

# LAND ADJACENT TO SCHOOL HILL ST KEVERNE CORNWALL

Results of a Geophysical Survey



South West Archaeology Ltd. report no. 170919



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## Land adjacent to School Hill, St Keverne, Cornwall Results of a Geophysical Survey

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By P. Bonvoisin  
Report Version: FINAL  
19<sup>th</sup> of September 2017

Work undertaken by SWARCH on behalf of the Cornwall Archaeological Unit (the Client)

### *Summary*

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*This report presents the results of a geophysical survey carried out by South West Archaeology Ltd. (SWARCH) on behalf of the Cornwall Archaeological Unit (CAU) for land adjacent to School Hill, St. Keverne, Cornwall. The site is located south of the village and is approximately c.340m south-east of the church of St. Keverne. Historical mapping indicates that the site has been a single agricultural field since at least the end of the 19<sup>th</sup> century. The site inspection did not reveal any evidence of earthworks or artefactual material.*

*The geophysical survey identified twelve groups of probable or possible anomalies, six of which appear to relate to archaeological activity, one having a clear form and the remainder of unknown archaeological origin or date. The remainder of the anomalies are likely to be responses to the underlying geology on the site. If so, these geological responses may mask archaeological features and thus the archaeological potential of the site remains unproven.*

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September 2017

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## ACKNOWLEDGEMENTS

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DR ANDREW JONES OF THE CORNWALL ARCHAEOLOGY UNIT (THE CLIENT)  
THE STAFF OF THE CORNWALL RECORD OFFICE

## PROJECT CREDITS

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GRAPHICS: PETER BONVOISIN

## 1.0 INTRODUCTION

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<b>LOCATION:</b>	LAND ADJACENT TO SCHOOL HILL
<b>PARISH:</b>	ST KEVERNE
<b>COUNTY:</b>	CORNWALL
<b>NGR:</b>	SW 79297 21012
<b>SWARCH REF.</b>	SSH17

### 1.1 PROJECT BACKGROUND

South West Archaeology Ltd. (SWARCH) was commissioned by Dr Andrew Jones of the Cornwall Archaeological Unit (the Client) to undertake a geophysical survey on land adjacent to School Hill, St. Keverne, Cornwall, in advance of a proposed residential development. This work was undertaken in accordance with best practice and ClfA guidelines.

### 1.2 TOPOGRAPHICAL AND GEOLOGICAL BACKGROUND

The site is located c.340m south-east of the parish church, south-east of the playing fields, and immediately east of School Hill Road (Figure 1). St Keverne itself lies c.11.5km due south of Falmouth. The site comprises of a single small field located on a slight north-facing slope, ranging in height from c.93m AOD in the northern corner of the site to c.95m AOD in the southern corner of the site. The soils of this area are the well-drained fine loamy soils of the Trusham Association (SSEW 1983); these overlie the basic rocks of the Lizard Gabbro outcrop (BGS 2017).

### 1.3 HISTORICAL & ARCHAEOLOGICAL BACKGROUND

St Keverne is a parish and village located on the Lizard Peninsula in Cornwall. St Keverne was a medieval collegiate foundation, the site of a *lann*, and home to the canons of St Achebrannus. It was one of the flashpoints for the Cornish rebellion of 1497. Tregellast Barton and Trelyn Farm to the south and south-west were first recorded in the early 14<sup>th</sup> century but are likely to be early medieval in origin. The site lies within *medieval farmland*, forming part of the category Anciently Enclosed Land; these areas are regarded as having a *high* potential for Prehistoric and Romano-British remains.

### 1.4 METHODOLOGY

This work was undertaken in accordance with best practice. The gradiometer survey follows the general guidance as outlined in: *Geophysical Survey in Archaeological Field Evaluation* (English Heritage 2008) and *Standard and Guidance for Archaeological Geophysical Survey* (ClfA 2014).

