



Trethosa Solar Farm, St. Stephen in Brannel, Cornwall Archaeological Watching Brief



Trethosa Solar Farm, St. Stephen-in-Brannel, Cornwall

Archaeological Watching Brief

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This study was commissioned by Simon McCarthy on behalf of Wirsol Energy Ltd and carried out by Cornwall Archaeological Unit, Cornwall Council.

The Project Manager was Adam Sharpe and the fieldwork and report was undertaken by Hayley Goacher.

The views and recommendations expressed in this report are those of Cornwall Archaeological Unit and are presented in good faith on the basis of professional judgement and on information currently available.

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Cover illustration

An excavated cable trench in Field 1 with Melbur china clay pit dominating the landscape north of the site.

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Contents

| | | |
|-----------|--|-----------|
| 1 | Summary | 1 |
| 2 | Introduction | 3 |
| 2.1 | Project background | 3 |
| 2.2 | Aims | 4 |
| 2.3 | Methods | 4 |
| 2.3.1 | Desk-based assessment | 4 |
| 2.3.2 | Fieldwork | 5 |
| 2.3.3 | Post-fieldwork | 5 |
| 3 | Location and setting | 6 |
| 4 | Designations | 6 |
| 4.1 | National | 6 |
| 4.2 | Regional/county | 6 |
| 4.3 | Local | 6 |
| 5 | Site history | 6 |
| 6 | Archaeological results | 7 |
| 6.1 | Field 1 | 8 |
| 6.2 | Field 2 | 8 |
| 6.3 | Field 3 | 9 |
| 6.4 | Field 4 | 9 |
| 7 | Discussion | 10 |
| 8 | Significance | 11 |
| 9 | Conclusions | 11 |
| 10 | Recommendations | 12 |
| 11 | References | 13 |
| 11.1 | Primary sources | 13 |
| 11.2 | Publications | 13 |
| 11.3 | Websites | 13 |
| 12 | Project archive | 13 |
| | Appendix 1: Written Scheme of Investigation | 27 |
| | Appendix 2: Table of contexts | 38 |

List of Figures

| | |
|--|----|
| Figure 1 Location map of Trethosa in relation to St Austell, central Cornwall. | 2 |
| Figure 2 Trethosa Solar Farm site extent and map of the vicinity. | 2 |
| Figure 3 The 1839 Tithe Map for the parish of St Stephen in Brannel. Note the small fields and occasional sinuous boundaries of fossilised medieval strip fields to the northeast and south. | 14 |
| Figure 4 The OS 1932 map showing fewer field boundaries within the site and the beginning of the expansion of china clay extraction to the north. Note the pipeline on pylons in the southwestern corner of the site. | 14 |
| Figure 5 The solar farm site showing the geophysical survey results with the red lines concentrated in the north of the site representing features of probable late prehistoric date. | 15 |
| Figure 6 The solar farm site showing the locations of the cable trenching, no build area and sections through archaeological features. | 16 |
| Figure 7 The no build area in the north half of the site, shown overlaid on the geophysical survey results which indicate a probable round or prehistoric enclosure and a pair of round houses to its south. | 17 |
| Figure 8 The location of features and sections within Field 1 overlaid on the geophysical survey results. | 18 |
| Figure 9 The location of features and sections in Field 2 overlaid on the geophysical survey results. | 19 |
| Figure 10 The location of features and sections in Field 3 overlaid on the geophysical survey results. | 19 |
| Figure 11 The location of features and sections in Field 4 overlaid on the geophysical survey results. | 20 |
| Figure 12 Section drawings of features, from top, [3], [7], [5], [9] and [21], that are likely to be prehistoric in origin. | 21 |
| Figure 13 Section drawings of features, from top, [19], [27], [23] and [25], that are likely to be field boundary ditches. | 22 |
| Figure 14 Section drawings of features [11] top, and [13] and [15], bottom, the date and function for which cannot be identified. | 23 |
| Figure 15 Excavation in Field 4 for the foundations of the substation showing the appearance of the topsoil (1) and subsoil (2) found across the site. | 23 |
| Figure 16 Probable ditch [21] found within a tail trench at the north end of Field 1. | 24 |
| Figure 17 Probable parallel ditches [23], right, and [25], left, at the northern extent of the cable trenching in Field 2. | 24 |
| Figure 18 Probable prehistoric ditch [3] close to the no build area in Field 3. | 25 |
| Figure 19 Probable prehistoric ditch [5] in Field 3. Note its greater width compared to [3] above, probably due to the section not cutting the ditch at right angles. | 25 |
| Figure 20 Probable field boundary ditch [19], one of a pair, with [27], to the east of the substation in Field 4. | 26 |
| Figure 21 Probable ditch [15], on the left, and wide pipeline ditch [13], to the right, at the southern end of Field 4. | 26 |

Abbreviations

| | |
|-------|--|
| BGS | British Geological Survey |
| DBA | Desk-based Assessment |
| CAU | Cornwall Archaeological Unit |
| CIfA | Chartered Institute for Archaeologists |
| CRO | Cornwall Record Office |
| EH | English Heritage |
| GIS | Geographical Information Systems |
| Ha | Hectares |
| HBSMR | Historic Buildings Sites and Monuments Record |
| HER | Cornwall and the Isles of Scilly Historic Environment Record |
| HLC | Historic Landscape Characterisation |
| Km | Kilometre |
| MCO | Monument number in Cornwall HER |
| NGR | National Grid Reference |
| NRHE | National Record of the Historic Environment |
| OD | Ordnance Datum – height above mean sea level at Newlyn |
| OS | Ordnance Survey |
| RIC | Royal Institution of Cornwall |

1 Summary

Cornwall Archaeological Unit, Cornwall Council, were approached by Simon McCarthy on behalf of Wirsol Energy Ltd in July 2015 with a request to provide costs for an archaeological watching brief of groundworks at the solar farm at Trethosa Farm, St Stephen-in-Brannel to fulfil a planning condition.

The solar farm covers a total of 10.7 Hectares (Ha) over four fields that slope quite steeply to the southwest. It is located 1km to the north of St Stephen in Brannel, centred at OS grid reference SW 93909 54600. The Historic Landscape Characterisation (HLC) is determined as Anciently Enclosed Land (farmland medieval). A large area to the north of the site is still being actively exploited for china clay whilst there is an abandoned mica lagoon to the east.

A geophysical survey of the site had identified a probable Iron Age-Romano-British round, at least two round houses and a number of linear features, some of which are likely to be associated with the round. As a result a no build area was placed over the most archaeologically sensitive area in the northern end of the site. The watching brief on the cable and foundation trenching across the rest of the site revealed 12 features likely to be ditches but did not recover any artefacts.

A report (this report) was prepared for the client summarising the results of the watching brief.

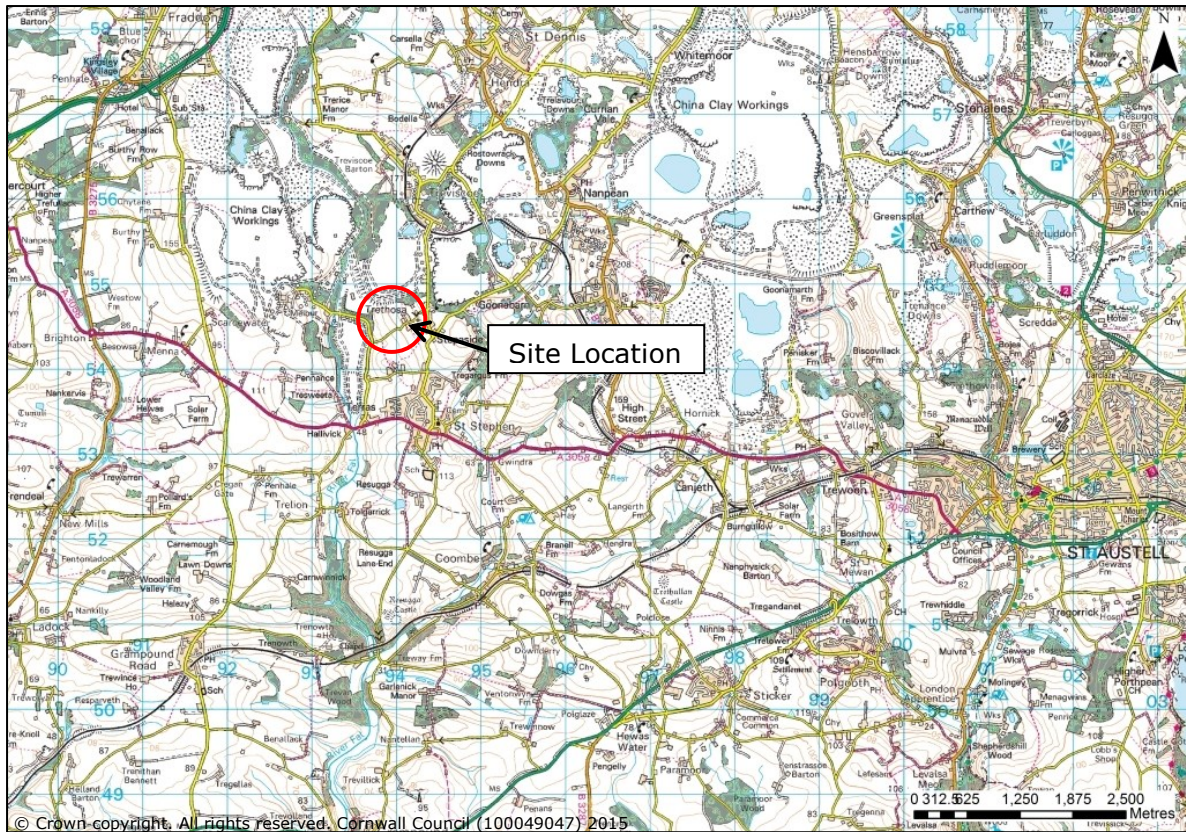


Figure 1. Location map of Trethosa in relation to St Austell, central Cornwall.

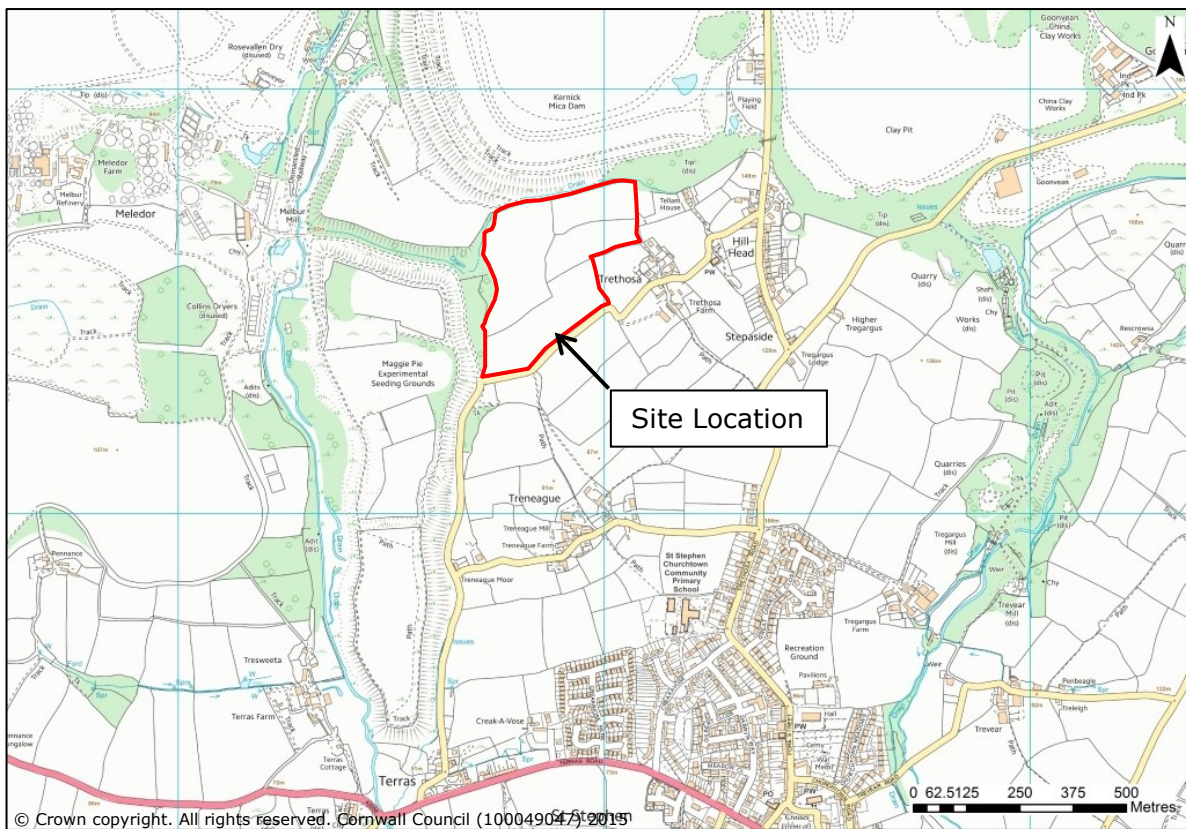


Figure 2. Trethosa Solar Farm site extent and map of the vicinity.

