

LAND OFF KEA DOWNS ROAD

BLACKWATER

TRURO

CORNWALL

Results of a Geophysical Survey



South West Archaeology Ltd. report no. 230113



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LAND OFF KEA DOWNS ROAD, BLACKWATER, TRURO, CORNWALL

RESULTS OF A GEOPHYSICAL SURVEY

By P. Webb
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Work undertaken by SWARCH for Laurence Associates (the Agent)
On behalf of Smallridge Bros. Ltd. (the Client).

SUMMARY

This report presents the results of a geophysical survey carried out by South West Archaeology Ltd. (SWARCH) on land off Kea Downs Road, Blackwater, Truro, Cornwall as part of a planning application for the expansion of an existing agricultural machinery depot on the land. The site is located to the north of the historic mining settlement of Blackwater, approximately 8km west-north-west Truro, on the edge of the Gwennap-Chacewater mining district.

The surrounding landscape is rich with prehistoric monuments, including Bronze Age barrows and Iron Age or Romano-British settlement; though it is the later mining activity that dominates the region, the area being littered with the copper and tin mines, and being known as 'the richest square mile on Earth' due to its extensive copper and arsenic production; producing over one third of the global copper in the late 18th century. The development site lies within an area recorded on the Historic Landscape Characterisation (HLC) as post-medieval enclosed land: land enclosed between the 17th and 19th centuries.

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

The results of the geophysical survey would suggest that the archaeological potential for the site is low. The majority of the identified features relate to historic phases of field-system which are tentatively suggested as being medieval and post-medieval in date, though the presence of prehistoric activity in the surrounding area means that a prehistoric or Romano-British date cannot be ruled out.



January 2023

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CONTENTS

<i>SUMMARY</i>	2
<i>CONTENTS</i>	3
<i>LIST OF FIGURES</i>	3
<i>LIST OF TABLES</i>	3
<i>LIST OF APPENDICES</i>	3
<i>ACKNOWLEDGEMENTS</i>	4
<i>PROJECT CREDITS</i>	4
1.0 INTRODUCTION	5
1.1 PROJECT BACKGROUND	5
1.2 TOPOGRAPHICAL AND GEOLOGICAL BACKGROUND	5
1.3 HISTORICAL AND ARCHAEOLOGICAL BACKGROUND	5
1.4 METHODOLOGY	5
2.0 DESK-BASED ASSESSMENT	7
2.1 DOCUMENTARY HISTORY	7
2.2 CARTOGRAPHIC DEVELOPMENT	7
2.3 ARCHAEOLOGICAL BACKGROUND	10
3.0 GEOPHYSICAL SURVEY	11
3.1 INTRODUCTION	11
3.2 SITE INSPECTION	11
3.3 METHODOLOGY	11
3.4 RESULTS	14
3.5 DISCUSSION	14
3.6 ARCHAEOLOGICAL POTENTIAL	15
4.0 CONCLUSION	16
5.0 BIBLIOGRAPHY & REFERENCES	17

LIST OF FIGURES

Cover plate: Field F1, view across the site towards Carn Marth; viewed from the north-east (no scale).

FIGURE 1: SITE LOCATION.	6
FIGURE 2: EXTRACT FROM THE 1809 SURVEYORS DRAFT MAP FOR REDRUTH.	8
FIGURE 3: EXTRACT FROM 1846 TITHE MAP FOR KEA.	8
FIGURE 4: EXTRACT FROM THE 1888 ORDNANCE SURVEY FIRST EDITION 25" MAP SURVEYED 1879.	9
FIGURE 5: EXTRACT FROM THE 1907 OS 2 ND EDITION 25" MAP SURVEYED 1906.	10
FIGURE 6: GREYSKALE SHADE PLOT OF THE GRADIOMETER SURVEY DATA; MINIMAL PROCESSING.	12
FIGURE 7: INTERPRETATION OF THE GRADIOMETER SURVEY DATA.	13

LIST OF TABLES

TABLE 1: EXTRACT FROM THE 1846 KEA TITHE APPORTIONMENT.	9
TABLE 2: SURVEY DETAILS (UN-ADJUSTED).	14
TABLE 3: INTERPRETATION OF GRADIOMETER SURVEY DATA.	14

LIST OF APPENDICES

APPENDIX 1: SUPPORTING PHOTOGRAPHS – SITE INSPECTION	18
APPENDIX 2: METADATA FOR GEOPHYSICAL SURVEY PROCESSING	24
APPENDIX 3: ADDITIONAL GRAPHICAL IMAGES OF THE GRADIOMETER SURVEY	26

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1.0 INTRODUCTION

LOCATION:	(SOUTH OF) KEA DOWNS ROAD, BLACKWATER
PARISH:	ST AGNES
DISTRICT:	TRURO & FALMOUTH
COUNTY:	CORNWALL
NGR:	CENTRED ON SW 174235 46190
PLANNING NO.:	PRE-APPLICATION
SWARCH REF.	BLSK22
OASIS REF:	SOUTHWES1-512298

1.1 PROJECT BACKGROUND

South West Archaeology Ltd. (SWARCH) was commissioned by Laurence Associates (the Agent) on behalf of Smallridge Bros Ltd. (the Client) to undertake a geophysical survey on land off Kea Downs Road, Blackwater, Truro, Cornwall as part of a planning application for the expansion of an existing agricultural machinery depot on the land. This work was undertaken in accordance with best practice and ClfA guidance in order to assess the potential impact of the development.

1.2 TOPOGRAPHICAL AND GEOLOGICAL BACKGROUND

The site is located to the north of the historic settlement of Blackwater, approximately 8km west-north-west Truro. It sits on moderately sloping land at a height of between approximately 110m and 130m AOD (Figure 1). The soils of this area are the freely draining slightly acid loamy soils of Soilscape 6 (CSAI 2023) which overlie the mudstone and sandstone of the Porthtowan Formation (BGS 2023).

1.3 HISTORICAL AND ARCHAEOLOGICAL BACKGROUND

Blackwater, in the parish of St Agnes and historic hundred and deanery of Pyder (Lysons 1814), sits on the edge of the Gwennap-Chacewater mining district. The surrounding landscape is littered with the copper and tin mines, the area being known as ‘the richest square mile on Earth’ due to its extensive copper and arsenic production; producing over one third of the global copper in the late 18th century.

