



Rew Farm, Lostwithiel, Cornwall

Archaeological assessment of proposed solar farm



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The viewshed mapping was carried out by Francis Shepherd, whilst the geophysical survey was carried out by Archaeophysica Ltd.

The views and recommendations expressed in this report are those of Historic Environment Projects and are presented in good faith on the basis of professional judgement and on information currently available.

Freedom of Information Act

As Cornwall Council is a public authority it is subject to the terms of the Freedom of Information Act 2000, which came into effect from 1st January 2005.



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Cover illustration

Looking south across the southern fields at Rew Farm

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Abbreviations

EH	English Heritage
HER	Cornwall and the Isles of Scilly Historic Environment Record
HE	Historic Environment, Cornwall Council
NGR	National Grid Reference
OS	Ordnance Survey

1 Summary

Pre-application CC04424 for a 10.9 Ha solar farm on four fields at Rew Farm just to the south of Sweetshouse, Lostwithiel was responded to by Cornwall Council as part of a screening option on the 14th January 2011. The response indicated that a development of this nature at this location would require an EIA, in particular taking into account the potential for impacts on the settings of the Scheduled Restormel Castle and its nearby Roman period earthwork and on that of the Grade II* Registered Park and Garden at Lanhydrock and the Conservation Area at Lostwithiel.

The site chosen for the solar farm occupies a hillslope location adjacent to the B3269 between Bodmin and Lostwithiel, an island of apparently Recently Enclosed Land (actually marginal Anciently Enclosed Land).within an area of medieval-derived farmland

A brief for site investigation was prepared by the Historic Environment Planning Advice Officer (central Cornwall), Cornwall Council, and HE Projects was commissioned to carry out an assessment of the potential impacts of this proposal on 23rd May 2012. Geophysical survey of the area surrounding the location proposed for the solar farm and along the route for its cables was commissioned from Archaeophysica Ltd.

The assessment consisted of a desk-based assessment, viewshed analysis, a geophysical survey and a walkover survey. The walkover survey revealed no significant archaeology within the proposed development area, whilst the viewshed mapping and its field checking indicated that no negative impacts on the settings of key heritage assets were likely to arise.

The geophysics revealed a series of superimposed field boundaries, the earliest of which are likely to be prehistoric in date and which appear to incorporate small enclosures. These features cannot easily be resolved into coherent field systems. Within most of the survey area, these apparently earlier elements are overlain by traces of ridge and furrow cultivation as well as evidence for modern ploughing. The site also exhibits a strongly magnetic geology. The development of a solar farm at this site may negatively impact these features and further investigation of this potential may be required.

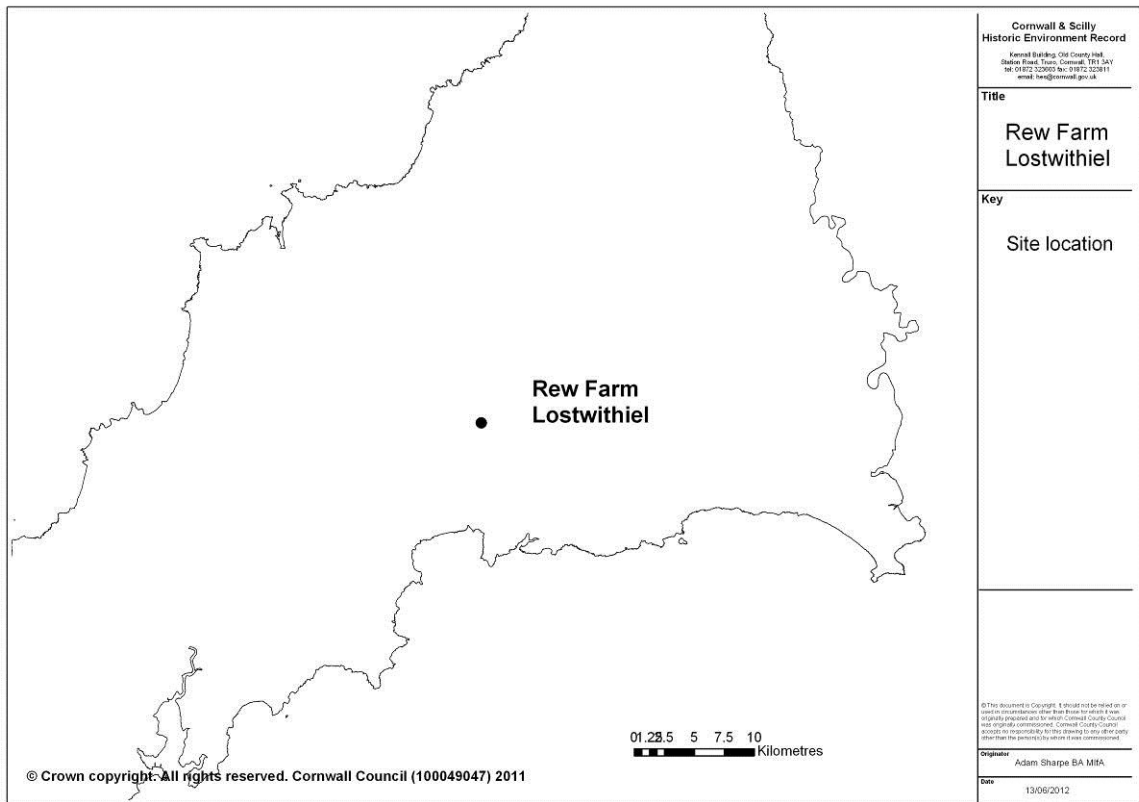


Fig 1. The location of Rew Farm, Lostwithiel.



Fig 2. The fields proposed for the Rew Farm solar farm.

2 Introduction

2.1 Project background

Pre-application CC04424 for a 10.9 Ha solar farm on four fields at Rew Farm just to the south of Sweetshouse, Lostwithiel (Figs 1 and 2) was responded to by Cornwall Council as part of a screening option on the 14th January 2011. The response indicated that a development of this nature at this location would require an EIA, in particular taking into account the potential for impacts on the settings of the Scheduled Restormel Castle and its nearby Roman period earthwork and on that of the Grade II* Registered Park and Garden at Lanhydrock and the Conservation Area at Lostwithiel.

A brief for the investigation of impacts on heritage assets, both within and surrounding the site dated 9th February 2011 was prepared by Dan Ratcliffe, the Historic Environment Planning Advice Officer (Central), Cornwall Council. Requests for a Written Scheme of Investigation (WSI) and cost schedule for the work were received by Historic Environment Projects from The Green Company (TGC Renewables) on 17th May 2012. HE Projects Cornwall Council was commissioned to undertake an archaeological assessment on 23rd May 2012. Geophysical survey of the area proposed for the solar farm was commissioned from Archaeophisica Ltd and undertaken on 21st June 2012. The walkover survey and viewshed check were undertaken on the 11th June 2012.

2.2 Aims and objectives

The principal aim of the study is to gain a better understanding of the impacts which would result from the construction of a solar farm on land at Rew Farm in the parish of Lostwithiel.

The overall project aims are to:

- Follow the approach outlined in Section 3 of the English Heritage guidance on setting (English Heritage 2011).

The site specific project aims are to:

- Establish viewsheds of the proposal site.
- Draw together historical and archaeological information about the development site and its surroundings, including relevant information held within the Cornwall Historic Environment Record.
- Review and analyse historic map evidence for the site.
- Produce statements of significance for all designated heritage assets that are identified as potentially impacted on by the current proposals. Where currently undesignated assets are identified their likely significance will be indicated.
- Inform whether archaeological recording of any extant remains is required.
- Inform whether an archaeological evaluation or further archaeological recording of any potential buried remains is required.
- Inform whether paleoenvironmental sampling would be required.
- Undertake a geophysical (magnetometer) survey.
- Identify the construction, use and 'end of life' impacts of the current proposals on the significance of the setting of these assets and the proposal site.
- Produce a report containing the geophysical data and the data in interpreted form.
- Inform whether an archaeological evaluation or further archaeological recording of any potential buried remains or other mitigation is recommended.

The objective of the project is to produce a report setting out the likely range of impacts (both direct and on settings) of the development on heritage assets within the site or the surrounding locality, as defined above.

2.3 Methods

2.3.1 Desk-based assessment

As part of the desk-based assessment (DBA), 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 within the site boundaries. The main sources consulted were as follows:

- Published sources available in the Cornwall and Scilly HER
- Historic maps including;
 - Joel Gascoyne's map of Cornwall (1699)
 - The *circa* 1699 Lanhydrock Atlas
 - Norden's Map of Cornwall (1728)
 - Thomas Martyn's map of Cornwall (1748),
 - OS 1 inch survey (*circa* 1810)
 - Lostwithiel 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 mapping.
- Cornwall and Scilly Historic Buildings, Sites and Monuments Record (HBSMR).
- Information held as GIS themes on the Cornwall and Scilly HER.

The historical and landscape context of the site was also considered during this stage of the assessment in order to establish the nature of the heritage assets which are located within the area surrounding the proposed solar farm.

2.3.2 Viewshed analysis

An assessment of the impacts of the proposals was made from the surrounding area using the guidelines and methodological approaches set out in English Heritage's recent consultation draft guidance on the setting of heritage assets. This was based on GIS-based viewshed mapping produced using a model of theoretical inter-visibility between the proposed solar farm and significant heritage assets within the surrounding landscape; the viewshed (ZTV or Zone of Theoretical Visibility) was generated using ArcGIS software. The methodology employs a Digital Surface Model (DSM), which takes account of surface features such as buildings, woodland, vegetation, roads etc, and provides a more accurate representation when compared to a 'bare earth' or DTM elevation model. A viewshed was generated for four 'observer points' based on the centroids of the fields proposed for the solar farm.

When performing a viewshed analysis, several variables are used to limit or adjust the calculation including offset values, limitations on horizontal and vertical viewing angles (azimuth) and distance parameters (radius) for each observer point. For the four fields proposed for the solar farm at Rew Farm, the viewshed was based on an 'overall observer elevation value' made up of the 'elevation value' or height above sea level of the ground at the observer viewpoint, with added to this an additional offset of 2m to represent the height of the solar arrays. This viewshed was checked on the ground, given that vegetation and other factors may block views to key sites, whilst significant heritage assets within the theoretical viewshed were visited (where access was possible) to determine intervisibility with the proposed development site, and hence the

scale and type of any visual impacts which may affect their settings, as required by English Heritage (2011). A viewshed radius of either 5Km or 3Km was used to determine potential impacts on designated heritage assets and a radius of 1Km for undesignated heritage assets (see Figs 15-23).

2.3.3 Fieldwork

In order to check the validity of the Zone of Theoretical Visibility (ZTV) indicated by the viewshed analysis, and thus the potential impacts on key heritage assets within the ZTV, site visits were made to both the areas proposed for solar arrays, and to key locations within the surrounding landscape. A visual check and photographic record were made of intervisibility (or the lack of it) between the proposed development site and heritage assets indicated by the ZTV mapping as being likely to be within the viewshed. A walkover survey of the site proposed for the solar farm and for its cabling was also undertaken to examine the site for upstanding archaeology and to record the nature of the boundary types which might be impacted upon during the development.

2.3.4 Fieldwork – geophysical survey

A geophysical survey of the four fields proposed for the solar farm was commissioned from Archaeophysica Ltd. The fieldwork was undertaken on 21st June 2012.

Geometrics MagMapper G858 caesium vapour magnetometers were used for the survey, using a high performance sledge mounted acquisition system. The four sensors were sited approximately 0.3m above the ground surface to maximise sensitivity while decreasing the strengths of anomalies from surface, whilst a line separation of 0.5m was used. The along line interval was approximately 0.25m following English Heritage guidance. As the ground conditions were suitable the instruments were deployed as an array mounted on a specially constructed nonmagnetic high performance sledge towed by a quad bike, offering a faster rate of coverage, less contact with the ground and a stable measurement platform. The sled-based approach avoids the need for extensive grid set out because real time tracking is provided by GNSS receiver mounted on the sledge. Coverage can be guided by real time track plotting visible to the driver who also monitors instrument data, positioning quality and survey resolution through continuous display on a ruggedized laptop mounted on the quad.

The field data was subjected to normal potential field processing techniques including reduction of the background regional field and splitting of the resultant residual field into different depth models through analysis in the frequency domain, yielding a shallow data set modelling anomalies likely to originate within the upper 3m of ground and also a pseudo-gradient data set which models the response of a 1m vertical gradiometer.

The data was presented as a series of greyscale images overlaid onto map data georeferenced to the Ordnance Survey grid. A separate catalogue map graphically highlights the most significant anomalies regardless of their origin and also provides a numerical key to a detailed anomaly catalogue included within the Archaeophysica report (see Table 1 and Figs 37-39 in this report). Significant aspects of the results were discussed, and were accompanied by a detailed methodological description, and justification and analysis of the geophysical environment and its impact upon or presence within the data.

The geophysics report was supplied to Historic Environment Projects, Cornwall Council on 3rd July 2012; its findings have been incorporated into the HEP assessment report and form the basis of recommendations for any further investigative work on site.

2.3.5 Post-fieldwork

On completion of the project and following review with the HE 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 Historic Environment Record (HER) and made available for public consultation once a planning application for the site has been made. A copy of the report will be supplied to the National Monuments Record (NMR) 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 fields proposed for the solar farm are centred at SX 09017 61526 and SX 09072 61055 on land centred at 400m and 800m to the south south east of Sweetshouse adjacent to the road linking Bodmin with Lostwithiel. The site lies between 160m and 170m OD on the upper west facing side of a ridge which slopes to the east to the River Fowey and to the west towards Redmoor Marsh (Fig 2).

The development area is characterised in the Cornwall and Scilly Historic Environment Record (HER) as 'Recently Enclosed Land, Farmland post-Medieval (land enclosed following the Medieval period), this being set within a block of 'Anciently Enclosed Land' (Farmland Medieval) to the north of Lostwithiel (Fig 12). The Lanhydrock Atlas makes it clear that these fields should be re-mapped as marginal Anciently Enclosed Land with a complex use history.

The fields selected for the construction of the solar farm are part of a group of contiguous enclosures laid out along the hilltop, in 1840 this being part of Rue (*sic*) Farm.

The parent bedrock underlying the hilltop application site is recorded as the Upper Devonian limestones, mudstones and calcareous mudstones of the Meadfoot Group overlying Lower Devonian mudstones, siltstones and sandstones (BGS data). The soils in the fields proposed for the development are recorded as Denbigh 2 loams over shale.

4 Project extent

The archaeological assessment was focussed on those heritage assets (whether designated or not) which might be physically impacted upon through activities associated with the construction of the solar farm, including cable trenching, siting of temporary compounds, cranes or other equipment and with any associated semi-permanent infrastructure.

The assessment takes into account and quantifies impacts on the settings of heritage assets (both designated and undesignated) within the viewshed of the proposed solar farm site in line with Policy HE6 in PPS5, sections 16(2) and 66(1) of the Planning (Listed Buildings and Conservations Areas) Act 1990 Chapter 9, taking into account English Heritage guidance relating to the setting of historic assets (2011), namely:

- Non-designated heritage assets – 1Km radius (Fig 19).
- Scheduled Monuments, Listed Buildings – 3Km radius (Figs 16 to 17).
- Conservation Areas – 3Km radius (Fig 18).
- Registered Parks and Gardens – 5Km radius (Fig 15).
- Historic Battlefields – 5Km radius.

5 Designations

5.1 National

No national designations apply to the field proposed for the development.

The 3Km radius viewshed zone includes a number of Scheduled Monuments: the Neolithic Lesquite chambered tomb (DCO1212), Lesquite Medieval cross (DCO803), Helman Tor Neolithic tor enclosure (DCO1736), a churchyard cross at Lanhydrock (DCO836), Respryn Bridge (DCO1468), Restormel Castle (DCO188), the Roman fort at Restormel (DCO1688) and a lantern cross and grave slab at St. Bartholomew's Church, Lostwithiel (Fig 16). Of these, only Helman Tor and the chambered tomb at Lesquite are likely to be intervisible with the solar farm.

This 3Km zone contains 152 Listed Buildings at grades from I through II* to II (see table in Section 12.2.2 for the eleven which are potentially intervisible with the proposed wind turbines). The majority of the Listed Buildings within the 3Km radius of the site are at Lanlivery, Lostwithiel, Pelyn, Lanhydrock and at Restormel (Fig 17). Not all of these structures will be intervisible with proposed solar farm.

The Grade II* Registered Parks and Gardens at Boconnoc (DCO21) and Lanhydrock (DCO30) lie just outside the 5Km radius of the site and within the 3Km radius of the site respectively (Fig 15).

The fields proposed for the development are immediately adjacent to an area of landscape designated as an Area of Outstanding Natural Beauty (AONB, Fig 20).

