

LAND OFF MORWENNA ROAD SHOP MORWENSTOW CORNWALL

Results of a Geophysical Survey



South West Archaeology Ltd. report no. 160831



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Land off Morwenna Road, Shop, Morwenstow, Cornwall Results of a Geophysical Survey

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Work undertaken by SWARCH for
Barry Tape of BkT Architecture

SUMMARY

South West Archaeology Ltd. (SWARCH) was commissioned to undertake a geophysical survey on land off Morwenna Road, Shop, Morwenstow, Cornwall, in advance of the application for planning for the residential development of the site and for related off site analysis and reporting.

The site is located across two fields on the north side of Shop, off of Morwenna Road and adjacent to West Beacon Close. As a relatively modern hamlet it is probable that activity on the site is associated with agricultural activity. However, the HER indicates some small settlements and likely activity in the area from the early medieval and medieval periods. A flint scatter on the HER in fields within 500m to the north-east of the site and with other more distant prehistoric features indicates some potential for prehistoric finds, features and deposits in the area.

The geophysical survey identified nine groups of historic and undated features across the site including possible pits, potentially medieval boundaries and agricultural features such as plough-scars and drains associated with agricultural activity from the medieval to modern periods. Given the nature of the surrounding landscape it is probable that drainage was and is vital to the use of the land on the site and the majority of the features will be associated with that; either as field drains or having once been open drains.

Given the results of this assessment it would appear that any development of the site is unlikely to disturb any significant archaeological deposits.



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1.0 INTRODUCTION

Location: Morwenna Road, Shop
Parish: Morwenstow
County: Cornwall
NGR: Centred on SS 22716 15034
SWARCH ref: MWB16

1.1 PROJECT BACKGROUND

South West Archaeology Ltd. (SWARCH) was commissioned by Barry Tape of BkT Architecture to undertake a geophysical survey on land off Morwenna Road, Shop, Morwenstow, Cornwall, in advance of an application for planning for the residential development of the site and for related off site analysis and reporting. This work was carried out in accordance with best practice and ClfA guidelines.

1.2 TOPOGRAPHICAL AND GEOLOGICAL BACKGROUND

Shop is in the parish of Morwenstow off of the A39, c.2km east of Morwenstow and c.3km east of the coast and c.8.4km north of Bude. It is in a hilly area of coombes, valleys and ridges associated with watercourses running to the sea to the west and inland to more major rivers to the east, such as the Tamar, which begins in this parish. Shop and the site sit on the western end of a relatively flat plateau/ridge that falls away gently to the west, beyond the site and rises gently to the east, with higher ground beyond a gentle valley to the north and a steep valley to its south. This topography puts it on the primary route way inland from Morwenstow. The number of springs and wet ground in the area and undulating topography account for rough grazing and wetland/marshier areas in the landscape as well as the predominantly pastoral landscape. The site is at a height of between c.180m and c.190m AOD.

The site lies on the border of two soil associations in the area; the well drained fine loamy soils often over rock of the Neath association; and the slowly permeable seasonally waterlogged clayey, fine loamy and fine silty soils of the Hallsworth 2 association (SSEW 1983). These soils overlie sandstone of the Bude Formation, which contains occasional seams orientated approximately east-west of mudstone and siltstone (BGS 2016).

1.3 HISTORICAL BACKGROUND

Shop is a relatively modern hamlet in the parish of Morwenstow. Morwenstow is located in the hundred of Stratton and the deanery of Trigg-Major (Lysons 1814). Shop is not listed as a principle village or hamlet in the parish in Lysons (1814) or later in Wilson (1870-72). A house is denoted at Shop on the 1840 Tithe map and a settlement has emerged at Shop by the time of the Ordnance Survey (OS) 1st edition, published 1885 and it has grown slightly since then. Between 1851 and 1861 the population of the parish fell from 1,094 to 868, predominantly due to emigration (Wilson 1870-71) and the 1881 census puts the population at 810. Kilkhampton, 4km to the south-east is the nearest domesday manor to the site; a royal manor with 78 occupants and worth £18 in 1086. The site may have been within the lands of this manor. Cartographic sources associated with the site can be seen in Appendix 1.

Morwenstow, first mentioned in 1201 (*Morwestowa*), means 'St Morwenna's holy place' from the saint's name from the dedication of the church and the Old English *stōw*. In the 15th century the saint was believed to be buried at Morwenstow (Watts 2004). Shop is first denoted on the Morwenstow tithe map of 1840 and the name probably originally refers to a workshop or smithy located at a convenient road junction.

