

LAND AT TREVASSACK FARM

CONSTANTINE

CORNWALL

Results of a Geophysical Survey and Evaluation Trenching



South West Archaeology Ltd. report no. 230908

LAND AT TREVASSACK FARM, CONSTANTINE, CORNWALL RESULTS OF A GEOPHYSICAL SURVEY AND EVALUATION TRENCHING

By P. Webb and S. Walls
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Work undertaken by SWARCH for a Private Client (the Client).

SUMMARY

This report presents the results of a geophysical survey and archaeological evaluation trenching carried out by South West Archaeology Ltd. (SWARCH) on land at Trevassack Farm, Constantine, Cornwall in advance of the construction of a single agricultural building on the land. The site is located to the north and west of Trevassack Farm, south-west of Constantine in the historic hundred and deanery of Kirrier. Settlement is first recorded at Trevassack in 1240. During the mid-19th century the land of the proposal site was owned by the Reverend Robert Michael Nowell Ustick.

The HLC records the site as being within medieval farmland.; the HER largely reflecting the prehistoric use of the landscape: an Iron Age 'round' is recorded on the HER as crossing the proposal site.

The geophysical survey identified six groups of anomalies across the site. These were predominantly linear ditch and/or bank boundary features associated with phases of the existing and historic field-system, possible prehistoric settlement (Iron Age round) and agricultural practices. Possible pits and/or tree-throws, alongside anomalies associated with metallic debris and ground disturbance were also apparent. The majority of features, including the possible round ditch, are located outside of the proposed agricultural buildings footprint.

Overall the results of the geophysical survey would suggest that the archaeological potential for the wider site is moderate. Whilst several of the identified features relate to historic phases of field-system which are tentatively suggested as being medieval to post-medieval in date, some are thought to represent prehistoric settlement activity associated with the Iron Age enclosure previously identified as aerial photographs crossing the survey area.

Two evaluation trenches were excavated within the footprint of the proposed agricultural building, these revealed no archaeological features or deposits of any significance and suggest that the core of any prehistoric settlement activity (confirmed by the wider geophysical survey lies outside of the development footprint. No further archaeological works are recommended.



September 2023

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THE AGENT

PROJECT CREDITS

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EDITING: DR. SAMUEL WALLS, MCIFA
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1.0 INTRODUCTION

LOCATION:	TREVASSACK FARM
PARISH:	CONSTANTINE
COUNTY:	CORNWALL
NGR:	SW 72284 28583
PLANNING NO.:	PRE-PLANNING
SWARCH REF.	CTVF23
OASIS REF:	SOUTHWES1-517160

1.1 PROJECT BACKGROUND

South West Archaeology Ltd. (SWARCH) was commissioned by a private client (the Client) to undertake a geophysical survey on land at Trevassack Farm, Constantine, Cornwall as part of pre-planning advice for the construction of a new agricultural building on the site. Following the results of the geophysical survey SWARCH were additionally instructed to undertake archaeological evaluation trenching was undertaken in accordance to trench plan agreed with the Historic Environment and Planning Advice Officer (HEPAO) at Cornwall Council. All work was undertaken in accordance with best practice and ClfA guidance.

1.2 TOPOGRAPHICAL AND GEOLOGICAL BACKGROUND

The proposal site is located at Trevassack Farm, c.875m to the south-west of Constantine and c.8.3km south-west of Falmouth. The site is predominantly surrounded by agricultural land, with an area of woodland to the south-west. The soils of the area are the freely draining acid loamy soils of Soilscape 13 where they border the freely draining slightly acid loamy soils of Soilscape 6 (CSAI 2023), which overlie hornfelsed slate and siltstone of the Mylor Slate Formation (BGS 2023) at a height of c.90m AOD.

1.3 HISTORICAL AND ARCHAEOLOGICAL BACKGROUND

Trevassack, in the parish of Constantine and historic hundred and deanery of Kirrier (Lysons 1814) sits to the south-west of Falmouth. Settlement at Trevassack is first recorded in 1240 as *Trewaduch* from the Cornish *tre* meaning 'estate, farmstead' and a personal name. During the 14th century the manor was sub-divided into *Trevajegumur*, from the Cornish *meur* meaning 'big, great'; and *Trevagebyghan* from the Cornish *byghan* meaning 'small'; later recorded as *Trevasekwartha* and *Trevasekwoles*. By 1649 only a single settlement is recorded on the site (Gover 1948; Padel 1985), which by the mid-19th century was recorded as *Trevassack Lanner*.

The proposal site lies within an area recorded on the Historic Landscape Characterisation (HLC) as: *medieval farmland*: the agricultural heartland, with farming settlements documented before the 17th century AD and whose field patterns are morphologically distinct from the generally straight-sided fields of later enclosure with either medieval or prehistoric origins.

At the time of the tithe survey (c.1842), the site sits within a single parcel of land as part of *Trevassack Lanner*, owned by the Reverend Robert Michael Nowell Ustick and recorded as being occupied by Joseph Thomas.

The site is situated within a landscape rich with prehistoric monuments, the Cornwall and Scilly Historic Environment Record (HER) recording the cropmarks of an Iron Age/Romano-British round enclosure (MCO49904-5) within and extending beyond the site boundary. Additional 'round' enclosures are suggested by cropmarks (MCO49900, MCO49903, MCO49906, MCO49936) and place-name evidence (MCO7674) across the surrounding landscape.

1.4 METHODOLOGY

The geophysical (gradiometer) survey was undertaken in accordance with current best practice and CfA guidance; and follows the guidance outlined in *Geophysical Survey in Archaeological Field Evaluation* (English Heritage 2008b); *Standard and Guidance for Archaeological Geophysical Survey* (CfA 2014b); *EAC Guidelines for the use of geophysics in Archaeology: Questions to Ask and Points to Consider* (Europae Archaeologiae Consilium/European Archaeological Council 2016).

'Archaeological geophysical survey uses non-intrusive and non-destructive techniques to determine the presence or absence of anomalies likely to be caused by archaeological features, structures or deposits, as far as reasonably possible, within a specified area or site on land, in the inter-tidal zone or underwater. Geophysical survey determines the presence of anomalies of archaeological potential through measurement of one or more physical properties of the subsurface.' (Standard and Guidance for Archaeological Geophysical Survey 2014).

