

**ARCHAEOLOGICAL EVALUATION REPORT:  
GEOPHYSICAL SURVEY BY MAGNETOMETRY AND FIELDWALKING ON LAND AT  
TICKENCOTE LODGE FARM, TICKENCOTE, RUTLAND**

NGR: SK 9845 0931  
AAL Site Code: TICK 14  
OASIS Reference Number: allenarc1-198902



Report prepared for King West, on behalf of Tickencote Estate

By  
Allen Archaeology Limited  
Report Number AAL 2015071

May 2015



Allenarchaeology



## Contents

Executive Summary .....	1
1.0 Introduction.....	2
2.0 Site Location and Description.....	2
3.0 Planning Background .....	2
4.0 Archaeological and Historical Background .....	2
5.0 Methodology .....	3
Geophysical survey.....	3
Summary of Survey Parameters.....	4
Data Collection and Processing .....	4
Fieldwalking.....	5
6.0 Geophysical Survey Results .....	6
7.0 Fieldwalking Results .....	7
8.0 Discussion and Conclusions.....	7
9.0 Effectiveness of Methodology.....	8
10.0 Acknowledgements .....	8
11.0 References.....	8

### List of Appendices

Appendix 1: Finds Summary .....	10
Appendix 2: Figures .....	11

### List of Plates

Plate 1: View of stubble within western field, looking south.....	5
Plate 2: East facing view of eastern field showing vegetation regrowth .....	6

### List of Figures

Figure 1: Site location outlined in red .....	11
Figure 2: Greyscale raw data and processed trace plot .....	12
Figure 3: Processed greyscale and interpretation.....	13
Figure 4: Processed greyscale in real space .....	14
Figure 5: Interpretation in real space.....	15

### Document Control

Element:	Name:	Date:
Report prepared by:	Iain Pringle BA (Hons)	19/05/2015
Illustrations prepared by:	Iain Pringle BA (Hons)	19/05/2015
Report edited by:	Mike Wood BA (Hons) MLitt MCIfA	19/05/2015
Report reviewed by:	Chris Clay MA (Hons)	20/05/2015

Version no:	2.0	11/06/2015
-------------	-----	------------

Allen Archaeology reports are printed double sided on 100% recycled paper to reduce our carbon footprint.

*Cover Image: View of the site taken from the northeast corner looking southwest*

## Executive Summary

- Allen Archaeology Ltd (hereafter AAL) was commissioned by King West, on behalf of Tickencote Estate, to undertake a geophysical survey and fieldwalking on land at Tickencote Lodge Farm, Tickencote, Rutland.
- Land to the west of Tickencote, forming part of Tickencote Lodge Farm has been entered into a Higher Level Environmental Stewardship Scheme (HLS) with Natural England (Agreement reference AG00494769). The purpose of the current works is to provide detailed information that will aid the determination of the nature and extent of the potential archaeological resource within the site, and the effects of the current agricultural regime upon the archaeological resource.
- The geophysical survey identified a number of potential archaeological features across the site. These include a possible Bronze Age ring ditch mentioned in the Historic Environment Record (HER Reference MLE5792), as well as another fainter example of a possible prehistoric ring ditch, along with a number of linear and curvilinear features which may represent former paths, ditches or trackways and a scattering of positive amorphous features which may represent former pits, ponds or filled in hollows. A concentration of these features towards the central part of the site may relate to the Anglo-Saxon activity previously identified on the site.
- The Bronze Age ring ditch is of specific interest as it appears to have a number of internal features and may represent the remains of a former prehistoric barrow. Given its proximity to the known Anglo Saxon settlement (LHER Reference MLE5796), there is the possibility of Saxon graves being cut into the mound.
- A small assemblage of artefacts was collected during the fieldwalking survey (Figure 4), the assemblage comprised ten sherds of pot, three fragments of flint, two shards of glass and one metal object. These ranged in date from the prehistoric to post-medieval periods. Of particular interest are the three sherds of Roman pottery, which were all located within close proximity to one another and to the site of the Anglo-Saxon settlement identified in the HER (Reference MLE5796).

## **1.0 Introduction**

- 1.1 Allen Archaeology Ltd (hereafter AAL) was commissioned by King West, on behalf of Tickencote Estate, to undertake a geophysical survey and fieldwalking on land at Tickencote Lodge Farm, Tickencote, Rutland. The aim of the survey was to identify any potential buried archaeological remains and to help inform plans for a higher level stewardship scheme.
- 1.2 The site works and reporting conform to current national guidelines, as set out in '*Geophysical Survey in Archaeological Field Evaluation*' (English Heritage 2008), '*The Use of Geophysical Techniques in Archaeological Evaluations*' (Gaffney et al 2002) and the Chartered Institute for Archaeologists '*Standard and guidance for archaeological geophysical survey*' (ClfA 2011).

