100054

LAND at MAESCADOG FARM CAIO, CARMARTHENSHIRE

Results of a Desk-Based Assessment, Walkover Survey & Visual Impact Assessment

SOUTHWEST ARCHAEOLOGY
ARCHAEOLOGICAL SERVICES & HISTORIC BUILDING RECORDING

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

Tel: 01769 573555
Email: mail@swarch.net

Report No.: 130823
Date: 23.08.13

Authors: B Morris
E Wapshott

Land at Maescadog Farm, Caio, Carmarthenshire

Results of a Desk-Based Assessment, Walkover Survey & Visual Impact Assessment

For

Chloe Bines

of

Mi-Grid (The Agent)

By

ARCHAEOLOGICAL SERVICES & HISTORIC BUILDING RECORDING
SOUTHWEST ARCHAEOLOGY

SWARCH project reference: CMF13
OS Map copying Licence No: 100044808
National Grid Reference: SN6931140117
Planning Application Ref: pre-planning
Project Director: Colin Humphreys
Fieldwork Managers: Bryn Morris
Project Officer: Bryn Morris
Desk Based Assessment: Bryn Morris
Fieldwork: Emily Wapshott
Report: Bryn Morris; Sam Walls; Emily Wapshott
Report Editing: Deb Laing-Trengove
Research: Bryn Morris
Graphics: Bryn Morris

August 2013

Summary

The proposed turbine would be located on land enclosed in the 19th century from open moorland. The walkover survey identified a series of features of geological interest – the glacial roche moutonnée – and two possible round barrows.

This area contains only a small number of Listed Buildings and relatively few Scheduled Monuments. Most of these designated heritage assets were not conceived and constructed with setting as a primary consideration, and thus the impact of the proposed turbine will less pronounced. In general, the impact on these monuments will be restricted. In terms of the wider landscape, the proposed turbine is to be located within a high value area of Carmarthenshire, largely on the basis of its un-spoilt nature and attractive, remote sense of place.

With this in mind, the overall impact of the proposed turbine can be assessed as ***negative/moderate****, on the basis of the rugged terrain and the few heritage assets affected, balanced against the un-spoilt nature and importance of the historic landscape.*

Contents

List of Figures

List of Appendices

Acknowledgements

Thanks for assistance are due to:

Aled and Douglas Davies (the Clients) for access
Chloe Bines and Dan Murrant (The Agent)
The Staff of the Dyfed Archaeological Trust

1.0 Introduction

Location: Land at Maescadog Farm
Parish: Caio
County: Carmarthenshire
NGR: SN6931140117

1.1 Project Background

This report presents the results of a desk-based assessment, walkover survey and visual impact assessment carried out by South West Archaeology Ltd. (SWARCH) at Maescadog Farm, Caio, Carmarthenshire; Caio is a parish in north-eastern Carmarthenshire (Figure 1). The work was commissioned by Chloe Bines of Mi-Grid (the Agent) on behalf of Aled and Douglas Davies (the Clients) in order to identify any archaeological features or sites that might be affected by the installation of a single 500kw wind turbine and associated access and cable run.

1.2 Topographical and Geological Background

The proposed turbine would be located in a field *c.*950m north-east of Maescadog Farm (see Figure 1). It would stand within land enclosed from open moorland in the 19th century, much of which was afforested in the 20th century. The proposed turbine would stand close to the summit of a discrete hill, part of Banc Bronffin which is itself an outlying element of Mynydd Mallaen, at a height of *c.*350m AOD.

The soils of this area are the shallow well-drained fine loamy or fine silty soils of the Manod Association (SSEW 1983) overlying the mudstones of the Claerwen Group (BGS 2013).

1.3 Historical Background

The site now lies on the eastern side of Caio parish, *c.*1.8km east-north-east of the hamlet of that name. This once formed part of Cwmwd Caeo of Cantref Mawr, a Welsh lordship that retained its independence until 1284. The parochial church of St Cynwyl has pre-conquest origins, and may have been an important ecclesiastical centre in the early medieval period. The church and much of the surrounding land were granted to Talley Abbey *c.*1200, and the churchtown settlement became the bond settlement within the parish (Sambrook & Page 1995; Ludlow 1998).

The proposed turbine would be located within an area that, until the 19th century, formed part of an extensive area of unenclosed moorland utilised by neighbouring communities for grazing and related resources (e.g. furze, firewood etc.). These moors were enclosed and the land allocated to the communities that held common rights to the land.

The proposed turbine is to be located just outside the *Coedwig Caeo Forest* character area, an extension of the Dolaucothi Historic Landscape (Dyfed Archaeological Trust 2013).

1.4 Archaeological Background

The proposed turbine would stand near the summit of a hill, an outlying part of Banc Bronffin, at a height of c.350m AOD. Close to the base of the hill is a reputed Iron Age hillfort site at Alberty Mount (PRN 14282), and there is a post-medieval sheepfold at Cil-y-Gawad on the western slopes (PRN 24390). The immediate vicinity may be largely devoid of known archaeological sites, but *c*.3km to the west lies the nationally important Roman old mine complex at Dolaucothi Pumsaint, with associated Roman forts, *vicus* and mining and processing infrastructure (Burnham & Burnham 2004). The church at Caio may also have been an important early medieval ecclesiastical centre.

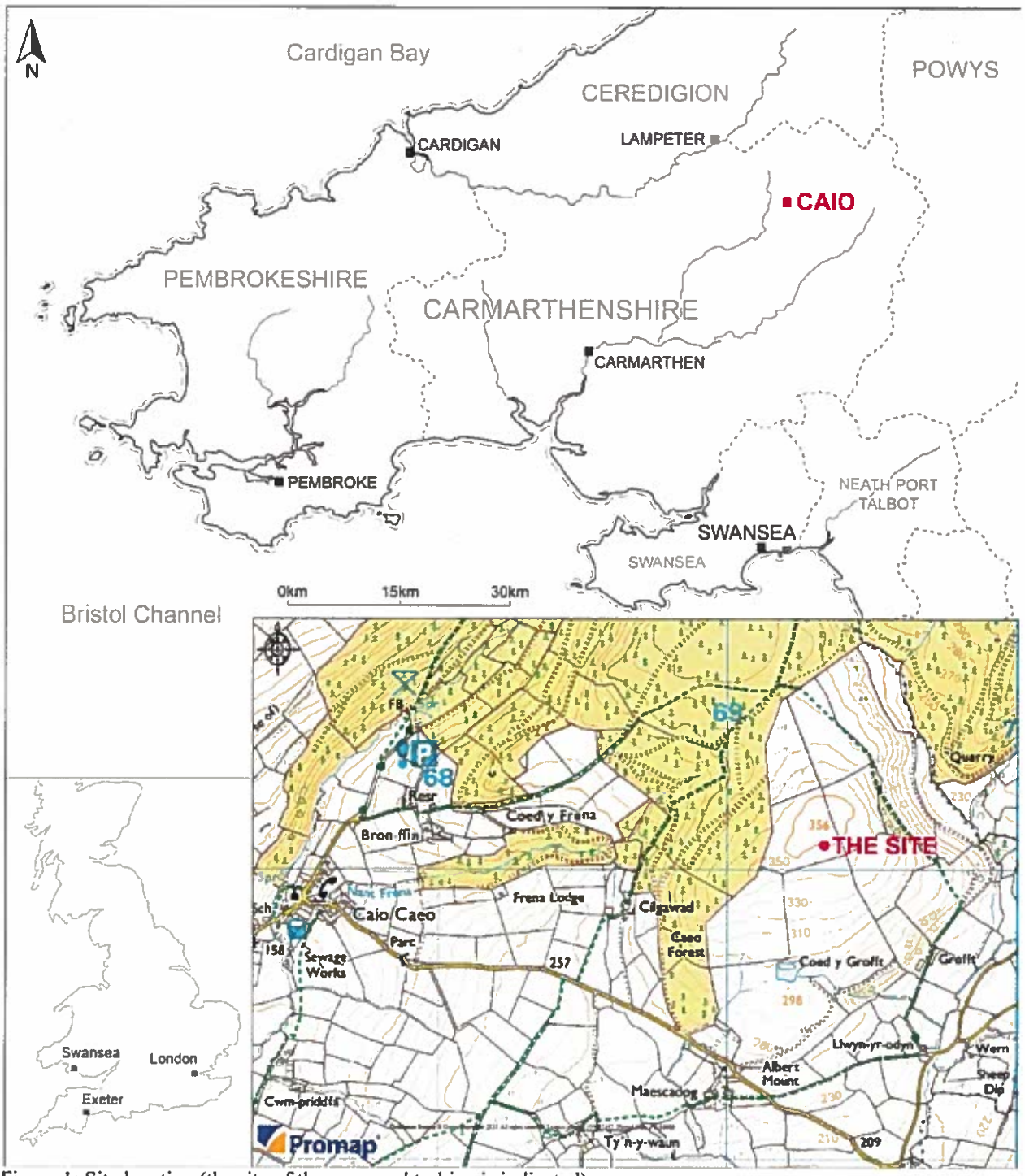


Figure 1: Site location (the site of the proposed turbine is indicated).

1.5 Methodology

This document follows the guidance as outlined in: *Standard and Guidance for Archaeological Desk-Based Assessment* (IfA 1994, revised 2012), *Standard and Guidance for archaeological geophysical survey* (IfA 2011), *The Setting of Heritage Assets* (English Heritage 2011a), *Seeing History in the View* (English Heritage 2011b), *Managing Change in the Historic Environment: Setting* (Historic Scotland 2010), *Wind Energy and the Historic Environment* (English Heritage 2005), and with reference to *Visual Assessment of Windfarms: Best Practice* (University of Newcastle 2002), *Guidelines for Landscape and Visual Impact Assessment* 2nd edition (Landscape Institute 2002), *The Development of Onshore Wind Turbines* (Cornwall Council 2013),

Photography and Photomontage in Landscape and Visual Impact Assessment (Landscape Institute 2011), *Visualisation Standards for Wind Energy Developments* (Highland Council 2010), and the *Visual Representation of Windfarms: Good Practice Guidance* (Scottish Natural Heritage 2006). In addition, it takes account of the *Guide to Good Practice on using the Register of Landscapes of Historic Interest in Wales in the Planning and Development Process* (Cadw 2007) and the *LANDMAP Guidance Note 3: Using LANDMAP for Landscape and Visual Impact Assessment of Onshore Turbines* (CCW 2013).

2.0 Results of the Desk-Based Assessment

2.1 Documentary History

As is clear from the cartographic records (see below), the site of the proposed turbine was enclosed from open upland moor in the 19th century, and prior to that formed an extension of Banc Bronffin. The area falls within the eastern part of Caio parish, which once formed the nucleus of Cwmwd Caeo within Cantref Mawr; this commote seems to have formed part of the patrimony of the Princes of Deheubarth. This Welsh lordship retained its independence until the Edwardian Conquests of the late 13th century. Caio/Caeo is first attested in 1291, being the commote of *Caeo*. It may also have been the location of *caircaiau* 1160×85 (with *caer*, fort, presumably with reference to the Roman fort at Pumsaint) (Wyn Owen & Morgan 2007, 62).

The parochial church of St Cynwyl has pre-conquest origins, and may have been an important ecclesiastical centre in the early medieval period. The church and much of the surrounding land were granted to Talley Abbey *c.*1200, and the churchtown settlement became the bond settlement within the parish. (Sambrook & Page 1995; Ludlow 1998).

The farm at Maescadog (lit. *Cadog's Field*) is recorded as mortgaged to Thomas John Thomas in 1655 and 1678, and he bequeathed it to his second son Richard Jones. By 1682 Richard Jones had married Mary, the only child of David Hugh of Cil-y-Cwm, and she inherited the estate of Neuadd-fawr. By 1674 Richard was living at Neuadd-fawr but retained the farm at Maescadog. The farm remained within the extended family – held by variously-named members of the Davys family – into the 20th century (NLW: GB 0210 NEUAWR).

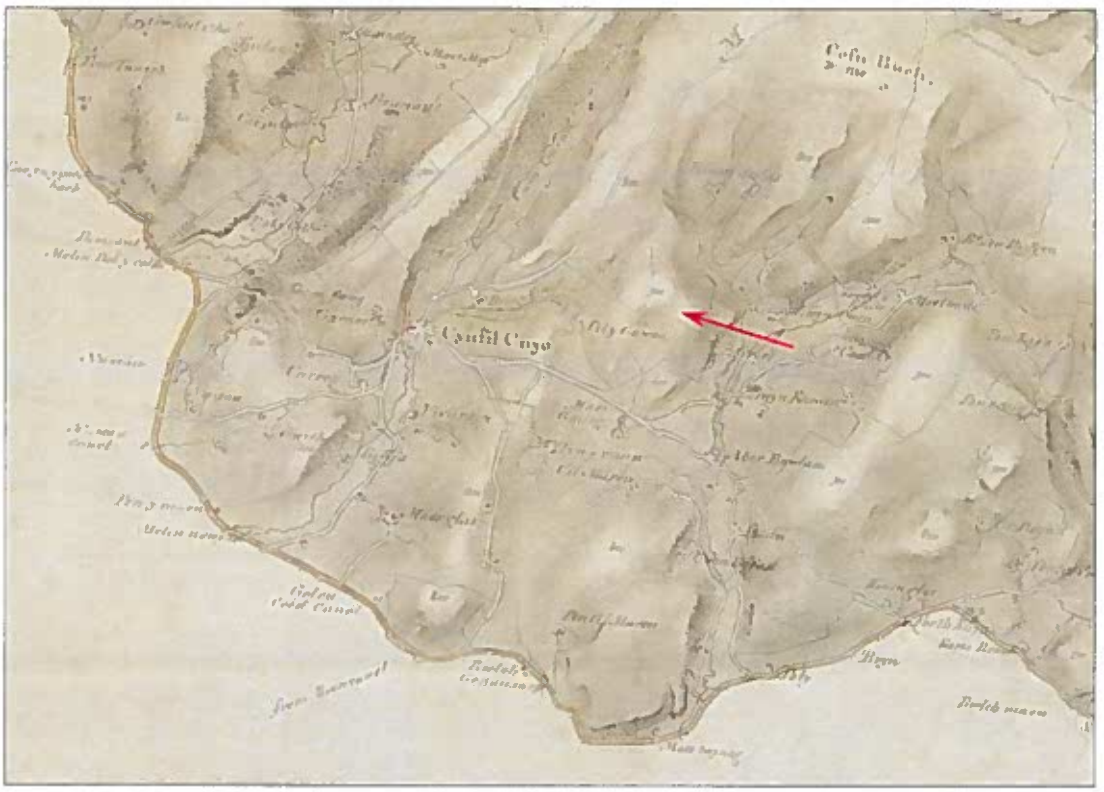


Figure 2: Ordnance Survey Surveyors Draft 1805 (DAT) (the approximate location of the site is indicated).

