



Pengwedna, Nancegollan, Cornwall Archaeological geophysical survey

Cornwall Archaeological Unit

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Pengwedna, Nancegollan, Cornwall

Archaeological geophysical survey

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Acknowledgements

This study was commissioned by Graham Frankpitt of Richland Foods Ltd. The geophysical survey was carried out by TigerGeo Ltd and the project was managed and this report produced by Cornwall Archaeological Unit, Cornwall Council.

The Project Manager was Dr. Andy Jones.

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

Freedom of Information Act

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Cover illustration

A 2005 Cornwall Council aerial photograph of Pengwedna.

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Abbreviations

CAU	Cornwall Archaeological Unit
CIfA	Chartered Institute for Archaeologists
HE	Historic England
HER	Cornwall and the Isles of Scilly Historic Environment Record
MCO	Monument number in Cornwall HER
OD	Ordnance Datum – height above mean sea level at Newlyn
OS	Ordnance Survey

1 Summary

Cornwall Archaeological Unit (CAU) was commissioned by Richland Foods Ltd. to provide a geophysical survey for the area to be occupied by a new free range egg laying unit at Pengwedna Farm to the west of Nancegollan, Helston. The prompt for this work was a response to a Cornwall Council planning scoping opinion, in which it was recommended that the survey results should be included within an Environmental Statement.

The area surveyed measured 2.2ha. Given the elongated footprint of the proposed development the survey extended across four fields, following a pre-existing trackway.

The majority of the features revealed by the survey consisted of ploughed out post-medieval boundaries, though a pair of anomalies at the south-western end of the survey area and a third at its eastern end, appeared to pre-date the modern field system, having different alignments from it. Only short lengths of these boundaries were found and it was not possible to say whether they were associated with a cropmark enclosed settlement of Romano-British date which is sited not far to their south. Evidence for cultivation activity on a different alignment to that associated with the modern field system was also found.

Given the results of the geophysical survey it was considered that although the potential for archaeological features is uncertain it is likely that some limited archaeological recording would be required in advance of or during the development, should it receive permission.

