

**ARCHAEOLOGICAL EVALUATION REPORT:**  
**GEOPHYSICAL SURVEY BY MAGNETOMETRY ON LAND AT THE FORMER BRITISH SUGAR SITE,**  
**SHAWBIRCH ROAD, ALLSCOTT, TELFORD, SHROPSHIRE**

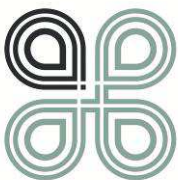
Planning Reference: TWC/2014/0113  
NGR: SJ 60599 12635  
AAL Site Code: ALSR 14  
OASIS Reference Number: allenarc1-177543



Report prepared for De Pol Associates Limited  
On behalf of Northern Trust Company Limited

By  
Allen Archaeology Limited  
Report Number 2014045

April 2014



Allenarchaeology



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*Cover Image: View of the site taken from the northern edge of the area looking southeast*

## **Executive Summary**

- A geophysical survey by magnetometry was undertaken by Allen Archaeology Limited on behalf of Northern Trust Company Limited prior to the determination of a planning application for a mixed use development on land off Shawbirch Road, Allscott near Telford, Shropshire
- Cropmarks of Bronze Age barrows and probable later prehistoric to Roman enclosures have been recorded near to the site.
- The survey identified a single linear anomaly relating to an extant footpath in the eastern half of the site, and possible pit-like anomalies to the northwest. There are a number of dipolar spikes scattered throughout the surveyed area and areas of magnetic noise around the boundaries, which are likely to be the result of detritus accumulating along the margins of the field. Overall the results suggest a negligible archaeological potential for the survey area, and further intrusive investigations are unlikely to be justified.

## 1.0 Introduction

- 1.1 A geophysical survey by magnetometry was undertaken by Allen Archaeology Limited for De Pol Associates Limited, on behalf of Northern Trust Company Limited, prior to the determination of a planning application for a mixed use development on land at the Former British Sugar Site, off Shawbirch Road, Alscott, Telford, Shropshire.
- 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*' (IFA Paper 6) and the Institute for Archaeologists '*Standard and guidance for archaeological geophysical survey*' (IfA 2011).

## 2.0 Site Location and Description

- 2.1 Allscott is situated in the administrative borough of Telford and Wrekin Council, approximately 10.6km west-northwest of central Telford and 0.9km northeast of the village of Walcot. The site comprises a block of mostly previously developed land of c.36.6 hectares, sandwiched mostly between Shawbirch Rd (the B4394) to the north and Wrekin Link railway line to the south, centred on NGR SJ 60599 12635.
- 2.2 The bedrock geology comprises Bridgnorth Sandstone Formation, overlain by a mix of superficial deposits comprising Devensian Till and Glaciofluvial sand and gravel (<http://mapapps.bgs.ac.uk/geologyofbritain/home.html>).

## 3.0 Planning Background

- 3.1 An outline planning application has been submitted to Telford and Wrekin Borough Council for '*Erection of a mixed use development comprising up to 470no. dwellings (Use Class C3), a primary school (Use Class D1), a commercial area (Use Class B1), clinic and health centres (Use Class D1), retail units (Use Class A1), financial and professional services (Use Class A2), restaurant and cafes and/or hot food takeaways (Use Classes A3 and A5) with associated allotments, sport and recreational facilities, open space, biodiversity enhancement and access (All other matters reserved)*' (Reference TWC/2014/0113) at the former British Sugar site in Allscott, Telford, Shropshire. Prior to determination of the application, the Senior Archaeological Project Officer for the Historic Environment Team at Shropshire County Council has advised for a programme of geophysical survey of a specific element of the proposed development area, in order to provide further information concerning the archaeological potential of the site. Dependent upon the results of the geophysical survey, further evaluation work may be required prior to determination of the application, in order and to allow the planning authority to establish appropriate measures to mitigate the effect of the proposed development upon the archaeological resource.
- 3.2 The approach adopted is consistent with the recommendations of the current National Planning Policy Framework (NPPF), with the particular chapter of relevance being 'Chapter 12: Conserving and enhancing the historic environment' (Department for Communities and Local Government 2012).