5.2 Regional/county

The field proposed for the development is within an area designated as an Area of Great Landscape Value (AGLV, Fig 22), and immediately adjacent to an Area of Great Historic Value (AGHV, Fig 21) and an Area of Great Scientific Value (AGSV, Fig 23). The Conservation Area at Lostwithiel is 1.5Km to the south east of the application site (Fig 18).

5.3 Local

No local designations apply to the field proposed for the development.

5.4 Rights of Way

No rights of way traverse the sites proposed for the solar farm. This area is not registered as open access land under the CROW Act 2005.

6 Results of desk-based assessment

This block of landscape between Bodmin to the north and Lostwithiel to the south is predominantly long-established farmland, the layout of the boundaries which frame its fields having been established during the medieval period, and there are few indications, either in the form of upstanding monuments or as crop mark sites, to indicate the form which the landscape would have taken during prehistory. It is to be expected that, during the Bronze Age, the higher hills and ridges would have sited barrow cemeteries, whilst farming settlements would have been found on their flanks and in the lowlands. By the late Iron Age, areas of this sort would have been farmed from defended farmsteads (rounds) with a distribution similar to those of modern farms, though almost no evidence for these now survives within this particular area.

One of the principal reasons for the disappearance of the evidence for early settlement almost certainly resulted from the effects of the construction of Restormel Castle in the years shortly following the Norman Conquest and its establishment as an important Duchy manor and stannary administrative centre.

Restormel Castle was originally built as a motte and bailey around 1100 AD by Baldwin Fitz Turstin, who had been appointed local sheriff. Overlooking the principal crossing point on the River Fowey, it occupied a key tactical location, but also functioned as an important administrative centre. A large proportion of the surrounding landscape was converted into a deer park, used by the occupants of the castle for hunting.

Between 1192 and 1225, Robert de Cardinham, then lord of the Manor of Restormel, built up the inner defences of the castle and modified its gatehouse. The settlement of Lostwithiel (see below) was established around this time. The castle remained the primary residence of the Cardinham family for several years, though passed by marriage to Thomas de Tracey, who continued to own it until 1264, when it was seized by Simon de Montfort during the civil conflicts which took place during the reign of Henry III. It was subsequently seized back by the former High Sheriff of Cornwall, Sir Ralph Arundell, in 1265, and was subsequently granted to Richard of Cornwall (the King's brother) in 1270. On his death the following year, the castle passed to his son, Edmund, who adopted it as his primary residence and administrative base, it becoming known as the 'Duchy Palace'. It also became the administrative centre for the local stannary.

In 1299, the castle reverted to the Crown, and from 1337 onward was referred to as one of the 17 'antiqua maneria' of the Duchy of Cornwall, though was rarely used as a residence. Following the loss of Gascony, one of the principal possessions of the Duchy, the contents of the castle were stripped. Nevertheless, the castle remained the principal administrative location for this Duchy manor. Henry VIII finally removed the park status from the surrounding land, enabling its re-use as farmland.

During the English Civil War the castle saw a little action in August 1644, when its Parliamentary garrison was driven out and the castle was taken by Sir Richard Grenville. It has been speculated that the castle was slighted by the Royalist forces to prevent its re-use – certainly by 1740 it was in ruins, from this date effectively becoming a visitor attraction. So close is the site proposed for the solar farm to the castle that it is almost certain that it would have fallen within the area of the landscape directly controlled by its occupants, possibly within its deer park.

However, the control of the crossing point on the River Fowey which formed the basis of the location selected for Restormel Castle in 1100 seems to have been recognised many centuries before, as evidenced by the discovery of a Roman fort(s) 365m to its south west. This appears to have been occupied between the 1st and 4th centuries AD, and finds of Roman pottery, coins, brooches and other material in the area surrounding it suggests that there might have been extra-mural occupation sites. The fort appears to have been paired with an equivalent at Nanstallon near Bodmin which overlooked the lowest crossing point on the River Camel. It seems likely that the two forts may well have controlled an important overland route between the English Channel and the Bristol Channel whose use would obviate the need to take the dangerous sea route around Lands End.

The landscape near Restormel Castle was, therefore, under either military or aristocratic control from the 1st to the 4th centuries and from the 12th to the 17th centuries. This factor may well have influenced the form of agricultural activities and patterns of settlement on this site during these specific periods.

Lostwithiel itself was founded in about 1100 as a port at the highest navigable point on the River Fowey, near its highest crossing point at Restormel. It was granted borough status and continued to elect two members to the House of Commons until the passing of the Reform Act of 1832, remaining a municipal borough until the 1960s. Much of the economy of the settlement was based on the tin produced by the local stannary, and the town sited the Duchy Palace from which the stannary was administered. However, silty waste flushed into the River Fowey from the very productive tin streams of Bodmin Moor eventually choked up the port.

To the north of the site proposed for the solar farm are the great house and park of Lanhydrock, set beside the River Fowey. The Lanhydrock estate had been granted to

the Augustinian priory of St. Petroc at nearby Bodmin, but following the Dissolution of the Monasteries had passed into private hands, and was then acquired by Sir Richard Robartes, a wealthy local merchant, in 1620. The building of Lanhydrock House, its park and gardens began at this date and was continued by his son from 1624. During the 18th century, the original east wing was demolished, whilst in 1881 a major fire destroyed the south wing and damaged the central section of the house. New sections were subsequently built to partially replace these, whilst the extensive park and gardens were further developed. By 1872, Lord Robartes MP of Lanhydrock was one of the top ten landowners in Cornwall, having an estate extending to nearly 90 square kilometres. However, the family subsequently went into decline, and in 1953 the house, gardens and park (extending to 160 Ha) were given to the National Trust by the 7th Viscount Clevedon. By 2004 Lanhydrock was one of the National Trust's ten most-visited properties. The southern boundary of its park is just over 1.5Km to the north of the site proposed for the solar farm, whilst the house is just under 2Km away.

Just under 1Km to the east of the fields proposed for the solar farm, a gash running north-south through the landscape for nearly a kilometre marks the surface evidence for Restormel Royal iron mine. Formerly known as Trinity Mine and documented to have been at work since at least 1797, the mine was renamed following a visit by Queen Victoria and Prince Albert in 1846. The mine produced roughly 125,000 tonnes of high quality iron ore between 1855 and 1883.

Originally worked as a gunnis (a narrow, quarry-like openwork), the mine was subsequently developed using levels, shafts and stopes down to 120m from the base of the gunnis (up to 150m in total), and were connected by a horse-drawn tramway to the docks at Lostwithiel. Recent discoveries of evidence for iron smelting within the Roman period settlement to the north of the mine strongly suggests that it may have already been in operation during the early centuries AD.

The first mapping depicting this area dates to the 17th century, when Joel Gascoyne produced his map of Cornwall (Fig 3) and depicted Rew Farm (as '*Rue*'). However, at about this date, Joel Gascoyne also produced the estate maps which have been brought together as the Lanhydrock Atlas, and this source (Fig 4) depicts and describes the fields making up Rew Farm, naming those making up the northern block proposed for the solar farm as '*North Great Field*' and '*South Great Field*', whilst the southern pair of fields were named '*Fore Park*' and '*Demiens Park*'. All but '*Demiens Park*' were depicted as being in arable cultivation at the end of the 17th century.

John Norden's map dating to 1728 (Fig 5) does not depict Rew Farm, but shows the nature of the hilly landscape to the west of Restormel Castle. John Martyn's map of Cornwall dating to 1746 (Fig 6) again named and located Rew Farm.

The 1st Edition of the Ordnance Survey 1" to a mile mapping (Fig 7), dating to the first decade of the 19th century, again showed the surrounding landscape with its network of roads and lanes linking churchtowns and farms, but also carrying the highway from Fowey and Lostwithiel to Bodmin. The mapping emphasises the prominent ridge followed by this road, adjacent to which the solar farm is proposed.

The *circa* 1840 Lanlivery Tithe Map (Fig 8) showed a fully developed agricultural landscape almost identical to that which exists today. The fields chosen for the development of the solar farm were, at the time, part of Rue Farm, as they had been in 1699 and were named as follows: 1111 – Furze Park (formerly *Fore Park* - arable, 5 acres, 1 pole and 25 perches), 1113 – Demesne Park (formerly *Demiens Park* - arable, 5 acres, 1 pole and 32 perches), 1067 – North Great Furze (formerly *North Great Field* - arable, 7 acres, 1 pole and 11 perches) and 1074 – South Great Furze (formerly *South Great Field* - arable, 8 acres and 26 perches). In 1840 the farm was tenanted by Charles Oliver and owned by the Honourable Anna Maria Agar (of Lanhydrock) who, with William Rashleigh and the Earl of Mt. Edgcumbe jointly owned most of Lanlivery parish. Although the fields were all recorded as having been in arable within the previous seven years, their 'furze' (gorse) names suggest that they had been allowed

to revert since 1699, when three of them had been in arable; 'Demiens Land' had been in rough pasture or croft in 1699.

By the late 19th century and into the first decade of the 20th century (Figs 9 and 10) it can be seen from the 1st and 2nd Editions of the Ordnance Survey 25" to a mile mapping that this was a landscape of large fields and fairly dispersed farms, much as it is today. Some boundary removal within the adjacent fields evidently took place during the 20th century, as can be seen by comparing this mapping to the modern OS MasterMap (Fig 2) and the 2005 Cornwall Council aerial photograph (Fig 11). The Historic Landscape Character mapping (Fig 12) summarises this history of landscape development, whilst the NMP mapping (Fig 13) shows no features of archaeological interest within the proposed application area.

7 Results of site walkover

A site walkover was undertaken on 11th June 2012. The weather was fine and warm, with very little cloud, allowing clear views of the surrounding landscape. Three of the fields proposed for the solar farm were in sheep-grazed grass, the fourth contained a grass crop 250mm high.

The fields are part of an apparently contemporary block of enclosures on the ridge (formerly downland), all currently being in grass crops or used for sheep grazing. Their boundaries are all more or less straight, and consist of Cornish hedges averaging 1.2 to 1.6m in height, all vegetated with hazel and some having small areas of close-trimmed ash and oak. One mature ash tree was recorded on the eastern hedge of the southern field; many others have become established around the periphery of the small quarry which is immediately to its south adjoining the public road. No upstanding or earthwork archaeology was recorded with the exception of a granite-lintelled sheep creep through the hedge in the hedgeline of the southern field.

A modern hilltop reservoir lies close to the site proposed for the solar farm; the surrounding landscape also includes a number of large modern barns, whilst high voltage electricity distribution pylons cross the landscape between Sweetshouse and Lanhydrock Park.

8 Summary results of geophysical survey

See Figures 37-39 for feature references and table 1 for feature catalogue.

The four fields proposed for the solar farm were surveyed by Archaeophysica Ltd on 21st June 2012, the survey results being supplied to HE Projects at the beginning of July 2012.

The geophysics results proved to be quite complex, revealing traces of several superimposed field systems together with a number of small associated enclosures. Evidence for medieval ridge and furrow cultivation and for strip fields (though on a different alignment) were also present within the data. On morphological grounds, it is probably fairly safe to say that at least one probably late prehistoric field system is evidenced by the data, together with elements of one or more medieval field systems.

The Archaeophysica report notes the shallow north east to south west trending geology underlying the survey area and the presence of discrete strongly magnetic sources which may relate to localised variations in the bedrock. Striation resulting from modern ploughing was clearly visible in the data.

Within the south eastern field, feature [28] appears to be a small enclosure of probably prehistoric date but uncertain function, which appears to be appended to fragments of a field system, other elements of which include boundaries within the south eastern field [features 30, 31, 32]. The survey also revealed three possibly-related discrete

enhanced features [33, 34, 35] within these fields which may represent hearths or kilns. Evidence for medieval ridge and furrow cultivation is visible within both fields, particularly to the west.

The northern pair of fields also include evidence for ridge and furrow cultivation, apparently crossed by strip field boundaries [features 17, 18, 21 and possibly 12, 14 and 7]. These, however, overlie an apparently prehistoric field system [features 3, 4, 8, 11, 13, 16, 22, possibly also 12 and 19] associated with a small enclosure [feature 10], as well as further group of features which may be associated with an further early field system [1, 2, 5, 6, 7 and possibly 9] which is perpetuated in the modern enclosure boundary extending from the western side of the north western field and curving round to its west and south west. Feature [23] is a strongly dipolar group which might be a particularly magnetised bedrock outcrop but may also be a backfilled quarry or similar.

Archaeophysica conclude that a *'complicated set of overlaid field systems exist at this site ... The presence of prehistoric enclosures makes it likely that there is prehistoric [settlement] enclosure near by and although no definite signs are evident in the survey data it remains possible that domestic structures once existed within these fields although their detection through remote sensing is unlikely.'*

9 Results of viewshed analysis

See Figures 16 to 23.

Given the elevated, hillslope location of the site, the viewshed analysis suggests that the Zone of Theoretical Visibility (ZTV) would be fairly far-reaching. In line with the requirements of the brief, the ZTV has been mapped to a distance of 5Km from the site in order to assess potential impacts on Registered Parks and Gardens and Registered Battlefields. The ZTV will inevitably extend a considerable distance beyond this, but the visibility of the solar arrays will diminish considerably with distance, and will be increasingly blocked by intervening buildings within settlements or by tree plantings.

The landscape to the east and west of the Fowey Valley is much dissected by its tributary streams and characterised by hills and ridges. As a result, the ZTV mapping shows that the solar farm will be visible from the surrounding hilltops and from the upper parts of hillslopes facing the site, but will be invisible from valley sites. These hills and ridges also limit the extent of the ZTV, especially to the east and west (see Fig 15 for an illustration of this effect).

Within the immediate environs of the site, the viewshed mapping suggested that the solar farm would theoretically be visible along its ridgetop site to the north as far as Sweetshouse, to the west to Redmoor and to the south east towards Hillhead. Beyond this to the west, the site would be visible along the ridge from Helman Tor to Crift Downs, though this element of the local landscape blocks visibility further west. To the north the ZTV almost wholly terminates along the tops of the run of hills from Bokiddick eastwards through Lesquite, Trebyan, Cutmadoc and Glynn, though some limited views of the site might be available at Castle Canyke and Bodmin Beacon. To the east, the ZTV terminates along the hills fringing the Fowey Valley from Bofarnel Downs to the north through Fairy Cross southwards to Beacon Hill and Trewether near Lostwithiel. Again the viewshed analysis suggested that some fragmentary glimpses of the site might be visible further to the east from the edges of Boconnoc Park and from the barrow cemeteries to the east of Fairy Cross and Bedwindle, but from these more distant sites the development will form only a small element in landscape views. Significant attenuation of the visibility of the solar arrays will occur with distance, and there is a greater likelihood of the blocking of intervisibility due to local factors such as trees, hedge vegetation and buildings.

The viewshed mapping suggested clear intervisibility between the Scheduled Monuments at Helman Tor and Lesquite chambered tomb (Fig 16).

In relation to the Lostwithiel Conservation Area, the viewshed analysis indicated that local topography would block any views of the proposed solar farm.

Almost all of the small number of probably intervisible Listed Buildings lie to the north of the site of the proposed development, around Lanhydrock and between 2Km and 3Km away from it, the only exception being the Listed milepost immediately to the west of the northern end of the southern block of fields. Given this distance and the wooded nature of much of the countryside to the north of the proposed development, any intervisibility with the solar farm would be very patchy and impacts on the settings of this small number of Listed Buildings will either be neutral or negative/minor in character. None will experience the solar farm as a major landscape feature.

Despite the relative proximity of the proposed solar farm to the Registered Park and Garden at Lanhydrock, the viewshed mapping suggested that intervisibility between areas of the park and garden and the solar farm would be very patchy (Fig 15) and that tree plantings within the park would significantly screen the solar arrays from most areas of it. In the case of Boconnoc, the solar farm would be at a significant distance from its park and intervisibility is likely to be limited to its south western edge.

Field verification of ZTV

The viewshed mapping and potential impacts were ground checked from a number of locations, including Cutmadoc, Lanhydrock House, Park and Gardens, Lesquite, Helman Tor, Sweetshouse and Boslymon, as well as Beacon Hill, Druid's Hill and Fairy Cross to the east of Lostwithiel. Intervisibility from other locations closer to the proposed solar farm site was also checked. At each accessible designated heritage site the potential visibility (and proportional visibility) of the proposed solar farm was considered. Views out from the site towards key heritage assets were checked from each of the fields proposed for the solar farm, and an assessment of the degree of openness of the views out from the site was also made.

Photographs were taken from key sites within the surrounding landscape and from the fields proposed for the solar farm back to these sites.

