STRATASCAN

Geophysical Survey Report

Higher Polsue Way, Tresillian, Cornwall

For

Archaeological Consultancy Ltd.

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J2681

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REGISTERED ORGANISATION IfA

Document Title: **Geophysical Survey Report**
Higher Polsue Way, Tresillian

Client: **Randall & Simmonds**

Stratascan Job No: **J2681**

Techniques: **Detailed magnetic survey (gradiometry)**

National Grid Ref: **SW 865 464**

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LIST OF FIGURES

ABBREVIATIONS

AEL Anciently Enclosed Land
CRO Cornwall Record Office
LBS Listed Building Schedule Number
OS Ordnance Survey
PRN Cornwall Council Historic Environment Record Primary Record Number

1 SUMMARY OF RESULTS

The geophysical survey carried out over 1ha of land at Higher Polsue Way, Tresillian, Cornwall has identified several linear positive anomalies that probably relate to former field boundaries. High amplitude positive area anomalies are also apparent across the site that are difficult to interpret but may be associated with cut features of an archaeological origin. Several lower amplitude linear and area anomalies are also observed that are more likely to be archaeological or agricultural in origin. None of the recorded abnormalities appeared to relate to the mound previously identified on aerial photographs. Caution should be taken during any intrusive work as the background noise of the site has made it difficult to identify weak features within the survey area.

2 INTRODUCTION

2.1 Background synopsis

Archaeological Consultancy Ltd were commissioned by Randall & Simmonds to undertake the first phase of archaeological work to fulfil associated planning requirements in advance of development work. Following a walk-over survey and desk-based assessment Stratascan were commissioned by Archaeological Consultancy Ltd to undertake a geophysical survey of an area outlined for development. This report combines the results to provide recommendations for further archaeological work in advance of development.

2.2 Site location

The site is located to the north of the medieval village of Tresillian, at OS ref. SW 865 464.

2.3 Description of site

The site consists of a 1ha pasture field gently sloping down to the east.

2.4 Geology and soils

The underlying geology is Devonian Rocks (www.bgs.ac.uk/GeoIndex/index.htm, May 2009).

The overlying soils are known as Powys which are typical brown earths. These consist of shallow well drained loamy soils over rock. They are present on many steep slopes and some gently sloping interfluves. There is likely to be bare rock locally (Soil Survey of England and Wales, Sheet 5 South West England).

2.5 Site history and archaeological potential (Figure 02)

This site is classified on the Cornwall and Scilly HER as lying within 'anciently enclosed land' (AEL). AEL is land which is likely to have been enclosed from late prehistory onwards and is generally considered to have a high potential for the survival of buried archaeological remains dating to the prehistoric.

Crop-marks of a potential mound measuring 12m across were identified on an RAF vertical aerial photo (1950 58/472/5167) just inside the field entrance though nothing was obvious in this position on the geophysics, other aerial photos (1945, 1980s, 2001 and 2005) or on the ground.

A possible 'round' (a feature indicative of Late Iron-age or Romano-British period settlement) lying 200m to the north east of the site; may suggest early occupation in the vicinity though the feature may also be interpreted as a Lann (an early medieval ecclesiastical enclosure). Place name evidence suggests the former presence of a standing stone approximately 1km to the north, whilst three further possible rounds, a hill-fort and an enclosure have been identified within 2.5km of the site.

A number of local place-names including Tresillian and Tregeagle may suggest settlements existed here in the early medieval period and the manor of Polsue, in which the site lies, clearly predated the Norman invasion. The Domesday book records that the manor was held by Alwin before 1066, and he paid tax for 1 hide (120 acres of land) for 10 ploughs, 5 ploughs there, 8 slaves, 8 villagers and 14 smallholders. This land also included woodland totalling 15 acres, and 3 acres of pasture measuring 3 leagues long and 1 league wide. On this land he kept 10 pigs, 100 sheep and 10 goats. (Morris, J. 1979).

By 1086, the manor of Polsue was held by Richard son of Thorolf from Robert the Count of Mortain (half-brother of William I), in 1471 it was forfeited by John Vere, Earl of Oxford, to Edward the Fourth, and then it passed through the families of Mapowder and Luttrell to Doctor Wynne and then to Mr. Pendarves (Gilbert, 1838, pp402-403).

The manor and the ecclesiastical parish of St Erme in which it lay, consisted of two portions, with the Northern part centring on the church and comprising the church town land of Eglos-Erme, Trispen Vean and the Vean of Pengilly, and the Southern part of some 400 acres, a detached portion, comprising the Barton of Polsue, and the lands of Tregoning and Tresillian Farm. The northern portion of the manorial land was free land, with the southern portion including the development site being the main domestic part of the manor (Henderson, C. 1923). Polsue Manor Farm the site of the manor house, lies 700m to the southwest of the site. The extant building Polsue Manor (Listed Building 62811) is described as a farmhouse dating to the 17th century or earlier (Listed Buildings On-line).

There is evidence of medieval strip farming activity in nearby fields and it seems likely that much of the flatter land close by would have been given over to the plough for much of the medieval period with more exposed slopes used for pasture.

The hamlet of Tresillian is first recorded according to the SMR (PRN 22567) as "Tresulien" in 1201 (citing Padel, OJ. 1985. Cornish Place-Name Elements. 314) or in 1315 (Gover 1948, pp472-473) or 1325 (Padel 1988, pp169) as "Tresulyan", meaning the farm of Sulyen or Sulian. The hamlet developed alongside and around an important crossing point of St Clement's creek over which a bridge had apparently been built by 1386 when the settlement was referred to as Ponstresilyan (Gover, 1948, pp473). This bridge served the main Truro to St Austell road along which the hamlet developed.

The Wheel Inn (Listed Building 62799) is said to have been Fairfax's headquarters during the battle of Tresillian in the civil war (Listed Buildings On-line), though the mill itself may be considerably older. In 1646 a treaty was made between Fairfax and Lord Hopton on Tresillian bridge, by which the County of Cornwall was surrendered to parliament, Lord Hopton having previously been defeated in an engagement with Fairfax at Torrington.

A stream running alongside the north eastern edge of the site forms the parish boundary and this feature has been referred to as the 'Gylly' in the parish of St Erme Bounds of 1613 (Henderson 1925). A 'gilly' is defined as a grove (Holmes, 1998, pp21) whilst a 'gill' is defined in the Oxford English dictionary as a "Deep, wooded ravine, or narrow mountain torrent" (Coulton, J 1984). Either interpretation may be appropriate here. The 'Gylly' fed the former mill race for the Wheel Inn at the bottom of the hill.

The tithe map and apportionment of 1840 show the site as an arable field called Higher Meadow, occupied by Ann Langdon and owned by Edward Pendarves who was evidently Lord of the Manor of Polsue. The surrounding fields were all used for arable at this stage and were listed in the tenement of Gillises. By this date Tresillian was relatively well developed along the roadside including quays, lime kilns, malt houses, the Wheel Inn and a toll house, (CC SMR 2009)

By the 1880s (OS Map) a school, a blacksmiths workshop, a mission chapel (erected 1878- Kelly's Directory 1930)) a non-conformist chapel, a corn mill and a number of houses had been constructed alongside the road and on reclaimed land on the north side of St Clements creek. Kelly's directory of 1883 records "*The lordship of the manor is in the Pendarves family...and the chief crops produced are wheat, barley, oats and turnips*." Charles Gatley is the only farmer listed at Polsue within the ecclesiastical parish of St Erme. The growing of cereals as well as fodder crops were clearly very important in the area as well as lime burning. Coal and timber were other important commodities.

The 20th century saw the expansion of housing up the hill towards the present development site, with housing schemes in the 1970s and 1980s apparently covering possible archaeological deposits. The field has been used as pasture for horses in recent years.

2.6 Survey objectives

The objective of the survey was to locate any features of possible archaeological significance in order that they may be assessed prior to development.

2.7 Survey methods

Detailed magnetic survey (gradiometry) was used as an efficient and effective method of locating archaeological anomalies. More information regarding this technique is included in the Methodology section below.

3 METHODOLOGY

3.1 Date of fieldwork

The walk-over survey was carried out on the 2nd December 2009 by Archaeological Consultancy Ltd staff whilst the geophysical fieldwork was carried out over 2 days from 7th December 2009 – 8th December 2009. The weather during the survey was wet.

3.2 Grid locations

The location of the survey grids has been plotted in Figure 3 together with the referencing information. Grids were set out using a Leica Smart Rover RTK GPS.

An RTK GPS (Real-time Kinematic Global Positioning System) can locate a point on the ground to a far greater accuracy than a standard GPS unit. A standard GPS suffers from errors created by satellite orbit errors, clock errors and atmospheric interference, resulting in an accuracy of 5m-10m. An RTK system uses a single base station receiver and a number of mobile units. The base station re-broadcasts the phase of the carrier it measured, and the mobile units compare their own phase measurements with those they received from the base station. A SmartNet RTK GPS uses Ordnance Survey's network of over 100 fixed base stations to give an accuracy of around 0.01m.

3.3 Survey equipment

Although the changes in the magnetic field resulting from differing features in the soil are usually weak, changes as small as 0.2 nanoTesla (nT) in an overall field strength of 48,000nT, can be accurately detected using an appropriate instrument.