## 4.0 Archaeological and Historical Background

- 4.1 Comments by the Senior Archaeological Project Officer at Shropshire County Council indicate that the surrounding area is rich in prehistoric to Roman period remains.
- 4.2 A prehistoric flint implement was found in 1914 c. 125m to the southeast of the eastern end of the site (Shropshire Historic Environment Record (SHER) No 01373), and cropmark ring ditches likely to reflect Bronze Age funerary monuments have been noted immediately to the west of the site, as well as the cropmark remains of a circular single-ditched enclosure potentially representing a settlement of Bronze Age to Roman date (SHER No 02242).
- 4.3 Later prehistoric and/or Roman activity is represented by a cropmark enclosure c. 70m to the south of the east end of the proposed development area.

## 5.0 Methodology

- 5.0.1 The geophysical survey consisted of a detailed gradiometer survey of the full extent of the proposed development area available for survey, totalling approximately 4.25 hectares. The survey was undertaken in a series of 30m grids across the site.
- 5.0.2 The fieldwork was carried out by a team of two experienced geophysicists from AAL over a period of two working days, Wednesday 16<sup>th</sup> and Thursday 17<sup>th</sup> April 2014. The survey area was accurately located using a Leica GS08 Net rover receiving RTK corrections. This accurately 3D plotted the area of investigation and tied it into the National Grid.
- 5.0.3 The survey was carried out using a Bartington Grad601-2 Dual Fluxgate Gradiometer with an 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.
- 5.0.4 Data collection was undertaken in a zigzag traverse pattern, using a sample interval of 0.25m and a traverse interval of 1m.
- 5.0.5 The fieldwork and reporting was carried out in accordance with the procedures in 'Geophysical Survey in Archaeological Field Evaluation' (English Heritage 2008) and 'The Use of Geophysical Techniques in Archaeological Evaluations: IfA Paper 6' (Gaffney et. al. 2002).

### 5.1 Summary of Survey Parameters

#### 5.1.1 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:	0.01 nT
Processing software:	Terrasurveyor 3.0.24.1
Surface conditions:	Short grass crop
Area surveyed:	4.25 ha
Date surveyed:	Wednesday 16 <sup>th</sup> and Thursday 17 <sup>th</sup> April 2014
Surveyor:	Robert Evershed
Survey assistants:	Iain Pringle
Data interpretation:	Iain Pringle

## **5.2 Data Collection and Processing**

5.2.1 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 for a magnetic survey, as enhancements to the magnetic field caused by buried features is mapped increasingly stronger the closer the traverse direction can get to a magnetic north – south direction (Breiner 1999). On this occasion magnetic data was collected on a north – south alignment due to the orientation of the pre-programmed survey grids.

5.2.2 The data collected from the survey has been analysed using the current version of Terrasurveyor 3.0.24.1. 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.

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

- De-stripe
- Clipping
- De-staggering

5.2.3 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.

5.2.4 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.

5.2.5 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.

5.2.6 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.

## **6.0 Results**

- 6.1 For the purposes of interpreting the anomalies, the survey data has been processed to the values of -5 to 5 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 digit numbers in square brackets.
- 6.2 Running along the southern and eastern edges of site are areas of magnetic noise [1]. The readings produced were generally in the range +/-30nT/m, although there were a few areas where readings spiked higher. These readings are likely to relate to a build up of waste/detritus due to the proximity of the railway line and the adjacent fence line. This is also the case along the northern boundary where there are further areas of magnetic noise. This is most likely the result of material accumulating along the adjacent road.
- 6.3 Within the surveyed area, in the northwest corner and towards the northeast corner, are a number of amorphous positive anomalies [2]. These produced readings of 8-20nT/m and may represent pits, former ponds or soil-filled hollows.
- 6.4 Aligned roughly north – south running into the northern edge of site is a positive linear anomaly [3] aligned broadly north – south. This produced readings of 2-6nT/m. This represents the line of the footpath, which can be seen on current and historic maps.
- 6.5 Scattered randomly throughout the site are a number of strong and weak dipolar responses, examples of which are highlighted as [4]. The characteristic dipolar response of pairs of positive and negative ‘spikes’ suggest near surface ferrous metal or other highly fired material.

