

**LAND OFF KERGILLIACK ROAD
ST BUDOCK
FALMOUTH
CORNWALL**

Results of a Desk Based Appraisal, Geophysical Survey



South West Archaeology Ltd. Report no 170207

Land off Kergilliack, St Budock, Falmouth, Cornwall Results of a Desk Based Appraisal, Geophysical Survey

By L. Lichtenstein
Report Version: FINAL
24th May 2017

Work undertaken by SWARCH for Robin Orme (the Agent)
on behalf of Carolyn Orme and Pat Cumming (the Clients)

SUMMARY

This report presents the results of a desk-based assessment, walkover survey and geophysical survey carried out by South West Archaeology Ltd. (SWARCH) on land at land off Kergilliack Road, St Budock, Cornwall, prior to potential residential development.

The desk-based assessment indicates that there are a variety of heritage assets in the immediate landscape; including a multi-phased late Prehistoric or medieval fieldsystem identified by a geophysical survey carried out in the field immediately to the east. The desk-based study has demonstrated that 19th century fieldsystem has been subject to some modification, and that the site is bounded on its northern side by a medieval deerpark. The walkover survey identified a substantial ditched boundary on this side of the site, which supports this interpretation.

The geophysical survey indicates that there is a high density of anomalies of probable archaeological origin within the area of the survey, including part of a sub-rectangular double-ditched enclosure (round) of probable late Prehistoric and/or Romano-British date. This is one of a large number of such settlements across Cornwall, although there are few known examples within the immediate vicinity due to the growth of Falmouth. The geophysical survey results also indicate a number of other, probable, anomalies that may be associated with settlement activity within and outside the enclosure. The results of the geophysical survey would suggest that there are archaeological features or deposits within the site which merit further investigation.

Any future development of this site is likely to damage or destroy these archaeological features or deposits. It is recommended that any future development be preceded or accompanied by a suitable programme of staged archaeological mitigation, to include evaluation trenching, followed by a strip, map and sample excavation prior to any proposed development.



South West Archaeology Ltd. shall retain the copyright of any commissioned reports, tender documents or other project documents, under the Copyright, Designs and Patents Act 1988 with all rights reserved, excepting that it hereby provides an exclusive licence to the client for the use of such documents by the client in all matters directly relating to the project as described in the Project Design.

CONTENTS

<i>SUMMARY</i>	2
<i>CONTENTS</i>	3
<i>LIST OF FIGURES</i>	3
<i>LIST OF TABLES</i>	4
<i>LIST OF APPENDICES</i>	4
<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 BACKGROUND	5
1.4 ARCHAEOLOGICAL BACKGROUND	5
1.5 METHODOLOGY	6
2.0 RESULTS OF A DESK-BASED APPRAISAL	8
2.1 DOCUMENTARY BACKGROUND	8
2.2 CARTOGRAPHIC EVIDENCE	8
2.3 ARCHAEOLOGICAL BACKGROUND	12
2.4 WALKOVER SURVEY	15
2.5 AERIAL PHOTOGRAPHY AND LIDAR	15
3.0 GRADIOMETER SURVEY	17
3.1 INTRODUCTION	17
3.2 METHODOLOGY	17
3.3 RESULTS	17
3.4 DISCUSSION	22
4.0 CONCLUSION	23
5.0 BIBLIOGRAPHY	24

LIST OF FIGURES

COVER PLATE: VIEW OF THE PROPOSED DEVELOPMENT FIELD FROM ITS NORTH-WEST CORNER; LOOKING SOUTH-EAST (NO SCALE).

FIGURE 1: SITE LOCATION.	6
FIGURE 2: THE SITE AT LAND OFF KERGILLIACK ROAD.	7
FIGURE 3: EXTRACT FROM THE BURGHLEY ATLAS OF 1579.	8
FIGURE 4: EXTRACT FROM THE 1811 OS SURVEYOR'S DRAFT MAP.	9
FIGURE 5: EXTRACT FROM THE 1843 BUDOCK TITHE MAP.	9
FIGURE 6: EXTRACT FROM THE 1888 OS 1 ST EDITION 6" MAP.	11
FIGURE 7: EXTRACT FROM THE 1909 OS 2 ND EDITION 6" MAP.	11
FIGURE 8: EXTRACT FROM THE 1935 OS 6" MAP.	12
FIGURE 9: MAP OF NEARBY HERITAGE ASSETS.	13
FIGURE 10: IMAGE DERIVED FROM 50CM LIDAR DATA, SHOWING THE SITE.	16
FIGURE 11: GREYSCALE SHADE PLOT OF THE GRADIOMETER SURVEY DATA, MINIMAL PROCESSING.	19
FIGURE 12: RED-BLUE-GREEN(2) SHADE PLOT OF GRADIOMETER SURVEY DATA.	20
FIGURE 13: INTERPRETATION OF THE RESULTS OF THE GRADIOMETER SURVEY.	21

LIST OF TABLES

TABLE 1: EXTRACT FROM THE 1843 BUDOCK TITHE APPORTIONMENT.	10
TABLE 2: LIST OF NEARBY HERITAGE ASSETS.	14
TABLE 3: INTERPRETATION OF GRADIOMETER SURVEY DATA.	17

LIST OF APPENDICES

APPENDIX 1: WALKOVER SURVEY PHOTOGRAPHS	25
---	----

ACKNOWLEDGEMENTS

ROBIN ORME (THE AGENT)
THE STAFF AT THE CORNWALL RECORD OFFICE (CRO)
THE STAFF AT THE BRITISH LIBRARY (BL)

PROJECT CREDITS

PROJECT DIRECTOR: DR. SAMUEL WALLS
PROJECT OFFICER: LASZLO Lichtenstein
GEOPHYSICAL SURVEY: JOSEPH BAMPTON
REPORT: LASZLO Lichtenstein
EDITING: DR. SAMUEL WALLS
GRAPHICS: LASZLO Lichtenstein

1.0 INTRODUCTION

LOCATION: LAND OFF KERGILLIACK ROAD
PARISH: ST BUDOCK
COUNTY: CORNWALL
NGR: CENTRED ON SW 7851 3346
SWARCH REF: BRK17

1.1 PROJECT BACKGROUND

This report presents the results of a desk based assessment and geophysical survey carried out by South West Archaeology Ltd. (SWARCH) on land off Kergilliack Road, St Budock in Cornwall (Figure 1). The work was commissioned by Robin Orme (the Agent) on behalf of Carolyn Orme and Pat Cumming (the Clients) in order to identify any archaeological sites or features that might be affected by a proposed residential development.

1.2 TOPOGRAPHICAL AND GEOLOGICAL BACKGROUND

The site is located on the north-east facing slope of a low hill overlooking the Fal estuary, at a height of approximately 70-85m AOD. The surveyed area comprised a single roughly rectangular field approximately 2km north-west of the heart of Falmouth, 1km north of Budock Churchtown, on agricultural land between Union and Hillhead Roads (see Figure 1). The soils of this area are the well-drained fine loamy soils of the Denbigh 2 Association (SSEW 1983). These overlie hornfelsed slates and siltstones of the Mylor Slate Formation (BGS 2015).

1.3 HISTORICAL BACKGROUND

The site is located within the parish of Budock, now essentially a suburb of Falmouth. Budock is situated within the Deanery and Hundred of Kerrier, two miles west of Falmouth. In 1843 the site lay within fields that belonged to Lower Kergilliack farm. The nearby Trescobeas was formerly a minor gentry seat of a younger branch of the Grosse family, but was by the 19th century a farmhouse and the property of the Lord Wodehouse (Lysons 1814). Both Lower Kergilliack and Trescobeas had previously been owned by the Killigrews of Arwenack.

1.4 ARCHAEOLOGICAL BACKGROUND

The historic fieldscape in this area is characterised by the Cornwall and Scilly Historic Landscape Characterisation (HLC) as *post-medieval enclosed land*, but is surrounded by *medieval farmland*. *Medieval farmland* is described as *Anciently Enclosed Land* (AEL) and formed the agricultural heartland of Cornwall with the settlements and fieldsystems typically having clear medieval antecedents. AEL has also been strongly demonstrated to indicate areas first settled, enclosed and farmed during later Prehistory i.e. Middle Bronze Age (c.1500-1000 BC) until the Roman period (AD 43-410) and continuing into the early medieval period (AD 410-1066). It is considered highly likely that buried archaeology dating to the Prehistoric and Roman-British periods generally survives within areas of AEL.