The mapping of the anomaly in a systematic manner will allow an estimate of the type of material present beneath the surface. Strong magnetic anomalies will be generated by buried iron-based objects or by kilns or hearths. More subtle anomalies such as pits and ditches can be seen if they contain more humic material which is normally rich in magnetic iron oxides when compared with the subsoil.

To illustrate this point, the cutting and subsequent silting or backfilling of a ditch may result in a larger volume of weakly magnetic material being accumulated in the trench compared to the undisturbed subsoil. A weak magnetic anomaly should therefore appear in plan along the line of the ditch.

The magnetic survey was carried out using a dual sensor Grad601-2 Magnetic Gradiometer manufactured by Bartington Instruments Ltd. The instrument consists of two fluxgates very accurately aligned to nullify the effects of the Earth's magnetic field. Readings relate to the difference in localised magnetic anomalies compared with the general magnetic background. The Grad601-2 consists of two high stability fluxgate gradiometers suspended on a single frame. Each gradiometer has a 1m separation between the sensing elements so enhancing the response to weak anomalies.

3.4 Sampling interval, depth of scan, resolution and data capture

3.4.1 Sampling interval

Readings were taken at 0.25m centres along traverses 1m apart. This equates to 3600 sampling points in a full 30m x 30m grid.

3.4.2 Depth of scan and resolution

The Grad 601 has a typical depth of penetration of 0.5m to 1.0m. This would be increased if strongly magnetic objects have been buried in the site. The collection of data at 0.25m centres provides an optimum methodology for the task balancing cost and time with resolution.

3.4.3 Data capture

The readings are logged consecutively into the data logger which in turn is daily down-loaded into a portable computer whilst on site. At the end of each job, data is transferred to the office for processing and presentation.

3.5 Processing, presentation of results and interpretation

3.5.1 Processing

Processing is performed using specialist software known as *Geoplot 3*. This can emphasise various aspects contained within the data but which are often not easily seen in the raw data. Basic processing of the magnetic data involves 'flattening' the background levels with respect to adjacent traverses and adjacent grids. 'Despiking' is also performed to remove the anomalies resulting from small iron objects often found on agricultural land. Once the basic processing has flattened the background it is then possible to carry out further processing which may include low pass filtering to reduce 'noise' in the data and hence emphasise the archaeological or man-made anomalies.

The following schedule shows the basic processing carried out on all processed gradiometer data used in this report:

1. *Despike* (useful for display and allows further processing functions to be carried out more effectively by removing extreme data values)

   Geoplot parameters:
   X radius = 1, y radius = 1, threshold = 3 std. dev.
   Spike replacement = mean

2. *Zero mean traverse* (sets the background mean of each traverse within a grid to zero and is useful for removing striping effects)

   Geoplot parameters:
   Least mean square fit = off

3.5.2 Presentation of results and interpretation

The presentation of the data for each site involves a print-out of the raw data both as greyscale (Figure 04) and colour plot (Figure 05), together with a greyscale plot of the processed data (Figure 06). Magnetic anomalies have been identified and plotted onto the 'Abstraction and Interpretation of Anomalies' drawing for the site (Figure 07).

4 RESULTS

The magnetic data across the site is unusually high in magnitude, although this is not because of ferrous debris across the site. Several relatively high amplitude (10-20nT) linear positive anomalies can be seen across the site, some of which have associated negative responses (**1**). These are likely to be associated with either former field boundaries or cut features of archaeological origin.

A band of high amplitude (20-70nT) positive area responses can be observed in the data running in a roughly north-south orientation through the centre of the site (**2**). Negative area responses are seen associated with these. The amplitude of these anomalies is significantly higher than is usually seen from archaeological responses, but a lot lower than would be seen from large buried ferrous objects. The geological information available does not suggest that there are any igneous intrusions on site that may be the cause of these anomalies, so it is possible that these features are of an archaeological origin. Further relatively high amplitude positive area anomalies are seen scattered across the site which may have the same cause but may also relate to pits of an archaeological origin (**3**).

A couple of linear negative anomalies have been observed in the data, without an associated positive response (**4**). These may relate to former banks or earthworks, or be the negative response from a cut feature where the expected positive response is obscured by the generally high background readings.

Some weaker amplitude linear anomalies are also seen scattered across the site (**5**). These are at the amplitude usually expected for an archaeological response (1-3nT) and so may have an archaeological origin, but as it is known that the field has been used for arable in the past it is also possible that these anomalies are related to past ploughing activity.

A faint linear anomaly is seen cutting across the other anomalies that has been interpreted as a modern service, and there is a small amount of magnetic disturbance around the southern edge of the site which is likely to be caused by modern activity.

5 CONCLUSION

The data collected at Higher Polsue Way exhibits an unusually high background reading, and positive anomalies observed are generally a lot higher in magnitude than has been observed on other sites. This makes interpreting the data from an archaeological perspective difficult, and it is possible that the high amplitude positive area anomalies observed (**2**) are caused by unknown pedological or geological factors. Strong evidence of former field boundaries are seen across the site (**1**), along with weaker evidence for cut features that may relate to either archaeological activity or past farming practise. No anomalies are observed that relate to the crop circle observed in the RAF photograph (1950 58/472/5167).

6 RECOMMENDATIONS

Further investigation of the area is recommended in advance of development to test, record and interpret anomalies identified in the assessment and check for more subtle features which may be associated. This should ideally consist of testing and recording of negative anomalies as well as controlled topsoil stripping and appropriate mitigation of any exposed archaeological features.

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Soil Survey of England and Wales, 1983. *Soils of England and Wales, Sheet 5 Southwest England.*

7.1 Website references

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Google Earth http://earth.google.com

Listed Buildings on-line website www.english-heritage.org.uk/lbonline

APPENDIX A – Basic principles of magnetic survey

Detailed magnetic survey can be used to effectively define areas of past human activity by mapping spatial variation and contrast in the magnetic properties of soil, subsoil and bedrock.

Weakly magnetic iron minerals are always present within the soil and areas of enhancement relate to increases in *magnetic susceptibility* and permanently magnetised *thermoremnant* material.

Magnetic susceptibility relates to the induced magnetism of a material when in the presence of a magnetic field. This magnetism can be considered as effectively permanent as it exists within the Earth's magnetic field. Magnetic susceptibility can become enhanced due to burning and complex biological or fermentation processes.

Thermoremnance is a permanent magnetism acquired by iron minerals that, after heating to a specific temperature known as the Curie Point, are effectively demagnetised followed by re-magnetisation by the Earth's magnetic field on cooling. Thermoremnant archaeological features can include hearths and kilns and material such as brick and tile may be magnetised through the same process.

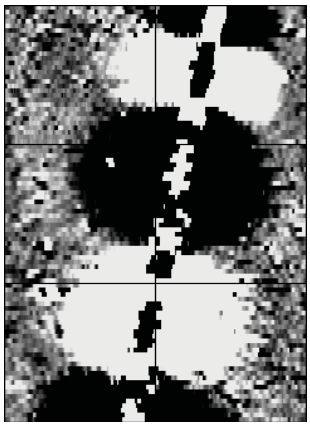
Silting and deliberate infilling of ditches and pits with magnetically enhanced soil creates a relative contrast against the much lower levels of magnetism within the subsoil into which the feature is cut. Systematic mapping of magnetic anomalies will produce linear and discrete areas of enhancement allowing assessment and characterisation of subsurface features. Material such as subsoil and non-magnetic bedrock used to create former earthworks and walls may be mapped as areas of lower enhancement compared to surrounding soils.

Magnetic survey is carried out using a fluxgate gradiometer which is a passive instrument consisting of two sensors mounted vertically either 0.5 or 1m apart. The instrument is carried about 30cm above the ground surface and the top sensor measures the Earth's magnetic field whilst the lower sensor measures the same field but is also more affected by any localised buried field. The difference between the two sensors will relate to the strength of a magnetic field created by a buried feature, if no field is present the difference will be close to zero as the magnetic field measured by both sensors will be the same.

Factors affecting the magnetic survey may include soil type, local geology, previous human activity, disturbance from modern services etc.

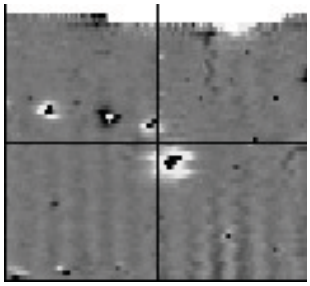
APPENDIX B – Glossary of magnetic anomalies

Bipolar



A bipolar anomaly is one that is composed of both a positive response and a negative response. It can be made up of any number of positive responses and negative responses. For example a pipeline consisting of alternating positive and negative anomalies is said to be bipolar. See also dipolar which has only one area of each polarity. The interpretation of the anomaly will depend on the magnitude of the magnetic field strength. A weak response may be caused by a clay field drain while a strong response will probably be caused by a metallic service.

Dipolar

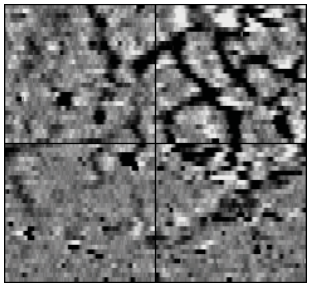


This consists of a single positive anomaly with an associated negative response. There should be no separation between the two polarities of response. These responses will be created by a single feature. The interpretation of the anomaly will depend on the magnitude of the magnetic measurements. A very strong anomaly is likely to be caused by a ferrous object.

