 The enhanced data was processed by using zero-mean functions to correct the unevenness of the image in order to produce a smoother graphical appearance. It was also processed using an algorithm to remove magnetic spikes, thereby reducing extreme readings caused by stray iron fragments and spurious effects due to the inherent magnetism of soils. The data was also clipped to reduce the distorting effect of extremely high or low readings caused by discrete pieces of ferrous metal.

5. INTERPRETATION AND ANALYSIS OF RESULTS (Figs. 3-5 and 6)

- 5.1 A detailed fluxgate gradiometer survey covering an area of c. 2ha of the practice area of Hinckley Golf Course and a rough area with tree coverage below the 2nd green, revealed no significant archaeological anomalies. The majority, however, appear to reflect modern disturbances associated with the construction of the golf course.
- 5.2 Generally, a series of isolated individual anomalies were detected (Fig. 6, examples circled pink) that reflect areas of modern ferrous litter, which lie just below or on the surface of the ground. A number of these anomalies relate to flag poles, a modern building, and other modern utilities below ground. A zone of strong magnetic variation (Figs 3-5, and 6, 1) was recorded at the northern end of the survey area. This represents made ground for the practice tees.
- 5.3 A strong linear magnetic anomaly (Figs 3-5 and 6, 2) situated close to the centre of the survey area denotes a culverted drain that issues into an artificial lake approximately 150m to the south-west of the survey area.
- 5.4 Two ephemeral curvilinear anomalies (Figs 3-5 and 6, 3) detected to the south of the drain may denote the presence of ditches. However, it is more likely that these may resolve as natural features within the underlying geology or reflect landscaping.
- 5.5 No other significant anomalies of archaeological interest were detected across the entire area of investigation.

6. CONCLUSIONS

- 6.1 Two ephemeral curvilinear anomalies were detected that may reflect the presence of archaeological remains. However, it is more likely that these may resolve as underlying variations in the soils and geology given the nature of the area of investigation. Other magnetic anomalies present in the resultant image reflect modern disturbances that include services and modern ferrous debris as well as flag poles.
- 6.2 It can be concluded that the gradiometer survey has produced few significant archaeological anomalies.

7. ACKNOWLEDGEMENTS

PCA would like to thank Pete Master from Cranfield University for undertaking the Geophysical Survey. Also James Bailey planning for commissioning the work.

8. BIBLIOGRAPHY

Clark, A. J. 1990 *Seeing Beneath the Soil* London, Batsford

E.H. 2008 *Geophysical Survey in Archaeological Field Evaluation*. London, English Heritage: Research & Professional Guidelines No.1. 2nd Edition

Gaffney, C. & Gater, J. 2003 *Revealing the Buried Past – Geophysics for the Archaeologist*, Tempus publishing.

APPENDIX 1

OASIS ID: preconst1-152426

Project details

Project name	Hinckley Golf Club, Hinckley, Leicestershire
Short description of the project	Two ephemeral curvilinear magnetic anomalies of archaeological significance were detected that may represent ditches. However, due to the nature of the area of investigation it is more likely that these probably denote variations in the underlying soils and geology.
Project dates	Start: 07-05-2013 End: 07-05-2013
Previous/future work	No / Not known
Any associated project reference codes	X.A63.2013 - Museum accession ID
Type of project	Field evaluation
Methods & techniques	"Geophysical Survey"
Development type	Golf course
Prompt	Planning condition
Position in the planning process	Pre-application

Project location

Country	England
Site location	LEICESTERSHIRE HINCKLEY AND BOSWORTH HINCKLEY Hinckley Golf Club
Postcode	LE10 3DR
Study area	2.00 Hectares
Site coordinates	SP 4425 9461 52 -1 52 32 49 N 001 20 50 W Polygon

Project creators

Name of Organisation	PCA Midlands
Project brief originator	Leicestershire County Archaeology Office
Project director/manager	Kevin Trott
Project supervisor	Pete Masters
Type of sponsor/funding body	Private Client
Name of sponsor/funding body	Hinckley Golf Club