1.4 ARCHAEOLOGICAL BACKGROUND

THE site is located within an area characterised as Medieval farmland by the Cornwall Council Historic Landscape Characterisation (HLC) - *'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.* Within close vicinity to the site are also occasional pockets of post-medieval enclosed land enclosed from former common ground and upland rough grazing ground.

The Cornwall Historic Environment Record (HER) lists three prehistoric assets within 1km of the site: a widespread flint scatter of 15 flakes (HER No.36) within 500m north-east of the site; to the north, the cropmark of a possible Iron Age to Romano-British 'round' (HER No.70623); to the west the earthwork of a possible Iron Age enclosure (HER No.29) with at least two banks and a ditch. Further afield are prehistoric assets including; Bronze Age barrows to the south-west (HER No.170364), a barrow cemetery to the east at Bottaborough (including HER No.70670) and various findspots and possible cropmarks of 'rounds'. The cropmarks of Early Medieval field-systems have also been identified within 1km of the site to the east and west (HER No.70605 and 70629). Medieval assets recorded within 1km of the site include; settlements at Little Brayton, 1284, Beccaton, 1429, Brown Spit, 1520, Ruxmoor, 1302 and Dene, 1327 (HER No. 41, 18, 39, 4489 and 4469 respectively). The cropmark of a medieval field boundary has also been identified at Beacon Down (HER No.70562). Within Shop itself Medieval aspects include the chapel from c.1400 (HER No.4527), although Chapel House that now stands in its location is 18th century in date and Grade II Listed along with some outbuildings (List Entry No.1141782); a settlement at *Furze*, 1313 (HER No.4502) where current 17th century *Furze* farmhouse is Grade II Listed (List Entry No.1328569); and the fields including the site described as 'Beacon Close' on the 1840 tithe apportionment (HER No.170373), which given the wide views from the site may indicate the location of a beacon.

Post-medieval assets within 1km of the site include; structures listed on the 1840 tithe apportionment and 19th century structures such as a school, a malthouse and yard and, the Blacksmiths Workshop from which the hamlet takes its name as it is labelled on the tithe map as *Shop* and then on the 2nd edition OS map as *Smithy* (HER No.4501); cropmarks of a field-system and possible ornamental tree planting; and documentary evidence (tithe map and apportionment records and late 19th century mapping) for deserted settlements at *East Dene* and *Little Dene* (HER No.4509 and 4510 respectively). Three 18th-19th century cottages in Shop are also Grade II Listed (List Entry No.1141783) as are a 19th century stables and a barn to the north of Chapel Farm House (List Entry No.1277507). No archaeological field work has been undertaken on the site prior to this survey, however a watching brief has been conducted at Chapel Park, in the south-west of Shop (HER Reference: ECO1710; HES report reference: ER665).

1.5 METHODOLOGY

The background research and desk-based assessment aspect of this report follows the guidance as outlined in: *Standard and Guidance for Archaeological Desk-Based Assessment* (ClfA 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).

'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 leading to the formulation of a strategy to mitigate a threat to the archaeological resource.