The proposal site lies within an area recorded on the Historic Landscape Characterisation (HLC) as *post-medieval enclosed land*: land enclosed in the 17th, 18th and 19th centuries. At the time of the tithe survey (c.1846), the site lay across two pieces of land; the main portion within *Killiwherris Common*, and the southern tip part of a small parcel of land named *Croft*. These lands formed part of Killiwherris Barton, formerly belonging to the Agar and Enys families.

The site is situated within a landscape rich with prehistoric monuments, the Cornwall and Scilly Historic Environment Record (HER) recording a number of Bronze Age barrows in close proximity to the proposal site; as well as Iron Age and Romano-British settlements, including the site of a possible enclosure to the east at Trevale Farm (MCO34792). Most of the other known heritage assets in the vicinity are related to the post-medieval mining of the area, but include an early medieval cross.

1.4 METHODOLOGY

The geophysical (gradiometer) survey was undertaken in accordance with current best practice and ClfA guidance; and follows the guidance outlined in *Geophysical Survey in Archaeological Field*

Evaluation (English Heritage 2008); *Standard and Guidance for Archaeological Geophysical Survey* (CIfA 2014); *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 results of the survey will as far as possible inform on the presence or absence, character, extent and in some cases, apparent relative phasing of buried archaeology to inform a strategy to mitigate any threat to the archaeological resource.



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

2.0 DESK-BASED ASSESSMENT

2.1 DOCUMENTARY HISTORY

Blackwater, formerly *Black Water Coomb* c.1696, from the modern English *black* + *water* means ‘black stream’ (Watts 2010) and is likely to relate to either the appearance of the nearby stream as it runs through the local slates; or has been linked in contrast to nearby *Chacewater* (‘hunting ground’), and perhaps relates to an absence of game or the topography preventing hunting. It is located in the parish of St Agnes, in the historic hundred and deanery of Pyder (Lysons 1814), and sits on the edge of the Gwennap-Chacewater mining district. The surrounding landscape is littered with the copper and tin mines, the area being known as ‘the richest square mile on Earth’ due to its extensive copper and arsenic production; producing over one third of the global copper in the late 18th century. These mines include: Great Wheal busy (copper and arsenic); North Treskerby (copper and tin); East Downs (copper); Hallenbeagle (copper and tin); Killifreth (copper and tin); Wheal Rose (copper and tin); Wheal Daniell (ochre and lead); Stencoose and Mawla Mine (copper); Wheal Unity Wood (copper and tin); and Great North Downs (copper and tin) all within 2.5km of Blackwater. The Wheal Busy mines are thought to have been mined since the 16th century, and were formerly known as Chasewater Mine, a notable copper producer from the early 1720’s. The North Wheal Busy mine included the Boscawen (formerly Hallenbeagle) mine and together formed a sett known as ‘Wheal Truro’ with numerous shafts. The North Wheal Busy mine was in operation from 1854 under the ownership of the North Busy Mining Company, though work was suspended in 1863-65, and finally ceased in 1886.

The proposal site lies within an area recorded on the Historic Landscape Characterisation (HLC) as *post-medieval enclosed land*: land enclosed in the 17th, 18th and 19th centuries, usually from land that was previously Upland Rough Ground and often medieval commons; generally in relatively high, exposed or poorly-drained parts of the county.

At the time of the tithe survey (c.1846), the site lay across two pieces of land; the main portion within *Killiwheeris Common*, and the southern tip part of a small parcel of land named *Croft*. These lands formed part of Killiwheeris Barton, owned by Anna Maria Agar, John Samuel Enys esq. and Lord Clinton; James Branch leasing and occupying *Croft*.

2.2 CARTOGRAPHIC DEVELOPMENT

The first map available to this study to show the site is the 1809 Redruth Ordnance Survey (OS) surveyor’s draft maps of the area (Figure 2). Detail on these early maps is limited, and whilst detail of settlements and roads are included, fields are usually only sketched in, though the gently curving field boundaries indicate that the surrounding fieldscape is indicative of medieval origins. The proposal site can be seen largely within an area of rough open land, though the southern tip is within an enclosed field.

The first more detailed cartographic source (the tithe map for Kea; Figure 3) depicts a landscape very similar to that of the earlier map with gently curving boundaries surrounding an area of common land, recorded on the accompanying tithe apportionment (Table 1) as *Killiwheeris Common*. The site again can be seen situated within the common, the southern plot (plot no. 73) recorded as *Croft*, part of Killiwheeris Barton owned by the Honorable Anna Maria Agar, John Samuel Enys esq. and Lord Clinton, and leased to James Branch. Whilst a series of roads/trackways depicted on the earlier map running across the common, these are only depicted running up to it.

In general, most of the field-names are prosaic and straightforward, describing the location, size, topography, or use of the plot. Certain names are repeated and probably indicate an area of land

later subdivided.



FIGURE 2: EXTRACT FROM THE 1809 SURVEYORS DRAFT MAP FOR REDRUTH (BL). THE APPROXIMATE OUTLINE OF THE SITE IS INDICATED.



FIGURE 3: EXTRACT FROM 1846 TITHE MAP FOR KEA (TNA); THE APPROXIMATE OUTLINE OF THE SITE INDICATED.

TABLE 1: EXTRACT FROM THE 1846 KEA TITHE APPORTIONMENT; THE SITE IS HIGHLIGHTED IN GREEN (TNA).