2 Introduction

2.1 Project background

Cornwall Archaeological Unit, Cornwall Council, was approached by Simon McCarthy of Wirsol Energy Ltd to undertake an archaeological watching brief at Trethosa Solar Farm, St Stephen in Brannel, Cornwall. The solar farm covers an area of 10.7Ha, centred at SW 93909 54600, located to the north of the village of St Stephen and was granted planning permission (PA13/11191) subject to a number of conditions including Condition 5 which states:

A) No development shall take commence until a programme of archaeological work including a Written Scheme of Investigation has been submitted to and approved by the local planning authority in writing. The scheme shall include an assessment of significance and research questions; and:

(i) The programme and methodology of site investigation and recording;

(ii) The programme for post investigation assessment;

(iii) Provision to be made for analysis of the site investigation and recording;

(iv) Provision to be made for publication and dissemination of the analysis and records of the site investigation;

(v) Provision to be made for archive deposition of the analysis and records of the site investigation;

(vi) A detailed method statement for construction activities within archaeologically sensitive areas identified by Historic Environment Projects Report 2013R040;

(vii) Nomination of a competent person or persons/organisation to undertake the works set out within the Written Scheme of Investigation.

B) No development shall take place other than in accordance with the Written Scheme of Investigation approved under condition (A).

C) The development shall not be occupied until the site investigation and post investigation assessment has been completed in accordance with the programme set out in the Written Scheme of Investigation approved under condition (A) and the provision made for analysis, publication and dissemination of results and archive deposition has been secured.

The initial project assessment prior to the watching brief consisted of a desk-based assessment and a walkover survey. The report (Sharpe 2013a) recommended that a geophysical survey be undertaken to determine potential impacts on any sub-surface archaeology within the site. Archaeophisica Ltd was subsequently commissioned by the client to undertake a magnetometer survey at Trethosa in June 2013 (Sharpe 2013b).

The geophysical survey results proved to be very clear and not significantly degraded by the effects of modern agriculture (Figure 5). Evidence for ploughed out boundaries which are either documented on archive maps or are clearly additional elements of a post-medieval field system were revealed, particularly in the western part of the survey area. The current cross-contouring field boundaries can be seen in many cases to be those depicted on the 1840 Tithe Map, and these may in part represent fossilised strip field boundaries dating to the immediate post-medieval period. A number of areas of evidence for probable medieval ridge and furrow were also highlighted within the south western part of the survey area.

There appeared to be part of a separate field system on a different alignment both to that apparently associated with the round (see below) and the modern field system. This may be early medieval, medieval or post-medieval in date and may have incorporated some perpetuated elements of the earlier field systems described above. A possible enclosure in the north western part of the survey area may be associated with this phase of landscape organisation, or to an earlier phase of occupation and use.

The most significant features revealed by the geophysical survey lay up against the northern boundary. A sub-square enclosure measuring 44m by 44m in plan defined by an encircling double ditch almost certainly represents a late Iron Age-Romano-British enclosed farmstead of the type known in Cornwall as a round. A number of features are visible within the data set, including a sub-square feature which may represent an associated structure, a shallower ditched sub-circular feature underlying the southwestern corner and a further semi-circular feature to its east. The round also seems to be associated with a possible multi-phase field system which is most clearly defined to the immediate west, south and east of the round. A ring-ditch, possibly a roundhouse, 9.2m in diameter, showed up immediately adjacent to the southern side of the round. Around 56m to the south of the round is a further oval ring-ditch, possibly a house of 9m or 10m across its long access, which has an east-facing opening.

The site is also notable for a number of linear services (these assumed to be water and clay pipelines) which show up strongly in the data.

Management recommendations to protect the late prehistoric enclosure and associated features during the development of the solar farm were agreed with the developer. As a result, the areas directly above the enclosure and probable round houses have been designated as 'no build areas' and the arrangement of the solar panel arrays has been reorganised to avoid them. The excavation of cable and foundation trenches was subject to a watching brief to record and recover any archaeological evidence given the potential of the site demonstrated by the geophysical survey.

2.2 Aims

The aims of the watching brief were to:

- establish the presence/absence of archaeological remains within the areas to be disturbed
- determine the extent, condition, nature, character, date and significance of any archaeological remains encountered
- establish the nature of the activity on the site
- identify any artefacts relating to the occupation or use of the site
- provide further information on the archaeology of Trethosa Farm from any archaeological remains encountered

The objectives were to obtain an archaeological record within areas of the site which were to be subjected to disturbance and to produce a report summarising the findings of the watching brief.

In relation to the eventual decommissioning of the site, CAU will, if required, liaise with the client in the production of their method statement to minimise potential ground disturbance. If required, a methodology to undertake suitable recording would be submitted as a separate WSI prior to decommissioning.

2.3 Methods

All recording work was undertaken according to the Chartered Institute for Archaeologists Standards and Guidance for Archaeological Investigation and Recording. CAU is a Registered Organisation with the CIfA and staff follow the CIfA Code of Conduct and Code of Approved Practice for the Regulation of Contractual Arrangements in Archaeology. The Chartered Institute for Archaeologists is the professional body for archaeologists working in the UK.

2.3.1 Desk-based assessment

The desk-based assessment (DBA) carried out for the initial pre-planning application site assessment (Sharpe 2013a) is summarised below to inform the results contained in this report. Historical databases and archives were consulted in order to obtain information about the history of the site and its surroundings, and the structures and features recorded by geophysical survey within the site boundaries.

The main sources consulted were as follows:

- Published sources available in the Cornwall and Scilly HER.
- Cornwall and Scilly Historic Buildings, Sites and Monuments Record (HBSMR).
- Information held as GIS themes as part of the Cornwall and Scilly HER.

Historic maps including:

- Norden's Map of Cornwall (printed in 1728 but mapped circa 1600)
- Joel Gascoyne's map of Cornwall (1699)
- The Lanhydrock Atlas (circa 1699)
- Thomas Martyn's map of Cornwall (1748)
- OS 1 inch survey (circa 1810)
- St Stephen in Brannel Tithe Map (circa 1840),
- 1st and 2nd Editions of the OS 25 inch maps (circa 1880 and circa 1907).

Modern maps:

- National Mapping Programme transcripts from aerial photographs.
- Other aerial photographs in the Cornwall and Scilly HER.
- Historic Landscape Characterisation (HLC) mapping.

The historical and landscape context of the site was also considered during the 2013 assessment in order to establish the nature of the heritage assets located within the area surrounding the proposed solar farm and to determine potential setting impacts on them.

2.3.2 Fieldwork

All deposits were recorded in accordance with Cornwall Archaeological Unit guidelines and with the Chartered Institute for Archaeologists' Standards and Code of Conduct (1994- revised 2008).

Larger areas, such as the foundations for the sub-station, and those cable trenches closest to the archaeologically sensitive 'no build area' were stripped to the level of the natural subsoil (the level at which archaeological deposits could be expected to have survived) by a mechanical excavator fitted with a toothless grading bucket.

The remaining cable trenches were also excavated with a toothless grading bucket or occasionally a V-shaped ditching bucket, and were subject to a watching brief wherever possible. All trenches were inspected for features surviving in section and the spoil tips were examined for any artefacts.

All features were accurately located at an appropriate scale and all archaeological contexts were described to a standard format using a continuous numbering sequence. Drawings were made to a scale, where appropriate, of 1:10 for sections (due to the size of some sections 1:20 or 1:50 scale was used) and 1:20 scale for plans. Scaled digital photography was used for record, illustrative and presentation purposes.

2.3.3 Post-fieldwork

On completion of the project and following review with the CAU Project Manager the results of the study were collated as an archive in accordance with *Management of Research Projects in the Historic Environment (MoRPHE) English Heritage 2006*. The site archive will initially be stored at ReStore, with the eventual aim of deposition at Cornwall Record Office.

An archive report (this report) has been produced and supplied to the client. This report will be lodged with the Cornwall and Scilly HER and a copy of the report will be supplied to the National Record of the Historic Environment (NRHE) in Swindon, to the Courtney

Library of the Royal Cornwall Museum and to the Cornish Studies Library. All digital records will be filed on the Cornwall Council network.

An English Heritage/ADS online access to the index of archaeological investigations (OASIS) record has been made covering this assessment project.

3 Location and setting

The site of the solar farm is centred at SW 93909 54600, the development extending across four agricultural fields extending to 10.7 hectares (Figures 1 and 2). The site is located on the southern side of the Hensbarrow uplands on a gentle southwest facing slope. The former Maggie Pie mica lagoon is immediately to the west of the site, whilst working and abandoned sections of the Trethosa (and Melbur) china clay works are to the north, north west and north east. The settlement of St Stephen in Brannel is 1km to the south.

The development area is characterised in the Cornwall and Scilly HER as 'Anciently Enclosed Land – Farmland Medieval': that is land where boundary arrangements were substantially reorganised during the medieval period. Land within this Historic Landscape Character is known to have a high potential for the survival of archaeological evidence deriving from prehistoric activity.

The solar farm is sited on soils recorded as being MANOD loams over shale, the bedrock being the Devonian Meadfoot Group. These are slate and sandstones formed as sedimentary rocks in shallow seas and then later metamorphosed (BGS website).

4 Designations

4.1 National

No national designations apply to the development site.

4.2 Regional/county

No regional or county designations apply to the development site.

4.3 Local

No local designations apply to the development site.

5 Site history

This site history is a summary of the desk-based assessment undertaken in advance of the development of the site; the full version can be found in the assessment report (Sharpe 2013a).

Hillforts, which would have been local centres of power during the Iron Age, survive on St Stephen's Beacon to the east, at Trethullan Castle to the south east, Carloggas to the north east and at Resugga Castle to the south. There are a significant number of rounds - enclosed farming settlements dating to the Iron Age or Romano-British period (c500 cal BC – AD 410) - recorded within the landscape stretching south from the Hensbarrow uplands. These have been identified from cropmark survey, with examples recorded at Penhale (Fraddon), Ladock (several examples), Pennance, Great Hewas and Cregan Gate (three examples).

Some of the more elevated areas seem to have remained as downland. These often preserve evidence for individual barrows or small barrow cemeteries dating to the earlier part of the Bronze Age (c 2000-1500 cal BC). In contrast, the lower-lying areas formed by valley bottoms created natural reservoirs accumulating alluvial material that often contained cassiterite (the ore of tin). This formed an important resource for medieval tin streamers, whose produce was sold across much of western Europe and to markets around the eastern Mediterranean.

Successor settlements to the rounds were established during the pre-Conquest period, these having names incorporating prefix elements in Cornish such as 'Tre(f)', meaning settlement or farmstead, some taking a suffix incorporating personal names. Among

the many local examples of these place names and probable successor settlements is Trethosa which is first recorded in 1327 as 'Trewythoda'.

The Domesday Book of 1086 does not mention Trethosa, though land within this part of Cornwall was held by the Comte de Mortain. Trethosa may have been part of either the manor of Trenowth to the south or of Brannel to the south east.

The first mapping of this area was John Norden's map depicting the Hundred of 'Pider' (published in 1728, but drawn up c1600). This shows the landscape around St Stephen in Brannel as very sparsely occupied, although it is probable that smaller farmsteads were omitted from this mapping; the uplands of Hensbarrow Downs were prominently drawn. Joel Gascoyne's late 17th century map of Cornwall was the first to depict and name Trethosa; though it was spelt 'Tretawsor'. Martyn's map of 1748 depicts Trethosa lying just west of a roadway between St Stephen and Hillhead on the fringes of the downland.

The 1839 St Stephen in Brannel Tithe Map (Figure 3) showed Trethosa Farm as being clearly of medieval origin, with fossilised strip fields surrounding it on all sides. The fields were all recorded in the Tithe Apportionment as arable land. At this time, the project area consisted of ten separate fields all owned by Lady Anne Grenville (daughter of Thomas Pitt, Lord Camelford). Fields 1115 to 1117 were denoted as occupied by Lady Grenville and John Rouse. The remaining fields were occupied by John Truscott.

The 19th and early 20th century census data consistently shows that, far from being a simple farm, Trethosa had evolved into a thriving hamlet housing a wide range of artisans and their families. Many of the trades in later decades were related to the burgeoning china clay and china stone industries working pits on the nearby moors that were at the time rapidly developing to form the basis for Cornwall's most important extractive industry by volume.

The 1st Edition OS 25" to a mile mapping to an extent reflects these changes, the surveyors marking the 'manor house' at the south east end of the hamlet and a large cluster of cottages to the north west of the road passing through it. The ten fields recorded in the project area in 1839 had, by this date, been reduced to six to allow more efficient farming. A similar pattern of farmhouse, barns and agricultural buildings and cottages characterised the hamlet in 1907. No changes had been made to the field layout during the intervening three decades. By 1932 the OS map showed that further field boundaries had been removed and the expansion of the china clay industry was visible to the north of the solar farm site (Figure 4).

The 2005 Cornwall County Council aerial mapping shows a similar, though somewhat simplified arrangement of the hamlet – the farm and farm buildings occupying the land to the south east of the road, with a smaller number of cottages (many improved) to the north west. The six fields depicted in 1908 had been reduced to four through the further loss of historic boundaries, particularly in the western part of the project area. The most dramatic changes in this landscape were those associated with china clay working, especially the massive bund around the Kernick mica lagoon to the north, the revegetated Maggie Pie mica dam, and the still active Melbur Pit to its north west.