The archaeological evaluation was conducted in accordance with a trench plan drawn up in consultation with the HEPAO at Cornwall Council and in line with CfA guidelines and best practice. A total of two trenches, each 1.80m wide and totalling c.34m in length, were laid out using a Leica GPS and opened by a tracked mechanical excavator to the depth of *in situ* weathered natural using a toothless grading bucket. Exposed archaeological deposits were excavated by hand and in accordance with CfA guidelines.

The evaluation was designed to establish the presence or absence, extent, depth, character and date of any *in situ* archaeological deposits; the trenches being located to target anomalies identified by the geophysical survey; and to inform any further planning decisions. The evaluation took place in September 2023.



FIGURE 1: SITE LOCATION (THE SITE IS INDICATED). CONTAINS ORDNANCE SURVEY DATA © CROWN COPYRIGHT AND DATABASE RIGHT 2023. LICENCE NUMBER 100022432.

2.0 GEOPHYSICAL SURVEY

2.1 INTRODUCTION

The site comprises a single field (F1, c.2.8ha), of which only the south-western end (c.1ha surveyed) 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 24th May 2023 by P. Bonvoisin and the survey data processed by P. Webb. Detailed survey data in Appendix 1; and additional graphic images of the survey data and numbered grid locations can be found in Appendix 2.

2.2 SITE INSPECTION

The proposal site comprises a single broadly north-west to south-east orientated sub-rectangular to irregular field (F1 c.2.8ha) to the north and west of Trevassack Farm, south-west of Constantine. At the time of survey the site was under pastoral use. The topography of the site slopes moderately down to the south-west. The site is bordered to the north, north-east and north-west by agricultural land; to the south-west by woodland; and to the south by Trevassack Farm. The site is bounded by partially tree-lined hedgebanks.

No earthworks were identified within the site boundary.

2.3 METHODOLOGY

The gradiometer survey follows the general guidance as outlined in: *EAC Guidelines for the use of geophysics in Archaeology: Questions to Ask and Points to Consider* (Europae Archaeologiae Consilium/European Archaeological Council 2016) and *Standard and Guidance for Archaeological Geophysical Survey* (CIfA 2014b).

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- and set out using a Leica CS15 GNSS Rover GPS. The data was downloaded onto *Grad601 Version 3.16* and processed using *TerraSurveyor Version 3.0.36.0*. 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 +/- 1SD; removes extreme data point values.

DeStripe all traverses, median; used to equalise underlying differences between grids (potentially caused by instrument drift or orientation, directional effects inherent in magnetic instrument, or differences in instrument set up during survey e.g. using two gradiometers).

DeStagger selected grids, all traverses out- and inbound by 0.25m to 0.50m reduces staggering effects within data derived from zig-zag collection method.

TABLE 1: SURVEY DETAILS (UN-ADJUSTED)

Field	Area Surveyed (ha)	Max (nT)	Min (nT)	Standard Deviation (nT)	Mean (nT)	Median (nT)
Full site	0.9855	115.21	-115.08	7.15	-0.28	0.01

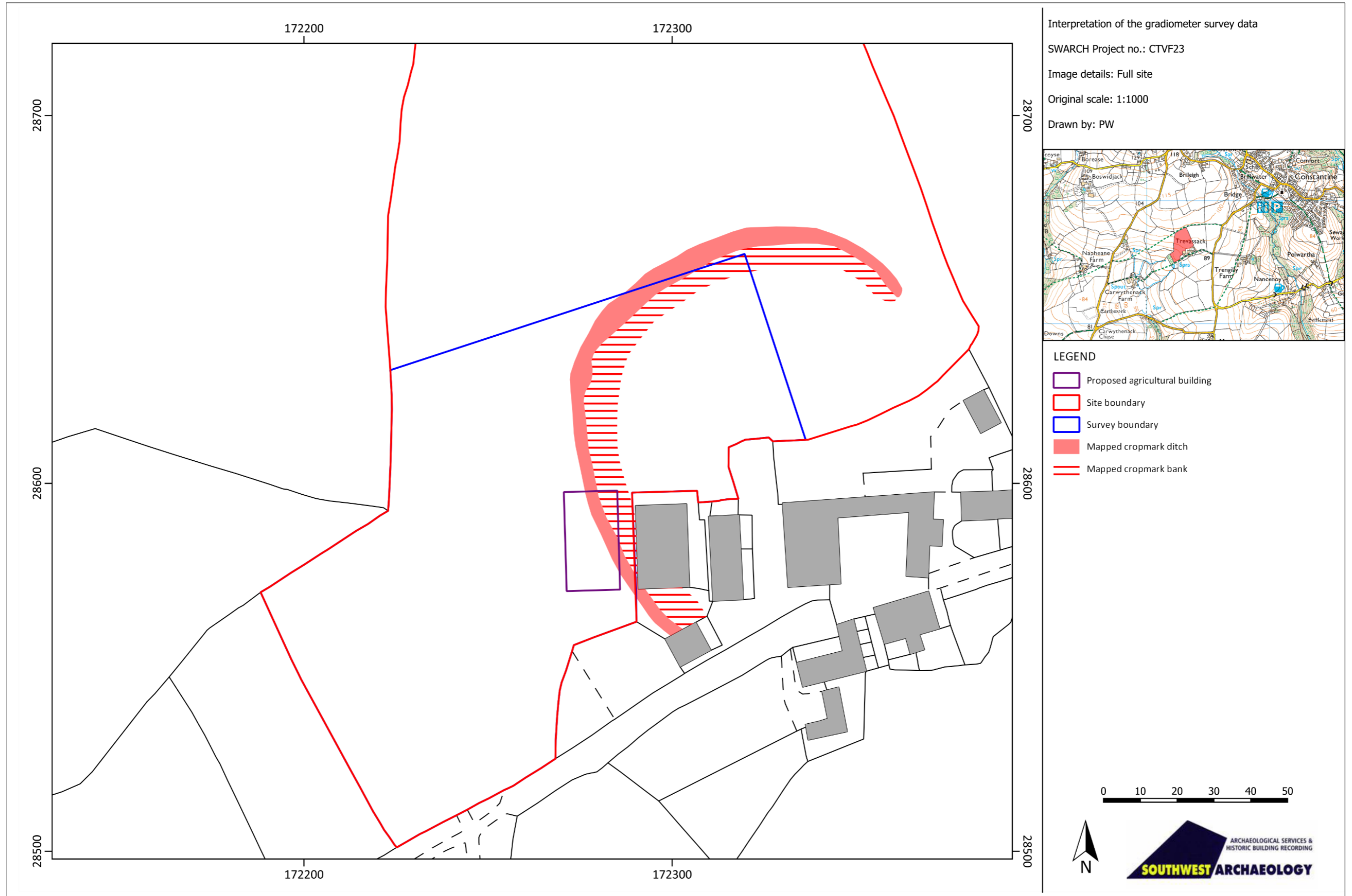


FIGURE 2: SITE LAYOUT; SITE AND SURVEY BOUNDARIES SHOWN IN RELATION TO MAPPED FEATURES ON THE HISTORIC ENVIRONMENT RECORD (CONTAINS ORDNANCE SURVEY DATA © CROWN COPYRIGHT 2023. LICENCE NUMBER 100022432).

