Waddow View, Clitheroe: Proposed Housing Development Scheme

A Geophysical Survey at Waddow View, Clitheroe, Lancashire

View of the derelict barn in the corner of field 2

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EXECUTIVE SUMMARY

This report presents the results of a geophysical survey undertaken at three fields on the site of a proposed housing development at Waddow View, Clitheroe, Lancashire. The geophysical survey report covers 40% of the site as set out in the written scheme of investigation prepared by Archaeological Research Services Ltd in September 2012.

Waddow View is located immediately west of Clitheroe, Lancashire. The site is presently exclusively agricultural pasture land at an elevation of c.75 metres above ordnance datum (AOD). The superficial geology of the site is Devensian Glacial Till.

The geophysical survey was carried out on the 13th and 14th September 2012 using a Bartington 601 dual sensor fluxgate gradiometer and a team of two surveyors. A total of thirty-six thirty meter square grids were surveyed in three fields.

The survey did not produce any definite evidence of archaeological features but did reveal a number of magnetic anomalies. The majority of the anomalies recorded responses that are consistent with modern activities and ground disturbance. However, a small number of the magnetic anomalies may justify further investigation during the next phase of work.

1.0 INTRODUCTION

1.1 Background

1.1.1 In advance of the submission of a planning application for housing development at Waddow View, Clitheroe, Lancashire, Archaeological Research Services Ltd (ARS Ltd) consulted with the Lancashire County Council Planning Officer (Archaeology) concerning pre-determination archaeological evaluation of the site.

1.1.2 A report on Aggregate Extraction in the Lower Ribble Valley undertaken by Oxford Archaeology North/Liverpool University identifies this area of the Ribble Valley as having a high/medium potential for archaeological deposits dating to the prehistoric period (Oxford Archaeology North/Liverpool University 2007). In light of this, the Lancashire County Council Planning Officer (Archaeology) recommended undertaking a geophysical (gradiometer) survey of 40% of the site to determine whether archaeological remains survive within the proposed development area with a view to informing any further geophysical survey and or evaluation trenching required prior to determination of the planning decision. This is in line with the National Planning Policy Framework Paragraph 128.

1.1.3 This report on the geophysical survey of 40% of the site concludes this stage of the proposed programme of archaeological works prior to determination of the planning decision.