## **7.0 Discussion and Conclusions**

- 7.1 There was no clear evidence for features of archaeological interest recorded within the survey area, although a small area of positive anomalies [2] may represent pits or other features of archaeological interest. However, the proximity of these anomalies to the boundaries of the site suggests they may equally represent elements of the detritus that has accumulated around the margins of the field.
- 7.2 The only other feature of note is positive linear anomaly [3]. Map regression however shows that since at least 1882 there has been a trackway or footpath aligned north – south running through the survey area, which is still visible on site and is shown as a public right of way on current Ordnance Survey mapping.
- 7.3 Overall, the survey indicates a negligible archaeological potential, with no evidence to suggest that the prehistoric to Roman activity identified nearby extends into the current site.

## **8.0 Effectiveness of Methodology**

- 8.1 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. Other techniques would have required further justification and may have proved too time consuming or cost-prohibitive.

## 9.0 Acknowledgements

- 9.1 Allen Archaeology Limited would like to thank De Pol Associates Limited and their client Northern Trust Company Limited for this commission. The Senior Archaeological Projects Officer at Shropshire Council, Hugh Hannaford, is thanked for his advice during the scheme.

## 10.0 References

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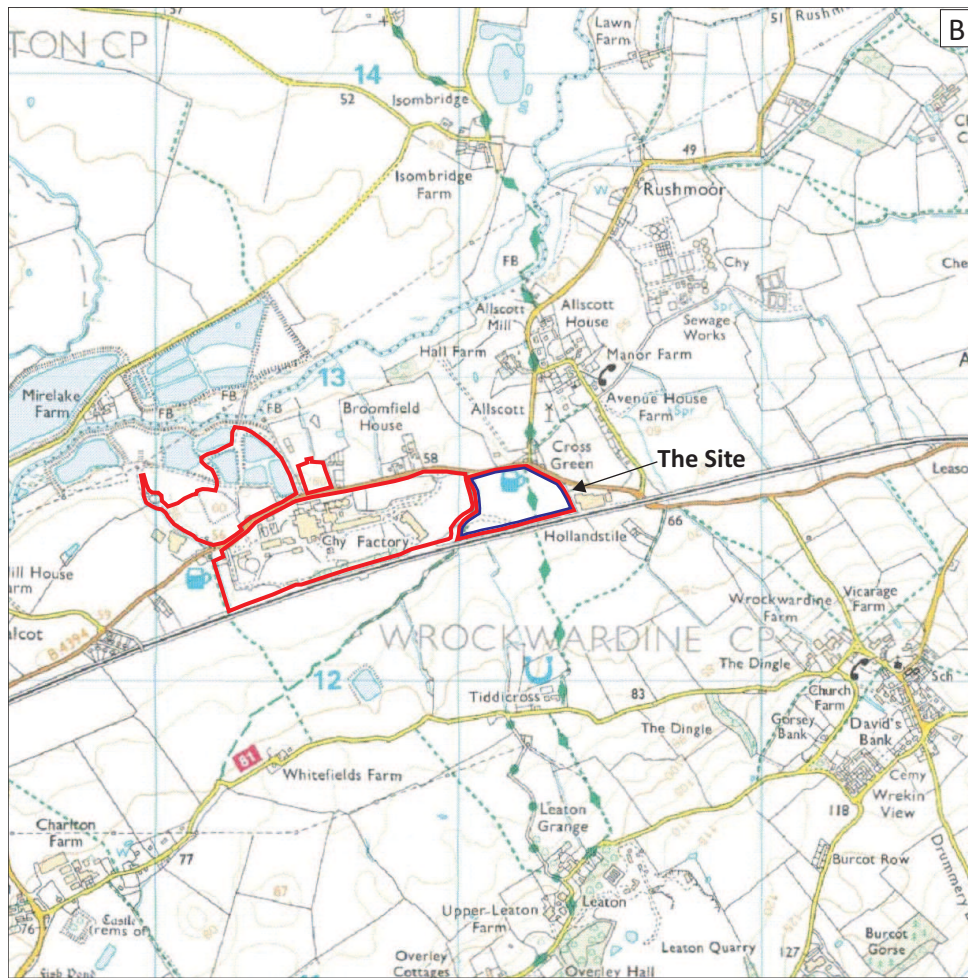
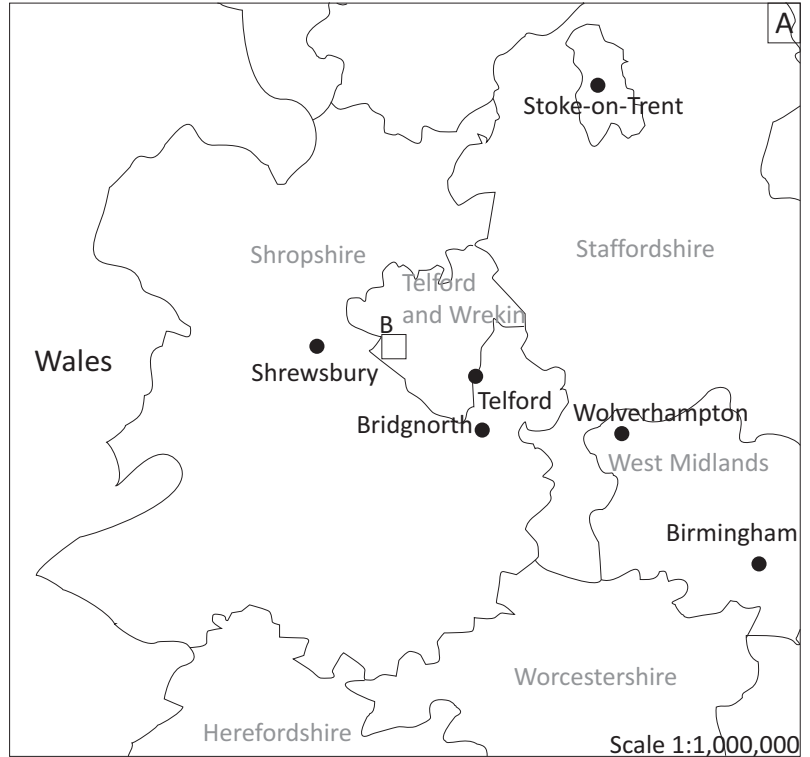
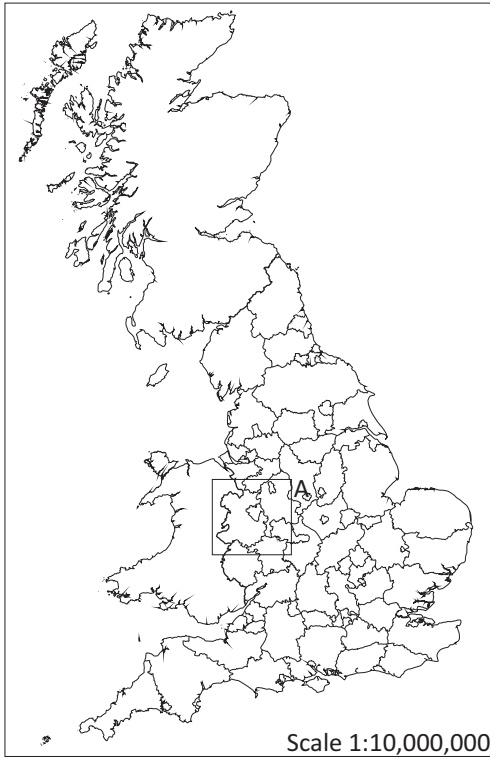
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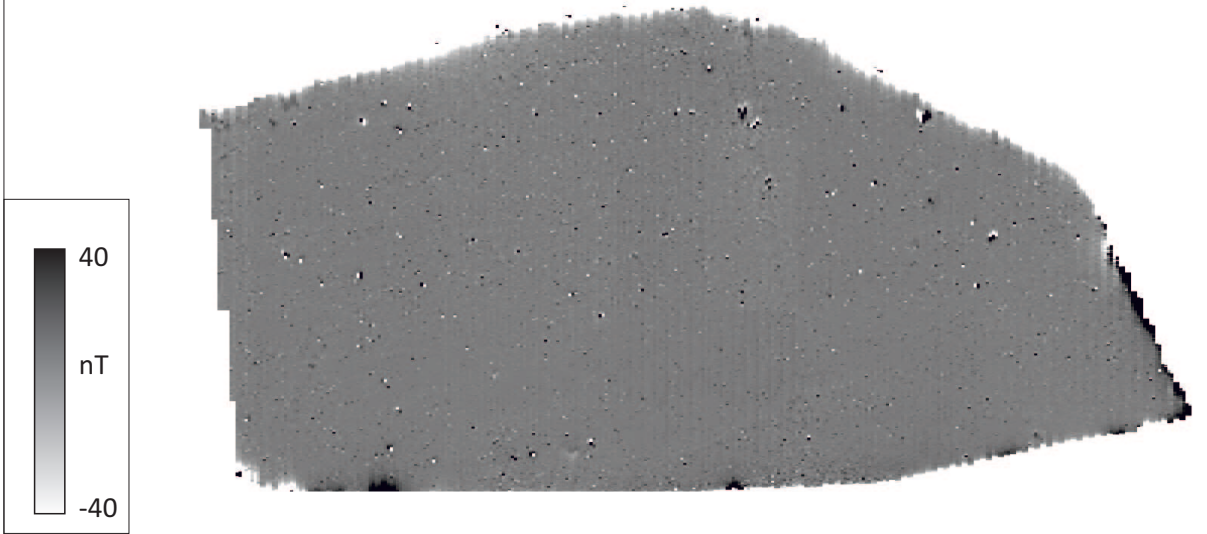
**Figure 1: Site location outlined in red and survey area in blue**  
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Site Code	ALSR 14
Scales	1:10,000,000 1:1,000,000 1:25,000 @ A4
Drawn by	I Pringle
Date	22/04/14