Despite the elevated, ridgetop position of these fields, the combination of their more or less level interiors and the 2.1m high hedges enclosing them tended to block out many views of the surrounding landscape. From the north-eastern pair of fields distant views could be had of the northern part of Bodmin Moor as far away as Brown Willy, whilst at the south end of the Moor, Stowes Hill is a skyline feature from the site. To the east and south east, views terminate on the ridge of high ground running from Beacon Hill (above Lostwithiel) through Druid's Hill, Fairy Cross and the high ground above Bofarnel. Far away to the west, the summit of Hensbarrow can be glimpsed. However, the Fowey Valley and Restormel Castle are entirely hidden by the local topography, as is Lostwithiel to the south. From the southern fields Helman Tor is clearly visible on skyline 3Km away, whilst the downs which site Lesquite chambered tomb form the skyline to the north west 2.5Km away. The clearest views back to the site would be from the summit of Helman Tor, but due to the very flat angle of view of the solar farm from this location, the mature hedges surrounding the fields in which it would be sited, and the distance between the sites, it is doubtful if many visitors to Helman Tor would notice its existence.

In practice, field hedges, woods and other tree plantings blocked views in many of the rural areas; within settlements, groups of buildings and mature garden trees and shrubs also blocked many views back to the site, whilst the topography and wooded nature of the Lanhydrock parkscape almost completely limited intervisibility between this site and its house and the proposed solar farm. The visibility cut-off imposed by the local topography which was suggested by the viewshed mapping was confirmed.

10 Synthesis

Whilst the walkover survey did not indicate the presence of any upstanding archaeology which might be impacted upon by the proposed solar farm at Rew Farm, the geophysical survey data suggests that this area includes a substantial number of sub-surface features which are likely to be of archaeological significance and whose identification, date, state of preservation, importance and vulnerability to intrusive activity may need to be established by evaluation trenching.

Impacts on the settings of both designated and undesignated heritage assets within the local landscape resulting from the construction of a solar farm on land to the south of Sweetshouse will vary with their distance from the proposed development, their state of preservation, their nature and their sensitivity to impacts on their settings. Other significant factors will include the effects of reduced or blocked intervisibility due to local topography, vegetation (including hedge plantings) or the presence of other buildings. In some cases, even where intervisibility will be present, topography will limit intervisibility to glimpses or fragments. With the exception of Helman Tor and the Lesquite Neolithic chambered tomb (Figs 25 and 26), almost none of the designated sites will have clear and uninterrupted intervisibility with the solar farm. Even in these cases, the solar farm will form only a relatively small element of the views from these sites.

11 Policies and guidance

The following section brings together policies and guidance (or extracts from these) used in the development of the assessment and its methodology.

11.1 Planning Policy Statement 5 (PPS5), 'Planning for the Historic Environment'

11.1.1 Policy HE9.6

HE9.6 *'There are many heritage assets with archaeological interest that are not currently designated as scheduled monuments, but which are demonstrably of equivalent significance...The absence of designation for such heritage assets does not indicate lower significance and they should be considered subject to the policies in HE9.1 to HE9.4 and HE10.'*

11.1.2 Extracts from Policies HE9.1 to HE9.4 and HE10

Policies HE9.1 to HE9.4 and HE10, referred to in Policy HE9, include the following;

- HE9.1 *'There should be a presumption in favour of the conservation of designated heritage assets and the more significant the designated heritage asset, the greater the presumption in favour of its conservation should be. Once lost, heritage assets cannot be replaced and their loss has a cultural, environmental, economic and social impact. Significance can be harmed or lost through alteration or destruction of the heritage asset or development within its setting.'*
- HE9.2 *'Where the application will lead to substantial harm to or total loss of significance local planning authorities should refuse consent unless it can be demonstrated that: (i) the substantial harm to or loss of significance is necessary in order to deliver substantial public benefits that outweigh that harm or loss...'*
- HE10.1; *'When considering applications for development that affect the setting of a heritage asset, local planning authorities should treat favourably applications that preserve those elements of the setting that make a positive contribution to or better reveal the significance of the asset. When considering applications that*

do not do this, local planning authorities should weigh any such harm against the wider benefits of the application....'

11.2 PPS5 English Heritage guidance

The English Heritage and DCMS (Department for Culture, Media and Sport) document 'PPS5 Planning for the Historic Environment: Historic Environment Planning Practice Guide' provides guidance on PPS5 and its application.

This refers to the need, for decision-making in response to an application for change that affects the historic environment, of providing and assessing, at a level appropriate to the relative importance of the asset affected, information on the asset and its extent, on its setting, and on the significance of both of these aspects.

Section 5, 54 states that *'Heritage assets may be affected by direct physical change or by change in their setting. Being able to properly assess the nature, extent and importance of the significance of a heritage asset and the contribution of its setting is very important....'*

Section 5 on Policies HE6 to HE 12, 58, notes among appropriate actions (in point 5) *'Seek[ing] advice on the best means of assessing the nature and extent of any archaeological interest e.g. geophysical survey, physical appraisal of visible structures and/or trial trenching for buried remains.'*

The section on Policy HE10 defines setting as follows:

'113. Setting is the surroundings in which an asset is experienced. All heritage assets have a setting, irrespective of the form in which they survive and whether they are designated or not. Elements of a setting may make a positive or negative contribution to the significance of an asset, may affect the ability to appreciate that significance, or may be neutral.'

'114. The extent and importance of setting is often expressed by reference to visual considerations. Although views of or from an asset will play an important part, the way in which we experience an asset in its setting is also influenced by other environmental factors such as noise, dust and vibration; by spatial associations; and, by our understanding of the historic relationship between places. For example, buildings that are in close proximity but not visible from each other may have a historic or aesthetic connection that amplifies the experience of the significance of each. They would be considered to be within one another's setting.'

11.3 Former Cornwall Structure Plan

The following policies in the Cornwall Structure Plan relate to the historic environment are currently used to guide responses to applications.

11.3.1 Policy 1

'Development should be compatible with:

The conservation and enhancement of Cornwall's character and distinctiveness;

The prudent use of resources and the conservation of natural and historic assets;

A reduction in the need to travel, whilst optimising the choice of modes, particularly opportunities for walking, cycling and the use of public transport;

Through developing the principles of Policy 1 it is intended to integrate environmental values with land use and transport policies, achieving patterns of development that reflect strong environmental protection and stewardship of resources.'

11.3.2 Policy 2

'Throughout Cornwall, development must respect local character and:

- *Retain important elements of the local landscape, including natural and semi-natural habitats, hedges, trees, and other natural and historic features that add to its distinctiveness;*
- *Contribute to the regeneration, restoration, enhancement or conservation of the area;*
- *Positively relate to townscape and landscape character through siting, design, use of local materials and landscaping.*
- *The conservation and enhancement of sites, areas, or interests, of recognised international or national importance for their landscape, nature conservation, archaeological or historic importance, including the proposed World Heritage Site, should be given priority in the consideration of development proposals.'*

11.4 Former Restormel Local Plan 2001-11

Although now part of Cornwall Council, Restormel Borough Council's policies listed in its local plan continue to be relevant. Relevant policies concerning the historic environment are listed below.

Policy 25

Development proposals which would damage scheduled ancient monuments or other archaeological remains of national importance or their settings will not be permitted.

Policy 26

Development proposals which adversely affect locally important archaeological sites held on the county sites and monuments record or identified as a result of a prior archaeological investigation will only be permitted where:

- (1) physical preservation in-situ is not feasible and the importance of the development outweighs the case for preservation of the remains; and*
- (2) satisfactory arrangements are made for the excavation and recording of the remains before or during development.*

Policy 27

Where there is evidence to suggest that significant remains may exist on the site of a proposed development the extent and importance of which are unknown, an archaeological assessment will be carried out prior to the granting of planning permission.

11.5 Lanlivery Parish Plan

Lanlivery Parish forms part of rural Cornwall's historic landscape. The layout of fields, roads, the form of the field boundaries, historic village and farm buildings, historic churchtown are all key and unique components of such a historic landscape, in many cases irreplaceable. Proposals for re-development within the Parish should respect the character of the surviving landscape and not adversely affect that character. There should be a presumption in favour of preserving important historic buildings and archaeological sites.

11.6 Hedgerow Regulations

Under the current, 1997 Hedgerow Regulations, owners wishing to remove all or part of a hedgerow considered to be historically important must notify the Local Planning Authority (LPA). Criteria determining importance include whether the hedge marks a pre-1850 boundary, and whether it incorporates an archaeological feature. The LPA may issue a hedgerow retention notice prohibiting removal.

12 Likely impacts of the proposed development

12.1 Types and scale of impact

Two general types of archaeological impact associated with solar farm developments have been identified as follows.

12.1.1 Types of impact, construction phase

The construction of the solar farm could have direct, physical impacts on the buried archaeology of the site through the placing of array foundations, through the undergrounding of cables, and through the provision of any works compound, together with any permanent or temporary vehicle access ways into and within the site. Such impacts would be **permanent** and **irreversible**.

12.1.2 Types of impact, operational phase

The arrays, inverter units and security fencing around the site might be expected to have a visual impact on the settings of some key heritage assets within their viewshed during the operational phase, given the likelihood of their visibility from areas within the local landscape. Given the area of land take for such sites, it is likely that the development would have an impact on Historic Landscape Character. These impacts would be **temporary** and **reversible**.

12.1.3 Scale and duration of impact

The impacts of the solar farm on the historic environment may include positive as well as adverse effects. For the purposes of assessment these are evaluated on a seven-point scale:

positive/substantial

positive/moderate

positive/minor

neutral

negative/minor

negative/moderate

negative/ substantial

Negative/unknown is used where an adverse impact is predicted but where, at the present state of knowledge, its degree cannot be evaluated satisfactorily.

The assessment also distinguishes where possible between **permanent** and **temporary** effects, or between those that are **reversible** or **irreversible**, as appropriate, in the application of the scale of impacts.

12.1.4 Potential and residual impacts

Potential adverse impacts may be capable of mitigation through archaeological recording or other interventions. In the assessments forming Section 12.2, where appropriate, both 'potential' and 'residual' impacts are given; that is, expected impacts 'before' and 'after' such work, principally in relation to the development phase. A proposed mitigation strategy is outlined below in Section 13.

12.2 Assessment of impact

Overall, the impacts of the proposed solar farm on the archaeological resource is assessed as having a potential scored as **negative/moderate** to **negative/minor**, principally dependant on proximity to the proposed solar farm, the degree of intervisibility with them, their sensitivity to physical disturbance and their sensitivity to visual intrusion on their settings.

Impacts on the settings of the designated heritage sites within 3Km of the proposed solar farm have been assessed as **negative/minor**. Impacts on the sub-surface archaeology within the development site may be higher, but could be limited to **negative/minor** provided that any recommended mitigation is undertaken.

The assessments supporting this general statement are outlined in the following sub-sections. To comply with current policies and guidance (Section 11) these provide assessments of impact in terms of different aspects of the archaeological resource - its individual sites, the settings of sites, Historic Landscape Character, and field boundaries. There are inevitably areas of overlap between these categories of impact; the assessment is adjusted accordingly to avoid 'double counting' of impacts.

12.2.1 Impacts on archaeological sites within the development area

Ground disturbance associated with the installation of supports for the solar arrays, cabling or ancillary works during the construction phase could result in permanent, irreversible loss of below ground remains of archaeological sites within the development area, or of elements of these. The works, if deeper than current topsoil levels, would affect buried cut features.

Scales of impact will vary with the degree of significance of individual sites, and with the proportion of the whole site which would be affected. Notably, buried features could be disturbed, truncated or removed. In the absence of detailed information regarding the degree of survival of sub-surface archaeology within the development area and the full extent of groundworks or other potentially intrusive activity associated with the development, this impact is considered to be **negative/unknown** on currently-available information. In view of the complexity of features indicated by the geophysical survey and the existence of at least two enclosures of probably prehistoric date with associated field systems, such impacts may be **significant** and **negative** in some areas. A residual impact of **negative/minor** may be achievable provided that appropriate mitigating work is carried out. These impacts would be **permanent** and **irreversible**.

The only site recorded in the Cornwall and Scilly Historic Environment Record within or adjacent to the fields proposed for the construction of this solar farm consists of a small post-medieval quarry in the north western corner of the northern field. This would not be affected by the development, and impacts on it would be **neutral**.

12.2.2 Impacts on the settings of surrounding key heritage assets

The proposed solar farm is considered likely to have an impact on the setting of key surrounding heritage assets, this being summarised as **negative/minor** to **neutral** and **temporary/reversible** overall:

- There are eight Scheduled Monuments within 3Km radius of the site of the proposed solar farm, though only two of these are likely to be intervisible with it, these being Helman Tor Neolithic enclosure and the Neolithic chambered tomb at Lesquite, both lying to the west of the development site and at 3Km and 2.75Km distance from it. Both sites were intended, when constructed (and in the case of Helman Tor, occupied), to be highly visible focal points within the local landscape. There will be clear intervisibility between this site and the proposed solar farm, but given the distance between the proposed development and these sites, there are unlikely to be any significant impacts on their settings.
- Helman Tor forms a distinct skyline feature from the proposed development site, but given the near ridgetop location of the proposed solar farm, there are unlikely to be many viewpoints in the local landscape where the proposed solar farm and Helman Tor would appear in the same view, and thus the visual setting of Helman Tor is unlikely to be negatively impacted upon by the development to any significant degree.

- The Lesquite chambered tomb has a mid-slope location to the north west of the application site. Again, given the topography, there is only a limited potential for the solar farm to negatively impact on the visual setting of the chambered tomb.
- During the operational phase the solar farm is unlikely to impact to any significant degree on the settings of the Listed Buildings within its viewshed, given the relatively large distances between the solar farm and these designated structures (see Fig 17) and the likely constraints on intervisibility.
- The Lostwithiel Conservation Areas lies within 3Km of the proposed solar farm, but will not be intervisible with it nor jointly visible with it in views from the surrounding landscape.
- Both Grade II* Registered Parks and Gardens at Lanhydrock and Boconnoc lie within the 5Km radius viewshed of the proposed solar farm. Intervisibility between them and the solar farm will be very limited, being confined to a narrow strip along the south western edge of Boconnoc Park and to small areas within Lanhydrock Park (where intervisibility is likely, in practice, to be largely blocked by tree plantings). Given the topography of the site selected for the solar farm and the distance from the designated RPGs, impacts on their settings are likely to be very limited.
- There are no Registered Battlefields within the 5Km radius viewshed of the proposed solar farm.
- During its operational phase the proposed solar farm is felt unlikely to have any significant impacts on the settings of the majority of the undesignated heritage assets within the 1Km viewshed.
- Any impacts on heritage assets within the landscape surrounding the proposed solar farm would be **temporary** and **reversible** should the solar farm be dismantled in the future.

Designated heritage assets within the 3Km radius viewshed

Scheduled Monuments (SM) – see Fig 16.

Identifier	Site	NGR	Impact
DCO739	Crewel Cross	SX 08942 59112	Neutral
DCO1736	Helman Tor	SX 06209 61604	Negative/minor
DCO1212	Chambered tomb at Lesquite	SX 07116 62730	Negative/minor
DCO836	Medieval churchyard cross in Lanhydrock churchyard	SX 08505 63637	Neutral
DCO1468	Respryn Bridge	SX 09964 63488	Neutral
DCO188	Restormel Castle	SX 10308 61398	Neutral
DCO1688	Roman fort at Restormel	SX 10240 60984	Neutral
DCO1029	Lantern cross and grave slab at St. Bartholomew's Church	SX 10412 59824	Neutral

Registered Parks and Gardens (RPG) - see Fig 15.

Identifier	Site	NGR	Impact
DCO30	Lanhydrock II*	SX 09482 63109	Neutral
DCO21	Boconnoc II*	SX 13662 60640	Neutral

Conservation Areas (CAs) – see Fig 18

Identifier	Site	NGR	Impact
DCO98	Lostwithiel	SX 10320 59882	Neutral

Listed Buildings (LBs) with grades - see Fig 17.

Identifier	Site	NGR	Impact
DCO9259	Trebyan Forge (II)	SX 08035 63189	Neutral
DCO10283	Treffry farmhouse (II*)	SX 07874 63718	Neutral
DCO8856	The Old Schoolhouse (II)	SX 09642 63810	Neutral
DCO14045	Penlyne Cottage (II)	SX 11204 61294	Neutral
DCO8028	Kitchen garden and attached gardener's house, Lanhydrock (II)	SX 08816 63075	Negative/minor
DCO9901	Gateways and flanking walls at the east entrance to Lanhydrock House (I)	SX 09585 63580	Neutral
DCO8025	The Old Vicarage (II)	SX 08161 63522	Neutral
DCO10129	Lanhydrock War Memorial Club (II)	SX 07977 63350	Neutral
DCO9123	Stable and attached front walls, Lanhydrock (II)	SX 08873 64051	Neutral
DCO13101	Ebenezer Chapel (II)	SX 08482 62029	Neutral
DCO13352	Milestone (II)	SX 08953 61099	Negative/minor

Undesignated heritage assets within the 1Km radius viewshed

See Fig 19.