Plot No.	Owner	Lessee	Occupier	Plot Name	Cultivation
Killiwheeris					
12	Lord Clinton, Honorable Anna Maria Agar and John Samuel Enys esq.	Samuel Truran	Samuel Truran	Higher Plot	Arable
19		Hannah Lanyon	John Best	South Close	Arable
23		Richard Craze	Richard Craze	Middle Plot	Arable
24				South Plot	Croft
33		James Branch	James Branch	Field	Arable
34				North Close	Arable
73				Croft	
74				Plot	Arable
75				South Close	Arable
141			Themselves	Killiwheeris Common	

The 1888 Ordnance Survey First Edition map surveyed 1879 (Figure 4) shows that whilst there has only been limited alteration in the boundaries of the previously enclosed plots, that *Killiwheeris Common* has been largely enclosed (the roads once again clearly depicted) with an increase in settlement, including Trevale Farm and a building to the north of the proposal site. To the south of the site a series of spoil tips and sandy/stony ground are depicted, associated with the numerous mines in the area. The site itself can be seen to have been divided up, now encompassing parts of five fields. The 1907 Second Edition OS map (Figure 5) indicates that there was little change by the start of the 20th century; only a few minor alterations, additions and losses to buildings within the wider landscape are evident.

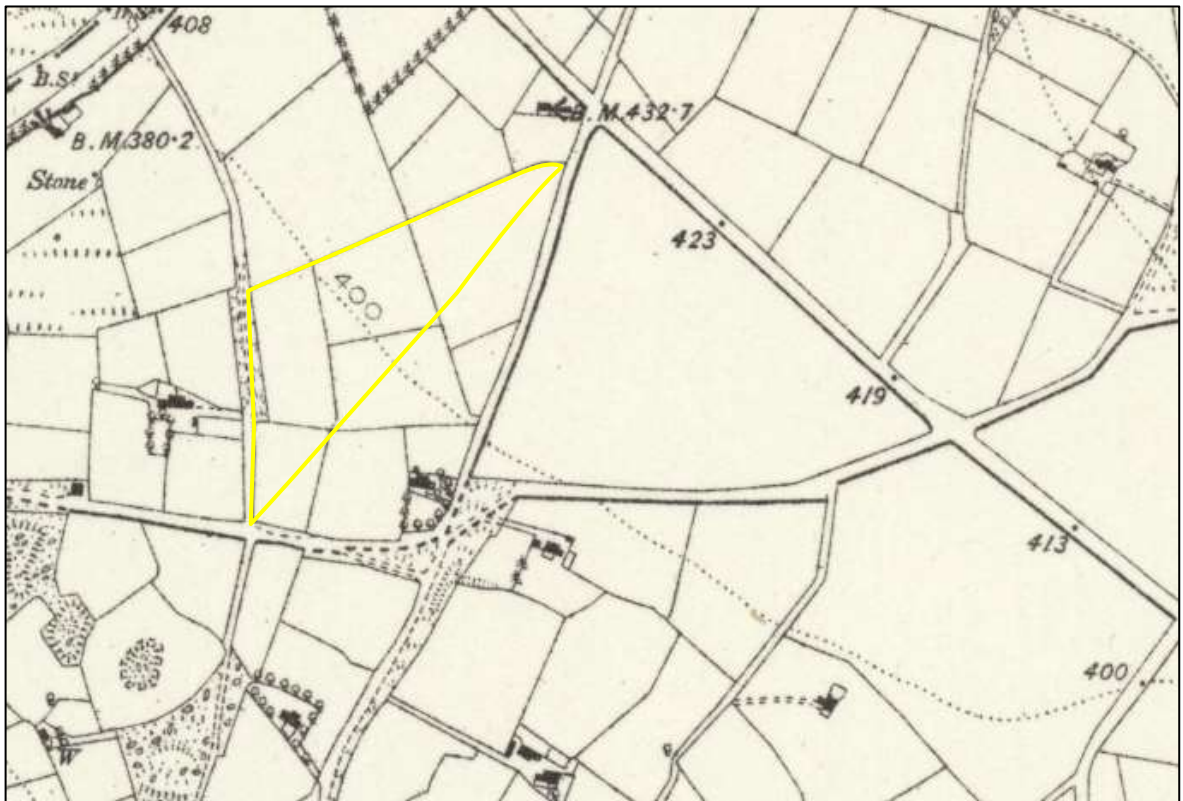


FIGURE 4: EXTRACT FROM THE 1888 ORDNANCE SURVEY FIRST EDITION 25" MAP SURVEYED 1879 (NLS). THE APPROXIMATE OUTLINE OF THE SITE IS INDICATED.