There has been little or no archaeological investigation within the immediate area of the proposed site, although there are a large number of known heritage assets in the vicinity. A recent geophysical survey by SWARCH (Bampton 2015) has identified a number of potential archaeological features associated with post-medieval fieldsystems and perhaps more than one phase of medieval or Prehistoric fieldsystems immediately to the south-west of the site. Most of the other known heritage assets in the vicinity are either medieval and relate to farming

settlements, or are post-medieval or recent, with many relating to the Second World War defences of Falmouth.

1.5 METHODOLOGY

The desk-based assessment and impact statement follows the guidance as outlined in: *Standard and Guidance for Archaeological Desk-Based Assessment* (CIfA 2014a), *Understanding Place: historic area assessments in a planning and development context* (English Heritage 2012), and *The Setting of Heritage Assets, GPA3* (Historic England 2015). The gradiometer survey follows the guidance outlined in *Geophysical Survey in Archaeological Field Evaluation* (English Heritage 2008) and *Standard and Guidance for Archaeological Geophysical Survey* (CIfA 2014b).



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

LAND OFF KERGILLIACK ROAD, ST BUDOCK, CORNWALL

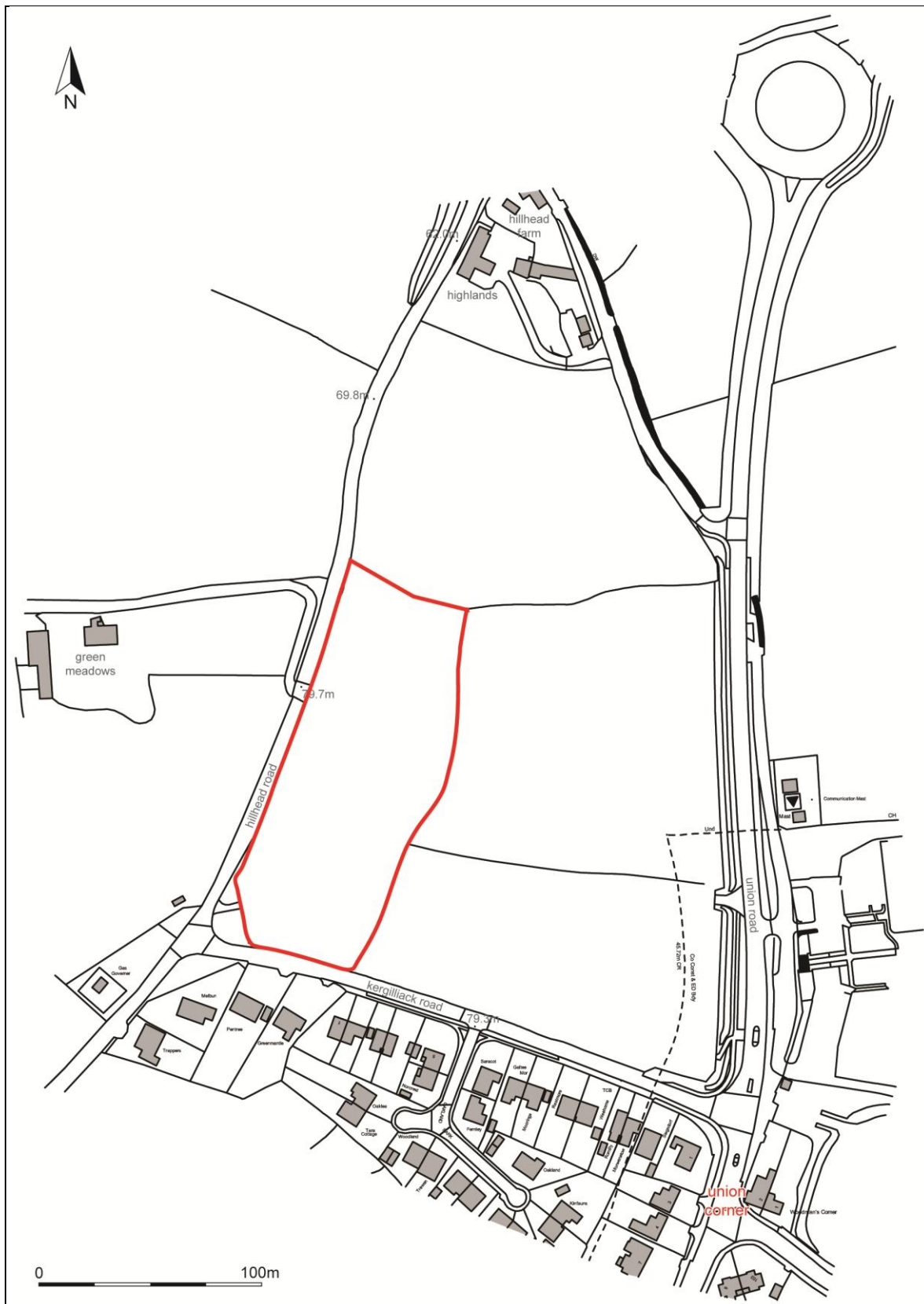


FIGURE 2: THE SITE AT LAND OFF KERGILLIACK ROAD (THE SITE IS INDICATED).

2.0 RESULTS OF A DESK-BASED APPRAISAL

2.1 DOCUMENTARY BACKGROUND

The documentary background to the site is surprisingly sparse; the tithe apportionment indicates that in 1843 the site formed part of the tenements of Lower Kergilliack. Kergillack, is recorded in 1313 and the name is derived from the Cornish for hedge/bank+cock (Padel 1985, 44-5) but is not particularly well-represented among readily-accessible documentary sources (e.g. at the CRO). Nearby Trescobeas is cited as a former seat of a younger branch of the Grosse family. William Grosse, seemingly the last of that line, was married to the widow of Charles Vyvyan, 'who, upon some jealousy or discontent of his wife, drank a pint or quart of brandy, entered his chamber, took a pistol and charged it with a brace of bullets, and then forthwith shot himself dead' in 1693 (Gilbert 1838, 136). It thereafter came into the possession of the Killigrews of Arwenack in the late 17th century and was held by Lord Wodehouse in 1814 (CRO: BRA2231/3/1.2). Several later 16th century documents refer to Peter Killigrew of Kergilliack, implying the Killigrews also owned these farms (CRO: CM/577; CM/181). In 1756 displaced Acadians (French colonists from Nova Scotia deported in 1755) were temporarily lodged at Kergilliack (CRO: AD1974).

2.2 CARTOGRAPHIC EVIDENCE

2.2.1 EARLY CARTOGRAPHIC SOURCES

The earliest useful map depicting the site is Lord Burghley's Atlas of 1579, which depicts the site as lying within an enclosed fieldscape, and one which still includes unenclosed strip fields (Figure 3).



FIGURE 3: EXTRACT FROM THE BURGHLEY ATLAS OF 1579 (BL) (THE APPROXIMATE LOCATION OF THE SITE IS INDICATED).

The next cartographic source is the OS surveyor's draft map of 1811 which shows the surrounding landscape in some – if perhaps misleading – detail (Figure 4). As with the earlier Burghley map, the triangle of land between the roads is clearly shown, as is the cross lane to the south. The pattern of fields on the draft maps is, however, often speculative rather than accurate.



FIGURE 4: EXTRACT FROM THE 1811 OS SURVEYOR'S DRAFT MAP (BL) (THE LOCATION OF THE SITE IS INDICATED).