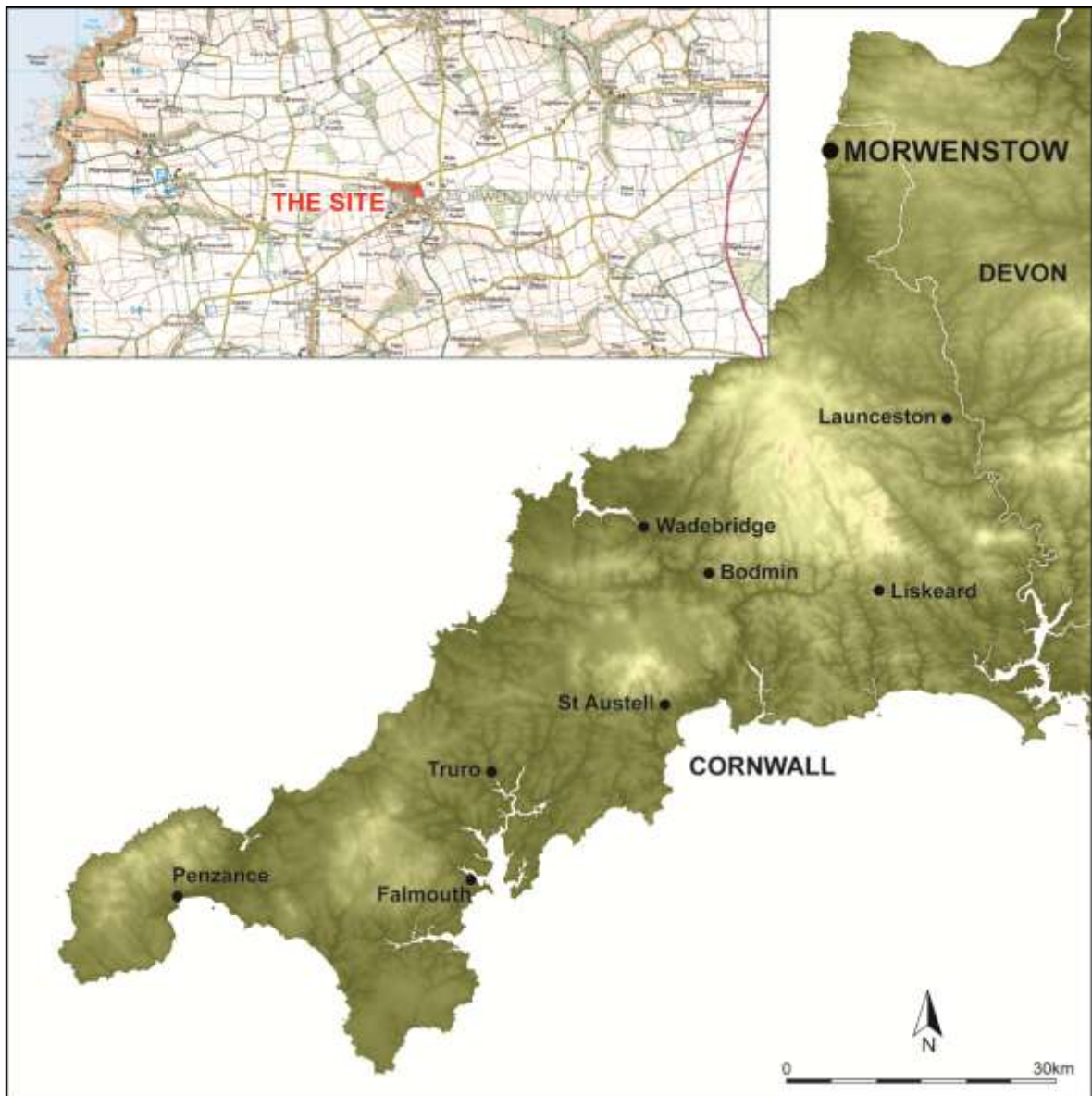


Figure 1: Site location (the site is indicated).

2.0 GRADIOMETER SURVEY

2.1 INTRODUCTION

The purpose of this survey was to identify and record magnetic anomalies within the proposed site. While the anomalies may relate to archaeological deposits and structures, the dimensions of recorded anomalies may not directly correspond with any associated archaeological features. The following discussion attempts to clarify and characterise identified anomalies. The survey was undertaken on the 19th August 2016 by J. Bampton in sunny and showery conditions. The survey data was processed by J. Bampton. An area of approximately 1.14ha was surveyed.

The survey identified nine groups of anomalies, which include an historic field boundary; other medieval or post-medieval field boundaries; possible ditches associated with drainage, ploughing activity and or geological variation, possible pits or tree-throws. Instances of probable ferrous objects or fragments across the site and areas of modern disturbance and deposits along the edges of the site were also identified. These include a possible substantial drain or soak-away associated with a pond, identifiable on historic mapping, in the eastern field.

2.2 SITE INSPECTION

The site was comprised of two fields under pasture with relatively short grass. The fields were bounded by overgrown Cornish hedgebanks with a wire and post fence line. A modern housing development had been built between the two fields. The western of the two fields was roughly triangular in shape and relatively flat with a modern hedge line boundary separating a house from its western end. A number of vehicle tracks had left scars across this field. The eastern field was roughly rectangular and undulated unevenly. It contained large areas of maram-type grass indicating a relatively marshy wetland across the low parts of the field and had modern fence lines at its southern and western ends. Its topography is indicative of rough grazing modified by standing and possibly running water in ancient times. A compliment of supporting photographs of the site can be seen in Appendix 2.