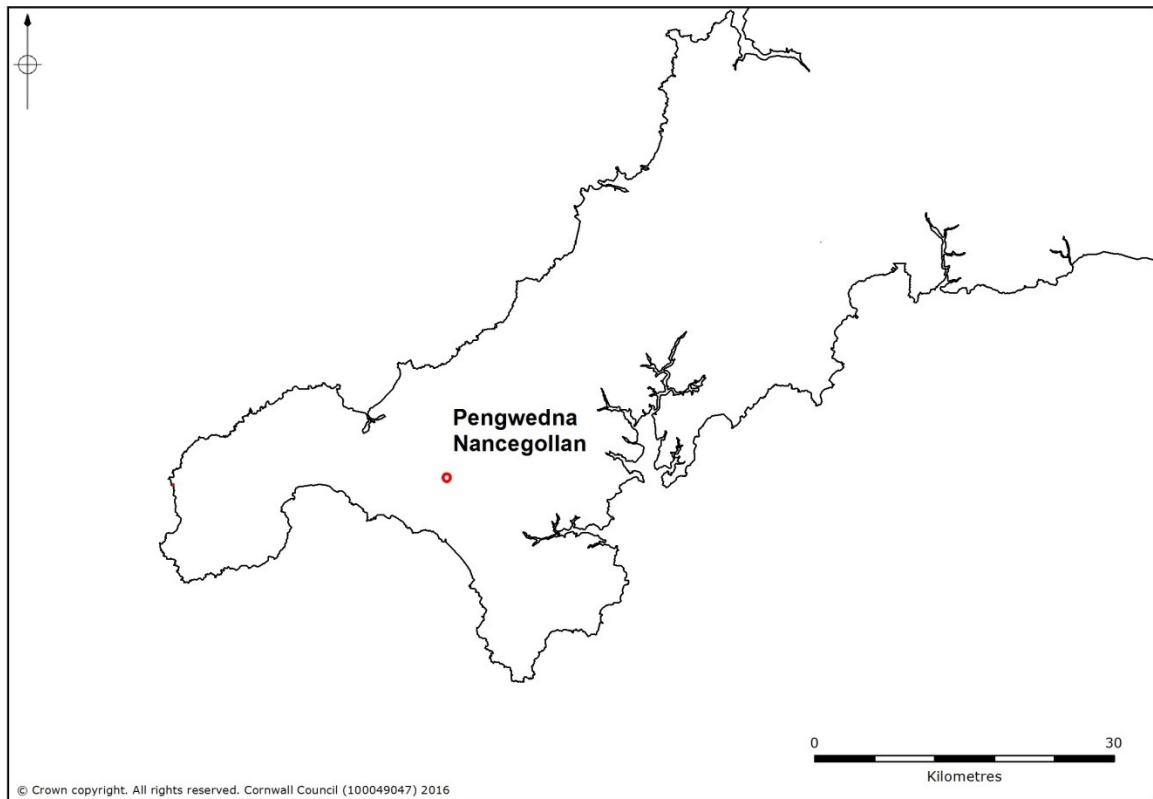


Fig 1. The location of Pengwedna, Nancegollan.

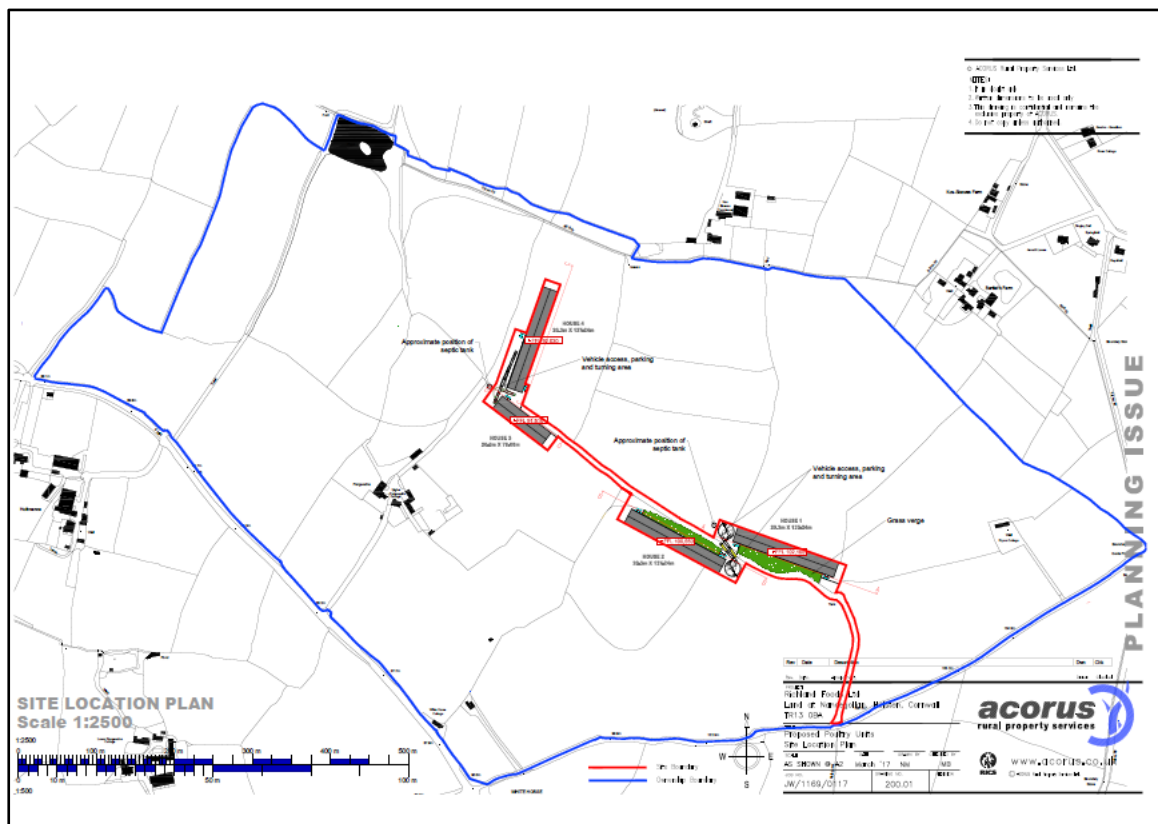


Fig 2. The footprint of the proposed new free range chicken housing units and access roads at Pengwedna.

2 Introduction

2.1 Project background

Cornwall Archaeological Unit (CAU) was approached by James Whilding on behalf of Richland Foods Ltd. on 07 April 2017 with a request for the costs of a geophysical survey and report which would be used in support of an Environmental Statement for a new free range egg laying unit at Pengwedna Farm to the west of Nancegollan, Helston. A Cornwall Council scoping opinion included a reply from the HEP(AO), as follows:

Thank you for consulting HEP Archaeology on this request for a Scoping Opinion. We have consulted the Cornwall & Isles of Scilly Historic Environment Record and note that the application area covers a large area of land that has been characterised as Farmland: Medieval, a type of Anciently Enclosed Land, known to be high in potential for buried archaeology of medieval and earlier periods. The area also includes land characterised as Post-medieval Enclosed Land, generally considered as lower in potential for buried archaeology but in this case at least part of this area appears to be wrongly characterised and should in fact be Farmland: Medieval.