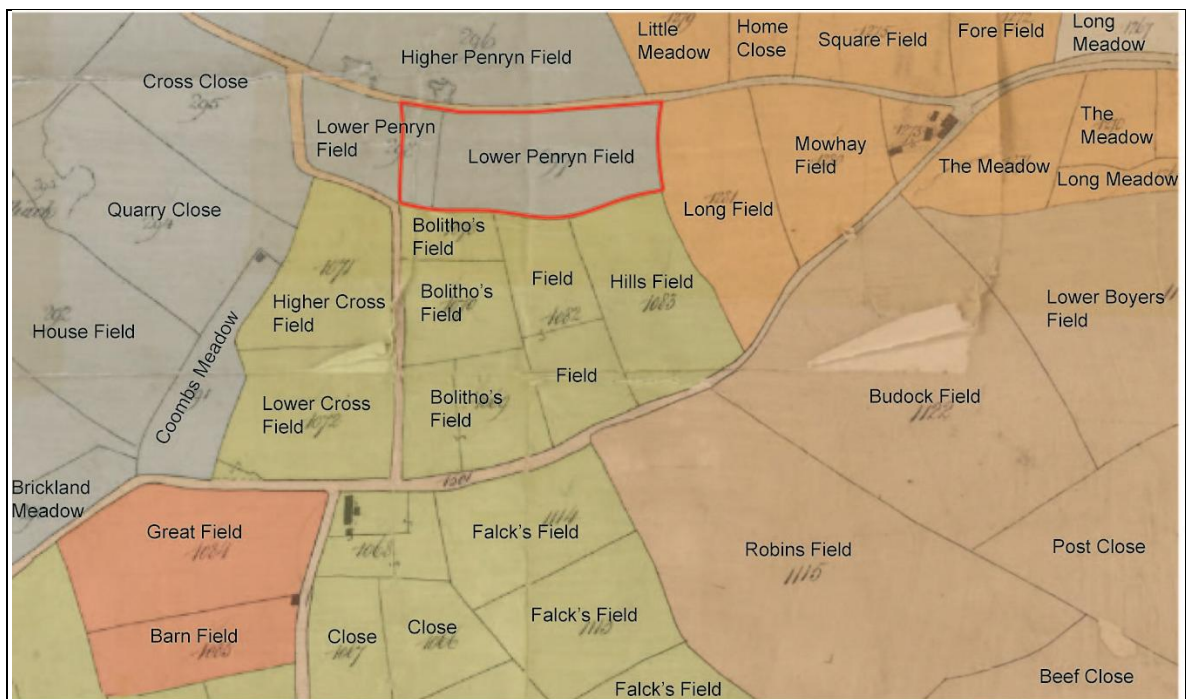


FIGURE 5: EXTRACT FROM THE 1843 BUDOCK TITHE MAP (CRO).

2.2.2 THE 1843 BUDOCK TITHE MAP

The first detailed map available to this study is the 1843 tithe map, and in contrast to the earlier maps shows the area of the development as comprising part of two separate fields (Figure 5). While allowing for the variable accuracy of the tithe map, the repetition of field-name elements and the subdivision of ownership would suggest these small fields were fairly recent subdivisions, perhaps related to the growth of Falmouth.

The apportionment indicates these fields formed part of the holding of Triscobeas, which had multiple owners and tenants (see Table 1). The pattern of land ownership and tenancy is particularly complicated. The field names are mostly prosaic, being locational, topographical or relating to personal names. *Higher* and *Lower Cross Field* and *Cross Close* may indicate the former presence of a wayside cross. All of the fields were listed as being under arable rotation.

TABLE 1: EXTRACT FROM THE 1843 BUDOCK TITHE APPORTIONMENT.

Field No.	Owner	Tennant	Field Name	Field Use
Lower Kergillack				
290	Thomas Harvey Lessee under the Bishop of Exeter	Himself	Brickland Meadow	Arable
291			Coombs Meadow	Arable
292			House Field	Arable
294			Quarry Close	Arable
295			Cross Close	Arable
296			Higher Penryn Field	Arable
297			William Woodman	Lower Penryn Field
298		Lower Penryn Field		Arable
Triscobeas				
1066	William Bullmore	William Woodman	Close	Arable
1067			Close	Arable
1068			Cottage, outhouses, yard & garden	
1069			Bolitho's Field	Arable
1070			Bolitho's Field	Arable
1071	Peter Harvey, Executors of	Vincent Martyn	Higher Cross Field	Arable
1072		Lower Cross Field	Arable	
1082		Robert Hill	Field	Arable
1083		Roger Jeffry	Hills Field	Arable
Hill Head				
1278	Peter Harvey, Executors of, Lessee under the Bishop of Exeter	Roger Jeffery	Home Close	Arable
1279			Little Meadow	Arable
1280			Mowhay Field	Arable
1281			Long Field	Arable

2.2.3 ORDNANCE SURVEY MAPPING

The 1st and 2nd edition Ordnance Survey maps depict a landscape similar in outline, but subject to a significant loss of field boundaries. By 1888, the two fields had become one (Figure 6). The removal of field boundaries would suggest the agricultural depression of the later 19th century and the specific circumstances that had led to the proliferation of small fields and smallholders had been removed, and larger individual farms had emerged. By 1888 Cross Lane had also been straightened, removing the pronounced kink at its western end depicted on all the earlier maps.

The most significant local development was the construction of the Falmouth Union Workhouse (later *Budock Hospital*, demolished after 2006) in 1850-52 within the area known as *Falck's Fields* immediately to the east of the site, and the appearance of an isolation hospital to the north, on land formerly belonging to Lower Kergillack. Beyond this, the Cornwall Railway line to Falmouth was opened in 1863, sweeping around the site to the north and west.

This landscape remained fairly static during the interwar years, but by 1963 residential housing had been built along Kergillack Road and Trescobeas Road, and Falmouth School built, along with a number of playing fields. The Penryn bypass, opened in 1994, passes just to the north of Hillhead Farm.

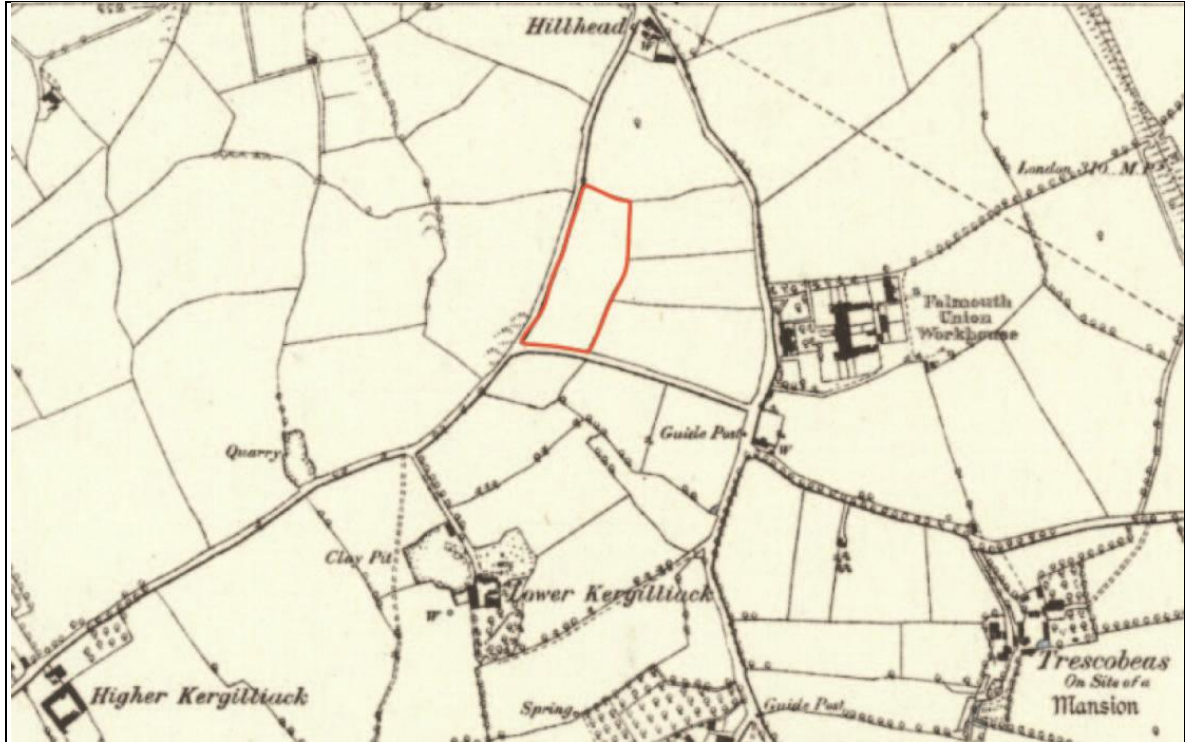


FIGURE 6: EXTRACT FROM THE 1888 OS 1ST EDITION 6" MAP (CORNWALL SHEET LXXI, CRO) (THE SITE IS INDICATED).