## **2.0 Site Location and Description**

- 2.1 Tickencote is situated in Rutland, approximately 5.2km northwest of Stamford and 40.5km east of Leicester. The site comprises an irregular shaped block of land of approximately 10 hectares, located just to the east of Tickencote Lodge Farm and centred on NGR SK 9845 0931.
- 2.2 The local geology comprises bedrock geology predominantly of Whitby Mudstone Formation with areas of Northampton Sand Formation, Grantham Formation and Lower Lincolnshire Limestone. No superficial geology has been recorded; however Tufa and River Terrace Deposits have been noted immediately to the south of the site (<http://mapapps.bgs.ac.uk/geologyofbritain/home.html>). The ground cover is currently recently planted low crop.

## **3.0 Planning Background**

- 3.1 The proposed works do not fall within the planning process. Land to the west of Tickencote, forming part of Tickencote Lodge Farm has been entered into a Higher Level Environmental Stewardship Scheme (HLS) with Natural England (Agreement reference AG00494769). The purpose of the current works is to provide detailed information that will aid the determination of the nature and extent of the potential archaeological resource within the agreed site boundaries.
- 3.2 This will take the form of an archaeological risk assessment, which will inform the Higher Level Stewardship Scheme AG00494769. The comprises staged investigations including non-intrusive fieldwalking, geophysical survey and evaluation trenching, as set out in a brief provided by Leicestershire County Council Historic and Natural Environment Team (LCC 2014).
- 3.3 The assessment will use the Conservation of Scheduled Monuments in Cultivation (COSMIC) Risk Assessment methodology, which was developed by Oxford Archaeology with funding from DEFRA and English Heritage (Oxford Archaeology 2006, Natural England October 2006).

## **4.0 Archaeological and Historical Background**

- 4.1 The site is located within Tickencote Lodge Farm and evidence for archaeological activity has been identified on the site and in the immediate vicinity from cropmarks and previous excavations. Towards the northern edge of site is a circular cropmark of a probable Early Bronze Age round barrow (Leicestershire and Rutland HER (hereafter LHER) Reference

MLE5792) and to the south, evidence of an Anglo-Saxon settlement including at least two grubenhauser or sunken-featured buildings has been identified (LHER Reference MLE5796).

- 4.2 During works for the laying of a pipeline in 1990, excavations uncovered evidence of an Anglo-Saxon settlement. Along with hearths, ditches and pits, two sunken-featured buildings were excavated. The first sunken-featured building included fifty stakeholes, three post holes and a hearth; the second building only contained one possible post hole. Both, however, contained significant quantities of Saxon pottery positively dating the features to the Anglo-Saxon period (Sharman 1990).
- 4.3 To the east of the site are various other cropmarks including three more possible ring ditches and a large curvilinear ditch (LHER Reference MLE17202), which can be seen on aerial photographs taken in 2006.
- 4.4 Tickencote is recorded in the Domesday Book of 1086 as *Tichecote*, possibly from the Saxon *Ticcen* and *Cote* meaning goats and kids, perhaps suggesting goatherding (Cox 1994).
- 4.5 To the west of the site is the Grade II Listed Tickencote Lodge Farmhouse (Listing Reference 187257). The farmhouse was built in the late 18<sup>th</sup> century of coursed, squared rubble with ashlar dressings, Collyweston stone slate roofs and stone end stacks. It has a double pile plan, two storeys and attic. Three steps lead up to a central four-panel door. Above the door is a rectangular fanlight, with glazing bars in a lozenge pattern.
- 4.6 Approximately 500m to the northeast of the site is the Grade I Listed Church of St. Peter (LHER Reference MLE57871). The church is of 12<sup>th</sup> century origin, but was restored, partly rebuilt and added to 1792 in Norman style by S P Cockerell, the nave being re-roofed and re-seated 1872. The church is bordered by the Grade II Listed churchyard wall and lychgate (LHER Reference MLE19364). These are constructed of rubble stone and timber, the lychgate having a Collyweston stone slate roof, clay ridge tiles and small iron cross above. It is Arts-and-Crafts Gothic in style inscribed "Blessed are the dead which die in the Lord".

## 5.0 Methodology

### ***Geophysical survey***

- 5.1 The geophysical survey consisted of a detailed gradiometer survey of the maximum available area of the development site, extending to approximately 6.9 ha.
- 5.2 The fieldwork was carried out over a period of four working days, Tuesday 4<sup>th</sup> to Friday 7<sup>th</sup> November 2014, by a team of two experienced geophysicists. The site was divided into 30m by 30m grids, established on site with reference to local fixed boundaries and accurately tied into the National Grid with Ordnance Survey base mapping using a survey grade Leica GS08 Net rover receiving RTK corrections.
- 5.3 The survey was undertaken using a Bartington Grad601-2 Dual Fluxgate Gradiometer with onboard automatic DL601 data logger. This instrument is a highly stable magnetometer which utilises two vertically aligned fluxgates, one positioned 1m above the other. This arrangement is then duplicated and separated by a 1m cross bar. The 1m vertical spacing of the fluxgates provides for deeper anomaly detection capabilities than 0.5m spaced fluxgates. The dual arrangement allows for rapid assessment of the archaeological potential of the site. Data

storage from the two fluxgate pairs is automatically combined into one file and stored using the onboard data logger.