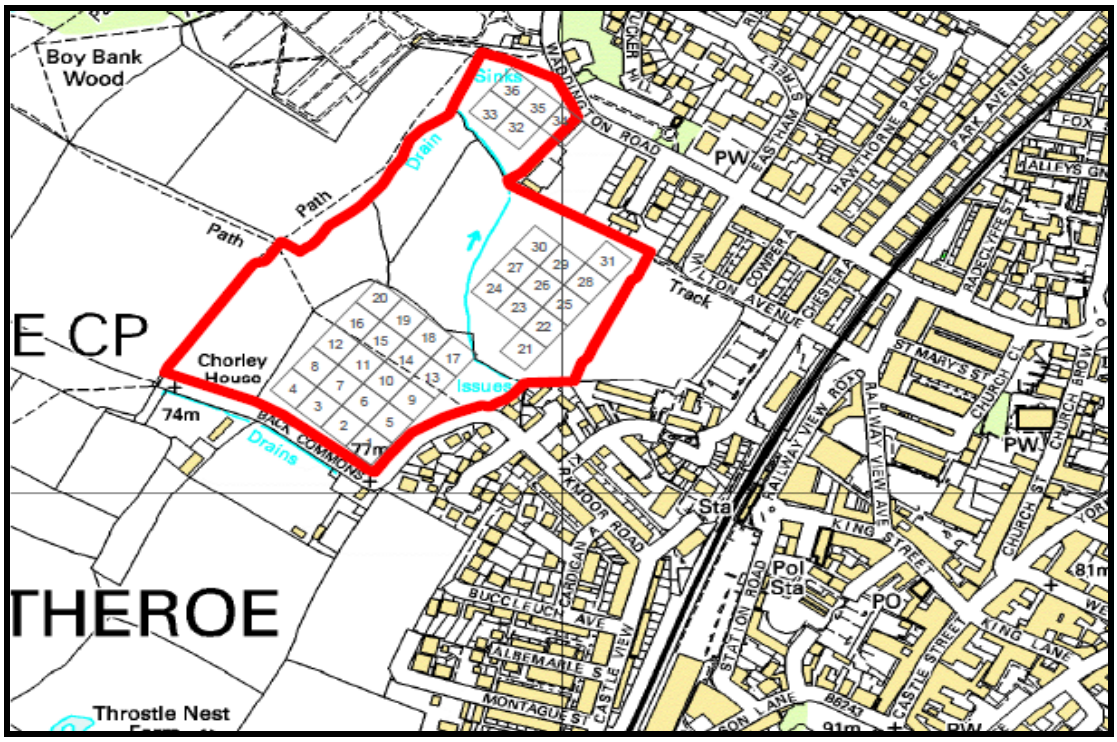

Figure 1: Site location

1.2 Location, Topography and Geology

1.2.1 The proposed development site lies on land south of the River Ribble overlooking Waddow Hall, immediately west of Clitheroe, Lancashire. The site is centred on NGR SD 738 421 and extends over an area of *c.*8.4ha, which is currently exclusively agricultural land (pasture) at an elevation of between 73m AOD at the north and 77m AOD at the south-east part of the site. The centre of the site lies at an elevation of c.75m AOD.

1.2.2 The superficial geology of the site is Devensian Glacial Till (www.bgs.ac.uk/opengeoscience).

1.2.3 The site comprises five fields, three of which (the south-eastern (field 1), central eastern half (field 2) and northern (field 3), were surveyed in order to cover just over 40% of the area including the higher and lower elevations of the site.

Figure 2: Geophysical survey in progress in field 2

2. METHODOLOGY

2.1 Geophysical Survey

2.1.1 Magnetometry is a non-intrusive scientific prospecting technique that is the preferred geophysical technique used to determine the presence or absence of buried archaeological features. It is an efficient and effective method of locating anomalies corresponding with archaeological features. The instrument chosen for this survey was a Bartington Grad 601 dual sensor fluxgate gradiometer which can detect weak changes in the earths magnetic field caused by buried features.

2.1.2 The target area was divided into a total of 35 30mx30m grid squares in three fields. The grids were accurately set out on site using a hand held GPS. Each grid was then surveyed at 1m traverse intervals with the sampling at 0.25m intervals. The survey was carried out in 'zigzag' mode. The range of the instrument was set at 100nT (0.01nT resolution).

2.1.3 The grids were located to run on a south-east/north-west axis in alignment with the south-western field boundary of the site. All grids were traversed by initially walking in a north-western direction

2.1.4 Certain factors prevented some grids from being fully surveyed. This included the location of a barn in the north-east corner of field 2 and a metallic livestock feeder in the south-west corner of field 1. On all occasions the survey was completed as close as possible to the obstructions and, where necessary, partial grids were surveyed. It is therefore unlikely that the obstacles will have a significant overall impact on the results of the survey.

2.1.4 The survey was carried out on 13th and 14th September 2012 by Richard Durkin and James Dunne of Archaeological Research Services Ltd. The weather during day 1 was dry and overcast in the morning with light showers in the afternoon, followed on day 2 by strong winds and heavy rain until about 10am, after which it was dry and overcast.

2.1.5 The gradiometer was calibrated at the start of the day, after the completion of four grids and at lunchtime.

2.1.6 At the end of each day, the data was captured in the internal memory and then downloaded into a computer, checked and archived on the ARS Ltd server. The data was downloaded using Bartington Instruments' *Grad 601 Communication Application* and processed using Geoplot software. The data was minimally processed to remove any instrument error or survey effects in order to enhance any more subtle anomalies associated with archaeological features.

2.1.7 The locations of the survey grids can be seen in figure 3. The data is presented as a shade plot of each field with and without interpretation. The processed data has been clipped at a maximum of +5 and -5 absolute units and the palette used was grey99.ptt.

3 GEOPHYSICAL SURVEY RESULTS

3.1 Introduction

3.1.1 The survey revealed a number of magnetic anomalies. The anomalies that returned the strongest response are typical of modern activity or ground disturbance. However, there were a small number of anomalies that recorded weaker responses but are possibly of archaeological origin.

3.2 Anomalies

3.2.1 Field 1 (figures 4 and 5)

3.2.1.1 In this area there are two strong mixed anomalies which appear to correspond with the installation of surface water or foul drain running along the south-western part of the field (1) and the contemporary footpath crossing the field (2). With respect to anomaly 1, manhole covers were observed that are consistent with the line of the anomaly. The alignment of anomaly 2 corresponds to the well trodden path across the field between the two stiles. The anomaly retuned a strong mixed response often consistent with modern disturbance or buried services or pipes.