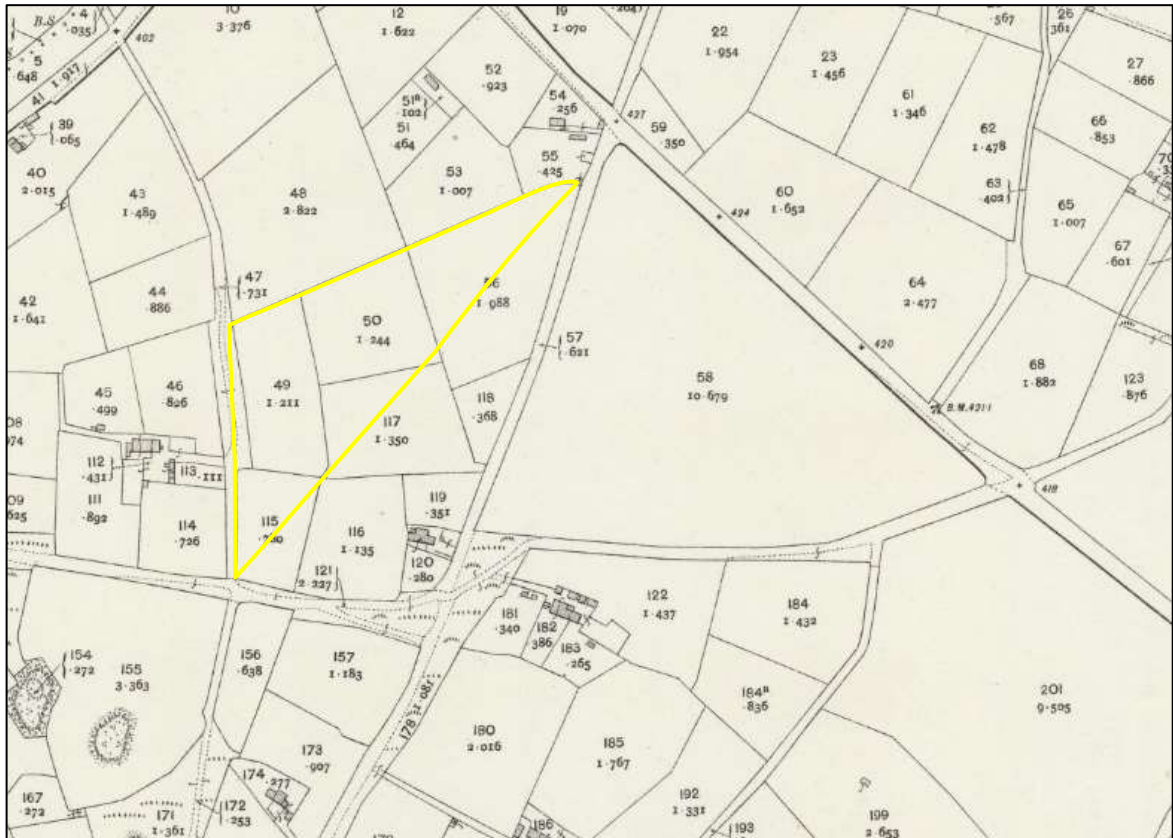


FIGURE 5: EXTRACT FROM THE 1907 OS 2ND EDITION 25" MAP SURVEYED 1906 (NLS). THE APPROXIMATE OUTLINE OF THE SITE IS INDICATED.

2.3 ARCHAEOLOGICAL BACKGROUND

Archaeological fieldwork in this area has been limited, those that have been carried out largely associated with large scale surveys and assessments of the wider landscape area. Episodes of geophysical survey (Bartlett and Allen 2005; Webb 2019) and watching brief works (Bampton 2021; Cole 2006) identifying only evidence of field boundary alteration and agricultural practices.

The site is situated within a landscape rich with prehistoric monuments, the Cornwall and Scilly Historic Environment Record (HER) recording a number of Bronze Age barrows in close proximity to the proposal site at Chiverton (MCO34826), Two Burrows (MCO2018, MCO3924-9; List 1016355), Three Burrows (MCO1992, MCO3561-2, MCO34797, MCO34799, MCO34801, MCO3555-60; List 1016056-7); whilst later Iron Age and Romano-British settlement sites are recorded to the east at Trevale Farm (MCO34792); and at Two Burrows (MCO34887) and Chiverton (MCO34824-5) to the north. Medieval activity is suggested by a possible early medieval cross fragment (MCO5914) at Three Burrows. Most of the other known heritage assets in the vicinity are related to the post-medieval mining of the area, the site being located to the immediate north-east of the Gwennap Mining District World Heritage Site area (DCO1756), the Prince Coburg (MCO12456) and Burra Burra (MCO11903) being worked in what had formerly been the common ground; and Carnholt (MCO11936), Gump (MCO12154), Wheal Busy (MCO12341), Wheal Briton (MCO12838) and Wheal Concord (MCO12879) all being nearby.

3.0 GEOPHYSICAL SURVEY

3.1 INTRODUCTION

An area of c.1.4ha 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 21st December 2022 by P. Bonvoisin; and the survey data was processed by P. Bonvoisin. Supporting photographic evidence from the site inspection can be seen in Appendix 1; detailed survey data in Appendix 2; and additional graphic images of the survey data and numbered grid locations can be found in Appendix 3.

3.2 SITE INSPECTION

The site comprises two sub-rectangular fields (F1, c.1.4ha; F2, c.0.4ha) orientated approximately north-east to south-west between Blackwater/East Hill Farm and the A30. An additional hardstanding yard (F3, c.0.1ha) to the north-east of F2 completes the site as the existing machine depot and was not surveyed. The site slopes gently down from the north-east, becoming steeper within field F1 and is bounded by a combination of stone faced hedgebanks, hedges and post and wire fences; the north-eastern boundary of field F2 being a high metal palisade fence. At the time of survey the site was under pasture, F2 being used in part for machine storage.

No earthworks were identified on the site, though evidence of the recent agricultural activity was identified through the grass.

3.3 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* (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- 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 reduces staggering effects within data derived from zig-zag collection method.