Identifier	Site	NGR	Impact
MCO41214	Sweetshouse extractive pit	SX 08868 61600	Negative/minor
MCO41215	Rew early medieval field boundary	SX 08693 61604	Neutral
MCO41238	Hillhead extractive pit	SX 09371 60847	Neutral
MCO41216	Chark Moor early medieval field system	SX 08644 61283	Neutral
MCO41213	Chark Moor early medieval field system	SX 08556 61034	Neutral
MCO41211	Chark Moor early medieval field system	SX 08144 61267	Neutral
MCO13523	Boslymon early medieval settlement (documented)	SX 08211 61595	Negative/minor
MCO41207	Boslymon early medieval field boundary	SX 08153 61616	Neutral
MCO41208	Boslymon undated enclosure	SX 08095 61541	Neutral

12.2.3 Impacts on Historic Landscape Character

A solar farm installation at Rew Farm can be predicted to have an impact on the historic character of the landscape to some degree. The expected effect on HLC has been assessed as **negative/moderate** to **negative/minor**. Factors contributing to this assessment are as follows;

- The land-take for the proposed development is small in comparison with the area of the HLC Unit of Anciently Enclosed Land making up the surrounding landscape.
- There would be no impacts in terms of physical loss during the construction phase of the upstanding boundaries which form the visible components of HLC.

- Some visual impact throughout the operational phase would occur, affecting the integrity of this area as occasionally marginal medieval fields within a matrix of medieval farmland, in particular through the introduction of highly visible modern features into this landscape.
- There having been few significant changes to this area since the mid 19th century.
- Any impacts on the legibility of HLC would be **temporary** and **reversible** should the solar farm be dismantled in the future.

12.2.4 Other archaeological impacts

Any ground disturbing works on this site could encounter significant buried prehistoric or medieval remains, resulting in permanent, irreversible loss of these, or elements of them. This potential impact is assessed as **negative/unknown** as specific evidence for the nature and extent of any such remains is limited to that provided by documentary records, aerial photography and geophysical survey. Features or artefacts may not survive in forms recordable by these methods and the absence of evidence should not be taken as inferring evidence of absence. It is likely that any such impacts could be mitigated satisfactorily through site re-design or archaeological recording, reducing the residual impact to **neutral** or **negative/minor**. These impacts would be **permanent** and **irreversible**.

13 Mitigation Strategy

A range of means to mitigate the potential impacts identified in this assessment may be considered by the Historic Environment Planning Advice Officer, who may choose to recommend one or more of the following.

13.1 Site re-design

Based on the results of available evidence, the HEPAO might ask the site developer to avoid or bridge archaeologically sensitive locations within the area of the application site. Such an approach would limit any impacts on known significant below ground archaeology and would reduce the direct impacts on the below ground archaeology of the site to **negative/minor** or **neutral**.

13.2 Evaluation trenching, controlled soil stripping or watching brief

Archaeological evaluation trenching might be required to test the nature, significance and sensitivity to disturbance of archaeological features or sites revealed through the desk based assessment, site walkover or geophysical survey which might be impacted upon by the construction and operation of a solar farm. In such circumstances, a Written Scheme of Investigation (WSI) to meet a brief prepared by Cornwall Council's Historic Environment Advice Officer would need to be prepared and agreed to establish and direct a programme of investigative work. Changes to array layouts or mountings to avoid negative impacts on significant sub-surface archaeology might be required should significant archaeology be revealed through such investigation.

In a case where the finalised site design would seem likely to result in unavoidable impacts on below-ground features, a further brief and WSI would be required for archaeological recording to mitigate residual impacts on sub-surface archaeological features.

An archaeological watching brief (observation by an archaeologist during mechanical topsoil and subsoil stripping) or a controlled topsoil strip under archaeological supervision might be required either where any extensive areas of ground are to be disturbed, in areas where significant results had been identified through geophysical

survey and/or evaluation and which remain proposed for ground disturbance in the final scheme design, or where the balance of probability and proximity to known significant heritage assets suggests that sub-surface archaeology might survive. This approach would provide for preservation by record of buried archaeological features or artefacts and reduce any impacts on the below ground archaeology of the site to **negative/minor**. The resultant impacts would be **permanent** and **irreversible**

13.3 Analysis and presentation of findings

The results of any required mitigating archaeological recording outlined above would need to be compiled and analysed; significant findings would be presented as required, with publication to professional standards where appropriate.

14 References

14.1 Primary sources

Joel Gascoyne's 1699 Map of Cornwall

Joel Gascoyne's mapping for the Lanhydrock Atlas, *circa* 1699

Martyn's 1748 Map of Cornwall

Ordnance Survey, 1809, *1 inch mapping* First Edition (licensed digital copy at HE)

Ordnance Survey, *c1880. 25 Inch Map* First Edition (licensed digital copy at HE)

Ordnance Survey, *c1907. 25 Inch Map* Second Edition (licensed digital copy at HE)

Ordnance Survey, 2007. *Mastermap Digital Mapping*

Tithe Map and Apportionment, *c1840. Parish of Lanlivery* (digital copy available from CRO)

14.2 Publications

English Heritage 2011, *The setting of Heritage assets: English Heritage guidance*

Herring, P. 1998, *Cornwall's historic landscape: presenting a method of historic landscape character assessment*, Cornwall Archaeological Unit

Norden, J. 1724, *Map of Cornwall*, reprinted University of Exeter 1972

Thorn, C. and Thorn, F. (eds) 1979, *Domesday Book, 10: Cornwall*, Chichester

14.3 Websites

http://www.heritagegateway.org.uk/gateway/English_Heritage's_online_database_of_Sites_and_Monuments_Records,_and_Listed_Buildings

15 Project archive

The HE project number is **PR146153**

The project's documentary, photographic and drawn archive is housed at the offices of Historic Environment, Cornwall Council, Kennall Building, Old County Hall, Station Road, Truro, TR1 3AY. The contents of this archive are as listed below:

1. A project file containing site records and notes, project correspondence and administration.
2. Digital photographs stored in the directory R:\Historic Environment (Images)\SITES.Q-T\Rew Farm Lostwithiel solar farm assessment 2012.
3. English Heritage/ADS OASIS online reference: cornwall2-129598.
4. This report text is held in digital form as: G:\TWE\Waste & Env\Strat Waste & Land\Historic Environment\Projects\Sites\Sites R \Rew Farm solar farm assessment 2012\Rew Farm solar farm assessment.doc

Brief for Historic Environment Assessment of Renewable Energy Projects.

Date: 09/02/2011

Site: Rew Farm, Sweetshouse, Lostwithiel, Cornwall

Application Number: PreApp CCO4424

Historic Environment Planning Advice Officer: Dan Ratcliffe

Planning Case Officer:

This brief is only valid for six months. After this period the Historic Environment Archaeological Advisor (HEAA) should be contacted. The contractor is strongly advised to visit the site as there may be implications for accurately costing the project.

Contractors Written Scheme of Investigation (WSI)

No ground works are to be undertaken until the HEAA and the Local Planning Authority (LPA) have approved the archaeological contractor's WSI.

1 Introduction

This brief has been written by the HEAA and sets out the minimum requirements for an assessment of the potential impacts of the development of a photo-voltaic installation at the above site.

An assessment of the archaeological potential of the site and the potential impacts of the development on surrounding historic assets will be required to provide information in support of a planning application for the proposed development in accordance with the requirements of PPS5 *Planning for the Historic Environment*, Policy HE6. HES believes high quality design should play a key role in minimising any adverse effects of renewable energy projects, whether this is directed at the disposition of wind turbines and energy crops in the landscape or the positioning of photo-voltaic cells on historic buildings or within the countryside. Fundamental to achieving high quality design will be a sound understanding of the character and importance of the historic asset involved, whether at the scale of individual buildings and sites or more extensive historic areas and landscapes.

2 Site Location and Description

The site comprises two locations centred on SX 0905 6130 on the B3269 just south of the hamlet of Sweetshouse. Currently in agricultural use the site(s) comprise 4 enclosures which the Cornwall Historic Landscape Characterisation has recorded as Recently Enclosed Land. Together the sites comprise around 10 hectares.

3 Planning Background

A screening opinion was given by Cornwall Council to the current enquirers on 14th Jan 2011 that the proposed development *will* require EIA. With regard to cultural heritage sensitivities this decision contained the following comment;

The designated Schedule Monument (SM) of Restormel Castle is visible from the site (and vice versa), lying less than a km to the east, along with an associated monument (an earthworks also Scheduled) to the south of the castle. There is also potential for the proposed array to impact visually on the setting of the Grade II Registered Park & Garden at Lanhydrock and in particular upon the designed vista to Restormel. It should also be noted that the village of Lostwithiel (protected by a conservation Area) can be seen from the site of which a large number of Listed buildings are contained. There is an abundance of residential properties in the surrounding area, made up of neighbouring farms along with the settlement of Lostwithiel. (Cornwall Council Screening Opinion response PA10/04881 Dated: 17 January 2011).*

4 Archaeological Background

Designated sites of archaeological interest within 1km of the site include the Scheduled Monuments 'Restormel Castle' and the separately Scheduled 'Earthwork 250m S of Restormel Castle' at which recent geophysical survey has confirmed its long held suspected interpretation as a Roman fortlet. Over a longer distance the site may also have visual connectivity with the Scheduled tor enclosure of 'Helman Tor' and with the Registered Park and Garden of 'Lanhydrock'. Designated significant built environment components which may be affected include a number of scattered listed buildings and the Lostwithiel Conservation area.

The County Historic Environment Record contains no prehistoric sites within a 500m buffer of the site, although a number of post medieval sites of local significance are present. Recently Enclosed Land, especially on elevated sites such as this one that are unlikely to have been enclosed for agriculture until relatively recently do however have a known potential for prehistoric sites such as barrows and standing stones that seem to have been intentionally sited at elevated locations above land cultivated in prehistory.

5 Requirement for Work

The assessment needs to both a) assemble an evidence base to identify those historic assets which may be impacted by the proposed development and b) evaluate the significance of the assets affected and the significance of their settings and identify potential impacts on that significance either direct or indirect. This will involve a desk based assessment including a viewshed analysis to establish the Zone of Theoretical Visibility (ZTV) of the proposal site, the drawing together of information from Heritage Asset registers and other sources including historic maps, and a walk over survey of the extant remains of the site including the preparation of photographic montages of key views affected. This work should be capable of providing evidence for the assessment of impacts of the development and informing options for its design.

The site specific aims are to:

- Establish viewsheds of the proposal site.
- Draw together existing historical and archaeological information about the site and its landscape setting from published and unpublished sources and information on designated and undesignated assets from national and local Historic Asset registers (such as the CSHER, NMR, Heritage Gateway, etc).
- Review and analyse historic map evidence for the site.
- Produce 'statements of significance' for all designated historic assets, that are identified as potentially impacted on by the current proposals. Where currently undesignated assets are identified their likely significance should be indicated i.e. 'national', 'regional' or 'local'.
- Inform whether archaeological recording of any extant remains is required.
- Inform whether an archaeological evaluation or further archaeological recording of any potential buried remains is required.
- Inform whether palaeo-environmental sampling would be required.
- Identify the construction, use and 'end of life' impacts of the current proposals on the 'national importance' of Scheduled Monuments, the 'Outstanding Universal Value of the World Heritage Site' and on undesignated historic assets as described in PPS5.

6 General Guidance

- 6.1 The archaeological contractor is expected to follow the code of the Institute for Archaeologists (IfA).

- 6.2 All of the latest Health and Safety guidelines shall be followed on site.
- 6.3 Terminology will be consistent with the English Heritage Thesaurus.
- 6.4 The consultation draft of English Heritage guidance 'The Setting of Heritage Assets' should inform the assessment of indirect impacts.

7 Results

- 7.1 A draft report shall be submitted within a length of time (but not exceeding six months) to be agreed between the applicant, the archaeological contractor, and Cornwall Council Historic Environment Advice.
- 7.2 The archaeological contractor will undertake the English Heritage/ads online access to the index of archaeological investigations (OASIS).
- 7.3 Once agreed a paper copy of the finalised report will be provided to and held by the Cornwall and Scilly Historic Environment Record (HER) and made available for public consultation. A further digital copy shall be supplied on CD-ROM preferably in 'Adobe Acrobat' PDF format.
- 7.4 The report must contain:
 - A concise non-technical summary of the project results.
 - The aims and methods adopted in the course of the investigation.
 - A discussion of the archaeological findings in terms of both the site specific aims and the desk based research.
 - A location map, copies of the viewshed analysis mapping, a map or maps showing assets referred to in the text and copies of historic maps and plans consulted shall be included, with the boundary of the development site clearly marked in red on each. All plans shall be tied to the national grid.
 - All sources referred to should be included in the bibliography, even if the results were negative; N.B. publication references should always include relevant page numbers.
 - All specialist reports and assessments.
 - A summary of the archive contents and date of deposition.
 - A copy of the brief and the approved WSI will be included as an appendix.

8 Monitoring

- 8.1 The HEAA will monitor the work and should be kept regularly informed of progress.
- 8.2 Notification of the start of work shall be given preferably in writing to the HEAA at least one week in advance of its commencement.
- 8.3 Any variations to the WSI shall be agreed with the HEAA, preferably in writing, prior to them being carried out.

The enquirer should be aware that should the results of this work suggest that desk based assessment alone is 'insufficient to properly assess the interest'¹ of this site then a 'field evaluation' – probably in this instance a geophysical survey will also be required prior to submission of an application.

¹ See PPS5 'Planning for the Historic Environment' Policy HE6.1 (Information Requirements)

Rew Farm, Sweetshouse, Bodmin, proposed solar farm: Written Scheme of Investigation for archaeological assessment

Client: TGC Renewables
Client contact: Sarah Robertson
Client tel: 07889 407656
Client email: sarah.robertson@tgcrenewables.com

Project background

HE Projects Cornwall Council were approached on 17 May 2012 by Sarah Robertson of TGC Renewables with a request to undertake a desk-based archaeological assessment of a 10 Ha site comprising two areas (each comprising two fields) at Rew Farm, Sweetshouse, Bodmin, centred at SX 0905 6130 to the south east of Sweetshouse and to the west of Restormel Castle which have been proposed as the site for a solar pv farm. In tandem with the DBA, it has been recommended by the HEPAO (mid Cornwall) that TGC Renewables should commission a geophysical survey of the site.

A brief for this work was issued by Dan Ratcliffe, Historic Environment Planning Advice Officer (mid Cornwall) on 09 February 2011, and this was sent to HE Projects Cornwall Council on 17 May 2012 by email.

Site information

The site consists of two pairs of contiguous south-west sloping fields whose highest point is formed by the north eastern boundary of the northern part of the site, this lying at 170m OD. The lowest point of the application area is formed by the south western boundary of the southern part of the site, this being at 160m OD.

The site is in the parish of Lostwithiel, part of a landscape with an Historic Landscape Characterisation of Recently Enclosed Land (Farmland Post Medieval), being a block of former downland set within a landscape which is predominantly Medieval-derived in character. The HER records no significant archaeological sites within the proposed development boundary, though this landscape type has the potential to contain at present unrecorded sub-surface archaeology for prehistoric sites. The brief also indicates that the proposed solar farm is less than 1Km to the west of the scheduled Restormel Castle and a nearby scheduled earthwork monument which may well represent a Roman fortlet. The brief also identifies the potential for the development to impact upon the setting of the Grade II* Registered Park and Garden at Lanhydrock, in particular on a designed vista within the park leading to Restormel Castle. The site is noted as being likely to be intervisible with listed buildings within the conservation area of Lostwithiel to the south, and, at a greater distance, with the scheduled tor enclosure of Helman Tor.

The bedrock geology consists of Devonian slates and siltstones to the west and east, capped by Lower Devonian slates and mudstones on the hilltop. The soils are Denbigh 2 loams over shale.

The site is locally designated as an Area of Great Landscape Value (AGLV) and is bordered to the west by an Area of Great Scientific Value (AGSV).

Public Rights of Way flank the north eastern and south western boundaries of the site.

CCC aerial photographs show the site to have been in pasture in 2005.

Project extent

The project area consists of two pairs of contiguous fields centred at SX 09019 61530 and SX 09070 61055, 400m and 680m to the south east of Sweetshouse. The project areas extend to 6.15Ha (north) and 4.6Ha (south).

Aims and objectives

The principal aim of the study is to gain a better understanding of the potential impacts on archaeological sites within the proposed development area and on the settings of those heritage assets which would be intervisible with it within the surrounding landscape through the undertaking of a desk-based assessment (including map regression), field survey and through viewshed analysis. This information will be used to help to inform any potential archaeological mitigation required prior to or during the construction of the solar farm.