3.2.1.2 Two discrete anomalies are present towards the north-east corner. In the raw data these both registered a strong positive core with a strong negative halo (3).There is some evidence of ground disturbance in the vicinity. This type of response is often associated with modern ferrous objects but due to their size the anomalies may be worthy of further investigation.

3.2.1.3 Throughout the field widely distributed discrete mixed responses were recorded (4). Considerable time has been needed processing the data to remove the worst affects of these anomalies and smooth the data for presentation and to ensure more subtle possible archaeological features are not disguised. However, no further anomalies have been revealed. As these anomalies are so widely distributed across the site it is likely that they are geological in nature possibly corresponding to boulders in the underlying Devensian Till.

3.2.1.4 There is a very tentative positive, possibly linear anomaly (5) adjacent to the south edge of the survey area. This could be associated with the path but may be worthy of further investigation.

3.2.1.5 Strong mixed responses were recorded where the survey area encroached on the metallic fences at the field boundaries and adjacent to a metallic livestock feeder in the north-west corner.

3.2.2 Field 2 (figures 6 and 7)

3.2.2.1 There is some evidence of repeating parallel anomalies (1) which although only registered as weak positive responses may be associated with traces of cultivation. There are also two discrete anomalies (2) that have a strong positive core and strong negative halo which could be modern ferrous objects. However, as they overlie the north-western section of a possible positive linear anomaly they may justify further investigation.

3.2.2.2 As in field 1 there is a wide distribution of discrete mixed anomalies (3) either geological or attributable to modern ferrous objects or materials. Strong mixed magnetic responses were recorded in the north-east corner of the survey area directly in front of a derelict barn which stands in the corner of the field, and are likely to be caused by made-up ground or ground disturbance.

3.2.3 Field 3 (figure8)

3.2.3.1 This area appeared to contain a range of platforms, banks and depressions, and an extra grid was surveyed in the south-east corner to pick up the extent of one of the raised platform areas. The subsequent survey in both the western and eastern parts of the field either side of a lower-lying dip in the field revealed strong mixed magnetic responses, which are likely to be caused by made-up ground or ground disturbance. Any subtle features of an archaeological origin that may be within this area are likely to be obscured by these high levels of magnetic disturbance.

3.2.3.2 Further strong discrete mixed magnetic responses were recorded throughout the site. These may relate to areas of modern disturbance, modern ferrous materials or boulders in the Devensian Till underlying the site.

4. CONCLUSIONS

4.1 The geophysical survey has not recorded clear evidence of any potentially significant archaeological features. A number of magnetic anomalies were present which are not obviously recent in origin, but all registered as relatively weak magnetic responses. The site could thus be largely devoid of features of archaeological potential, although there are low levels of magnetic anomalies in fields 1 and 2 which may justify further investigation.

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7 ACKNOWLEDGEMENTS

7.1 Archaeological Research Services Ltd would like to thank those involved in the project for their help and advice. In particular we would like to thank Doug Moir of Lancashire County Council Archaeological Service and John Staples on behalf of The Huntroyde Estate, Robert Parker of Clitheroe Auction Mart Co Ltd, Mr J Taylor, Ms Sarah Howard and Ms Samantha Howard for kindly allowing access to the site.