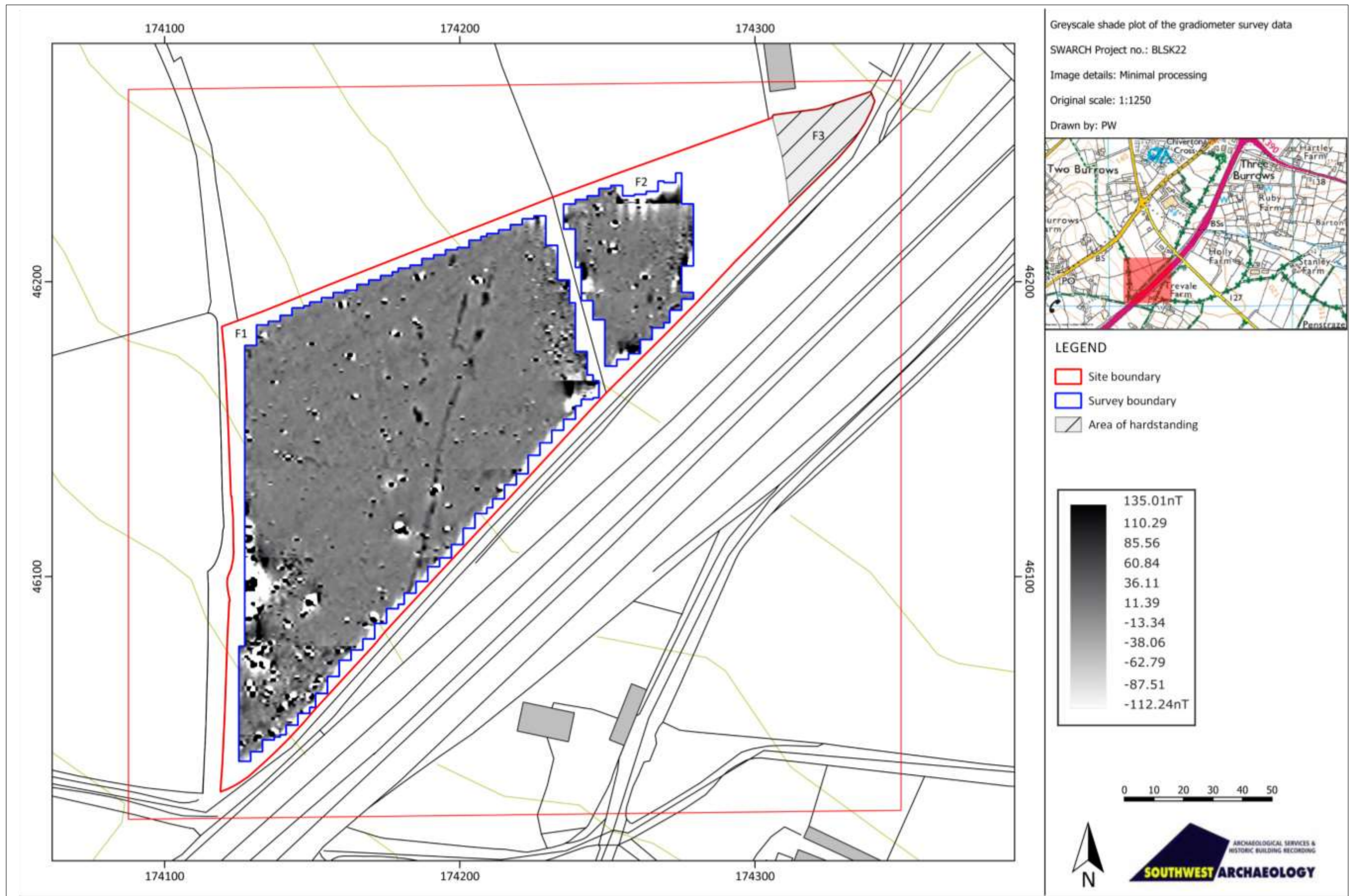


FIGURE 6: GREYSCALE SHADE PLOT OF THE GRADIOMETER SURVEY DATA; MINIMAL PROCESSING (CONTAINS ORDNANCE SURVEY DATA © CROWN COPYRIGHT 2023. LICENCE NUMBER 100022432).

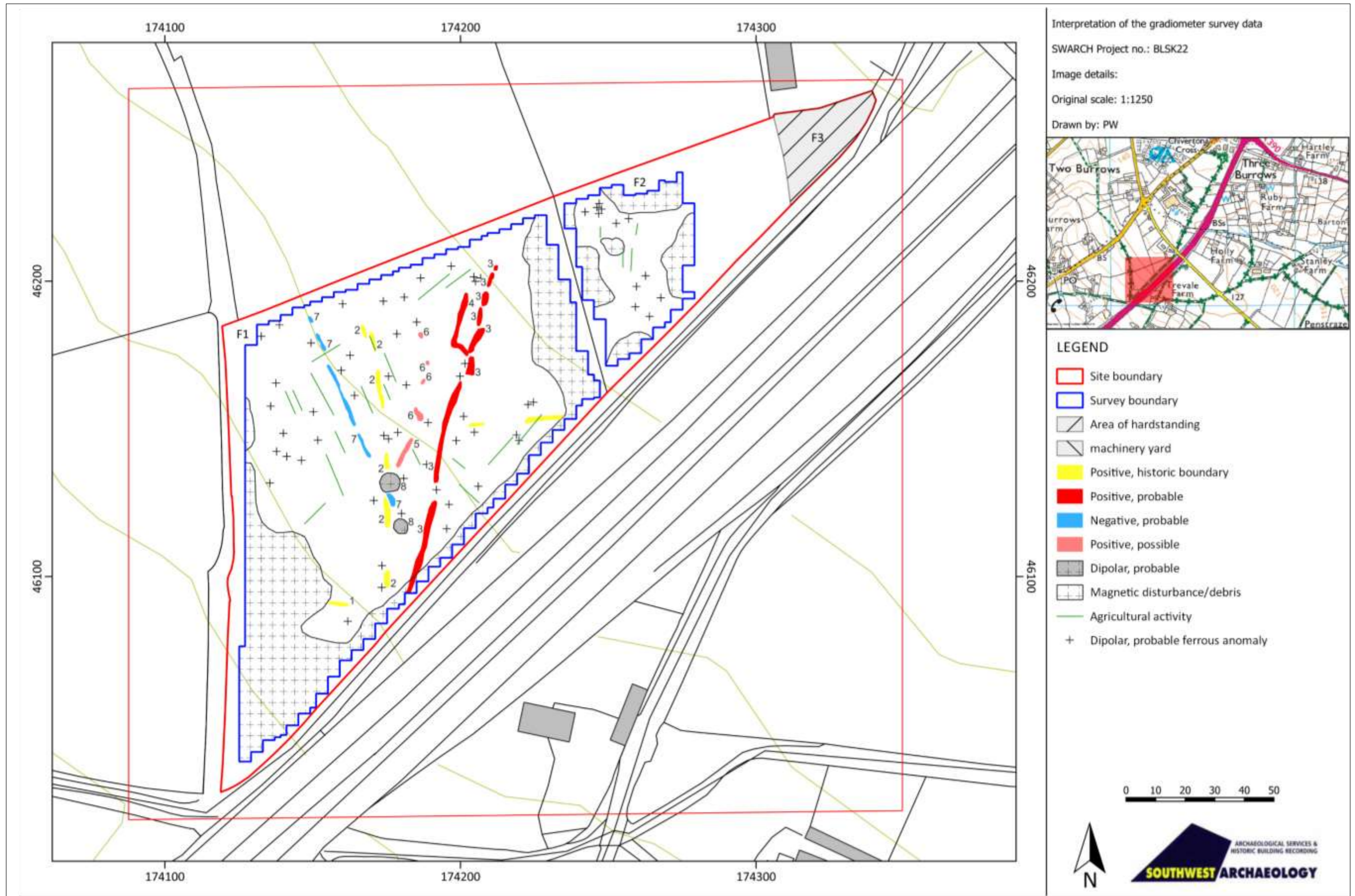


FIGURE 7: INTERPRETATION OF THE GRADIOMETER SURVEY DATA (CONTAINS ORDNANCE SURVEY DATA © CROWN COPYRIGHT 2023. LICENCE NUMBER 100022432).