Working methods

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

Desk-based assessment

A desk-based assessment will be carried out to inform the fieldwork stage. This will comprise:

- Published and unpublished sources including undertaking a review of archives held by the Cornwall Record Office and of archaeological reports indexed by the CSHER where relevant
- Historic maps, including
 - Joel Gascoyne's map of Cornwall (1699)
 - Thomas Martyn's map of Cornwall (1748),
 - OS 1 inch survey (c1810)
 - Lostwithiel Tithe Map (c1840),
 - 1st and 2nd Editions of the OS 25 inch maps (c1880 and c1907)
- Modern maps
- GIS layers curated by Historic Environment and Cornwall Council
- Information curated by national historic asset registers

Viewshed analysis

An assessment of the impacts of the proposals will be made from the surrounding area using the guidelines and methodological approaches set out in English Heritage's recent consultation draft guidance on the setting of heritage assets. This will be based on GIS-based viewshed mapping produced using a model of theoretical inter-visibility between with the arrangement of solar arrays proposed for the site and significant heritage assets within the surrounding landscape; the viewshed (ZTV or Zone of Theoretical Visibility) will be generated using ArcGIS software. The methodology employs a Digital Surface Model (DSM), which takes account of surface features such as buildings, woodland, vegetation, roads etc, and provides a more accurate representation when compared to a 'bare earth' or DTM elevation model. A viewshed will be generated for a range of 'observer points' based on the centroids of the four fields in which the arrays are proposed. These will be combined to produce a *multiple viewshed* for the proposed solar farm area.

When performing a viewshed analysis, several variables will be used to limit or adjust the calculation including offset values, limitations on horizontal and vertical viewing angles (azimuth) and distance parameters (radius) for each observer point. For the proposed solar farm at Rew Farm, the viewshed will be based on an 'overall observer elevation value' made up of the 'elevation value' or height above sea level of the ground at the observer viewpoint, with added to this an additional offset of 2m to represent the height of the solar array. This viewshed will be checked on the ground, given that vegetation may block views to key sites, whilst significant heritage assets within the theoretical viewshed will be visited to determine intervisibility with the proposed development site, and hence the scale and type of any visual impacts which may affect their settings, as required by English Heritage.

Consultation on the implications of any significant impacts on designated heritage assets falling within the ZTV will be undertaken with key stakeholders.

The viewshed will be field checked from key locations within the ZTV, high resolution digital photographs being used to record both views from the development site out to key heritage assets and landscape views and back from potentially affected assets towards the development site to record the extent, nature and scale of any potential intervisibility.

Geophysical survey

It is understood that the client has been recommended to commission a magnetometer survey of the areas proposed for the solar farm. If the results of this geophysical survey are made available to HE Projects in sufficient time, these will be incorporated into the assessment report and will be used in assisting the determination as to whether further stages of archaeological investigation and recording are likely to be required and the nature of any mitigation.

Site walkover survey

A site walkover will be undertaken to determine the potential for any direct impacts on the archaeology of the proposed development areas, including to boundary features around and within them. The survey will be based on the annotation of a composite base map created during the desk based assessment stage of the project, backed up using high resolution digital photography.

Impact assessment

The evidence base created through the desk based assessment, viewshed analysis walkover survey and (potentially) geophysical survey will be used to identify those heritage assets which may be impacted upon by the proposed development, to establish the significances of those assets, to determine the significances and sensitivities of their settings and to assess potential impacts on their significances, either directly or indirectly proportionate to the significance of the assets and the likely magnitude of the impact. This analysis will be used to create statements of significance for potentially affected assets and to inform whether further archaeological recording or other forms of mitigation to reduce negative impacts on or enhance the significance of affected assets during the construction, operation and decommissioning phases of the development.

Creation of site archive

To include:

- Completion of the English Heritage/ADS OASIS online archive index

Archive report

The report will have the following contents:

- Summary

- Project background
- Aims and objectives
- Methodology
- Location and setting
- Designations
- Site history
- Results of DBA, viewshed analysis, and (if available) geophysical survey
- Likely impacts of proposal
- Suggested mitigation measures
- Conclusions
- References
- Project archive index
- Supporting illustrations: location map, historic maps, viewshed mapping, photographs.
- A copy of the HEPAO brief and the approved WSI.

A paper copy and a digital (PDF) copy of the report, illustrations and any other files will be held in the Cornwall HER. Paper copies of the report will be distributed to the client, to local archives and national archaeological record centres.

Archive deposition

An index to the site archive will be created and the archive contents prepared for long term storage, in accordance with HE standards.

The archiving will comprise the following:

1. All correspondence relating to the project, the WSI, a single paper copy of the report together with an electronic copy on CD, stored in an archive standard (acid-free) documentation box
2. The project archive will be deposited initially at ReStore PLC, Liskeard and in due course (when space permits) at Cornwall Record Office.

Timetable

The study is anticipated to be commenced during May-June 2012. 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 Dan Ratcliffe, Historic Environment Planning Advice Officer (Mid Cornwall). Monitoring points during the study will include:

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

Historic Environment Projects

Historic Environment Projects is the contracting arm of Historic Environment, Cornwall Council (HE). HE employs some 20 project staff with a broad range of expertise, undertaking around 100 projects each year.

HE 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



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

As part of Cornwall Council, the HES has certification in BS9001 (Quality Management), BS14001 (Environmental Management), OHSAS18001 (Health, Safety and Welfare), Investors in People and Charter Mark.

Terms and conditions

Contract

HE Projects is the contracting arm of Historic Environment, Cornwall Council. If accepted, the contract for this work will be between the client and Cornwall Council.

The views and recommendations expressed will be those of the HE projects team and will be presented in good faith on the basis of professional judgement and on information currently available.

Project staff

The project will be managed by a nominated Senior Archaeologist who will:

- Discuss and agree the detailed objectives and programme of each stage of the project with the client and the field officers, including arrangements for health and safety.
- Monitor progress and results for each stage.
- Edit the project report.
- Liaise with the client regarding the budget and related issues.

Work will be carried out by HE Projects field staff, with assistance from qualified specialists and sub-contractors where appropriate.

Report distribution

Paper copies of the report will be distributed to the client, to local archives and national archaeological record centres.

A digital copy of the report, illustrations and any other files will be held in the Cornwall HER and also supplied to the client on CD or other suitable media.

Copyright

Copyright of all material gathered as a result of the project will be reserved to the Historic Environment, Cornwall Council. Existing copyrights of external sources will be acknowledged where required.

Use of the material will be granted to the client.

Freedom of Information Act

As Cornwall Council is a public authority it is subject to the terms of the Freedom of Information Act 2000, which came into effect from 1st January 2005.

HE will ensure that all information arising from the project shall be held in strict confidence to the extent permitted under the Act. However, the Act permits information to be released under a public right of access (a "Request"). If such a Request is received HE may need to disclose any information it holds, unless it is excluded from disclosure under the Act.

Health and safety statement

HE follows the Council's *Statement of Safety Policy*. For more specific policy and guidelines HE uses the manual *Health and Safety in Field Archaeology* (2002) endorsed by the Standing Conference of Archaeological Unit Managers and also the Council for British Archaeology's Handbook No. 6 *Safety in Archaeological Field Work* (1989).

Prior to carrying out on-site work HE will carry out a Risk Assessment.

Insurance

As part of Cornwall Council, HE is covered by Public and Employers Liability Insurance.

Adam Sharpe BA MIFA

Senior Archaeologist

17/05/2012

Historic Environment Projects

Cornwall Council

Kennall Building, Old County Hall, Station Road, Truro, Cornwall. TR1 3AY

Tel: 01872 323603; Fax: 01872 323811

Email: asharpe@cornwall.gov.uk



Fig 5. The project area as shown on John Norden's 1726 map of Cornwall. The general location of Rew Farm is circled in red.

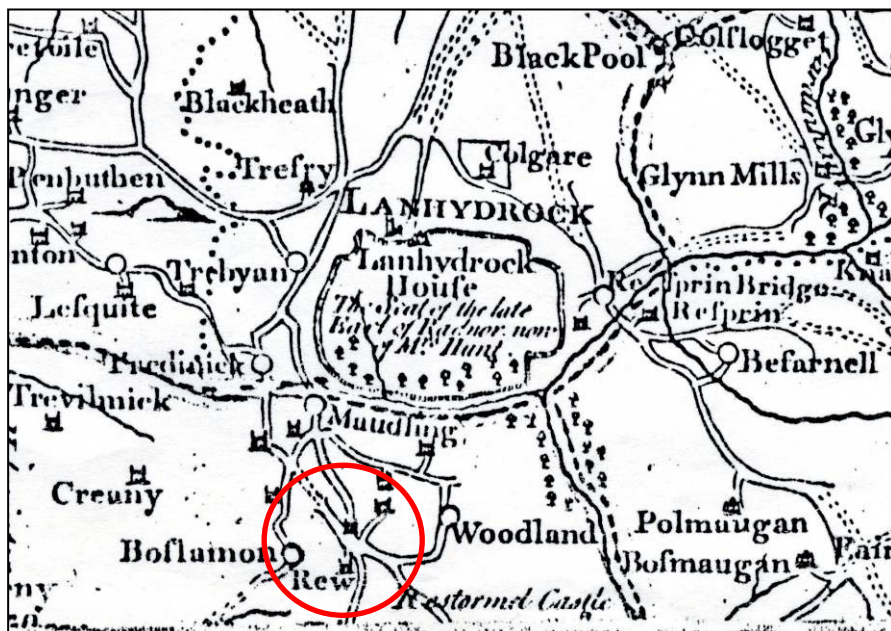


Fig 6. The proposed solar farm site and its surroundings, as shown Martyn's 1748 Map of Cornwall. The project area is circled in red.

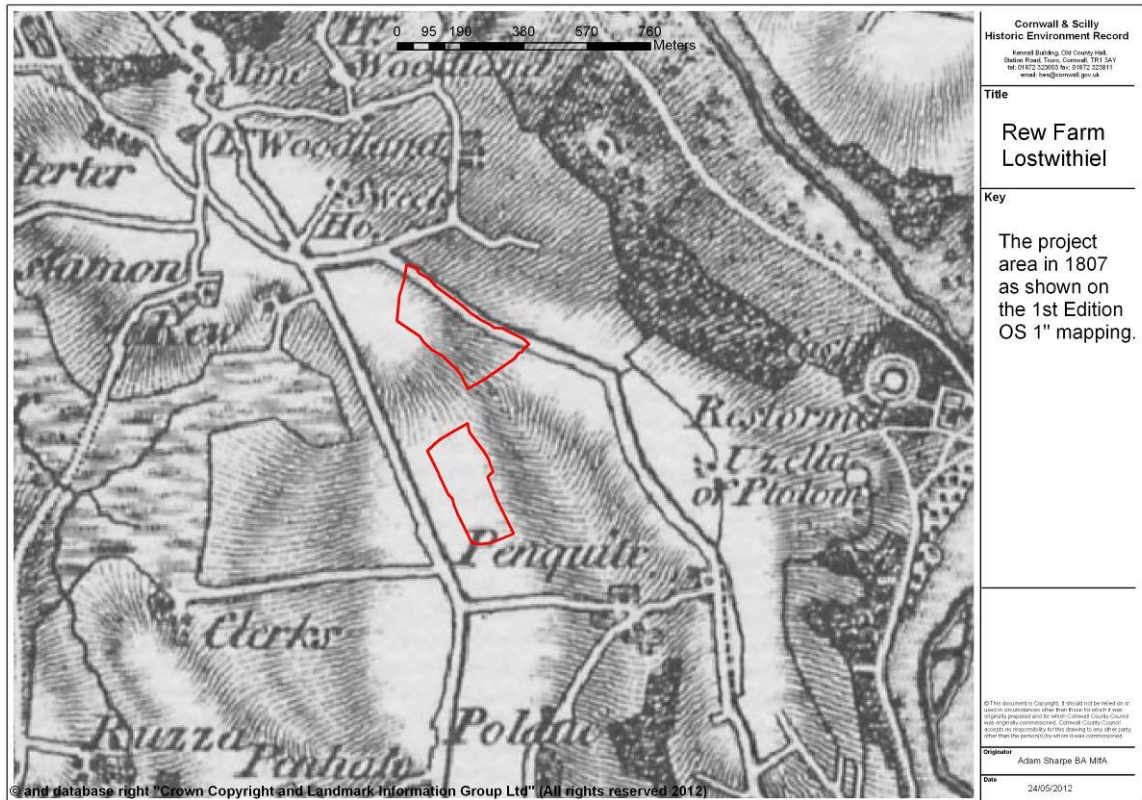


Fig 7. The project area as shown on the 1807 1st Edition OS 1" to the mile mapping.

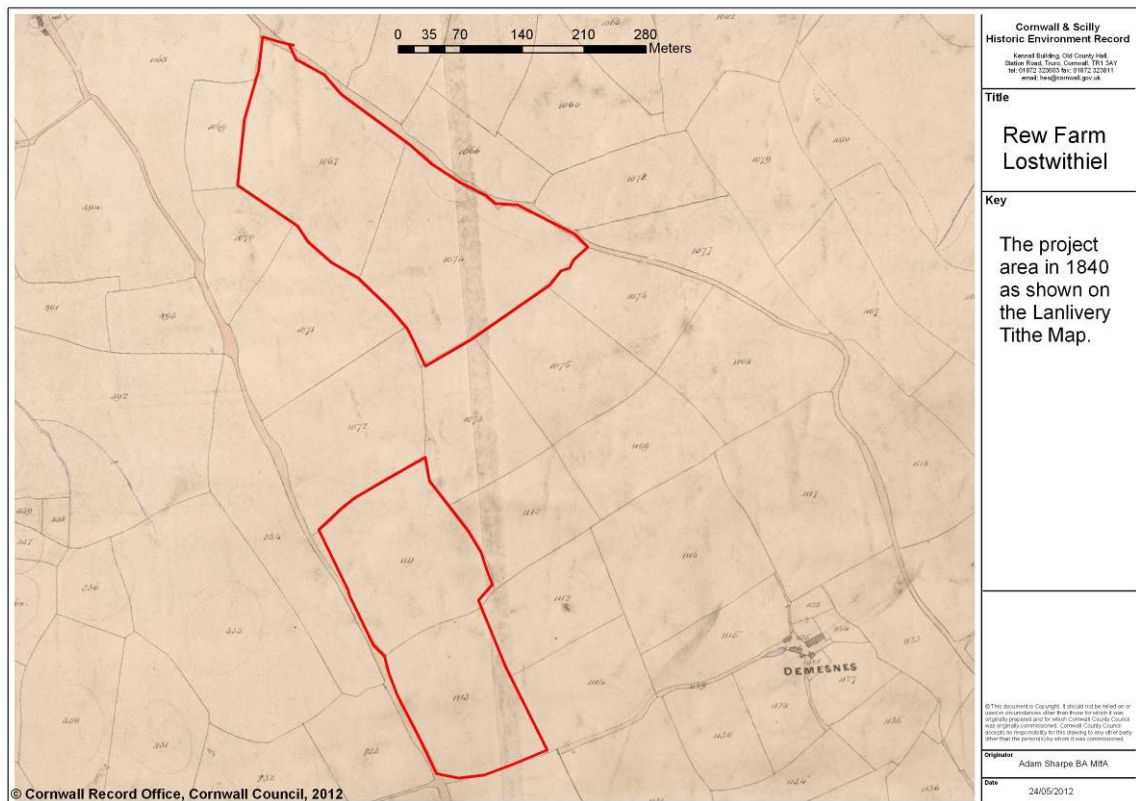


Fig 8. The project area as shown on the circa 1840 Lanlivery Tithe Map.

Rew Farm proposed solar farm assessment

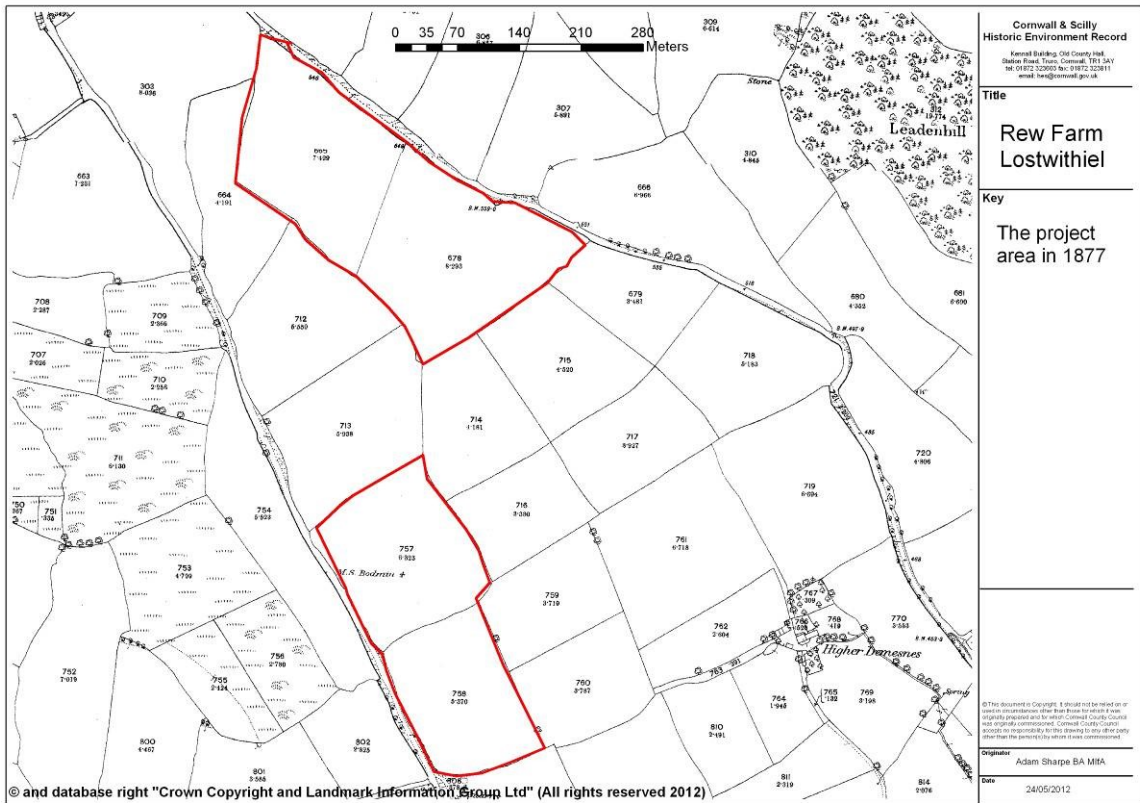


Fig 9. The project area as shown on the circa 1877 OS 25" to the mile mapping.