2.2 Ordnance Survey Surveyor's Draft 1805

The earliest extensive mapping of any value is the 1806 Ordnance Survey Surveyor's Draft map of the area (Figure 2); this shows the general layout of the area in the early 19th century. This shows the area as unenclosed upland moor. The lower ground along the valleys is, however, enclosed, and the moorland was undoubtedly exploited by these neighbouring farms. The farmstead at *Maes Gadog* is depicted, as is a track or routeway shown descending Banc Bronffinn from the heights of Mynydd Mallaen. The 1840 tithe map shows little additional detail.

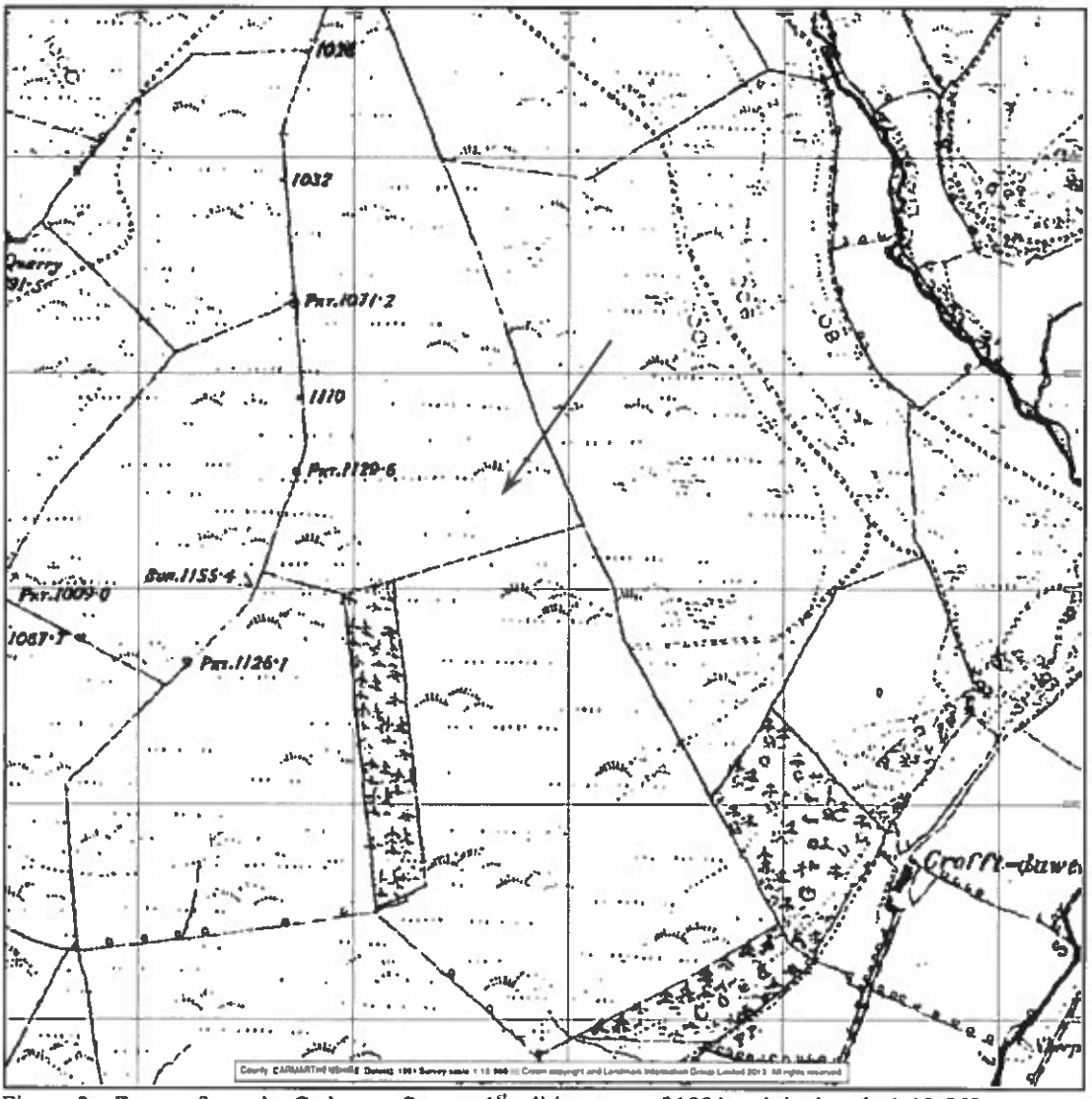


Figure 3: Extract from the Ordnance Survey 1st edition map of 1891, original scale 1:10,560 (Promap) (the site is indicated).

2.3 The Ordnance Survey 1st and 2nd Edition Maps

The 1st and 2nd edition Ordnance Survey maps depict a landscape very different to that of 1805. The open moorland has been enclosed, with large fields and straight boundaries. Something of the character of enclosure can be determined from the two long linear boundaries that divide the hillside into segments; the individual segments are then subdivided internally with no regard to the neighbouring segment. This indicates the

open moor was initially divided up between the neighbouring farms, and then divided into smaller fields by the individual landowners. The western boundary appears to follow the line of the trackway shown on the 1805 map, and thus may always have been a boundary between the grazing rights of Cil-y-Gawad and Maescadog. There does not seem to be an inclosure award for Caio, which would suggest enclosure took place by agreement.

The second and subsequent editions of the Ordnance Survey maps demonstrate that these fields remain largely unchanged. Outside the immediate area, other changes are more pronounced: several enclosures adjacent to Albert Mount are lost by 1907, and by the 1950s the internal windbreak has been felled and the land of the adjacent farm (Cil-y-Gawad) almost entirely afforested with conifers.

3.0 Site Inspection and Archaeological Background

3.1 Site Inspection

The site of the proposed turbine was visited by E Wapshott in August 2013. Photographs were taken, the topography and boundaries noted, and the field was examined for any evidence of unidentified archaeological features. Maescadog Farm lies off a small parish road running between Porthyrhyd and Caio, running parallel and accessed from the A482, a former toll road that runs east between Lampeter and Llanwrda.

Maescadog Farm itself is a historic farmstead, consisting of a farmhouse and small courtyard of extensive stone barns and buildings, set on a steep south-facing slope. Modern farm buildings stand on the eastern side of the farm complex. The farm and farmyard would be shielded from views to the turbine by the gradient of the slope, the tall hedgebanks and the large number of trees here. The fields around the farm and in all of the valleys are small and irregular, with hedgebanks.

A significant proportion of the local farms are laid down to pasture, being stock farms, although some cereal crops were observed to the south-west where the land begins to flatten and the fields become more regular. In contrast, the land on which the proposed turbine would be constructed is upland pasture, former open rough grazing, subdivided by modern wire fences with scattered rocky outcrops. To the north and west is a large forestry plantation, which dominates the landscape and covers a vast area. Within this forest are the remains of small shepherd's houses or small farm-workers cottages, demonstrating this land was formerly agricultural.

The proposed turbine site is atop a high discrete hill, with extensive wide-ranging views to the south-west, south and south-east and north-east; some views are blocked or restricted by other ranges of hills, and the valleys widen to the south-west. There are more limited views north-west over Caio Forest and to the west where the trees block most views. Telegraph poles run along the line of the roads to the few scattered farms and settlements in the area, but there are few other modern features in this landscape.

The field in which the turbine is to be situated is large and irregular in shape, but with straight field boundaries. The northern half of the field is framed on three sides by Caio Forest, and the ground falls steeply down to the trees from the summit. All field boundaries are of post and wire, although on the western side there are the remnants of a slight bank. This would correspond with the apparent track noted on the early cartographic sources. These field boundaries do not provide any local blocking to the surrounding landscape.

The field is laid to pasture, fairly rough in places, with dense patches of weeds and thistles. The soil appears fairly thin, with rocky outcrops scattered across the field. The summit of the hill lies close to the south-eastern corner; there is a small level area here at the very top of the hill, and another level area downslope to the south-west. To the south-east the ground falls away quite steeply. Many of the rocky outcrops within the pasture conform to a distinctive morphology: with a shallow slope on the northern side and steeply-sloping sides elsewhere, these are probably the glacial features known as *roche moutonnée*. Their shape makes them look like mounds from the south, but they are natural features.

However, at the very top of the hill, on the south-eastern side of the field, there are two grassy mounds; the grass here is slightly lusher, indicating the soil is deeper, and

although one is quite shallow and ephemeral the other mound is more substantial. Given the topographical location, it is likely that if these are genuine archaeological features they would be Prehistoric burial mounds. Known funerary monuments have been identified on the upper slopes of hills in the immediate area (e.g. the Scheduled Monument on the opposing hill at Nantiwrch). Alternatively, the features could be clearance cairns, but if that was the case one would expect there to find more of them, and scattered across the whole area.

3.2 Archaeological Background

The proposed turbine would stand near the summit of a hill, an outlying part of Banc Bronffin, at a height of *c.*350m AOD. Close to the base of the hill is a reputed Iron Age hillfort site at Albert Mount (PRN 14282), and there is a post-medieval sheepfold at Cil-y-Gawad on the western slopes (PRN 24390). The immediate vicinity may be largely devoid of known archaeological sites, but *c.*3km to the west lies the nationally important Roman gold mining complex at Dolaucothi Pumsaint, with associated Roman forts, *vicus* and mining and processing infrastructure (Burnham & Burnham 2004). The church at Caio may also have been an important early medieval ecclesiastical centre.

The agricultural landscape is dominated by the extensive uplands, with anciently-enclosed areas largely restricted to the narrow valleys. The fields within the valleys were probably enclosed and held in severalty during the medieval period, and are likely to have been attached to individual farmsteads like Maescadog from the beginning. The fields around the hamlet of Caio are probably based on medieval strips, as this appears to have been the bond settlement of the manor. The upland areas were largely enclosed during the 19th century, but it is highly likely there have been several preceding episodes of enclosure and abandonment – e.g. the ruined cottages at Blaen Dulais.

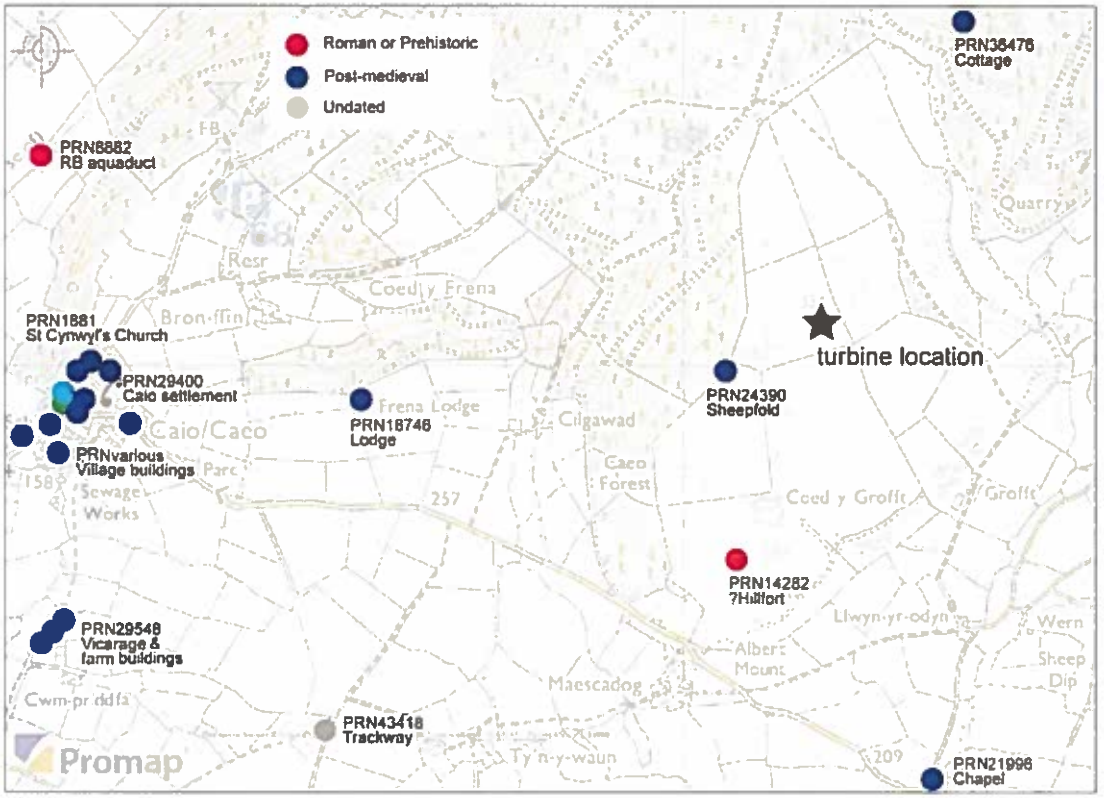


Figure 4: Local HER records (source: DAT).

Mon. ID	Site Name	Record	Notes
24390	Cil-y-Gawad	Monument	Post-medieval sheepfold
14282	Albert Mount	Monument	Possible, but unverified, Iron Age hillfort
18746	Frena Lodge	Building	Post-medieval lodge
43418	Trackway	Monument	Undated trackway
36476	Blaen Dulais	Building	Post-medieval cottage, ruined
21996	Capel Aber-Bowlan	Building	Methodist chapel, ruined
8882	Annell Aqueduct	Monument	Surviving elements of a Roman aqueduct
1881	St Cynwyl's Church	Building	Medieval church
60958	Family vault in churchyard	Structure	Railed family vault attached to the parish church
29400	Caio settlement	Buildings	Various structures of post-medieval date
29548	Dyffryn Vicarage and buildings	Buildings	Post-medieval farm and vicarage

Table 1: Local HER records (source: DAT).

3.3 Assessment of Impact

Ground disturbance associated with the installation of supports, for the wind turbine, the concrete base pad and posts to carry the cabling or ancillary works during the construction phase could result in permanent, irreversible loss of below-ground remains of archaeological features within the development area, or of elements of these. The works, expected to be deeper than current topsoil levels, will affect any buried cut features.