TABLE 2: SURVEY DETAILS (UN-ADJUSTED)

Field	Area Surveyed (ha)	Max (nT)	Min (nT)	Standard Deviation (nT)	Mean (nT)	Median (nT)
F1	1.2346	135.01	-100.38	12.04	-0.66	0.00
F2	0.1838	100.29	-107.53	14.15	-1.83	-0.01

3.4 RESULTS

Table 3 with the accompanying Figures 6-7 show the analyses and interpretation of the geophysical survey data.

TABLE 3: INTERPRETATION OF GRADIOMETER SURVEY DATA.

Anomaly Group	Class and Certainty	Form	Archaeological Characterisation	Comments
Field F1				
1	Very weak positive, probable	Linear	Historic boundary – ditch	Indicative of a cut and infilled feature such as a ditch. Orientated approximately east to west. Depicted on historic mapping. Responses of between +0.06nT and +5.24nT.
2	Weak positive, probable	Linear	Historic boundary – ditch	Indicative of cut and infilled features such as ditches. Orientated approximately north to south and east to west. Depicted on historic mapping. Responses of between +0.04nT and +9.93nT.
3	Weak to moderate positive, probable	Linear	Ditch	Indicative of a cut and infilled feature such as a ditch. Orientated approximately north-east to south-west. Responses of between +0.23nT and +14.87nT.
4	Weak positive, probable	Linear	Ditch	Indicative of cut and infilled features such as ditches. Orientated approximately north-east to south-west and north-west to south-east. Responses of between +0.14nT and +8.18nT.
5	Weak positive, possible	Linear	Ditch	Indicative of cut and infilled features such as ditches. Orientated approximately north-east to south-west and north-west to south-east. Responses of between +0.27nT and +3.74nT.
6	Weak to moderate positive, possible	Discrete	Pit or tree-throw	Indicative of discrete cut and infilled features such as pits. Weaker responses may indicate natural features such as tree-throws. Responses of between +0.07nT and +9.49nT.
7	Weak negative, possible	Linear	Drainage	Indicative of a ceramic or stone features such as drains. Aligned approximately north-west to south-east. Responses of between -2.55nT and -0.09nT.
8	Very strong dipolar, probable	Discrete	Ferrous anomaly	Indicative of discrete metallic objects. Positions suggests possible drainage features. Responses of between -99.53nT and +99.95nT.
	Weak positive & negative, possible	Linear	Agricultural activity	Linear striations covering the field with regularity. Indicative of shallow ploughing. Aligned approximately north-east to south-west and north-west to south-east. Responses of between -1.05nT and +2.04nT.
	Strong dipolar (mixed response)	Discrete	Ferrous anomaly	Indicative of metallic objects. Responses of between -99.74nT and +99.43nT.
	Strong bipolar (mixed response)	Irregular	Modern disturbance	Indicative of disturbed ground and disturbance caused by proximity to metallic fences and debris. Responses of between -99.80nT and +160.58nT.
Field F2				
	Weak positive & negative, possible	Linear	Agricultural activity	Linear striations covering the field with regularity. Indicative of shallow ploughing. Aligned approximately north to south. Responses of between -1.03nT and +1.66nT.
	Strong dipolar (mixed response)	Discrete	Ferrous anomaly	Indicative of metallic objects. Responses of between -72.31nT and +100.29nT.
	Strong bipolar (mixed response)	Irregular	Modern disturbance	Indicative of disturbed ground and disturbance caused by proximity to metallic fences and debris. Responses of between -112.24nT and +77.70nT.

3.5 DISCUSSION

The survey identified eight groups of anomalies across the field. These were predominantly linear ditch and/or bank boundary features associated phases of the existing and historic field-system and probable drainage features. Possible pits and/or tree-throws, alongside anomalies associated with agricultural activity, 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 very low (typically between +/-5nT). The weaker responses of some of the anomalies may indicate that these are only likely to survive to a shallow depth, the intermittent nature suggesting only partial survival; the stronger responses perhaps indicating the presence of more recent disturbance.

The anomaly groups identified include: historic ditch boundaries removed during the and 20th century (Groups 1-2); further possible ditches associated with phases of the existing and historic field boundaries (Group 3-5), possible pits or tree-throws (Group 6), a possible drain (Group 7) with possible associated metallic elements (Group 8).

3.6 ARCHAEOLOGICAL POTENTIAL

Whilst none of the identified features can at this stage be dated, the location of several of the anomaly groups corresponds with boundaries depicted on historic mapping, indicating that these features were in use from at least the middle of the 19th century (Group 1); whilst others are later in date, only appearing on historic mapping during the later 19th century (Group 2) as a result of enclosure of common land; many of these boundaries being removed during the later 20th or 21st centuries.

The historic field-pattern of the site is characterized as post-medieval enclosed land created in the 17th, 18th and 19th centuries, though is surrounded by medieval enclosures based on strip fields, the surviving boundaries of which are represented in the gently curving elements of the existing field-system. It is possible that some of the remaining ditch features (Groups 3-5) may form part of these or earlier field-systems, having been removed by the mid-19th century.

A small number of possible pit features (Group 6) were identified across the site, though the weak nature of many of the 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. The majority of the anomaly responses are weak, with some intermittent and barely discernible from the background geology. This suggests that many of the identified features 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 modern disturbances.

The results of the geophysical survey would suggest that the archaeological potential for the site is *low*. The majority of the identified features relate to historic phases of field-system which are tentatively suggested as being medieval and post-medieval in date, though the presence of prehistoric activity in the surrounding area means that a prehistoric or Romano-British date cannot be ruled out.

Any development of the site is likely to encounter and destroy the buried archaeological resource (should it be present), and further mitigation through targeted evaluation trenching may validate and clarify the results of the geophysical survey, it appears unlikely that any remains (if present) would be of any significance.