- 5.4 Data collection was undertaken in a zigzag traverse pattern, using a sample interval of 0.25m and a traverse interval of 1m.

### ***Summary of Survey Parameters***

#### 5.5 Fluxgate Magnetometers

Instrument 1:	Bartington Grad601-2 Dual Fluxgate Gradiometer
Sample interval:	0.25m
Traverse interval:	1.00m
Traverse separation:	1.00m
Traverse method:	Zigzag
Resolution:	0.1 nT
Processing software:	Terrasurveyor 3.0.25.1
Surface conditions:	Stubble
Area surveyed:	6.9 ha
Date surveyed:	Tuesday 4 <sup>th</sup> to Friday 7 <sup>th</sup> November 2014
Geophysical Surveyor:	Iain Pringle
Survey Assistant:	Tom Whitfield
Data interpretation:	Iain Pringle

### ***Data Collection and Processing***

- 5.6 The grids were marked out using pre-programmed coordinates on the Leica GS08 Net rover. The collection of magnetic data using a north-south traverse pattern is preferable as the fluxgate gradiometer is set up and balanced with respect to the cardinal points. Since the data is plotted as north-south traverses there is considerable merit sampling the north-south response of a magnetic anomaly with as many data points as is possible, this is accomplished as the density collected along the traverse line is greater than that between traverses (Aspinall et al. 2008). On this occasion magnetic data was collected on a north-south alignment, due to the orientation of the development area.

- 5.7 The data collected from the survey has been analysed using the current version of Terrasurveyor 3.0.25.1. The resulting data set plots are presented with positive nT/m values and high resistance as black and negative nT/m values and low resistance as white.

- 5.8 The data sets have been subjected to processing using the following filters:

- De-stripe
- Clipping
- De-staggering

- 5.9 The de-stripe process is used to equalise underlying differences between grids or traverses. Differences are most often caused by directional effects inherent to magnetic surveying instruments, instrument drift, instrument orientation (for example off-axis surveying or

heading errors) and delays between surveying adjacent grids. The de-stripe process is used with care however as it can sometimes have an adverse effect on linear features that run parallel to the orientation of the process.

- 5.10 The clipping process is used to remove extreme data point values which can mask fine detail in the data set. Excluding these values allows the details to show through.
- 5.11 The de-staggering process compensates for data correction errors caused by the operator commencing the recording of each traverse too soon or too late. It shifts each traverse forward or backwards by a specified number of intervals.
- 5.12 Plots of the data are presented in processed linear greyscale (smoothed) with any corrections to the measured values or filtering processes noted, and as separate simplified graphical interpretations of the main anomalies detected.

### ***Fieldwalking***

- 5.13 The purpose of such survey was to retrieve artefacts, such as worked flint or pottery, whose spatial distribution could indicate areas of potential archaeological interest below the plough zone.
- 5.14 The fieldwalking survey was carried out on Tuesday 4<sup>th</sup> November 2014, on land which had been recently harvested (leaving stubble in situ) (Plate 1) and with vegetation beginning to regrow (Plate 2). The ground conditions were therefore reasonable giving a visibility of approximately 60%.



*Plate 1: View of stubble within western field, looking south*





*Plate 2: East facing view of eastern field showing vegetation regrowth*

- 5.15 The fieldwalking survey was undertaken by a team of two experienced field archaeologists. The collection comprised a 20% sample of the areas available for survey, achieved by means of a series of 2m wide collection traverses at 10m spacing.
- 5.16 In each collection traverse, artefacts were collected from the ground surface and placed within self seal plastic bags which were marked with a unique, sequential, numerical identifier. The location of each find spot was recorded by handheld GPS (a Garmin eTrex10).
- 5.17 A selective artefact recovery policy was adopted based on the following criteria. All pottery sherds, excluding obviously modern or post-19<sup>th</sup> century fabrics were retained. All worked flints and worked stone was retained. Modern brick, tile and ceramic land drain was not retained.
- 5.18 All metal objects were collected, other than obviously modern material.

## **6.0 Geophysical Survey Results**

- 6.1 For the purposes of interpreting the anomalies, the survey data has been processed to the values of -3 to 3 nT/m (Figure 3). This enhances faint anomalies that may otherwise not be noted in the data. The survey results revealed a number of anomalies across the data set, and these are discussed in turn and noted as one and two digit numbers in square brackets.
- 6.2 Immediately noticeable are the large areas of magnetic noise [1] around the edges of site and covering a number of areas within the site. The magnetic noise produced varying readings across the site, generally between -20 to 20nT/m, although there were some areas of higher readings. Through the centre of the site the magnetic noise is likely to be related to the trees and fencing, which separate the two areas and the areas within the site are most likely associated with scattered detritus in the ploughsoil.
- 6.3 Also very clear within the data is the line of dipolar responses [2]. This gave readings between -3000 to 3000nT/m. These readings are the result of a service pipe which is orientated northwest-southeast through the site.