Positive anomaly with associated negative response

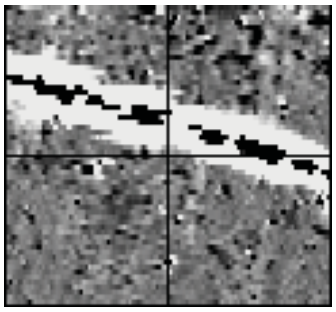
See bipolar and dipolar.

Positive linear



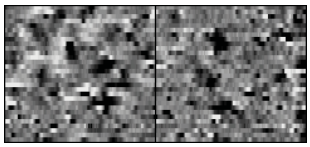
A linear response which is entirely positive in polarity. These are usually related to infilled cut features where the fill material is magnetically enhanced compared to the surrounding matrix. They can be caused by ditches of an archaeological origin, but also former field boundaries, ploughing activity and some may even have a natural origin.

Positive linear anomaly with associated negative response



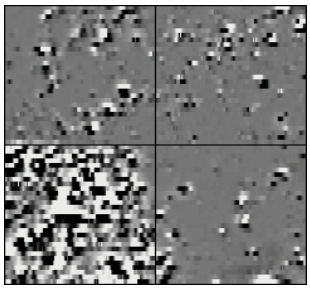
A positive linear anomaly which has a negative anomaly located adjacently. This will be caused by a single feature. In the example shown this is likely to be a single length of wire/cable probably relating to a modern service. Magnetically weaker responses may relate to earthwork style features and field boundaries.

Positive point/area



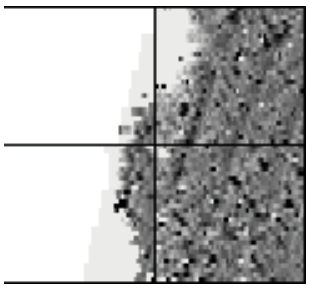
These are generally spatially small responses, perhaps covering just 3 or 4 reading nodes. They are entirely positive in polarity. Similar to positive linear anomalies they are generally caused by infilled cut features. These include pits of an archaeological origin, possible tree bowls or other naturally occurring depressions in the ground.

Magnetic debris



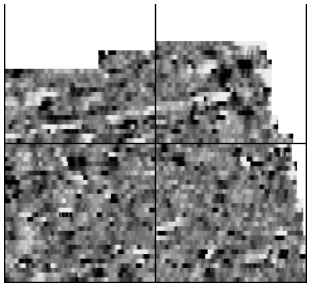
Magnetic debris consists of numerous dipolar responses spread over an area. If the amplitude of response is low (+/-3nT) then the origin is likely to represent general ground disturbance with no clear cause, it may be related to something as simple as an area of dug or mixed earth. A stronger anomaly (+/-250nT) is more indicative of a spread of ferrous debris. Moderately strong anomalies may be the result of a spread of thermoremnant material such as bricks or ash.

Magnetic disturbance



Magnetic disturbance is high amplitude and can be composed of either a bipolar anomaly, or a single polarity response. It is essentially associated with magnetic interference from modern ferrous structures such as fencing, vehicles or buildings, and as a result is commonly found around the perimeter of a site near to boundary fences.

Negative linear

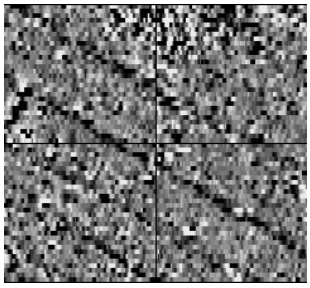


A linear response which is entirely negative in polarity. These are generally caused by earthen banks where material with a lower magnetic magnitude relative the background top soil is built up. See also ploughing activity.

Negative point/area

Opposite to positive point anomalies these responses may be caused by raised areas or earthen banks. These could be of an archaeological origin or may have a natural origin.

Ploughing activity



Ploughing activity can often be visualised by a series of parallel linear anomalies. These can be of either positive polarity or negative polarity depending on site specifics. It can be difficult to distinguish between ancient ploughing and more modern ploughing, clues such as the separation of each linear, straightness, strength of response and cross cutting relationships can be used to aid this, although none of these can be guaranteed to differentiate between different phases of activity.

Polarity

Term used to describe the measurement of the magnetic response. An anomaly can have a positive polarity (values above 0nT) and/or a negative polarity (values below 0nT).

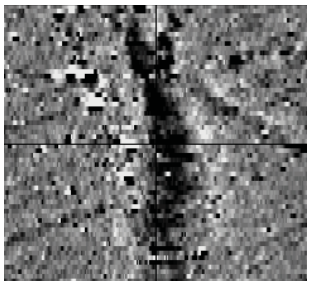
Strength of response

The amplitude of a magnetic response is an important factor in assigning an interpretation to a particular anomaly. For example a positive anomaly covering a $10m^2$ area may have values up to around 3000nT, in which case it is likely to be caused by modern magnetic interference. However, the same size and shaped anomaly but with values up to only 4nT may have a natural origin. Trace plots are used to show the amplitude of response.

Thermoremnant response

A feature which has been subject to heat may result in it acquiring a magnetic field. This can be anything up to approximately +/-100 nT in value. These features include clay fired drains, brick, bonfires, kilns, hearths and even pottery. If the heat application has occurred insitu (e.g. a kiln) then the response is likely to be bipolar compared to if the heated objects have been disturbed and moved relative to each other, in which case they are more likely to take an irregular form and may display a debris style response (e.g. ash).

Weak background variations



Weakly magnetic wide scale variations within the data can sometimes be seen within sites. These usually have no specific structure but can often appear curvy and sinuous in form. They are likely to be the result of natural features, such as soil creep, dried up (or seasonal) streams. They can also be caused by changes in the underlying geology or soil type which may contain unpredictable distributions of magnetic minerals, and are usually apparent in several locations across a site.

APPENDIX C – Written Scheme of Investigation

Higher Polsue Way, Tresillian, Cornwall

Archaeological Assessment: Written Scheme of Investigation

Author:	**Matt Mossop MA MGSDip MIAI**
Report Date:	**23.11.09**
Client:	**Cornwall Council**
Project No:	**AC09004E**
Planning Reference:	**N/A**
Statutory Protection:	**None**
Proposal:	**Construction of approximately 23 affordable houses**
Parish:	**St Clement**
District:	**Carrick**
County:	**Cornwall**
Country:	**England**
National Grid Reference:	**SW 8652 4641**

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Contents

1 Summary

The site at Higher Polsue Way, Tresillian, is classified on the Cornwall and Scilly HER as lying within 'anciently enclosed land' (AEL) and an undated mound has been identified on site.

Archaeological Consultancy Limited (AC) have been commissioned by Ben Randall of Randall & Simmonds on behalf of Cornwall Council, to provide a Written Scheme of Investigation for an archaeological assessment and geophysical survey, in accordance with a brief provided by Dan Ratcliffe, Historic Environment Advisor (Archaeology), for a proposed development of approximately 23 affordable houses on land at Higher Polsue Way.

2 Site location

2.1 Location

The site (SW 8652 4641) lies to the north of the medieval village of Tresillian, within the parish of St Clement.

2.2 Topography

The land slopes generally to the east, with the crest of a spur running in a NW-SE direction down towards the Tresillian River.

2.3 Geology

The soils are described on the National Soil Map as well drained fine loamy or silty soils overlying Palaeozoic slates, mudstones and siltstone.