8 REFERENCES

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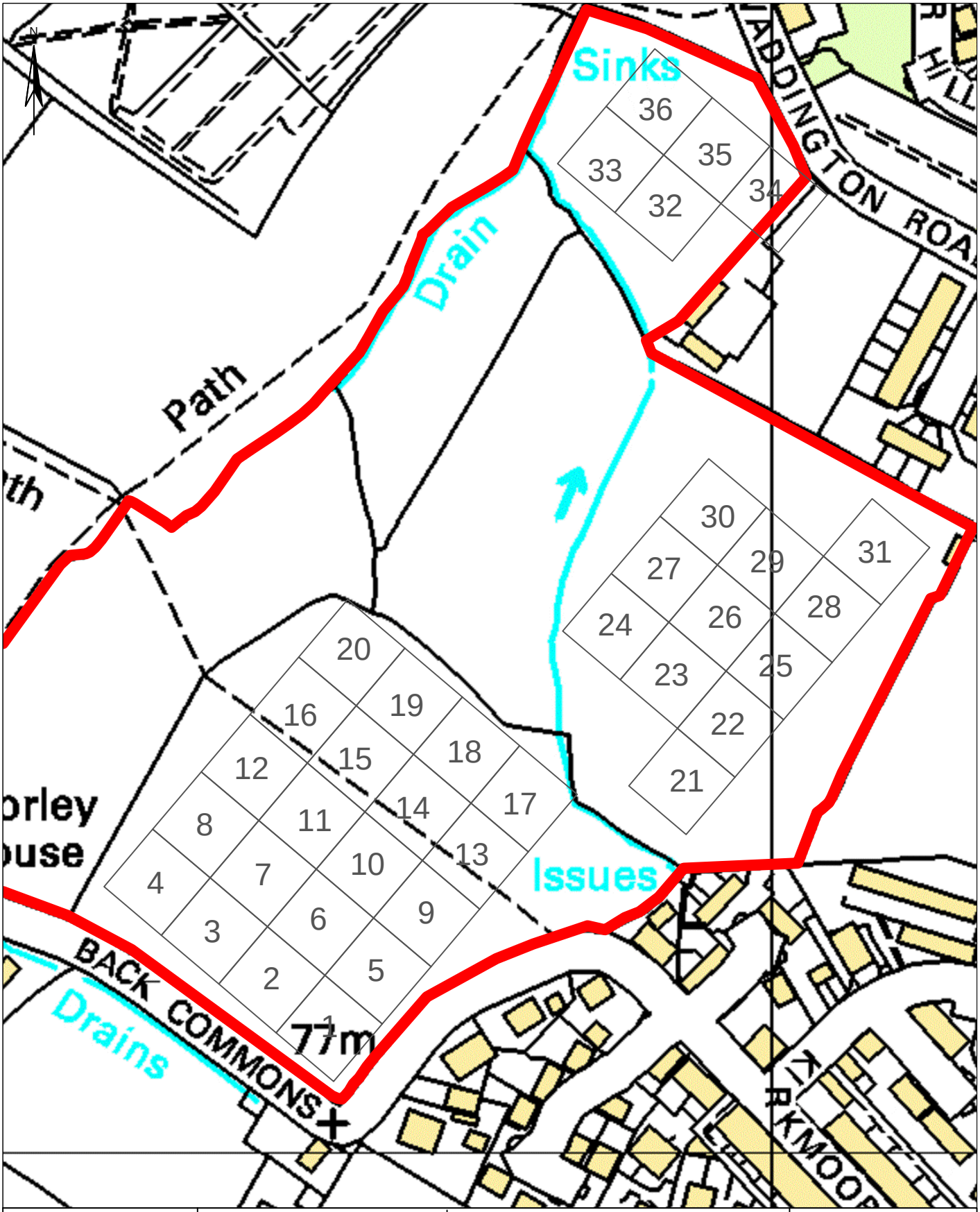
Appendix 1: Figures