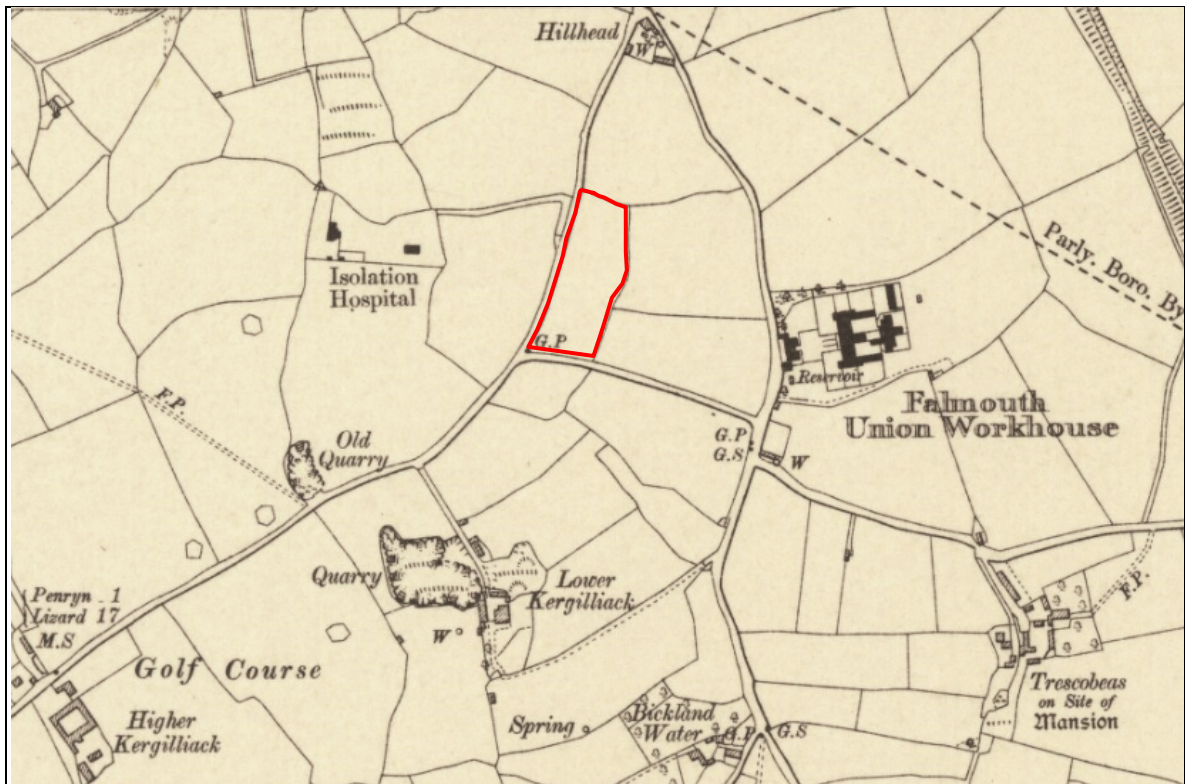


FIGURE 7: EXTRACT FROM THE 1909 OS 2ND EDITION 6" MAP (CORNWALL SHEET LXXI, CRO) (THE SITE IS INDICATED).

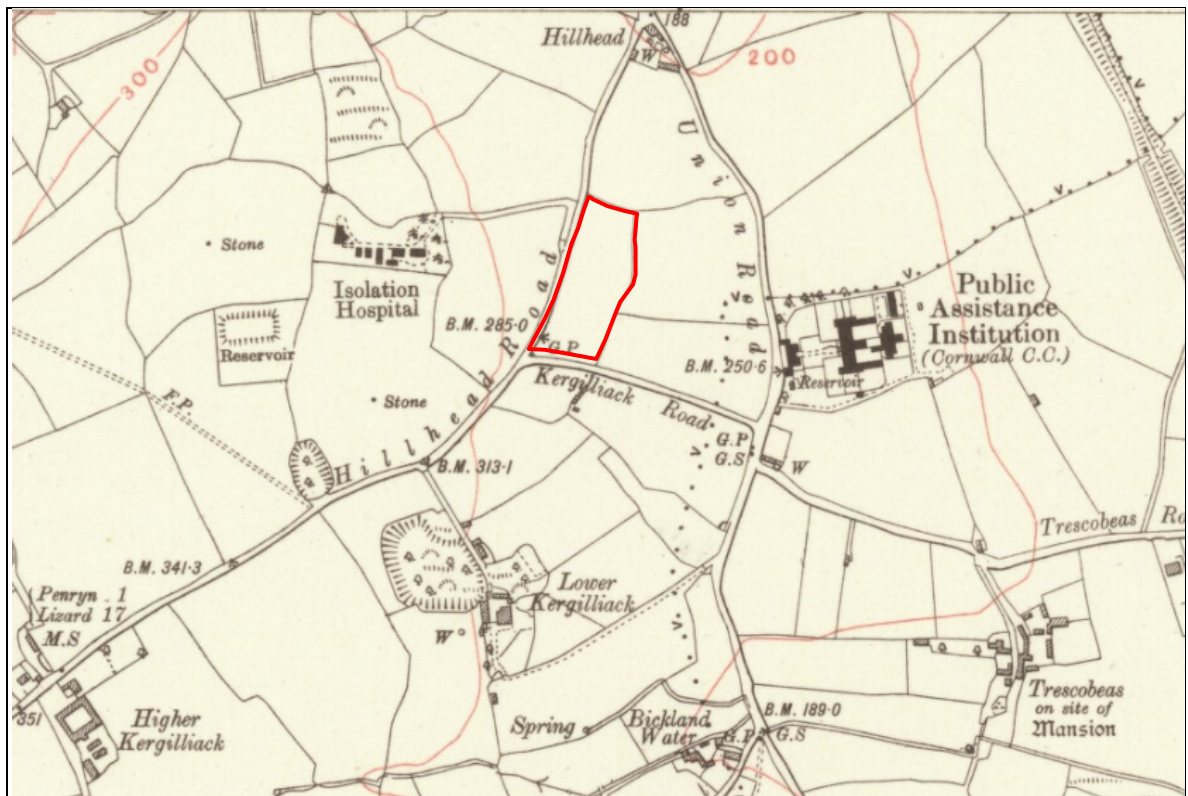


FIGURE 8: EXTRACT FROM THE 1935 OS 6" MAP (CORNWALL SHEET LXXI, CRO) (THE SITE IS INDICATED).

2.3 ARCHAEOLOGICAL BACKGROUND

Most of the historic fieldscape in this area is characterised as *medieval farmland* on the Cornwall and Scilly Historic Landscape Characterisation (HLC). The fields between Hillhead Road and Union Road are, however, characterised as *post-medieval enclosed land*, for no clear reason.

Medieval farmland forms part of the broader category of *Anciently Enclosed Land* (AEL). These areas formed the ancient heartland of rural Cornwall with settlements and field systems having clear medieval antecedents. AEL has also been strongly demonstrated to indicate areas first settled, enclosed and farmed during later Prehistory i.e. Middle Bronze Age (c 1500-1000 BC) until the Roman period (AD 43-410) and continuing into the early medieval period (AD 410-1066). It is considered highly likely that buried archaeology dating to the Prehistoric and Roman-British periods survives within AEL.

2.3.1 PREHISTORIC 4000BC - AD43

No clear evidence of prehistoric activity in close proximity of the development site however geophysical survey on the adjacent fields to the east identified at least two phases of earlier boundaries possibly Prehistoric in origin (Brampton 2015).

2.3.2 ROMANO-BRITISH AD43 – AD409

Parts of these earlier fieldsystems may relate to this period and there is a Romano-British findspot to the north-east (No.53).

2.3.3 MEDIEVAL AD1066 - AD1540

Medieval settlements recorded at Trescobeas (No.3), Higher Kergilliack (No.5), Tregenver (No.6), and Tregonigie (No.7). Penryn itself was an important medieval town and port with a large number of historic buildings, including the site of Glasney College and the Bishop's Palace (No.1). A large area to the north-west of the proposal site (No.12) is thought to lie within a medieval

deerpark associated with these ecclesiastical centres. It is first recorded in 1311 as a 'free warren' and was disparked after 1540. The Portable Antiquities Scheme (PAS) database records three late medieval coin finds within 1km of the site.

2.3.4 POST-MEDIEVAL AND MODERN AD1540 - PRESENT

Population and settlement expanded during into the post-medieval period, with the increasing industrialisation of the Cornish landscape (e.g. boat-house, shipyard, paper and bone mill); and significant development associated with the construction of the railway bridges in the 19th century. Otherwise the HER entries in this area is dominated by post-medieval buildings and recent military structures. Much of the 20th century expansion occurred without effective archaeological controls.