2.4 RESULTS

Table 2 with the accompanying Figures 3-4 show the analyses and interpretation of the geophysical survey data.

TABLE 2: INTERPRETATION OF GRADIOMETER SURVEY DATA.

Anomaly Group	Class and Certainty	Form	Archaeological Characterisation	Comments
Field F1				
1	Weak positive & negative, probable	Linear	Historic boundary – ditch & bank	Indicative of cut and infilled features such as ditches with flanking banked/compacted material. Orientated approximately north to south. Depicted on historic mapping Responses of between -4.08nT to -0.04nT and +0.16nT and +6.12nT.
2	Weak to moderate positive & negative, probable	Linear	Ditch & bank	Indicative of cut and infilled features such as ditches with flanking banked/compacted material. Orientated approximately west-north-west to east-south-east. Responses of between -5.09nT to -0.19nT and +0.27nT to +12.80nT.
3	Weak positive & negative, possible	Linear	Ditch & bank	Indicative of cut and infilled features such as ditches with flanking banked/compacted material. Orientated approximately north-north-east to south-south-west and north-west to south-east. Responses of between -3.73nT to -0.03nT and +0.02nT to +7.08nT.
4	Weak to positive & negative	Curvilinear	Ditch & bank	Indicative of cut and infilled features such as ditches with flanking banked/compacted material. Orientated approximately north-east to south-west. Responses of between -2.91nT to -0.01nT and +0.14nT to +6.27nT.
5	Weak positive, possible	Curvilinear	Ring-gully or natural feature	Indicative of cut and infilled features such as ditches. Suggestive of a feature such as a ring-ditch/drip-gully indicating Prehistoric settlement activity. Responses of between +0.17nT and +5.70nT.
6	Weak positive, possible	Discrete	Pit	Indicative of cut and infilled features such as pits. Weaker responses may indicate natural features such as tree-throws, whilst stronger responses may indicate metallic debris. Responses of between +0.42nT and +10.97nT.
	Weak positive & negative, possible	Linear	Agricultural activity	Linear striations covering the field with regularity. Aligned approximately north-east to south-west and north-north-west to south-south-east. Weak positive and negative responses suggest shallow ploughing. Responses of between -1.77nT and +2.76nT.
	Moderate dipolar (mixed response)	Discrete	Ferrous anomaly	Indicative of metallic objects. Responses of between -15.76nT and +29.25nT.
	Strong bipolar (mixed response)	Irregular	Modern disturbance	Indicative of disturbed ground and disturbance caused by proximity to metallic fences and debris. Responses of between -115.08nT and +115.21nT.

2.5 DISCUSSION

The survey identified six groups of anomalies across the site. These were predominantly linear ditch and/or bank boundary features associated with phases of the existing and historic field-system, possible prehistoric settlement and agricultural practices. Possible pits and/or tree-throws, alongside anomalies associated with metallic debris and ground disturbance were also apparent.

The general response variation across the site was between +/-3nT with occasional clear background geological variation up to +/-5nT. The response strength of probable archaeological activity was low (typically between +/-10nT) though areas of stronger responses (up to c. +/-15nT) were present. The weaker responses of some of the anomalies may indicate that these are only likely to survive to a shallow depth; the stronger responses perhaps indicating the presence of more recent disturbance.

The anomaly groups identified include: historic ditch and bank boundaries present during the 19th century and removed during the 21st century (Group 1); possible ditch and bank features associated with phases of the existing and historic field boundaries (Group 2); further possible ditch and/or bank features associated with possible prehistoric 'round' enclosure settlement and field-systems (Groups 3 and 4); possible prehistoric structures and associated features (Group 5); and possible pits and tree-throws (Group 6).