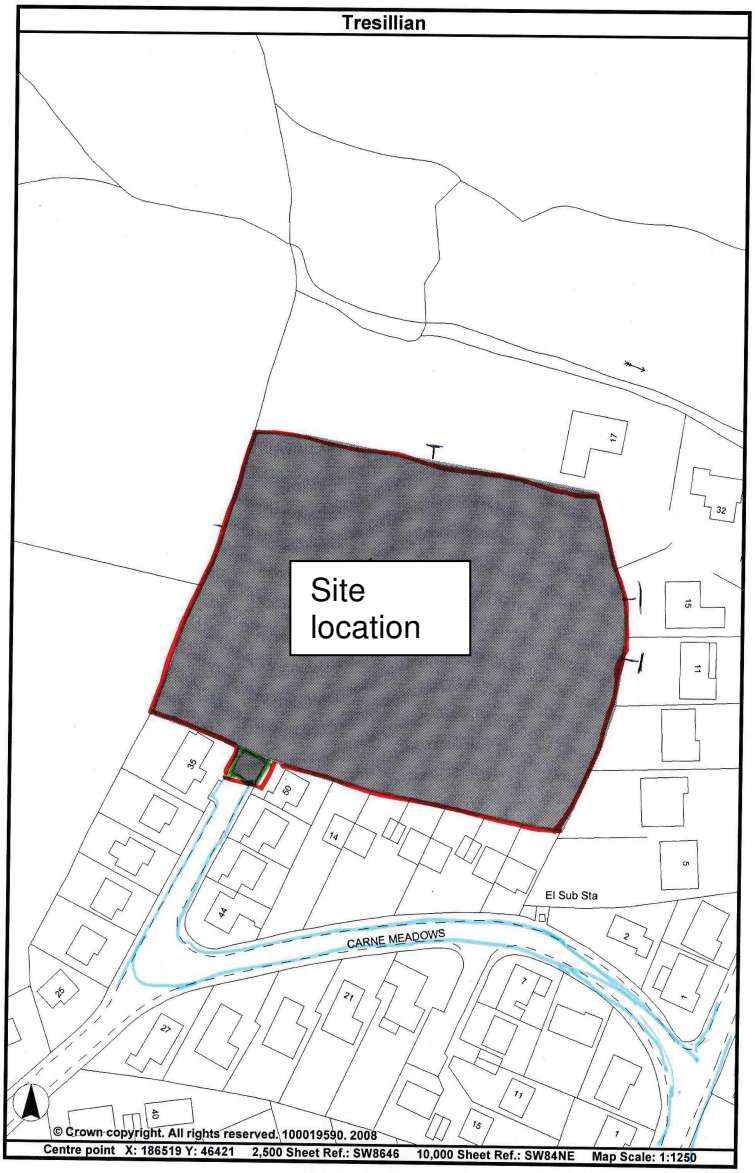


Figure 1: Site Location

3 Project background

3.1 Development background

This site is being proposed for the development of approximately 23 houses. The development of these houses and the associated roads and services are likely to result in significant ground disturbance within the proposal area. The proposals are currently at pre-application stage. Archaeological Consultancy Limited (AC) have been commissioned by Ben Randall of Randall & Simmonds on behalf of Cornwall Council to provide a Written Scheme of Investigation (WSI) and undertake the necessary archaeological assessment to fulfil the brief laid out by the Historic Environment Advisor and support the forthcoming planning application.

3.2 Archaeological and Historical background

This site is classified on the Cornwall and Scilly HER as lying within 'anciently enclosed land' (AEL). AEL is land which is likely to have been enclosed from late prehistory onwards and is generally considered to have a high potential for the survival of buried archaeological remains dating to the prehistoric. This potential can be illustrated by the presence of the undated mound recorded from aerial photography within this land parcel, by a Scheduled 'round' (a feature indicative of Romano-British settlement sites) which lies 200m to the north east; and by further HER records for a prehistoric standing stone, hill fort and enclosure within 1km of the site.

4 Project aims and objectives

The principal aims will be to:

- Assess the archaeological significance of the undated mound
- Assess the likely presence/absence of archaeological remains
- Produce a report interpreting the data and detailing the positions of likely archaeological remains
- Inform whether an archaeological evaluation or further archaeological recording of any potential buried remains is recommended.

To achieve these aims the report will

- Characterise and draw together the historical and archaeological information about the site and its environs (1km)
- Itemise and where possible photograph all heritage assets directly affected by the proposals, including field boundaries where appropriate, and consider the significance of and the impacts of the development on each.
- Inform the need for palaeo-environmental sampling.

5 Method statement

5.1 General methodology

AC complies with the guidelines set out in the IfA's Standards and Guidance and follows the IfA code of conduct.

All recording work will be undertaken in line with the brief (Appendix 1), except where expressly stated below.

The project will be carried out in two main stages:

5.2 Stage 1: Desk Based Assessment and walk over survey

This will draw together existing published and unpublished materials pertinent to the site including detailed searches and analyses of registers of archaeological sites; a map regression exercise; review of available aerial photographs.

This will include material at the Cornwall HER, the Cornwall Record Office, the Courtney Library and the Cornish Studies Library as appropriate and is likely to include the following key sources:

Primary sources

John Speed's Map of Cornwall 1610

John Blaeu's Atlas Novus, Cornwallia 1648

John Norden's maps of Cornwall

Thomas Martyn 1748

OS 1st Edition 1 inch/mile series 1801

Tithe map and apportionments c1840

OS 1880

OS 1907

OS 1930

The Henderson Index

CC Aerial photos c1980-1990

Googleearth

Published sources

The Domesday book

Gascoyne's Map 1699

Websites

http://ads.ahds.ac.uk/catalogue/search/map.cfm

The site will be mown or grazed in advance of a walk over survey. Extant remains on site will be recorded with scaled monochrome photography as appropriate.

5.3 Stage 2: Evaluation by Geophysical Survey

The survey area will be mown or grazed and clearly marked out by the client in advance of fieldwork. The geophysical survey team will establish and tie-in (to permanent landscape features) the survey areas using tapes and a total station

theodolite; where appropriate, semi-permanent marker pegs will be left on site, so that the grid can be accurately re-located by a third party. Alternatively, or additionally, a *Trimble GPS* or equivalent may be used to set out and tie-in survey areas.

The detailed magnetic survey will be carried out using a Bartington Grad601-2 or equivalent, with readings taken every 0.25m along lines 1m apart. All site work and reporting will be carried out in accordance with English Heritage Geophysical Survey in Archaeological Field Evaluation, 2008.

The readings will be stored initially in the memory of the instrument and will later be downloaded to computer for processing and interpretation. *Geoplot 3* (*Geoscan Research*), *GPR Slice* (for GPR surveys) or other appropriate software will be used to process and present the data.

As much of the agreed area will be surveyed, but artificial obstructions may limit a total survey.

5.4 Report and Archive

5.4.1 Report

A single archive report will be prepared to describe the results of the archaeological work. A digital version will also be supplied on CD-ROM. The final report will contain: summary, aims and methods, discussion, recommendations and include location and other relevant plans tied in to the OS grid.

Copies of the archive report will be submitted to: the client; the County Historic Environment Record (HER); Cornwall Record Office; National Monuments Record (NMR) in Swindon and all significant contributors where (with the exception of the client's and contributors' copies) they will be available for public consultation.

5.4.2 Archive

The site archive will be prepared in accordance with Management of Research Projects in the Historic Environment (MoRPHE) and *Conditions of Acceptance of Archaeological Archives* (RCM 2006) as appropriate upon completion of the project.

The archive is likely to be of a documentary nature and will be deposited in a suitable form with the Cornwall Record Office, within two months of the completion of the final report and confirmed in writing with the HEAA.

5.4.3 Web-based publications

The online OASIS record will be completed when the report is submitted.

6 Project management and structure

6.1 Staff

The project will be managed by Matt Mossop of Archaeological Consultancy Ltd who will also undertake the desk-based assessment and walk-over survey and compile the report. The Geophysical survey will be carried out by one of a number of organisations, including Stratascan Ltd, GSB and Archaeophysica dependant on timetabling.

Matt Mossop MA MGSDip MIAI Project Manager
Matt has extensive archaeological experience in England, France and Ireland from 1992 onwards, becoming a licensed director in Ireland (2001). He has directed numerous excavations and presented papers for the World Archaeological Congress, Royal Society of Antiquaries of Ireland, universities and local groups in Ireland and the UK.

Whilst we endeavour to avoid changes to senior project staff, AC reserves the right to change the nominated personnel if necessary.

6.2 Project facilities and infrastructure

The project will be based at the AC office in Halvasso, Penryn. AC has a computer network running Windows XP Professional and Vista. Report texts are generated in Word 2007.

6.3 Timetable

The fieldwork is anticipated to commence as soon as we have approval from the Historic Environment Advisor, in advance of all development works. The geophysical fieldwork is likely to take 2 days to complete.

An archive report will be completed within 2 months of the end of the fieldwork. The deposition of the archive will be completed within 2 months of the completion of the report.

The walk over and photographic survey is estimated to take half a day.

6.4 Health and safety

AC will ensure that all work is carried out to standards defined in the Health and Safety at Work Act 1974 and The Management of Health and Safety Regulations 1992, and in accordance with Health and Safety in Field Archaeology (2006) endorsed by the Standing Conference of Archaeological Unit Managers.

A risk assessment will be prepared for the site work and all staff will be briefed on the contents of the final version. PPE will be issued and used as required.

6.5 Insurance

AC has adequate insurance for employer's liability, public liability and professional indemnity. Further details are available on request.

Appendix 1 Brief for archaeological assessment and initial evaluation by geophysical survey

Date: 5th October, 2009

Address: Land at Higher Polsue Way, Tresillian

Site: Affordable housing development

Applicant: Cornwall Council

Agent: Randall Simmonds

Historic Environment Advisor (Archaeology):

Dan Ratcliffe

Cornwall Council, Historic Environment Service, Kennall Building, Old County Hall, Truro TR1 3AY.

Tel. 01872 323 651 E-mail. dratcliffe@cornwall.gov.uk

This brief is only valid for six months. After this period the Historic Environment Advisor (Archaeology) (HEAA) should be contacted. The contractor is strongly advised to visit the site as there may be implications for accurately costing the project.

1 Introduction

This brief has been written by the HEAA and sets out the scope of works for archaeological assessment and initial evaluation of the currently proposed development. This work will provide information in support of plans to develop the land in question for housing.

2 Site Location and Description

The site (SW 8652 4641) lies to the north of the medieval village of Tresillian in enclosed farmland rising to the west. The soils are described on the National Soil Map as well drained fine loamy or silty soils overlying Palaeozoic slates, mudstones and siltstone. Immediately to the east and west are modern housing developments on the fringes of the historic village and to the north and west lies further enclosed countryside.