The area includes two sites identified in the Cornwall HER: a prehistoric to medieval enclosure identified from a cropmark (MCO35959, entirely visible on the CCC 2005 aerial layer), and the medieval settlement of Pengwedna (MCO16114 Higher Pengwedna lies within the site, Lower Pengwedna to the south). A number of sites are recorded in the immediate vicinity including two Bronze Age barrows (MCO3468) and standing stone (MCO7500) on Sithney Downs, another barrow to the south (MCO3255), prehistoric/Roman enclosures to the north (MCO35965 and MCO35964), a medieval cross (MCO45689), medieval settlements at Huthnance (MCO15049), Pengelly Barton (MCO16106), and Nancegollan (MCO15795), a post-medieval mine (Wheal Millett, MCO13053 and MCO35963) and milestone (MCO54149), and a 20th century fingerpost (MCO57725).

Early maps show that the enclosure once sat within the extant field system, now partly removed. There will be sub-surface evidence for removed field boundaries within the site.

It is therefore recommended that the EIA should include a Cultural Heritage chapter and that this should include the results of a geophysical survey and a critical appraisal of the Historic Landscape Character. This work should be carried out by a suitably qualified organisation or individual in accordance with accepted national guidelines.

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A number of geophysical survey companies were contacted with requests for tendering for this work, which was awarded by the client to TigerGeo Ltd. The survey work was undertaken in the week commencing 17 April 2017 and TigerGeo's technical report was received on 24 April 2017.

2.2 Aims

No specific brief has been produced which covers the aims and objectives of this watching brief, though the WSI has been guided by scoping advice provided to the client by the HEP(AO) to Cornwall Council's planners (above).

The site specific aims are to:

- Establish the presence/absence of archaeological remains.
- Determine, where possible, the extent, condition, nature, character, date and significance of any archaeological remains revealed within the proposed development area.
- Establish the nature of previous human activity in this section of the Cornish landscape.

- To provide further information on the archaeology of the landscape around Nancegollan from any archaeological remains encountered.

The project objective is to produce a report setting out the results of the archaeological geophysical survey, placing them in their historical and landscape context. A further objective is to create an entry to the Historic England OASIS/ADS national online database of archaeological projects.

2.3 Methods

2.3.1 Desk-based assessment

A summary desk-based assessment was undertaken by CAU in order to obtain information about the history of the site and the structures and features that were likely to survive. The main sources consulted were as follows:

- The Cornwall HER;
- Early maps;
- GIS data-sets accessible to CAU.

2.3.2 Geophysical survey

A survey of the footprint of four proposed new chicken sheds (in two pairs) and the trackways to access them was carried out in April 2017 by TigerGeo Ltd. The survey was undertaken using a non-gradiometric array of real-time GNSS-tracked caesium vapour magnetometers on an ATV-towed sledge. A total of 2.2ha was surveyed across four fields. At the time of the survey the ground was under cultivation for newly-sown broccoli under plastic, areas of which were removed to allow the survey to take place. A non-gradiometric configuration for the magnetic sensors was used to avoid measurement sensitisation in the shallowest region of the soil, allowing deeper structures to be imaged. This approach removes the suppression of ambient noise and temporal trends; these are removed during post-fieldwork data processing.

Caesium instrumentation has a greater sensitivity than fluxgate-based instruments, however, at the 10 Hz sampling rate used here this increase in sensitivity is limited to about one order of magnitude. The array system is designed to be non-magnetic and to contribute virtually nothing to the magnetic measurement, whether through direct interference or through motion noise.

3 Location and setting

See Figures 1 and 2.

Pengwedna Farm is sited a short distance to the west of Nancegollan near Helston, the proposed development being centred at SW 62850 32050. The site lies on a ridgeline at the top of the southern slopes of the head of a west-heading stream valley adjacent to an historic east-west trackway traversing the fields of Pengwedna Farm.

The underlying bedrock consists of slates and siltstones of the Mylor Slate Formation, whilst the overlying soils are free-draining loams. The Mylor foundation bedrock can be fairly magnetic, and can support strong magnetic contrasts between cut and filled features and their surroundings.