Project archives

Physical Archive Exists?	No
Digital Archive recipient	Leicestershire Museums Service
Digital Archive ID	X.A63.2013
Digital Media available	"Geophysics"
Paper Archive recipient	Leicestershire Museums Service
Paper Archive ID	X.A63.2013

Project bibliography 1

Publication type	Grey literature (unpublished document/manuscript)
Title	A GEOPHYSICAL SURVEY AT HINCKLEY GOLF CLUB, LEICESTER ROAD, HINCKLEY, LEICESTERSHIRE, LE10 3DR
Author(s)/Editor(s)	Masters P
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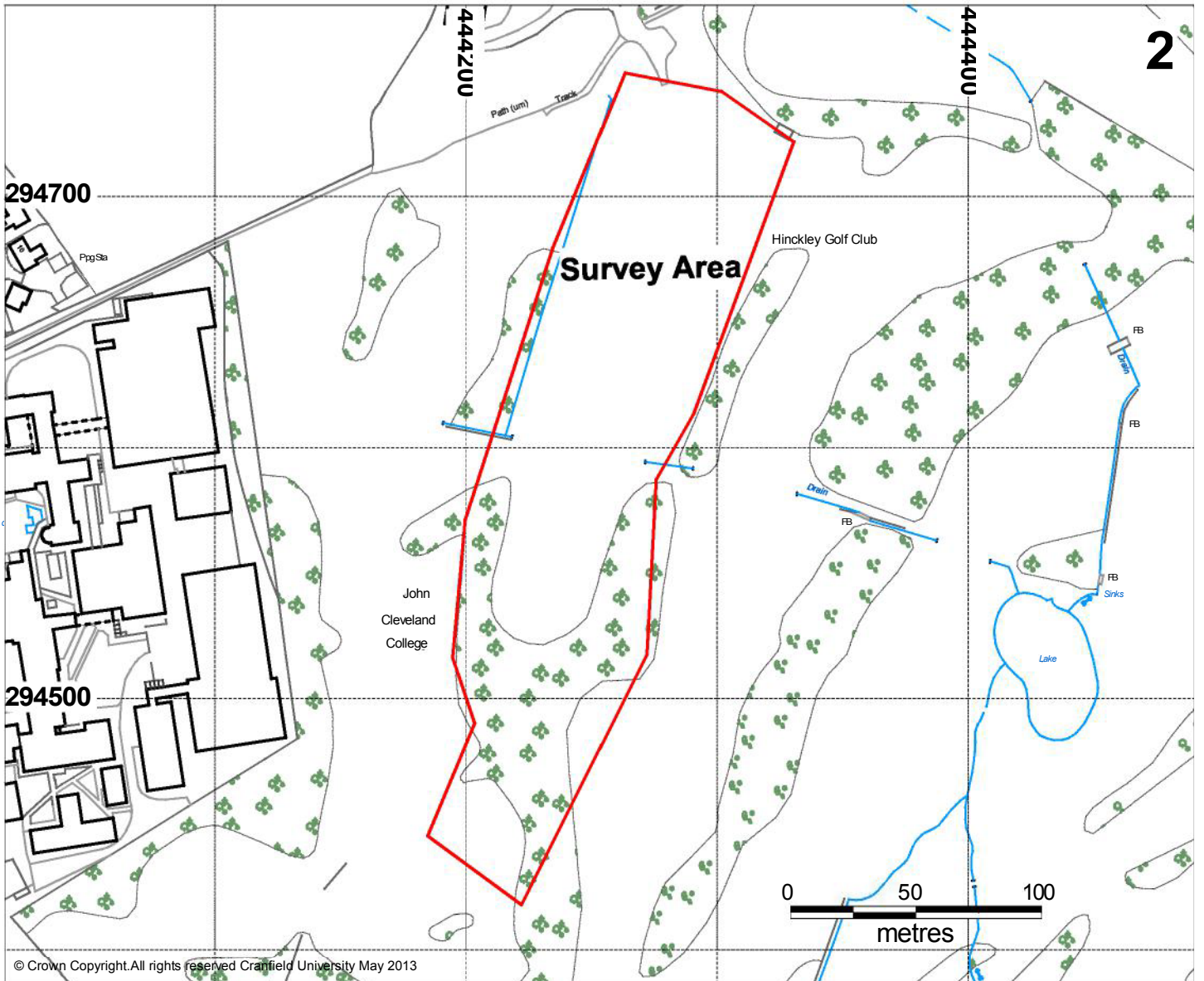
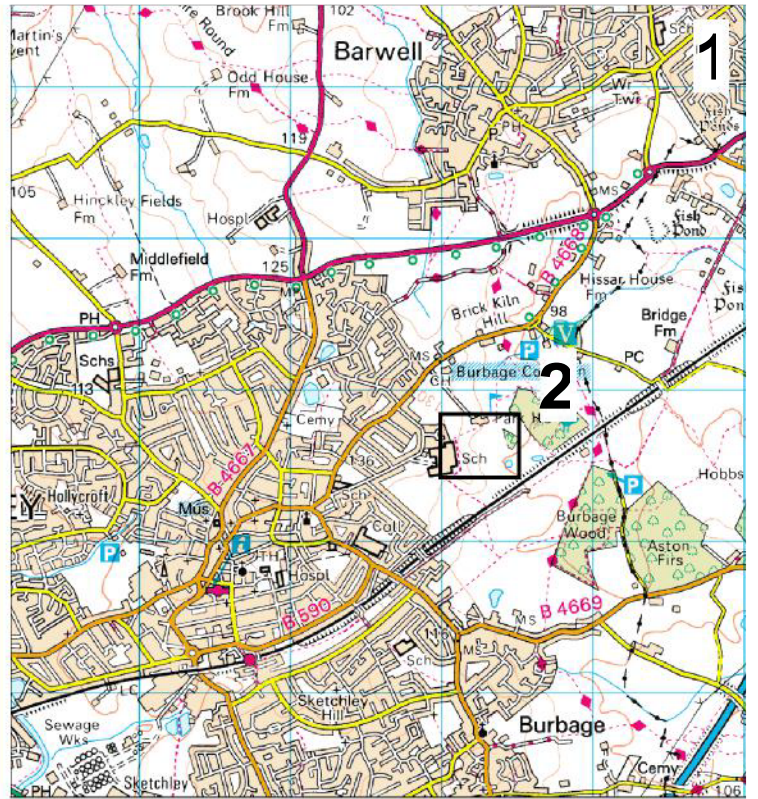
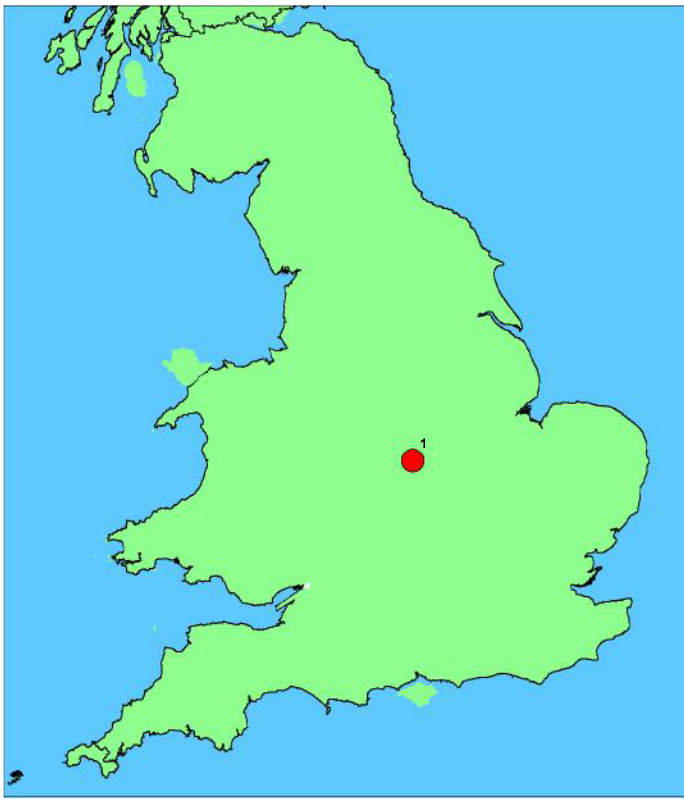


