



Attention: Michael Ings
Date: 13th August 2014

Re: Pant Farm Wind Turbines, Trimsaran Road, Llanelli, Carmarthenshire

Dear Michael

Please find enclosed one DVD and two bound hard copies of the final draft report on the Archaeological Appraisal for the proposed two Pant Farm wind turbines, Trimsaran Road, Llanelli, Carmarthenshire.

A copy of the same report has also been sent to the client (Andrew Turk for Force 5 Energy Ltd), who will also forward a copy onto the council as part of the application.

Best wishes

A handwritten signature in black ink that reads 'Richard'.

Richard Scott Jones (BA Hons, MA, MIFA)

**Pant Farm Wind Turbines,
Trimsaran Road,
Llanelli, Carmarthenshire.**

Archaeological Appraisal



By

Richard Scott Jones (*MA, MIFA*)

July 2014

**HRSWales
Report No: 144**

ARCHAEOLOGICAL APPRAISAL

Pant Farm Wind Turbines, Trimsaran Road, Llanelli, Carmarthenshire.

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On behalf of:

Mr John Thomas

Date: July 2014

HRSW Report No: 144

The logo for Heritage Recording Services Wales. It features the word 'Heritage' in a large, red, serif font. Below it, 'Recording Services Wales' is written in a smaller, blue, sans-serif font. A small, stylized blue crest or emblem is positioned between the two lines of text.

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Executive Summary

The following report presents the results of an archaeological appraisal undertaken by Heritage Recording Services Wales (HRS Wales), commissioned by Force 5 Energy Ltd, for the erection of two wind turbines, positioned approximately 3km northwest of the town of Llanelli and approximately 2.5km southeast of the town of Trimsaran, Carmarthenshire (centered on NGR: SN 4740 0250).

The proposed turbines are planned to have a hub height up to 25 metres and a blade tip up to 35 metres. Initial access to the site will be via a 3.5m wide track leading to the proposed turbine location. Access over the final distance will be via a temporary access track if required. Each turbine will also require a 7m x 7m turbine base and temporary crane hard-standing and one electrical supply box.

The scope of the study was agreed in advance with Dyfed Archaeological Trust (DAT) in July 2014 and a subsequent submitted and approved project specification agreed that only Historic Environment Records (HER) within a 2km radius from the proposed turbine locations needed to be gathered to inform the archaeology of the wider landscape, and only designated and high value undesignated sites within 2.5km from the position of the proposed turbines need be assessed for the indirect impact assessment.

In summary, the appraisal has concluded that there are no direct physical impacts on any known heritage assets from any elements of the proposed development. The assessment of the application site has also concluded that because the application site has been ploughed and improved over the centuries, the chances of any surviving unknown buried archaeological remains is low and as such it has been considered that an archaeological watching brief would not be necessary during groundwork for construction.

In summary, the appraisal has concluded that none of the settings of designated Scheduled Ancient Monuments (SAMs), Listed Buildings, or any undesignated sites of schedulable quality, would be significantly affected by the proposed development. It was predicted that the most noticeable effect on any designated site within the 2.5km radius, would be the indirect effect on the high value SAM site of Waun Twmpath Motte (SAM Ref: CM238), which was predicted to be of Minor magnitude and therefore of Moderate/Minor significance.

The appraisal also concluded that there would be no significant effect on the registered Park & Garden of Stradey Castle.

With regards to cumulative impacts, the appraisal concluded that there are two known consented and operating wind turbine sites within the 2.5km radius, the two turbine site near Emlych, positioned approximately 1.8km west-north-west from the proposed Pant Farm wind turbines and the single 17m high turbine at Hillcrest Farm.. However, due to the small scale of these turbines, the topography, distance and intervening landscape components, it was concluded that none of these sites in conjunction with the proposed Pant Farm wind turbines will have any significant cumulative effect on any designated or undesignated high value sites.