4 Designations

4.1 National

No national designations apply to this site.

4.2 Regional/county

No regional or county designations apply to this site.

5 Site history

Pengwedna was first recorded in 1277, and had been subdivided into Higher and Lower Pengwedna by 1400. The neighbouring farm of Huthnance was first recorded in 1289. Taken together with other early farmsteads in the locality, this gives good evidence for this landscape having been settled by at least the time of the Norman Conquest.

The *circa* 1801 1st Edition of the OS 1" to a mile mapping (Fig 3) shows the site as lying on former downland on the flanks of a hilltop centred a short distance to the south-west of Nancegollan. The landscape to the south of the track traversing the site has a Historic Landscape Character of Anciently Enclosed Land (Farmland Medieval) associated with Pengwedna Farm. To the north, the now enclosed former downland is characterised as Recently Enclosed Land (post-medieval) – that is land enclosed in the 17th to the 19th centuries during land enclosure and improvement programmes (see Fig 9).

The *circa* 1840 Tithe Map (Fig 4) showed the farm to have been arranged more or less as is now currently the case, there having been only very limited boundary removal over the past two centuries. A trackway which traversed the farm from east to west is the focus of the current application. The fields which will be affected to one degree or another by the proposals were numbered as follows in the Apportionment:

Pengwedna was jointly owned by the Trustees of Thomas Daniel with John Borlase Esq. and Glynn Grylls Esq. Pengwedna was occupied by James Bodinnar.

No	Plot name	Use
875	Gypsy's Croft	Pasture
876	Park an Fold	Arable
877	Croft	Pasture
878	Croft	Pasture
879	Croft	Pasture
880	Long Meadow	Arable
882	Croftly Piece	Arable and Pasture
889	Homer Great Field	Arable

The mixture of arable and pasture probably reflects the degree to which the formerly poorly-drained hillslopes to the north had been improved by drainage.

A cottage and tenement at the eastern end of Pengwedna to the east of the north-heading section of the track was occupied by William Bawden, the relevant plots being:

917	Close	Arable
918	Nearer Close	Arable
919	Cottage and Curtledge	
920	Long Close	Arable

The *circa* 1880 1st Edition 25" to a mile mapping (Fig 5) showed that to the north of the trackway that most of the fields were marked as heathy pasture running down the slope to a small stream, beyond which lay disused shafts on the disused Wheal Millet (tin and copper) mine. William Bawden's cottage still survived, its attached paddocks had been amalgamated into a single plot. By 1908 when the 2nd Edition of the 25" to a mile mapping (Fig 6) was surveyed the northern fields had been improved, possibly by the installation of drains, and William Bawden's cottage had been demolished.

The Cornwall and Scilly Historic Environment Record (HER) shows only one site within the general vicinity of the project area – MCO 35969 - a rectangular cropmark

enclosure which represents an Iron Age / Romano-British Round (an enclosed farming settlement). This was plotted by the National Mapping Programme from archive aerial photographs (Fig 8). Other multiple-ditched enclosures of probably late prehistoric date are to be found on the opposite side of the valley.

Aerial mapping undertaken for Cornwall County Council in 2005 (Fig 7) shows most of the fields of the farm to have been in arable crops at that date. Ploughing in the large central southern field at the time of the survey revealed the rectangular cropmark of the round as a clear feature, but no other cropmarks or soil-marks were revealed by this mapping.

6 Archaeological results

The following text is adapted from the technical report produced by TigerGeo Ltd in April 2017. See Figure 10 for the locations of numbered features in the following section of this report.

There are detectable traces of modern cultivation evident throughout the survey area but in one field, at [10], there appears to be evidence for an older pattern of plough furrows at an angle to the boundaries of the present field. These appear also to be present in the field to the west but these are at a shallower angle to those resulting from modern cultivation activities and survey direction and are hence slightly less clear. It is possible that former field boundaries [5] and [6] cross this cultivation evidence as there is little sign of ploughing activity cultivation having disrupted the magnetic field enhancement of the ditches. Given that these boundaries had been removed prior to the 1840s, there is a possibility that the fields they replaced were significantly older.

At [3] an area of disrupted magnetic field may be due to modern agriculture, though may also have a shallow geological origin or could represent a deeply-buried ditch fill – the small section of this feature which was recorded is too limited in extent to interpret.