Fig. 1 - Location map, scale - 1:2,500

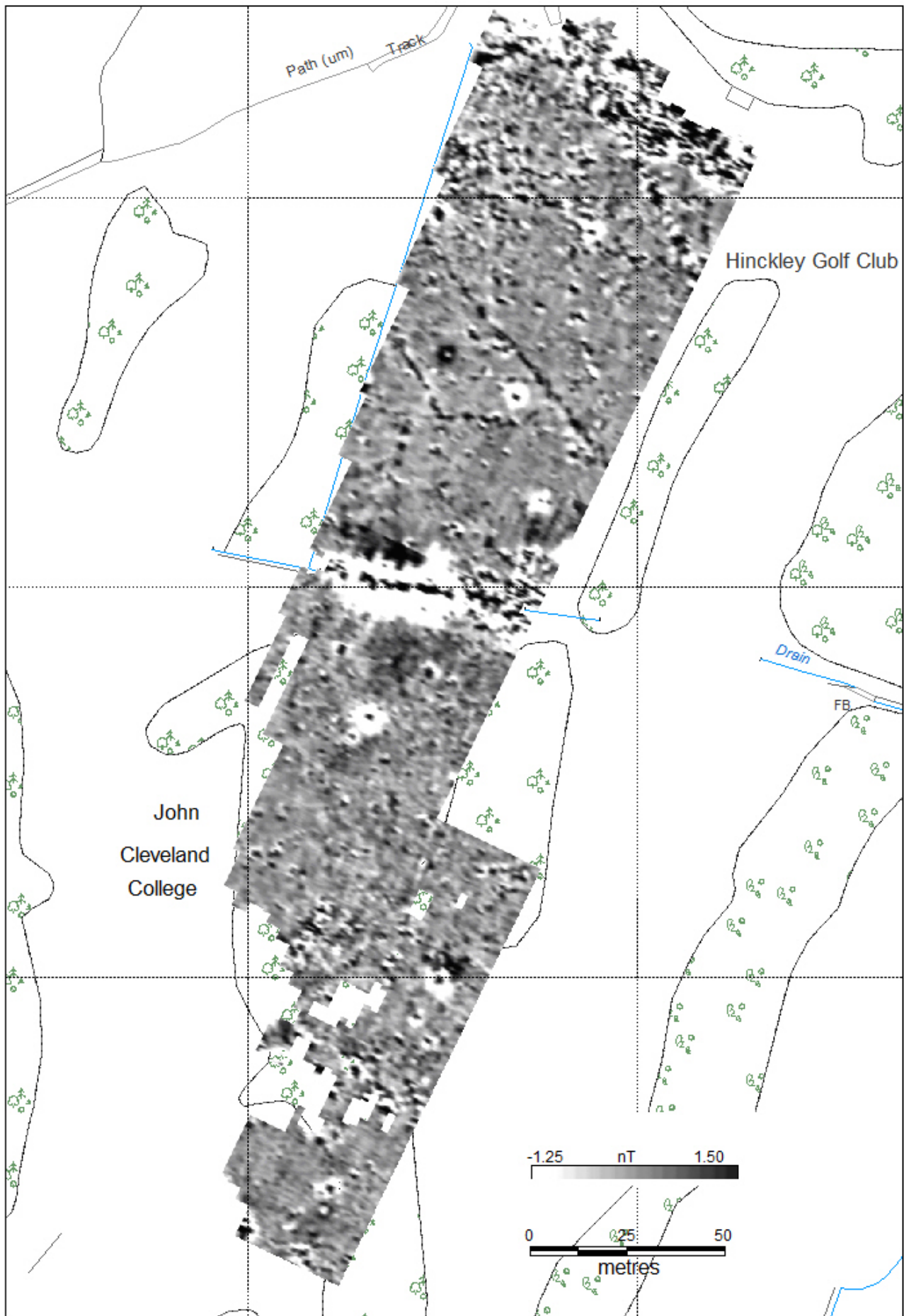


Fig. 2 - Location of gradiometer survey, scale 1:1250



FIG. 3: Grey scale plot of enhanced data, scale – 1:1000



FIG. 4: Trace plot of raw data, scale – 1:1000