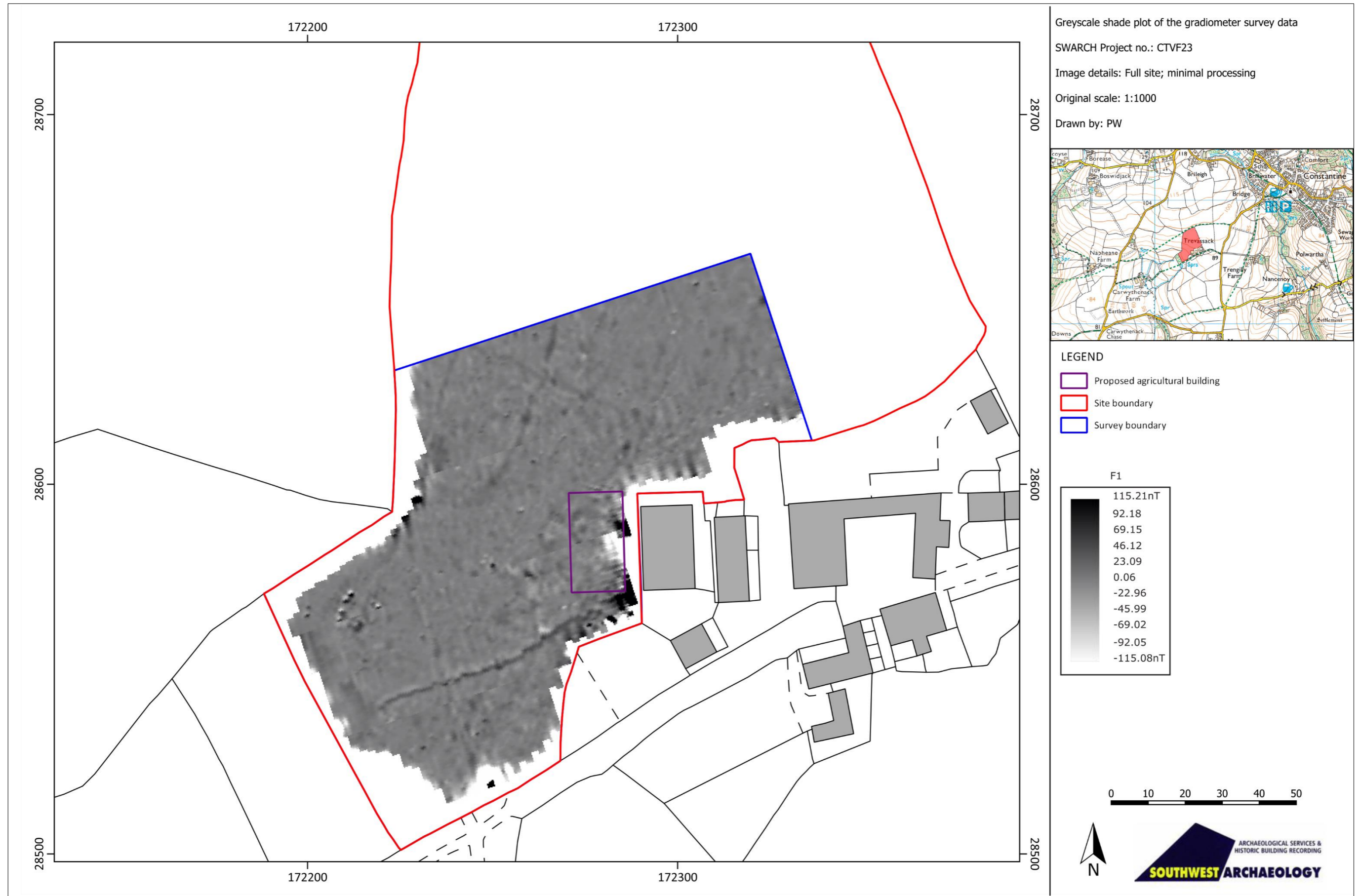


FIGURE 3: GREYSCALE SHADE PLOT OF THE GRADIOMETER SURVEY DATA; MINIMAL PROCESSING (CONTAINS ORDNANCE SURVEY DATA © CROWN COPYRIGHT 2023. LICENCE NUMBER 100022432).

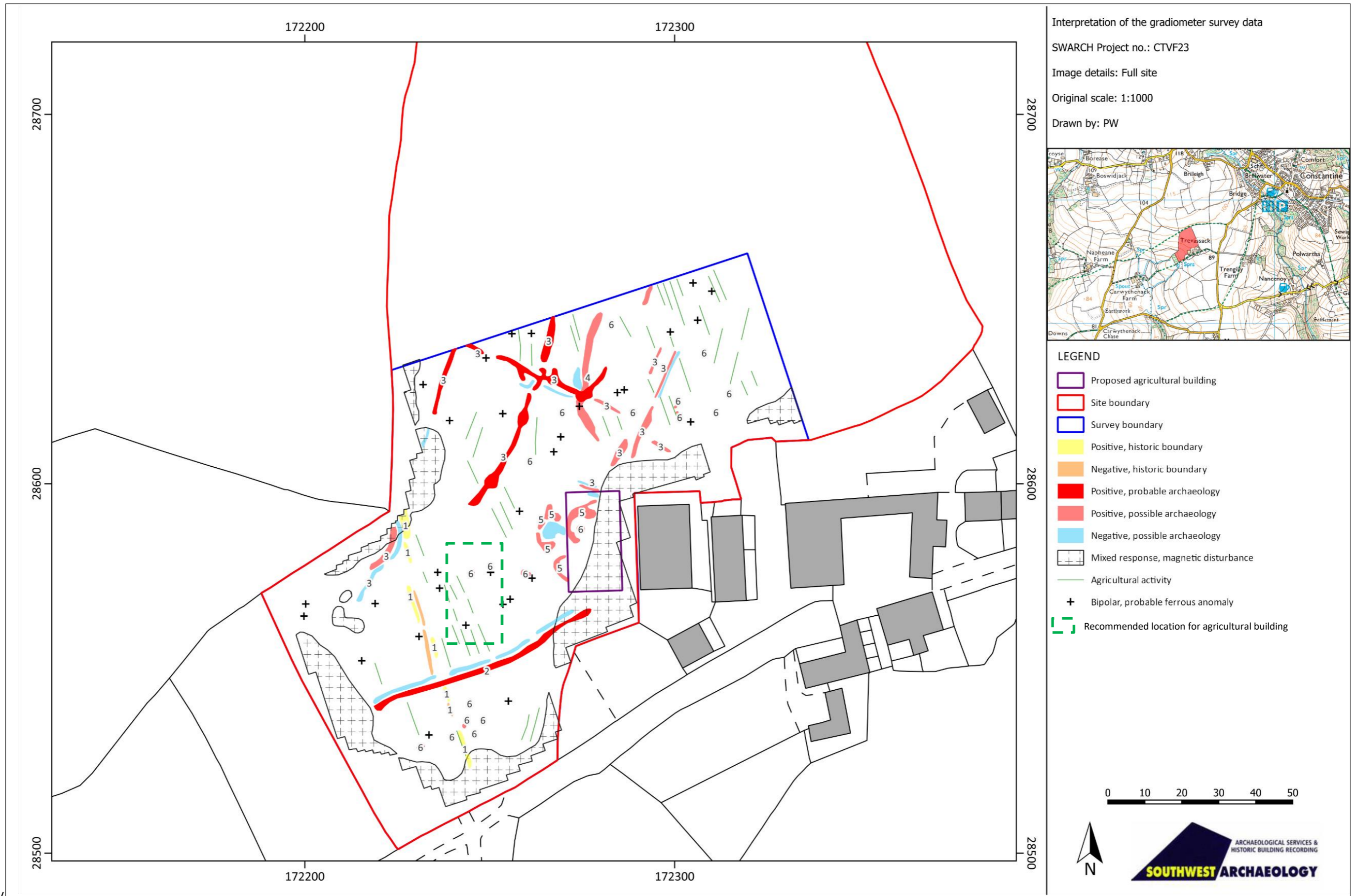


FIGURE 4: INTERPRETATION OF THE GRADIOMETER SURVEY DATA (CONTAINS ORDNANCE SURVEY DATA © CROWN COPYRIGHT 2023. LICENCE NUMBER 100022432).