- 6.4 Scattered randomly throughout the site are a number of strong and weak dipolar responses [3], which gave readings averaging -30 to 40nT/m. The characteristic dipolar response of pairs of positive and negative 'spikes' suggest near surface ferrous metal or other highly fired material in the soil. The larger dipolar response towards the southwest corner of site is the result of a telegraph pole [4].
- 6.5 Dispersed throughout the site are a number of positive amorphous anomalies [5], producing readings of 4 to 8nT/m. These may represent pits, former ponds or filled in hollows.
- 6.6 Orientated northwest – southeast across the site are a series of positive linear anomalies [6]. These produced readings of between 2 and 8nT/m and are likely to represent modern land drains. This is also, most likely, the case for the positive linear features in the northeast corner of site which gave readings of 4 to 6nT/m, [7], although an earlier origin as boundary features of potential archaeological interest cannot be entirely discounted.
- 6.7 Towards the northern edge of the eastern part of the site is a positive curvilinear feature [8], producing readings of 2 to 6nT/m, with some internal features also apparent. This is mentioned in the Leicestershire and Rutland Historic Environment Record as being a possible Bronze Age ring ditch (LHER Reference MLE5792). Due to its similar size and shape this may also be the case for a fainter circular anomaly to the east-northeast [9].
- 6.8 In the western part of the site, along the southern edge, are a number of positive linear and curvilinear features [10]. These produced readings of 6 to 8nT/m and may be represent a series of former enclosures, with some internal pit like features.
- 6.9 Aligned north-south throughout the site are a series of faint linear anomalies [11]. These produced readings of -4 to 4nT/m and are the result of modern cultivation trends.
- 6.10 The area in the centre of the site, which has not been surveyed [12], is due to the hedge line separating the two areas and an area of fenced off game cover.

## **7.0 Fieldwalking Results**

- 7.1 The ground conditions and visibility were fair within all of the surveyed fields. The fields had been harvested, with crop stubble remaining, giving a visibility of approximately 60%. A small number of artefacts were collected during the survey (Figure 4). The assemblage comprised ceramics, flint, glass and metal objects, ranging in date from the prehistoric to post medieval periods. Of particular interest are the three sherds of Roman pottery, which were all located within close proximity to each other and to the site of the Anglo-Saxon settlement identified in the HER (LHER Reference MLE5796).
- 7.2 Despite the presence of known Anglo Saxon heritage assets no Anglo Saxon artefacts were recovered.
- 7.3 Fieldwalking finds represent a general low density across the site.

## **8.0 Discussion and Conclusions**

- 8.1 The surveys identified a number of potential archaeological features across the site. These include the probable Bronze Age ring ditch mentioned in the Historic Environment Record (LHER Reference MLE5792), as well as another similar feature to its northeast. This produced a

much fainter magnetic signature and as such may have been more truncated by ploughing than the previously documented example to the southwest. The more clearly defined of the two Bronze Age ring ditches is of specific interest as it appears to have a number of internal features (Figure 3). This feature may represent the remains of a former prehistoric barrow, and given its proximity to the known Anglo-Saxon settlement to the south, there is the possibility of Saxon graves being cut into the mound. Re-use of earlier monuments has been noted in other areas of the country but are uncommon in Leicestershire and Rutland. To date the most significant of these is at Cossington 40km to the west where there were a series of Bronze Age barrows, one of which (Barrow 3) was overlain by an early Saxon burial site with an associated nearby settlement (Thomas 2008).

- 8.2 A number of linear and curvilinear features which may represent former enclosures, paths, ditches or trackways and a scattering of positive amorphous features which may represent former pits, ponds or filled in hollows were also identified in the geophysical survey. Of particular interest is anomaly group [10], located to the west of where Anglo-Saxon activity was recorded during excavations for the pipeline running through the centre of the site. These features may represent further associated activity, although no dateable Anglo-Saxon material was recovered from the fieldwalking programme.
- 8.3 Fieldwalking finds were sparse, but a small quantity of possible worked flint was recovered from the site, as well as three sherds of Roman pottery found close to the possible Anglo-Saxon settlement site and tentatively indicating Roman activity in the area. A small handful of later finds is likely to represent domestic waste being used for the manuring of outlying fields.

## **9.0 Effectiveness of Methodology**

- 9.1 The non-intrusive evaluation methodology employed was particularly appropriate to the scale and nature of the site to be surveyed. Magnetometry was the prospection technique best suited to the identification of archaeological remains on the site, and has provided a clear indication of the distribution of potential archaeological features across the site, to provide a basis for any further intrusive investigation.