3 Planning Background

This site is being proposed for the development of approximately 23 houses. The development of these houses and the associated roads and services are likely to result in significant ground disturbance within the proposal area. The proposals are currently at pre-application stage. Guidance on the handling of archaeological matters in the planning process is given in PPG16 (DOE now DCLG1990). Paragraphs 20-22 advises that at an early stage in the development process, where a potential for significant remains is indicated, developers may wish to commission an assessment of the archaeological sensitivity of a site and that in order to clarify this potential that it is reasonable for the planning authority to request the developer to undertake an archaeological field evaluation before any decision on the planning application is taken.

4 Archaeological Background

This site is classified on the Cornwall and Scilly HER as lying within 'anciently enclosed land' (AEL). AEL is land which is likely to have been enclosed from late prehistory onwards and is generally considered to have a high potential for the survival of buried archaeological remains dating to the prehistoric. This potential can be illustrated by the presence of the undated mound recorded from aerial photography within this land parcel, by a Scheduled 'round' (a feature indicative of Romano-British settlement sites) which lies 200m to the north east; and by further HER records for a prehistoric standing stone, hill fort and enclosure within 1km of the site.

5 Requirement for Work

Ground works in connection with the proposed development may disturb extant and buried archaeological remains. There is a need to gain further information about the known or potential archaeological resource within the area affected by this development (including the presence or absence, character and extent, date, integrity, state of preservation and relative quality of the potential archaeological resource), in order to make an assessment of its merit. The information produced should inform the approach to be taken to ensuring that archaeological remains are not compromised by this development and lead to the formulation of a strategy to ensure the recording, preservation or management of the resource dependent on its significance.

It is proposed that to inform this process an assessment by desk based research and site walkover, and initial evaluation by geophysical survey are undertaken.

Stage 1 (Assessment): will draw together existing published and unpublished materials pertinent to the site including detailed searches and analyses of registers of archaeological sites; a map regression exercise; review of available aerial photographs; a walk over survey of the extant remains of the site,

The site specific aims of the stage 1 assessment are to:

- Characterise and draw together the historical and archaeological information about the site and its environs (1km) in order to provide information about the archaeological potential and significance of the site.
- Itemise and where possible photograph all heritage assets directly affected by the proposals, including field boundaries where appropriate, and consider the significance of and the impacts of the development on each.
- Inform an appropriate strategy for further archaeological evaluation, preservation of, and/or further archaeological recording of any historic assets as required.
- Inform the need for palaeo-environmental sampling.
- Produce a report discussing the evidence and its analysis from this stage of work.

Stage 2 (Initial Evaluation by Geophysical Survey): will provide further information on the presence, absence, character and extent of buried archaeological remains within the site in order to inform on the need for future management of the buried archaeological resource.

The site specific aims of the stage 2 initial evaluation are to:

- Undertake an archaeological geophysical survey
- Produce a report containing the geophysical data and the data in interpreted form
- Inform whether an archaeological evaluation or further archaeological recording of any potential buried remains is recommended.

6 General Methodology

6.1 All stages of the investigation shall be supported by a written scheme of investigation (WSI).

6.2 The archaeological contractor is expected to follow the code of and relevant standards and guidance of the Institute for Archaeologists (IfA).

6.3 Details including the name, qualifications and experience of the site director and all other personnel (including specialist staff) shall be included within the WSI.

6.4 All of the latest Health and Safety guidelines shall be followed on site.

6.5 The IfA's Standards and Guidance should be used for additional guidance in the production of the WSI, the content of the report and the general execution of the project.

6.6 Terminology will be consistent with the English Heritage Thesaurus.

8 Results

8.1 Either a combined assessment report containing the results of the assessment and geophysical survey or separate reports for each sub-analysis will be prepared and submitted. In the event of separate reports a summary document should bring together the essential information from each strand of the work.

8.2 Report(s) shall be submitted within a length of time (but not exceeding six months) to be agreed between the applicant, archaeological contractor and Cornwall County Council Historic Environment Service. A further digital copy shall be supplied on CD-ROM preferably in 'Adobe Acrobat' PDF format.

8.3 The archaeological contractor will undertake the English Heritage/ads online access to the index of archaeological investigations (OASIS).

8.4 Report(s) will be held by the Cornwall and Scilly Historic Environment Record (HER) and made available for public consultation.

8.5 The reports must contain:

- A concise non-technical summary of the project results.
- The aims and methods adopted in the course of the investigations.
- A discussion of the archaeological findings in terms of; the site specific aims; the desk based research; the geophysical survey. This discussion should include a statement on the impact of the proposals on the potential or known archaeological resource in the light of new information brought to light by the investigations.
- A location map and all such figures and illustrations such as are appropriate to the type and level of survey involved. Historic plans and maps should include the site boundary marked clearly in red. All plans shall be tied to the OS national grid. An initial list of anticipated illustrative material should be made clear in the WSI.
- All specialist reports and assessments.
- A summary of the archive contents and date of deposition.
- A photographic register with brief descriptions shall be included as an appendix.
- A copy of the brief and the approved WSI will be included as an appendix.
- A full bibliography and reference list.

9 Archive Deposition

9.1 An ordered and integrated site archive will be prepared in accordance with: *Management of Research Projects in the Historic Environment (MoRPHE) English Heritage 2006* upon completion of the project. The requirements for archive storage shall be agreed with the appropriate museum.

9.2 The archive including a copy of the written report(s) shall be deposited with the Cornwall Record Office within two months of the completion of the full report and confirmed in writing with the HEAA. The contractor is advised to contact the Record Office at the commencement of the project to discuss their requirements.

9.3 Copies of the report(s) will be supplied to the National Monuments Record (NMR) Swindon, the HEAA and the Cornwall and Scilly HER.

9.4 A summary of the contents of the archive shall be supplied to the HEAA.

9.5 Only on completion of 9.1-9.4 (inclusive) for all stages of the project will there be a recommendation for the discharge of any archaeological recording condition.

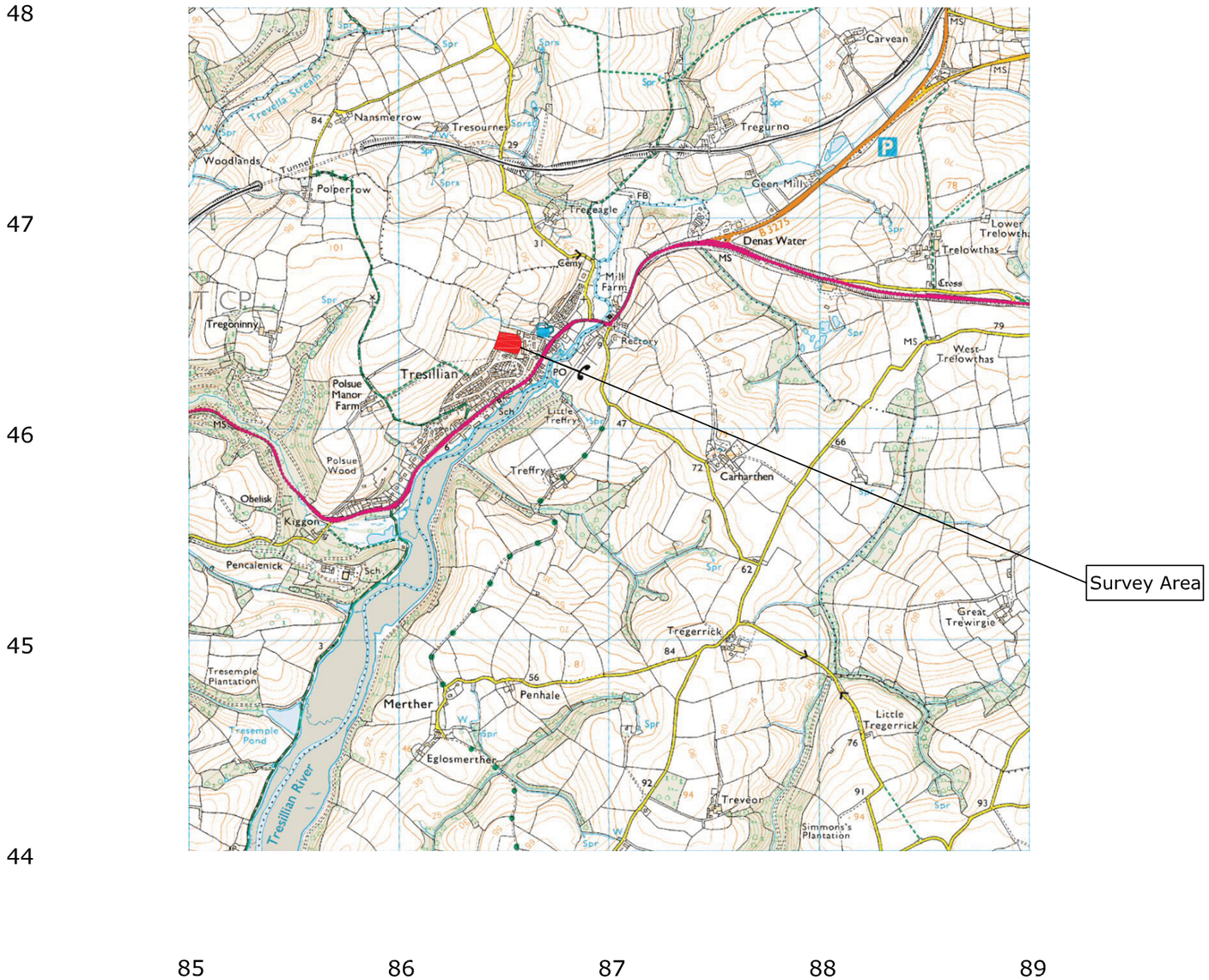
10 Monitoring

10.1 The HEAA will monitor the work and should be kept regularly informed of progress.

10.2 Notification of the start of work shall be given preferably in writing to the HEAA at least one week in advance of its commencement.