A number of former field boundaries are evident within the data, all of which had been removed prior to the 1840s Tithe Map with the exception of [4], a double-ditched Cornish hedge defining the eastern edge of parcel 888 north of an un-named settlement. Example [5] is likewise double-ditched and likely to be contemporary whereas [6] is an example of a type of single ditched boundary which is often found sub-dividing large fields defined by double-ditched boundaries. At the eastern end of the site a number of fairly weak (by local standards) linear anomalies [7] and [9] might be ditch fills but could also be drains. An abandoned (damaged) steel service, perhaps a pipe, also passes through this field and forms a strong anomaly.

At [8] a significantly magnetic ditch fill appears to continue the curve of the track to the south in a north-eastwards direction. The strength of this anomaly would imply either a greater depth to the feature or a more magnetic fill. Field boundaries here clearly embody parts of an earlier system and a small settlement, shown on the 1840s Tithe Map, once existed immediately beyond the eastern end of the survey area.

At [1] and [2] there are two unusual (for this site) linear magnetic anomalies. Neither is typical of the former field boundaries found elsewhere within the survey area and both are negative anomalies (i.e., reduced field strength) and are up to 3m wide. This would mean the source body has to be less magnetically susceptible than the surrounding ground and they may be the bases of truncated stony banks surviving within the subsoil, or perhaps substantially metallised former roads. It seems likely that these are remnants of a system that predates than the present layout of fields. The juxtaposition of strongly magnetic ditch fill [8] and the curve of the track may be of archaeological interest depending upon the evolution of successive field systems within this area.

There are signs of landscape re-organisation prior to the 1840s Tithe Map, implied by angles of former cultivation evidence, for example [10], the curve of the track and ditch fill [8] and enigmatic structures [1] and [2]. Whether the latter can be associated with

other evidence for pre-modern former cultivation activity, for instance feature [10], is uncertain but they might share a similar angle.

There is nothing else of obvious archaeological interest within the survey data.

7 Chronology/dating evidence

Whilst the presence of the soilmark round to the south of the geophysical survey area would imply the likelihood of a probably formerly extensive associated field system, there are few traces of evidence for this within the geophysical survey results with the possible exceptions of anomalies [1], [2] and [8]. The majority of the features revealed in the geophysical survey seem likely to be of post-medieval date, and associated with the modern (post-medieval) arrangement of field system boundaries at Pengwedna Farm boundaries. There is no clear evidence of medieval cultivation, and it thus seems likely that during this period this land was probably marginal, lying at the edges of the former enclosed land, and not intensively cultivated, possibly being used as pasture land.

8 Conclusions/discussion

Given the footprint of the proposed development at Pengwedna Farm, Nancegollan, the geophysical survey carried out there in April 2017 inevitably provides no more than a keyhole view of the archaeology of this part of Cornwall's landscape. Perhaps unsurprisingly, therefore, it has provided only a small amount of additional information concerning the development of this landscape. The data hints that elements of a field system associated with the soilmark round a little further upslope may survive within this landscape, but only possible fragments of this have been revealed within the development area. Features associated with the post-medieval re-organisation of this downland fringe landscape are predominant within the geophysical data set.

9 Recommendations

On the basis of the geophysical survey, although a small number of boundaries seem likely to derive from an early, possibly post-prehistoric period of land organisation, these have been recorded in small, disconnected fragments, and no clear picture of any field system of which they might have been components can be gained from the results. The majority of the boundary features revealed by the survey are either those shown on the Tithe Award mapping or others likely to have represented subdivisions of those fields, given that they share common alignments with them. Smaller features like pits or postholes will not be detected by a geophysical survey undertaken at this level of resolution, and may exist within the development area.

It is noted that the Senior Development Officer (Historic Environment) recommended that the EIA for this application should include a Cultural Heritage Chapter which should include the results of this geophysical survey and a 'critical appraisal of the Historic Landscape Character'. This report addresses some aspects of this requirement, but not its entirety.

On the basis of the results of the interpreted geophysical survey it is considered that there is sufficient justification for further archaeological recording or investigation of the proposed project area at Pengwedna. This may comprise an archaeological watching during groundworks, however, the scope of any such recording will need to be agreed by the Senior Development Officer (Historic Environment).