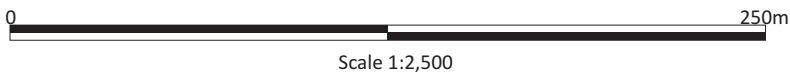
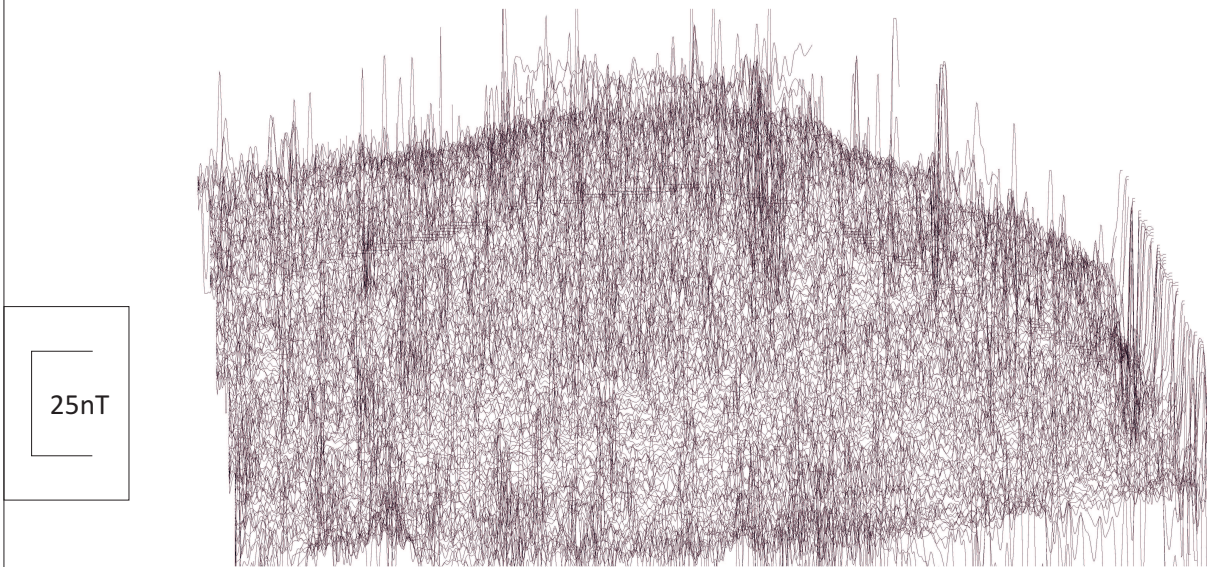
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Raw data (clipped to +/- 40 nT)