LAND ADJACENT TO SCHOOL HILL, ST KEVERNE, CORNWALL

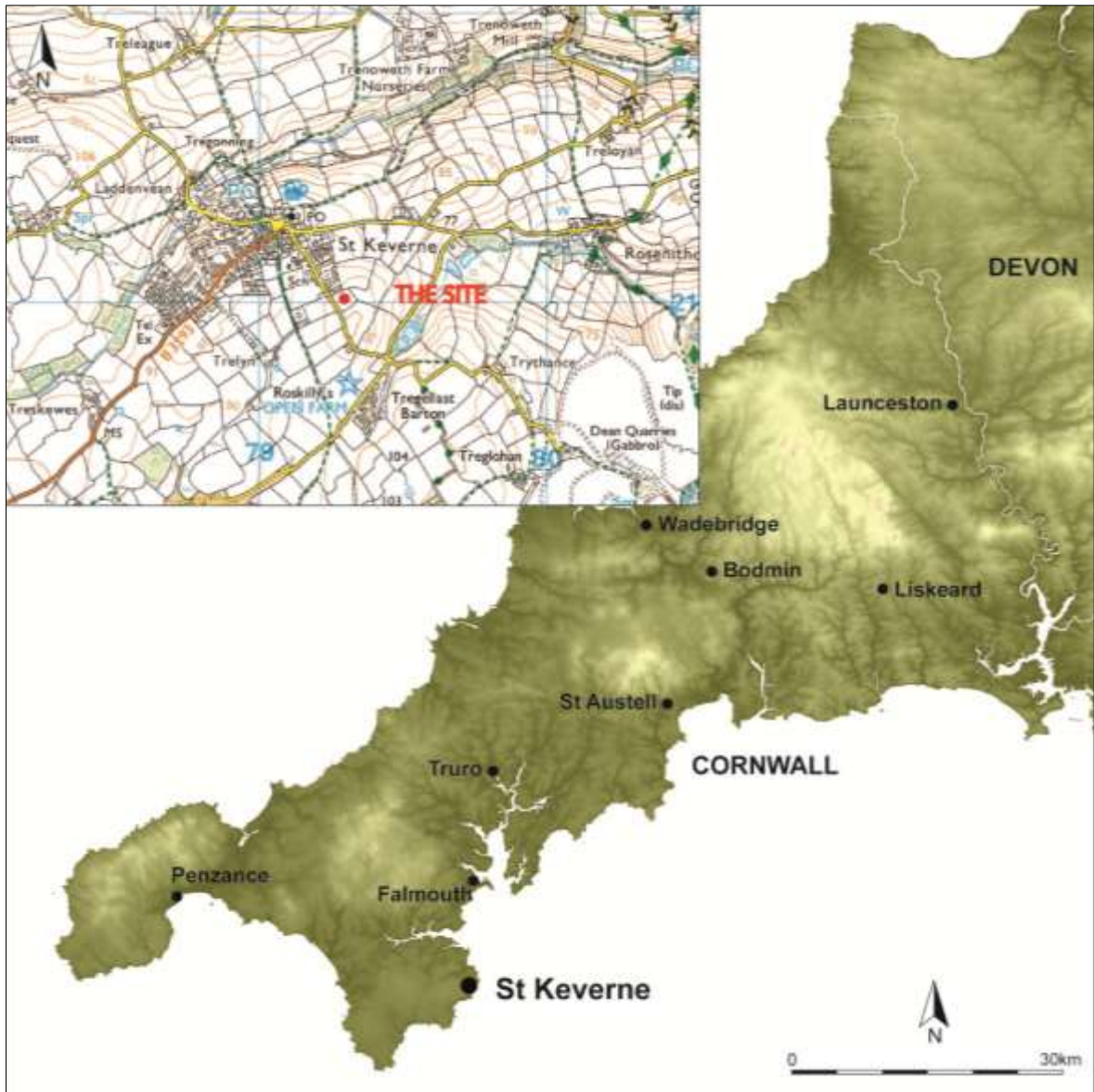


FIGURE 1: SITE LOCATION (THE SITE IS INDICATED).

## 2.0 GEOPHYSICAL SURVEY

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### 2.1 INTRODUCTION

An area of c.0.4ha was the subject of a magnetometry (gradiometer) survey. The purpose of this survey was to identify and record magnetic anomalies within the proposed site. While identified anomalies may relate to archaeological deposits and structures, the dimensions of recorded anomalies may not correspond directly with any associated features. The following discussion attempts to clarify and characterise the identified anomalies. The survey was undertaken on the 1<sup>st</sup> of September 2017 by P. Bonvoisin; the survey data was processed by P. Bonvoisin.

### 2.2 METHODOLOGY

The gradiometer survey follows the general guidance as outlined in: *Geophysical Survey in Archaeological Field Evaluation* (English Heritage 2008) and *Standard and Guidance for Archaeological Geophysical Survey* (ClfA 2014).

The survey was carried out using a twin-sensor fluxgate gradiometer (Bartington Grad601). These machines are sensitive to depths of up to 1.50m. The survey parameters were: sample intervals of 0.25m, traverse intervals of 1m, a zigzag traverse pattern, traverse orientation was circumstantial, grid squares of 30×30m. The gradiometer was adjusted ('zeroed') every 0.5-1ha. The survey grid was tied into the Ordnance Survey National Grid. The data was downloaded onto *Grad601 Version 3.16* and processed using *TerraSurveyor Version 3.0.25.0*. The primary data plots and analytical tools used in this analysis were *Shade* and *Metadata*. The details of the data processing are as follows:

Processes: Clip +/- 3SD; DeStripe all traverses, median. DeStagger of particular grids.

Details: 0.3391ha surveyed; Max. 105.41nT, Min. -100.00nT; Standard Deviation 27.02nT, mean 7.01nT, median 5.00nT.



FIGURE 2: VIEW ACROSS SITE; FROM THE SOUTH-EAST.



FIGURE 3: VIEW ACROSS THE SITE; FROM THE NORTH-EAST.

### 2.3 SITE INSPECTION

The site comprises a single field immediately to the east of School Hill Road. The site is bounded on all sides by hedgebanks, the majority of which appeared to be typical stone-faced Cornish hedgebanks, overgrown with gorse and hawthorn. The western part of the north-western boundary has a post and wire fence running alongside it. A small area of scrub vegetation projects into the field roughly halfway along the south-eastern edge. In the southern corner of the site stands a small shed, as well as two small boats and two metal boat trailers. The site is laid to pasture that was recently cut to assist with the survey. There were no visible earthworks or archaeological features and no finds were recovered. A full complement of site photographs can be found in Appendix 2.