10 References

10.1 Primary sources

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

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

Ordnance Survey, MasterMap Topography

Tithe Map and Apportionment, c1840. Parish of Breage (licensed digital copy at CRO)

10.2 Publications

10.3 Websites

<http://www.heritagegateway.org.uk/gateway/> Online database of Sites and Monuments Records, and Listed Buildings

11 Project archive

The CAU project number is **146685**

The project's documentary, digital, photographic and drawn archive is maintained by Cornwall Archaeological Unit

Electronic data is stored in the following locations:

\\Sites\Sites N\Nancegollan geophysics\

Historic England/ADS OASIS online reference: [cornwall2-283667](#)



Fig 3. Pengwedna circa 1810 as shown on the 1st Edition OS 1" to a mile mapping. The site (circled in red) lies on the western slopes of a hill to the south-west of Nancegollan.



Fig 4. An extract from the circa 1840 Breage Tithe Map showing the area of Pengwedna Farm to be affected by the proposal.

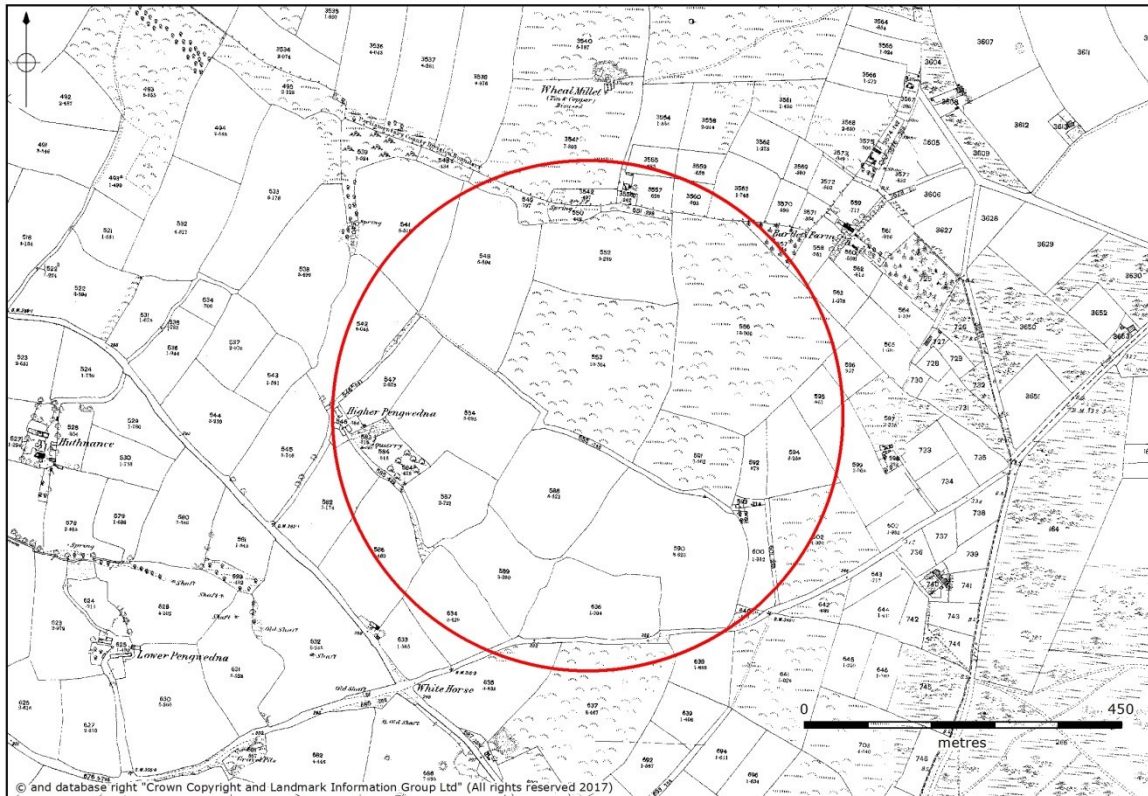


Fig 5. Pengwedna as shown on the 1st Edition OS 25" to a mile mapping circa 1880. Note that the eastern smallholding has become incorporated into the wider field system, and the unimproved state of the northern fields.