4.0 CONCLUSION

The site is located to the east of the historic mining settlement of Blackwater, approximately 8km west-north-west Truro, on the edge of the Gwennap-Chacewater mining district. The surrounding landscape is rich with prehistoric monuments, including Bronze Age barrows and Iron Age or Romano-British settlement; though it is the later mining activity that dominates the region, the area being littered with the copper and tin mines, and being known as 'the richest square mile on Earth' due to its extensive copper and arsenic production; producing over one third of the global copper in the late 18th century. The development site lies within an area recorded on the Historic Landscape Characterisation (HLC) as *post-medieval enclosed land*: land enclosed between the 17th and 19th centuries.

The proposal site comprises two sub-rectangular fields orientated approximately north-east to south-west between Blackwater/East Hill Farm and the A30. An additional hardstanding yard completes the site as the existing machine depot and was not surveyed.

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

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- Bartlett, A., & Allen, T.** 2005: *A30 Chiverton Cross to Carland Cross Improvement, Cornwall: Report on Archaeogeophysical Surveys 2004 and Interpretation of Results 2005*. Oxford Archaeology Job No.2500.
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- Webb, P.** 2019: *Land at Chiverton Cross, Blackwater, St Agnes, Cornwall: Results of a Heritage Assessment and Geophysical Survey*. SWARCH Report No.: 190607.

APPENDIX 1: SUPPORTING PHOTOGRAPHS – SITE INSPECTION



1. F1, VIEW ACROSS THE FIELD; VIEWED FROM THE EAST (NO SCALE).



2. F1, VIEW ACROSS THE FIELD; VIEWED FROM THE NORTH-EAST (NO SCALE).



3. F1, VIEW ACROSS THE FIELD TO THE NORTHERN BOUNDARY; VIEWED FROM THE SOUTH (NO SCALE).



4. F1, VIEW ALONG THE EASTERN BOUNDARY TO THE NORTHERN BOUNDARY; VIEWED FROM THE SOUTH (NO SCALE).



5. F1, VIEW ACROSS THE FIELD TO THE SOUTHERN BOUNDARY; VIEWED FROM THE NORTH (NO SCALE).



6. F1, VIEW ALONG THE WESTERN BOUNDARY; VIEWED FROM THE SOUTH (NO SCALE).



7. F2, VIEW ACROSS THE FIELD; VIEWED FROM THE SOUTH-WEST (NO SCALE).



8. F2, VIEW ALONG THE WESTERN BOUNDARY TO THE NORTHERN BOUNDARY; VIEWED FROM THE SOUTH (NO SCALE).



9. F2, VIEW ACROSS THE MACHINE STORAGE AND DISTURBED GROUND TOWARDS THE EASTERN BOUNDARY WITH FIELD F3; VIEWED FROM THE WEST (NO SCALE).



10. F2, VIEW ALONG THE WESTERN BOUNDARY TO THE SOUTHERN BOUNDARY; VIEWED FROM THE NORTH (NO SCALE).



11. F2, DETAIL OF THE STONE FACED HEDGEBANK BOUNDARY BETWEEN FIELDS F1 AND F2; VIEWED FROM THE SOUTH-EAST (NO SCALE).

APPENDIX 2: METADATA FOR GEOPHYSICAL SURVEY PROCESSING

GRADIOMETRY

GENERAL DATA FOR ALL FIELDS/SITE:

SITE

NAME: BACO22
LOCATION: East of Highfield, Bere Alston
COLLECTION METHOD: ZigZag
SENSORS: 2 @1m spacing
DUMMY VALUE: 32702
X&Y INTERVAL: 0.25m
INSTRUMENT TYPE: Bartington Grad 601
UNITS: nT
SURVEYED AREA: 0.7488ha

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

STATS

MAX: 135.01
MIN: -100.38
STD. DEV.: 12.04
MEAN: -0.66
MEDIAN: 0.00
COMPOSITE AREA: 3.15ha
SURVEYED AREA: 1.2346ha

PROCESSES

PROCESSES: 3

- 1 Base Layer
- 2 DeStripe Median Traverse: Grids: All
- 3 DeStagger: Grids: All By: 0 intervals, 25.00cm

FIELD F2

STATS

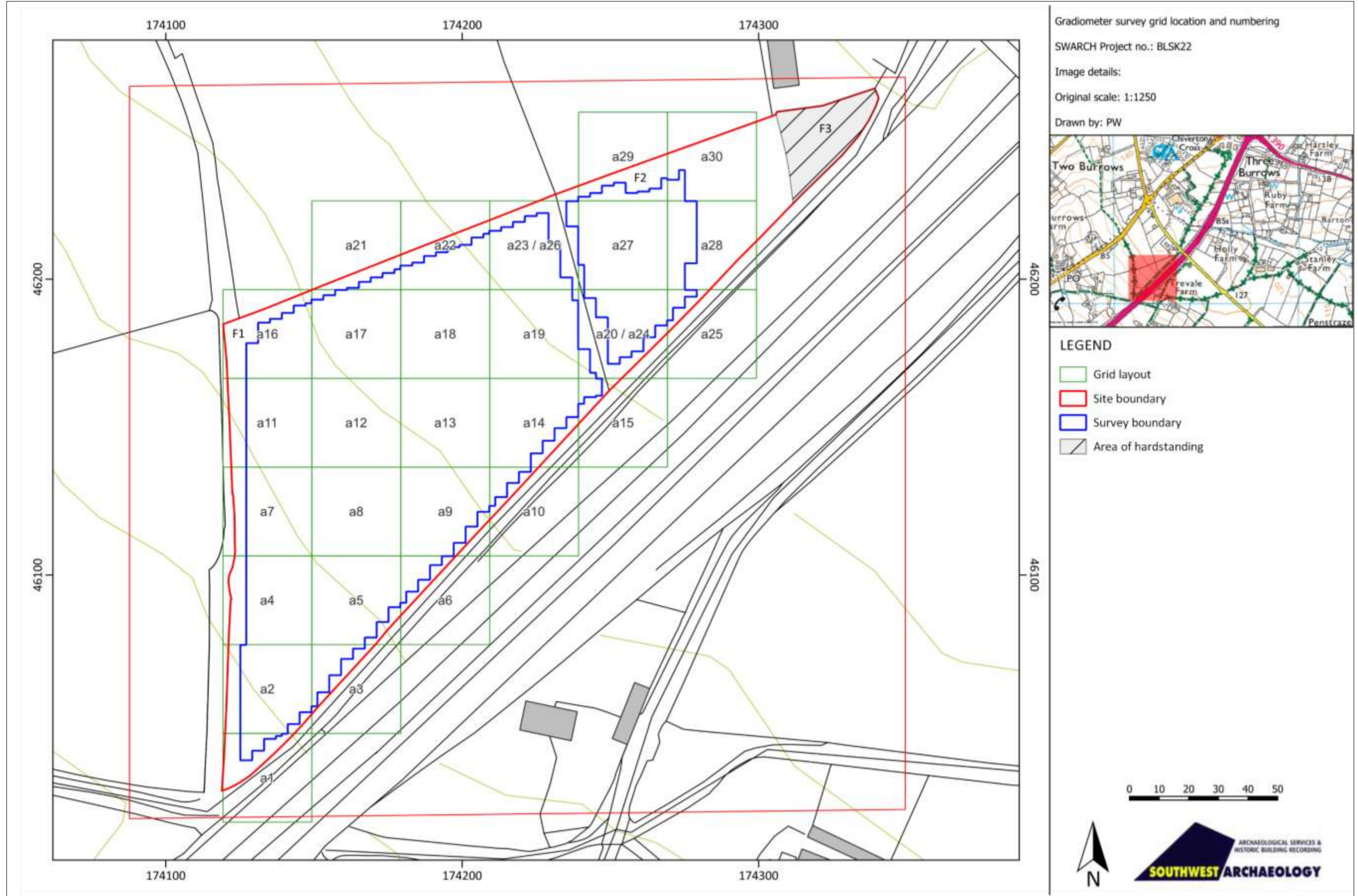
MAX: 100.29
MIN: -107.53
STD. DEV.: 14.15
MEAN: -1.83
MEDIAN: 0.01
COMPOSITE AREA: 0.81ha
SURVEYED AREA: 0.1838ha