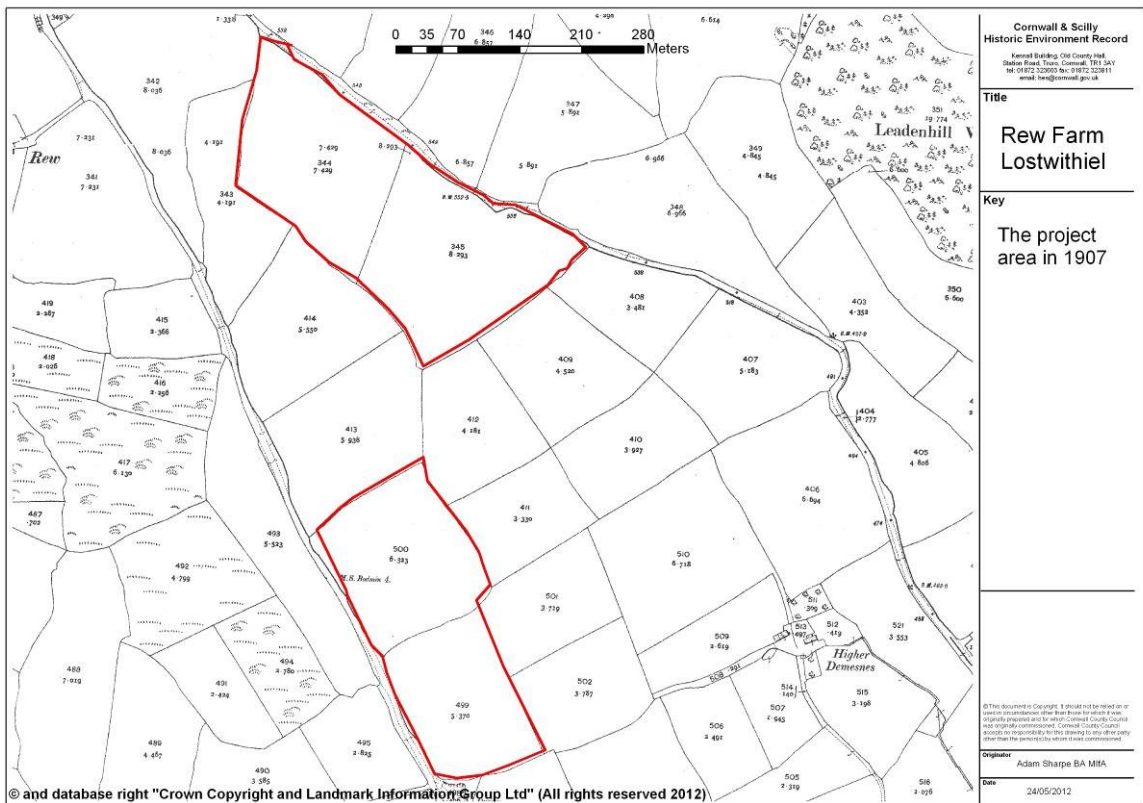


Fig 10. The project area as shown on the circa 1907 OS 25" to the mile mapping.



Fig 11. A 2005 Cornwall County Council aerial photograph showing the loss of early field boundaries in the block of land to the east of the proposed solar farm.

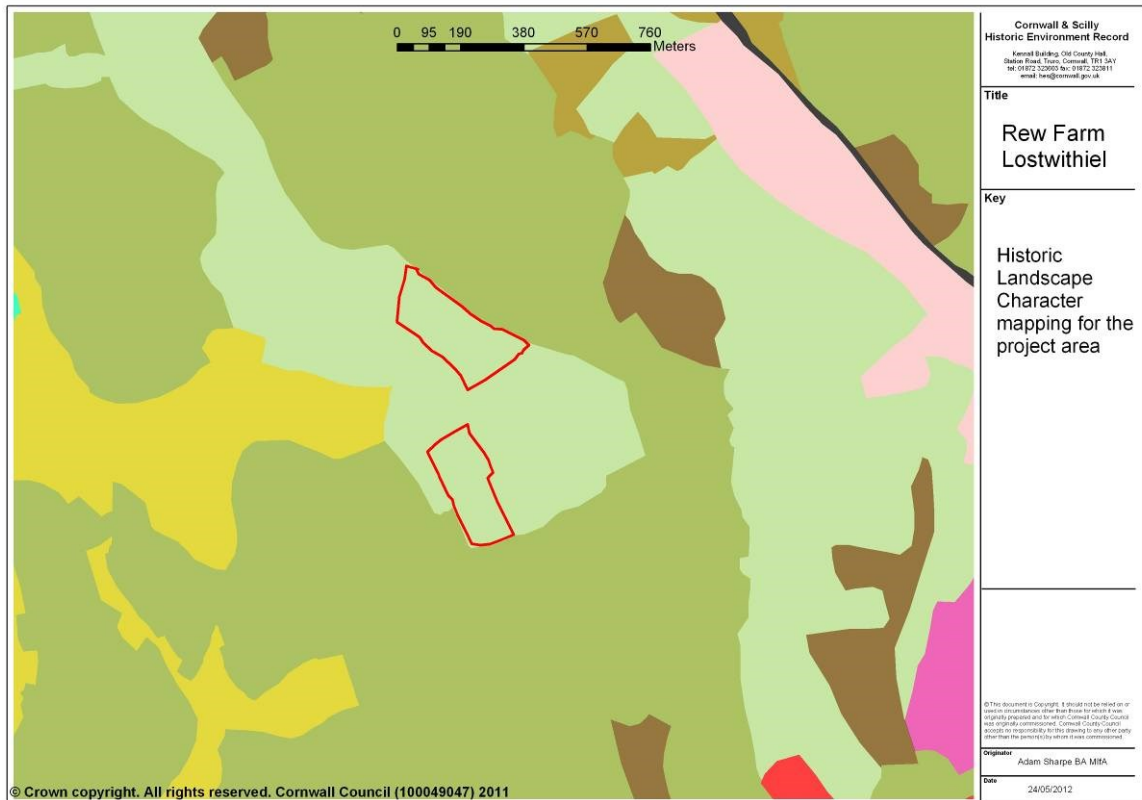


Fig 12. Historic Landscape Character mapping for the area surrounding the proposed Rew Farm solar farm, showing how the site occupies a small block of Recently Enclosed Land (pale green) set within a landscape of predominantly medieval fields (Khaki).



Fig 13. Archaeological features (red) revealed through aerial photographic plotting undertaken by the National Mapping Programme in the area surrounding the proposed solar farm (blue hatch).

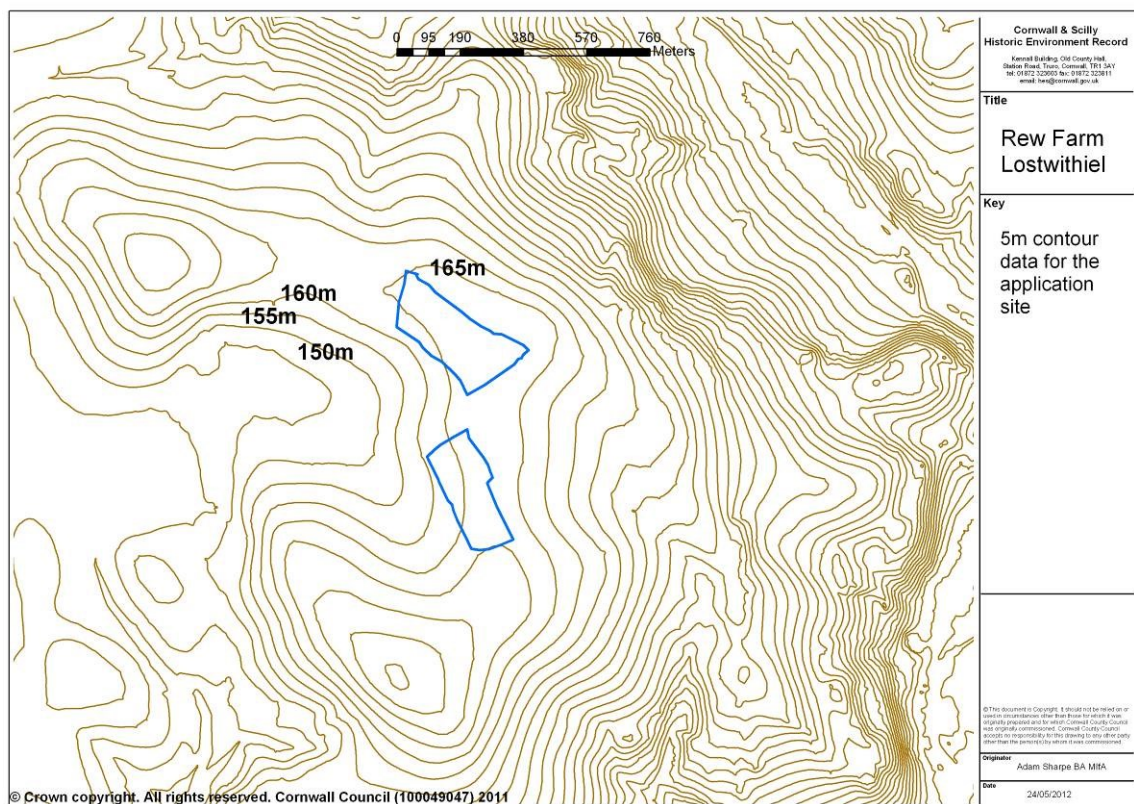


Fig 14. OS 5m interval contour data showing the topography of the site proposed for the solar farm.

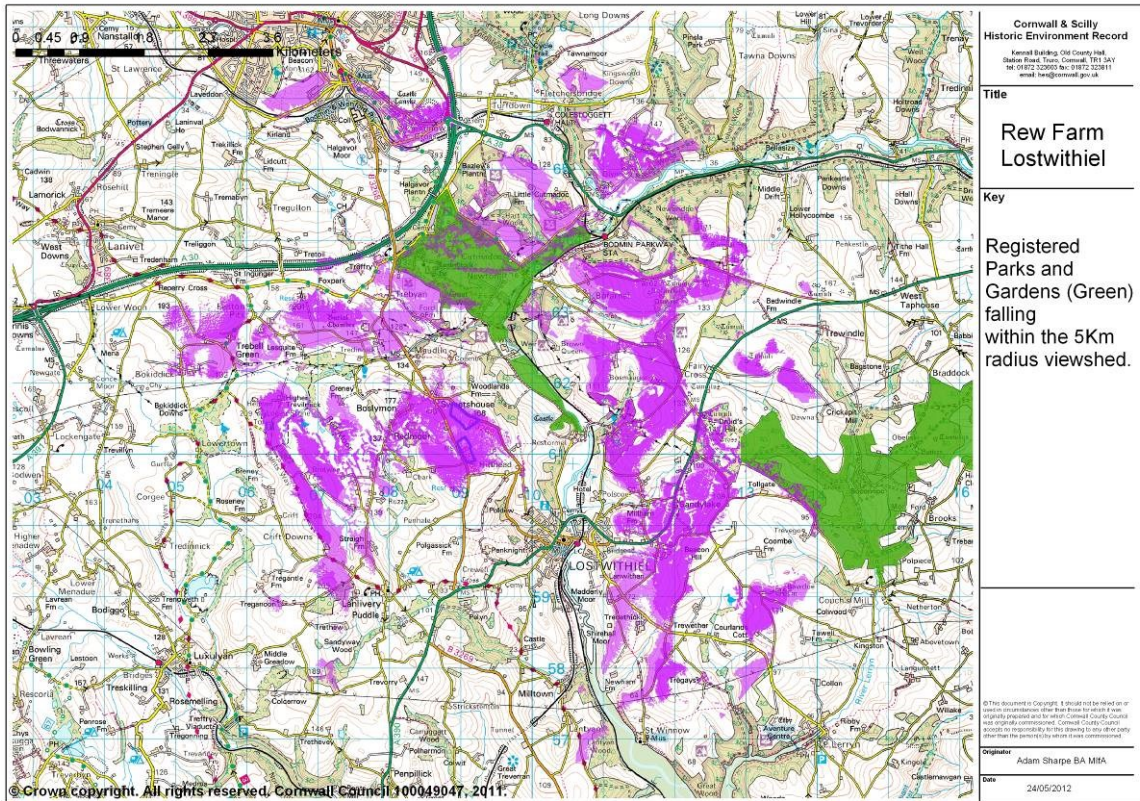


Fig 15. The extent of Registered Parks and Gardens at Lanhydrock and Boconnoc (green) and their potential intervisibility with the 5Km viewedshed from the site (purple).

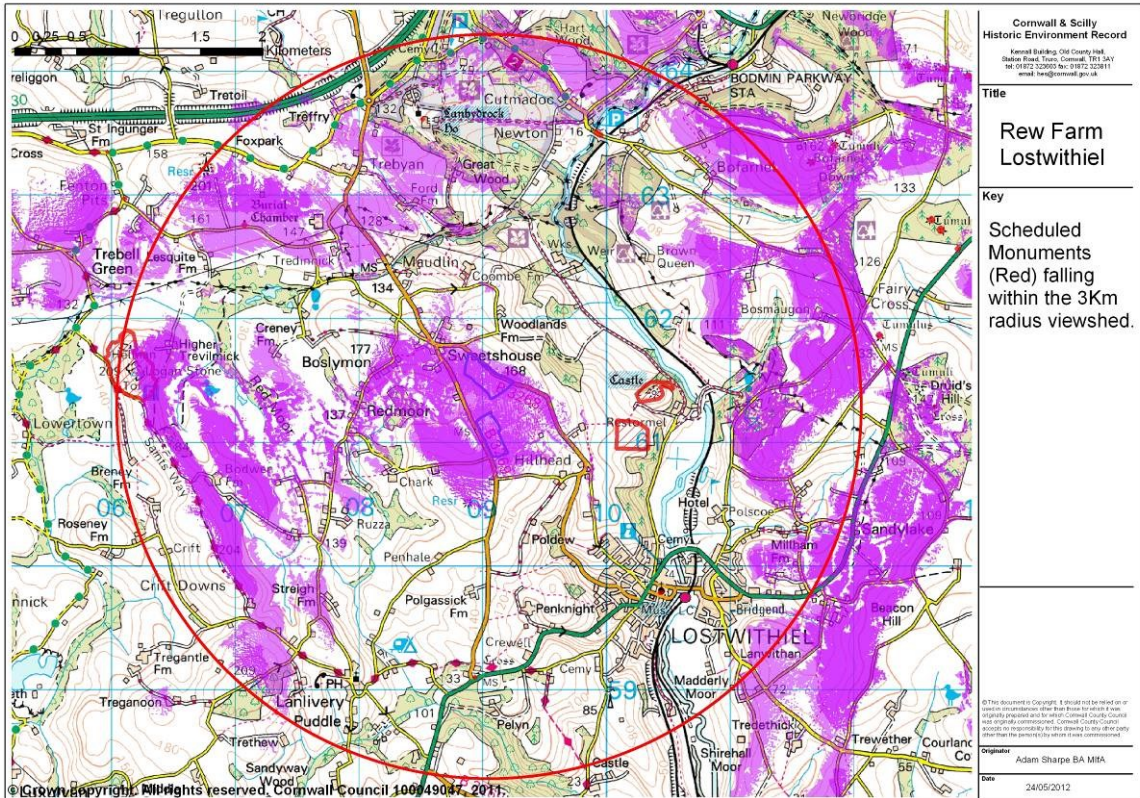


Fig 16. Mapping showing the ZTV within a 3Km radius of the site proposed for the solar farm, showing potentially intervisible Scheduled Monuments (red).