The impact of the construction phase of the turbine would be **permanent** and **irreversible** on the buried archaeology immediately beneath the turbine site, and along

the underground cable run and the access tracks. The limited 25 year cycle of the turbines operational phase will limit all negative positive impacts to **temporary/reversible**.

3.3.1 HER sites within 1km

- Cil-y-gawad Sheepfold; condition: poor to trace. Located within the adjacent field against the historic hedgebank, which has almost disappeared. The sheepfold is ruinous and grassed over, and visible as a small semi-circular enclosure. The value and former function can still be understood and would not be affected by the turbine despite the proximity and direct line-of-sight; impact **neutral**.
- Albert Mount House; condition: good to excellent. A 19th century house set on the lower slopes of the hill within a heavily wooded garden. There are tall mature trees against the road, the house is framed to the east and south by large rhododendrons and other shrubs, and to the west by brick outbuildings, stables and a barn. Impact **neutral** as there is no intervisibility and the building would still be understood as a historic structure set in its own gardens.
- Albert Mount Hillfort; condition: unknown. A reputed Iron Age hillfort; no trace of this monument can be identified, and the ascription appears erroneous.
- Frena Lodge; condition: unknown. A small building is visible across the fields, on the lower edge of the Caio forest, and is presumably accessible via a forest track. As it is only just visible through the trees, and its setting is dominated and defined by the forestry plantation, the proposed turbine would have minimal impact; impact **neutral**.
- Blaen-Dulais Cottage and Esgair Cottage; condition: unknown. Abandoned cottages recorded on the historic mapping. Neither monument could be located as they are set in the heart of the Caio Forest and only accessible via a number of long Forestry Commission tracks. It is very unlikely that these buildings – if they survive at all – would have any views to the turbine. Comprehensive local blocking is provided by the tall conifers. **Neutral** impact anticipated, **negative/unknown** must otherwise be applied.

4.0 Visual Impact Assessment

4.1 National Policy

General policy and guidance for the conservation of the historic environment in Wales is now contained within the *Planning Policy Wales* 5th edition (Welsh Assembly 2012). The relevant guidance is reproduced below:

Paragraph 6.4.2
Development plans should reflect national policies for the protection and enhancement of sites of archaeological interest ***and their settings****. Archaeological remains scheduled as being of national importance should be identified for preservation. Not all nationally important remains meriting preservation will necessarily be scheduled. Such remains and, in appropriate circumstances, other unscheduled archaeological remains of more local importance, and their settings, may also be identified in development plans as particularly worthy of preservation.*

Paragraph 6.5.1
The desirability of preserving an ancient monument ***and its setting*** *is a material consideration in determining a planning application, whether that monument is scheduled or unscheduled. Where nationally important archaeological remains, whether scheduled or not,* ***and their settings*** *are likely to be affected by proposed development, there should be a presumption in favour of their physical preservation in situ. In cases involving lesser archaeological remains, local planning authorities will need to weigh the relative importance of archaeology against other factors, including the need for the proposed development.*

Paragraph 6.5.9
Where a development proposal affects a listed building ***or its setting****, the primary material consideration is the statutory requirement to have special regard to the desirability of preserving the building, or its setting, or any features of special architectural or historic interest which it possesses.*

4.2 Likely Impacts of the Proposed Development

4.2.1 Types and Scale of Impact

Two general types of archaeological impact associated with wind turbine developments have been identified as follows:

- Construction phase – The construction of the wind turbine will have direct, physical impacts on the buried archaeology of the site through the excavation of the turbine foundations, the undergrounding of cables, and the provision of any permanent or temporary vehicle access ways into and within the site. Such impacts would be permanent and irreversible.
- Operational phase – A wind turbine might be expected to have a visual impact on the settings of some key heritage assets within its viewshed during the operational phase, given the height of its mast (50m to hub and 77m to tip). Such factors also make it likely that the development would have an impact on Historic Landscape Character, although given the frequency of single wind turbines within the surrounding landscape it is arguable that wind turbines themselves form a key element of the areas landscape character. The operational phase impacts are temporary and reversible.

4.2.2 Scale and Duration of Impact

The impacts of a wind turbine on the historic environment may include positive as well as adverse effects. However, turbines of any scale are large, usually white, and inescapably modern intrusive visual actors in the historic landscape. Therefore the impact of a wind turbine will almost always be **neutral** (i.e. no impact) or **negative** i.e. it will have a **detrimental impact** on the setting of ancient monuments and the vast majority of protected historic buildings.
For the purposes of this assessment, these impacts are evaluated on a five-point scale:

Impact Assessment

Neutral	No impact on the heritage asset.
Negative/unknown	Where an adverse impact is anticipated, but where access cannot be gained or the degree of impact is otherwise impossible to assess.
Negative/minor	Where the turbine would impact upon the setting of a heritage asset, but the impact is restricted due to the nature of the asset, distance, or local blocking.
Negative/moderate	Where the turbine would have a pronounced impact on the setting of a heritage asset, due to the sensitivity of the asset and proximity of the turbine; it may be ameliorated by local blocking or mitigation.
Negative/substantial	Where the turbine would have a severe impact on the setting of a heritage asset, due to the particular sensitivity of the asset and/or close physical proximity; it is unlikely local blocking or mitigation could ameliorate the impact of the turbine in these instances.
Group Value	Where a series of similar or complementary monuments or structures occur in close proximity their overall significance is greater than the sum of the individual parts. This can influence the overall assessment.
Permanent/irreversible	Where the impact of the turbine is direct and irreversible e.g. on potential buried archaeology beneath the turbine base.
Temporary/reversible	Where the impact is indirect, and for the working life of the turbine i.e. *c.*25 years.

In addition, the significance of a monument or structure is often predicated on the condition of its upstanding remains, so a rapid subjective appraisal was also undertaken.

Condition Assessment

Excellent	The monument or structure survives intact with minimal modern damage or interference.
Good	The monument or structure survives substantially intact, or with restricted damage/interference; a ruinous but stable structure.
Fair	The monument or structure survives in a reasonable state, or a structure that has seen unsympathetic restoration/improvement
Poor	The monument survives in a poor condition, ploughed down or otherwise slighted, or a structure that has lost most of its historic features
Trace	The monument survives only where it has influenced other surviving elements within the landscape e.g. curving hedge banks around a cropmark enclosure.
Not applicable	There is no visible surface trace of the monument.

Note: this assessment covers the survival of upstanding remains; it is not a risk assessment and does not factor in potential threats posed by vegetation – e.g. bracken or scrub – or current farming practices.

4.2.3 Statements of Significance of Heritage Assets

The majority of the heritage assets considered as part of the Visual Impact Assessment have already had their significance assessed by their statutory designations; which are outlined below:

Scheduled Monuments

In the United Kingdom, a Scheduled Monument, is considered, a historic building, structure (ruin) or archaeological site of **'national importance'**. Various pieces of legislation, under planning, conservation etc. are used for legally protecting heritage assets given this title from damage and destruction; such legislation is grouped together under the term 'designation', that is, having statutory protection under the *Ancient Monuments and Archaeological Areas Act 1979*. A heritage asset is a part of the historic environment that is valued because of its historic, archaeological, architectural or artistic interest; those of national importance have extra legal protection through designation.

Important sites have been recognised as requiring protection since the late 19th century, when the first 'schedule' or list of monuments was compiled in 1882. The conservation and preservation of these monuments was given statutory priority over other land uses under this first schedule. County Lists of the monuments are kept and updated by the Department for Culture, Media and Sport. In the later 20th century sites are identified by English Heritage (one of the Government's advisory bodies) of being of national importance and included in the schedule. Under the current statutory protection any works required on or to a designated monument can only be undertaken with a successful application for Scheduled Monument Consent. There are 19,000-20,000 Scheduled Monuments in England.

Listed Buildings

A Listed Building is an occupied dwelling or standing structure which is of special architectural or historical interest. These structures are found on the *Statutory List of Buildings of Special Architectural or Historic Interest.* The status of Listed Buildings is applied to 300,000-400,000 buildings across the United Kingdom. Recognition of the need to protect historic buildings began after the Second World War, where significant numbers of buildings had been damaged in the county towns and capitals of the United Kingdom. Buildings that were considered to be of 'architectural merit' were included. The Inspectorate of Ancient Monuments supervised the collation of the list, drawn up by members of two societies: The Royal Institute of British Architects and the Society for the Protection of Ancient Buildings. Initially the lists were only used to assess which buildings should receive government grants to be repaired and conserved if damaged by bombing. The *Town and Country Planning Act 1947* formalised the process within England and Wales, Scotland and Ireland following different procedures. Under the 1979 *Ancient Monuments and Archaeological Areas Act* a structure cannot be considered a Scheduled Monument if it is occupied as a dwelling, making a clear distinction in the treatment of the two forms of heritage asset. Any alterations or works intended to a Listed Building must first acquire Listed Building Consent, as well as planning permission. Further phases of 'listing' were rolled out in the 1960s, 1980s and 2000s; English Heritage advise on the listing process and administer the procedure, in England, as with the Scheduled Monuments.

Some exemption is given to buildings used for worship where institutions or religious organisations have their own permissions and regulatory procedures (such as the Church of England). Some structures, such as bridges, monuments, military structures and some ancient structures may have Scheduled Monument status as well as Listed Building status. War memorials, milestones and other structures are included in the list and buildings from the first and middle half of the 20th century are also now included as the 21st century progresses and the need to protect these buildings or structures becomes clear. Buildings are split into various levels of significance; Grade I, being most important; Grade II* the next; with Grade II status being the most widespread. English Heritage Classifies the Grades as:

Grade I buildings of exceptional interest, sometimes considered to be **internationally important** (forming only 2.5% of Listed Buildings).

*Grade II** buildings of particular importance, **nationally important**, possibly with some particular architectural element or features of increased historical importance; more than mere special interest (forming only 5.5% of Listed Buildings).

Grade II buildings which are also **nationally important**, of special interest (92% of all Listed Buildings).

Other buildings can be Listed as part of a group, if the group is said to have 'group value' or if they provide a historic context to a Listed building, such as a farmyard of barns, complexes of historic industrial buildings, service buildings to stately homes etc. Larger areas and groups of buildings which may contain individually Listed Buildings and other historic homes which are not Listed may be protected under the designation of 'conservation area', which imposes further regulations and restrictions to development and alterations, focusing on the general character and appearance of the group.

Parks and Gardens

Culturally and historically important 'man-made' or 'designed' landscapes, such as parks and gardens are currently "listed" on a non-statutory basis, included on the 'Register of Historic Parks and Gardens of special historic interest in England' which was established in 1983 and is, like Listed Buildings and Scheduled Monuments, administered by English Heritage. Sites included on this register are of **national importance** and there are currently 1,600 sites on the list, many associated with stately homes of Grade II* or Grade I status. Emphasis is laid on 'designed' landscapes, not the value of botanical planting; sites can include town squares and private gardens, city parks, cemeteries and gardens around institutions such as hospitals and government buildings. Planned elements and changing fashions in landscaping and forms are a main focus of the assessment.

The *Design Manual for Roads and Bridge* (DMRB) Volume 11 covers environmental assessments, and Section 3.2 concerns cultural heritage; it contains a useful summary of the value ascribed to particular monuments, buildings and landscapes (see below).

Value	Criteria for assessing the signfiicance (value) of heritage assets
Very High	• World Heritage sites and associated structures • Buildings and archaeological remains of acknowledged international significance • Historic landscapes of international value • Extremely well-preserved historic landscapes with exceptional coherence, time-depth or other critical factor(s) • Assets that can contribute significantly to acknowledged international research objectives
High	• Scheduled Monuments • Grade I and II* Buildings

	• Other Listed structures that can be shown to have exceptional qualities not adequately reflected in the Listing grade • Designated and undesignated historic landscapes of outstanding interest • Undesignated landscapes of high quality and importance, and of demonstrable national value • Well-preserved historic landscapes, exhibiting considerable coherence, time-depth or other critical factor(s) • Conservation Areas containing very important Buildings • Undesignated assets of comparable quality and importance • Assets that can contribute significantly to acknowledged national research objectives
Medium	• Grade II Listed Buildings • Designated or undesignated assets that contribute to regional research objectives, or have exceptional qualities in the their fabric or historical associations • Designated special historic landscapes, or undesignated landscapes that would justify designation • Averagely well-preserved historic landscapes with reasonable coherence, time-depth or other critical factors(s) • Conservation Areas containing buildings that contribute significantly to its historic character • Historic townscapes or built-up areas with important historic integrity in their buildings, or built settings
Low	• Designated and undesignated assets of local importance • Historic but unlisted buildings of modest quality in their fabric or historical associations • Robust undesignated historic landscapes • Historic landscapes of interest to local interest groups • Historic landscapes whose value is limited by poor preservation and/or poor survival of contextual associations • Historic townscape or built-up area of limited historic integrity or built settings • Assets compromised by poor preservation and/or poor survival of contextual associations • Assets of limited value, but with potential to contribute to local research objectives
Negligible	• Assets with very little or no surviving archaeological interest • Buildings of no architectural or historical merit • Landscapes of little or no significant historic interest
Unknown	• The importance of the resource has not been ascertained • Buildings with some hidden (i.e. inaccessible) potential for historic significance

Criteria for assessing the value of heritage assets (after tables 5.1, 6.1 and 7.1, DMRB 2009)

4.3 Results of the Viewshed Analysis

The ZTV was mapped to a total distance of 15km from the turbine site by Mi-Grid (Figure 5). The visibility of the proposed turbine will diminish with distance, and may be locally blocked by intervening buildings within settlements, by individual trees, hedgebanks, and woodlands. Theoretical visibility has been assessed as the visibility to the blade tip (77m). All designated heritage assets within 5km that fell within the ZTV were assessed, and sites on the HER were considered within 1km.

There are over 26 Listed buildings within 5km of the turbine, 14 of which will have inter-visibility of some kind to the proposed turbine location, as determined by the ZTV. These structures include a single Grade II* Listed church, but the rest are Grade II, including some bridges, farm buildings or milestones. There are over 20 Scheduled

Monuments within 5km, only 5 of which fall within the ZTV. There are six sites recorded on the HER within 1km, and these were also considered due to their proximity.