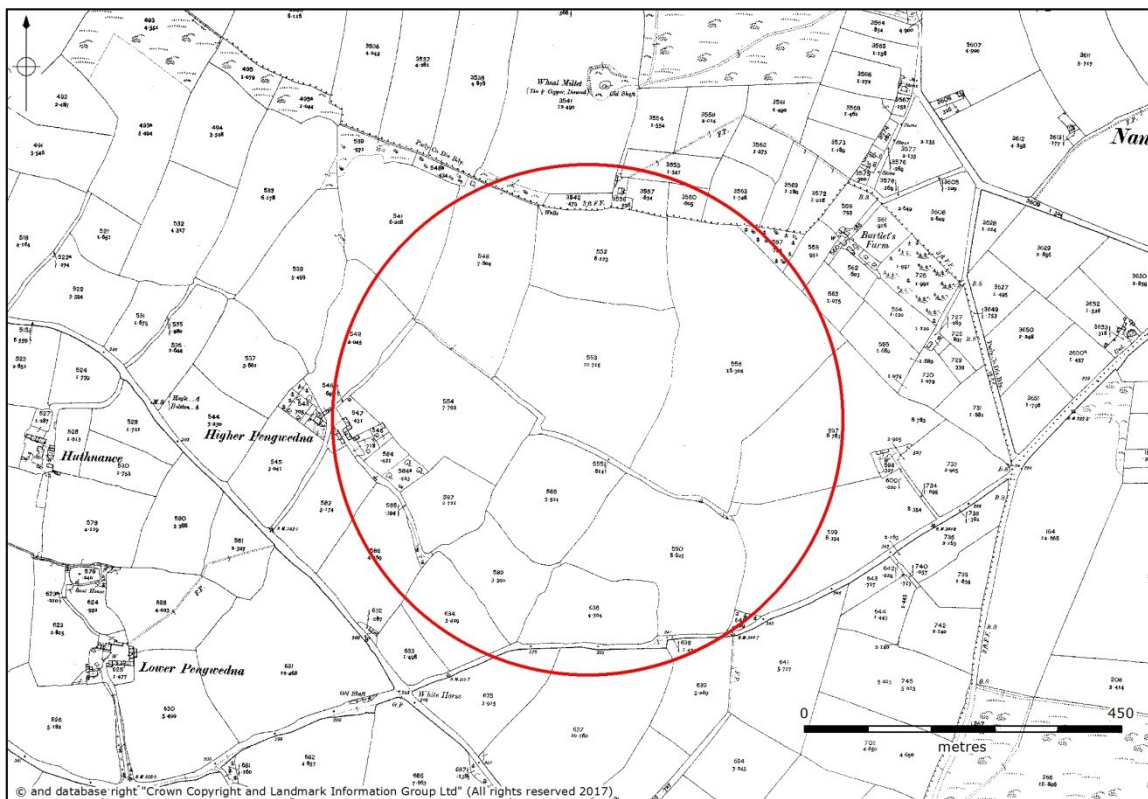


Fig 6. Drainage improvements to the northern fields have clearly improved them by 1908. The cottage adjacent to the track had been demolished.



Fig 7. Pengwedna in 2005 as shown on a CCC aerial photograph. Most of the farm is in arable, with the southern 'round' showing clearly as a soilmark in the ploughsoil.