10.3 Any variations to the WSI shall be agreed with the HEAA, preferably in writing, prior to them being carried out.

OS 100km square = SW



Amendments

Issue No.	Date	Description
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-	-	-

Site centred on NGR SW 865 464

Client
ARCHAEOLOGICAL CONSULTANCY

Project Title
HIGHER POLSUE WAY, TRESILLIAN, CORNWALL

Job No. 2681

Subject
LOCATION PLAN OF SURVEY AREA

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REGISTERED ORGANISATION IfA

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Survey date	**Drawn by**	**Figure No.**
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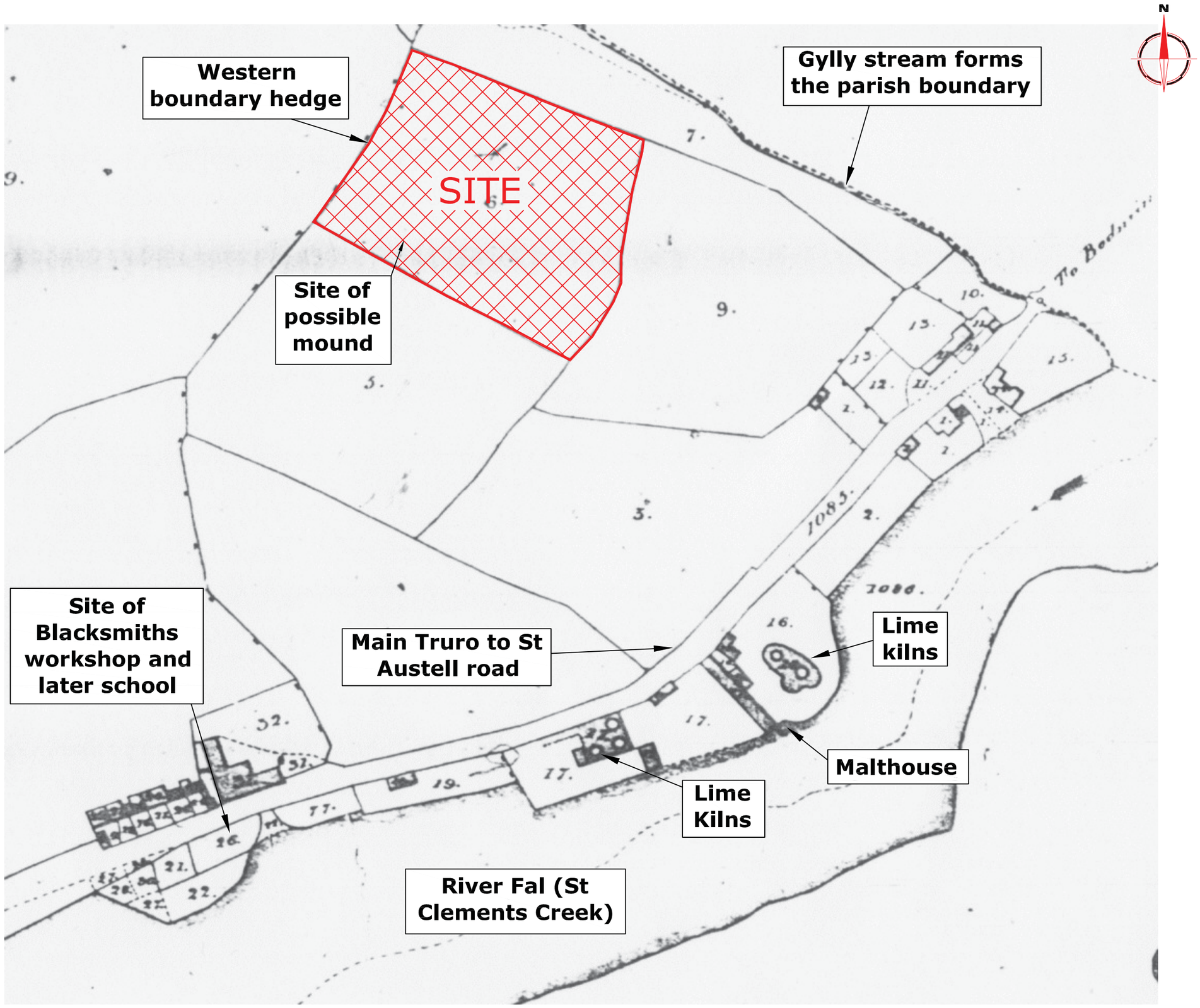

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Amendments

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Client
ARCHAEOLOGICAL CONSULTANCY

Project Title — Job No. 2681
HIGHER POLSUE WAY, TRESILLIAN, CORNWALL

Subject
LOCATION OF SITE, SHOWN ON 1840 TITHE MAPPING

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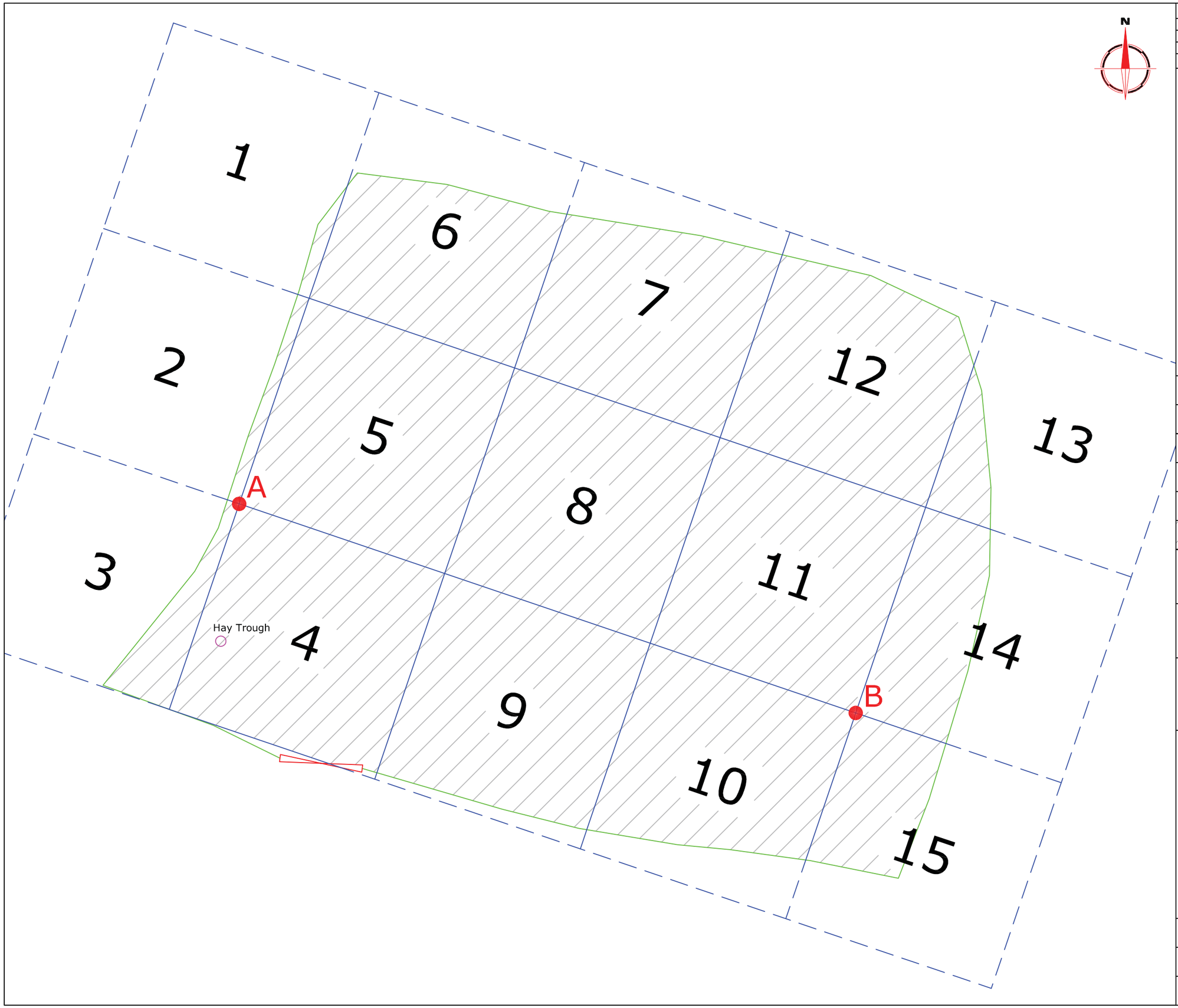