## 2.4 RESULTS

Table 1 with the accompanying Figures 4 and 5 show the analyses and interpretation of the geophysical survey data. Additional graphic images of the survey data and numbered grid locations can be found in Appendix 1.

TABLE 1: INTERPRETATION OF GRADIOMETER SURVEY DATA.

Anomaly Group	Class and Certainty	Form	Archaeological Characterisation	Comments
1	Moderate mixed response, probable	Wide linear with curved end	Possible previous track, holloway, or boundary	Indicative of a holloway or cut feature with banks to either side; boundaries or features are not present on historic mapping. Responses of c.-6nT to +20nT.
2	Moderate positive, possible	Amorphous area	Possible pit or cut feature	Indicative of a discrete cut feature; possible pit. Responses of c.+3nT to +13nT.
3	Weak positive, possible	Fragmented linear	Possible ditch or cut feature	Indicative of a discrete cut feature; possible ditch. Responses of c.+1nT to +5nT.
4	Weak positive, possible	Fragmented linear	Possible ditch or cut feature	Indicative of a discrete cut feature; possible ditch. Responses of c.+1nT to +5nT.
5	Weak positive, possible	Fragmented linear	Possible ditch or cut feature	Indicative of a discrete cut feature; possible ditch. Responses of c.+1nT to +5nT.
6	Moderate positive, possible	Ovoid feature	Possible ditch or pit	Indicative of a discrete cut feature; true form unclear due to its location of the edge of the survey area. Responses of c.+2nT to +19nT.
7	Strong positive, possible	Amorphous area	Possible geological response	Indicative of a geological response, though without a negative associated area. Responses of c.+12nT to +38nT.
8	Very strong positive, possible	Amorphous areas	Possible geological response and magnetic disturbance	Indicative of a geological response, though without a negative associated area. Responses of c.+11T to +99nT.
9	Very strong positive, probable	Amorphous area	Probable geological response	Indicative of a geological response. Responses of c.+12nT to +99nT.
10	Strong positive, probable	Amorphous areas	Probable geological response	Indicative of a geological response. Responses of c.+11nT to +61nT.
11	Strong positive, probable	Amorphous area	Probable geological response	Indicative of a geological response. Responses of c.+12nT to +99nT.
12	Strong negative, probable	Amorphous area	Probable geological response	Indicative of a background geological response. Responses of c.-60nT to -2nT.

## 2.5 DISCUSSION

The survey identified twelve groups of anomalies.

Group 1 is a moderate positive linear with thin negative linears to either side (-6nT to + 20nT). The feature is c.5m wide, running on a north-west to south-east axis, parallel to the adjacent road. The width of this feature might suggest that it represents an old track or holloway.

Group 2 is a moderate positive amorphous cut feature (+3nT to +13nT). This response is indicative of a discrete cut feature, possibly an irregular pit.

Groups 3 to 5 are weak positive linears (+1nT to +5nT) with similar responses and forms, likely to be discrete cut linears, although due to their response are likely to be ephemeral.

Group 6 is a moderate positive ovoid feature (+2nT to +19nT), possibly a pit or ditch; the nature of this feature is unclear due to being on the edge of the survey area.

Groups 7 and 8 are strong to very strong positive amorphous areas (+11nT to +98nT). Both features are possible geological responses, though without the surrounding negative areas that the geological features on the eastern half of the site display. Some magnetic disturbance is associated with Group 8 due to its proximity to the metal boat trailers and shed in the southern corner of the site.

Groups 9 to 11 are strong to very strong positive amorphous areas (+11nT to +99nT); these features probably represent geological responses. Groups 9 and 11 may contain higher readings due to magnetic disturbance along the edge of the site.

Group 12 is a strong negative area (-60nT to -2nT) that covers much of the eastern half of the site. This anomaly in conjunction with Groups 9 to 11 probably represents the underlying geology of the site.

Di-polar anomalies and magnetic disturbance were also detected across the site; the strength of the geological responses to the survey may eclipse more instances of both. Magnetic disturbance is certainly located in the southern corner of the site, in association with a modern shed and boat trailer (Appendix 2), as well as potentially along both the north-western and north-eastern boundaries. The strength of the geological responses may mask archaeological features.