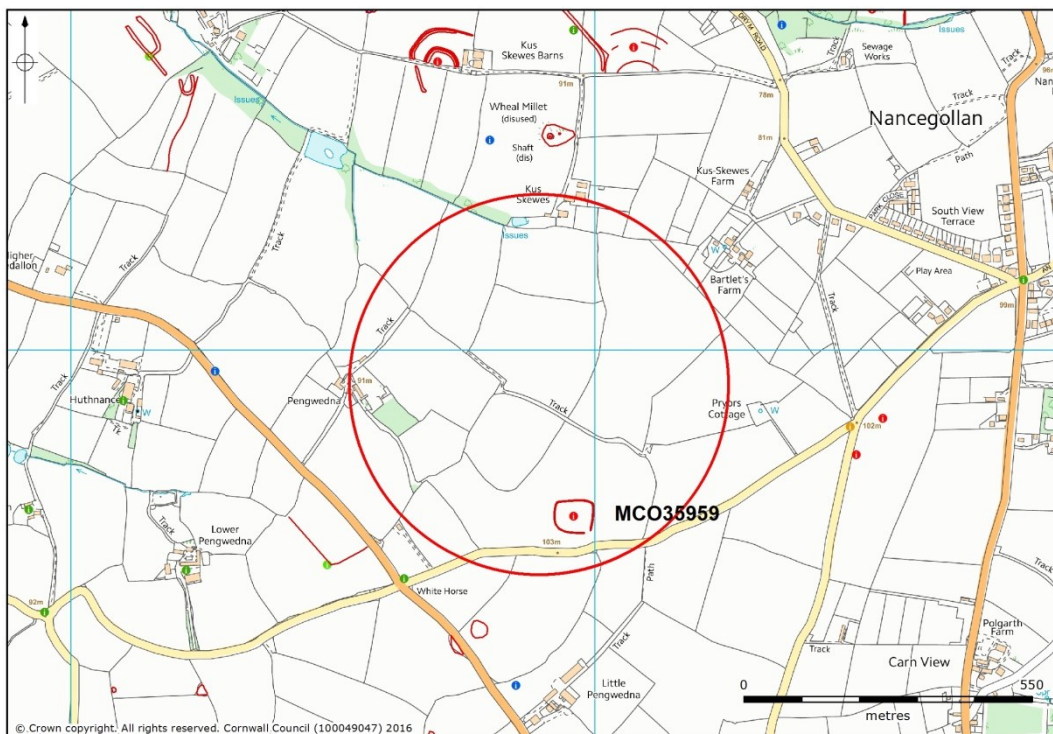


Fig 8. Monuments recorded in the CCHER in the vicinity of Pengwedna. MCO 35959 is a ploughed down Round, whilst two multivallate late prehistoric enclosures recorded by the NMP are sited on the hillslope to the north of the stream.

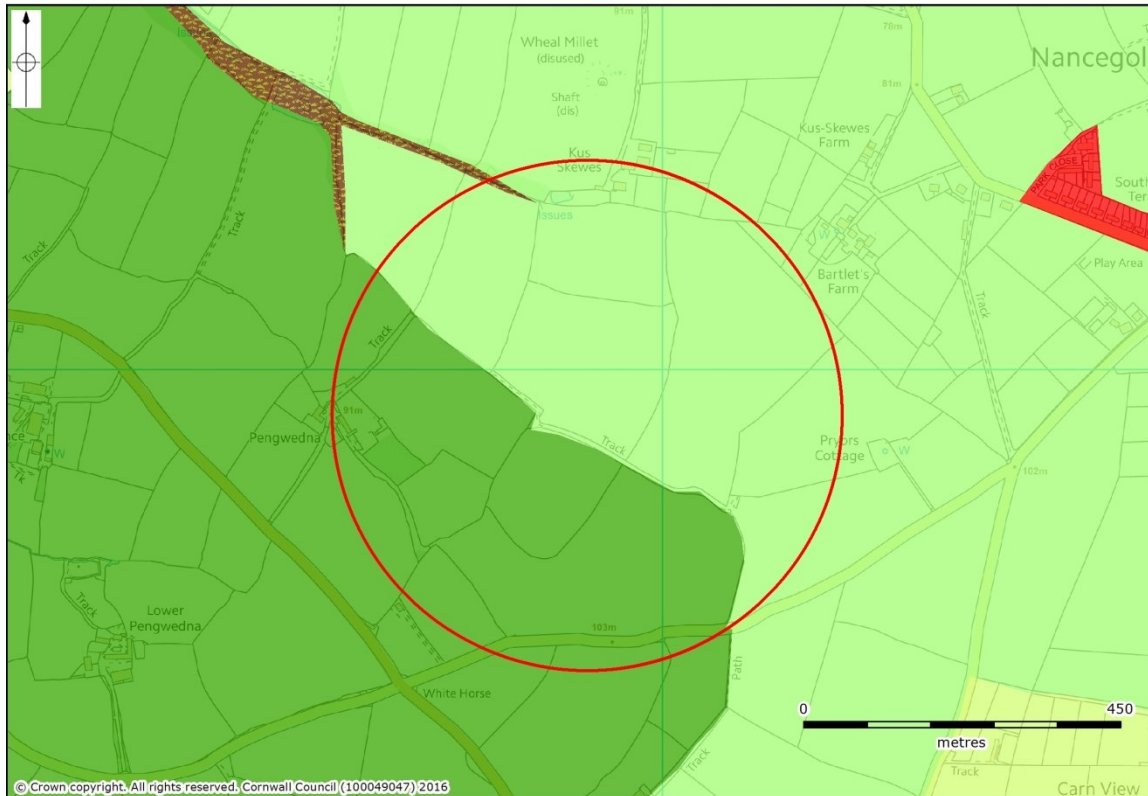


Fig 9. The Historic Landscape Character mapping for Pengwedna. The darker green to the south represents land whose arrangements date to the medieval period, whilst the lighter green records upland areas of the landscape enclosed during the post-medieval period.



NAN171 Nancegollan, Helston, Cornwall
 DWG 03 Interpretation

Orthographic Scale: 1:2000 @ A3 Spatial Units: Meter. Do not scale off this drawing
 File: NAN171.map Copyright TigerGeo Limited 2017

Fig 10. The interpreted geophysical data for Pengwedna Farm.

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