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OS GRID REFERENCES

A	186480.83, 046412.65
B	186566.07, 046383.75

GRID INFORMATION

10	Grid Number
	Area surveyed within grid

Client
ARCHAEOLOGICAL CONSULTANCY

Project Title — Job No. 2681
HIGHER POLSUE WAY, TRESILLIAN, CORNWALL

Subject
LOCATION AND REFERENCING OF SURVEY GRIDS

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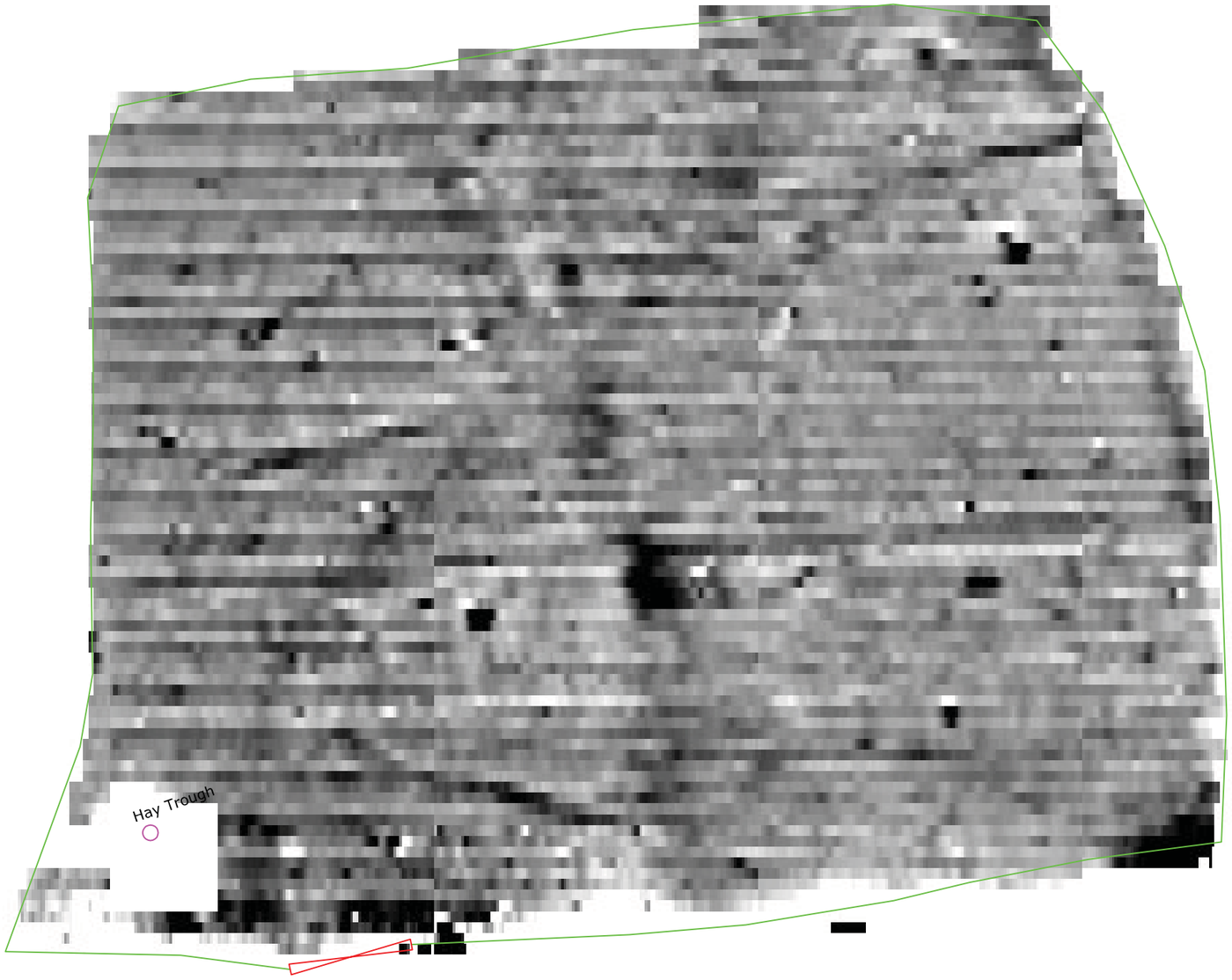

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Plotting parameters

Maximum +20nT (black)
Minimum -20nT (white)

-3SD +3SD

+20nT

-20nT

Client
ARCHAEOLOGICAL CONSULTANCY

Project Title
HIGHER POLSUE WAY, TRESILLIAN, CORNWALL

Job No. 2681

Subject
PLOT OF RAW GRADIOMETER DATA

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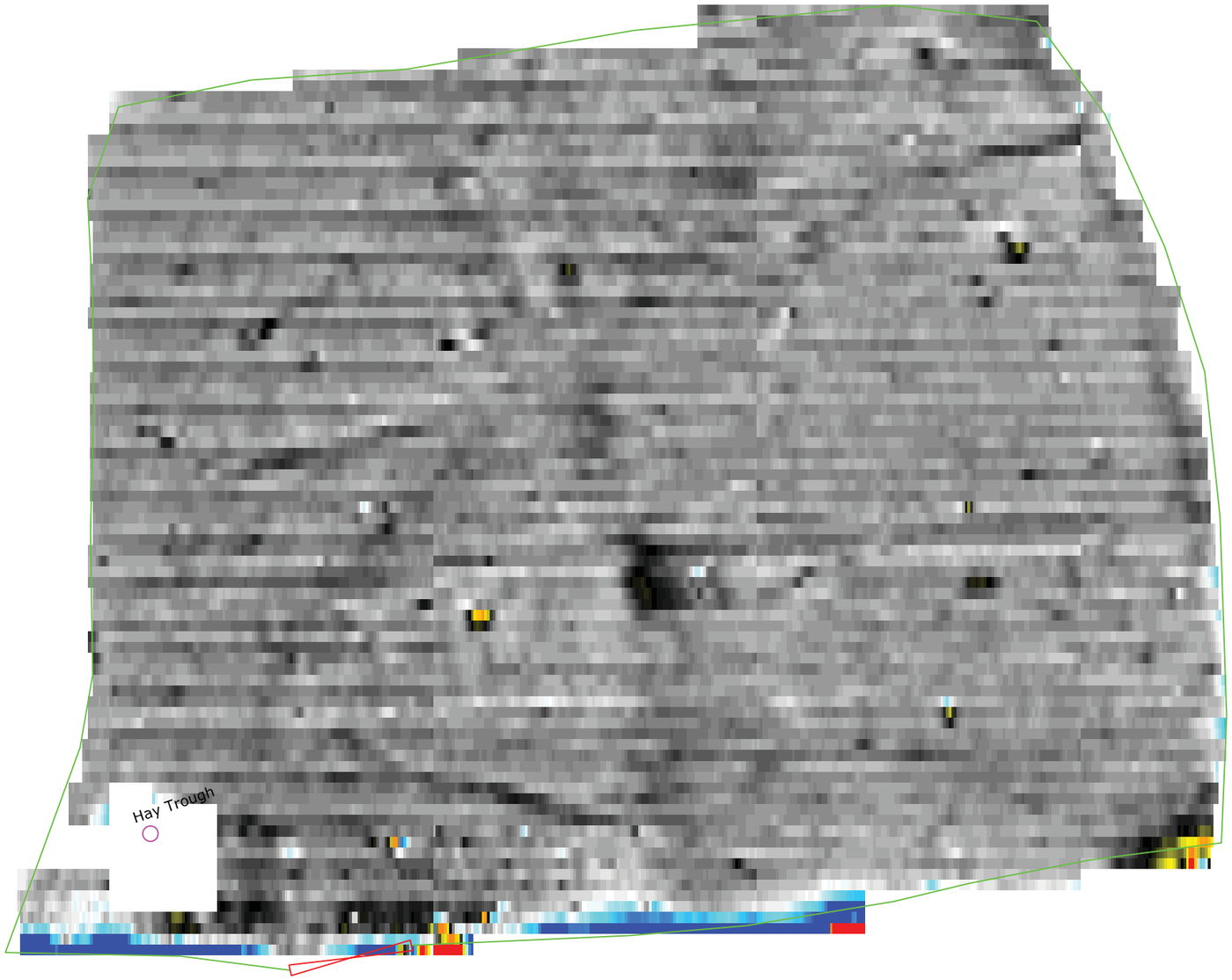

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Plotting parameters

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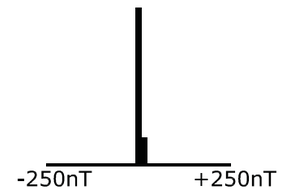
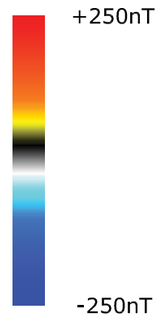
Minimum -250nT (blue)





Client
ARCHAEOLOGICAL CONSULTANCY

Project Title
HIGHER POLSUE WAY, TRESILLIAN, CORNWALL

Job No. 2681

Subject
COLOUR PLOT OF RAW GRADIOMETER DATA SHOWING EXTREME MAGNETIC VALUES

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Survey date	**Drawn by**	**Figure No.**
DEC 09	SAS	05

Amendments

Issue No.	Date	Description
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-	-	-

Plotting parameters

Maximum +5nT (black)
Minimum -5nT (white)