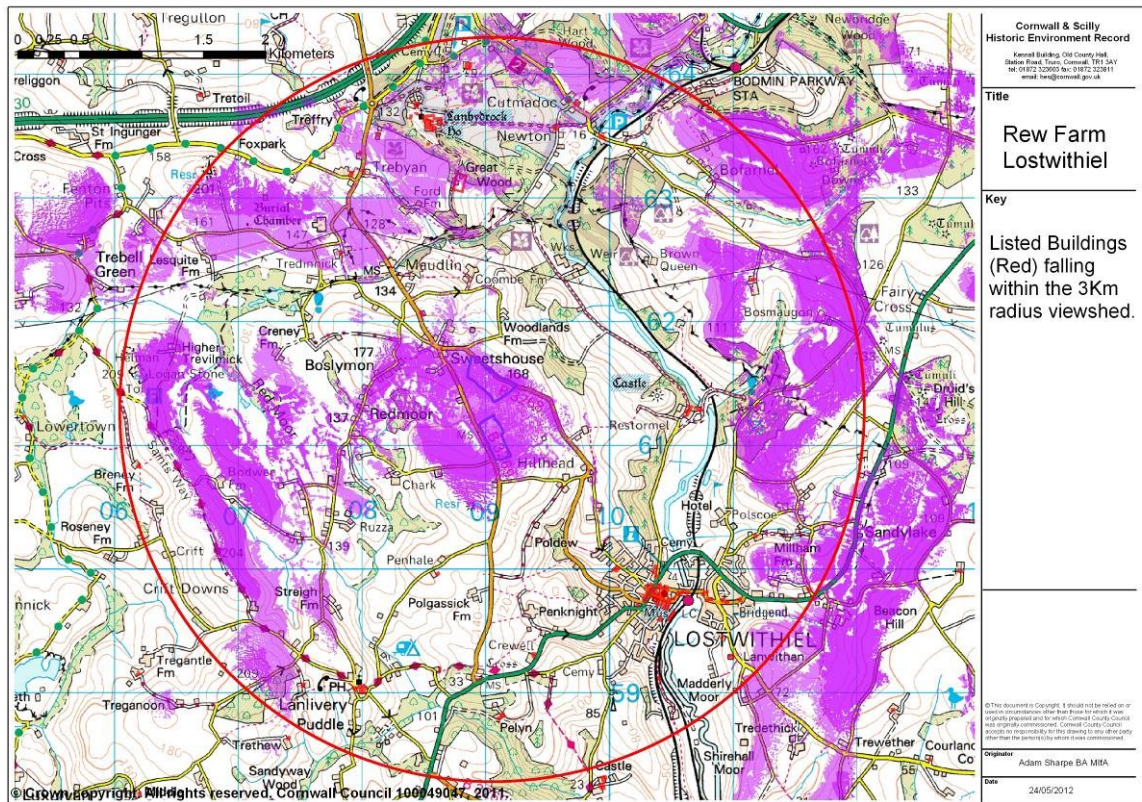


Fig 17. Mapping showing the ZTV within a 3Km radius of the site proposed for the solar farm, showing potentially intervisible Listed Buildings (red).

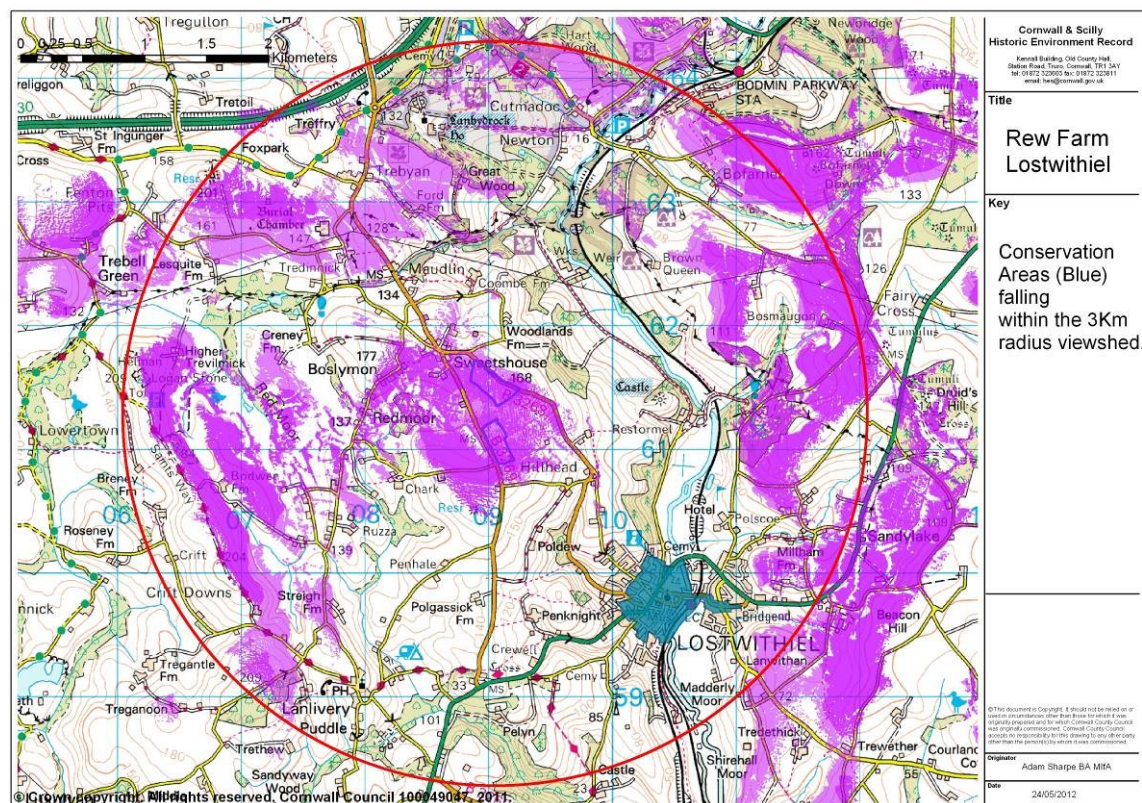


Fig 18. Mapping showing the 3Km radius ZTV for the proposed solar farm, showing the absence of potential intervisibility with the Lostwithiel Conservation Area.

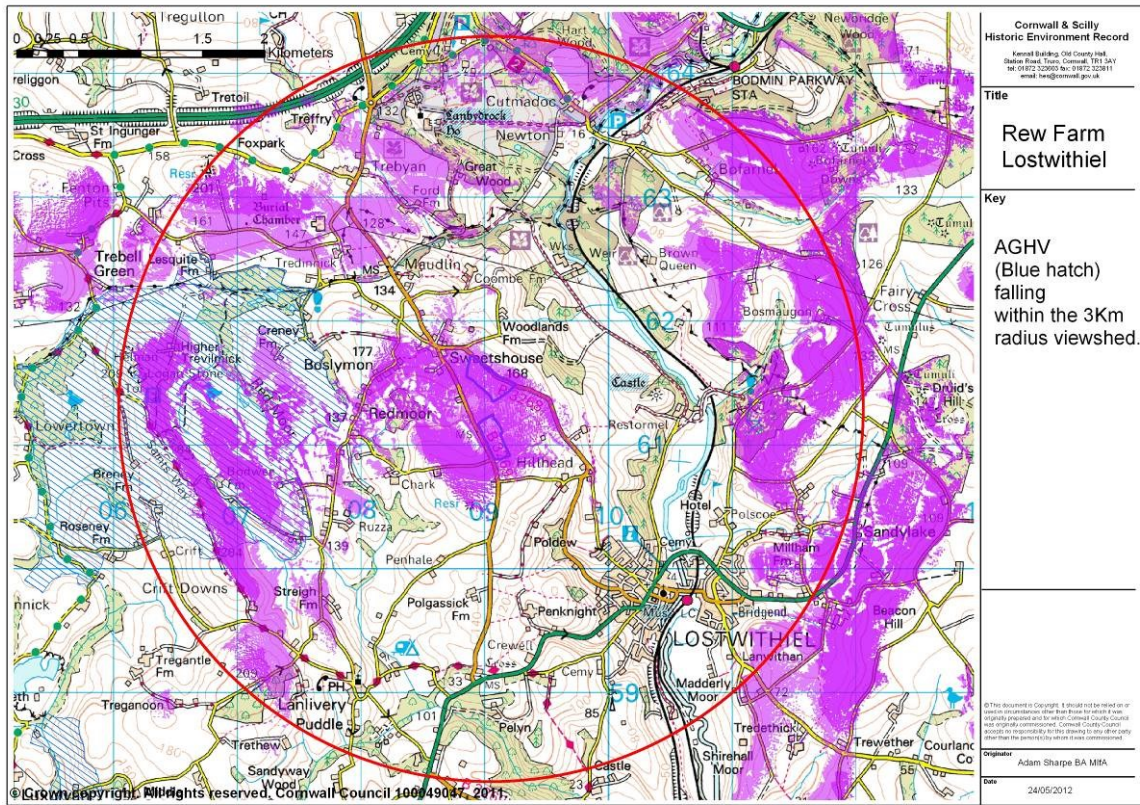


Fig 21. Mapping showing the ZTV within a 3Km radius of the site proposed for the solar farm, showing potentially intervisible areas of the AGHV (blue hatch).

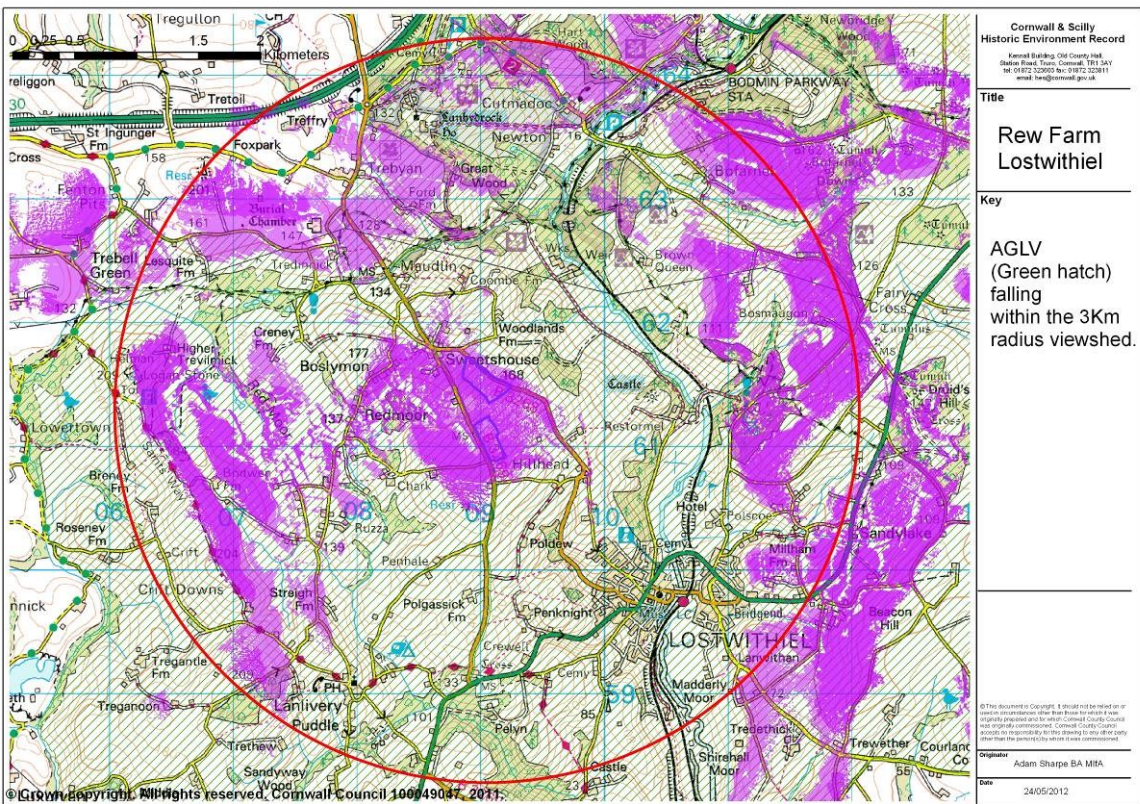


Fig 22. Mapping showing the ZTV within a 3Km radius of the site proposed for the solar farm, showing potentially intervisible areas of the AGLV (green hatch).

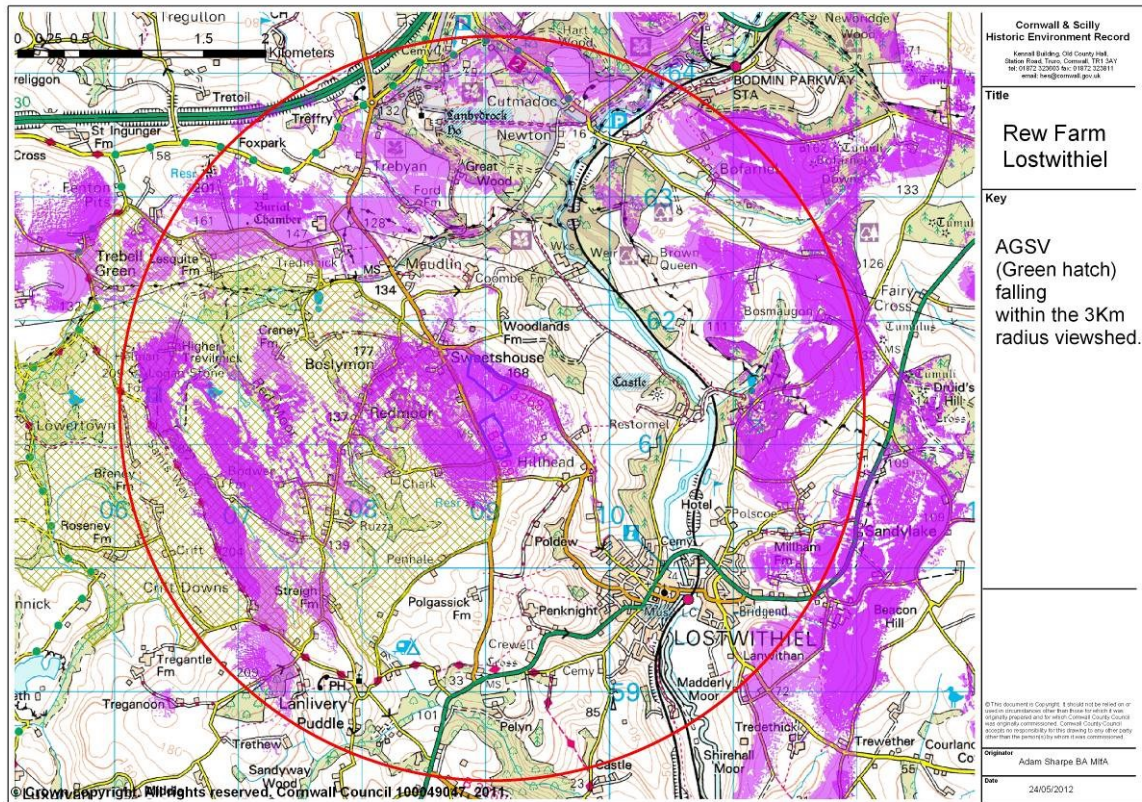


Fig 23. Mapping showing the ZTV within a 3Km radius of the site proposed for the solar farm, showing potentially intervisible areas of the AGSV (green hatch).



Fig 24. A general view of one of the southern pair of fields proposed for the solar farm, looking north towards Sweetshouse.



Fig 25. Helman Tor as seen from the southern block of fields.



Fig 26. Lesquite (skyline location) from the southern block of fields.



Fig 27. The sheep creep in the hedge in the southern field.



Fig 28. Looking north towards Sweetshouse in the northern block of fields.



Fig 29. Helman Tor from the north fields, visibility partly blocked by Boslymon.



Fig 30. The Rew Farm fields (skyline centre) from Beacon Hill with the outskirts of Lostwithiel left centre.



Fig 31. The Rew Farm fields (skyline centre) from Druid’s Hill.



Fig 32. The Rew Farm fields (skyline centre) from Fairy Cross, with parts of Lanhydrock Park centre right and Restormel Castle in the mid distance.



Fig 33. Looking towards Lanhydrock House from the Park near the Avenue towards the Rew Farm site, showing how the tree planting completely blocks the view.



Fig 34. Looking towards Rew Farm (skyline centre) from the road adjacent to Lesquite chambered tomb.



Fig 35. Rew Farm (skyline) from a gateway at Boslymon. Elsewhere at the settlement, trees block the view.



Fig 36. Rew Farm (middle centre) from Helman Tor. The field proposed for the solar farm lie just beyond the road, which runs along the ridgeline.