Archaeological Research Services Ltd Angel House Portland Square Bakewell Derbyshire DE45 1HB	Figure 3 : Location of Survey Grids		
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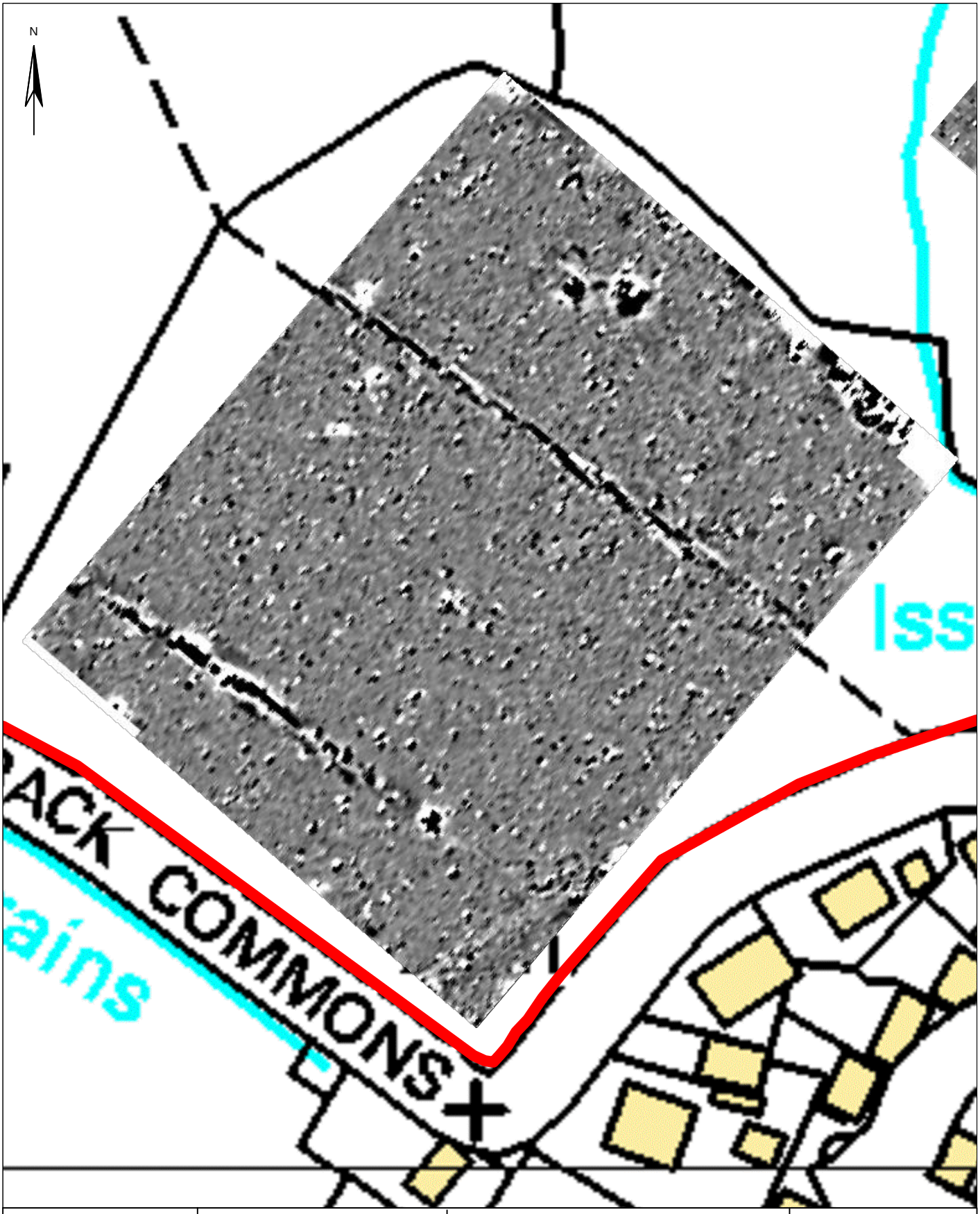

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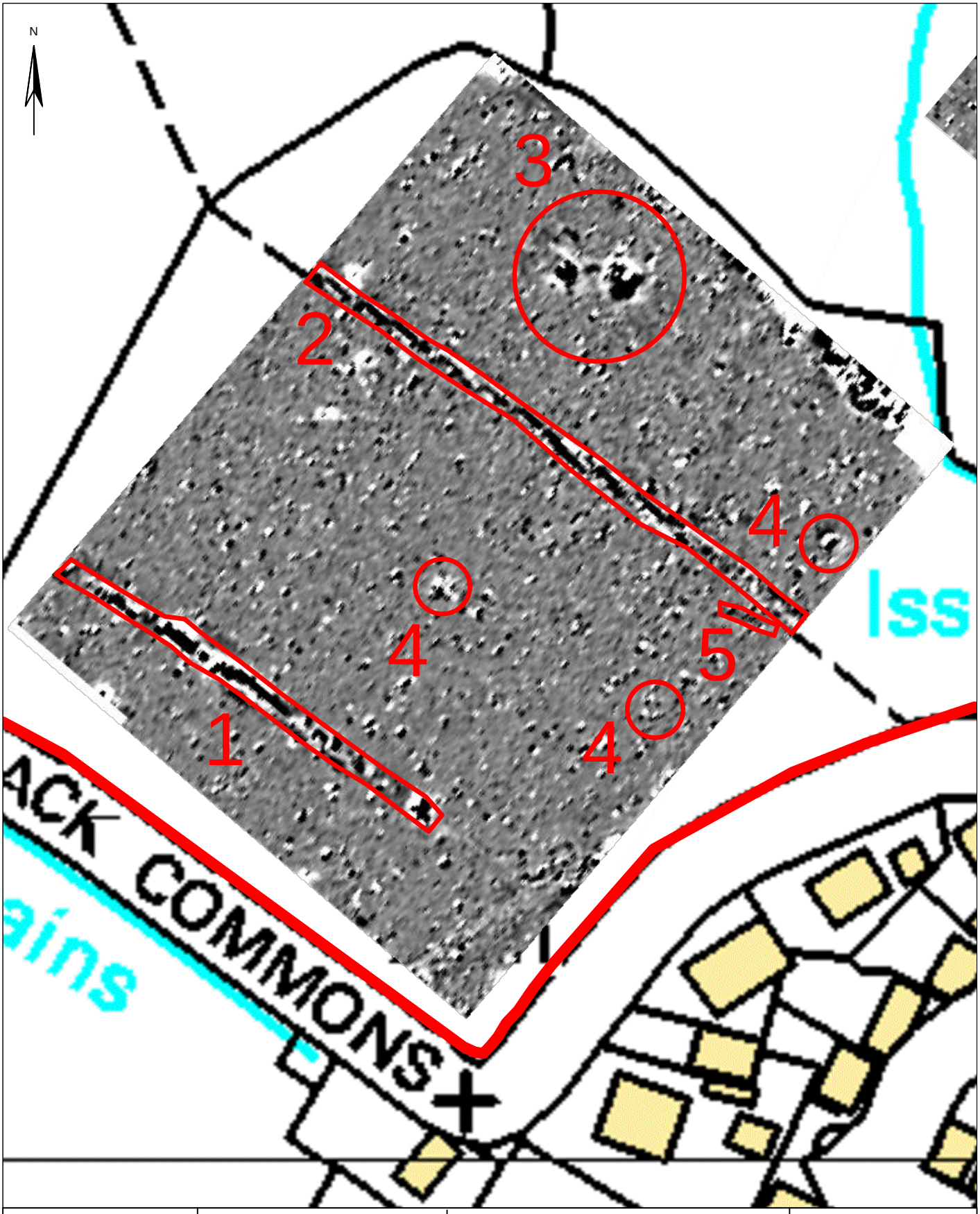