PROCESSES

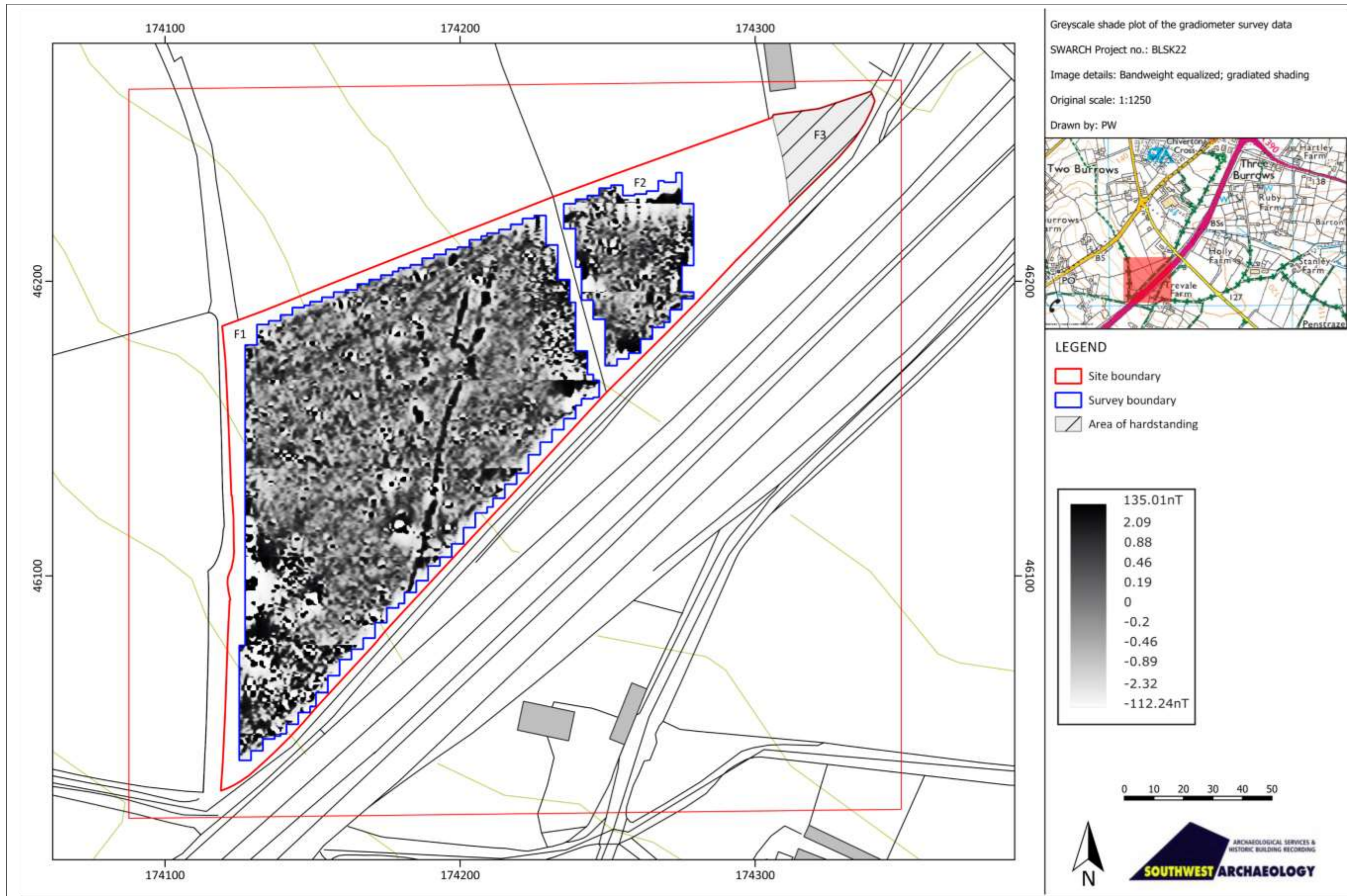
PROCESSES: 3

- 1 Base Layer
- 2 DeStripe Median Traverse: Grids: All
- 3 DeStagger: Grids: All By: 0 intervals, 25.00cm

APPENDIX 3: 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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