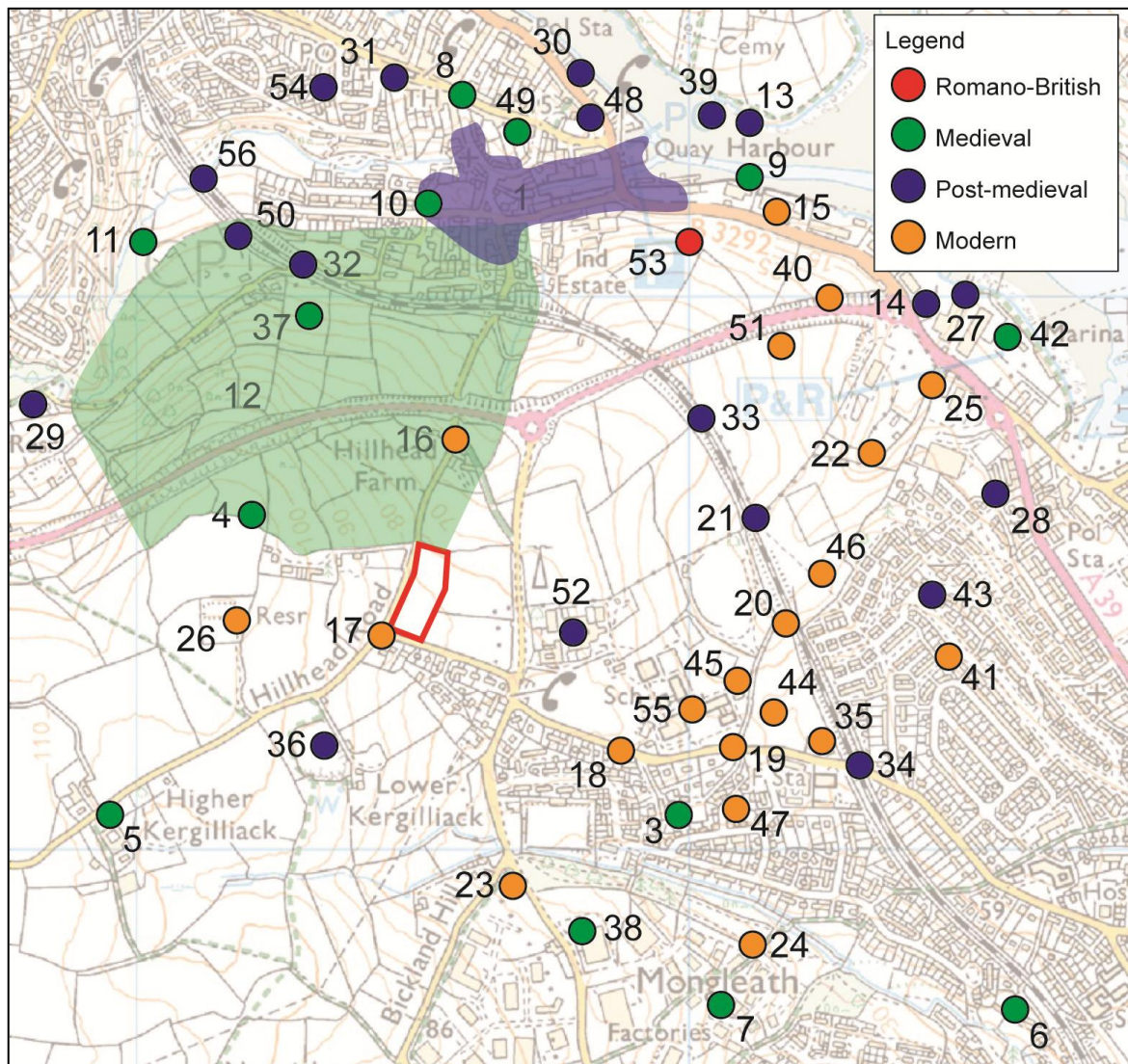


FIGURE 9: MAP OF NEARBY HERITAGE ASSETS (SOURCE: CORNWALL HER).

The Cornwall and Scilly HER (see Figure 9 and Table 2) lists a number of heritage assets in close proximity to the development site, though most of these are post-medieval in date.

LAND OFF KERGILLIACK ROAD, ST BUDOCK, CORNWALL

TABLE 2: LIST OF NEARBY HERITAGE ASSETS (SOURCE: CORNWALL HER).

	Mon ID	Site Name	Record	Notes
1	-	Penryn	Buildings	Penryn conservation area, including medieval fortifications, 13 th century church and numerous post-medieval buildings. Settlement first recorded 1236
2	17863	Penryn	Building	Modern school built in 1961
3	18529	Trescobeas	Documentary	Medieval settlement recorded in 1284
4	18559	Beacon Hill	Documentary	Medieval beacon indicated by field names
5	18615 55705 40851 172551	Higher Kergilliack Higher Kergilliack Higher Kergilliack Higher Kergilliack	Documentary Cropmark Cartographic Findspot	Medieval settlement recorded in 1313 Medieval field system indicated by cropmarks Location of blacksmiths workshop shown 1840 tithe map Mid 19 th century milepost
6	18630	Tregenver	Documentary	Medieval settlement recorded in 1336
7	18632	Tregonigge	Documentary	Medieval settlement recorded in 1316
8	18645 172501	Penryn Penryn	Documentary Listed building	Medieval market Grade II listed post-medieval fire station
9	18651.10 18658	Penryn Penryn	Documentary Structure	Medieval harbour fortifications Post-medieval harbour fortifications
10	18660.40 18660.50 18660.60	Glasney Glasney Penryn	Documentary Documentary Documentary	Medieval religious house and associated buildings Medieval hospital Medieval school
11	18662	Glasney	Findspot	A medieval cross is said to have been removed from Glasney college
12	18661.13	Penryn	Cartographic	Medieval deer park recorded in 1311
13	38044	Penryn	Building	Post-medieval boat-house
14	38333 40813	Glassons Quay Penryn	Building Cartographic	Post-medieval shipyard Post-medieval shipyard
15	38334	Penryn	Cartographic	Modern slipway and boat-house
16	38476 57037	Hillhead Farm Hillhead Farm	Aerial photograph Findspot	Modern WWII road block indicated by unroofed building visible on aerial photograph 19 th century fingerpost
17	38477	Falmouth	Documentary	Modern pillbox listed on the site
18	38478	Falmouth	Documentary	Modern pillbox listed on the site
19	38479 56356	Falmouth No.55 Trescobeas Road	Documentary Building	WWII pillbox listed in this location 20 th century building designed by Alfred Cornelius in 1911
20	38480	Falmouth	Documentary	WWII pillbox listed on the site
21	38481 54923	Falmouth Falmouth	Documentary Building	Modern road block Post-medieval railway bridge
22	38482	Falmouth, Carrick	Earthwork	Modern trackway
23	38483 38495	Falmouth Bickland Water	Documentary Building	WWII road block listed WWII barrage balloon mooring site visible on aerial photographs
24	38486	Falmouth	Building	Remains of WWII pillbox
25	38492 166989	Ponsharden Ponsharden	Building Scheduled monument	Modern pillbox Modern concrete air-raid shelter within Jewish and Congregationalist cemetery
26	38497	Falmouth	Documentary	Anti-aircraft battery on the site of the covered railway
27	38976	Ponsharden	Find spot	Post-medieval wrecks
28	40799	Falmouth	Documentary	Post-medieval ropewalk
29	40800	Falmouth and Penryn Waterworks	Cartographic	Building shown on 1 st edition OS map
30	40832	Penryn	Documentary	Post-medieval paper and bone mill
31	40843	Penryn	Cartographic	Post-medieval brewery on 1844 tithe map
32	54807	College Hill	Building	Post-medieval railway bridge
33	54922	Budock	Building	Post-medieval railway bridge
34	54928	Trescobeas Road	Building	Post-medieval railway bridge
35	55440	Falmouth	Building	Modern kitchen
36	55708	Lower Kergilliack	Cartographic	Clay pit marked on 1 st edition and modern OS maps
37	55709	Hillhead Farm	Cropmark	Medieval field system indicated by cropmarks
38	55712	Tregonigge	Cropmark	Medieval field boundary indicated by cropmarks
39	55717	Penryn, Carrick	Findspot	Post-medieval wreck
40	55720	Penryn	Documentary	Modern anti-aircraft battery
41	55721	Falmouth	Earthwork	Modern anti-aircraft battery
42	55722	Ponsharden	Cropmark	Medieval field boundary
43	55723	Falmouth, Carrick	Earthwork	Post-medieval cistern
44	55746	Falmouth	Aerial photo	WWII barrage balloon mooring site
45	55747	Falmouth	Aerial photo	WWII military camp and associated features
46	55748	Falmouth	Cropmark	Modern tank trap
47	55749	Falmouth	Cropmark	WWII tank trap shown on aerial photograph
48	57006	Penryn	Building	Post-medieval building

	Mon ID	Site Name	Record	Notes
49	124153	Penryn	Cartographic	Medieval field system
50	128845	Penryn	Building	Post-medieval china stone mill
51	139680	Falmouth	Aerial photo	Modern pillbox
52	168244	Falmouth	Building	Post-medieval workhouse
53	169404	Penryn	Findspot	Romano-British bronze fibula 1 st -2 nd century AD
54	177235	Penryn	Building	Post-medieval school built 1857
55	178604	Falmouth	Building	Modern school built in 1957
56	365808	Collegewood Viaduct	Listed building	Grade II listed railway viaduct and associated features. Built in 1863

2.4 WALKOVER SURVEY

A walkover survey was conducted across the site on the 6th of November 2015. A complete complement of supporting photographs can be found in Appendix 1.