Archaeological Research Services Ltd Angel House Portland Square Bakewell Derbyshire DE45 1HB	Figure 5 : Shade Plot of Field 1 with Interpretation of Geophysics Results		
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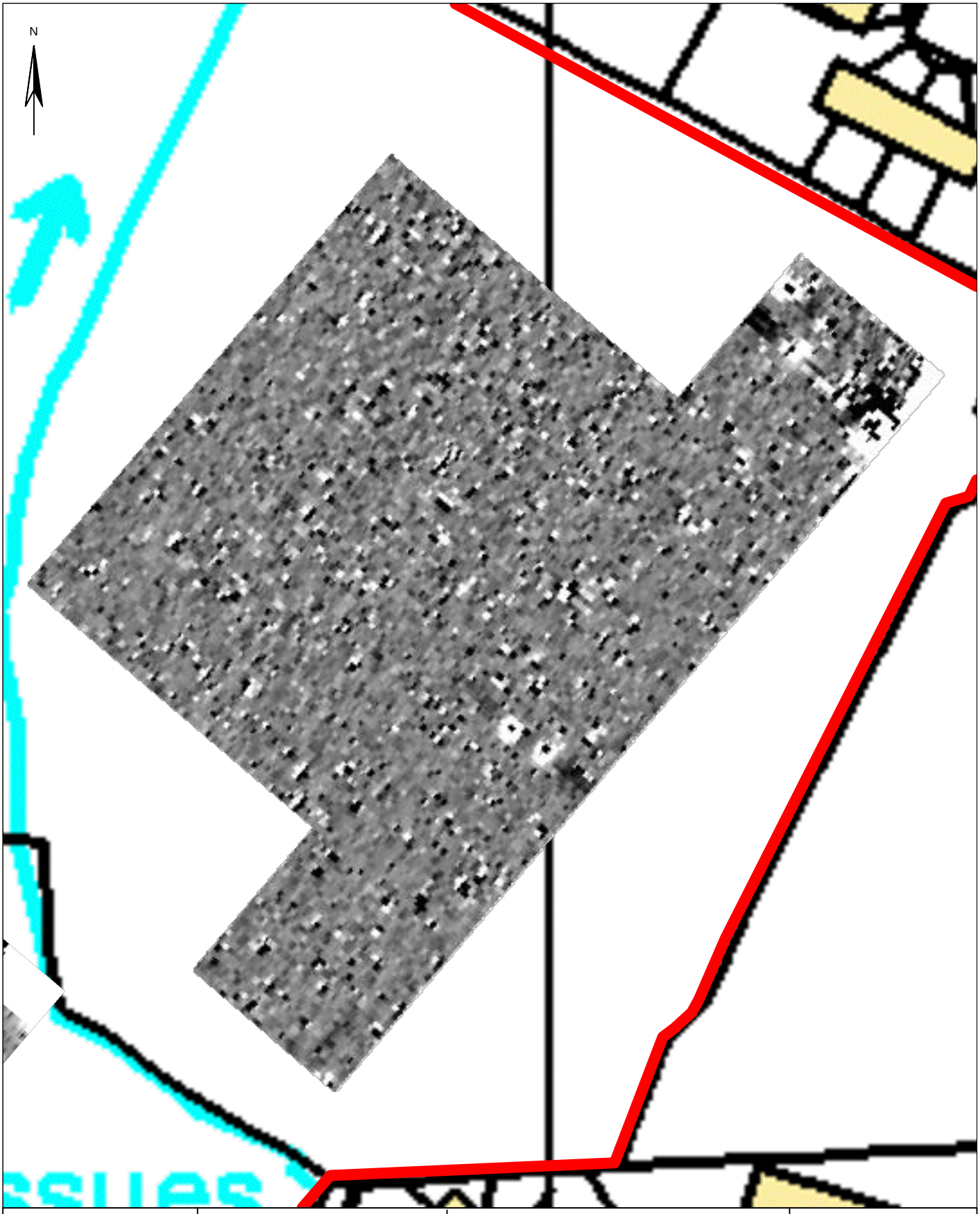