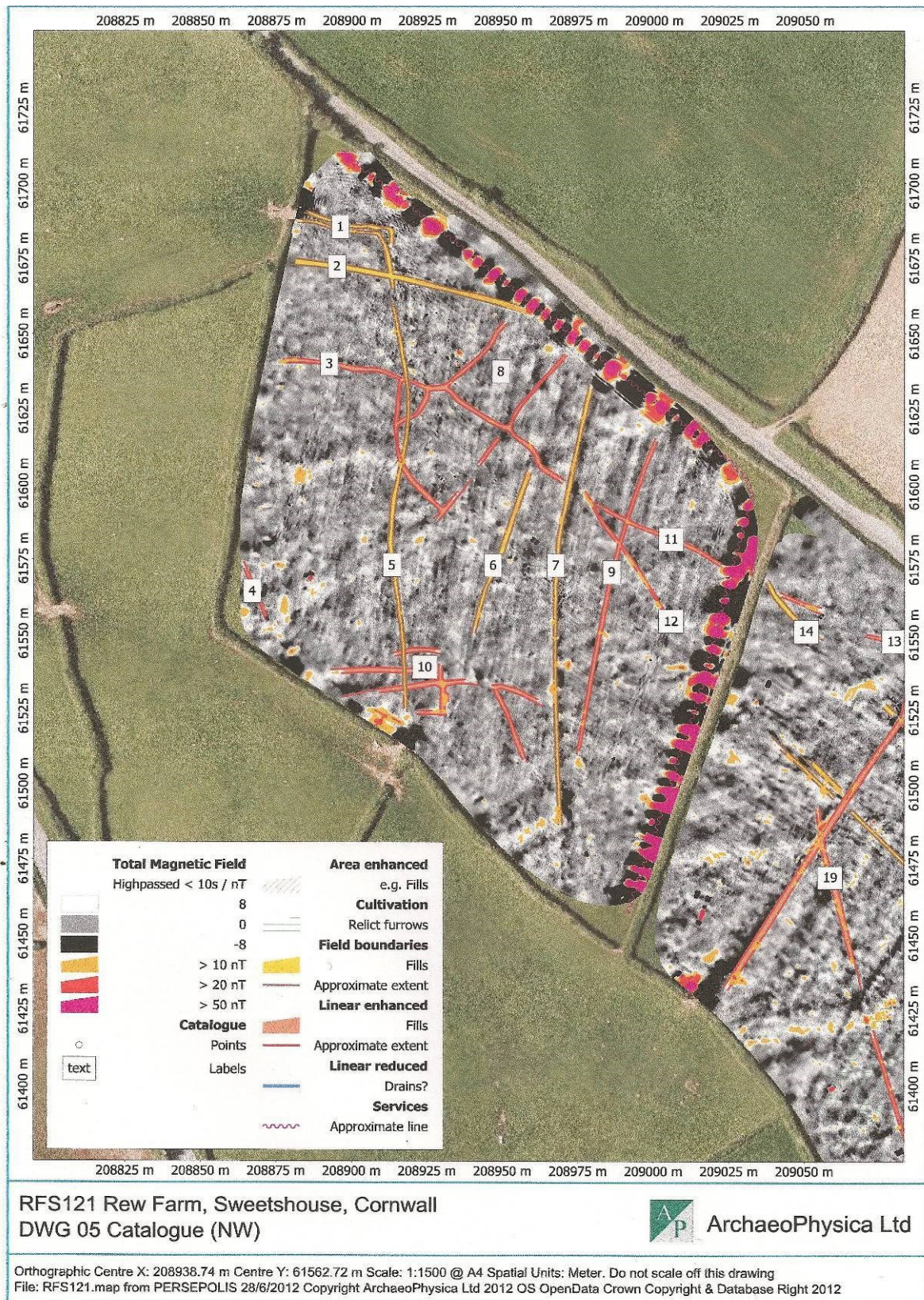


Fig 37. The geophysics results for the north-eastern field at Rew Farm, showing the complex arrangement of former field boundaries and enclosures.

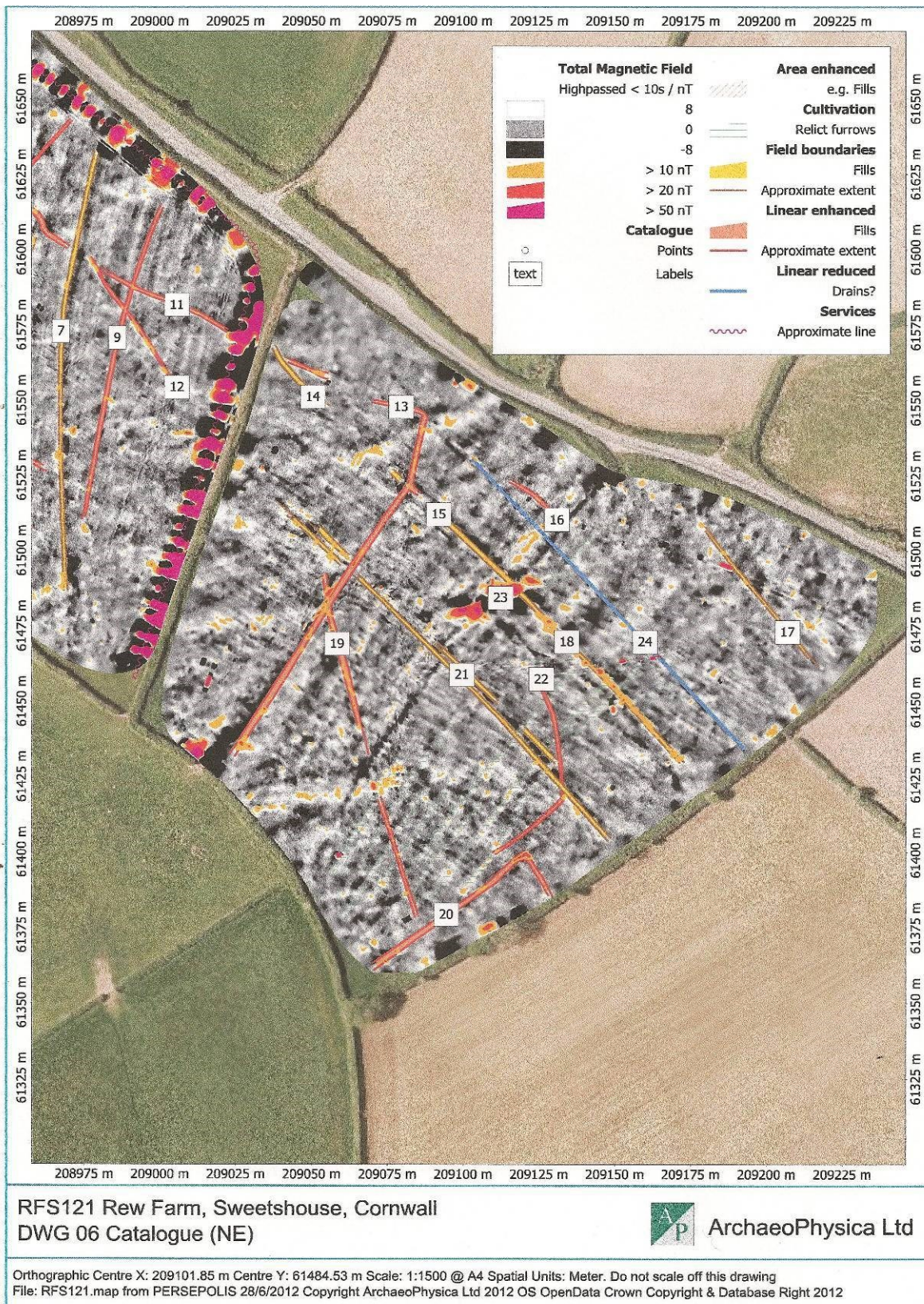


Fig 38. The interpreted geophysics results for the north-eastern field at Rew Farm showing continuations of the features recorded to the north west, together with evidence for medieval ridge and furrow cultivation and strip field boundaries.

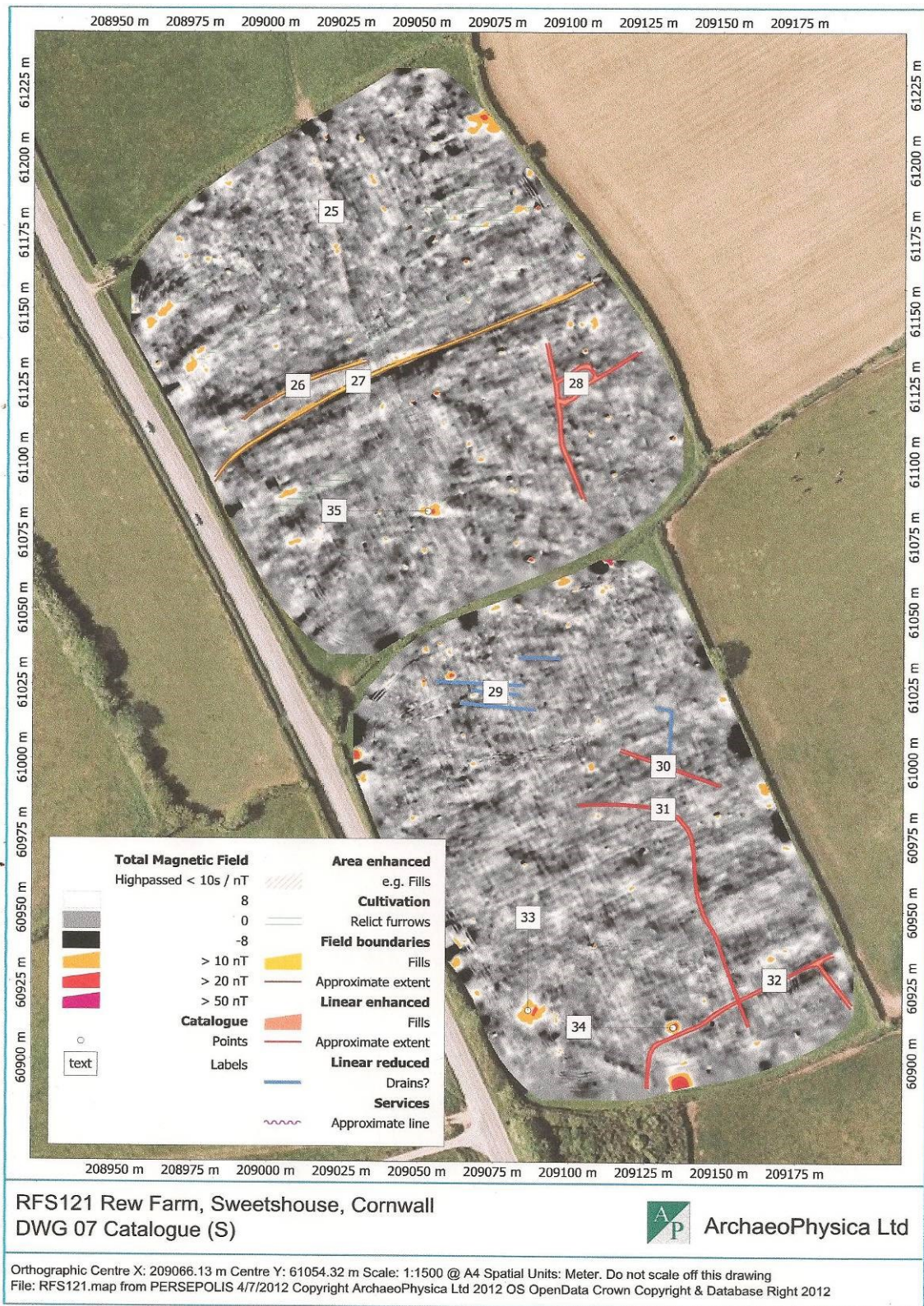


Fig 39. The interpreted geophysics results for the southern fields at Rew Farm. Again these appear to show early field boundaries and a possible enclosure.

Table 1: Geophysical survey catalogue

Label	Anomaly Type	Feature Type	Description	Easting	Northing
1	Linear enhanced (group)	Fills - Ditches	Former field boundary, partly double ditched and therefore perhaps a Cornish hedge	208896.0	61685.4
2	Linear enhanced	Fill - Ditch	Former field boundary, perhaps linked with [6] which is perpendicular and / or perhaps [7]	208894.9	61672.3
3	Linear enhanced (group)	Fills - Ditches	A series of ditch fills define what were apparently former agrarian enclosures, possibly of multiple phases and perhaps contiguous with [10]. A prehistoric origin seems likely	208892.4	61639.9
4	Linear enhanced	Fill - Ditch	See [3] and [10]	208866.9	61564.2
5	Linear enhanced	Fill - Ditch	Former field boundary, connected with [1] and presumably a different version of the former system including [6] and [7]	208913.1	61572.9
6	Linear enhanced	Fill - Ditch	Former field boundary, continues extant example northwards and may be half of a funnel with [7]	208946.6	61572.9
7	Linear enhanced	Fill - Ditch	Former field boundary, may be half of a funnel with [6]	208967.4	61572.9
8	Linear enhanced	Fill - Ditch	See [3]	208949.2	61637.3
9	Linear enhanced	Fill - Ditch	Parallel to [6], perhaps related, perhaps unrelated but in either case typical of a former field boundary and potentially of any date	208985.9	61570.7
10	Linear enhanced (group)	Fills - Ditches, Pit?	A small (20m NS) cluster of what appear to be ditch fills, perhaps defining a former enclosure apparently cut by [5]. The small size and strong magnetic fields might imply a settlement-related or similar structure, however, there is no direct evidence for this	208924.1	61539.1
11	Linear enhanced	Fill - Ditch	Perhaps a continuation of [3], perhaps also a continuation of [13] and / or [15] and typical of a boundary ditch of indeterminate age	209005.6	61581.6
12	Linear enhanced	Fill - Ditch	See [11] - this could also or alternatively be a continuation of [3], perhaps even a continuation, in different form, of [21]	209005.6	61554.4
13	Linear enhanced	Fill - Ditch	See [11]	209079.5	61547.8
14	Linear enhanced	Fill - Ditch	A likely continuation of probable former field boundary [18] and also [15]	209050.4	61551.1

Label	Anomaly Type	Feature Type	Description	Easting	Northing
15	Linear enhanced	Fill - Ditch	See [18] and [14]	209091.9	61512.1
16	Linear enhanced	Fill - Ditch	Probable ditch fill, parallel to [18], may or may not be related	209130.8	61510.3
17	Linear enhanced	Fill - Ditch	See [18] and [21] which share the same alignment and seem to be former field boundaries defining narrow strips. They pass across the remains of ridge and furrow cultivation and hence may not be simple fossilisation / conglomeration of medieval holdings	209206.9	61473.2
18	Linear enhanced	Fill - Ditch	See [17]	209134.1	61469.9
19	Linear enhanced	Fill - Ditch?	A possible ditch fill, however, a service trench is also possible	209058.4	61469.2
20	Linear enhanced	Fill - Ditch	The end of a rectilinear enclosure projects into the southern corner of the field from the east. It may be another in the same series as [21], [18] et al, or could be completely unrelated	209094.4	61379.3
21	Linear enhanced (group)	Fills - Ditches	Former double ditched field boundary, likely a Cornish hedge	209099.5	61459.0
22	Linear enhanced	Fill - Ditch	Probable enclosure ditch, potentially prehistoric	209125.7	61457.5
23	Strong dipolar (group)	Natural/ Fill? - Debris?	A very strongly magnetic area associated with weak anomalies from solid geology may mark either a magnetic outcrop or the fill within something co-incident with this, e.g. a quarry. These anomalies are not exactly aligned with the geology	209112.2	61484.5
24	Linear reduced	Fill / Structure - Service?	This could be a non-magnetic service, e.g. a culvert or plastic pipe	209159.9	61469.9
25	Area enhanced	Fill - Path?	This corresponds with a trodden path entering the field from the north	209020.1	61182.4
26	Linear enhanced	Fill - Ditch?	A fill of uncertain origin. It is close and parallel to [27] but aligned with ridge and furrow cultivation so it could be a ditch fill or a relict furrow	209009.2	61124.5
27	Linear enhanced	Fill - Ditch	Former field boundary	209029.2	61125.9
28	Linear enhanced (group)	Fills - Ditches	Probable prehistoric enclosure ditches although a later origin is also possible. A small (12m x 5m) enclosure seems to be formed within the angle of a larger one which might be evidence for a pound or settlement	209101.3	61125.6

Label	Anomaly Type	Feature Type	Description	Easting	Northing
29	Linear reduced (group)	Uncertain - Natural?		209075.1	61022.7
30	Linear enhanced	Fill - Ditch	One, with [31] and [32], of a set of enclosure ditches of uncertain date and probable rectilinear layout. They may be associated with a possible pit or hearth at [34]	209130.8	60998.4
31	Linear enhanced	Fill - Ditch	See [30]	209130.8	60984.2
32	Linear enhanced	Fill - Ditch	See [30]	209167.9	60927.4
33	Discrete enhanced (sample)	Natural?	Probable magnetic geological structure, however, a hearth or discrete fill is also possible	209086.4	60916.8
34	Discrete enhanced	Fill / Hearth / Debris?	Uncertain, however, the lack of strong dipolar character and the strike aligned with the ambient field might suggest this isn't ferrous debris but a discrete fill or hearth	209134.4	60911.4
35	Discrete enhanced	Natural?	Probably natural although the rectangular shape and only partial alignment with geological structures does increase the chance of this being an artificial fill or buried structure	209052.5	61082.8