The site contained a thick grass crop over 0.30m in height that obscured the surface of the ground. The ground sloped down gently from the south to the north and the slope became more moderately steep about half way across the field. The boundaries to the field were all stone-faced Cornish hedgebanks, c.1.75m high and c.2m wide with a variety of native deciduous trees and bushes along their length. The southern and western boundaries were well maintained; the ground dropped away down to Hillhead Road. The line of the northern and eastern boundaries was more irregular, and the banks themselves less well maintained than the others on the site. No visible traces of ditches were noted on the northern and eastern boundaries, but the ground sloped slightly down towards the banks.

Beyond the northern boundary of the site the ground appears to drop away into a wide ditch, albeit obscured by undergrowth. This substantial feature may denote the limit of the deer park noted in the 14th century immediately north of the site (MonID: 18661.13, see Figure 9 and Table 2 above).

2.5 AERIAL PHOTOGRAPHY AND LIDAR

A review of the readily-available aerial photography, and analysis of LiDAR data for the site, failed to identify any potential archaeological features.



FIGURE 10: IMAGE DERIVED FROM 50CM LIDAR DATA, SHOWING THE SITE. (PROCESSED USING QGIS VER2.18.2, TERRAIN ANALYSIS/SLOPE, VERTICAL EXAGGERATION 3.0). DATA: © ENVIRONMENT AGENCY COPYRIGHT AND DATABASE RIGHTS 2017; CONTAINS OS DATA © CROWN COPYRIGHT AND DATABASE RIGHTS 2017.

3.0 GRADIOMETER SURVEY

3.1 INTRODUCTION

The purpose of this survey is to identify and record magnetic anomalies. While the anomalies may relate to archaeological deposits and structures, the dimensions of recorded anomalies may not directly correspond with any associated archaeological feature. The following discussion attempts to clarify and characterise any identified anomalies. The survey took place over the 5th and 6th of November 2015 by SWARCH personnel under showery conditions. The site comprised one field, which had a thick grass crop c.300mm high.

3.2 METHODOLOGY

The gradiometer survey follows the guidance outlined in *Geophysical Survey in Archaeological Field Evaluation* (English Heritage 2008) and *Standard and Guidance for Archaeological Geophysical Survey* (ClfA 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. The data was downloaded onto *Grad601 Version 3.16* and processed using *TerraSurveyor Version 3.0.25.0*. The primary data plots and analytical tools used in this analysis were *Shade* and *Metadata*. The details of the data processing are as follows:

Processes: Clip +/- 3SD; DeStripe all traverses, median; DeStagger, offset in- and outbound by +2 to +3 intervals (all grids); Interpolate X and Y, double resolution.

Details: 0.93ha surveyed; Max. 173.89nT, Min. -196.87nT; Standard Deviation 17.20nT, mean -0.71nT, median -0.01nT.

3.3 RESULTS

Figures 10, 11 and 12 with the accompanying Table 3 show the analyses and interpretation of the geophysical survey data. Additional graphic images of the survey data can be seen in Appendix 1.

TABLE 3: INTERPRETATION OF GRADIOMETER SURVEY DATA.

Anomaly group	Class and Certainty	Form	Archaeological characterisation	Comments
1	Weak negative with associated positive, probable	Linear	Historic field boundary	This linear anomaly equates to a field boundary that is depicted on the 1840 Budock tithe map. By the 1888 OS mapping, the field boundary had been removed.
2	Strong negative with associated positives, probable	Linear	Field boundary	This linear anomaly has a moderate negative response (c.-20nT) flanked by positive linear anomalies that would represent ditches flanking stony bank material. This is on an earlier field alignment to that of Anomaly Group 1 and the existing field boundaries (which cut these anomalies), but do tie-in with a number of the curving field boundaries in the wider area that are likely to be medieval or earlier in origin.
3	Strong positive with associated negative, probable	Linear	Field boundary	This linear anomaly represents a bank and ditch boundary. Together with Anomaly Group 2 and 4, these probably represent two to three phases of field systems.
4	Weak positive, probable	Linear	Ditches/ land drains/ small field	These almost entirely positive anomalies (<20nT) are indicative of cut features that may have once denoted

LAND OFF KERGIILLACK ROAD, ST BUDOCK, CORNWALL

			boundaries	boundaries. They are generally aligned to Anomaly Groups 2, 3 and 6, and are probably associated with these.
5	Weak negative with associated negative, probable	Linear	Field boundary	This is a relatively weak diffuse anomaly (< +/- 5nT). It runs parallel with the extant and removed historic boundaries and has similar responses to Anomaly Group 1. It is most likely contemporary with this boundary (post-medieval) but was removed before 1840.
6	Strong positive, probable	Curving linear	Probable Romano-British/Iron Age 'round'	This is a double ditched sub-rectangular enclosure; a probable round. A slight gap in the responses in the inner linear response may indicated a drove-way function if it is not a 'round'. It is associated with two linear anomalies from Group 4 and internally contains Anomaly Group 7.
7	Weak positive, probable	Curving linear	Probable 'ring-ditch'	This appears to be a penannular ring-ditch with positive point response at one end, which may represent another feature such as a burnt pit (-23 to +50nT). This feature has been highlighted due to its location within the probable round. However it is common for the human eye to discern circular shapes from the magnetic debris/variation responses across the site and this may be particularly strong/clear example of this, hence being defined only as probable.
8	Very weak positive, probable	Curving linear	Probable 'ring-ditch'	These anomalies are particularly weak responses that may or may not equate to genuine features. The northern of these two anomalies contains two relatively strong responses (c.60nT) that may equate to thermoremnant material, perhaps indicating probable hearths.
9	Weak positive, probable	Oval	Probable 'sunken featured building'	These two areas of weak positive responses may equate to a spread or cut feature. They may be their own 'sunken features' or be associated with the adjacent Anomaly Group 8. There is a confluence of cut linear features in this area which may respect a contemporary or earlier feature or be obscuring and or overcomplicating the results.