4.4 Field Verification of ZTV

On the whole, the ZTV mapping was found to be a fairly accurate representation of the likely intervisibility between the proposed wind turbine and the surrounding landscape out to 1km and 5km, together with the heritage assets that landscape encompasses. The areas mapped on the ZTV as having intervisibility are widespread close to the turbine, although to the north and the west the Caio Forest restricts views to some extent, shielding all the assets it encompasses. Visibility is quite restricted immediately to the south and west, where deeper valleys are characteristic, but the lower ground to the south and west would have line-of-sight to the proposed turbine location. The deep valley that runs around the base of the hill side to the east contains the closest major settlement: the small hamlet of Aberblowan (*c*.1.5km). Views are blocked by the steep incline of the hill, the depth of the valley and local blocking provided by trees and hedges. Further down this valley to the east is the larger village of Porthyrhyd, also set within the steep valley and shielded from any views. The village of Caio (*c*.2km) lies on the western side of the Caio Forest and would have clear views to the high ground to the east. The villages of Cwrt-y-Cadno (*c*.4km) and Llandre (*c*.3.5km) are shielded by the topography and the Forest. To the south-west, Crug-y-bar and the surrounding area would have line-of-sight to the proposed turbine at a distance of 4-5km. The large town of Lampeter to the west lies within 10km and would have some limited views, but the topography of the intervening landscape will shield the town somewhat.

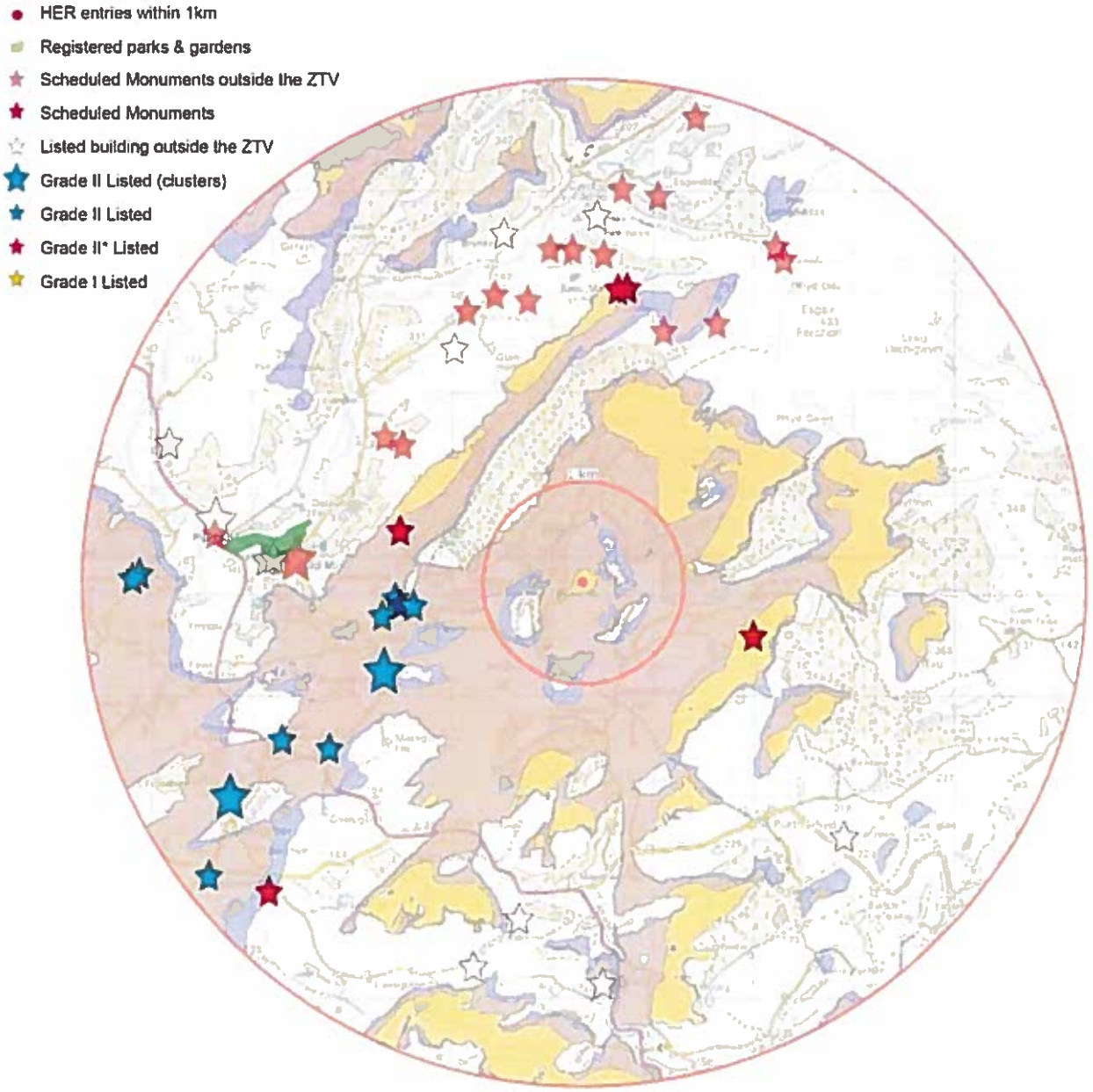


Figure 5: Distribution of designated heritage assets within 5km (ZTV to tip) of the proposed turbine (based on a ZTV supplied by Mi-Grid); faded-out stars indicate assets excluded from this assessment.

4.5 Impact by Class of Monument/Structure

4.5.1 Listed Structures: Farm Buildings

Listed farmhouses with Listed agricultural buildings and/or curtilage; some may have elements of formal planning/model farm layout

These have been designated for the completeness of the wider group of buildings or the age or survival of historical or architectural features. The significance of all of these buildings lies within the farmyard itself, the former historic function of the buildings and how they relate to each other. For example, the spatial and functional relationships between the stables that housed the cart horses, the linhay in which the carts were stored, the lofts used for hay, the threshing barn to which the horses brought the harvest, or to the roundhouse that would have enclosed a horse engine and powered the threshing machine. Many of these buildings were also used for other mechanical agricultural processes, the structural elements of which are now lost or rare, such as apple pressing

for cider or hand threshing, and may hold separate significance for this reason. The farmhouse is often Listed for its architectural features, usually displaying a historic vernacular style of value; they may also retain associated buildings linked to the farmyard, such as a dairy or bakehouse, and their value is taken as being part of the wider group as well as the separate structures.

The setting of the farmhouse is in relation to its buildings or its internal or structural features; farmhouses were rarely built for their views, but were practical places of work, developed when the farm was profitable and neglected when times were hard. In some instances, model farms were designed to be viewed and experienced, and the assessment would reflect this.

Historic farm buildings are usually surrounded by modern industrial farm buildings, and if not, have been converted to residential use, affecting the original setting. Wind turbines will usually have a restricted impact on the meaning or historical relevance of these sites.

- Farmhouse, outbuildings and barns at Glanyrannell; medium significance; Grade II Listed; condition: fair to good, with group value. All surviving and upstanding, but some in better condition than others. This courtyard group is located south of Caio in a wide river valley, adjacent to a bridge over the river. The fields around it are all bounded by tall mature hedgebanks and trees line the riverbank to the east, limiting views in and across the valley and enclosing the house within its immediate environment. There are some views to the high ground to the east, where the turbine would be situated, and the house does face east, with tall large windows. The farmhouse is more of a gentry building, possibly built as part of an estate model farm. Thus its views and outlook and the appearance of the buildings would be more important than usual to the value of the structure. The impact of the proposed turbine on the setting and experience of the buildings would, however, be minimal, as the group value of the complex would be retained; impact **negative/minor**.
- Penarth-Ganol and Barn range; medium significance; Grade II Listed; condition: good. Located on an east-facing slope with wide views to the east and north-east to the high ground where the proposed turbine would be situated. The house and barns provide their own context, being related through their setting and former functions, and they also providing local blocking for one another to some extent. These structures have been designated on the basis of their vernacular style and group value, and this would not be affected by the proposed turbine. It would, however, be the first visible turbine in this area, which would impact on the wider rural setting; impact **negative/minor**.
- Felin Newydd, New Mill, Crug-y-bar; medium significance; Grade II Listed; condition: good. A National Trust property, open to the public. Despite its location on a west-facing slope, there would be views upslope to the east and to the north-east towards the proposed turbine location. The mill is defined by its former function and its architectural merit, and its outbuildings surround it to the west, south and north, providing its context and setting. It is experienced as a complete group and this would not be affected by the turbine. Mature trees within the valley further limit these views and the wooded grounds of the former Roman mines at Dolaucothi will also restrict views. Any impact is likely to be very minor, although the turbine will affect the general rural setting of the asset in its wider context; impact **neutral**, despite some limited views.
- Hafod Tafalog; medium significance; Grade II Listed; condition: good. Set within its own land and with attached barns, this building has wide open views across a flat stretch of valley floor to the high ground to the north-east where the turbine

would be situated. Farm buildings are not, however, built with outlook in mind and these views impeded by trees and hedgebanks, although the extent of local blocking would vary seasonally. Impact **negative/minor** as despite clear views and the likely prominence of the turbine, this building is not defined by its outlook; its architectural merit and immediate setting and context would not be affected.

4.5.2 Lesser Gentry Seats

Older houses with an element of formal planning; may survive as farmhouses

These structures have much in common with the greater Houses, but are more usually Grade II Listed structures. Not all landed families prospered; for those that did, they built Houses with architectural pretensions with elements of formal planning. The sensitivity of those structures to the visual impact of a turbine would be commeasurable to those of the great Houses, albeit on a more restricted scale. For those families that did not prosper, or those who owned multiple gentry residences, their former gentry seat may survive as farmhouse within a curtilage of later farm buildings. In these instances, traces of former grandeur may be in evidence, as may be elements of landscape planning; however, subsequent developments will often have concealed or removed most of the evidence. Therefore the sensitivity of these sites to the visual impact of a turbine is less pronounced.

- Dyffryn and outbuildings, Old Vicarage, Caio; medium significance; Grade II Listed; condition: unknown. Accessed via a long private track, the house and buildings nestle on the eastern side of the valley south of the village; the ground rises to the east. The house is surrounded by agricultural fields, and together with the neighbouring farms, such as Castell and Glanyrannell, lends the valley a cohesive historic aspect. The house is understood through its former function as a Vicarage, a building of some local social status tied to the village settlement. None of these important factors would be affected by the proposed turbine, and the architectural merits of the house and its outbuildings would not be physically affected. A visitor would still appreciate and experience the building as a historic structure of some status. Views from gentry buildings are, however, more significant; views to and from these structures were key to the layout and design of the building. Impact **negative/minor**, as there are some views to the north-east, albeit restricted by Caio Forest.

4.5.3 Listed Structures: Churches and pre-Reformation Chapels

Church of England parish churches and chapels; current and former places of worship

Most parish churches tend to be associated with a settlement (village or hamlet), and therefore their immediate context lies within the setting of the village (see elsewhere). Church buildings are usually Grade II* or Grade I Listed structures, on the basis they are often the only surviving medieval buildings in a parish, and their nature places of religious worship.

In more recent centuries the church building and associated structures functioned as *the* focus for religious devotion in a parish. At the same time, they were also theatres of social interaction, where parishioners of differing social backgrounds came together and renegotiated their social contract.

In terms of setting, most churches are still surrounded by their churchtowns. Viewed within the context of the settlement itself, churches are unlikely to be affected by the construction of a wind turbine unless it is to be located in close proximity. The location of the church within its settlement, and its relationship with these buildings, would remain unchanged: the church often being the visual focus on the main village street.

This is not the case for the church tower. While these structures are rarely open to the public, in rural communities they are frequently the most prominent visual feature in the landscape, especially where the church is itself located in a topographically prominent location. The towers of these structures were clearly *meant* to be highly visible, ostentatious reminders of the presence of the established church with its message of religious dominance/assurance. However, churches were often built and largely maintained by their laity, and as such were a focus for the *local* expression of religious devotion. It was this local devotion that led to the adornment of their interiors and the elaboration of their exteriors, including the tower.

Some parishes in Carmarthenshire can be relatively small, but Caio itself is one the multi-township parishes of northern Britain. The tower would be visible to its parishioners as a clear expression of the religious devotion – or rather, the competitive piety – of a particular social group. This competitive piety that led to the building of these towers had a very local focus, and very much reflected the aspirations of the local gentry. If the proposed turbine is located within the landscape in such a way to interrupt line-of-sight between towers, or compete with the tower from certain vantages, then it would very definitely impact on the setting of these monuments.

As the guidance on setting makes clear, views from or to the tower are less important than the contribution of the setting to the significance of the heritage asset itself. The higher assessment for the tower addresses the concern it will be affected by a new and intrusive vertical element in this landscape. However, if the turbine is located at some distance from the church tower, it will only compete for attention on the skyline from certain angles and locations.

Listed (or Scheduled) gravestones/box tombs almost always lie within the graveyard of churches or chapels, and their setting is extremely local in character. Local blocking, whether from the body of the church, church walls, shrubs and trees, and/or other buildings, will always play an important role. As such, the construction of a wind turbine is unlikely to have a negative impact.

- St Cynwil's/St Conwil's Church, Caio; high significance; Grade II* Listed; condition: good. Set in its churchyard and surrounded by the memorials and monuments, with a walled churchyard. The immediate context of the church would not be affected by the turbine, and our understanding and experience of the asset as a religious building would not be affected either. The outlook from a church is not necessarily linked to its value as a building, as the architectural merit of the structure and its age and social position within the community must be taken into account. The church has a tall square tower which provides wide views over the surrounding landscape; the turbine, located on high ground *c*.2km to the east, would certainly be visible from this part of the church, although Caio Forest would restrict these views. The body of the church would be shielded by the surrounding buildings that line the street to the north, east and west. The area is very rural and settlements are few and far between; the neighbouring hills block line-of-sight and no other churches are visible in this landscape, making this an important asset. Impact **negative/minor**.

- Lych gate, at St Cynwil's/St Conwil's Church, Caio; medium significance; Grade II Listed; condition: excellent. Set into the stone walls of the churchyard, and the formal entrance to the church enclosure and its consecrated ground. The outlook from the gate is irrelevant to its value and will not impact its relationship to the church, despite the little window. The structure is Listed for its architectural merit and its group value with the church and churchyard. Comprehensive local blocking is also provided by the row of historic terraced cottages along Church Lane. Impact **neutral**.
- Railed family vault at St Cynwil's/St Conwil's Church, Caio; medium significance; Grade II Listed; condition: fair. Located in the churchyard and surrounded by other monuments, both graves and tombs. The asset takes its meaning and our experience from its memorial status, and its association with the church. Views and outlook are irrelevant to the value of the asset, which is Listed for its architectural merit; the overgrown churchyard provides local blocking. Impact **neutral**.