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



Site Code	ALSR 14
Scale	1:2,500 @ A4
Drawn by	I Pringle
Date	22/04/14

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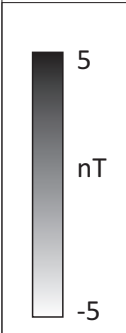


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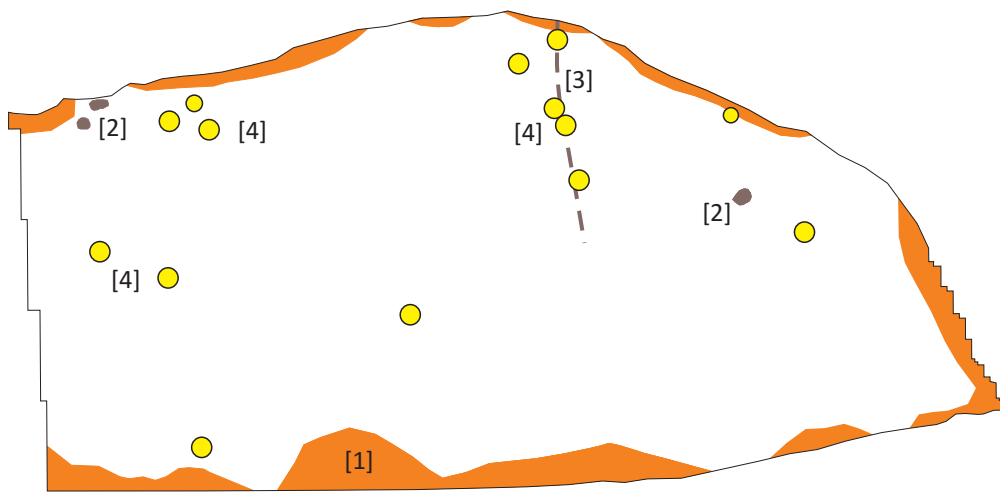
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**Figure 2:** Greyscale raw data and processed trace plot



Processed (ZMT and clipped to +/- 5 nT)




Interpretation of Survey Results



Site Code	ALSR 14
Scale	1:2,500 @ A4
Drawn by	I Pringle
Date	22/04/14

 Positive magnetic anomaly  
 Area of magnetic noise

 Examples\* of individual dipolar responses  
 Indicative of ferrous or highly fired material  
 \*smaller responses omitted for clarity