6 Archaeological results

Across the site the topsoil (1) was a mid-brown soft clayey-silt with frequent angular fragments of slate-shale and quartz less than 50mm in diameter. The topsoil varied in depth between 0.25m and 0.40m depending on the location in relation to the hill slope and was often quite wet. The underlying subsoil (2) was a reddish-yellow silt with varying clay or fine sand components (Figure 15). The subsoil (2) had areas, usually associated with the sandier soil, of very frequent large slate-shale fragments 100-200mm in diameter. These areas drained noticeably better than the clayey-silt during and after periods of heavy rain.

The excavated areas consisted of narrow cable trenches or foundation slots for the substation and inverter units. These trenches were typically between 0.5m and 1m

wide and 0.5m-1.2m deep. The majority were excavated using a grading bucket though the deepest were dug with a V-shaped ditching bucket.

6.1 Field 1

Field 1 was sub-rectangular with its long axis orientated north-south (Figure 8). The northern, eastern and southern boundaries were substantially vegetated Cornish hedges whilst the western boundary consisted of a modern fence and vegetation on the edge of a steep drop to a previously quarried area. The boundaries on its southwestern corner supported two pipelines related to the former china clay extraction activities, which continued out of the site to the southwest. These were above ground due to the slope of the hill, whilst further along their trajectories to the north and east these pipes ran underground.

The cable trench within Field 1 was located parallel to the eastern and southern boundaries except at the north end where it extended slightly to the west to avoid the no build area (Figures 7 and 8). Three features were identified in Field 1 - [9], [11] and [21] (Figures 12 and 14). Feature [9] was located approximately 125m from the northern boundary in the eastern cable trench and was visible in section on both sides of the trench, suggesting it is most likely a linear feature (Figure 12). It was 1.5m wide and 0.4m deep with gently sloping sides and a concave base. The fill (10) was a compact dark brown silty-clay with frequent angular slate-shale fragments, 20-100mm in diameter, and lots of disturbance from roots. Linear feature [9] was located close to geophysical feature 17.

Feature [11] was located in the southern third of the field 183m to the south of the northern boundary and 15m to the south of building TX2 within the eastern cable trench (Figure 14). It had steeply sloping and slightly uneven sides and a concave base. Feature [11] was 0.56m wide and 0.25m deep. The fill (12) was an orange-brown compact silty-clay with occasional small slate-shale fragments. This small feature is presumed to be linear because it was visible within both sections of the cable trench and its location corresponds to the linear geophysical feature 29.

Feature [21] was located within the 'tail trench' or spur extending to the west from the cable trench, 47m from the northern field boundary (Figures 12 and 16). It appeared to only be visible in the northern section face of the trench though the cut was quite ill-defined, which may have affected its visibility. The cut [21] had gently sloping sides, with a shoulder on the northwestern side, and had a flat base. It was 3m wide and 0.4m deep. The fill (22) was a soft, slightly orange-brown clayey-silt with frequent slate-shale fragments less than 50mm in diameter. Fill (22) was extremely similar in appearance to the subsoil (2) in this location.

6.2 Field 2

Field 2 included the greater part of the no build area across its western half (Figures 7 and 9). The cable trench was located adjacent to the no build area, orientated north-south having cut the boundary from Field 3. At its northern end it turned through 90° to the east and was excavated parallel to the northern boundary. Two features - [23] and [25] were found to the south of the 90° turn (Figures 13 and 17).

Feature [23] was located 3.5m to the south of the 90° turn in the cable trench and was visible on both section faces (Figures 13 and 17). It had gently sloping concave sides and base and was 1.1m wide and 0.25m deep. A dark, slightly orange-brown compact clayey-silt (24) with frequent tiny slate-shale fragments less than 20mm in diameter constituted the fill within this feature.

Feature [25] was 6.3m to the south of the 90° turn and was very similar to [23] with a gently sloping concave cut (Figures 13 and 17). However its base was flat and the northern side had a slight step. The fill (26) was identical to (24), a compact orange-brown clayey-silt.

Features [23] and [25] were not visible in the extremely wet conditions during which they were first excavated. As the trench dried they became more distinct from the topsoil in particular as the fills (24) and (26) remained wetter than the surrounding soil.

6.3 Field 3

Field 3 was sub-rectangular, orientated east-west and surrounded by Cornish hedges (Figures 7 and 10). Part of the no build area covered the northwestern corner of the field. The cable trench ran parallel to the edges of the no build area, crossing through the field boundary from Field 1 on the western side and running parallel to the northern boundary before crossing through it into Field 2. Three features were located in Field 3 - [3], [5] and [7] (Figures 12, 18 and 19).

Feature [3] was located to the south of the no build area, 53m to the east of the western boundary (Figures 12 and 18). The feature was 0.90m wide and 0.60m deep with steeply sloping sides and a flat base. Its fill (4) was a soft grey-brown clayey-silt with frequent small and occasionally larger rounded slate-shale fragments. Grey-brown clayey-silt (4) was very waterlogged and was quite similar in colour to the topsoil at this location.

Feature [7] was located to the east of the no build area, 4.6m to the south of the northern boundary, and was 1.1m wide and 0.35m deep (Figure 12). The cut had steeply sloping sides, with a shallow lip at the top of the eastern side, and a concave base. Feature [7] was filled by (8), a grey-brown quite compact clayey-silt with occasional small slate-shale fragments.

Twenty-three metres to the east, feature [5] was located close to the break in the field boundary where the cable trench entered Field 2 to the north (Figures 12 and 19). Feature [5] was 2.65m wide and shallow, only 0.20m deep. The sides had very gentle slopes, the base was flat and the cut mirrored the topography, sloping down to the west. The fill (6) was a soft and waterlogged grey-brown silty-clay with occasional larger fragments of slate-shale 50-100mm in diameter.

6.4 Field 4

Field 4 was sub-rectangular and was surrounded by Cornish hedges (Figure 11). Two pipelines crossed the field in a northeast-southwest direction close to its north and south boundaries. A trackway was laid from the field entrance on its south side running eastwards, parallel to the southern boundary, before turning to the north and crossing the field to access Field 1. The cable trenching followed a similar route along the southern boundary and the western side of the track connecting with building TX1. A second cable trench ran parallel to the track, from the substation on the southern boundary, to the northern boundary where it turned to the east.

Two features - [13] and [15] - were found located at the southern edge of Field 4 where the cable trench turned to the north (Figures 14 and 21). Feature [13] was 5.5m wide and 0.35m deep with a shallow, slightly concave cut. It was filled by (14), a dark grey-brown clayey-silt with occasional gravels and small slate-shale fragments. Cut [13] appeared to cut feature [15], lying between it and the topsoil (1).

Feature [15] was 0.8m wide, 0.3m deep and had slightly concave sloping sides and a concave base (Figures 14 and 21). It was filled by (16), a grey brown waterlogged silty-clay with occasional abraded slate-shale fragments less than 20mm diameter. Between fill (16) and cut [13] a possible recut [17] and deposit (18) filled the top of feature [15]. It had an undulating shape 0.5m wide and 0.15m deep spread across the centre of (16) and consisted of a red-yellow silty-clay that was very similar in appearance and consistency to (2), the natural subsoil.

To the east of the trackway a further two features - [19] and [27] - were found in the cable trench leading to the substation (Figures 13 and 20). Feature [19] was 1m east of the substation and its cut was 1.10m wide and 0.40m deep (Figures 13 and 20). The cut had quite steeply sloping sides and a slightly concave base. The fill (20) was an orange-brown silty-clay with frequent gravels and small slate-shale fragments.

Four metres to the northeast of [19], feature [27] was similar but smaller at 0.80m wide and 0.3m deep (Figure 13). The fill, (28), was also very similar to (20) as it was an orange-brown silty-clay.

No artefacts were recovered from any of the features or excavated areas.

7 Discussion

Applying a date, chronological sequence or significance to the archaeological features found at Trethosa is difficult due to the lack of artefacts recovered. The narrow cable trenches only allowed a small part of each feature to be investigated whilst the existence of the no build area meant that the most archaeologically sensitive areas of the development area were deliberately avoided. Whilst this will have preserved any archaeology in situ, the excavated areas can add only a little detail to our understanding of the archaeology of Trethosa.

The features located in the southern half of the site corresponded well with the geophysical results. Wide shallow linear [13] is most likely to be the ditch for the mid-20th century pipeline known to have traversed the southern edge of the site. The smaller concave feature [15] that was cut by [13] was not identified during the geophysical survey (Figures 11, 14 and 21). It is most likely that it was obscured by the strong anomalous response created by [13]. The second cut, [17] within (16), may represent a deliberate re-excavation of the feature or, more likely, simply that (18) is a secondary deposit. A re-excavation is unlikely due to the shallow depth and uneven shape which would not have made it a very effective ditch of any kind. If (18) was a secondary deposit it suggests [15] remained open for a period of time, albeit silted by (16). Deposit (18) was very similar to the subsoil (2) suggesting it may have been deliberately redeposited in this location especially considering it was not visible on the opposing section face. Feature [15] was visible in both sides of the trench suggesting it was linear and orientated in an approximately northwest-southeast direction and unlike any other features identified. It must predate [13], being at least early 20th century in date and it seems most likely to be a form of ditch though its precise function and date cannot be determined.

Features [19] and [27], located adjacent to the substation in Field 4, correspond to the parallel linear features identified by geophysics and shown by historic maps to be part of a removed field boundary (Figures 11, 13 and 20). Although viewed in a curving section of cable trench, both features appeared to have had an approximately north-south linear orientation. Both were quite deep with steep sides and were consistent with a ditch-bank-ditch layout of a Cornish hedge, known from maps to pre-date 1840 and most likely to be medieval in origin.

In Field 1, small concave feature [11] aligned with geophysical feature 29 and matched its interpretation of being less than a metre wide (Figures 8 and 14). The interpretation also suggests that its function may have been to convey water. This is supported by its rounded shape and presence of gravels in the silty-clay deposit (12). The site is generally well-drained so the need for a specific water channel seems questionable, though it is known that the valley to the west had been worked by medieval tin streamers, and a channel may have been required by them to provide a supply of wash water.

The remaining features are located closest to the probable round and the no build area and seem likely to correspond to geophysical anomalies that have been interpreted as prehistoric in origin. However the locations of the features in Fields 1 and 3 are offset from the anomalies by up to 5m to the west and 1.5m to the north (Figures 8 and 10). Whilst it is possible that all the recorded archaeological features were not detected by the magnetometry but were close to features that were detected and not found in the ground, it seems more likely that an error, or a compound of smaller errors, has been introduced. Three sets of measurements, each from the solar farm surveyor, the geophysical surveyor and the archaeologist were combined within AutoCad to produce the site plan and at each stage small, but incremental, errors are unfortunately possible. Allowing for this it is very probable that the features and the geophysical anomalies do correspond.

The shape of feature [3] is consistent with it being a prehistoric enclosure ditch as part of a system of field boundaries (Figures 12 and 18). At 0.5m deep and nearly 1m wide it could potentially have been a livestock enclosure and though any associated bank for

containment or defensive purposes was not visible, this may have been ploughed flat since abandonment.

Deposits (4), (6) and (8) were all a very similar grey-brown clayey-silt suggesting that they were infilled at similar times from the same source (Figures 18 and 19). Feature [5] however, was recorded as noticeably wider - 2.7m compared to around 1m for the others in Field 3. This also contrasts with the geophysical results which depict anomaly 16 as of comparable width (Figures 9 and 19). However these results show the feature orientated northeast-southwest rather than north-south as for the others. It is likely therefore that the cable trench cut feature [5] at an angle so that it appears wider but probably has comparably steep or slightly concave sides and flattish base. Feature [9], in Field 1, may also have been excavated at an angle though this was less pronounced and it also visibly shares the same characteristics of quite steep sides and a slightly concave base (Figures 8 and 12). The locations of these features suggest they are all linear features probably used as field boundary ditches forming the prehistoric field system that may be contemporary with the round.

At the north end of the site, feature [21] was difficult to define though it appeared wide and shallow with a flat base (Figures 12 and 16). Given its location in the tail trench almost parallel to geophysical anomaly 8 it is probable that the excavation again cut it at a very shallow angle. The shape is not therefore a true reflection of its cross section. As the geophysics suggest that it was part of the prehistoric field system it is likely it is comparable to [3], [7] and [9]. Feature [21] should have been visible in the section face of the adjoining cable trench but as the colour, consistency and stone inclusions of fill (22) were similar to the subsoil (2) and the edges poorly defined this may have contributed to its obscurity.

In Field 2 features [23] and [25] were comparable to each other but neither was identified by the geophysical survey, probably because their proximity to the fence boundary meant they were obscured by magnetic disturbance (Figures 9 and 17). Their parallel position and orientation approximately aligns them with the prehistoric field system but this is not found to have closely parallel ditches elsewhere in the site. The current north field boundary has been altered to accommodate the mica tip immediately to the north of the site and though depictions on historic maps vary, the Tithe Map in particular suggests that the former boundary was far more sinuous and curved south of its present location. Parallel ditches, usually with a Cornish hedge in the middle, were a common form of medieval and post medieval boundary, as seen at the southern end of the site in features [19] and [27]. It is probable that features [23] and [25] are the double ditches of this former boundary and are medieval or post medieval in date.