4.5.4 Chapels

Non-Conformist places of worship, current and former

Non-Conformist chapels are relatively common across the whole of Wales. They tend to be fairly modest structures in all but the largest settlements, lacking towers and many of the ostentatious adornments of older Church of England buildings. They are usually Grade II Listed structures, most dating from the 19th century, and adjudged significant more for their religious and social associations than necessarily any individual architectural merit. They can be found in isolated locations, but are more often encountered in settlements, where they may be associated with other Listed structures. In these instances, the setting of these structures is very local in character and references the relationship between this structure and other buildings within the settlement. The impact of a wind turbine is unlikely to be particularly severe, unless it is built in close proximity.

- Crug-y-bar, Welsh Independant Chapel; medium significance; Grade II Listed; condition: excellent, fully restored and still in use. Set in a walled graveyard within a small settlement, this chapel and associated building, possibly a Sunday school, stand on the edge of a farmyard of historic and modern buildings, opposite a row of terraced cottages. The whole create a cohesive group of historic buildings, representing an 18th or 19th century development of this rural area and a small agricultural settlement. The relationships between the buildings and their views between and out to the surrounding countryside are what define and place the buildings in their landscape. We experience and understand the chapel as a religious building and a focus for this small community; this would not be affected by the proposed turbine. Impact **neutral**.

4.5.5 Listed Structures: Milestones, Boundary Stones, Bridges

Milestones and bridges are generally functional structures with limited wider aesthetic consideration, although there can be notable exceptions. Standing stones can be Prehistoric or early medieval in date, and are presumed to be memorials, waymarkers or nodes in a socialised landscape. As such, the setting of these monuments, particularly in relation to other contemporary routeways or monuments can be of critical importance.

- Milestone, near Maesllanwrthwl, south of Crug-y-bar; medium significance; Grade II Listed; condition: fair. Set into a shallow hedgebank, now fenced with post and

wire. There would be wide views from the field to the location of the proposed turbine to the north-east but we still understand the monument as a milestone and, while no longer painted cream, it still stands out as a recognisable roadside feature. Views and outlook are irrelevant to the value of the asset, milestones are Listed for their survival, landscape significance and its connection to the historic road network; impact **neutral**, despite line-of-sight.

- Nant-Cilgwyn Standing Stone; high significance; Scheduled Monument; condition: good. Located within agricultural fields on a slightly raised knoll in the valley; it enjoys wide views to the south and west, and more limited views to the east and south-east. Views to the north are more restricted due to the rising ground. The wider area has views to the high ground to the north and north-east where the turbine would be located. The field containing the stone is bounded by tall hedgebanks, and these provide some local blocking. The stone is visible from a public road and can still be experienced and understood as a historic feature in the landscape. However, the turbine will be the only visible one within this valley, and its impact on the wider landscape must be recognised; impact **negative/minor**.
- Bridge over the River Annell; medium significance; Grade II Listed; condition: good. Located to the west of Caio village facing the knoll of land on which the settlement and church are built. The bridge and its wide stone retaining walls are defined by their setting and position on the edge of the village, carrying the inhabitants safely over the river and the marshy banks on either side. Its location and meaning are tied to the settlement and this connection would not be affected by the turbine, nor would the age and architectural merit of the bridge. There might be some views to the proposed turbine to the east, but this would not affect the asset; impact **neutral**.
- Bridge over the River Annell, including retaining walls; medium significance; Grade II Listed; condition: excellent. Located to the south of the village of Caio, on a road leading down the valley towards the A482. This bridge is grand in its design with capped stone walls and a dedication plaque. There are some views to the high ground to the east, over Caio forest, but these views are limited by the trees and hedges of the valley, and the bridge is not defined by its views, being understood as a method with which the inhabitants of the village and particularly the neighbouring farm crossed the river. Impact **neutral**.

4.5.6 Listed Structures within Historic Settlements

Clusters of Listed Buildings within villages or hamlets; occasionally Conservation Areas

The context of the (usually) Grade II Listed buildings within settlement is defined by their setting within the village settlement. Their significance is determined by their architectural features, historical interiors or role/function in relation to the other buildings. The significance of their setting to the experience of these heritage assets is of key importance and for this reason the curtilage of a property and any small associated buildings or features are often included in the Listing and any changes must be scrutinised under relevant planning law.

Most village settlements have expanded significantly during the 20th century, with rows of cottages and modern houses and bungalows being built around and between the older 'core' Listed structures. The character of the settlement and setting of the heritage assets within it are continually changing and developing, as houses have been built or farm buildings have been converted to residential properties. The setting of these heritage assets within the village are rarely influenced the erection of wind turbines, unless they are located in close proximity to the settlement. The relationships between the houses,

church and other Listed structures will not be altered, and it is these relationships that define their context and setting in which they are primarily to be experienced.

The larger settlements and urban centres usually contain a large number of domestic and commercial buildings, only a very small proportion of which may be Listed or protected in any way. The setting of these buildings lies within the townscape, and the significance of these buildings, and the contribution of their setting to that significance, can be linked to the growth and development of the individual town and any associated industries. The original context of any churches may have changed significantly since construction, but it usually remains at the heart of its settlement. Given the clustering of numerous individual buildings, and the local blocking this inevitably provides, a distant turbine unlikely to prove particularly intrusive.

- Row of terraced cottages, Crug-y-bar; medium significance; Grade II Listed; condition: good. Located opposite the chapel, with another cottage to the south-east and a farmyard and outbuilding. There would be some views over the yards and outbuildings to the north and east, but the setting and our experience of the cottages remains unaffected; impact **negative/minor**.
- Castell; medium significance; Grade II Listed; condition: excellent. A small thatched house on the side of the road running south from Caio. Views to the proposed turbine might be possible, although would clearly be restricted. The house faces west across the valley and it is not clear if it has any windows to the eastern side, if so, they are very small and tucked under the eaves. The house is protected for its expression of the vernacular style and its preservation, and its architectural merits would not be affected by the turbine. As an agricultural dwelling its outlook would not have been considered important, but the turbine would have an impact on the rural character of the wider landscape; impact **negative/minor**.

4.5.7 Industrial Buildings

A range of industrial and extractive structures, often exhibiting elements of formal planning, rarely with a view to aesthetics

A whole range structures relating to a whole range of industries falls under this broad category, and include ruined, standing and functioning buildings. This might include: bridges, canals, capstans, clay-drying facilities, engine houses, fish cellars, gunpowder mills, railways, warehouses and so forth. However, in most instances industrial buildings were not built with aesthetics in mind, despite the elements of formal planning that would often be present. The sensitivity of these structures to the visual intrusion of a wind turbine depends on type, age and location.

It is usually the abandoned and ruined structures, now overgrown and 'wild', that are most sensitive to intrusive new visual elements; in particular, wind turbines would compete for attention with the taller ruined structures (engine houses with chimneys, pit heads). The impact on these buildings could be significant. Where they occur in clusters – as they often do – the impact of an isolated wind turbine is lessened, but the group value of the heritage asset is enhanced.

- Annell Aquaduct; high significance; Scheduled Monument; condition: fair. An associated part of the Roman mining complex at Dolaucothi. This feature runs across a number of agricultural fields and into scrubland and woodland. Its setting and former function define it as an industrial structure. All that remains is a shallow leat, visible as an inverted earthwork. Its outlook and views are irrelevant, and its association with the mine would not be affected; impact **neutral**.

4.5.8 Scheduled Monuments: Prehistoric Ritual/Funerary Monuments

Stone circles, stone rows, barrows/barrow cemeteries, cists, cromlech

These monuments undoubtedly played an important role in the social and religious life of past societies, and it is clear they were constructed in locations invested with considerable religious/ritual significance. In most instances, these locations were also visually prominent, or else referred to prominent visual actors, e.g. hilltops, tors, sea stacks, rivers, or other visually prominent monuments. The importance of intervisibility between barrows, for instance, is a noted phenomena. As such, these classes of monument are unusually sensitive to intrusive and/or disruptive modern elements within the landscape. This is based on the presumption these monuments were built in a largely open landscape with clear lines of sight; in many cases these monuments are now to be found within enclosed farmland, and in varying condition. Sensitivity to turbines is lessened where tall hedgebanks restrict line-of-sight.

- Nantiwrch Round Barrow; high significance; Scheduled Monument; condition: good. Situated high on a hillside directly opposite the location of the proposed turbine. There are views from this hilltop to the north and west, with further views to the south over a large forest. The barrow retains its landscape presence to some extent, being visible as a mound on the hilltop, but it was once covered in white quartz which would have made it very visible. We can still understand and experience the barrow as a funerary monument, although stands on private land, and its hilltop setting would not be affected by the turbine. There would be direct line-of-sight between the barrow and the proposed turbine, and if the features identified during the walkover survey are genuine archaeological features, then these monuments would have referenced one another. The interruption of views would then have a significant impact on the setting of this monument. Impact **negative/moderate**.
- Banc Maes-yr-haidd I Cairn and Banc Maes-yr-haidd II Cairn; high significance; Scheduled Monuments. Located in an enclosed field on former open rough ground on top of a high ridge of land. The fields are enclosed with post-and-wire fencing, with banks of trees atop the ridges and in the steep combes and valleys. The two monuments are on a south-facing slope. There would be some views to the turbine across Caio Forest, as the turbine would project above the top of the trees. At a distance of *c*.3.5km the turbine would have a less pronounced visual impact on these monuments, which form part of a wider monumental landscape that extends to the east and south-east. Impact **negative/minor**.

4.5.9 Historic Landscape

General Landscape Character

The landscape of the British Isles is highly variable, both in terms of topography and historical biology. The Countryside Council for Wales has divided the country into a series of 'Aspect Areas' based on topography, biodiversity, geodiversity and cultural and economic activity (CCW 2013).

Some character areas are better able to withstand the visual impact of turbines than others. Rolling countryside with wooded valleys and restricted views can withstand a larger number of turbines than an open and largely flat landscape overlooked by higher ground. Parts of the Welsh landscape are populated by a large and diverse number of intrusive modern elements, e.g. electricity pylons, factories, quarries and other turbines,

and the question of cumulative impact must be considered. The aesthetics of individual wind turbines is open to question, but as intrusive new moving visual elements within the landscape, it can only be **negative**, if **temporary/reversible**.

- The proposed turbine is to be located on the northern fringe of the Llwynceyn-Llansadwrn Aspect Area. The 'value' of this Aspect Area is seen as *high*: 'a good example of a Carmarthenshire agricultural landscape which contributes to the general historic landscape character of the wider region'. The integrity, survival and condition of its various elements are classified as *outstanding*, but the rarity of those components is classified as *moderate*: 'this type of landscape can be paralleled elsewhere in Carmarthenshire and contains few or no components of national importance' (CCW 2013). This Aspect Area is contained within a wider but discontinuous Sensory Area: the Caio Hills. The 'value' of this Aspect Area is seen as *high*: 'an attractive un-spoilt upland landscape with great variety of land cover'. Its scenic quality, character and rarity are all rated as *high*; it is perceived as *attractive*, *exposed* and *remote*, with few detractive elements.

- The visual prominence of the proposed turbine (50m to hub, 77m to tip) must be balanced against the rugged terrain and the enhanced role of local blocking this affords. Given the perceived value of the local historic landscapes, the impact of a new and intrusive visual element is likely to be **negative/moderate**. The turbine will, however, only have a working life of twenty-five years and thus its impact will therefore be **temporary/reversible** on the landscape. The impact on the below-ground archaeological resource will be **permanent/irreversible**.

4.6 Summary of the Evidence

Identifier	Site	NGR	Assessment
Scheduled Monuments with 5km			
403300	NANTIWRCH ROUND BARROW	SN710394	Negative/moderate
403306	NANT CILGWYN STANDING STONE	SN66213702	Negative/minor
303914	BANC MAES-YR-HAIDD I, CAIRN	SN69604299	Negative/minor
303915	BANC MAES-YR-HAIDD II, CAIRN	SN69544288	Negative/minor
8882	ANNELL AQUADUCT	SN67504055	Neutral
Listed Buildings within 5km			
16241	FARMHOUSE, COOLING HOUSE, COWHOUSE, AND BARN RANGE AT GLANYRANNELL, CAIO	SN6582237923	Negative/minor
17649	PENARTH-GANOL AND BARN RANGE	SN64834006	Negative/minor
24818	FELIN NEWYDD; NEW MILL, CRUGYBAR	SN6631938473	Neutral
17420	HAFOD TAFALOG	SN700362	Negative/minor
96509	DYFFRYN (OLD VICARAGE) AND RANGE, CAIO	SN67493938	Negative/minor
101860	ST CYNWYL'S CHURCH, CAIO	SN6750739907	Negative/minor
418158	LYCH GATE, ST CYNWIL'S CHURCH, CAIO	SN6750639875	Neutral
16230	RAILED FAMILY VAULT AT ST CYNWIL'S CHURCH, CAIO	SN6750239917	Neutral
6294	CRUGYBAR WELSH INDEPENDENT CHAPEL,VESTRY AND RAILINGS, CRUGYBAR	SN65803793	Neutral
16243	MILESTONE NEAR MAESLLANWRTHWL	SN6552537270	Neutral

16323	BRIDGE OVER THE RIVER ANNELL INC. ATTACHED WALLS	SN6741639815	Neutral
16232	BRIDGE OVER RIVER ANNELL INCLUDING ATTACHED RETAINING WALLS, CAIO	SN6741639815	Neutral
16241	TERRACED ROW OF 4 HOUSES OPPOSITE INDEPENDENT CHAPEL, CRUGYBAR	SN6582237923	Negative/minor
401620	CASTELL, CAIO, LLANWRDA	SN66713844	Negative/minor
-	HISTORIC LANDSCAPE	-	Negative/moderate

5.0 Conclusions

5.1 Discussion and Conclusion

The proposed turbine would be located on land enclosed in the 19th century from open moorland. Maescadog Farm itself dates to at least the late 17th century, and is probably medieval in origin. The walkover survey identified a series of features of geological interest – the glacial *roche moutonnée* – and two possible round barrows. These features are located close to the site of the proposed turbine, and should be excluded from the area of the development.