## **10.0 Acknowledgements**

- 10.1 Allen Archaeology Limited would like to thank King West and Tickencote Estate for this commission.

## **11.0 References**

- Breiner, S., 1999, *Applications Manual For Portable Magnetometers*, Geometrics, California
- CIfA, 2014, *Standard and Guidance for Archaeological Geophysical Survey*, Chartered Institute for Archaeologists, Reading
- Cox, B, 1994, *The Place-Names of Rutland (EPNS 67-69)*, Nottingham
- Department for Communities and Local Government, 2012, *National Planning Policy Framework*. London, Department for Communities and Local Government
- English Heritage, 2008, *Geophysical Survey in Archaeological Field Evaluation*. English Heritage

Gaffney, C, Gater, J, and Ovenden, S, 2002, *The Use of Geophysical Techniques in Archaeological Evaluations*. IFA Paper No. 6. The Institute for Archaeologists

Leicestershire County Council, 2014, *Brief for Fieldwalking, Geophysical Survey and Evaluation. Archaeological Risk Assessment to inform Higher Level Stewardship Scheme (AG00494769)*. Unpublished

Natural England, 2006, *COSMIC Training Handbook (Version 1, 2006)*, unpublished typescript based on Oxford Archaeology 2006

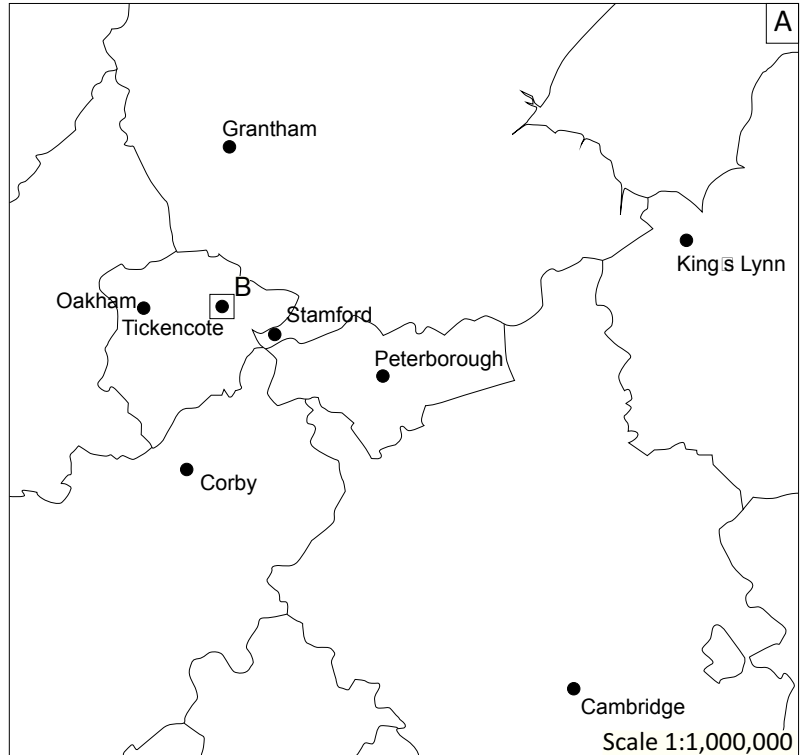
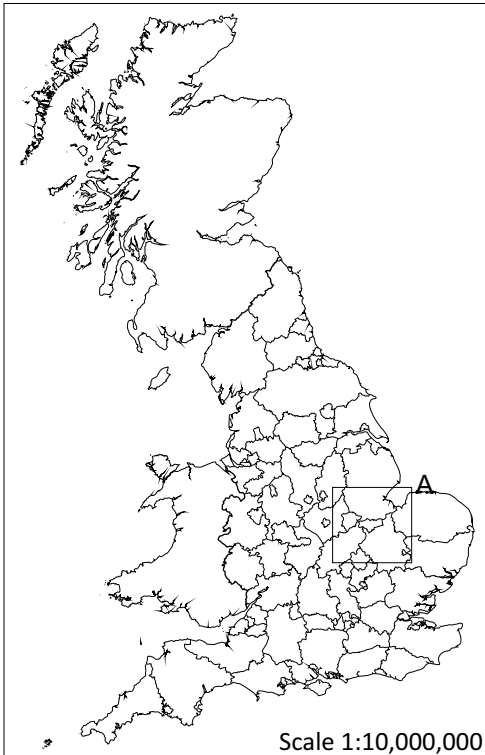
Oxford Archaeology, 2006, *Cultivation of Scheduled Monuments in Cultivation (COSMIC), report for English Heritage and DEFRA (BD 1704)*, Oxford Archaeology