2.6 ARCHAEOLOGICAL POTENTIAL AND IMPACT SUMMARY

Whilst none of the identified features can at this stage be dated, the location of some of the anomaly groups corresponds with boundaries depicted on historic mapping, indicating that these features were in use from at least the late 19th century (Group 1). The historic field-pattern of the site is characterized as medieval farmland, pre-dating the 17th century, and it is possible that this may be reflected in some of the anomalies which run parallel to or as continuations to the existing boundaries (Group 2). The origins of this landscape, however, are expected to date to the medieval or prehistoric periods and it is likely that the more gently curving and offset boundaries (Group 3) form part of this earlier landscape, either as part of the field-systems associated with the possible Iron Age/Romano-British 'round' enclosure (Group 4) recorded on the HER or as later fields respecting the layout of surviving boundary features. The weak nature of the responses for the possible 'round' enclosure (Group 4) is unusual given the depth to which the ditches of these structures are normally excavated (usually c.2m in depth) and it is possible that there has been significant ground disturbance caused by the construction of the existing buildings associated with Trevassack Farm (some of which overlie the footprint of the projected enclosure) and which may mask some responses.

Other anomalies identified on the site are more indistinct, suggesting shallower survival and appear to form parts of possible penannular features (Group 5) indicative of ring-ditch or drip-gullies of prehistoric date. Typically, these may be considered Iron Age in date, particularly those situated in proximity to the main enclosure. As discussed above, however, the ground disturbance associated with the construction of buildings associated with Trevassack Farm extends into this area and it is possible that these responses may simply reflect modern disturbed ground.

A small number of possible pit features (Groups 6) were identified across the site, though the weak nature of many of these responses suggests that they may be natural in origin, the anomalies reflecting tree-throws.

The degree of preservation of the identified features appears to be poor. Many of the anomaly responses are weak; others intermittent and barely discernible from the background geology. This suggests that whilst some features may survive to a good depth, others only survive to a shallow depth, their intermittent nature suggesting only partial survival. However, it is possible that additional, even more ephemeral features, are masked by the background geology and the level of ground disturbance across the site and particularly in proximity to the existing buildings.

The results of the geophysical survey would suggest that the archaeological potential for the site is *moderate*. Whilst several of the identified features relate to historic phases of field-system which are tentatively suggested as being medieval to post-medieval in date, some are thought to represent prehistoric settlement activity associated with an Iron Age enclosure crossing the proposal site.

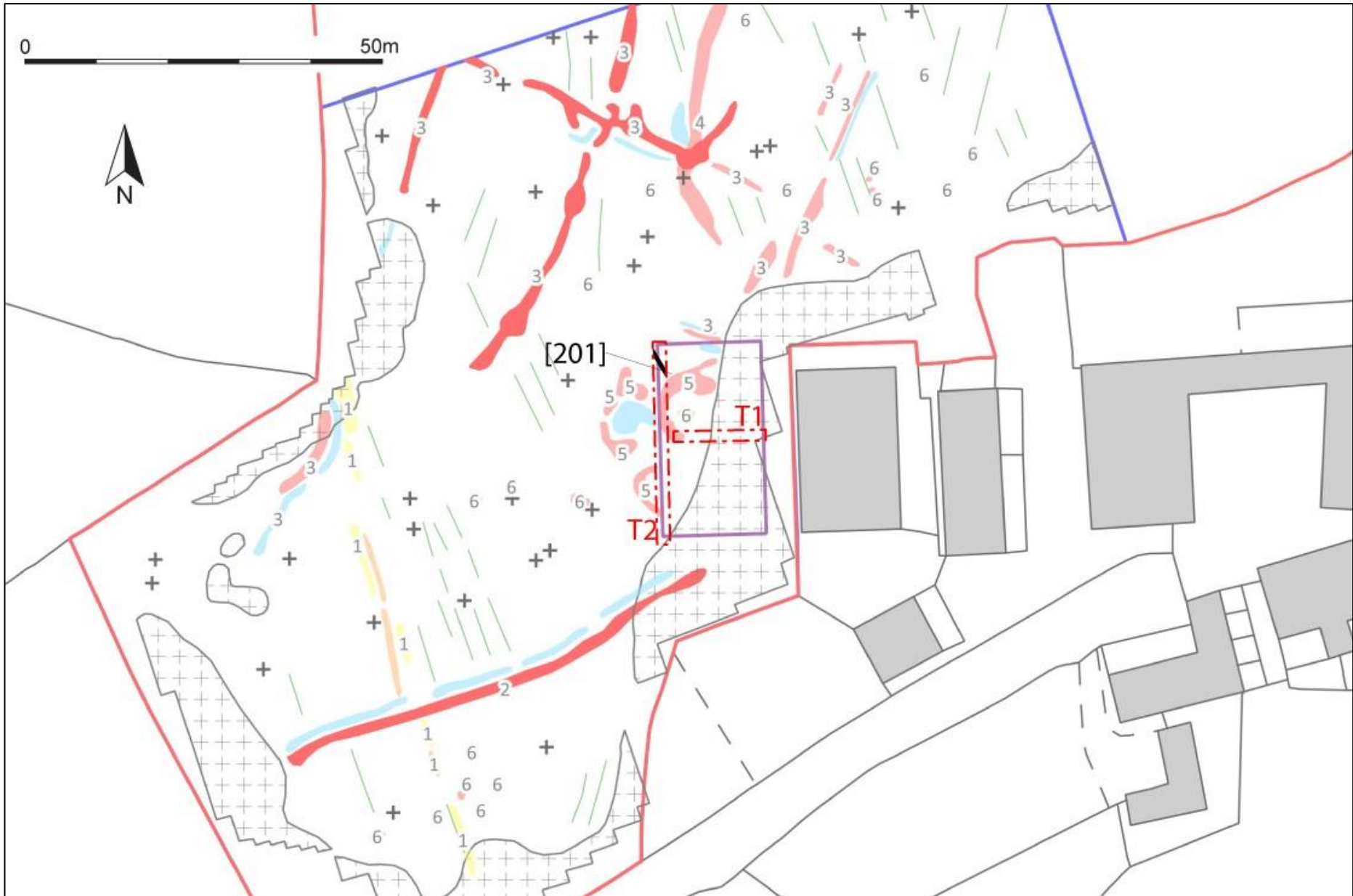


FIGURE 5: TRENCH PLAN.