It should be noted that the setting of the nationally important Roman gold-mining complex at Dolaucothi would not be affected by this development.

In general terms, this part of Carmarthenshire contains only a small number of Listed Buildings – mostly Grade II – and relatively few Scheduled Monuments. Most of these designated heritage assets were not conceived and constructed with setting as a primary consideration, and thus the impact of the proposed turbine will less pronounced. In general, the impact on these monuments will be restricted, and only for a small number of assets – the barrow at Nantiwrch – will the impact be more pronounced.

In terms of the wider landscape, the proposed turbine is to be located within a *high* value area of Carmarthenshire. As the viewshed analysis makes clear, the ZTV will be restricted due to the rugged terrain, but the *Caio Hills* Aspect Area is afforded a *high* value on the basis of its un-spoilt nature and attractive, remote sense of place.

With this in mind, the overall impact of the proposed turbine can be assessed as **negative/moderate**, on the basis of the rugged terrain and the few heritage assets affected, balanced against the un-spoilt nature and importance of the historic landscape.

6.0 Bibliography & References

Published Sources:

Burnham, B.C. & Burnham, H. 2004: *Dolaucothi-Pumsaint: Survey and Excavation at a Roman gold-mining complex 1987-1999*. Oxbow Books.

Cadw 2007: *Guide to good practice on using the register of landscapes of historic interest in Wales in the planning and development process*, 2nd edition. Cardiff.

Cornwall Council 2012: *Technical Paper E4 (b) Annex 1: Landscape Sensitivity and Strategy Matrices for each Landscape Character Area.*

Cornwall Council 2013: *The Development of Onshore Wind Turbines*. Renewable Energy Planning Guidance Note 3.

Countryside Council for Wales 2013: *LANDMAP Guidance Note 3: Using LANDMAP for Landscape and Visual Impact Assessment of Onshore Turbines.*

Gelling, M. & Cole, A. 2000: *The Landscape of Place-Names*. Shaun Tyas.

English Heritage 2005: *Wind Energy and the Historic Environment.*

English Heritage 2011a: *The Setting of Heritage Assets.*

English Heritage 2011b: *Seeing History in the View.*

Highland Council 2010: *Visualisation Standards for Wind Energy Developments.*

Historic Scotland 2010: *Managing Change in the Historic Environment: Setting.*

Institute of Field Archaeologists 1994 (Revised 2001 & 2008): *Standard and Guidance for archaeological Desk-based Assessment.*

Institute of Field Archaeologists. *2001 (Revised 2008): Standard and Guidance for the collection, documentation, conservation and research of archaeological materials.*

Landscape Institute 2002: *Guidelines for Landscape and Visual Impact Assessment* 2nd edition. London.

Landscape Institute 2011: *Photography and Photomontage in Landscape and Visual Impact Assessment*. Advice Note 01/11

Ludlow, N.D. 1998: *The Welsh Historic Churches Project: Carmarthenshire Churches*. Unpublished DAT.

Price, F.S. 1904: *History of Caio*. Swansea.

Sambrook, P. & Page, N. 1995: *The Historic Settlements of Dinefwr*. Unpublished DAT.

Scottish Natural Heritage 2006: *Visual Representation of Windfarms: Good Practice Guidance.*

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

University of Newcastle 2002: *Visual Assessment of Windfarms: Best Practice.* Scottish Natural Heritage commission report F01AA303A.

Watts, V. (ed.) 2011: *The Cambridge Dictionary of English Place-Names.* CUP.

Welsh Assembly 2012: *Planning Policy Wales* 5th edition.

Wyn Owen, H. & Morgan, R. 2007: *Dictionary of the Place-Names of Wales.* Gomer Press.

Websites:

British Geological Survey 2013: *Geology of Britain Viewer.* http://maps.bgs.ac.uk/geologyviewer_google/googleviewer.html, accessed 03/08/2013

Countryside Council for Wales 2013: LANDMAP http://www.ccgc.gov.uk/landscape--wildlife/protecting-our-landscape/landmap.aspx, accessed 13.08.13

Unpublished Sources:

Dyfed Archaeological Trust
- Caio tithe map
- Caio tithe apportionment
- Ordnance Survey Surveyor's Draft 1805

Promap
- Ordnance Survey 1st Edition Map

Appendix 1

PROJECT DESIGN FOR DESK-BASED APPRAISAL, VISUAL IMPACT ASSESSMENT AND SITE VISIT ON LAND AT MAESCADOG FARM, CAIO, CARMARTHENSHIRE

Location: Maescadog Farm
Parish: Caio
County: Carmarthenshire
NGR: SN 69311 40117
Planning Application ref: Pre-application
Proposal: Wind turbine
Date: Draft 29.07.13

1.0 INTRODUCTION

1.1 This document forms a Project Design (PD) which has been produced by South West Archaeology Limited (SWARCH) at the request of Miss Chloe Bines (the Client). It sets out the methodology for desk-based research and a visual impact assessment and for related off-site analysis and reporting at land at Maescadog Farm, Caio, Carmarthenshire, Wales. The PD and the schedule of work it proposes have been drawn up in consultation with Charles Hill (DAT).

2.0 AIMS

2.1 The principal objectives of the work will be to:

2.1.1 Undertake a desk-based assessment of the site;

2.1.2 Identify and assess the significance of the likely landscape and visual impacts of the proposed development through the use of view-shed-analysis;

2.1.3 Assess the direct visual effects of the proposed development upon specific landscape elements and historic assets through the use of photo-montages, including views from key features looking toward the development site, and showing scale images of the proposed turbine superimposed thereon;

2.1.4 Produce a report containing the results of the desk-based research, the site visit and the visual impact assessment;

2.1.5 Provide a statement of the impact of the proposed development on the potential archaeological resource, with recommendations for those areas where further evaluation and/or mitigation strategies may be required.

3.0 METHOD

3.1 Desk-based Appraisal:
The programme of work shall include desk-based research to place the development site into its historic and archaeological context. This will include examination of material currently held in the Dyfed Archaeological Trust and any other readily available resources.

3.2 Visual Impact Assessment (VIA):

3.2.1 A viewshed analysis resulting in a Zone of Theoretical Visibility (ZTV) will be supplied by the Client and this will be used during the archaeological VIA.

3.2.2 Historic assets that fall within the VIA will be assessed on the basis of their intrinsic importance and the potential impact of the development, following the guidelines outlined in the EH *Setting of Heritage Assets* (http://www.english-heritage.org.uk/publications/setting-heritage-assets/). This will include: all relevant heritage assets, all Listed buildings and Scheduled Ancient Monuments within 1km of the site; all registered parks/gardens, sites with structured views and significant un/designated archaeological landscapes within 5km of the site. An abbreviated list of these heritage assets will be included as an appendix within the report.

3.2.3 Significant historic assets and monument groups will be identified and visited to assess the impact on their setting and photomontages (non-verified) produced in accordance with the Landscape Institute and Institute of Environmental Assessment "Guidelines for Landscape and Visual Impact Assessment" 2nd Edition 2002. This will be used to produce a statement of significance for those heritage assets potentially impacted upon by the development.

3.2.4 The likely impact will be assessed using the methods based on English Heritage 2012 Guidelines on the Setting of Heritage Assets.

5.0 REPORT

5.1 A report will be produced and will include the following elements:

5.1.1 A report number and the OASIS ID number;

5.1.2 A location map, copies of the view shed 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 on each;
5.1.3 A concise non-technical summary of the project results;
5.1.4 The aims and methods adopted in the course of the investigation;
5.1.5 Illustrations of the site in relation to known archaeological deposits/sites around it, in order to place the site in its archaeological context;
5.1.6 A statement of the impact of the proposed development on the potential archaeological resource, and shall indicate any areas where further evaluation (e.g. geophysical survey, intrusive trenching) and/or recording is recommended;
5.1.7 A copy of the DAT Brief and this PD will be included as an appendix.

5.2 The full report will be submitted within three months of completion of fieldwork. The report will be supplied to the HET on the understanding that one of these copies will be deposited for public reference in the HER. A copy will be provided to the HES in digital 'Adobe Acrobat' PDF format.

5.3 A copy of the report detailing the results of these investigations will be submitted to the OASIS (*Online Access to the Index of archaeological investigations*) database.

5.0 FURTHER WORK

5.1 Should the results of this Assessment indicate a need for further archaeological works to be undertaken this would need to be completed before validation of the Planning Application in order to enable the Local Planning Authority to make an informed and reasonable decision on the application, in accordance with the guidelines contained within paragraph 141 of paragraph 128 of the *National Planning Policy Framework* (2012).

6.0 PERSONNEL

6.1 The project will be managed by Colin Humphreys; the desk-based research and the visual impact assessment will be carried out by SWARCH personnel with suitable expertise and experience. Relevant staff of DAT will be consulted as appropriate. Where necessary, appropriate specialist advice will be sought.

Lucy Blampied
South West Archaeology Ltd the Old Dairy, Hacche Lane Business Park, Pathfields Business Park, South Molton, Devon EX36 3LH Telephone: 01769 573555 email: mail@swarch.net

Appendix 2

Key Heritage Assets

Name: ST CONWIL'S CHURCH, CAIO
Grade: II*
Primary Reference Number (PRN): 101860
Site Description
St Cynwyl's Church was a parish church during the post-conquest period, belonging to the medieval Deanery of Stradtowy. The parish formerly had chapels of ease at Pumsaint and Cwrt-y-cadno. An inscribed stone with a Latin inscription is built into the north wall. Formerly used as a door sill, it was moved to its current location in 1858. The churchyard is sub-circular in shape and is entered via a twentieth century lych gate (NPRN 101860) in its south-east boundary.
The church is a Grade II listed building, constructed of local rubblestone with limestone (medieval) and yellow oolite (1858 and 1891) dressings. It consists of four-bayed nave/chancel, four-bayed south aisle, three-storeyed west tower and storehouse (north of the tower). The nave/chancel is thought to be thirteenth-fourteenth century in date. The south aisle has perpendicular windows and is thought to date to around 1500. The west tower dates to the sixteenth century, and the south aisle west wall (and possibly side walls) is thought to have been re-fenestrated at this time. The church was restored in 1858, when the internal fittings were rearranged, the tower renovated and heating installed (in the form of a hot air pipe running along the arcading). The church was again restored in 1891, to the designs of Ewan Christian, London. The north walls were replaced in purple sandstone and the south door was rebuilt. The building was re-roofed, re-floored and re-seated. The tower arch was reopened at this time, and a heating stove was installed. The storehouse dates from the mid-twentieth century.
NGR: SN6750739907

Name: PENARTH-GANOL AND BARN RANGE
Grade: II
Primary Reference Number (PRN): 17649, 16264
Site Description: A late, type 'B' sub-medieval house of 2 full storeys, probably dating from circa 1800.
NGR: SN64834006

Name: LYCH GATE, ST CYNWIL'S CHURCH, CAIO
Grade: II
Primary Reference Number (PRN): 418158
Site Description
This lych gate is sitiated in the south-west churchyard boundary of St Cynwyl's Church (NPRN 101860). It was erected in 1932 in memory of memebers of the Johnes family, Dolaucothi. The lych gate is perpendicular in style, and is constructed of grey sandstone with ashlar dressings. It has a steeply pitched stone-tiled roof, and a wide four-centred entrance. The low paired wooden panelled gates have strap hinges, and the gates' upper panels are open with spiral twist iron bars.
NGR: SN6750639875

Name: DYFFRYN (OLD VICARAGE) AND FORMER AGRICULTURAL RANGE, CYNWIL GAEO
Grade: II
Primary Reference Number (PRN): 96509
NGR: SN67493938

Name: CASTELL, CAEO, LLANWRDA
Grade: II
Primary Reference Number (PRN): 401620
Site Description
A traditional vernacular dwelling, thatch and partition truss noted.
NGR: SN66713844

Name: FELIN NEWYDD; NEW MILL, CRUGYBAR
Grade: II
Primary Reference Number (PRN): 24818
Site Description
Two pairs of stones; overshot waterwheel. Mill operational and open to the public
NGR: SN6631938473

Name: CRUG-Y-BAR WELSH INDEPENDENT CHAPEL, VESTRY AND RAILINGS, CRUG-Y-BAR
Grade: II
Primary Reference Number (PRN): 6294
Site Description
Crug-y-Bar Chapel was first built in 1688, then rebuilt in 1765 and 1837, and enlarged/renovated in 1893. The present chapel, dated 1837, was built in the Simple Round-Headed style of the long-wall entry type. The chapel is Grade 2 listed.
NGR: SN65803793

NAME: TERRACED ROW OF 4 HOUSES OPPOSITE THE INDEPENDANT CHAPEL, CRUGYBAR
GRADE: II
CADW BUILDING ID: 16241
OS GRID COORDINATES: 265822, 237923

NAME: BRIDGE OVER THE RIVER ANNELL INCLUDING ATTACHED WALLS, CAEO
GRADE: II
CADW BUILDING ID: 16232

OS GRID COORDINATES: 267416, 239815

NAME: GLANYRANNELL FARMHOUSE, COOLING HOUSE, COWHOUSE AND BARN RANGE, CAEO
GRADE: II
CADW BUILDING ID: 16241, 16234-6,
OS GRID COORDINATES: 265822, 237923

Scheduled Monuments

Name: BANC MAES-YR-HAIDD I, CAIRN
Primary Reference Number (PRN): 303914
Site Description:
1. An undisturbed cairn, 15m in diameter and 0.6m high.
2. Remains of two burial mounds, situated in enclosed pasture. The northernmost cairn (Item A: SN69594299) measures about 14m in diameter and up to 0.6m in height.
NGR: SN69604299

Name: BANC MAES-YR-HAIDD II, CAIRN
Primary Reference Number (PRN): 303915
Site Description:
1. Undisturbed cairn, 20m in diameter, 2.1m high, showing traces of kerbing.(source Os495card; SN64SE17)
J.Wiles 15.02.02
2. Remains of two burial mounds, in enclosed pasture. The southernmost cairn (Item B: SN69514243) measures about 16.5m in diameter and up to 2.1m in height.
NGR: SN69544288

Name: NANTIWRCH ROUND BARROW
Primary Reference Number (PRN): 403300
Site Description: Remains of a round barrow, situated within enclosed pasture on the summit above and to the east of Nantiwrch. The earth and stone barrow is circular on plan and measures about 15.5m in diameter and up to 0.5m in height. Although denuded by ploughing and stone robbing in the past, the base of this barrow remains substantially intact.
NGR: SN710394