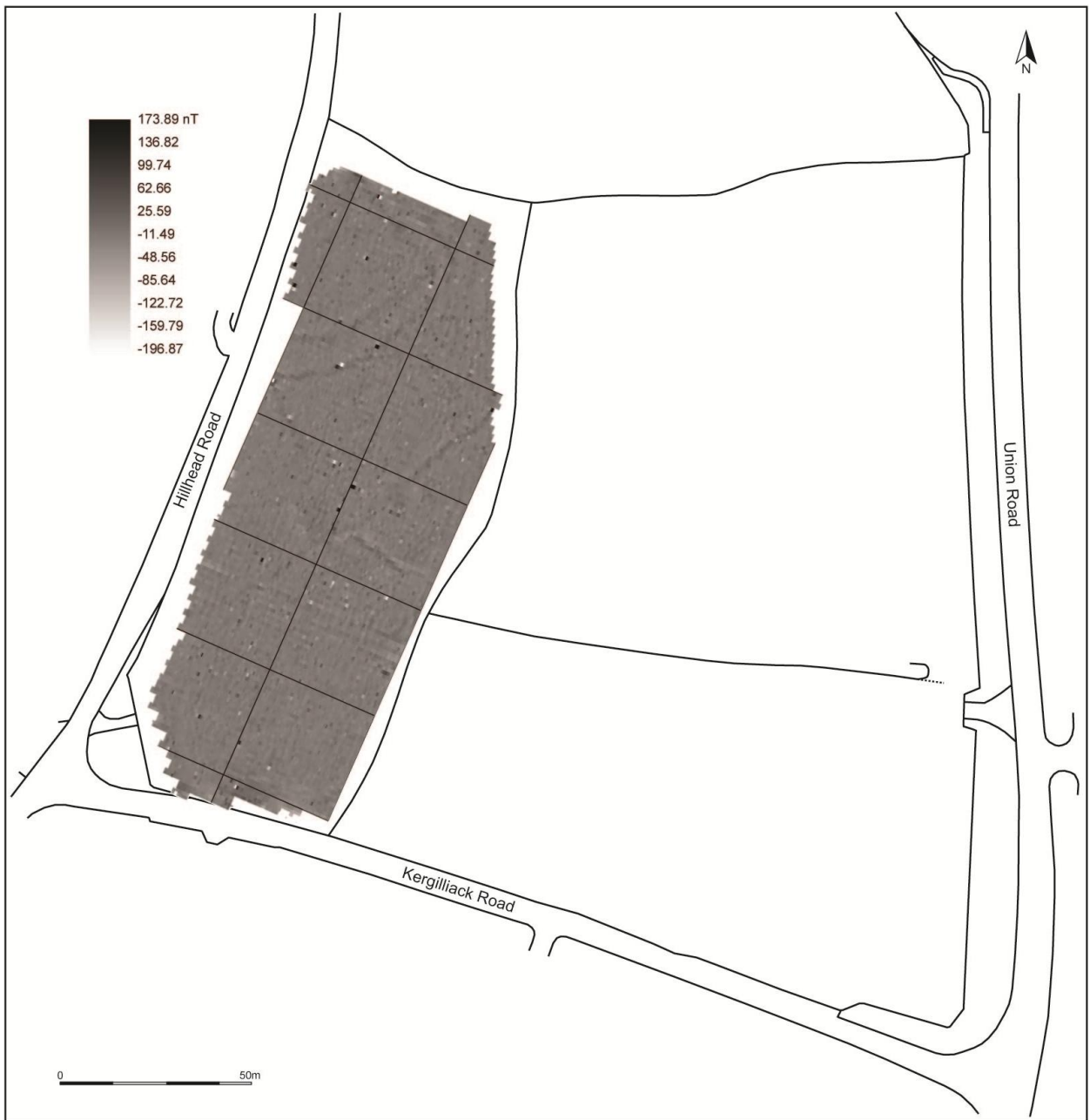


FIGURE 11: GREYSCALE SHADE PLOT OF THE GRADIOMETER SURVEY DATA, MINIMAL PROCESSING.

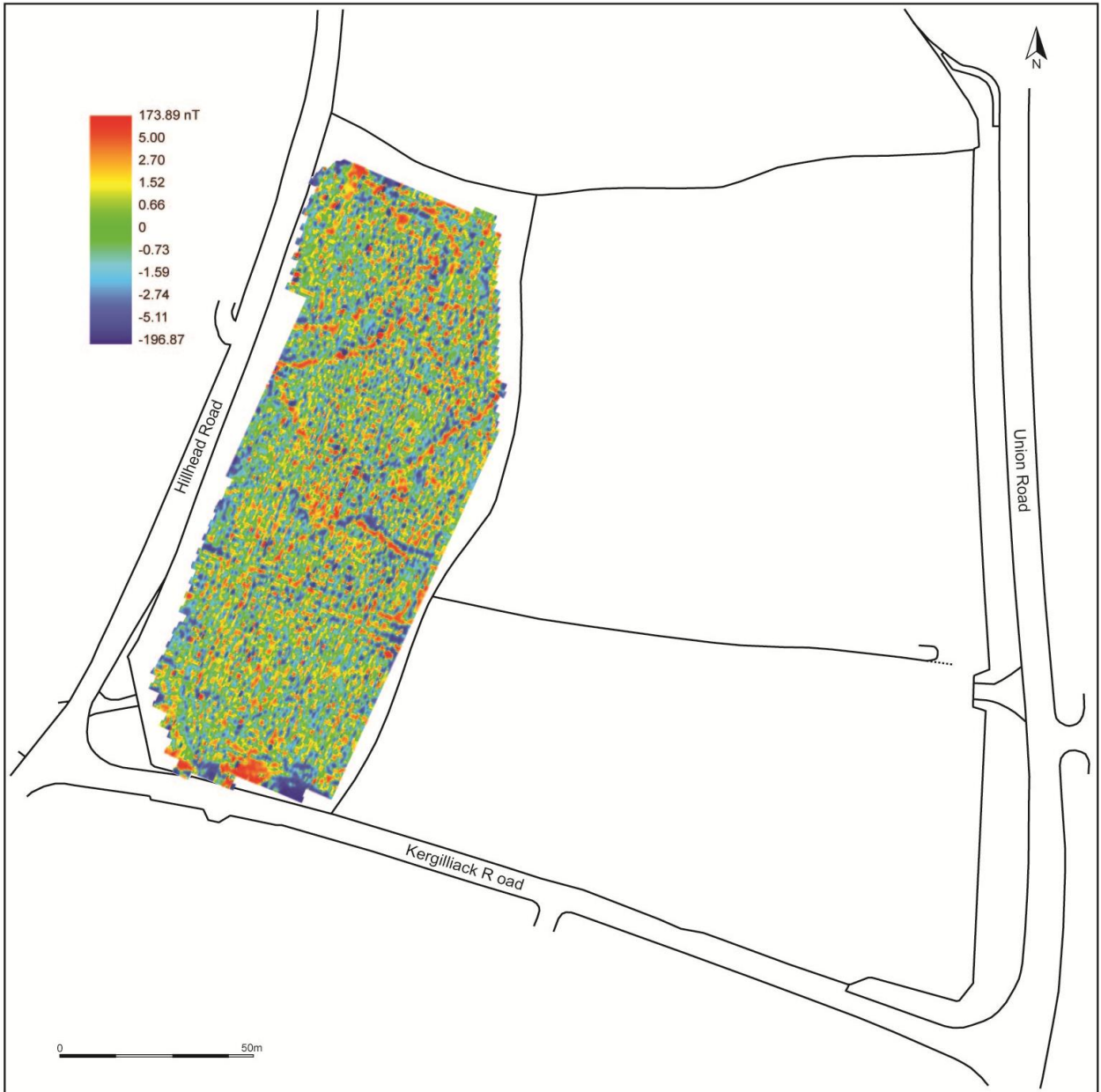


FIGURE 12: RED-BLUE-GREEN(2) SHADE PLOT OF GRADIOMETER SURVEY DATA.