3.0 EVALUATION TRENCHING

3.1 INTRODUCTION

The purpose of the evaluation was to investigate a series of anomalies identified by the preceding geophysical survey (Webb 2023) to establish the presence or absence, condition, date and significance of any archaeological features present; in order to inform and guide the need, nature and extent of any further archaeological mitigation.

The site sits within a single agricultural (pastoral) field (F1; Figure 2) totalling an area of c.2.8ha, of which c0.05ha to the west of the extant barns is subject of a planning application for a proposed agricultural building and was the focus for the evaluation trenching.

The archaeological evaluation was carried out on 8th September 2023; and comprised the excavation of two trenches, each 1.80m wide and totalling 34m in length by tracked mechanical excavator to the depth of weathered natural using a toothless grading bucket. Exposed archaeological deposits were excavated by hand and in accordance with the WSI and ClfA guidelines.

A total of 1 archaeological feature was identified in the evaluation trenches, a single gully/ditch base (Figure 2). What follows is a summary of each trench.



FIGURE 6: TRENCH 1, VIEWED FROM THE EAST (1M SCALE).

3.2 DEPOSIT MODEL

The stratigraphy of the site was largely consistent across the evaluated area, and comprised: a friable mid grey-yellow-brown clay-silt topsoil, 0.3-0.4m thick; which directly overlay the natural, which comprised a yellow clay with rare sub-angular stones. The topsoil was very clean and homogenous, with very little stone.

3.2.1 TRENCH 01

Trench 01 was located running east to west across the centre of the proposal area targeting an area of magnetic disturbance picked up in the geophysical survey. It measured 12m long; the topsoil were 0.3-0.35m thick, thickening to the west. No archaeological features, deposits or finds were made in this trench. The magnetic disturbance reflecting the activity of cattle, which has compacted the topsoil across much of the proposal area.



FIGURE 7: DITCH [201]; VIEWED FROM THE NORTH-WEST (1M SCALE).

3.2.2 TRENCH 02

Trench 02 was located to the west of the proposal area targeting a series of weak curvilinear positive and negative anomalies identified on the geophysical survey. It measured 22m long and was orientated north to south; the topsoil was 0.35-0.4m thick, deepening down slope to the south. No finds were recovered from this trench.

A single archaeological feature (Figures 6) was identified within the trench, the very base of a ditch. Ditch [201] was located towards the northern end of the trench on approximate north-west to south-east alignment, it does not correspond with the position of the anomaly on the geophysical survey. Ditch [201] measured 0.5m wide and 0.04m deep with a slightly concaved base. It contained a single fill: (202) a mid yellow grey-brown friable silt. No finds were recovered from this feature.

3.3 DISCUSSION

Ditch [201], is orientated on the same alignment as other anomalies identified on the geophysical survey results (Anomaly 3) and is tentatively interpreted as being part of this same, presumed medieval field-pattern. The poor survival of the feature, it should have also appeared in Trench 2, makes it difficult to have much certainty on the purpose or age of the feature.

Given the lack of any evidence for settlement activity or archaeological finds it is not considered that any further archaeological mitigation* will be required for this development. Should further development be planned on the site in future then additional archaeological mitigation will be needed.

4.0 CONCLUSION

This report presents the results of a geophysical survey and archaeological evaluation trenching carried out by South West Archaeology Ltd. (SWARCH) on land at Trevassack Farm, Constantine, Cornwall in advance of the construction of a single agricultural building on the land. The site is located to the north and west of Trevassack Farm, south-west of Constantine in the historic hundred and deanery of Kirrier. Settlement is first recorded at Trevassack in 1240. During the mid-19th century the land of the proposal site was owned by the Reverend Robert Michael Nowell Ustick.

The HLC records the site as being within medieval farmland.; the HER largely reflecting the prehistoric use of the landscape: an Iron Age 'round' is recorded on the HER as crossing the proposal site.

The geophysical survey identified six groups of anomalies across the site. These were predominantly linear ditch and/or bank boundary features associated with phases of the existing and historic field-system, possible prehistoric settlement (Iron Age round) and agricultural practices. Possible pits and/or tree-throws, alongside anomalies associated with metallic debris and ground disturbance were also apparent. The majority of features, including the possible round ditch, are located outside of the proposed agricultural buildings footprint.

Overall the results of the geophysical survey would suggest that the archaeological potential for the wider site is moderate. Whilst several of the identified features relate to historic phases of field-system which are tentatively suggested as being medieval to post-medieval in date, some are thought to represent prehistoric settlement activity associated with the Iron Age enclosure previously identified as aerial photographs crossing the survey area.

Two evaluation trenches were excavated within the footprint of the proposed agricultural building, these revealed no archaeological features or deposits of any significance and suggest that the core of any prehistoric settlement activity (confirmed by the wider geophysical survey lies outside of the development footprint. No further archaeological works are recommended.

5.0 BIBLIOGRAPHY & REFERENCES

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APPENDIX 1: METADATA FOR GEOPHYSICAL SURVEY PROCESSING

GRADIOMETRY

GENERAL DATA FOR ALL FIELDS/SITE:

SITE

NAME: CTVF23
LOCATION: Trevassack Farm, Constantine
COLLECTION METHOD: ZigZag
SENSORS: 2 @1m spacing
DUMMY VALUE: 32702
X&Y INTERVAL: 0.25m
INSTRUMENT TYPE: Bartington Grad 601
UNITS: nT
SURVEYED AREA: 0.9855ha

PROGRAM

NAME: TerraSurveyor
VERSION: 3.0.37.30

STATISTICS ADJUSTED AFTER PROCESSING

PROCESSES USED:

DeStripe: used to equalise underlying differences between grids (potentially caused by instrument drift or orientation, directional effects inherent in magnetic instrument, or differences in instrument set up during survey e.g. using two gradiometers).

DeStagger: reduces staggering effects within data derived from zig-zag collection method.