Name: NANT CILGWYN STANDING STONE
Primary Reference Number (PRN): 403306
Site Description: A quartzitic standing stone situated within improved pasture above and to the north of the Nant Cilgwyn. The stone measures 1.1m in height, 1m in thickness from north-west to south-east by 0.7m width.
NGR: SN66213702

Name: ANNELL AQUADUCT
Primary Reference Number (PRN): 8882
Site Description: PRN 8882 (east) - SAM CM210 This Scheduled Ancient Monument is a section of the Annell Leat. The leat would have carried water into the Dolaucothi mines (PRN 1946) in order to wash the ore which was being extracted from the mines. It is not known whether the leat took water from the Annell itself, or whether it picked up small tributaries and surface water. Only a short section of the Annell leat is scheduled. This part survives as a clearly visible, broad track-like cut in the hillside. For the most part, the leat stays very level and follows the natural contour of the hillside. However, at its northernmost end, the leat seems to curve quite sharply upslope and then disappears into a boggy area at the head of a small valley. In general this feature is very visible and well preserved and in places it appears that another 'track' is carved just upslope from the leat. In one place, it appears that there are three parallel sections of the leat. Sections of these upper paths may simply be sheep tracks, but Lewis (1976) argues for a triple channel system within the Annell leat, with wooden shuttering supporting the banks between the channels. The leat passes just in front of a rock-cut spring (PRN 49146) which probably fed into it. The relationship between these two features is not entirely clear, and the line of the water channel is harder to pick up at this point. The southwest end of the Scheduled area is quite overgrown with bracken and scrub, and the line of the leat is harder to see. There are also a few sheep scrapes along the length of this part of the leat. PRN 8882 (west) - The projected line of the Roman Annell leat that is a continuation of the Scheduled section to the north. The southern part of this feature is not visible on the ground, partly due to scrub and bracken growth. Recent bracken clearance has revealed clearly the earthwork of the leat further north, two fields south of the scheduled area. The earthwork here is in a good, stable condition, and it is likely that further physical remains may survive. A section of the Roman aqueduct system that carried water to the nearby gold mines at Dolaucothi.
NGR: SN67504055

HER entries within 1km

Name: CIL-Y-GAWAD SHEEP-FOLD
Primary Reference Number (PRN): 24390
Summary: Fold of unknown date and purpose described in 1983.
NGR: SN69103998

Name: ALBERT MOUNT;MAESCADOG
Primary Reference Number (PRN): 14282
Summary: Reportedly a hillfort site, but this is not confirmed despite a visit in 1983 by the RCAHMW.
NGR: SN691395

Name: FRENA LODGE

Primary Reference Number (PRN): 18746
Summary: Lodge building shown on 1964 OS map.
NGR: SN68203991

Name: TRACKWAY
Primary Reference Number (PRN): 43418
Summary: Identified from Tithe.
NGR : SN6814039100

Name: BLAEN-DULAIS COTTAGE
Primary Reference Number (PRN): 21855
Summary: Deserted cottage as shown on the tithe map.
NGR: SN6970140856

Name: ESGAIR COTTAGE
Primary Reference Number (PRN): 21856
Summary: Deserted cottage as shown on the OS 2nd edition map.
NGR: SN6992440791

Appendix 3

Supporting Jpegs

The proposed location of the wind turbine, at the top of the hill; from the south-west.

View of the rock outcrops that dominate the hilltop where the turbine is to be situated; from the south.

View of the rough grass pasture to the eastern side of the hill top; from the north-west.

View down the grass pasture to the south-west; from the north.

Showing the wide views south from the proposed turbine location; from the north.

Views to the south-east, showing clear views across the lower ground to the mountains beyond; from the north-west.

Views to the east from the proposed turbine location; from the west.

Views to the east; from the west.

Views to the east and north-east; from the south-west.

Views north-west, across the Caio Forest; from the south-east.

Views to the west are limited by the plantation. The tall trees on the fringes providing blocking to the rest of the landscape to the west, but the top of the turbine will be visible to some extent over the top of these trees, at a longer distance; from the east.

View of the undulations and rock outcrops at the top of the hill; from the south-west.

Possible grassy mound just on the hillslope, away from the peak of the hill, looking south; from the east.

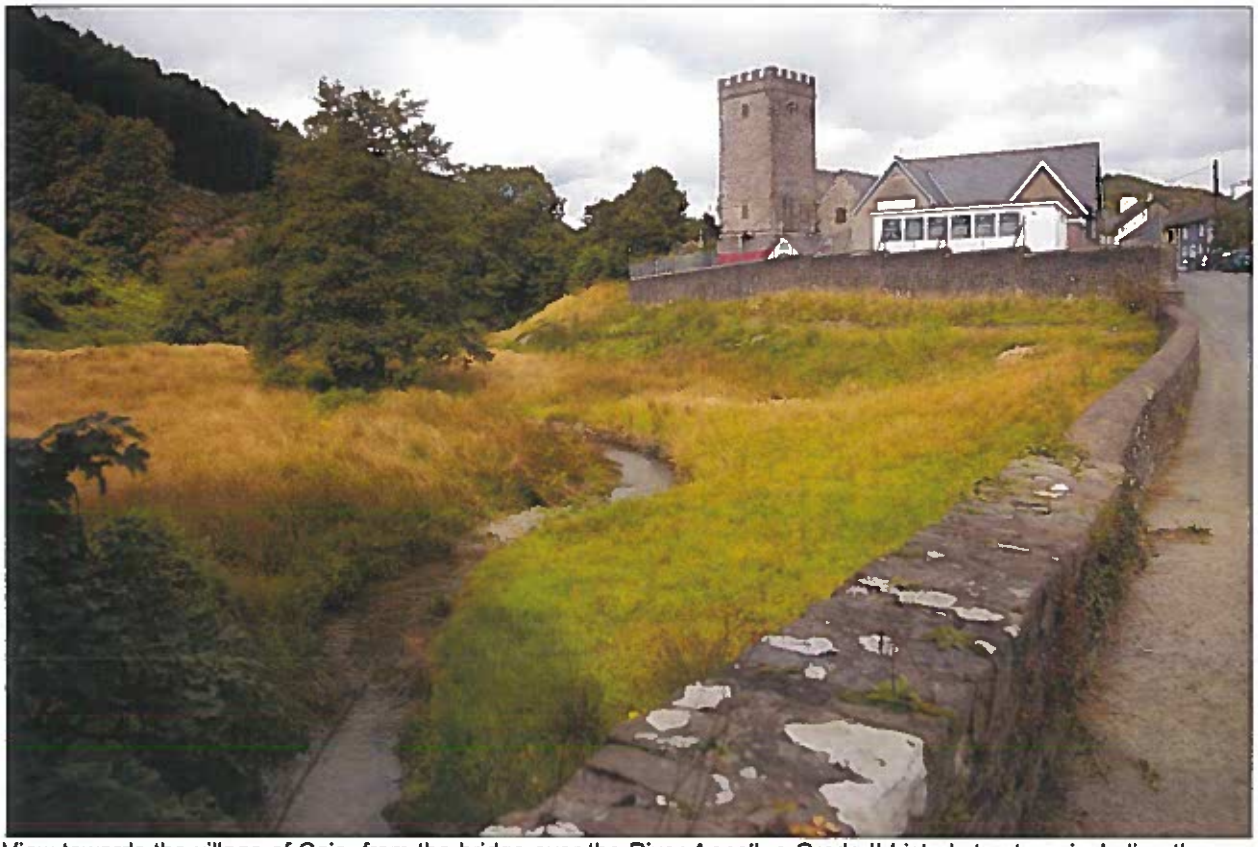
View of one of the rocky outcrops at the top of the hill, in the general area of the proposed turbine location; from the north-west.

View of the small grassy plateau at the very top of the hill; from the west.

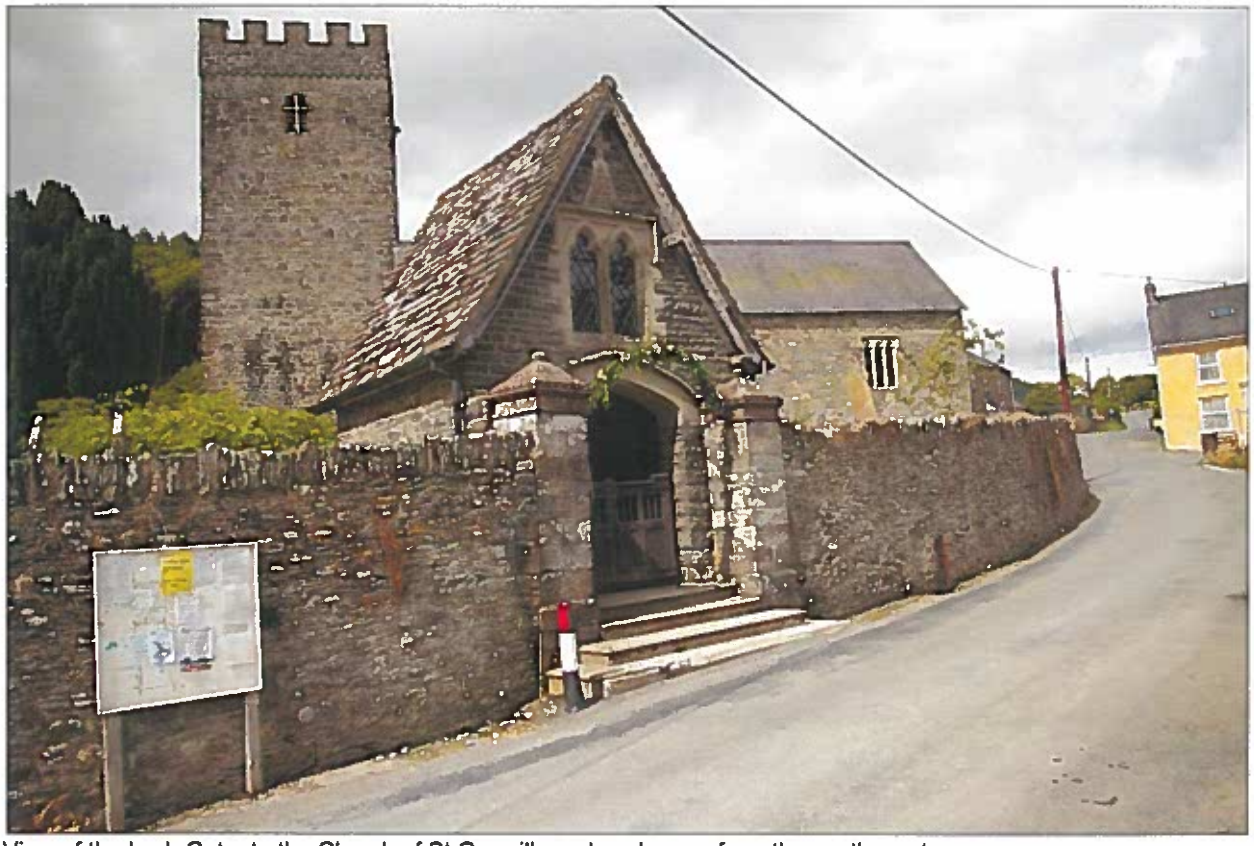
View of further rock outcrops running into the next field enclosure, the boundary marked by a simple wire fence; from the south-west.

The grassy mound on the hillside, possible archaeological feature?; from the west.

View south, across the grassy mound; from the north.



View towards the village of Caio, from the bridge over the River Annell, a Grade II Listed structure, including the retaining walls; from the south-west.



View of the Lych Gate, to the Church of St Conwil's and enclosure; from the south-west.

Church Lane and the houses opposite the Lych Gate that provide comprehensive blocking; from the west.

View of St Conwil's/St Cynwil's Church; from the south.

View along the south side of the church, showing its views to the east, towards the proposed turbine; from the west.

View of one of the railed tombs in the churchyard; from the north-east.

View of the second railed tomb in the churchyard of St Cynwil's; from the north-east.

View across one of the railed tombs, looking towards the proposed turbine, showing the local blocking provided by the settlement; from the west.

View over the second tomb; from the west.

View of the second bridge over the River Annell; from the north-west.

View from the bridge up to the high ground to the east, where the proposed turbine is to be situated; from the south-west.

View of Glanyrannell Farm; from the east.

View from the farm and its outbuildings at Glanyrannell; from the west.

The long private track which leads to the Old Rectory at Caio, Dyffryn; from the south.

View of Castell and the high ground to the east and north-east which rises behind it, showing that despite its views being focused west across the valley there would be some intervisibility with the turbine; from the south-west.

View of the milestone south of Crugybar; from the south-west.

View over the milestone to the north-east towards the proposed turbine location; from the south-west.

View of the independent chapel at Crugybar; from the south-east.

View past the chapel to its open views to the east and south; from the north-east.

View of the row of cottages, to the east of the chapel, blocking all the views to the east and north-east; from the north-west.

View towards the proposed turbine location from the village of Crugybar; from the south-west.

View towards the proposed turbine location from the standing stone at Nant Cilgwyn; from the south-west.

The standing stone, now in an enclosed agricultural field; from the north-west.

View of the barrow (Nantiwrch barrow) on the opposite hill; from the west.

View back towards the proposed turbine location from Nantiwrch barrow; from the south-east.

View towards Nantiwrch barrow from the proposed turbine site; from the north-west.

View of the historic sheepfold, recorded on the HER; from the north.

View to the north-east from the sheepfold, back towards the proposed turbine location; from the south-west.

View of Albert Mount, recorded on the HER; from the east.

View of the tall trees that enclose the house at Albert Mount, and provide comprehensive local blocking; from the east.

Caio, Maescadog Farm – Appendum

Heritage Impact Assessment for Dolaucothi Pumsaint Roman Gold Mine
By B Morris & E Wapshott

Background

The site of Dolaucothi Pumsaint lies in the valley of the Afon Cothi, close to its confluence with the Afon Twrch. The area of designation includes the Roman fort located beneath Pumsaint village (but not the *vicus* that extends to the south-west) and encompasses a large area on the north-western slopes of the hills (Allt Ogofau and Allt Cwmhenog) that separate Dolaucothi from Caio village. The site features opencast and subterranean mining, and operations were powered or assisted by water brought to the site via a series of leats. Many of these leats survive, and there is a complex system of leats and tanks on the slopes of Allt Cwmhenog. The Roman fort was occupied into the 2nd century, but pottery from the site indicates mining continued into the 4th century AD. Ownership passed to the National Trust in 1941-3 and it is now run as a tourist attraction and camp site.