LAND ADJACENT TO SCHOOL HILL, ST KEVERNE, CORNWALL

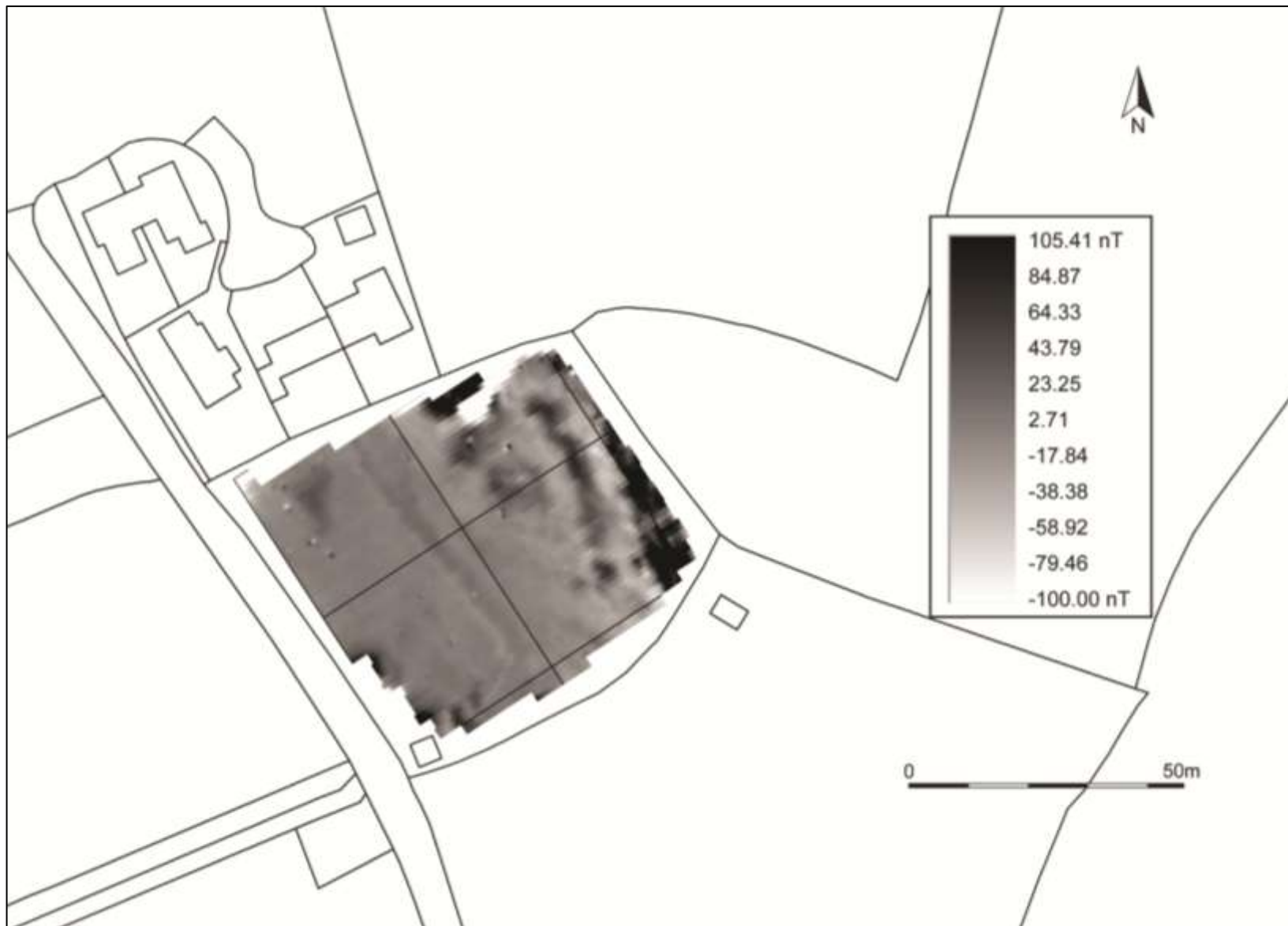


FIGURE 4: SHADE PLOT OF GRADIOMETER SURVEY DATA; MINIMAL PROCESSING.