2.3 METHODOLOGY

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

Details: 1.1402ha surveyed; Max. 103.90nT, Min. -114.12nT; Standard Deviation 7.72nT, mean 0.41nT, median 0.00nT.

2.4 RESULTS

Table 1 with the accompanying Figures 2 and 3 show the analyses and interpretation of the geophysical survey data. Additional graphic images of the survey data and numbered grid locations can be found in Appendix 3.

Anomaly group	Class and Certainty	Form	Archaeological Characterisation	Comments
1	Moderate positive with associated negative, probable	Linear	Historic field boundary	Boundary visible on 1885 and 1906 OS mapping and removed sometime after 1963. Responses of +17nT and -5nT.
2	Weak positive, probable	Linear	Parallel ditches of a Cornish hedgebank	Parallel ditches may be the remnant of a removed Cornish hedgebank. Possibly a settlement boundary prior to the road to the north being built or a division associated with the c.1805 OS draft and Group 5. Response of c.+8nT.
3	Moderate positive, probable	Linear	Ditches (possibly drainage)	Probable ditches associated with drainage. Those in the eastern field probably fed a pond identifiable on historic maps. Response of <c.+20nT.
4	Moderate positive, probable	Linear	Ditches associated with Group 3	Ditches parallel to adjacent Group 3 anomaly, perhaps feeding drains/ditches in the removed historic field boundary Group 1. Response obscured by disturbed ground, probably associated with the removal of the historic field boundary. Response of <20nT.
5	Moderate negative with associated positive, probable	Linear	Cornish hedgebank	Possible field boundary associated with extant medieval and post-medieval enclosure including divisions on the c.1805 OS draft. Perhaps included substantial drainage to feed a pond that would have existed later at its western end. Response of -15nT and +20nT.
6	Weak positive and negative, possible	Linear	Drainage (or ploughing or geological)	Disturbed ground in a criss-cross of linear responses. Possible drainage associated with the wetland common in the area and feeding small ponds identifiable on historic mapping. Possibly associated with adjacent Group 3 anomalies or earlier field divisions. Response of c.+10nT to +20nT and <-10nT.
7	Moderate positive, possible	Ovoid	Pits/tree-throws	Relatively small positive response indicative of in-filled cut features. Responses of between +16nT to +25nT.
8	Weak negative and positive, possible	Linear	Plough scars	Linear anomalies running parallel to historic and existing plots to the rear of properties on Morwenna Road and within the limits of the removed historic field boundary represented by Group 1. Responses within the limits of natural variation; <+2nT to -2nT.
9	Weak positive, possible	Linear	Ploughing activity	Broad, ephemeral readings probably associated with medieval ploughing activity. Similar to clearer curving anomalies visible on LiDAR imagery that presumably follow the earliest probable field boundaries in the extant landscape and possibly aided drainage. Response of <c.+5nT.

TABLE 1: INTERPRETATION OF GRADIOMETER SURVEY DATA.