1 Introduction

1.1 The following report presents the results of an archaeological appraisal undertaken by Heritage Recording Services Wales (HRS Wales), commissioned by Force 5 Energy Ltd, for the erection of two wind turbines, positioned approximately 3km northwest of the town of Llanelli and approximately 2.5km southeast of the town of Trimsaran, Carmarthenshire (centered on NGR: SN 4740 0250).

1.2 The specific objectives of the assessment were to:

- Identify the cultural heritage baseline within and in the vicinity of the proposed turbine;
- Consider the application site in terms of its archaeological and historic environment potential;
- Assess the potential and predicted effects of the construction and operation and decommissioning of the turbine on the baseline cultural heritage resource within the context of relevant legislation and planning policy guidelines; and
- Propose measures, where appropriate, to mitigate against any predicted significant adverse effects.

1.3 The assessment comprised two main elements:

- i) An archaeological appraisal of all Historic Environment Record (HER) sites within a 2km from the proposed turbine positions and a site visit of the application area.
- ii) Direct and In-direct Assessment of predicted effects on all designated and undesignated High Value sites (Scheduled Ancient Monuments, Listed Buildings) within the application area and within a 2.5km radius.

1.4 The Technical Appendices for this Chapter contains the following information:

- *Appendix I: Figures;*
- *Appendix II: Photographs and photomontage;*
- *Appendix III: Gazetteer of all known HER sites up to 2km radius and all designated sites and undesignated High Value sites up to 2.5km radius from proposed turbine locations.*

1.5 The assessment entailed a site visit and an appraisal of all readily available primary historical and archaeological documentary sources for the immediate application area and an appraisal focusing on the indirect effect of the proposed turbines on the setting of designated sites (Scheduled Ancient Monuments, Listed Buildings, Parks & Gardens and Registered Historic Landscapes) and undesignated high value sites within a 2.5km radius from the position of the proposed turbines. The study of the application area assessed the direct and indirect impact of the proposed development on known heritage assets and also the potential for hitherto unknown heritage assets. It also appraised the known heritage assets within a 2km radius of the proposed application area, in order to inform the assessment of the application area. in accordance with Welsh Office Circulars 60/95 and 60/96, '*Planning and the Historic Environment: Archaeology*'.

1.6 All works were undertaken in accordance with the IfA's Standards and guidance: for an *archaeological desk based assessment*.

1.7 The site

1.8 The proposed wind turbines are to be positioned in enclosed improved fields at a height of between

150m and 157m AOD (National Grid References -Turbine 1: SN 4737 0251; Turbine 2: 4739 0238. These grid references are approximate to within 10 meters), approximately 3km northwest of the town of Llanelli and approximately 2.5km southeast of the town of Trimsaran, Carmarthenshire. The application area as a whole is entirely enclosed open fields consisting of hedgebanks covering an area of 15.95 hectares.

- 1.9 Both turbines are planned to have a hub height up to 25m with a blade tip up to 35m. Initial access to the site will be via a 3.5m wide track leading to the proposed turbine location. Access over the final distance will be via a temporary access track if required. Each turbine will also require a 7m x 7m turbine base and temporary crane hard-standing and one electrical supply box
- 1.10 The proposed development site is not located within any Registered Historic Landscape, the nearest being the registered landscape of *Taf and Tywi Estuary* (HLW (D) 9), which lies approximately 3.2km to the southwest of the proposed Turbine 2. Nor is the development site within any Conservation Area or any Registered Park and Garden. The nearest Registered Park & Garden is *Stradey Castle* (PGW (Dy) 15(CAM)), which lies approximately 1.5km to the southeast. There are also no Scheduled Ancient Monuments (SAMs) or Listed Buildings (LBs) within the development area.
- 1.11 **Geology**
- 1.12 The geology of the application area is predominantly South Wales Upper Coal Measures, consisting of mudstones, siltstones, sandstones, coal, ironstone and ferricrete.