LAND ADJACENT TO SCHOOL HILL, ST KEVERNE, CORNWALL

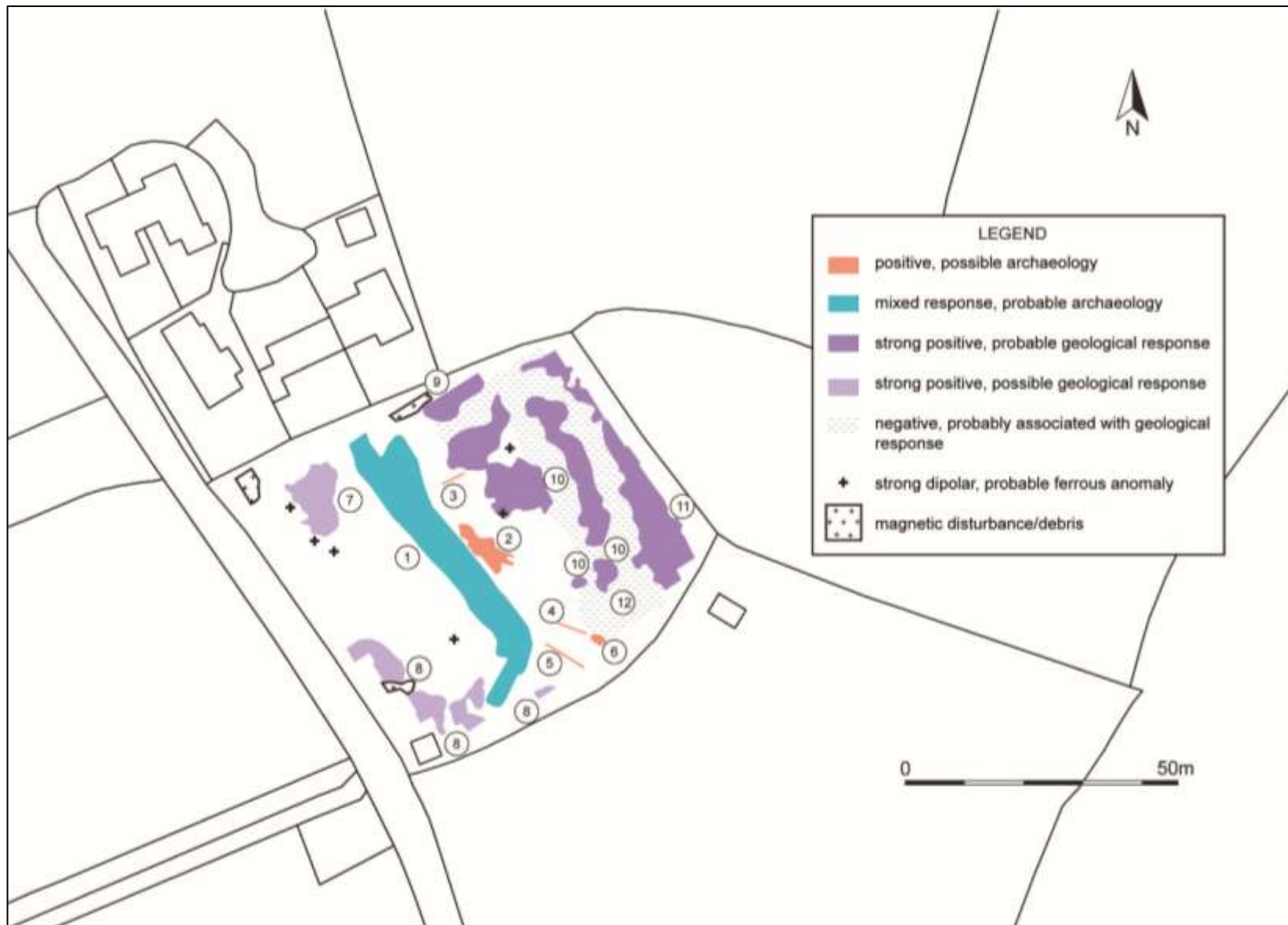


FIGURE 5: INTERPRETATION OF GRADIOMETER SURVEY DATA.

### 3.0 CONCLUSION

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The geophysical survey identified twelve anomaly groups, with six of these being potential archaeological features. A probable holloway or track runs across the site; the other features are less clear. Half of the site appears to contain anomalies likely to relate to the background geology; these may obscure archaeological features in that area.

### 4.0 BIBLIOGRAPHY & REFERENCES

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*Websites:*

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[http://maps.bgs.ac.uk/geologyviewer\\_google/googleviewer.html](http://maps.bgs.ac.uk/geologyviewer_google/googleviewer.html)

**Cornwall Council Interactive Map** 2017: *HER and HLC*

<https://map.cornwall.gov.uk>

*Cornwall Record Office*

Ordnance Survey First Edition Six Inch Map

Ordnance Survey Second Edition 25 Inch Map

APPENDIX 1: ADDITIONAL GRAPHICAL IMAGES OF THE GRADIOMETER SURVEY



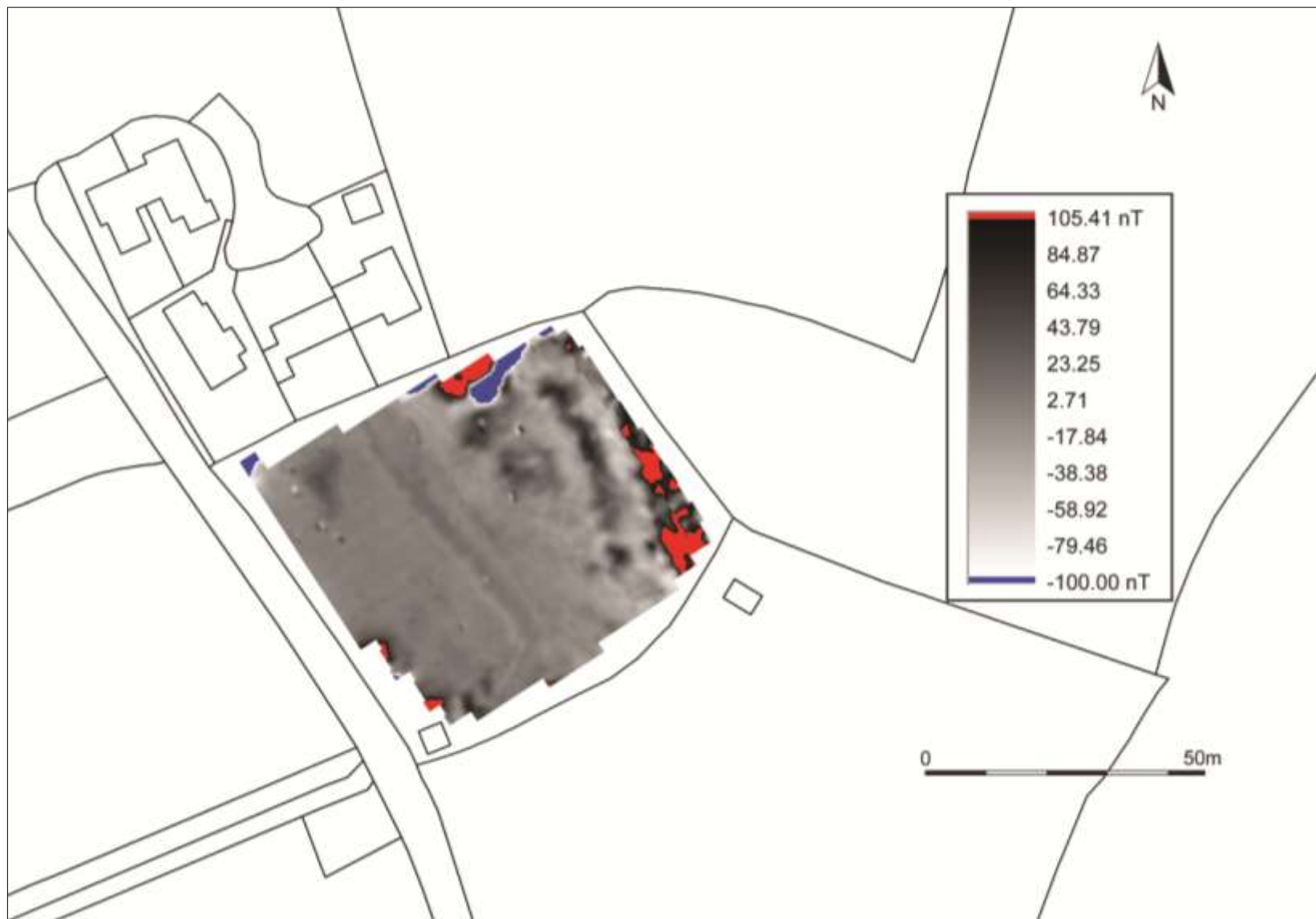
GEOPHYSICAL SURVEY GRID LOCATION AND NUMBERING.