Land off Morwenna Road, Shop, Morwenstow, Cornwall

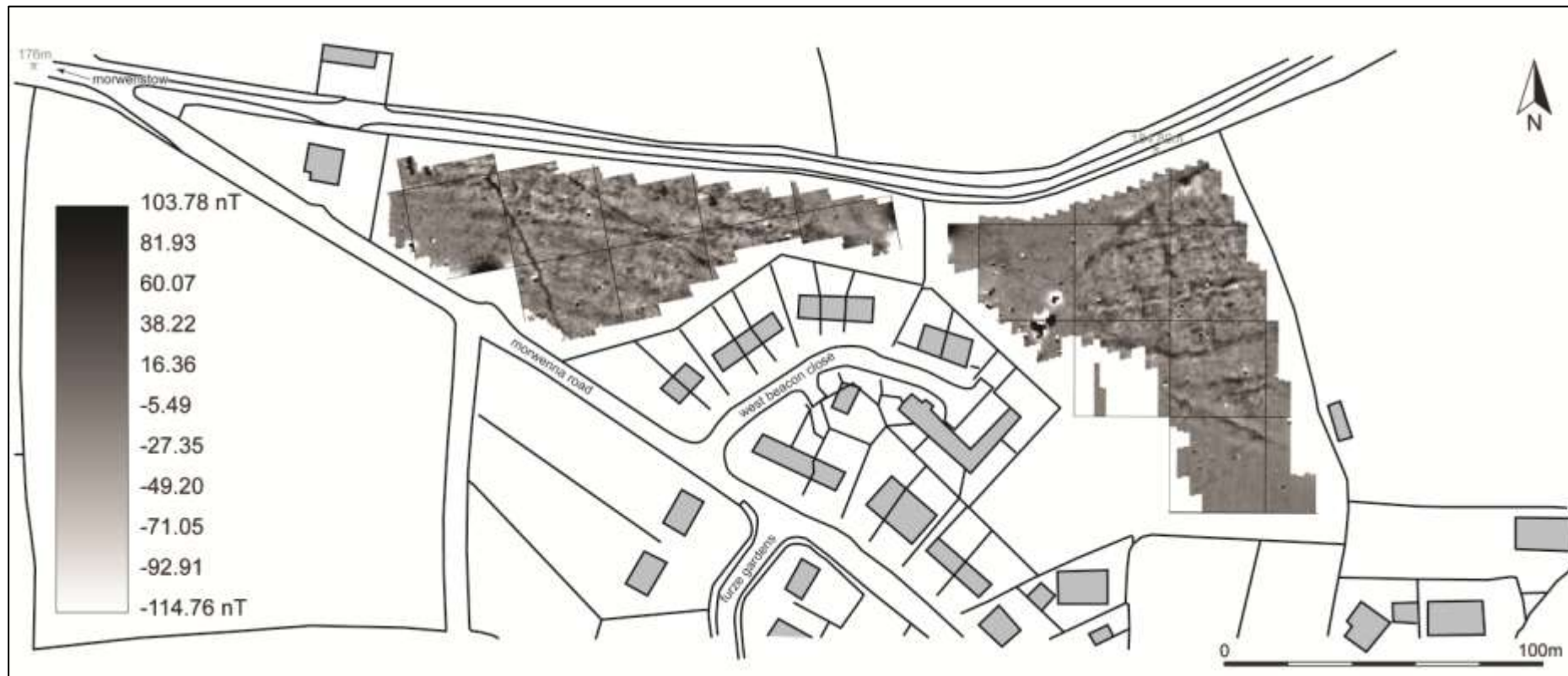


FIGURE 2: SHADE PLOT OF GRADIOMETER SURVEY DATA; MINIMAL PROCESSING.