FIELD F1-F3

STATS

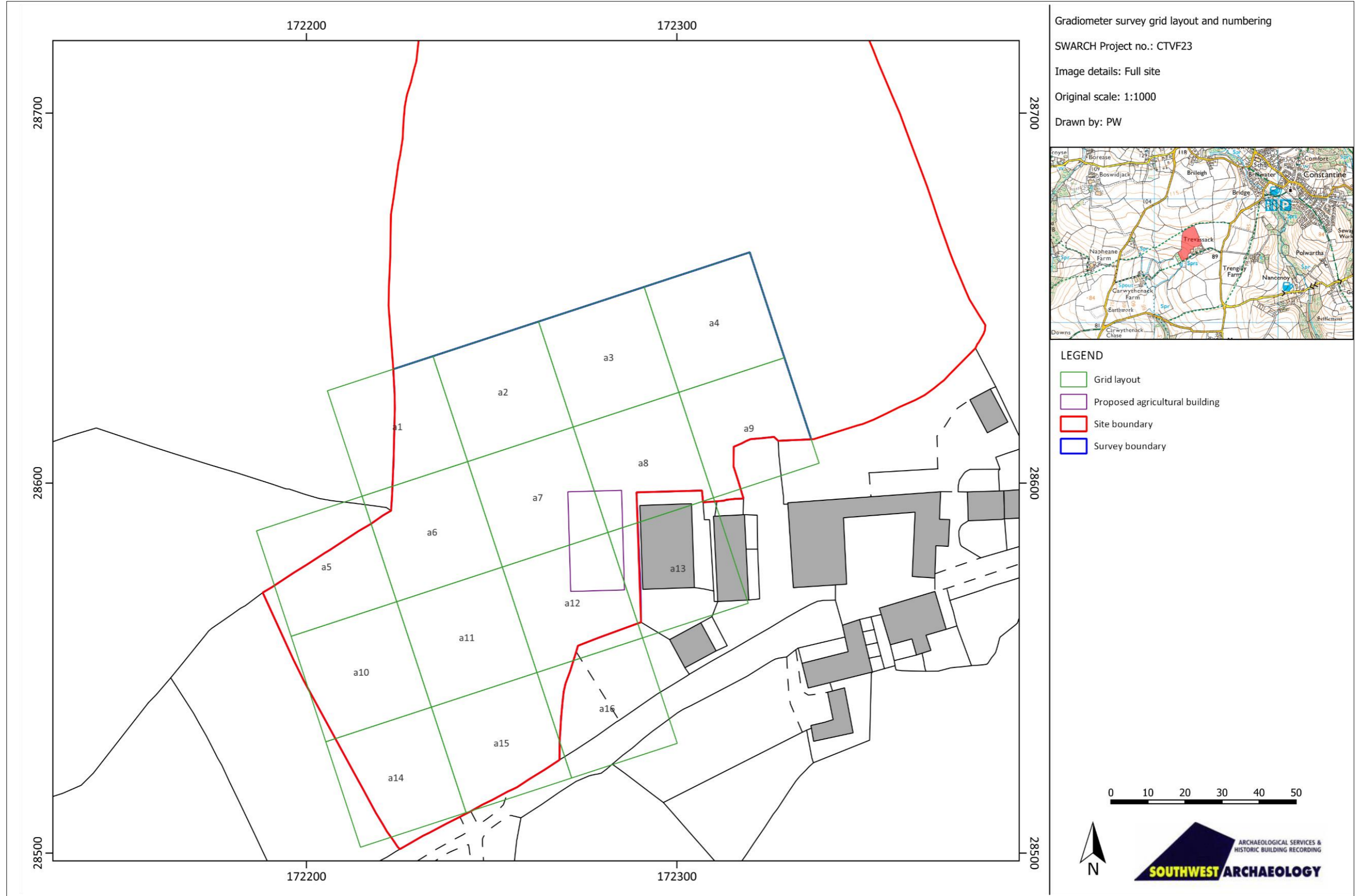
MAX: 115.21
MIN: -115.08
STD. DEV.: 7.15
MEAN: -0.28
MEDIAN: 0.01
COMPOSITE AREA: 1.8ha
SURVEYED AREA: 0.9855ha