8 Significance

The probable ditches identified as likely to be of prehistoric origin and related to the round are of regional significance. Taken together with the results from the geophysical survey they contribute to the understanding of this settlement type and distribution in prehistoric Cornwall. The remaining features, including the removed medieval or post-medieval field boundaries, are of local significance as they document changing agricultural practices from the medieval period to the present day.

9 Conclusions

The watching brief during sub-surface works at Trethosa revealed features of probable prehistoric and medieval or post medieval date. The geophysical survey results aided the tentative interpretation of these features as boundary features as no artefacts were recovered to assist with their dating. The date and function of the enclosure, presumed to be a regionally significant Iron Age or Romano-British round from its shape, size and comparison with other examples, remains unconfirmed. However the excavation of the linear ditches surrounding it shows that they are consistent with other prehistoric field boundaries and are likely to be associated with the round. Of the features not identified by the geophysical survey because of large magnetic disturbances caused by the

proximity of modern metal fencing or pipelines, the removed field boundary in the north of the site is locally highly significant. Its removal as a result of the early 20th century expansion of china clay extraction demonstrates the impact this industry has had on the surrounding landscape. The other removed field boundaries found both through excavation and shown on historic maps signify the changes in agriculture that dominated the landscape prior to the explosion in china clay extraction and represent a continuation of the prehistoric activities alluded to on this site.

10 Recommendations

The confirmation of archaeological features present on this site as a result of geophysical survey and excavation increases the likelihood of archaeological evidence elsewhere on the site. Should further sub-surface works need to take place during the lifetime of the solar farm or to facilitate its removal at the end of its life, archaeological recording in the form of a watching brief should be allowed for.

11 References

11.1 Primary sources

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11.3 Websites

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<http://mapapps.bgs.ac.uk/geologyofbritain/home.html>

12 Project archive

The CAU project number is **146514**

The project's documentary, digital, photographic and drawn archive is maintained by Cornwall Archaeological Unit, Cornwall Council, Fal Building, County Hall, Treyew Road, Truro, TR1 3AY.

Electronic data is stored in the following locations:

Project admin: \\Projects\Sites T\Trethosa Solar Farm WB

Digital photographs: \\Historic Environment (Images)\Sites Q-T\Sites T\Trethosa Solar Farm 2015

Electronic drawings: \\Historic Environment (CAD)\CAD Archive\Sites T\Trethosa Solar Farm 2015

English Heritage/ADS OASIS online reference: cornwall2-225431

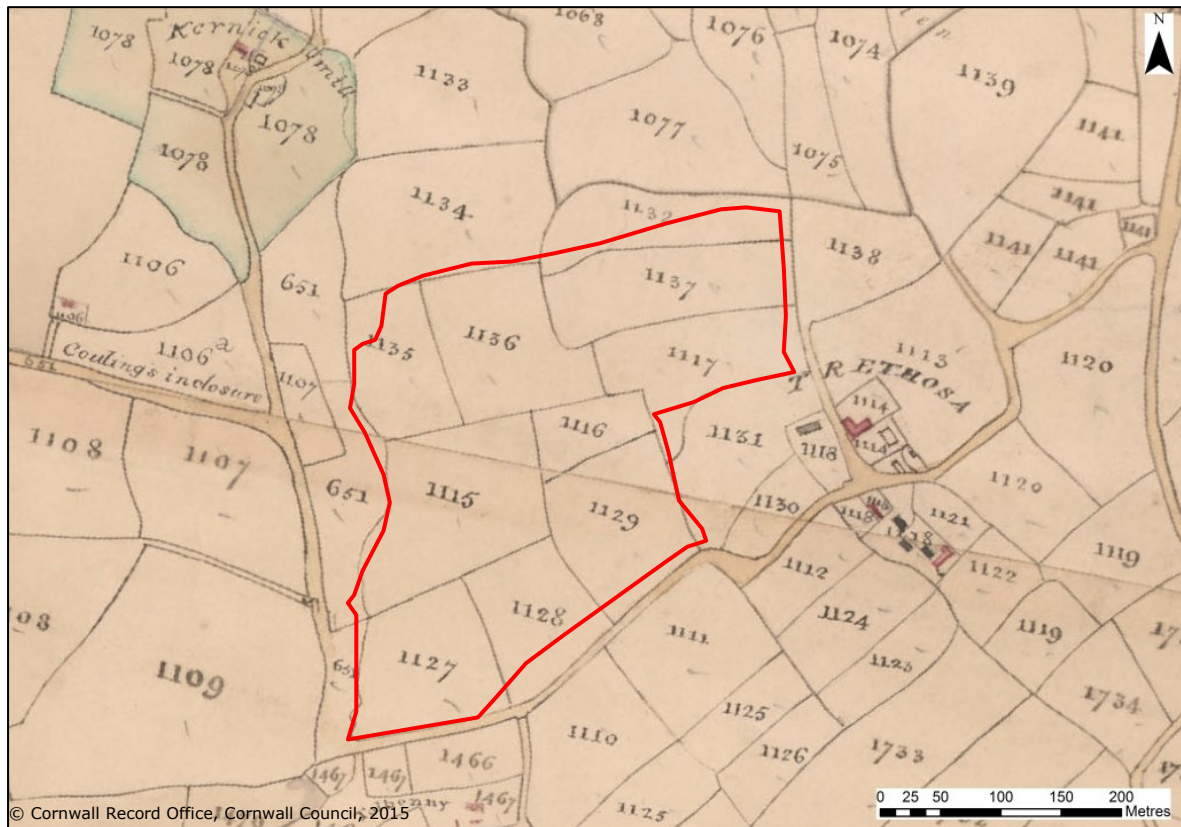


Figure 3. The 1839 Tithe Map for the parish of St Stephen in Brannel. Note the small fields and occasional sinuous boundaries of fossilised medieval strip fields to the northeast and south.

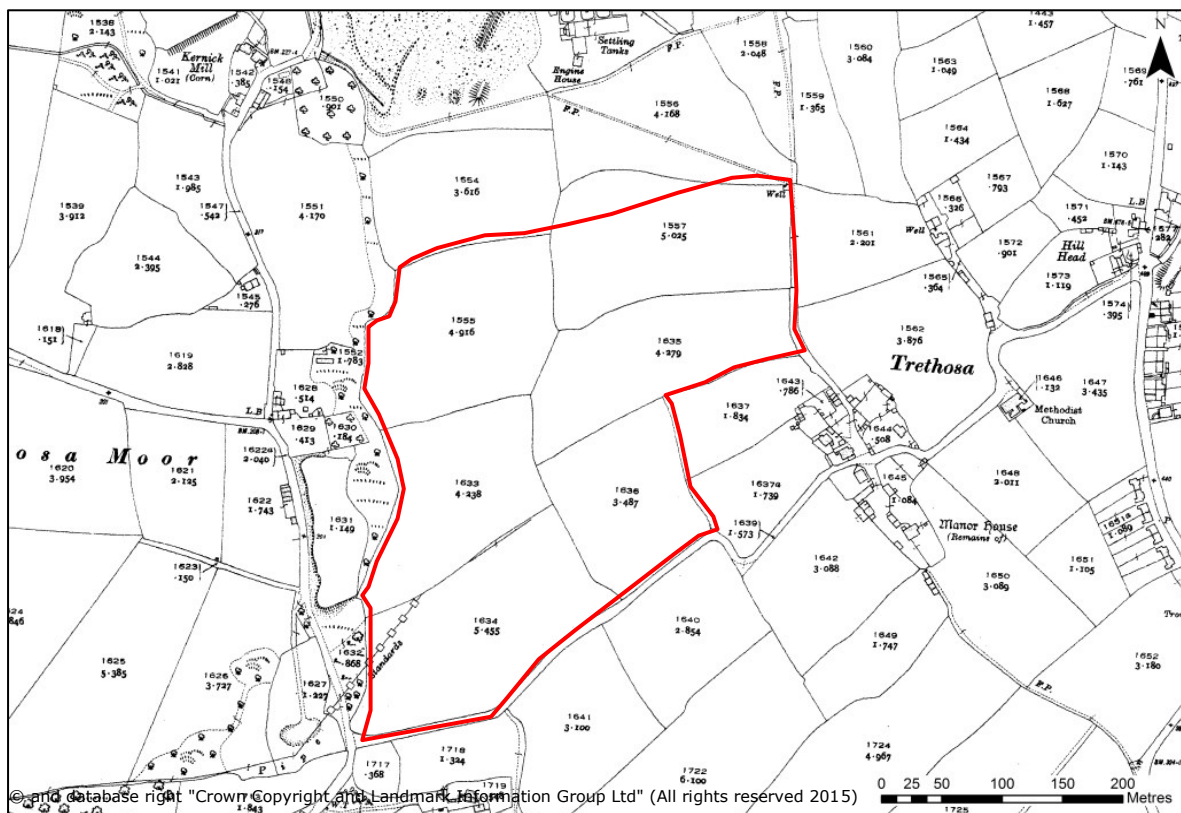


Figure 4. The OS 1932 map showing fewer field boundaries within the site and the beginning of the expansion of china clay extraction to the north. Note the pipeline on pylons in the southwestern corner of the site.



Figure 5. The solar farm site showing the geophysical survey results with the red lines concentrated in the north of the site representing features of probable late prehistoric date.

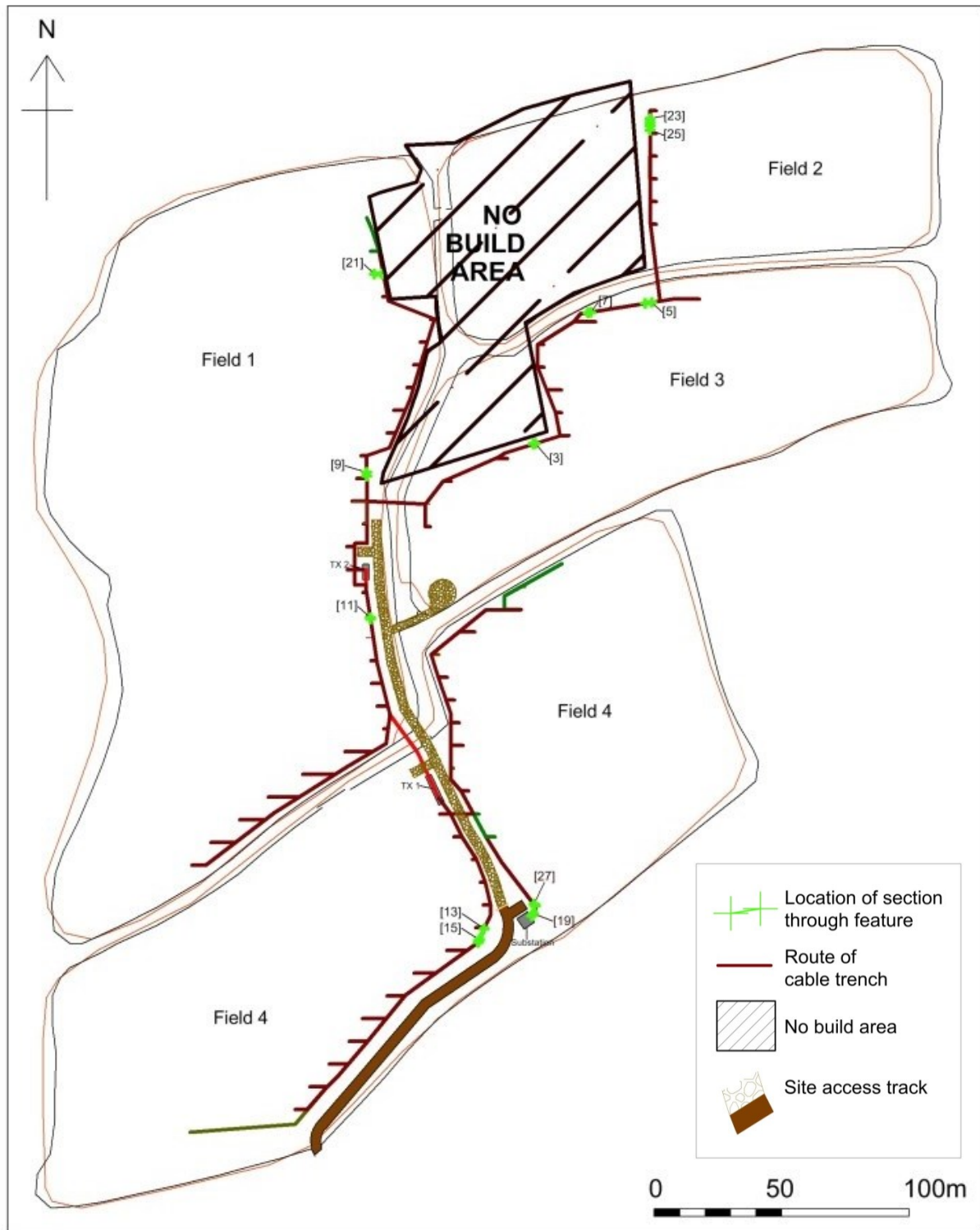


Figure 6. The solar farm site showing the locations of the cable trenching, no build area and sections through archaeological features.



Figure 7. The no build area in the north half of the site, shown overlaid on the geophysical survey results which indicate a probable round or prehistoric enclosure and a pair of round houses to its south.