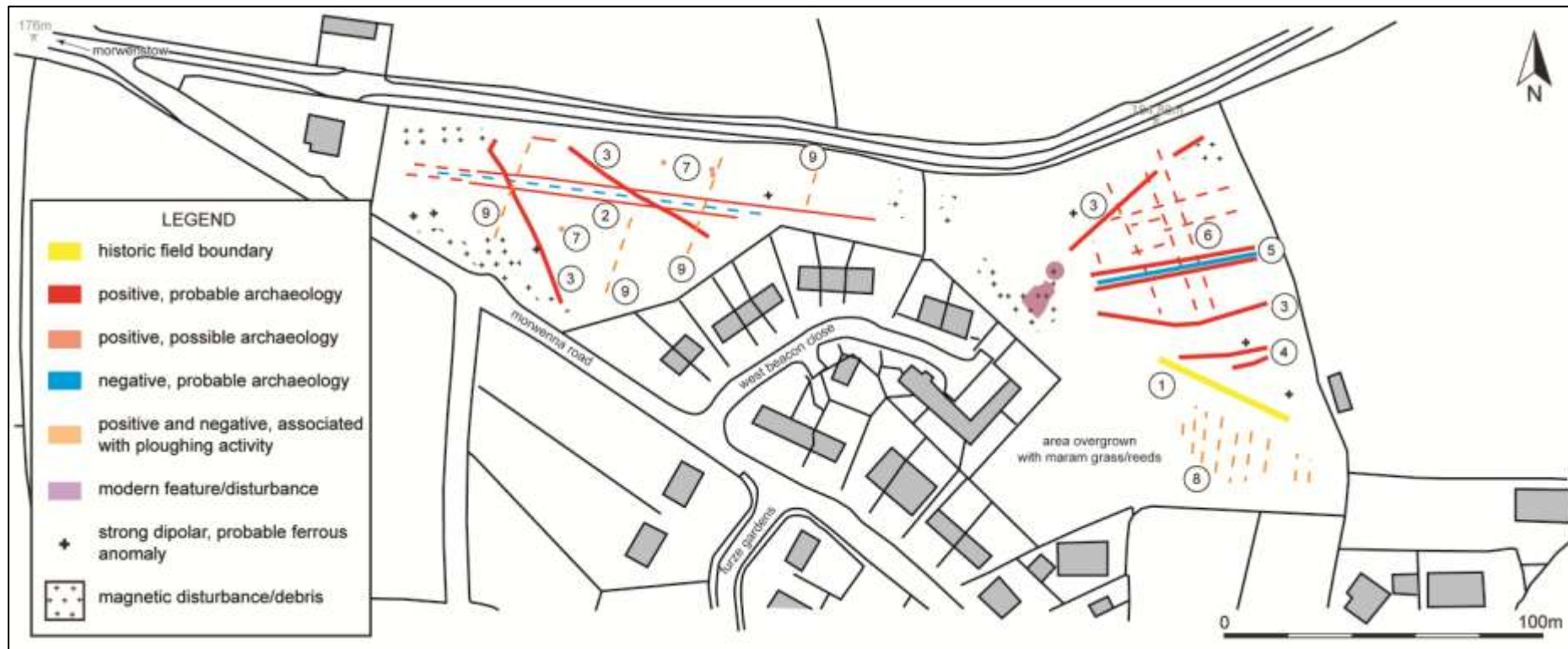


FIGURE 3: INTERPRETATION OF GRADIOMETER SURVEY DATA.

2.5 DISCUSSION

The survey identified nine groups of anomalies totalling 35 possible archaeological or natural features.

Group 1 was a moderate linear positive response with an associated negative response (c.+17nT and c.-5nT) aligned north-west by south-east. It was associated with a historic boundary present on the 1885 and 1906 Ordnance survey mapping and removed sometime after 1963.

Group 2 was a pair of weak linear positive responses (c.+8nT) aligned approximately east-west. It was indicative of the parallel ditches that would flank a Cornish hedgebank, although in this instance the bank material does not appear to create a definitive response and has probably been severely or fully truncated. It may indicate the boundary of the settlement and rough grazing to the north prior to the construction of the road that runs along the northern boundary of the site. If so it could be medieval or earlier as the probable medieval or later ploughing activity indicated by anomaly Group 9 runs across it and respects the road to the north, so may account for the truncation of Group 2. Alternatively it may perhaps represent a division of the fields indicated on the c.1805 Surveyor's Draft map, which depicts the site as four fields and with the western boundary as being more north-south orientated, which may account for the lack of this anomalies survival at its western end. It is also possible that this anomaly simply defines a track rather than hedge.

Group 3 was four moderate linear positive responses (<+20nT) indicative of ditches probably associated with drainage. Those examples in the eastern field probably fed a pond identifiable on historic mapping and now utilized by a modern drain or soak-away. The examples in the western field may indicate an earlier enclosure due to their unique alignment in the landscape, but more likely represent modern drainage associated with the roads and modern housing development bordering the site.

Group 4 was a pair of moderate linear positive responses (<+20nT) that ran parallel with an example of Group 3 and is probably an equivalent to it. If associated with drainage it perhaps fed drainage along the removed field boundary (Group 1) that in turn fed into the historic pond, now drain in the eastern field. Group 4 is partially obscured by variation associated with Group 1.

Group 5 was a moderate linear negative response (-15nT) with flanking linear positive responses (+20nT) aligned approximately east-west. It was indicative of a Cornish hedgebank associated with the medieval and post-medieval field-systems. It may be associated with a field division depicted on the c.1805 Surveyor's Draft map and perhaps included drainage to feed the pond shown on historic mapping, located at what would have been its western end.

Group 6 was a series of weak linear positive and negative responses (c.+10nT to c.-10nT) aligned parallel and perpendicular to Group 5. It was indicative of disturbed ground that may indicate a criss-cross pattern of drainage activity or ploughing associated with Groups 3, 4 and 5. Or perhaps it may represent unusual geological variation associated with the wetland common in the surrounding landscape.

Group 7 consisted of four moderate ovoid shaped positive responses (+16nT to +25nT) in the western field indicative of either pits or tree-throws. The relatively strong responses of the examples in the north of the field may indicate a modern explanation or substantial depth; geotechnical pits had been excavated in the eastern field prior to the geophysical survey and it is possible that these were missed in the western field if conducted long enough ago to have settled and grown over.