Sharman, J, 1990, *Interim Report Site HB 24-12 Tickencote*, Leicestershire Archaeological Unit, Leicestershire Museums, Arts and Records Service

Thomas, J, 2008, *Monument, Memory and Myth*, Leicester Archaeology Monograph 14, School of Archaeology & Ancient History, University of Leicester

**Appendix 1: Finds Summary**

Name	Easting	Northing	Material	Spot Date
B01	498557	309427	Glass	Post Medieval
B02	498385	309335	Pottery	Post Medieval
B03	498412	309280	Pottery	Roman
B04	498225	309226	Pottery	Medieval
B05	498199	309250	Pottery	Post Medieval
D01	498636	309486	Pottery	Medieval
D02	498479	309373	Pottery	Roman
D03	498476	309358	Pottery	Roman
D04	498537	309381	Pottery	Medieval
D05	498560	309309	Flint	Prehistoric
D06	498359	309188	Copper Alloy	Post Medieval
D07	498273	309159	Flint	Prehistoric
D08	498334	309257	Glass	Post Medieval
D09	498335	309257	Flint	Prehistoric
D10	498189	309232	Pottery	Medieval



**Figure 1:** Site location outlined in red  
 © Crown copyright 2000. All rights reserved. Licence Number 100047330

Site Code	TICK 14
Scales	1:10,000,000 1:1,000,000 1:25,000 @ A4
Drawn by	I Pringle
Date	19/05/2015

**Allen**archaeology

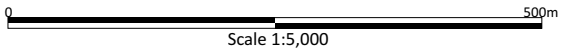
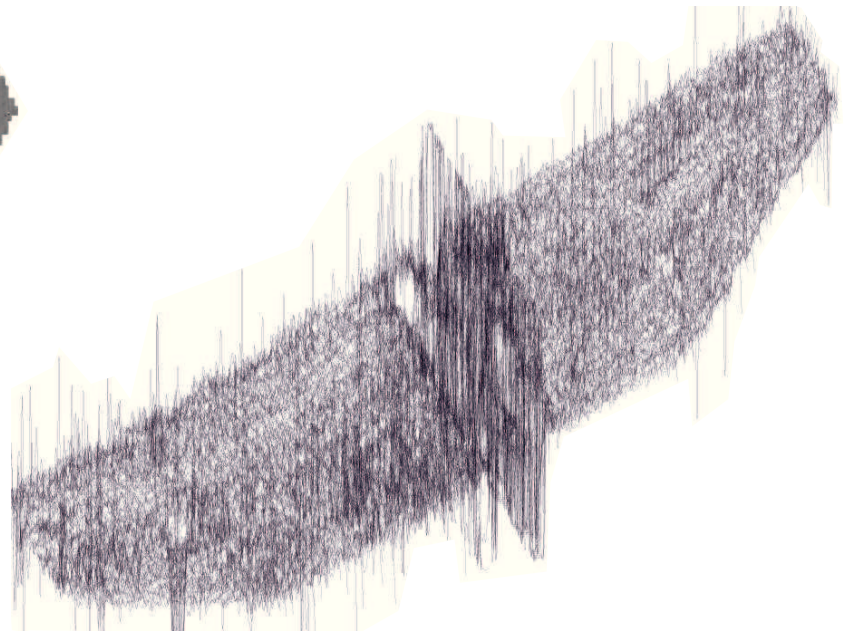
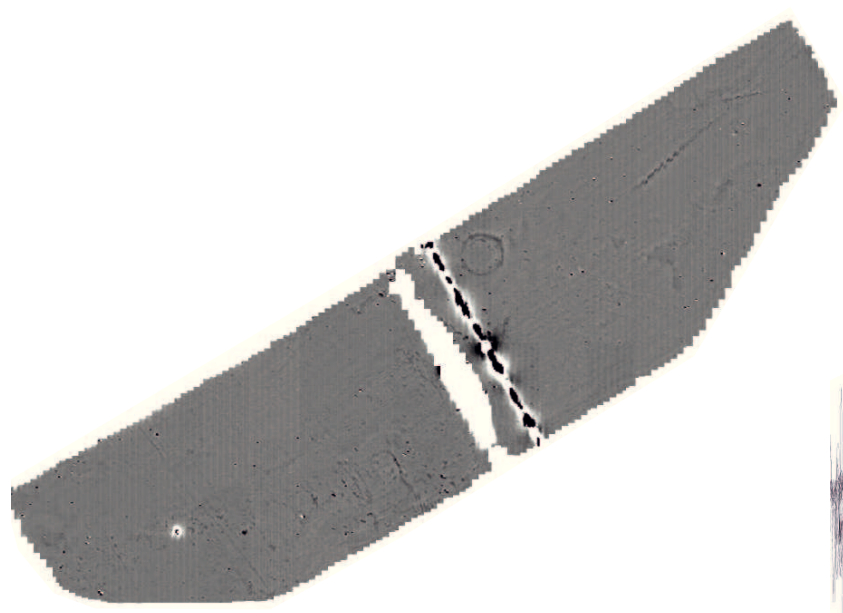
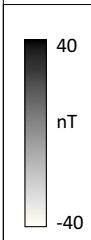
- Lincoln
- Birmingham
- Cambridge
- Southampton

www.allenarchaeology.co.uk



Raw data (clipped to +/- 40 nT)