FIG. 5: Grey scale plot of enhanced data, scale – 1:1000

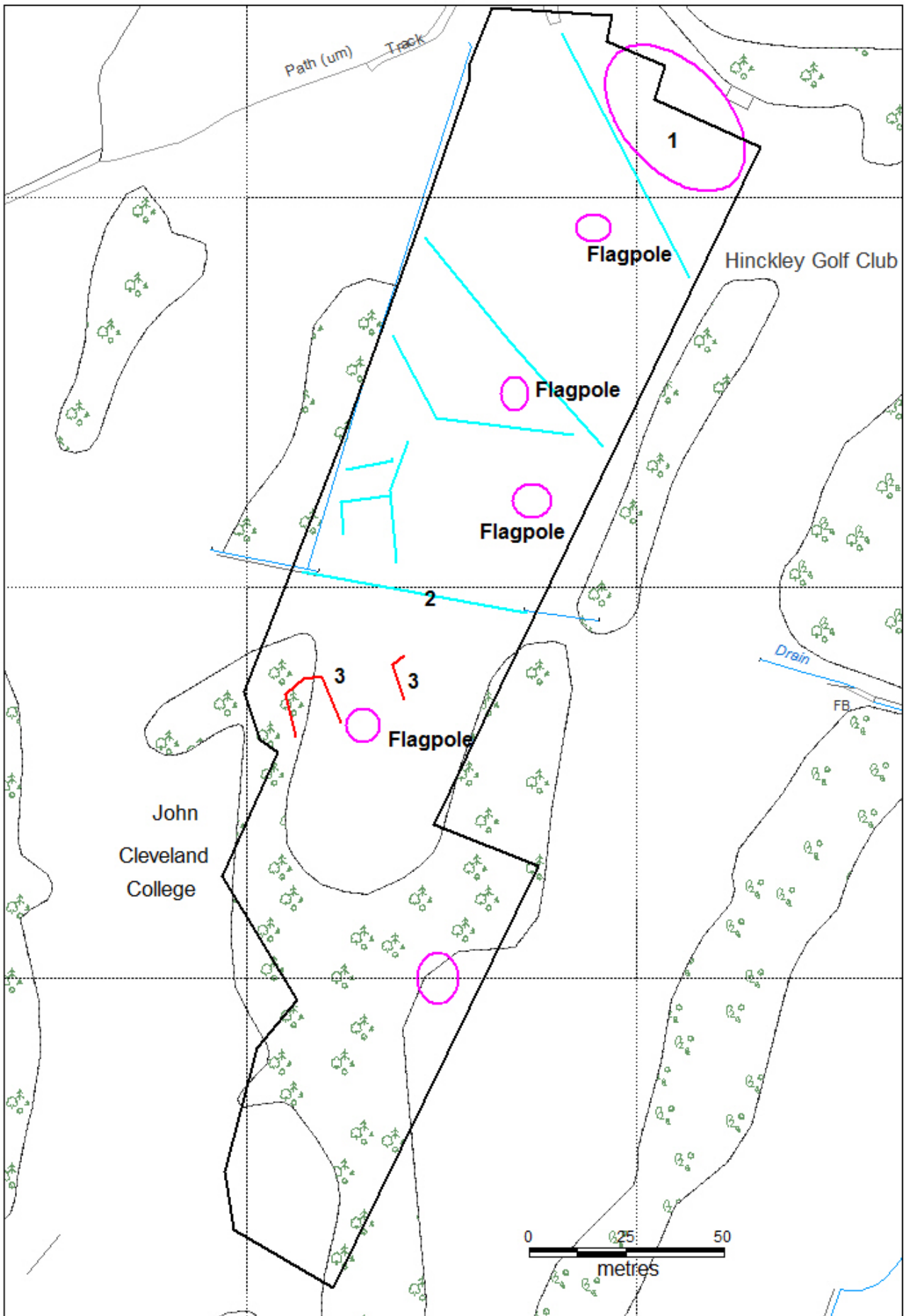


Fig. 6 - Interpretation of results, scale - 1:1250

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