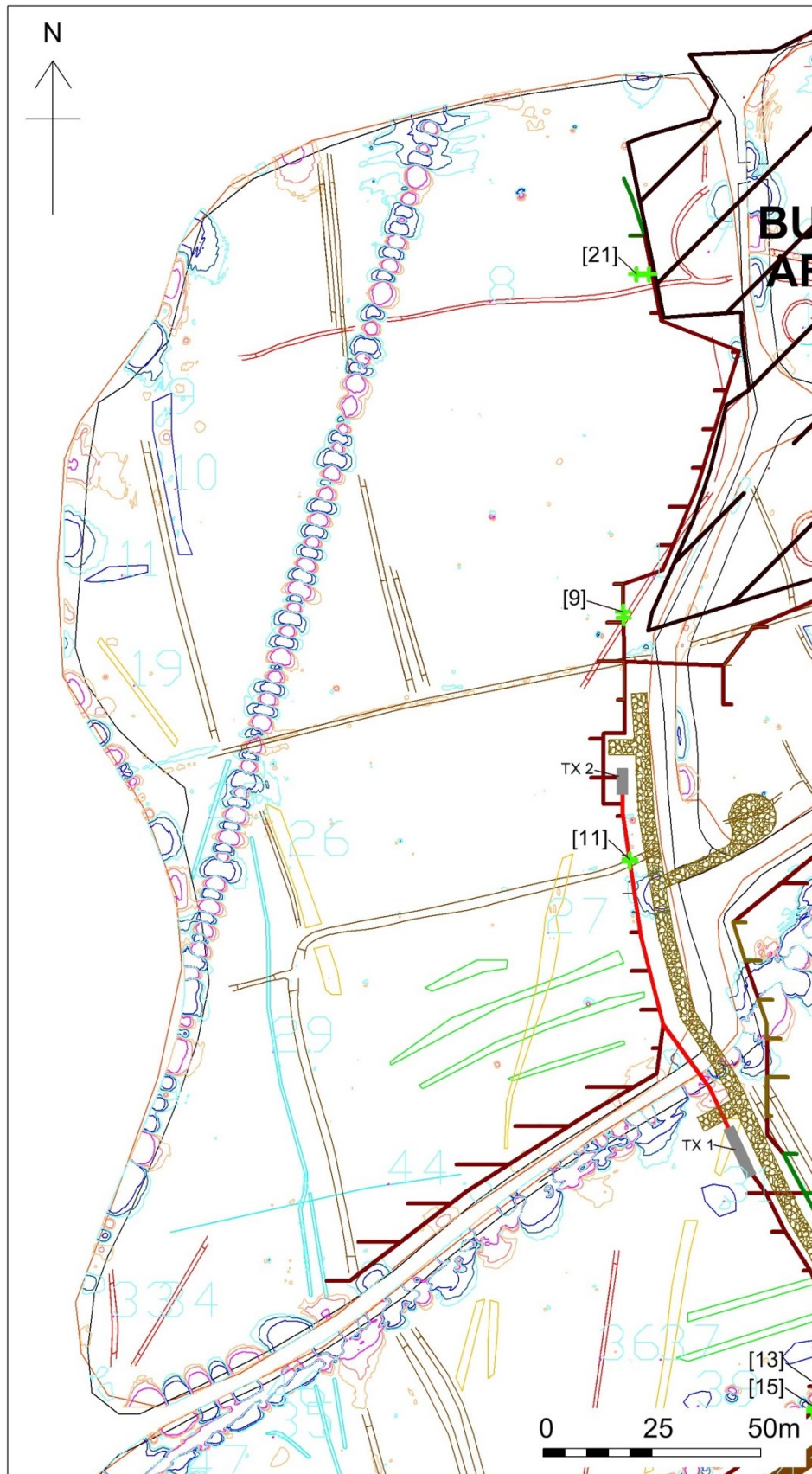


Figure 8. The location of features and sections within Field 1 overlaid on the geophysical survey results.

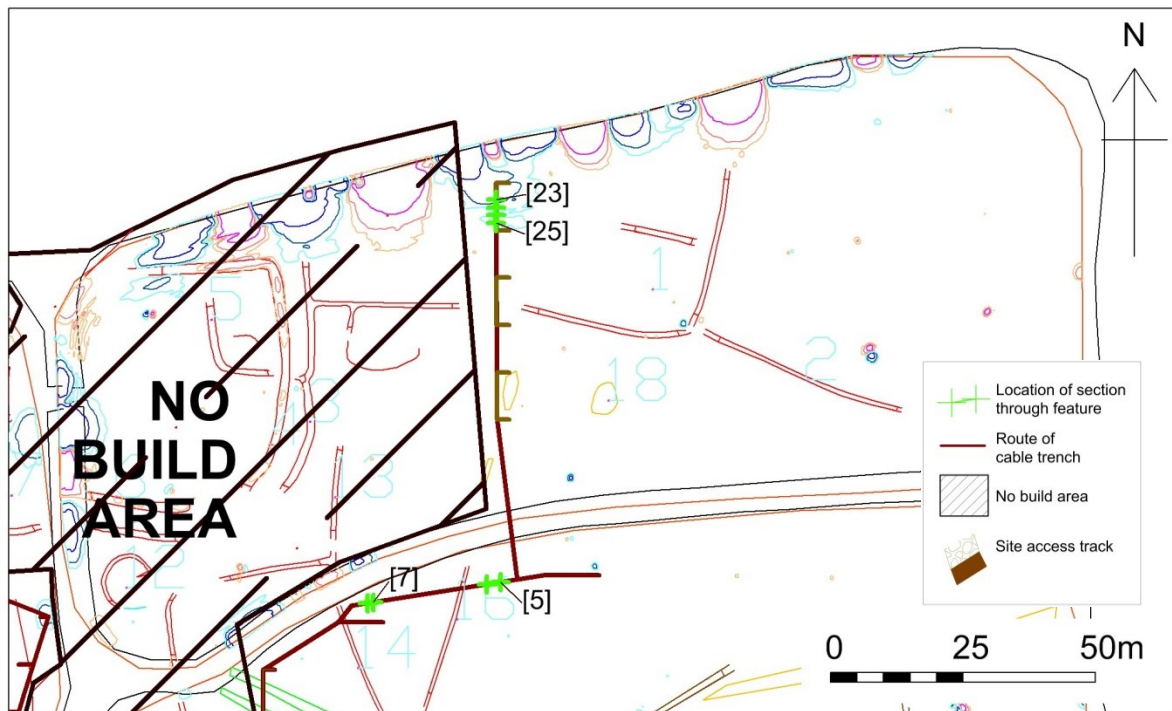


Figure 9. The location of features and sections in Field 2 overlaid on the geophysical survey results.

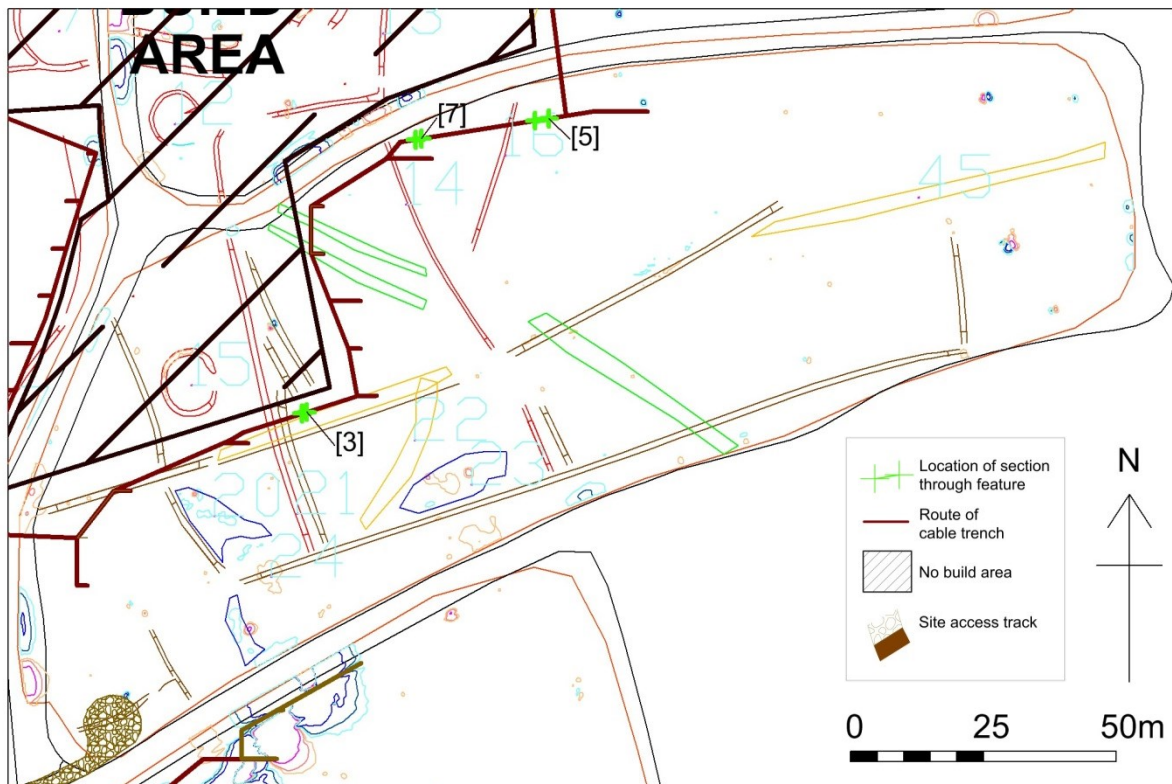


Figure 10. The location of features and sections in Field 3 overlaid on the geophysical survey results.

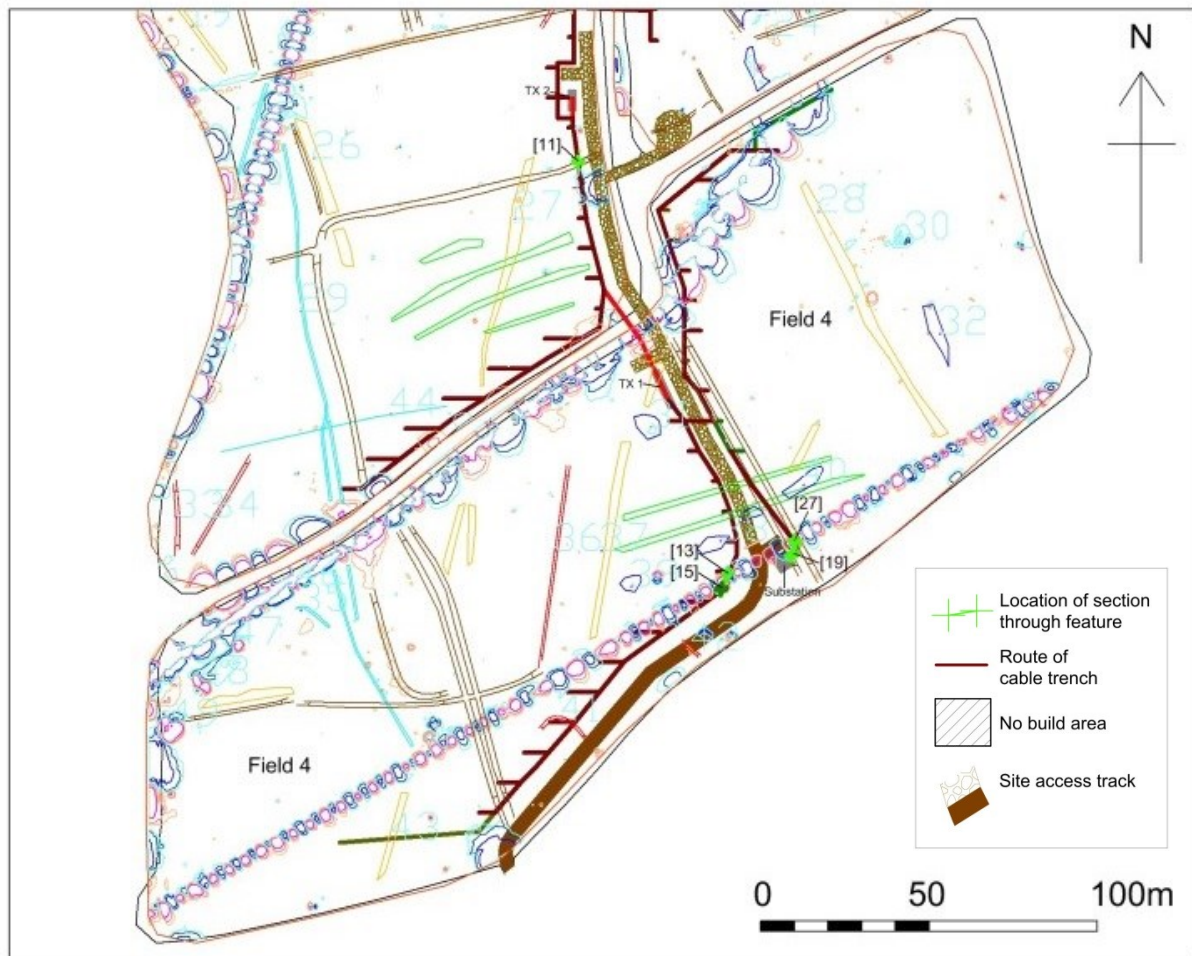
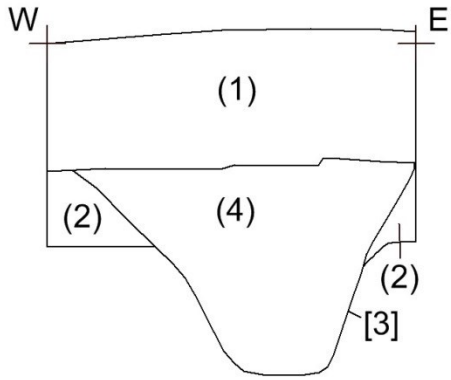
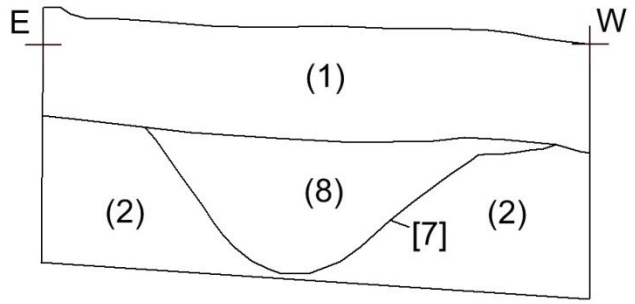