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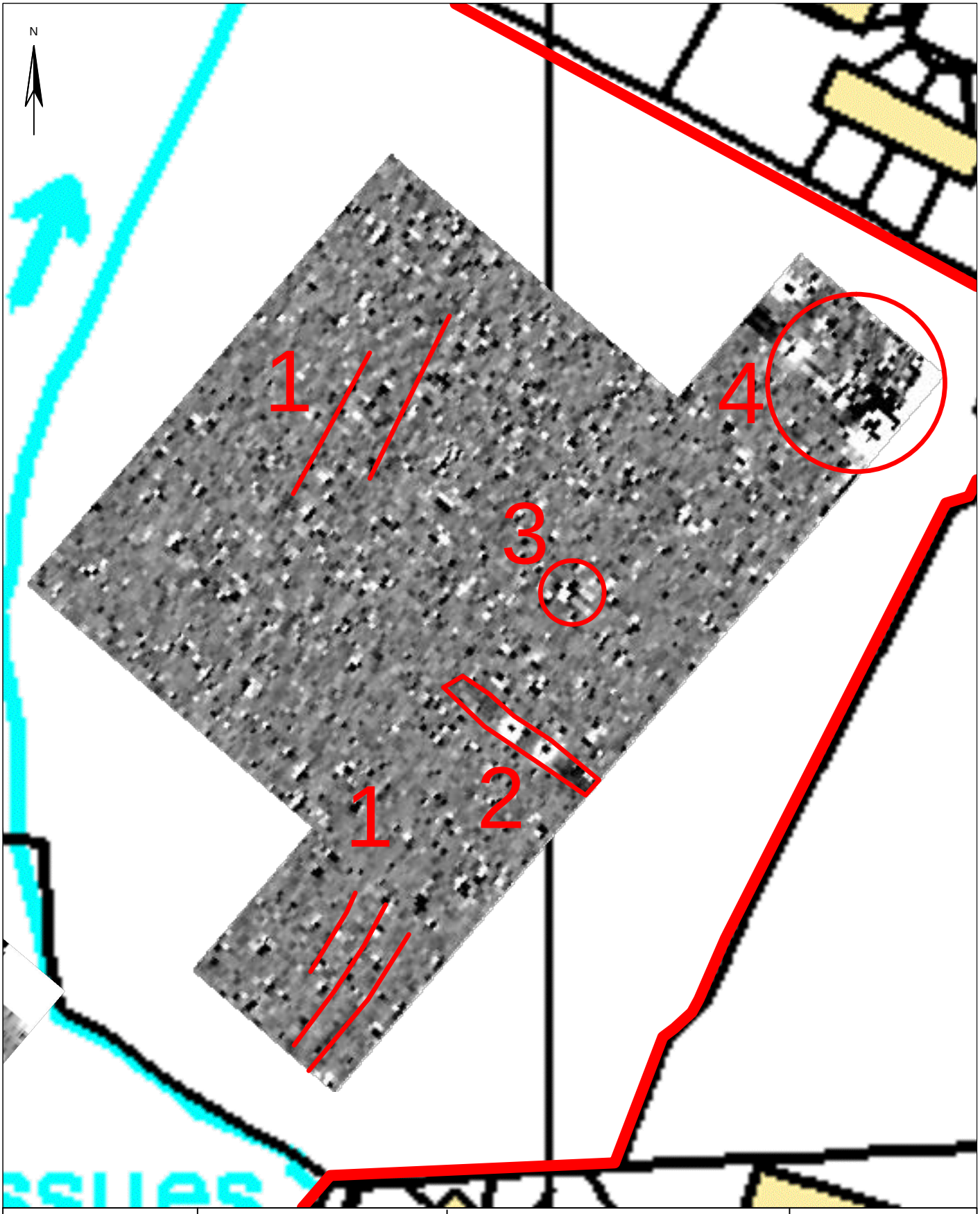