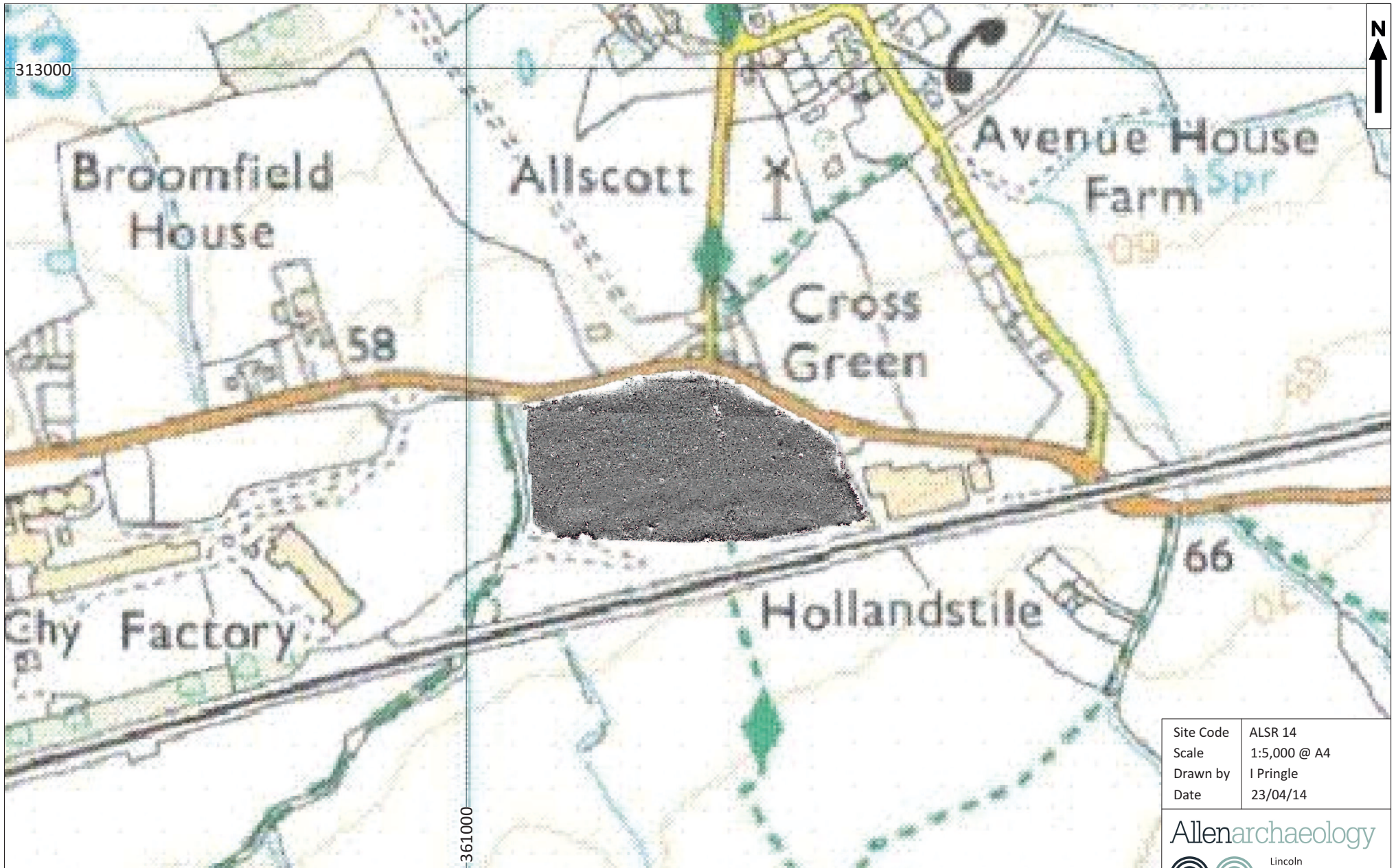
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Figure 3: Processed greyscale and interpretation