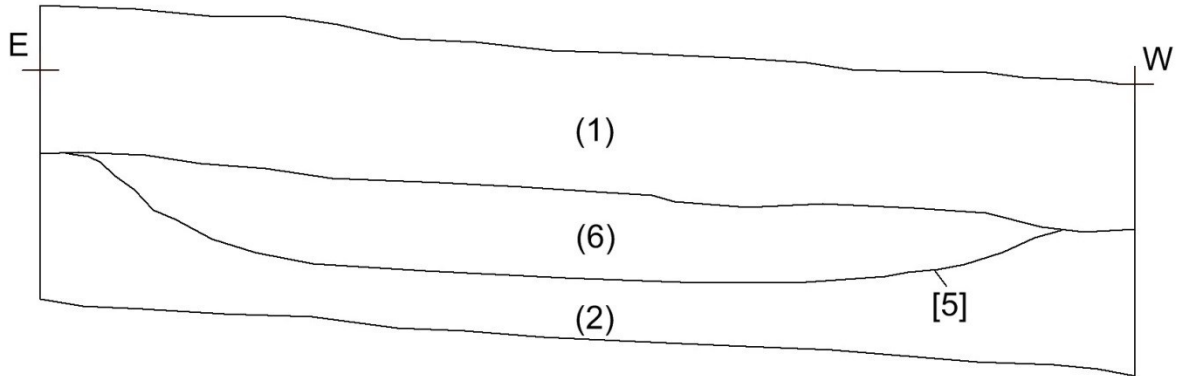
Figure 11. The location of features and sections in Field 4 overlaid on the geophysical survey results.



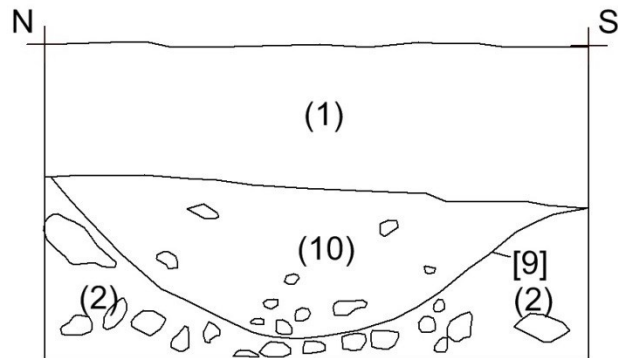
Drawing 001



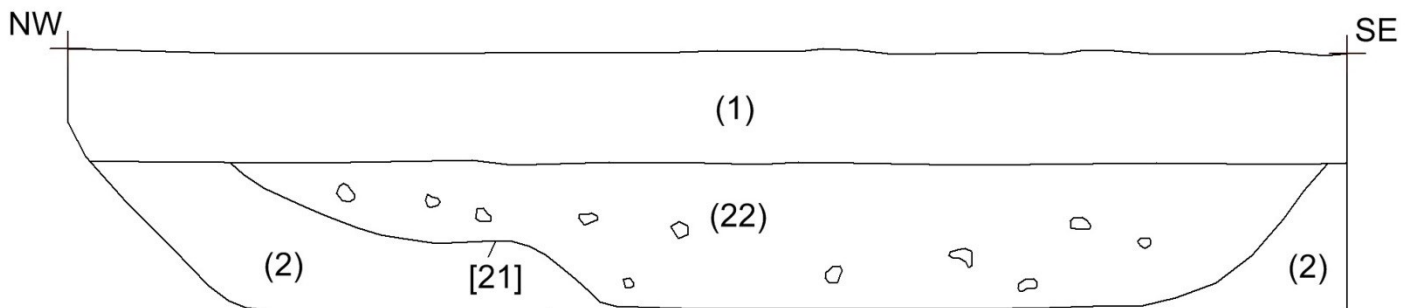
Drawing 003



Drawing 002



Drawing 004



Drawing 008

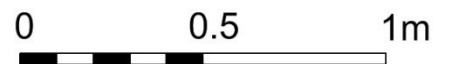
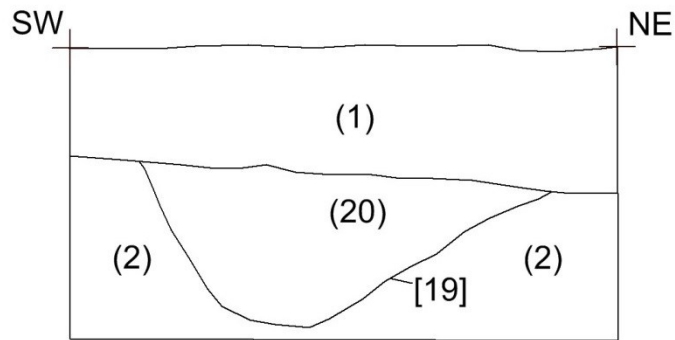
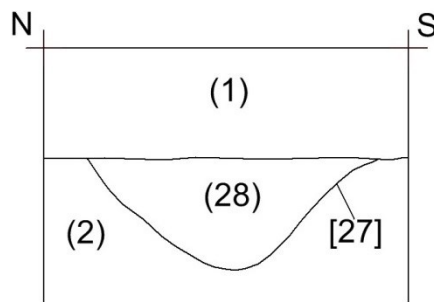


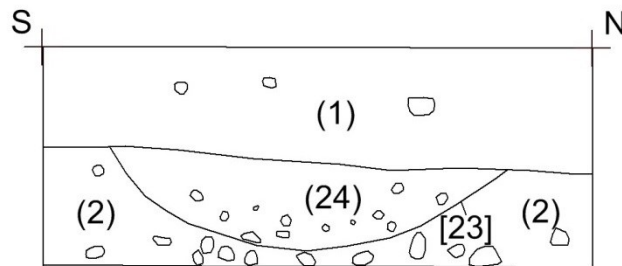
Figure 12. Section drawings of features, from top, [3], [7], [5], [9] and [21], that are likely to be prehistoric in origin.



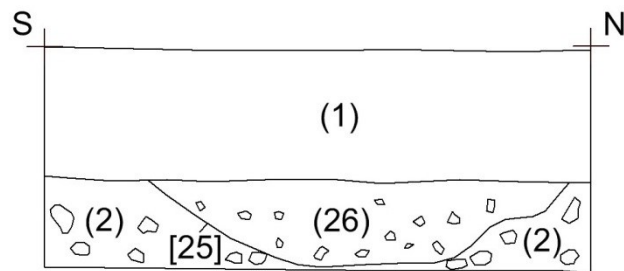
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Drawing 011



Drawing 009



Drawing 010

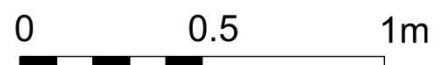
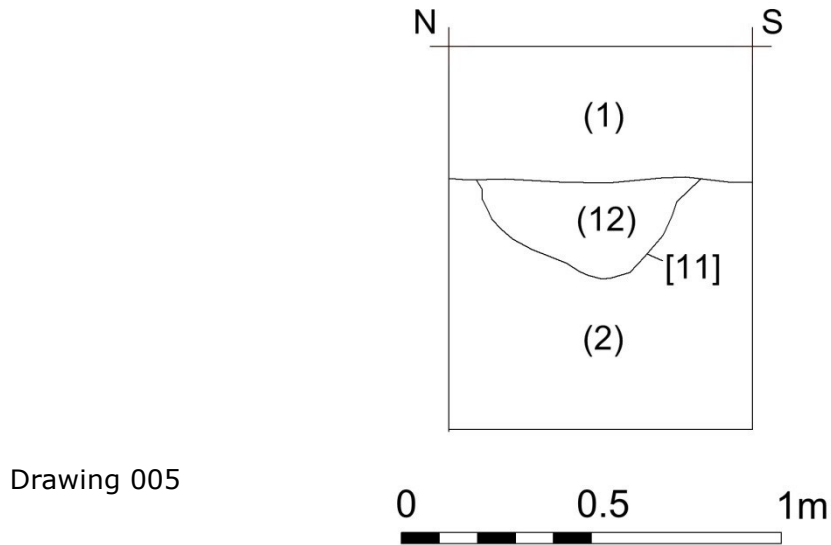
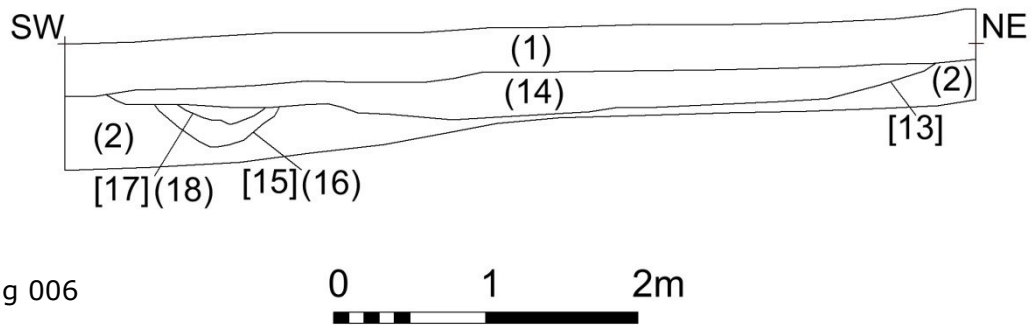


Figure 13. Section drawings of features, from top, [19], [27], [23] and [25], that are likely to be field boundary ditches.



Drawing 005



Drawing 006

Figure 14. Section drawings of features [11] top, and [13] and [15], bottom, the date and function for which cannot be identified.



Figure 15. Excavation in Field 4 for the foundations of the substation showing the appearance of the topsoil (1) and subsoil (2) found across the site.



Figure 16. Probable ditch [21] found within a tail trench at the north end of Field 1.



Figure 17. Probable parallel ditches [23], right opposite the black cables, and [25], left under the scale bar, at the northern extent of the cable trenching in Field 2.



Figure 18. Probable prehistoric ditch [3] close to the no build area in Field 3.



Figure 19. Probable prehistoric ditch [5] in Field 3. Note its greater width compared to [3] above, probably due to the section not cutting the ditch at right angles.



Figure 20. Probable field boundary ditch [19], one of a pair, with [27], to the east of the substation in Field 4.



Figure 21. Probable ditch [15], on the left, and wide pipeline ditch [13], to the right, at the southern end of Field 4.

Appendix 1: Written Scheme of Investigation

Cornwall Archaeological Unit Cornwall Council



Trethosa solar farm, St. Stephen in Brannel: Written Scheme of Investigation for archaeological watching brief.

Project background

Cornwall Archaeological Unit (formerly Historic Environment Projects), Cornwall Council, was initially approached by Julia Edwards of Corylus Planning and Environmental Ltd. on behalf of Trethosa Solar Ltd. with a request to provide undertake an assessment of a proposed solar farm at Trethosa Farm, St Stephen in Brannel covering an area of 10.7 Ha centred at SW 93909 54600.

This initial project assessment consisted of a desk-based assessment, and a walkover survey. The report (Sharpe 2013) recommended that a geophysical survey be undertaken to determine potential impacts on any sub-surface archaeology within the site. Archaeophisica Ltd was subsequently commissioned by the client to undertake a magnetometer survey at Trethosa in June 2013 in line with a requirement from the then Historic Environment Planning Advice Officer (central Cornwall).

The site to be occupied by the solar farm is made up of four agricultural fields extending to 10.7 hectares. The site is located on the southern side of the Hensbarrow uplands on a south west facing slope. The former Maggie Pie mica lagoon is immediately to the west of the site, whilst both working and abandoned sections of the Trethosa (and Melbur) china clay works are to the north, north west and north east. The settlement of St Stephens in Brannel is one kilometre to the south.

The geophysical survey results proved to be particularly clear and not significantly degraded by the effects of modern agricultural practices. Evidence for ploughed out boundaries which are either documented on archive maps or are clearly additional elements of a post-medieval field system were revealed, particularly in the western part of the survey area. These do not all coincide exactly with those shown within this area on the *circa* 1840 Tithe Map and it is suggested that they may reflect a phase of agricultural reorganisation of this area of the farm during the period between 1840 and 1877 – perhaps a short-lived smallholding established in the fields making up the western fringes of the farm.