Group 8 was of approximately nine weak negative and positive linear responses ($<+2nT$ and $-2nT$) aligned approximately north-south. It is indicative of ploughing associated with the field defined on historic mapping to the rear of properties along Morwenna Road and by the removed historic field boundary (Group 1) and runs parallel to the existing property boundaries to the rear of the properties today.

Group 9 was a weak positive linear response ($<+5nT$) aligned approximately north-east by south-west. It was indicative of ditches or ploughing associated with medieval or later agricultural activity, which can be seen in LiDAR imagery to follow the curving boundaries extant in the wider landscape. Group 9 seems to respect the road along the northern boundary of the site and cut across Group 2. Therefore, if Group 2 represents a boundary, it either pre-dates these potential features or defined a very narrow field to its north. It is possible that these weak anomalies indicate natural variation.

3.0 CONCLUSION

The results of the geophysical survey would suggest that there are a number of undated features across the site including pits or natural hollows (e.g. tree-throws) potentially medieval boundaries and agricultural features such as ploughing and drainage associated with medieval to modern periods. Given the nature of the surrounding landscape it is probable that drainage was and is vital to the use of the land on the site and the majority of the features will be associated with that; either as field drains or having once been open drains.

The Cornwall HER indicates settlement and likely activity in the area from the early medieval and through medieval periods and through the 19th century. A flint scatter on the HER in fields within 500m to the north-east of the site with wider potential prehistoric features also indicates a potential for prehistoric finds, features and deposits.

Despite the desk based review suggesting some potential for archaeological features and deposits the results of the geophysical survey suggest that any development of the site would be unlikely to disturb any significant archaeological deposits.

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APPENDIX 1: SUPPORTING CARTOGRAPHIC SOURCES AND LIDAR IMAGERY

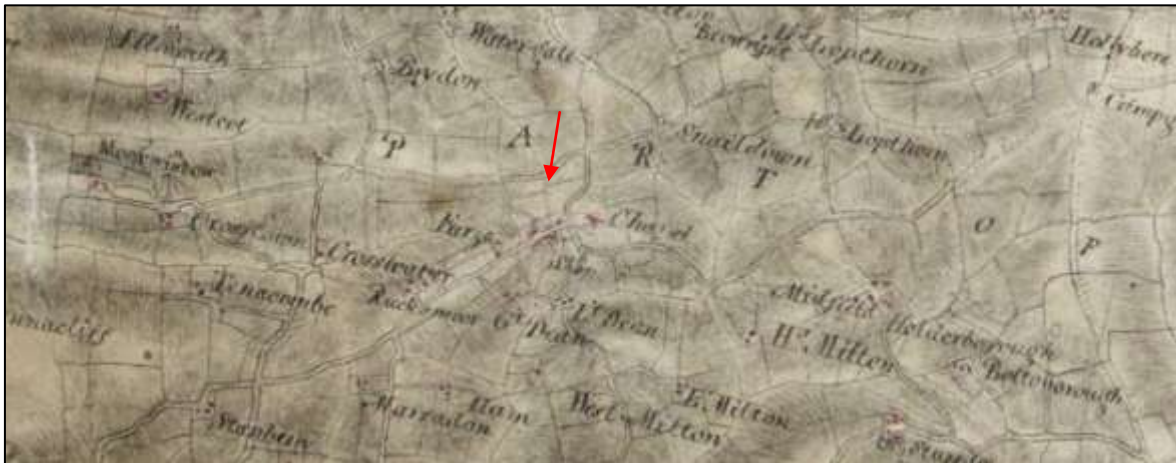


Figure 4: Extract from the Surveyor's Draft map for Hartland, c.1805 (BL); the site is outlined indicated.