Site Code	ALSR 14
Scale	1:5,000 @ A4
Drawn by	I Pringle
Date	23/04/14

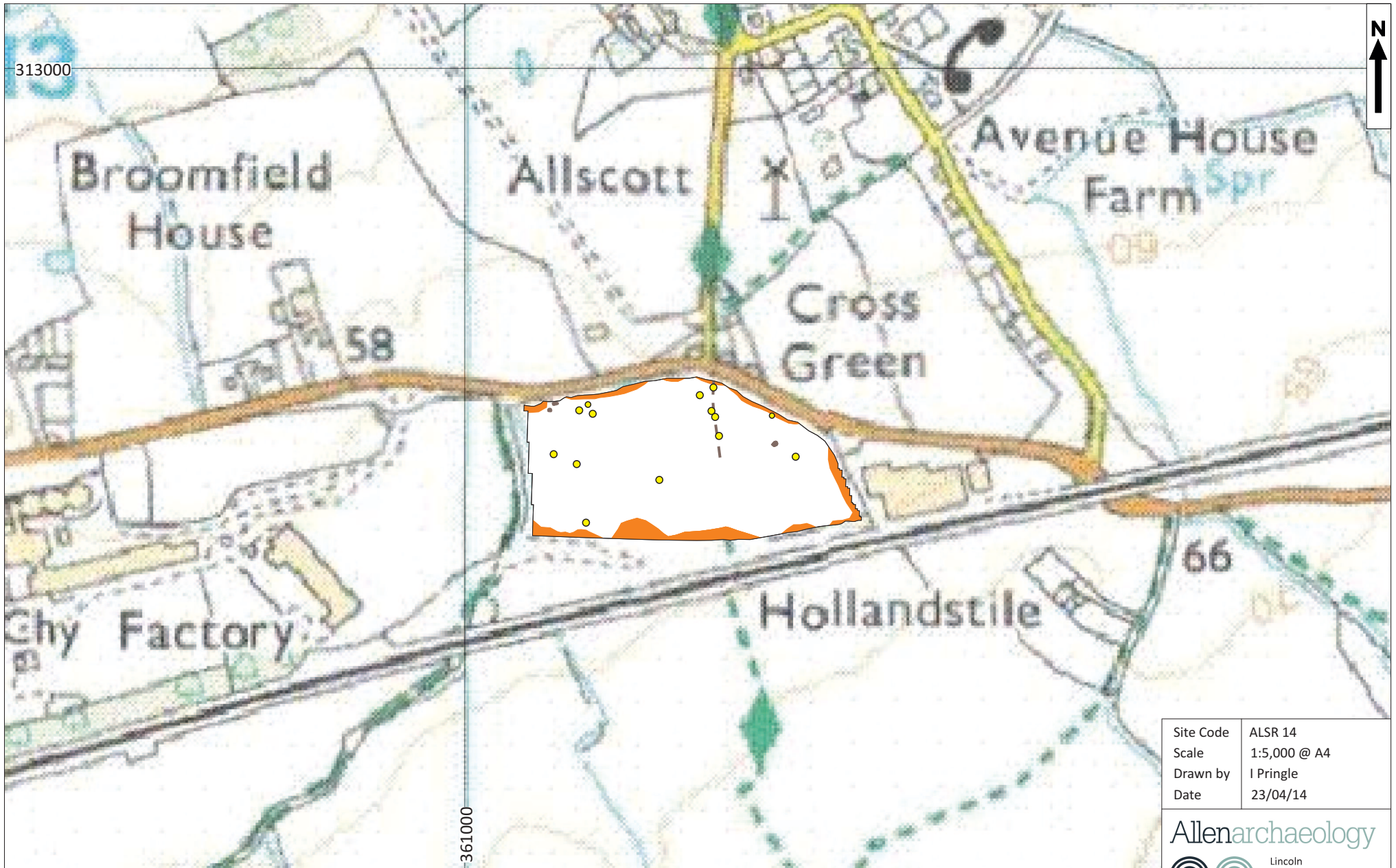
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Figure 4: Greyscale plot located in real space





Site Code	ALSR 14
Scale	1:5,000 @ A4
Drawn by	I Pringle
Date	23/04/14

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Figure 5: Interpretation located in real space



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