2 Planning Policy Context and Legislation

2.1 Ancient Monuments and Archaeological Areas Act 1979

- 2.2 Under the Ancient Monuments and Archaeological Areas Act 1979 (1979 Act) (Ref. 1), the Welsh Assembly Government and Cadw are required to compile and maintain a Schedule of monuments considered to be of national importance. The statutory consent of Cadw is required before any works are carried out which would have the effect of demolishing, destroying, damaging, removing, repairing, altering, adding to, flooding or covering up a Scheduled Ancient Monument (SAM). In addition, impacts of development works upon the setting of a SAM form an important consideration in the granting or refusal of planning consent to conduct development works.
- 2.3 There are no Scheduled Ancient Monuments within the proposed development area (red line boundary). However there are three (3) SAM sites and six (6) Listed Building (LB) sites positioned within 2.5km of the proposed turbine locations.
- 2.4 **Town and Country Planning Act 1990**
- 2.5 Other known sites of archaeological/heritage significance can be entered onto county-based Sites and Monuments Records (many now called Historic Environment Records) under the 1990 Town and Country Planning Act. Historic hedgerows are protected under the Hedgerow Regulations 1997. A hedgerow is historic if it marks a parish or township boundary which pre-dates 1850 AD,

incorporates an archaeological feature or is part of or incorporates an archaeological site, marks the boundary of (or is associated with) an estate or manor which predates 1600 AD or forms an integrated part of a pre-parliamentary enclosure.

2.6 *Planning (Listed Building and Conservation Areas) Act 1990*

2.7 Under the Welsh Office Circular 61/96, 'Planning and the Historic Environment: Historic Buildings and Conservation Areas' and the 'Planning (Listed Buildings and Conservation Areas) Act 1990 (Ref. 1) and the Historic Buildings and ancient Monuments Act of 1953 (Ref.1), listed buildings are categorised as Grades I and II in decreasing order of special architectural and historic importance. These buildings are of acknowledged importance to the nation's built heritage. Section 66 of the Planning (Listed Buildings and Conservation Areas) Act 1990 requires planning decision makers to have special regard to the desirability of preserving listed buildings, their settings or any features of special architectural or historic interest which they possess. There are no listed buildings within the proposed development area.

2.8 Conservation Areas may be designated under the Planning (Listed Buildings and Conservation Areas) Act 1990. Section 72 of the 1990 Act requires decision makers on applications for planning consents to pay special attention to the desirability of preserving or enhancing the character or appearance of the area. As a matter of policy, planning decision makers must take into account the potential effects of development on the setting of Conservation Areas. There are no Conservation Areas within the proposed development area.

2.9 *Welsh Office Circular 60/96 (Planning and the Historic Environment: Archaeology)*

2.10 This guideline establishes the principles and framework within which archaeological matters are a material consideration within the planning process. It identifies how sites are preserved and recorded, and the role of local authorities and the Welsh Office working through Cadw. It states:

2.11 *Archaeological remains should be seen as a finite and non-renewable resource, in many cases highly fragile and vulnerable to damage and destruction...They are part of our sense of national identity and are valuable both for their own sake and for their role in education, leisure and tourism'. (Paragraph 3, Ref 1).*

2.12 Welsh Office Circular 60/96 places emphasis on the need for early consultation with the appropriate authorities (Paragraph 11) and includes information on the need for formal Environmental Assessments in some circumstances (Paragraph 12, Ref 1).

2.13 In Wales this guidance replaces Planning Policy Guideline (PPG) 16: Archaeology and Planning (1990).

3 *Methodology and Consultations*

3.1 *Consultations*

3.2 Consultation with DAT (dated 23-06-2014) and a subsequent submitted and approved Project Specification (dated 23-07-2014), agreed that only Historic Environment Records (HER) within a 2km radius from the proposed turbine locations needed to be gathered to inform the archaeology of

the wider landscape, and only designated and high value undesignated sites within 2.5km from the position of the proposed turbines need be assessed for the indirect impact assessment.