LAND ADJACENT TO SCHOOL HILL, ST KEVERNE, CORNWALL



SHADE PLOT OF GRADIOMETER SURVEY DATA; GRADIATED SHADING.

LAND ADJACENT TO SCHOOL HILL, ST KEVERNE, CORNWALL



RED GREYSCALE BLUE SHADE PLOT OF GRADIOMETER SURVEY DATA; GRADIATED SHADING.

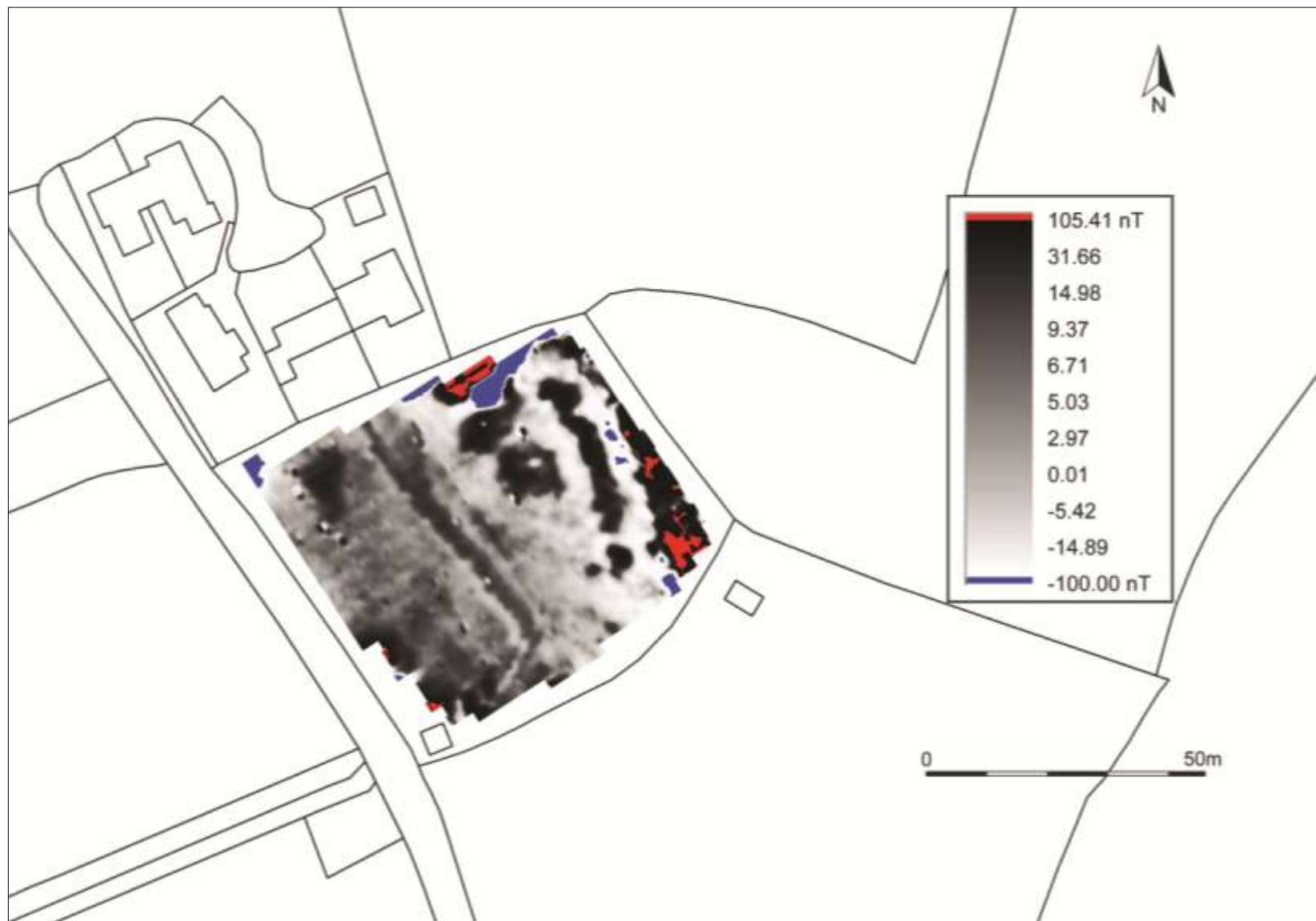


LAND ADJACENT TO SCHOOL HILL, ST KEVERNE, CORNWALL



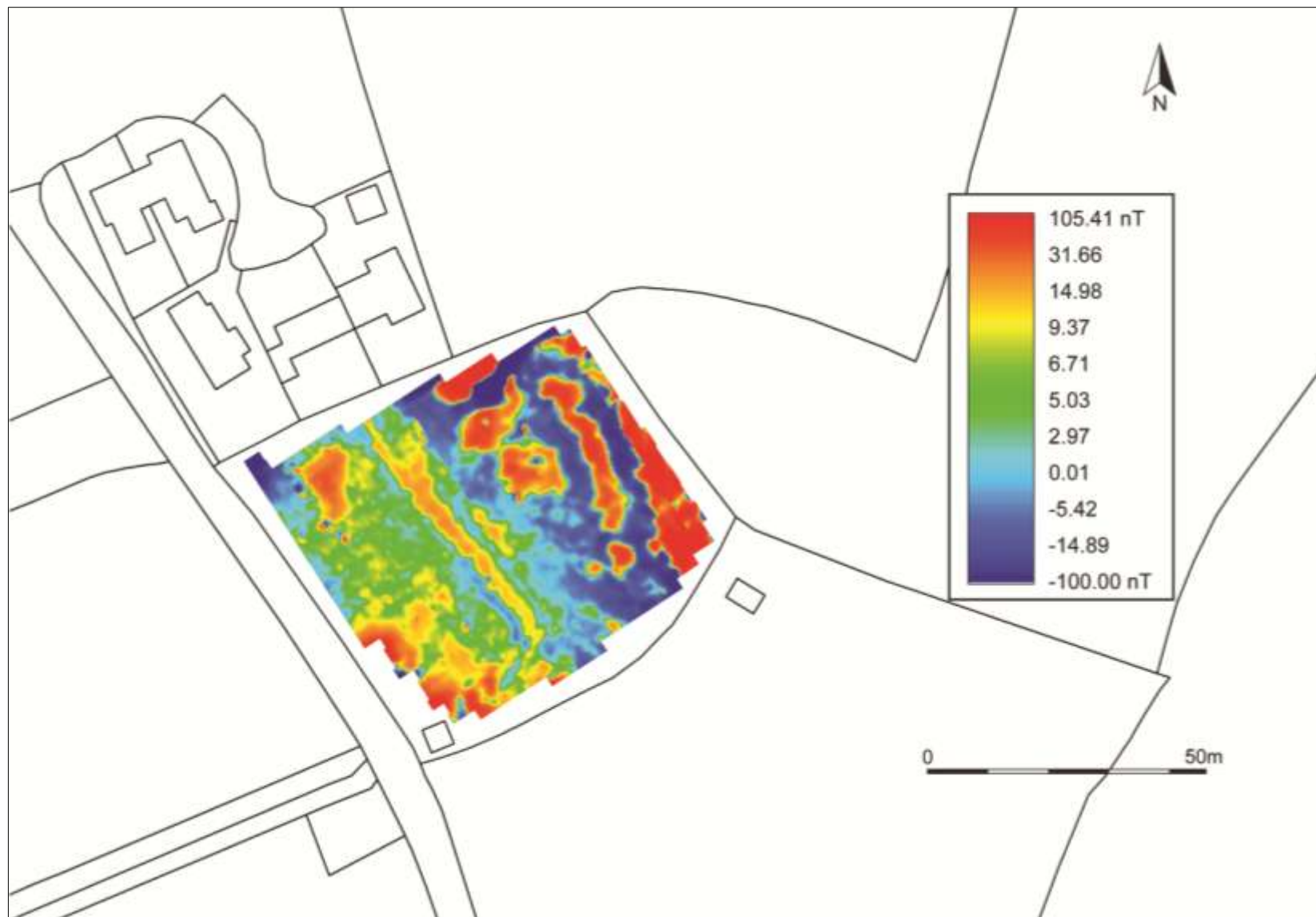
SHADE PLOT OF GRADIOMETER SURVEY DATA; BAND WEIGHT EQUALISED; GRADUATED SHADING.

LAND ADJACENT TO SCHOOL HILL, ST KEVERNE, CORNWALL



RED GREYSCALE BLUE SHADE PLOT OF GRADIOMETER SURVEY DATA; BAND WEIGHT EQUALISED; GRADIATED SHADING.

LAND ADJACENT TO SCHOOL HILL, ST KEVERNE, CORNWALL



RED-BLUE-GREEN(2) SHADE PLOT OF GRADIOMETER SURVEY DATA; BAND WEIGHT EQUALISED; GRADIATED SHADING.

APPENDIX 2: BASELINE PHOTOGRAPHS



PHOTOGRAPH 1: VIEW OF STONE-FACED BANK AT ENTRANCE TO SITE; VIEWED FROM THE NORTH (1M SCALE).



PHOTOGRAPH 2: VIEW ALONG THE NORTH-WESTERN BOUNDARY OF THE SITE; VIEWED FROM THE SOUTH-WEST.