Trace Plot (ZMT and clipped to +/- 25nT)



Site Code	TICK 14
Scale	1:5,000 @ A3
Drawn by	I Pringle
Date	19/05/15

**Allen**archaeology



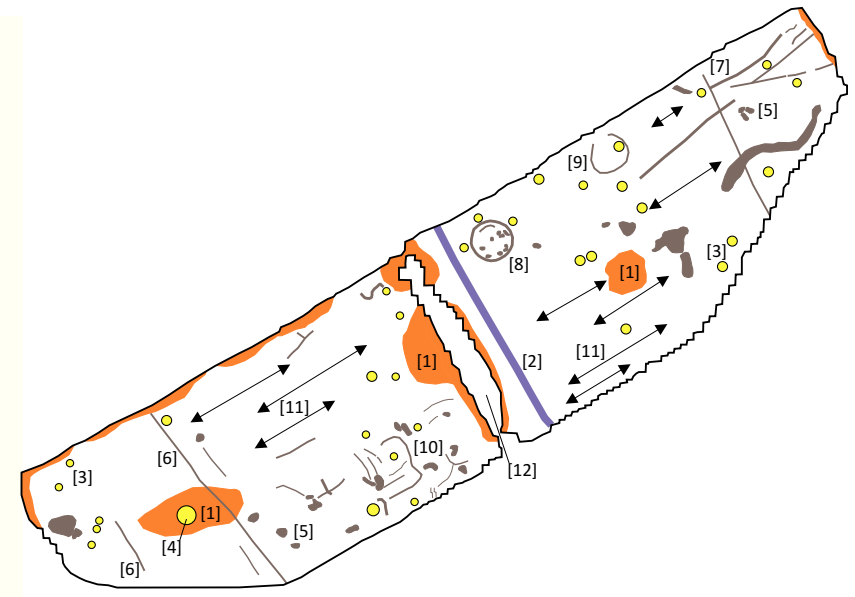
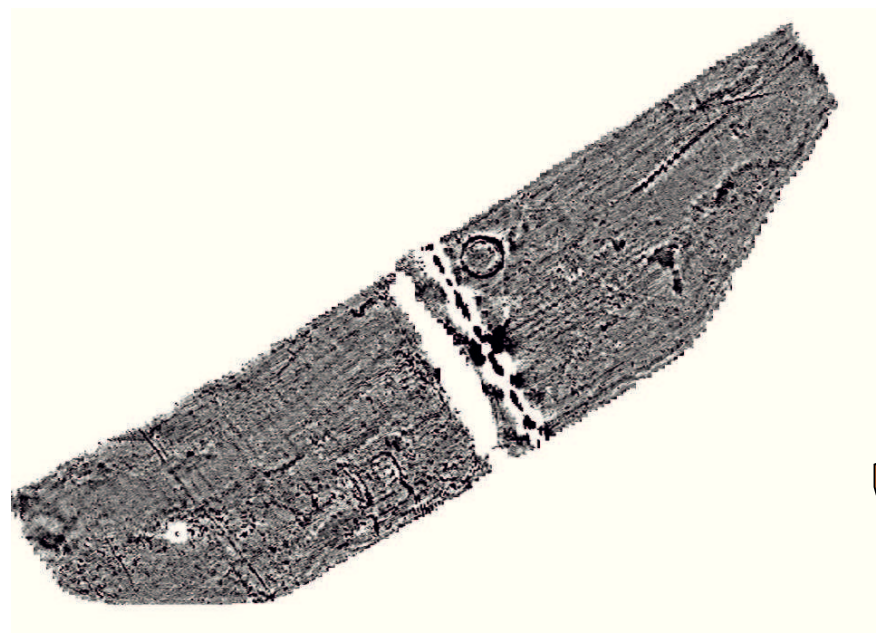
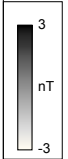
Lincoln  
Birmingham  
Cambridge  
Southampton

[www.allenarchaeology.co.uk](http://www.allenarchaeology.co.uk)

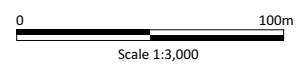
Figure 2: Greyscale raw data and processed trace plot

Processed (ZMT and clipped to +/- 3 nT)

Interpretation of Survey Results



- Key
- Positive magnetic anomaly
  - Area of magnetic noise
  - Dipolar linear anomaly
  - Current ploughing trend
  - Examples\* of individual dipolar responses  
Indicative of ferrous or highly fired material  
\*smaller responses omitted for clarity