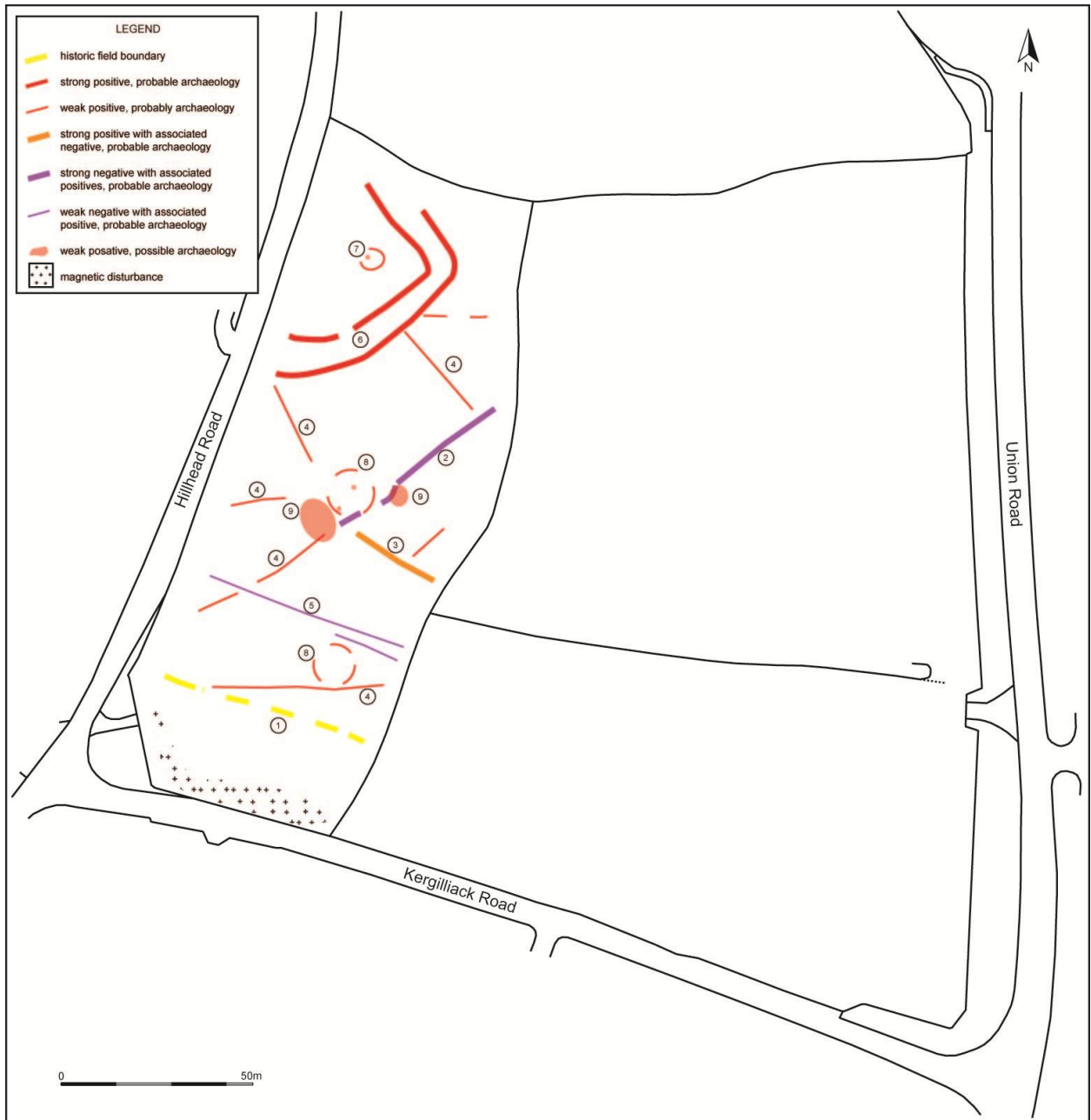


FIGURE 13: INTERPRETATION OF THE RESULTS OF THE GRADIOMETER SURVEY (DASHED LINES ARE PARTICULARLY WEAK RESPONSES).

3.4 DISCUSSION

The survey identified nine groups of anomalies: Groups 1 to 6 are of probable archaeological origin; Groups 7, 8 and 9 are of probable archaeological origin. Evidence of ploughing was also identified.

Anomaly Group 1 equates to a historic field boundary, which is shown on the 1840 Budock tithe map; by the 1888 Ordnance Survey 1st edition map this field boundary had been removed.

Group 2 equates to a linear anomaly with a moderate negative response (c.-20nT) flanked by positive linear anomalies, typical of Cornish hedgebanks with ditches flanking a probable stony bank. It is on a different alignment to Anomaly Group 1 and extant field boundaries in the area.

Group 3 is comprised of one linear anomaly representing a bank and ditch boundary. It runs parallel to the linear anomaly of Group 2.

Group 4 is comprised of approximately five almost entirely positive anomalies (<20nT) that are indicative of cut features such as drains but that may have once denoted boundaries. They are generally aligned with Anomaly Groups 2, 3 and 6 and probably associated with them. Between them, these anomaly groups probably represent two or three phases of medieval and or perhaps later Prehistoric field systems.

Group 5 is comprised of a relatively weak diffuse anomaly (< +/- 5nT). It runs parallel with the extant and removed historic boundaries and has similar responses to Anomaly Group 1. It is most likely contemporary with the post-medieval boundaries that were removed before 1840.

Group 6 represents a double ditched sub-rectangular enclosure, probably a late Prehistoric or Romano-British 'round'. It is associated with two linear anomalies from Group 4 and contains the probable feature of Anomaly Group 7. If it is not a round it may be associated with the medieval deerpark (MonID: 18661.13) recorded immediately north of the site. The deer park boundary may have incorporated part of the earthworks of this ancient enclosure.

Group 7 appears to represent a pen-annular ring-ditch with a positive point response at one end, perhaps another feature such as a burnt pit (-23 to +50nT). This feature has been highlighted due to its location within the probable round; however, the identification must remain necessarily tentative.

Group 8 is comprised of two particularly weak responses that may or may not equate to genuine features. The northern of these two anomalies contains two relatively strong responses (c.60nT) that may equate to thermoremnant material.

Group 9 is comprised of two areas of weak positive responses that may equate to a spread or cut feature. They may be their own sunken features, or be associated with the adjacent Anomaly Group 8. There is a confluence of cut linear features in this area that may respect a contemporary or earlier feature, or be obscuring or overcomplicating the results. The non-linear responses in this area may simply be natural weak magnetic variation.

The weak nature of some of the more recent-looking anomalies may reflect the comparative longevity of some of the potential features, and in many cases the probable degree of survival (i.e. due to truncation through ploughing). Plough damage may be more severe across the upper part of the field.

4.0 CONCLUSION

The desk-based assessment indicates that there are a variety of heritage assets in the immediate landscape; including a multi-phased late Prehistoric or medieval fieldsystem identified by a geophysical survey carried out in the field immediately to the east. The desk-based study has demonstrated that 19th century fieldsystem has been subject to some modification, and that the site is bounded on its northern side by a medieval deerpark. The walkover survey identified a substantial ditched boundary on this side of the site, which supports this interpretation.

The geophysical survey indicates that there is a high density of anomalies of probable archaeological origin within the area of the survey, including part of a sub-rectangular double-ditched enclosure (round) of probable late Prehistoric and/or Romano-British date. This is one of a large number of such settlements across Cornwall, although there are few known examples within the immediate vicinity due to the growth of Falmouth. The geophysical survey results also indicate a number of other, probable, anomalies that may be associated with settlement activity within and outside the enclosure. The results of the geophysical survey would suggest that there are archaeological features or deposits within the site which merit further investigation.

Any future development of this site is likely to damage or destroy these archaeological features or deposits. It is recommended that any future development be preceded or accompanied by a suitable programme of staged archaeological mitigation, to include evaluation trenching, and a subsequent strip, map and sample excavation prior to any proposed development.

5.0 BIBLIOGRAPHY

Published Sources:

Chartered Institute for Archaeologists 2014a: *Standard and Guidance for Historic Environment Desk-based Assessment*.

Chartered Institute for Archaeologists 2014b: *Standard and Guidance for Archaeological Geophysical Survey*.

English Heritage 2008: *Geophysical Survey in Archaeological Field Evaluation*.

Schmidt, A. 2002: *Geophysical Data in Archaeology: A Guide to Good Practice*. ADS series of Guides to Good Practice. Oxbow Books, Oxford.

Soil Survey of England and Wales 1983: *Legend for the 1:250,000 Soil Map of England and Wales (a brief explanation of the constituent soil associations)*.

Watts, V. 2004: *The Cambridge Dictionary of English Place-Names*. Cambridge University Press, Cambridge.

Unpublished Sources:

Bampton, J. 2015: *Land at Union Corner, Falmouth, Cornwall: Results of a Desk-Based Assessment and Archaeological Gradiometer Survey*. Swarch report no. 151123.

Websites:

British Geological Survey 2015: *Geology of Britain Viewer*.
<http://www.bgs.ac.uk> [accessed 10.11.2015]

Cornwall Council Interactive Map 2017: *HER and HLC*.
<https://map.cornwall.gov.uk> [accessed 24.01.2017]

Heritage Gateway 2017: *Cornwall and Scilly HER*
<http://www.heritagegateway.org.uk> [accessed 24.01.2017]

Cornwall Record Office:

Budock tithe map 1843

Budock tithe apportionment 1843

APPENDIX 1: WALKOVER SURVEY PHOTOGRAPHS



View from the south-west corner; looking east (no scale).



View from the south-west corner; looking north (2m scale).



View from the south-west corner; looking north-east (no scale).



View from the north-east corner; looking west (no scale).



View from the north-east corner; looking south-west (no scale).



View from the north-east corner; looking south (no scale).



Eastern boundary from above; looking north (2m scale).



View from south-east corner; looking west (no scale).



View from south-east corner; looking north-west (no scale).



View from south-east corner; looking north (2m scale).



The Old Dairy
Hacche Lane Business Park
Pathfields Business Park
South Molton
Devon
EX36 3LH

Tel: 01769 573555
Email: mail@swarch.net