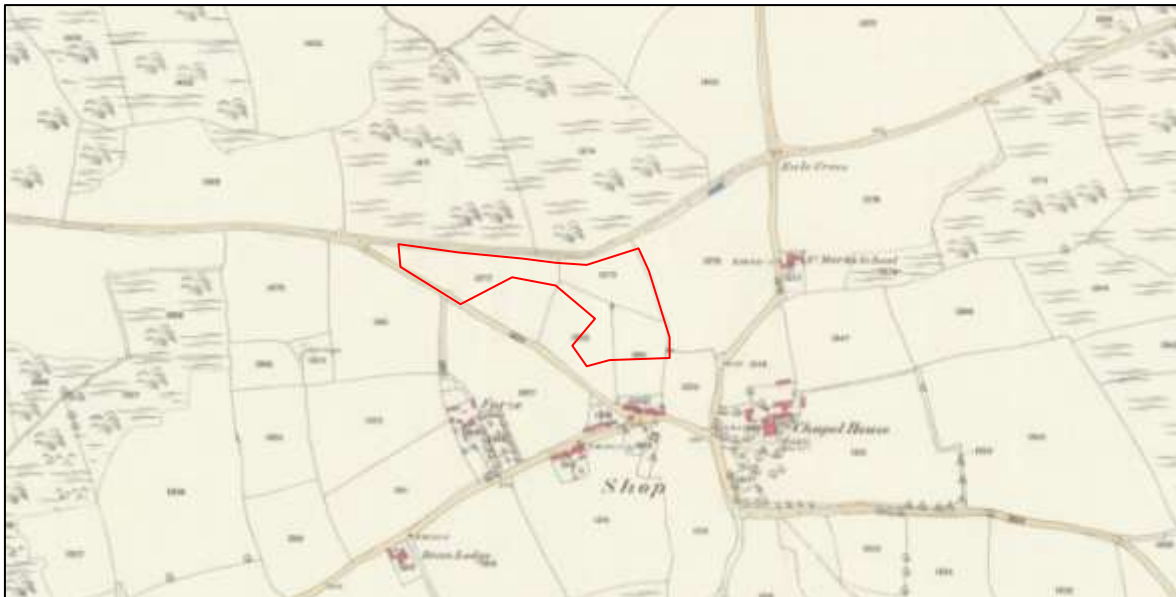


Figure 5: Extract from the Ordnance Survey 1st edition, 25 inch series, Surveyed 1884, Published 1886 (CRO); the approximate location of the site is outlined in red.



Figure 6: Extract from the Ordnance Survey 2nd edition, 25 inch series, Surveyed 1905, Published 1906 (CRO); the approximate location of the site is outlined in red.



Figure 7: Detailed topographical image based on LiDAR data. This is a QGIS-generated image (terrain analysis>slope) of TELLUS LiDAR survey data [contains freely available LIDAR data supplied by Natural Environment Research Council (Centre for Ecology & Hydrology; British Antarctic Survey; British Geological Survey); ©NERC (Centre for Ecology & Hydrology; British Antarctic Survey; British Geological Survey)]; the site is outlined in red.

APPENDIX 2: SUPPORTING PHOTOGRAPHS: SITE INSPECTION



FIGURE 8: WESTERN FIELD, FROM THE ROADSIDE ENTRANCE; LOOKING WEST (NO SCALE).



FIGURE 9: WESTERN FIELD, FROM THE ROADSIDE ENTRANCE, SHOWING WHEEL RUTS; LOOKING NORTH-EAST (NO SCALE).



FIGURE 10: ROADSIDE ENTRANCE TO THE WESTERN FIELD; LOOKING EAST (NO SCALE).



FIGURE 11: EASTERN FIELD SHOWING THE ROUGH GRAZING AND WEST BEACON CLOSE; LOOKING SOUTH (NO SCALE).



FIGURE 12: EASTERN FIELD SHOWING AREA OF ROUGH GRAZING; LOOKING SOUTH-EAST (NO SCALE).



FIGURE 13: EASTERN FIELD, SHOWING SLIGHT UNDULATING SLOPE AND WHEEL RUTS; LOOKING EAST (NO SCALE).

APPENDIX 3: ADDITIONAL GRAPHICAL IMAGES OF THE GRADIOMETER SURVEY



FIGURE 14: GEOPHYSICAL SURVEY GRID LOCATION, LAYOUT AND NUMBERING.

Land off Morwenna Road, Shop, Morwenstow, Cornwall



FIGURE 15: RED-GREY-BLUE SHADE PLOT OF GRADIOMETER SURVEY DATA: GRADIATED SHADING; BAND WEIGHT EQUALISED.



FIGURE 16: RED-BLUE-GREY (2) SHADE PLOT OF GRADIOMETER SURVEY DATA: GRADIATED SHADING; BAND WEIGHT EQUALISED.

Land off Morwenna Road, Shop, Morwenstow, Cornwall



FIGURE 17: RED-BLUE-GREY (1) SHADE PLOT OF GRADIOMETER SURVEY DATA: GRADIATED SHADING.



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

Tel: 01769 573555
Email: mail@swarch.net