Site Code	TICK 14
Scale	1:3,000 @ A3
Drawn by	I Pringle
Date	19/05/15

**Allen**archaeology  
Lincoln  
Birmingham  
Cambridge  
Southampton  
[www.allenarchaeology.co.uk](http://www.allenarchaeology.co.uk)

Figure 3: Processed greyscale plot of survey area with geophysical interpretation



# Tickencote Park



309600

309300

498600

498300

## Tickencote Hall



- Key:
- ▲ Prehistoric
  - Roman
  - Medieval
  - Post Medieval

Site Code	TICK 14
Scale	1:2,500 @ A3
Drawn By	I Pringle
Date	14/11/2014


**Allen Archaeology**  
 Lincoln  
 Birmingham  
 Cambridge  
 Southampton  
[www.allenarchaeology.co.uk](http://www.allenarchaeology.co.uk)

Figure 4: Processed Greyscale with Fieldwalking Finds

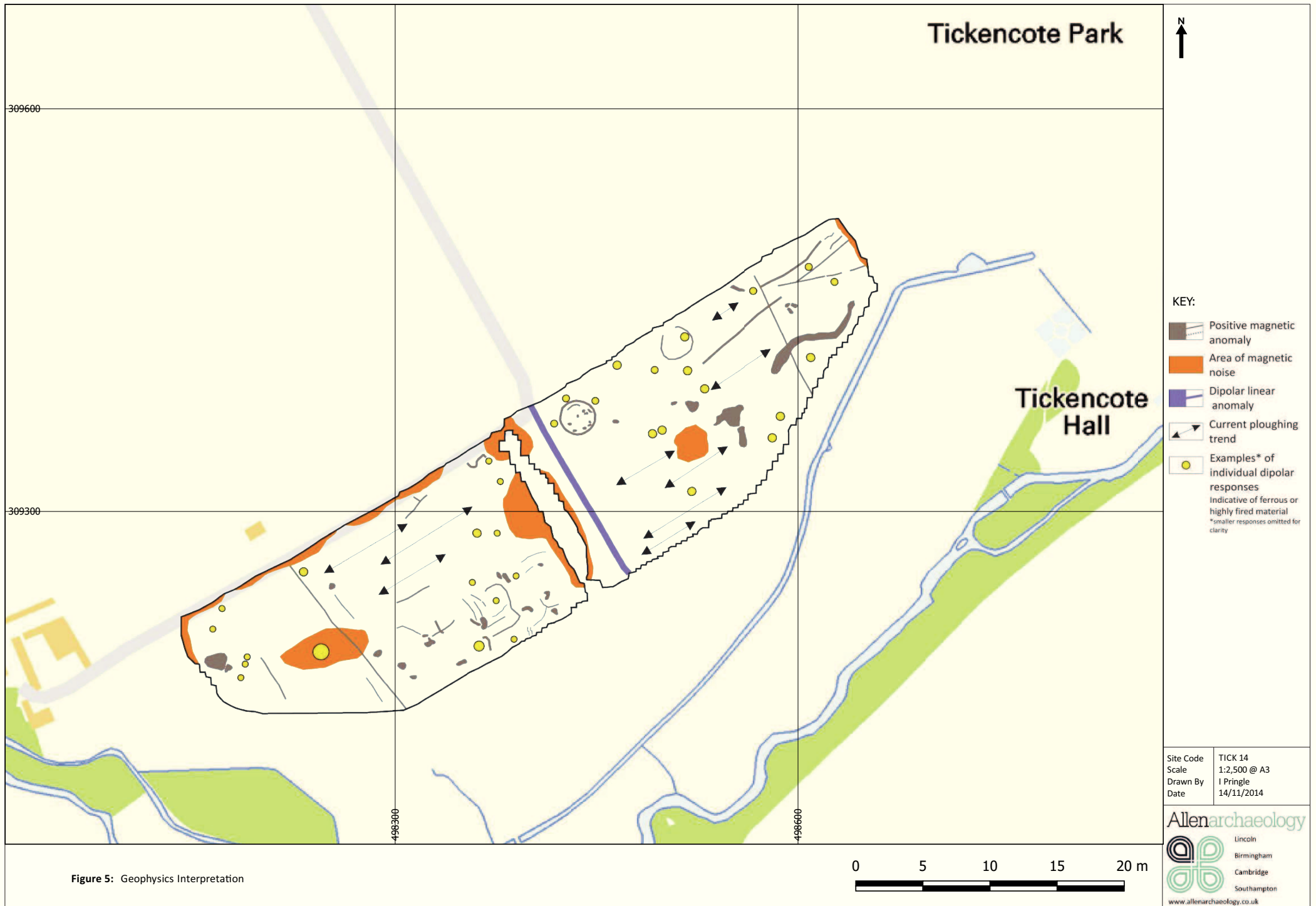


Figure 5: Geophysics Interpretation