Archaeological Research Services Ltd Angel House Portland Square Bakewell Derbyshire DE45 1HB	Figure 7 : Shade Plot of Field 2 with Interpretation of Geophysics Results		
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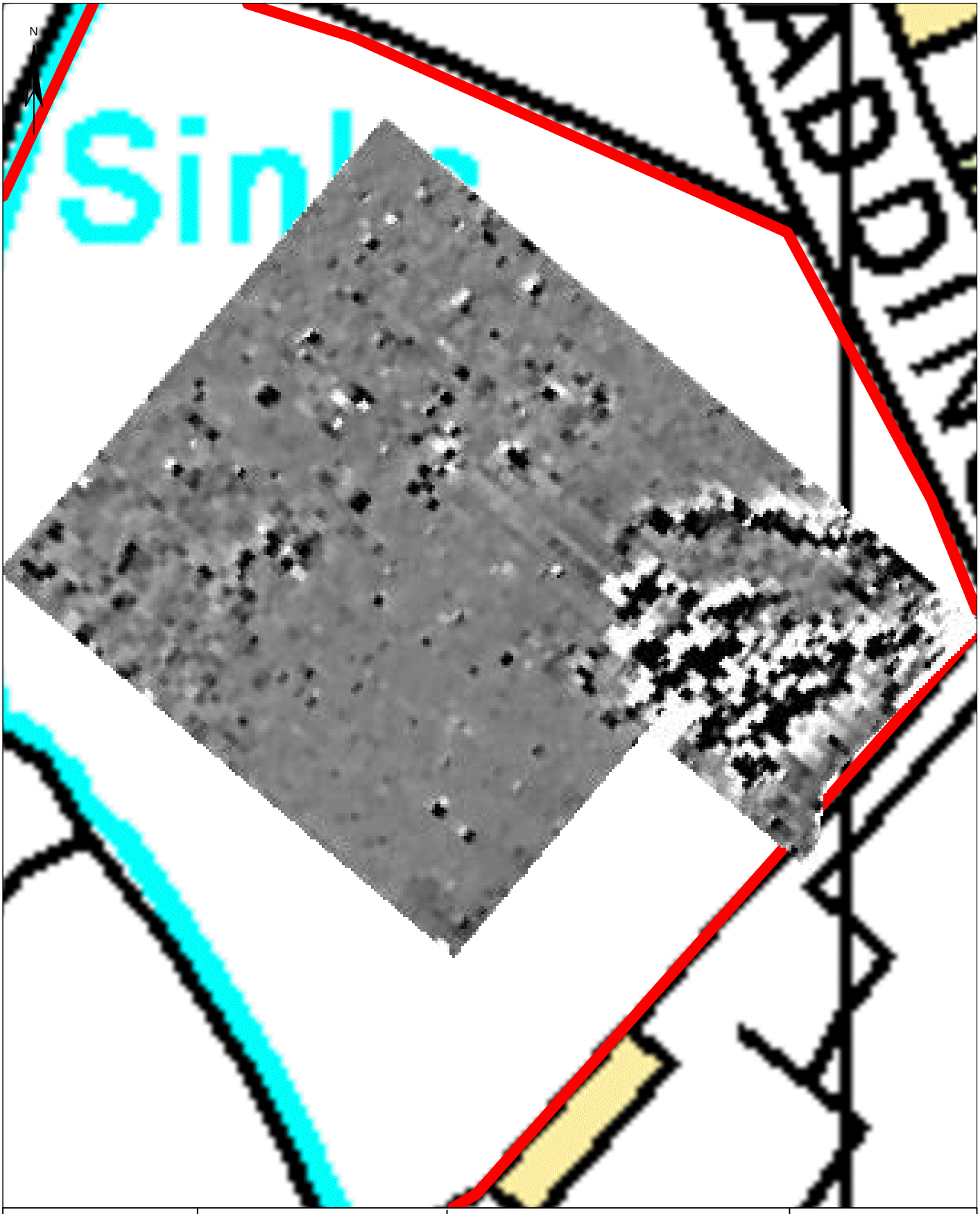

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