Client
ARCHAEOLOGICAL CONSULTANCY

Project Title — Job No. 2681
HIGHER POLSUE WAY, TRESILLIAN, CORNWALL

Subject
PLOT OF PROCESSED GRADIOMETER DATA

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Survey date	**Drawn by**	**Figure No.**
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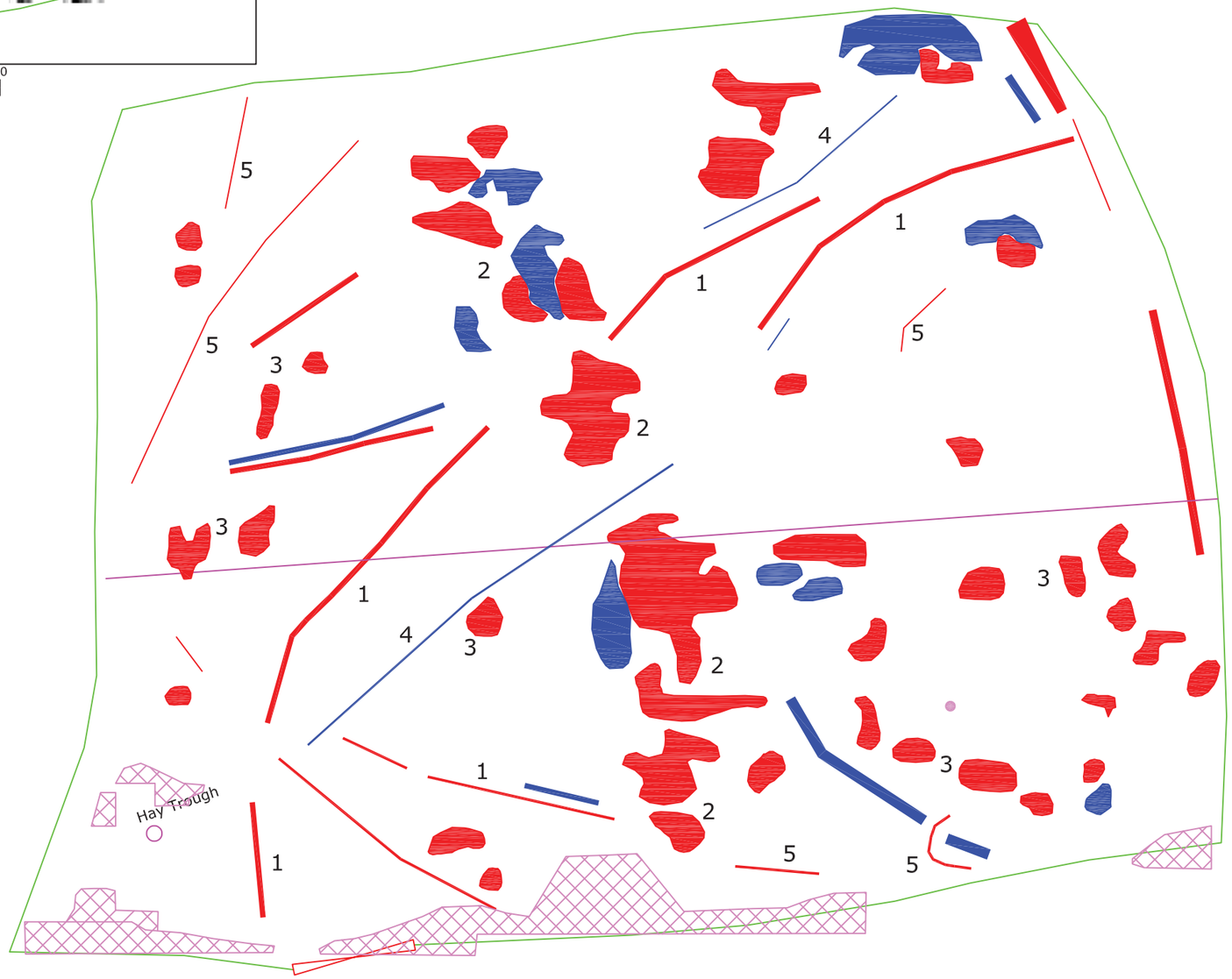

Amendments

Issue No.	Date	Description
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KEY

	Positive area anomaly - cut feature of possible archaeological origin
	Negative area anomaly -associated with positive area responses
	Positive linear anomaly - cut feature of possible archaeological origin
	Negative linear anomaly - usually assocaited with positive linear anomalies but may be caused by a bank or earthwork of possible archaeological origin
	Positive anomaly with associated negative response - ferrous object
	Linear anomaly possibly related to a modern service
	Magnetic disturbance associated with nearby metallic objects or field boundaries
1	Anomaly number

Client
ARCHAEOLOGICAL CONSULTANCY

Project Title
HIGHER POLSUE WAY, TRESILLIAN, CORNWALL

Job No. 2681

Subject
ABSTRACTION AND INTERPRETATION OF GRADIOMETER ANOMALIES

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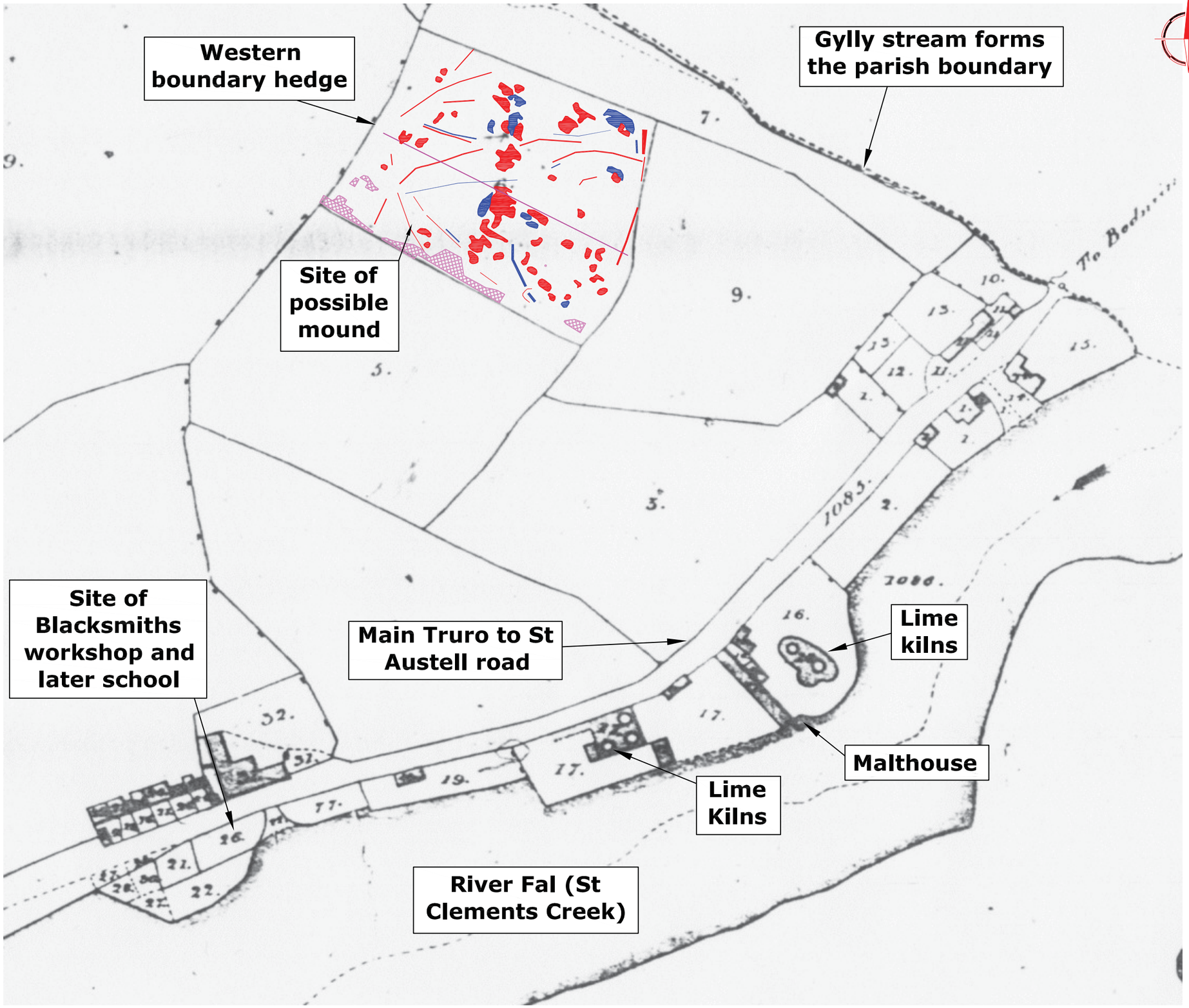

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Amendments

Issue No.	Date	Description
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KEY

	Positive area anomaly - cut feature of possible archaeological origin
	Negative area anomaly -associated with positive area responses
	Positive linear anomaly - cut feature of possible archaeological origin
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	Positive anomaly with associated negative response - ferrous object
	Linear anomaly possibly related to a modern service
	Magnetic disturbance associated with nearby metallic objects or field boundaries

Client
ARCHAEOLOGICAL CONSULTANCY

Project Title — Job No. 2681
HIGHER POLSUE WAY, TRESILLIAN, CORNWALL

Subject
INTERPRETATION OF GRADIOMETER ANOMALIES OVERLAIN ONTO TITHE MAPPING

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