The current cross-contouring field boundaries can be seen in many cases to be those depicted on the 1840 Tithe Map, and these may in part represent fossilised strip field boundaries dating to the immediate post-medieval period. Evidence for cross-contour plough marks are visible across most of the site, though the deeper soils within the southern fields obscure these to some degree and in the north eastern part of the site they are far less evident, perhaps because of the proximity of the underlying granite/killas contact zone. There is also some evidence for contour-aligned ploughing, particularly in the fields in the northern part of the site, this apparently being aligned with the 'modern' field system boundaries. A number of areas of evidence for probable ridge and furrow have also been highlighted on the interpreted data mapping within the south western part of the survey area. These are clearly of medieval date and underlie the 'modern' arrangement of field boundaries.

The geophysical survey has revealed further examples of ploughed out later period boundaries in the eastern part of the project area, providing a better idea of the field layout during the post-medieval period, revealing the nature of the current field layout prior to the removal of some internal boundaries. One boundary, at least, may be of greater significance, apparently running from the valley base to the west and on well beyond the settlement of Trethosa – this may have been maintained as a long-standing boundary between separate landholdings, and is likely to be of at least medieval date, and appears from archive maps as being likely to have defined the southern edge of the landholdings of Rosavellan Farm to the north (this site and its fields now lie under Kernick mica tip). It may possibly be a perpetuated prehistoric or early medieval land division. This feature was noted as a broad hollow at its eastern end during the walkover survey.

A further field system was also revealed. These boundary elements appear to be part of a separate field system on a different alignment both to that apparently associated with the round and the modern field system. This may be early medieval, medieval or post-medieval in date and may have incorporated some perpetuated elements of the earlier field systems described above. A possible enclosure in the north western part of the survey area may be associated with this phase of landscape organisation, or to an earlier phase of occupation and use.

However, the most significant of the features revealed by the geophysical survey at Trethosa lie at the centre of the northern part of the survey area (Figure 1). Up against the northern boundary, a sub-square enclosure measuring 44m x 44m in plan defined by an encircling ditch, almost certainly represents a late Iron Age/ Romano-British enclosed farmstead of the type known in Cornwall as a **Round**. The outer ditch around this feature is slighter in form than the ditch defining the boundary of the farmstead; double-ditched rounds are not uncommon in Cornwall. Within the north western sector of the round, a number of features are visible within the data set, including a sub-square feature which may represent a structure associated with the round, or alternatively may be an element of an underlying field system. The westernmost of the ditch terminals flanking the entrance to the round was evident within the data as an area of enhanced magnetism, but the eastern side of this entrance was less clearly defined.

The round appears to have a more shallowly-ditched sub-circular feature underlying its south western corner (again, possibly part of an earlier field system) and a further semi-circular feature to its east. It also seems to be associated with a possibly multi-phase field system which is most clearly defined to the immediate west, south and east of the round, though other possibly associated elements extend across the eastern and south western parts of the survey area. This field system may extend beyond the survey area both to the north (under the mica lagoon which occupies parts of the former fields at Trethosa) and to the south (under the neighbouring fields). A number of hollows and pits may also be contemporary.

The impression given is of an arrangement of relatively small enclosures associated with at least two roundhouses which were succeeded by a round during the late Iron Age/ Romano-British period. These early field systems are clearly multi-phase and now only partially survive, making their interpretation difficult. It has been suggested that this round may have been a relatively short-lived feature within this landscape. It is not known whether this was a purely agricultural settlement, or had, in part, a more specialist role such as a centre for tin or iron smelting, as has been found at some comparable sites elsewhere within the landscape surrounding the Hensbarrow uplands.

The alignment of the now-destroyed post-medieval boundary which formerly defined the northern edge of the field within which the round lies seems likely, from evidence on the Tithe Award mapping and the 1877 OS mapping, to have been determined by the existence of the round as an earthwork feature at the time that the boundaries were laid out, suggesting that it survived into the post-medieval period as a relatively substantial landscape feature. Elements of the round, particularly its northern ditch line

and the northern part of its eastern ditch line, were just visible as faint cropmarks on the 1946 RAF aerial photograph. It is assumed that the line of the western ditch circuit around the round underlies the adjacent field hedge.

A ring-ditch, possibly a roundhouse, 9.2m in diameter showed up in the data immediately adjacent to the southern side of the round near its probable southern entrance; the alignment of its entrance is unclear. Around 56m to the south of the round is a further oval ring-ditch, possibly a house of 10m/9m diameter which has an east-facing opening. Both ring-ditches could be roundhouses, which might either predate or be contemporary with the round; neither of the roundhouses appear to be slighted by any of the field boundaries which are apparently associated with the round. There are some hints of a possible third roundhouse near the southern edge of the survey area. All three lie on more or less the same contour.

Phasing the features showing up in the geophysical survey did not prove easy, though some educated guesswork was used to group boundaries paralleling those shown on the Tithe Map or on the OS 1877 mapping, and to group other boundaries with similar alignments or which appeared to show functional relationships. Nevertheless, as there appeared to be at least three phases of boundary showing up in the data, the earliest of these exhibiting a possible sub-phase, it has not been possible to assign some boundary elements revealed by the geophysical survey to realistically secure periods.

The site is also notable for the linear services which show up strongly in the data. Most are likely to be large-sized drainage pipes, only one of which (following the hedgeline dividing the south western and north western fields) was recorded during the walkover survey at its western end, where it now runs from a discharge point over the field hedge north eastwards above the field boundary which it follows, elevated above it on concrete pillars supporting re-used rails before disappearing underground about half way along the boundary. The 1946 RAF aerial photographs show that this originally followed a slightly different route at its western end (the sites of the supports show up in the geophysical data), crossing the road to the west. The 1930s OS 25" mapping showed this pipeline continuing 475m westward to the Trethosa Valley, to which it probably decanted water pumped from the clay pits to the north of Trethosa into the watercourse, though it might later have been re-used to feed material to the developing mica dam at Maggie Pie to the south west of the site.

Another, possibly smaller bore, pipeline was recorded to the south of this more or less paralleling the southern boundary of the survey area, and a further example has the same discharge point in the west on the edge of the valley as the first, but heads north north east towards the Kernick mica lagoon earthworks. A group of responses defining a square in the north east corner of the survey area appears to represent the footings for a tower. This might have been associated with a further temporary pipeline arrangement or could possibly have been the site of a wind powered pump or a small water tower. Nothing is documented here on archive maps.

All of the major pipelines are thought most likely to have been established to take water or mica from the clay pits to the north to disposal areas in the former Trethosa Valley, though it has been suggested (Martin Roseveare pers. comm.) that the central pipeline might have tapped springs arising in the central part of the site. A further, small-scale non-magnetic linear feature near the western edge of the site may represent a further small pipe or drain.

More or less parallel to the western boundary of the site, a contouring linear feature which appears to have its origin in the north-western corner of the survey area and which can be traced down to just to the west of the gateway near the south western corner of the survey area may well have been an early leat, constructed to carry water from the stream along the 76m contour and possibly serving a mine documented on the 1877 OS 25" mapping at Tolbenny just to the south, or a tin streamworks documented as having operated in the nearby valley. It is possible that this water course had its source at Kernick Mill not far to the north to which this area of the site

was linked by a linear strip of woodland and disturbed ground on the 1877, 1907 and 1930s OS mapping. The 1840 Tithe Map hints strongly at a leat heading southwards from Kernick Mill in this direction and following this alignment. Possible pits may represent industrial prospecting or small-scale extractive activity relating to the development of a nearby china clay works.

Management recommendations to protect the late prehistoric enclosure and associated features during the development of the solar farm were included in the report. As a result, the developers have agreed to protect sub-surface archaeology in these particularly archaeologically sensitive areas of the site by mounting the solar arrays in these parts of the development on concrete shoes rather than ground anchors (see below).



Fig 1. Extract from the interpreted results of the geophysical survey showing (red) probably contemporary late prehistoric boundaries, round and round house sites; (orange) possibly contemporary boundary features.

The development project has now been consented, with a requirement that solar arrays within identified particularly sensitive areas of the site (see Fig 2 below) be erected on ground-mounted concrete shoes. An archaeological watching brief is to be undertaken on all other areas of sub-surface intrusion during the groundworks phase of the project.

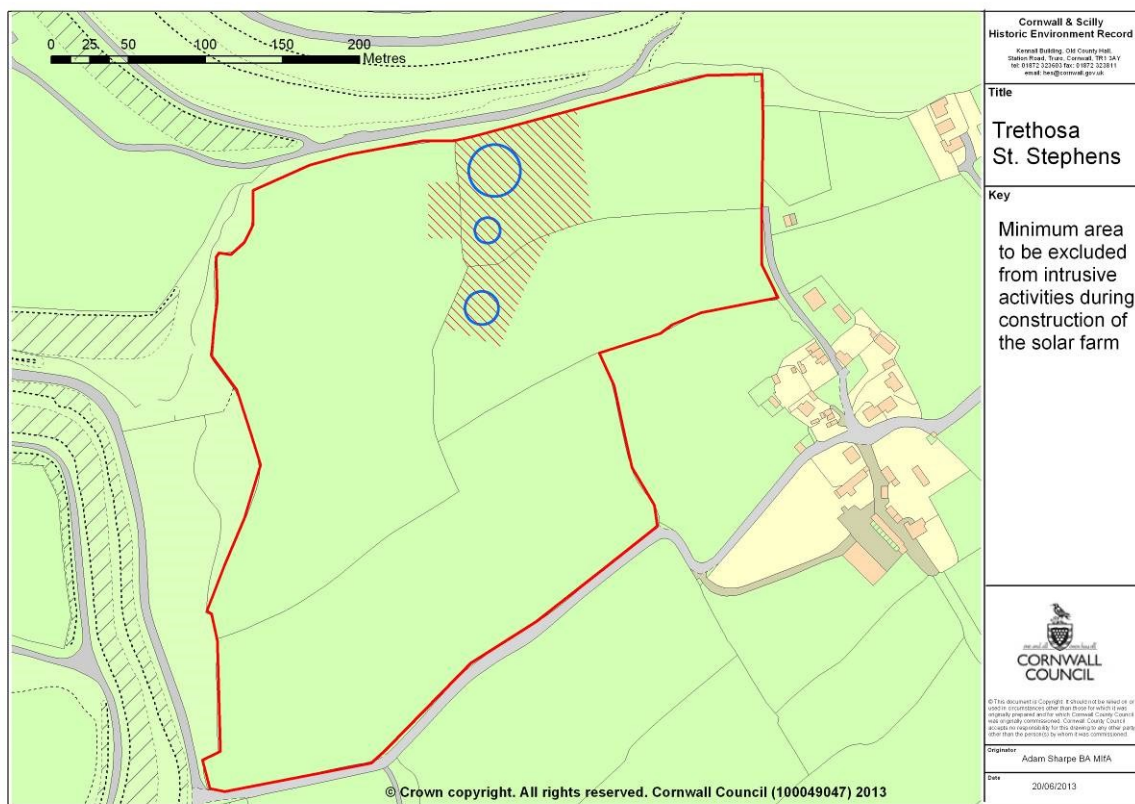


Fig 2. The hatched area represents the area of the solar farm within which all arrays and cabling will be surface mounted to avoid damaging the underlying sub-surface archaeology.

Location and setting

The site proposed for the solar farm is centred at SW 93909 54600 and is made up of four agricultural fields extending to 10.7 hectares. The site is located on the southern side of the Hensbarrow uplands on a south west facing slope (Fig 2). The former Maggie Pie mica lagoon is immediately to the west of the site, whilst both working and abandoned sections of the Trethosa (and Melbur) china clay works are to the north, north west and north east. The settlement of St Stephens in Brannel is one kilometre to the south.

The development area is characterised in the Cornwall and Scilly Historic Environment Record (HER) as 'Anciently Enclosed Land - Farmland Medieval': that is land whose boundary arrangements were substantially reorganised during the medieval period. Land with this historic landscape character is known to have a high potential for the survival of archaeological evidence deriving from prehistoric activity.

The solar farm is proposed to be sited at heights between 114m to the north east and 64m to the south west on soils recorded as being MANOD loams over shale, the bedrock being the Devonian Meadfoot Group, though the contact between the granite and these Devonian rocks lies close to the site.

Project extent

The site consists of four adjacent fields at Trethosa, St. Stephen in Brannel, Gwithian. The watching brief will be limited to the archaeological monitoring of those areas which are to be subjected to ground disturbance during the development of the solar farm, potentially including areas disturbed by cable trenching, but excluding activities associated with the installation of ground anchors where buried archaeological remains may be disturbed. The areas to be monitored are likely to include any temporary compound areas or roadways where the topsoil is stripped and areas prepared for the platforms for permanent plant such as inverters and transformers.

Aims and objectives

The aims of the watching brief are to:

- Establish the presence/absence of archaeological remains within the areas to be disturbed
- determine the extent, condition, nature, character, date and significance of any archaeological remains encountered
- establish the nature of the activity on the site
- identify any artefacts relating to the occupation or use of the site
- provide further information on the archaeology of Trethosa Farm from any archaeological remains encountered

The objectives are to obtain an archaeological record within areas of the site to be subjected to disturbance and to produce a report summarising the findings of the watching brief.

In relation to the eventual decommissioning of the site, CAU will, if required, liaise with the client in the production of their method statement to minimise potential ground disturbance. If required, a methodology to undertake suitable recording would be submitted as a separate WSI prior to decommissioning.