Significance

This site is the only known Roman gold mine in Britain, and archaeological investigations have revealed important new evidence for Roman mining and processing techniques. As such, this site can be classified as being of *very high* significance. The archaeological and technological importance of the site is separate to, and largely independent of, its current setting: this site would be of paramount importance irrespective of setting. Much like 19th century industrial landscapes, the designated area was not designed or conceived with long views, outlook or setting in mind, even though they may, in their decrepitude, exert an aesthetic appeal. Setting remains of relevance to the experience of the heritage asset, but much of that experience takes place underground or within the theatre of the open-cast works, where it has been partly sanitised by the National Trust for the benefit of visitors. Indeed, provisions for the 'visitor experience' (i.e. heritage centre, tea rooms, gift shop, car parks, campsite etc.) have had a significant impact on the setting of the Scheduled elements of the designated area.

Visitor Experience

Most visitors to the site will arrive via the A482 from Lampeter, or from Llanwrda via the A40 and A482. Two small lanes lead directly off this A-road to the main entrance, picnic and parking area in the quarry or directly opposite in the base of the valley. The roads to the mine run across the valley of the Afon Cothi, and the high ground to the east (Allt Cwmhenog) would block all views to the turbine. The main quarry area, the visitor centre, and the main entrance face west. Most of the public trails around the Dolaucothi Estate are shielded from the turbine by the terrain or woodland (see below).

Assessment

The designated area stretches up onto the summit of Allt Ogofau, and curves around the western side of Allt Cwmhenog (see Figure 1). There are three areas where parts of the designated asset would have intervisibility with the proposed turbine:

Area 1 contains a series of opencast workings. These openworks lie within an area of open deciduous woodland that provides a significant amount of local blocking, albeit subject to seasonal variation. The significance of these features is not setting-dependant, and the visitor

experience is constrained by the woodland environment. Intervisibility with the proposed turbine is likely to be minimal; impact assessed as **negative/minor** at most.

Area 2 contains a water tank and several short sections of leat. These monuments are located on a south-west and west-facing slope within improved pasture with unimproved or rushy areas. The monuments form clear earthworks, but are not visually prominent. Some element of local blocking would be provided by the trees lining the hedge to the west, and the conifer plantation on the hills above Caio village. However, its significance is derived from its archaeological potential, not its setting, despite intervisibility with the proposed turbine; impact **negative/minor** at most.

Area 3 is an isolated section of surviving leat; this is addressed in the original report.

Overall Assessment
This is clearly a site of *very high* archaeological importance, and the available documentation would suggest the full extent of the associated water management features has yet to be established. However, and focusing on the known and designated elements of this complex, it is clear *setting* is not of primary importance to the significance of this complex. Most of the designated area falls outside the ZTV, with the primary focus for visitors to the west within the opencast workings and beneath the earth. The impact of the proposed turbine on the *setting* of the Roman mine would be negative/minor, and more probably **neutral** given the - limited area that falls within the ZTV.

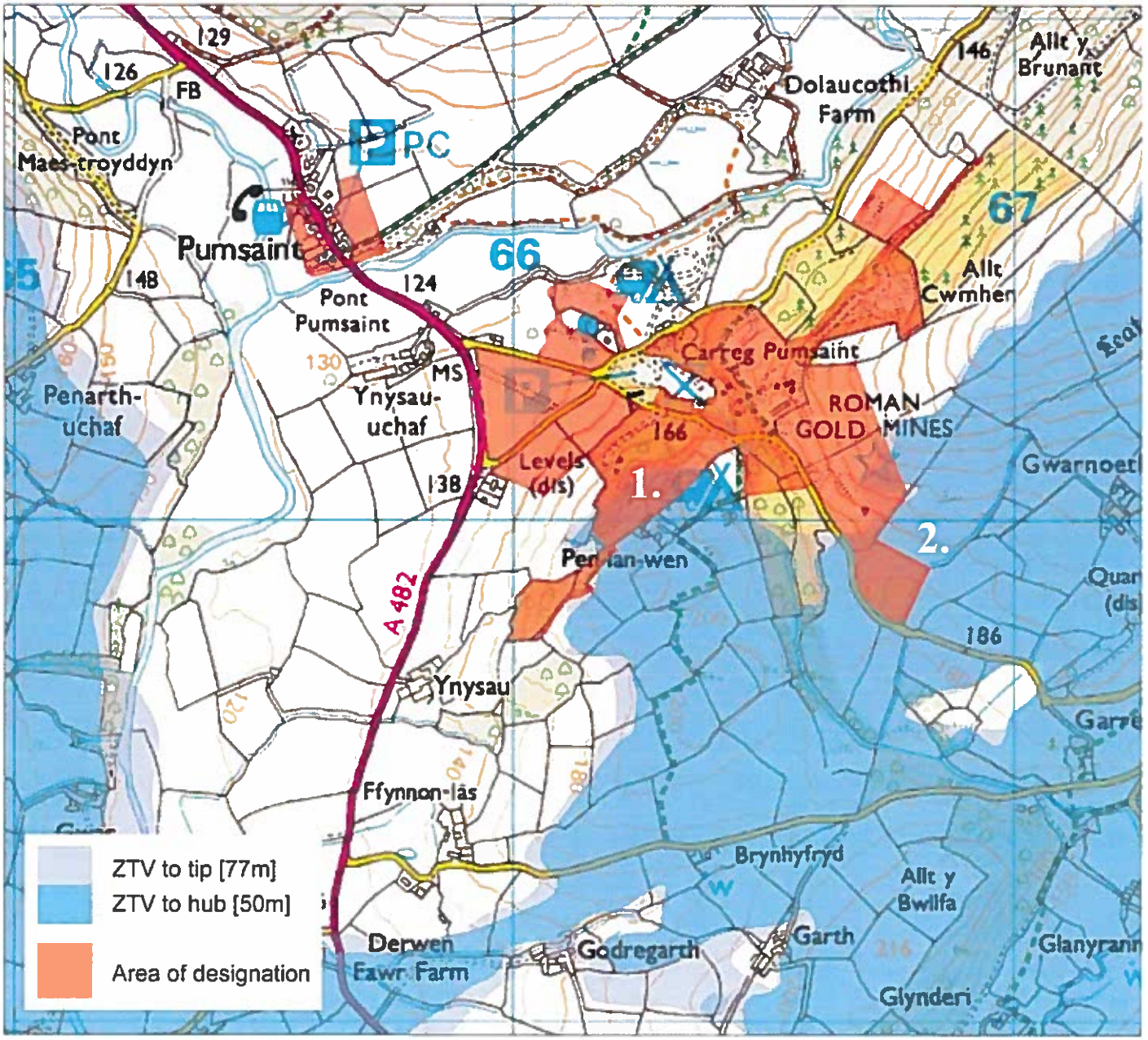


Figure 6: Detail of the overlap between the ZTV to hub/tip (based on the ZTV provided by Mi-Grid) and the Scheduled areas at Dolaucothi Pumsaint.

Caio, Maescadog Farm – Appendum 2

Archaeological Evaluation of Potential Earthwork Adjacent to the Proposed Turbine
By J Bampton

Introduction

Subject to the desk-based assessment, walk-over survey and visual impact assessment undertaken in regard to the construction of a wind turbine on land at Maescadog Farm, Caio, Carmarthenshire (SWARCH Report No. 130823 with appendum) a potential earthwork was evaluated on the 9th of January 2014 by J. Bampton. The evaluation was undertaken in accordance with a Project Design (PD) drawn up in accordance to a brief prepared on behalf of Carmarthenshire County Council by Dyfed Archaeological Trust – Heritage Management (DATHM).

> *"4.2 Evaluation Excavations:*
> *An evaluation trench ... will initially be excavated across the easternmost mound, extending either side from the visible earthwork. The trench location has been positioned with reference to the results of the desk-based assessment and in consultation with DATHM. The evaluation trench will be undertaken by hand by the site archaeologist to the depth of in situ subsoil/weathered natural or archaeological deposits whichever is highest in the stratigraphic sequence. The area will then be cleaned to prove the presence or absence of archaeological features. Should archaeological deposits or features be exposed they will be investigated by the site archaeologist with the approval of DATHM."*
> *4.2.1 The archaeological work will be carried out in accordance with the Institute for Archaeologists Standard and Guidance for Archaeological Field Evaluation 1994 (revised 2001 & 2008) and Standard and Guidance for an Archaeological Watching Brief 1994 (revised 2001 & 2008).*

South West Archaeology Ltd. Project Design (4/12/13) for Planning Application ref: E/28824, section 4.

Background

Two grassy mounds are located within the proposed development area and were identified by South West Archaeology Ltd. as possible shallow remains of two burial mounds from the prehistoric period, of which others are known in the area (for example, Nantiwrch round barrow, discussed in the main report, PRN 403300). Of these two mounds the eastern was the most convincing with a definitive location, shape, size and hints of a relatively more substantial depth of soil (mole hills and lush grass).

Results of Archaeological Evaluation Trench

A hand dug evaluation trench was excavated across the more convincing, eastern most, possible earthwork. It was aligned north-south and was 10m long by 0.50m wide (see Figure 2). It revealed no archaeological features or deposits and proved the mound to be a natural feature in the landscape, which contained many irregular undulations. The trench was located in relation to the existing boundaries (see Figure 1).

The topsoil (including the grassy turf) was a mid brown-grey, soft clay-silt with occasional to frequent small shillet and slate fragments. It produced no finds. On average it was 0.14m deep, although ranged in depth from 0.06-0.30m depending on the depth of naturally occurring gullies that followed seams in the natural bedrock. The topsoil directly overlaid a rocky natural (see Figure 3).
The natural was a mid yellow and light blue-grey shillet rock with seams running ENE-WSW, which included occasional dips and gullies running along these seams.

Assessment

Despite the convincing aspect of the mound it was not found to be of archaeological significance. However, given the relatively irregular character of the landscape, when such convincing examples are apparent and furthermore may have intervisibility with known examples, they must be investigated, especially as they may have provided readymade features in the landscape that could have been utilised by our prehistoric ancestors. Given that the investigated mound was not archaeological it is unlikely that the western example is either.

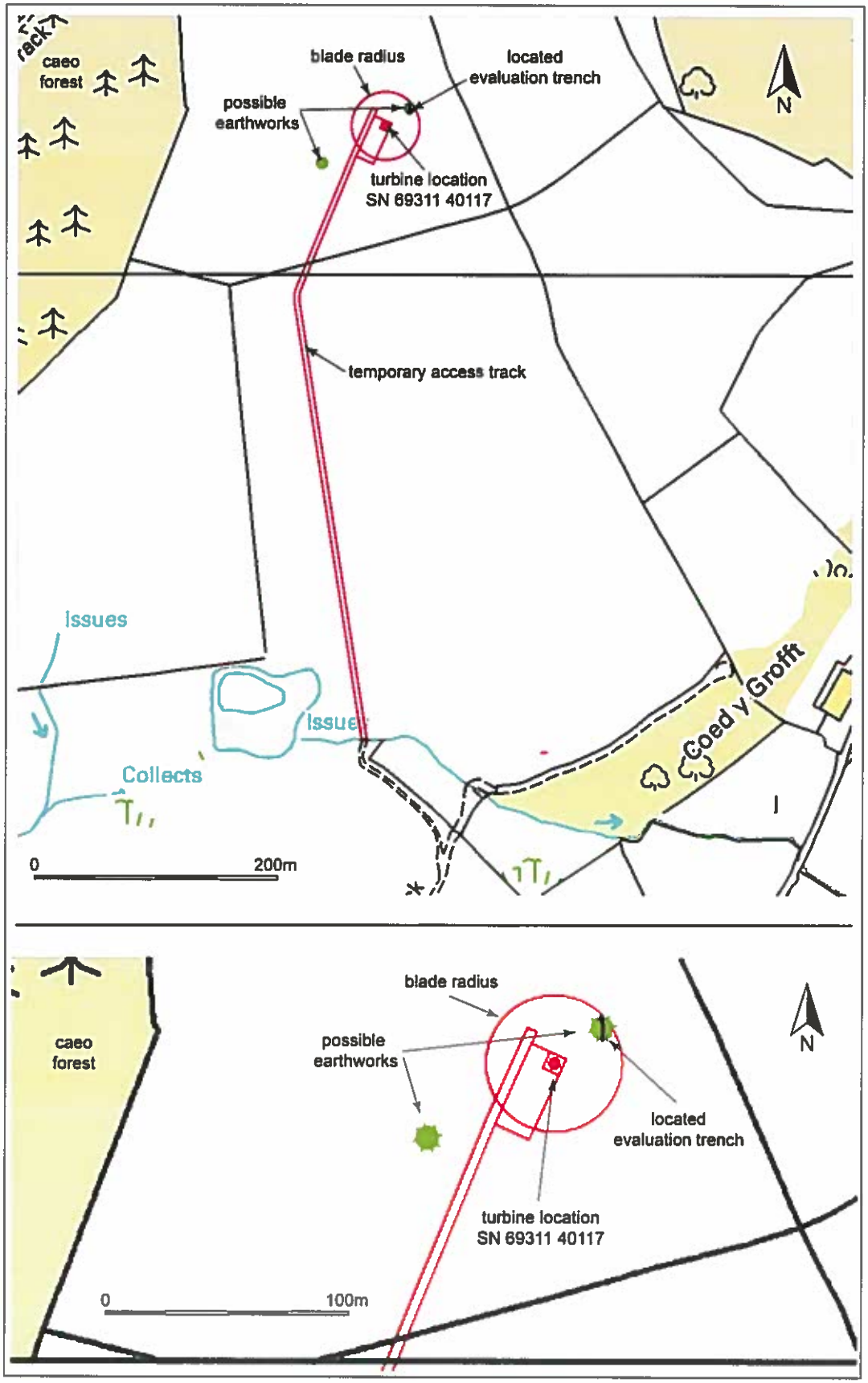


Figure 1: Location of proposed wind turbine, mounds and evaluation trench.

Figure 2: Evaluation trench post-excavation, viewed from north (2m scale).

Figure 3: Example section of trench, north end-middle, viewed from west (2m scale).

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

Tel: 01769 573555
Email: mail@swarch.net