PROCESSES

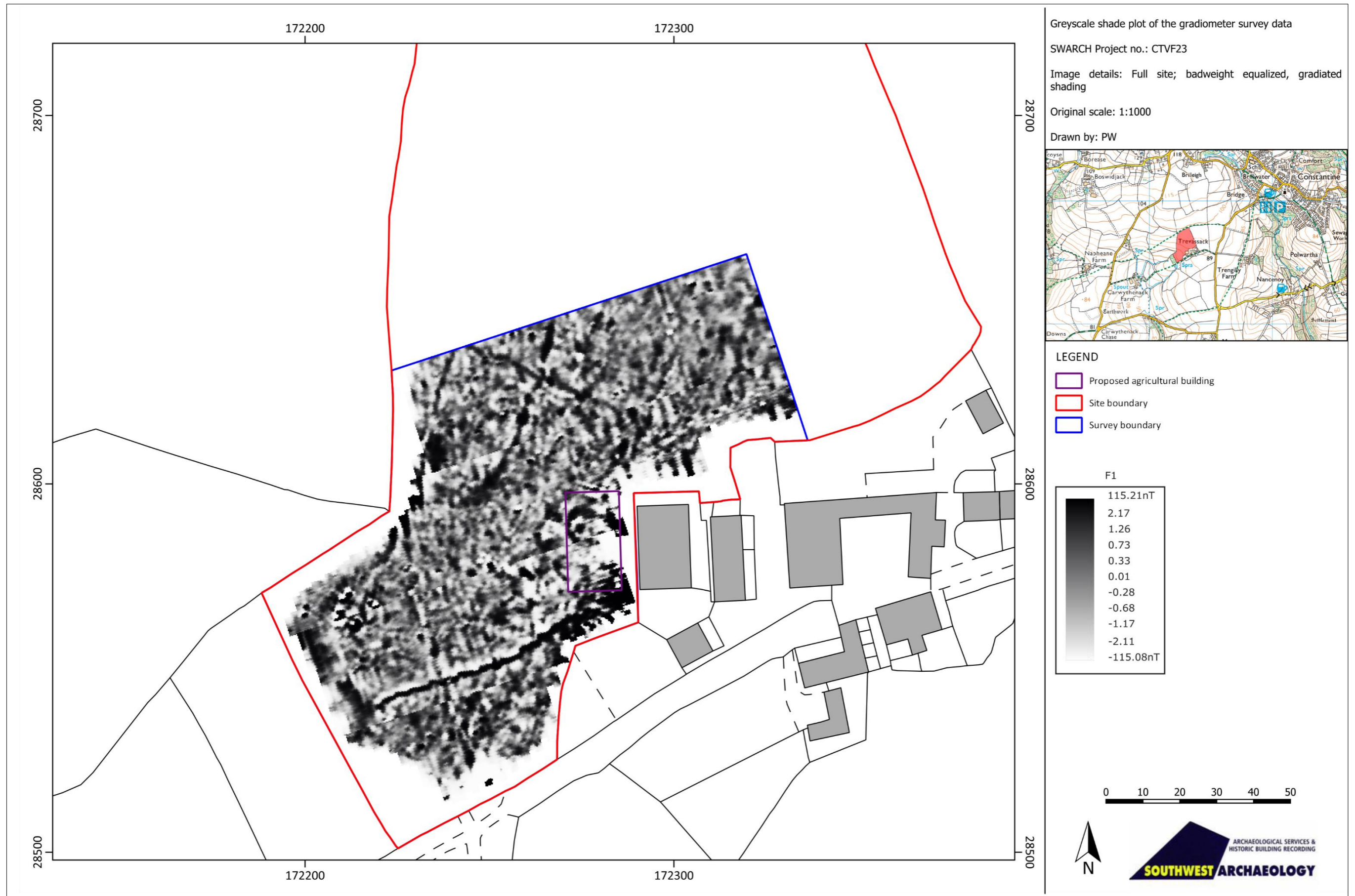
PROCESSES: 3

- 1 Base Layer
- 2 DeStripe Median Traverse: Grids: All
- 3 De Stagger: All By: 0 intervals, 100.00cm

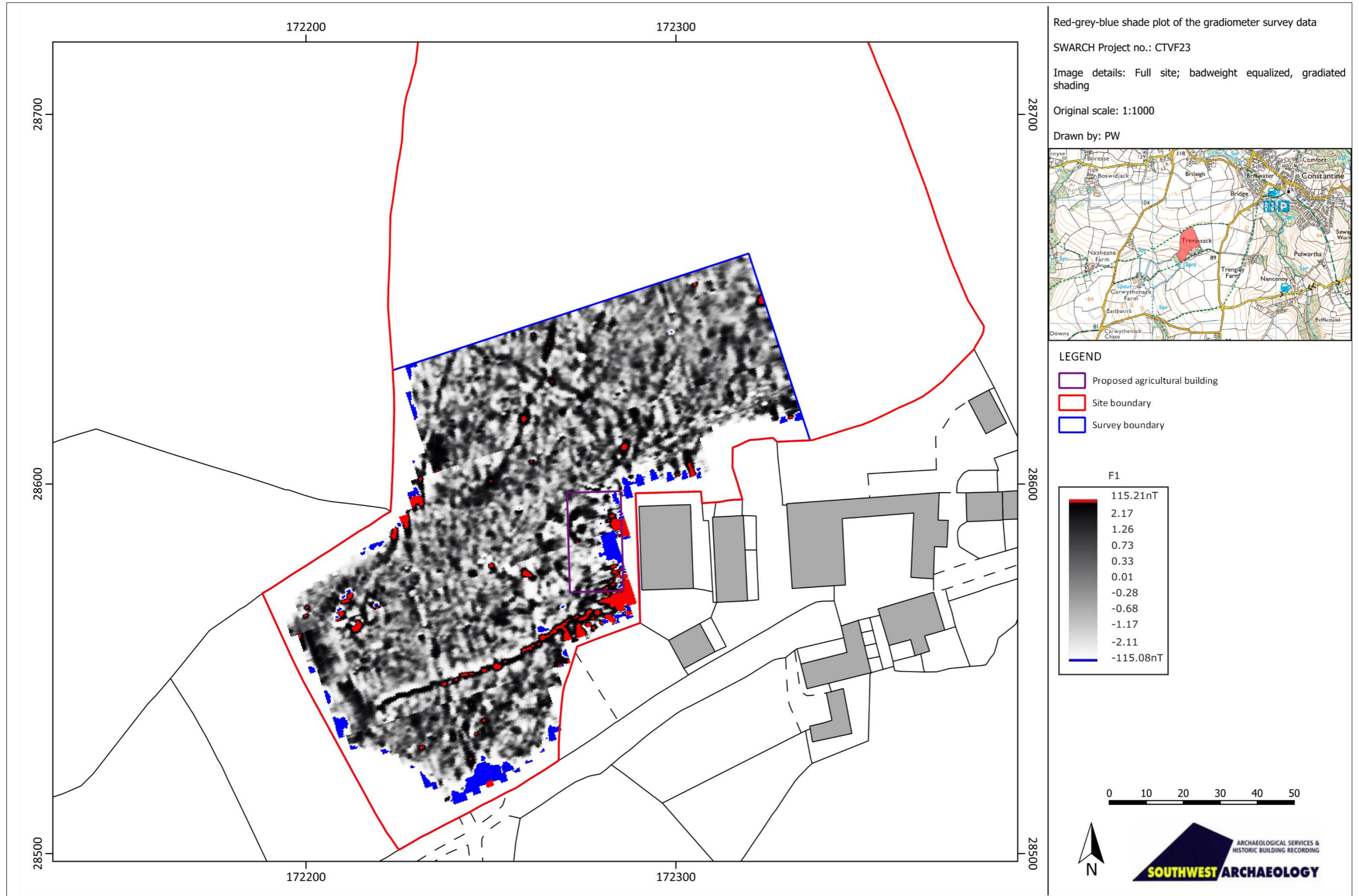
APPENDIX 2: ADDITIONAL GRAPHICAL IMAGES OF THE GRADIOMETER SURVEY



1. GEOPHYSICAL SURVEY GRID LOCATION AND NUMBERING. (CONTAINS ORDNANCE SURVEY DATA © CROWN COPYRIGHT 2023. LICENCE NUMBER 100022432).



2. GREYSCALE SHADE PLOT OF GRADIOMETER SURVEY DATA; BANDWEIGHT EQUALIZED, GRADIATED SHADING (CONTAINS ORDNANCE SURVEY DATA © CROWN COPYRIGHT 2023. LICENCE NUMBER 100022432).



3. RED-GREY-BLUE SHADE PLOT OF GRADIOMETER SURVEY DATA; BANDWEIGHT EQUALIZED, GRADIATED SHADING (CONTAINS ORDNANCE SURVEY DATA © CROWN COPYRIGHT 2023. LICENCE NUMBER 100022432).



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