Working methods

All recording work will be undertaken according to the Chartered Institute for Archaeologists *Standards and Guidance for Archaeological Investigation and Recording*. Staff will follow the CIfA *Code of Conduct* and *Code of Approved Practice for the Regulation of Contractual Arrangements in Archaeology*. The Chartered Institute for Archaeologists is the professional body for archaeologists working in the UK.

Desk-based assessment

A desk-based assessment and walk-over survey, together with a magnetometer survey have been carried out and reported on (Sharpe, A. 2013a and 2013b)

Fieldwork: watching brief

The site archaeologist will be present during all significant ground works associated with the development, unless circumstances dictate a different approach. For larger areas, a toothless ditching bucket will be used for the removal of any overburden until the first archaeological horizon is exposed. This will then be hand cleaned as appropriate.

Machines will not run over the stripped area until the archaeological works are complete. The area will be inspected by an archaeologist and any archaeological features or layers exposed in the stripped area will be carefully excavated by hand and archaeologically recorded by written description, plan, section and photographic record as appropriate by a CAU archaeologist.

During the archaeological recording the archaeologist will identify and record any archaeological features that are revealed in the stripped area; the level of recording will be appropriate to the character/importance of the archaeological remains.

If complex and/or significant archaeological deposits are encountered then the archaeological requirements should be reviewed by the client, the Senior Development Officer (Archaeology) Cornwall Council and the CAU Archaeologist. **In the event that remains cannot be preserved *in situ* then full-scale excavation may be required.** A contingency should be allowed to record any significant archaeological remains which are uncovered during the stripping. The significance of the remains should be agreed between the client, Senior Development Officer (Archaeology) Cornwall Council and the CAU Archaeologist.

An archaeological watching brief will be carried out during the excavation of cable trenches and during ground-breaking activities for any temporary or permanent infrastructure. Where practicable, any features exposed by the trenching activity will be sectioned, recorded and located on a site plan; artefacts will be recovered from the trenching spoil.

Where necessary the detailed archaeological recording may include:

- Excavation of archaeological features exposed in the stripped area and plotting them onto a base map.
- Production of plans and section drawings of the excavated features and recording of features using a continuous numbering system.
- Retrieval of artefacts.

Recording: general

Site drawings (plans, sections, locations of finds) will be made by pencil (4H) on drafting film; all plans will be linked to the Ordnance Survey Landline (electronic) map; all drawings will include standard information: site details, personnel, date, scale, north-point. A site grid and site bench mark (TBM) will be set up and features and finds will be recorded in relation to these. The site grid and TBM will be located relative to the National Grid through measured survey from the nearest OS bench mark.

- All features and finds will be accurately located at an appropriate scale. Sections will normally be drawn at 1:10 and plans at 1:20.
- All archaeological contexts will be described to a standard format linked to a continuous numbering sequence.
- Photography: scaled monochrome photography will be used as the archive record medium, with colour digital images used more selectively and for illustrative purposes. This will include both general and site specific photographs. Photographs will include a scale and detailed ones will include a north arrow.
- Drawings and photographs will be recorded in a register giving details of feature number and location.
- Sealed/undisturbed archaeological contexts in the form of buried soils, layers or deposits within significant archaeological features (ditches and pits, etc) will be sampled for environmental evidence and dating material. In the event that significant organic remains are encountered, advice may be needed from Vanessa Straker (Regional Advisor for Archaeological Science). Any necessary environmental sampling will be guided by *Environmental Archaeology* (English Heritage Centre for Archaeological Guidelines. 2001/02).

Treatment of finds

The archaeological fieldwork may produce artefactual material.

- All finds in significant stratified contexts predating 1800 AD (e.g. settlement features) should be collected by context and described. Post medieval or modern finds may be disposed of at the cataloguing stage. This process will be reviewed ahead of its implementation.

- All finds will be collected in sealable plastic bags which will be labelled immediately with the context number or other identifier.

Human remains

Any human remains which are encountered will initially be left in situ and reported to the Senior Development Officer (Archaeology) and the appropriate authorities (the Coroner). If removal is necessary this must comply with the relevant Government regulations. If burials are encountered their legal status must be ascertained and recording and/or removal must comply with the legal guidelines. If human remains are not to be removed their physical security will be ensured by back filling as soon as possible after recording. If human remains are to be removed this will be done with due reverence and in accordance to current best practice and legal requirements. The site will be adequately screened from public view. Once excavated, human remains will not be exposed to public view.

Fieldwork: photographic recording

The archive photographic record shall consist of prints in both black and white and colour together with the negatives. Digital photography will be used for report illustration. For both general and specific photographs, a photographic scale shall be included. In the case of detailed photographs it may be appropriate to include a north arrow. The photographic record shall be accompanied by a photographic register detailing as a minimum, feature number, location and direction of shot.

The photo record will comprise:

- general views
- examples of significant detail

Methodology for the archive standard photography is set out as follows:

- Photographs of details will be taken with lenses of appropriate focal length
- A tripod will be used to take advantage of natural light and slower exposures
- Difficulties of back-lighting will be dealt with where necessary by balancing the lighting by the use of flash
- A metric scale will be included in all views, except where health and safety considerations make this impractical

Archiving

Following review with the CAU Project Manager the results from the fieldwork will be collated as an archive in accordance with: *Management of Research Projects in the Historic Environment (MoRPHE) English Heritage 2006* upon completion of the project.

This will involve washing and cataloguing of finds, the indexing and cross-referencing of photographs, drawings and context records.

All finds will be stored in a proper manner (being clearly labelled and marked and stored according to CAU guidelines). All finds work will be to accepted professional standards and will adhere to the Chartered Institute for Archaeologists *Guidelines for Finds Work*.

All records (context sheets, photographs, etc) will be ordered, catalogued and stored in an appropriate manner (according to CAU guidelines).

The site archive and finds will initially be stored at CAU premises. The archive including a copy of the written report shall be deposited with the Royal Cornwall Museum within two months of the completion of the full report and confirmed in writing with the Senior Development Officer (Archaeology). The RCM will be notified of the commencement of the project and included in discussions for sampling and disposal as appropriate.

The full report including all specialist assessments of artefact assemblages shall be submitted within a length of time (but not exceeding six months) to be agreed between the applicant and the archaeological contractor and the Royal Cornwall Museum. A further digital copy shall be supplied on CD-ROM preferably in 'Adobe Acrobat' PDF format. This report will be held by the Cornwall and Scilly Historic Environment Record (HER) and made available for public consultation. A copy of the report will be supplied to the National Record of the Historic Environment (NRHE) in Swindon, to the Courtney Library of the Royal Cornwall Museum and to the Cornish Studies Library.

In the event that there are no finds or they are retained by the owner, the documentary archive in due course shall be deposited with the Cornwall Record Office, but in the medium term will be stored at ReStore. All digital records will be filed on the Cornwall Council network.

Archive report

The results from the fieldwork will be presented in a concise report. Copies of the report will be distributed to the Client, the Cornwall and Scilly HER and the local and main archaeological record libraries. A PDF copy of the report will be produced.

This will involve:

- producing a descriptive text;
- producing maps and line drawings;
- selecting photographs;
- report design;
- report editing;
- dissemination of the finished report;
- deposition of archive and finds in the Royal Cornwall Museum, Truro.

The report will have the following contents:

- Summary
- Project background
- Aims and objectives
- Methodology
- Location and setting
- Designations
- Site history
- Archaeological results
- Chronology/dating evidence
- Significance
- Mitigation measures
- Conclusions
- References
- Project archive index
- Supporting illustrations: location map, historic maps, plans, elevations/sections, photographs

An English Heritage/ADS online access to the index of archaeological investigations (OASIS) record will be made.

Assessment/analysis / publication

The structural and stratigraphic data and artefactual material will be assessed to establish whether further analyses and reporting is appropriate. The outline of the final report, and the work required to produce it will be determined in an updated project design.

In the event of significant remains being recovered (e.g. prehistoric or medieval artefacts) it may be appropriate to:

- Consult with the Senior Development Officer (Archaeology) over the requirements for assessment, analysis and reporting.
- Liaise with specialists (e.g. artefacts) to arrange for assessment of the potential for further analysis and reporting.
- Arrange for specialist analyses, where appropriate.
- Produce a final report, for example for publication in an academic journal such as *Cornish Archaeology*.

Timetable

The study is anticipated to be commenced during Spring 2015. CAU will require at least two weeks' notice before commencement of work, in order to allow the allocation of field staff time and the arrangement of other logistics.

The archive report will be completed within 3 months of the end of the fieldwork. The deposition of the archive will be completed within 3 months of the completion of the archive report.

Monitoring and Signing Off Condition

Monitoring of the project will be carried out by the Senior Development Officer (Archaeology) Cornwall Council, who will be regularly kept informed of progress. Notification of the start of work shall be given in writing to the SDO(A) at least one week in advance of its commencement. Any variations to the WSI shall be agreed with the SDO(A), preferably in writing, prior to them being carried out.

Monitoring points during the study will include:

- Approval of the WSI
- Completion of fieldwork
- Completion of archive report
- Deposition of the archive

Where the SDO(A) is satisfied with the archive report and the deposition of the archive written discharge of any relevant planning condition will be expected from the local planning authority (LPA).

Cornwall Archaeological Unit

Cornwall Archaeological Unit (CAU) is the archaeological contracting arm of Cornwall Council. CAU employs some 20 project staff with a broad range of expertise, undertaking around 80 projects each year.

CAU is committed to conserving and enhancing the distinctiveness of the historic environment and heritage of Cornwall and the Isles of Scilly by providing clients with a number of services including:

- Conservation works to sites and monuments
- Conservation surveys and management plans
- Historic landscape characterisation
- Town surveys for conservation and regeneration
- Historic building surveys and analysis
- Maritime and coastal zone assessments
- Air photo mapping
- Excavations and watching briefs
- Assessments and evaluations
- Post-excavation analysis and publication
- Outreach: exhibitions, publication, presentations

Standards



CAU is a Registered Organisation with the Chartered Institute for Archaeologists and follows their Standards and Code of Conduct.

<http://www.archaeologists.net/codes/ifa>

Appendix 2: Table of contexts

| Context No. | Field No. | Type | Description | Drawing/Figure Nos. |
|-------------|-------------|---------|---|---------------------|
| 1 | Across site | Deposit | Topsoil – brown clayey-silt | N/A |
| 2 | Across site | Deposit | Subsoil – red-yellow sandy-silt | N/A |
| 3 | F3 | Cut | Steep sided cut of probable ditch | DWG 001/Fig 11 |
| 4 | F3 | Deposit | Fill of [3] – grey-brown clayey-silt | DWG 001/Fig 11 |
| 5 | F3 | Cut | Shallow and concave cut of probable ditch | DWG 002/Fig 11 |
| 6 | F3 | Deposit | Fill of [5] – grey-brown silty-clay | DWG 002/Fig 11 |
| 7 | F3 | Cut | Steep sided U shape cut of probable ditch | DWG 003/Fig 11 |
| 8 | F3 | Deposit | Fill of [7] – grey-brown silty-clay | DWG 003/Fig 11 |
| 9 | F1 | Cut | Concave cut of probable ditch | DWG 004/Fig 11 |
| 10 | F1 | Deposit | Fill of [9] – brown silty-clay | DWG 004/Fig 11 |
| 11 | F1 | Cut | Steep sided concave cut of probable ditch | DWG 005/Fig 13 |
| 12 | F1 | Deposit | Fill of [11] – orange-brown silty-clay | DWG 005/Fig 13 |
| 13 | F4 | Cut | Wide and shallow cut of probable ditch | DWG 006/Fig 13 |
| 14 | F4 | Deposit | Fill of [13] – grey-brown clayey-silt | DWG 006/Fig 13 |
| 15 | F4 | Cut | Concave U shape cut of probable ditch | DWG 006/Fig 13 |
| 16 | F4 | Deposit | Fill of [15] – grey-brown silty-clay | DWG 006/Fig 13 |
| 17 | F4 | Cut | Possible recut of ditch [15] | DWG 006/Fig 13 |
| 18 | F4 | Deposit | Fill of [17] – red-yellow silty-clay | DWG 006/Fig 13 |
| 19 | F4 | Cut | Steep sided concave cut of probable ditch | DWG 007/Fig 12 |
| 20 | F4 | Deposit | Fill of [19] – orange-brown silty-clay | DWG 007/Fig 12 |
| 21 | F1 | Cut | Wide and flat based cut of probable ditch | DWG 008/Fig 11 |
| 22 | F1 | Deposit | Fill of [21] – orange-brown clayey-silt | DWG 008/Fig 11 |
| 23 | F2 | Cut | Concave cut of probable ditch | DWG 009/Fig 12 |
| 24 | F2 | Deposit | Fill of [23] – orange-brown clayey-silt | DWG 009/Fig 12 |
| 25 | F2 | Cut | Flat based cut of probable ditch | DWG 010/Fig 12 |
| 26 | F2 | Deposit | Fill of [25] – orange-brown clayey-silt | DWG 010/Fig 12 |
| 27 | F4 | Cut | Shallow and concave cut of probable ditch | DWG 011/Fig 12 |
| 28 | F4 | Deposit | Fill of [27] – orange-brown silty-clay | DWG 011/Fig 12 |