LAND ADJACENT TO SCHOOL HILL, ST KEVERNE, CORNWALL



PHOTOGRAPH 3: VIEW OF THE NORTH-WESTERN BOUNDARY OF THE SITE; VIEWED FROM THE SOUTH-EAST (1M SCALE).



PHOTOGRAPH 4: VIEW ALONG THE NORTH-EASTERN BOUNDARY OF THE SITE; VIEWED FROM THE NORTH-WEST.



PHOTOGRAPH 5: VIEW OF THE NORTH-EASTERN BOUNDARY OF THE SITE; VIEWED FROM THE SOUTH-WEST (1M SCALE).



PHOTOGRAPH 6: VIEW ALONG THE SOUTH-EASTERN BOUNDARY OF THE SITE; VIEWED FROM THE SOUTH-EAST.



PHOTOGRAPH 7: VIEW OF THE SOUTHERN CORNER OF THE SITE; VIEWED FROM THE SOUTH-EAST.

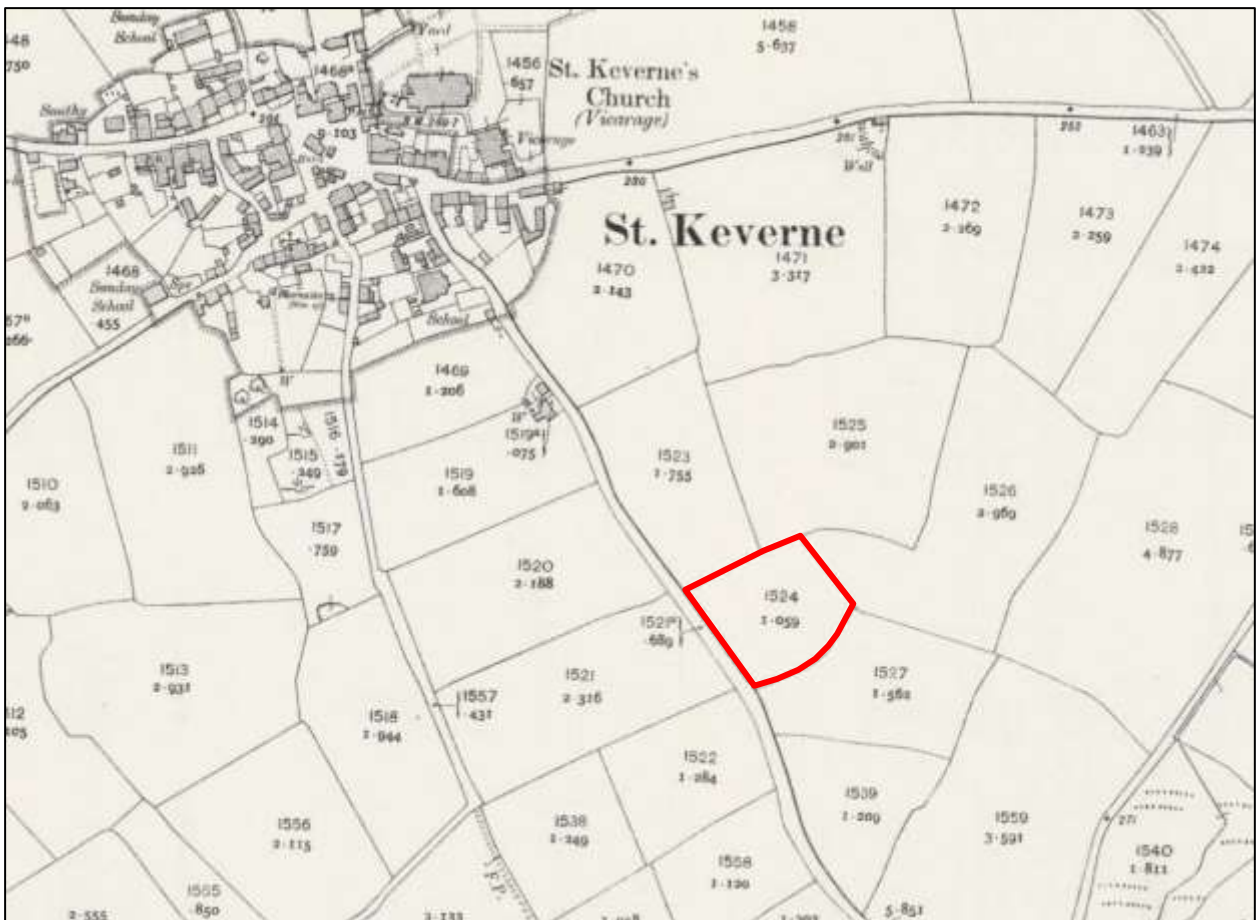


PHOTOGRAPH 8: VIEW OF THE SOUTHERN CORNER OF THE SITE; VIEWED FROM THE NORTH.

APPENDIX 3: HISTORICAL MAPPING



EXTRACT FROM THE OS FIRST EDITION 6" MAP OF 1888. THE APPROXIMATE LOCATION OF THE SITE IS INDICATED (CRO).



EXTRACT FROM THE OS SECOND EDITION 25" MAP OF 1907. THE APPROXIMATE LOCATION OF THE SITE IS INDICATED (CRO).





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