3.3 Methodology of Baseline Survey

3.4 In accordance with the IFA's *Standards and guidance*, the purpose of a desk-based assessment is to gain information about the known or potential archaeological resource within a given area or site (including the presence or absence, character and extent, date, integrity, state of preservation and relative quality of the potential archaeological resource), in order to make an assessment of its merit in context, leading to one or more of the following:

- the formulation of a strategy to ensure the recording, preservation or management of the resource;
- the formulation of a strategy for further investigation, whether or not intrusive, where the character and value of the resource is not sufficiently defined to permit a mitigation strategy or other response to be devised; and
- the formulation of a proposal for further archaeological investigation within a program of research.

3.5 The other aim of the appraisal was to evaluate the potential direct effect of the proposed development on all cultural heritage features within the bounds of the application area, gather archaeological HER data for sites up to 2km from the proposed turbine locations and to assess the potential indirect effect on the setting of all high value designated sites (Scheduled Ancient Monuments (SAMs), Listed Buildings (LBs) and other high value undesignated sites considered to be of national importance and worthy of scheduling) within a 2.5km radius from the proposed turbine locations. A further aim was to evaluate the potential impact of the proposal on hitherto unknown buried archaeological remains in the proposed development area.

3.6 All work was conducted in compliance with the *Codes of Practice* of the Institute for Archaeologists (IFA 2000).

3.7 The appraisal considered the following:

- the nature, extent and degree of survival of archaeological sites, structures, deposits and landscapes within the study area;
- the history of the site;
- the potential impact of the proposed development on the setting of known sites of archaeological importance; and
- a methodology for non intrusive survey and/or intrusive evaluation to determine the location, extent, date, character, condition, significance and quality of any surviving archaeological remains liable to be threatened by the proposed development.

3.8 In considering the above, the following repositories were consulted as part of the research assessment

- Dyfed Archaeological Trust (DAT) – HER database;
- Royal Commission on Ancient and Historic Monuments of Wales (RCAHMW), Aberystwyth – NMR, aerial Photos, maps, archives;

- National Library of Wales (NLW), Aberystwyth – maps, archives;
- Cadw – SAM Listings, Listed Buildings;
- County Records Office – Maps, plans; and

3.9 The following cartographic sources were included in the study:

- OS Surveyors drawing (1809-1836);
- Tithe apportionment and parish map of Penbre (1842);
- Ordnance Survey 1st Edition map of 1880 (1:2500);
- Ordnance Survey 2nd Edition map of 1907 (1:2500);
- Ordnance Survey Edition map of 1915 (1:2500);
- Ordnance Survey Edition map of 1970 (1:2500);
- Ordnance Survey Edition map of 1990 (1:10000).
- RAF Aerial Photo 1946

3.10 Photographs

3.11 Aerial photos consulted spanned the years 1946 – 2009.

3.12 All photographs appropriated during the site walkover were undertaken using a 10MP Olympus SLR in SHQ JPEG format and where considered necessary RAW file format were also appropriated.

3.13 Following the results of the desk based assessment, the potential for further archaeological work was considered in order to assess the viability for further study of the assessment results and to provide an indication of the relative importance of the material in any subsequent decision-making and mitigation strategies.

3.14 Assessment of Direct Impact Methodology

3.15 The system employed to evaluate the cultural value and direct effects of the proposed development on the archaeological resource is based on the site significance value scale as set out in the Design Manual for Roads and Bridges (DMRB, Volume 11, Section 3, part 2 HA 208/07) (Ref. 2).

3.16 The value of all the known and potential assets that may be affected by the Development should be ranked, whether they are archaeological remains, historic buildings or historic landscapes. The value of each asset has been ranked according to the following scale:

- *Very High* - World Heritage Sites (including nominated sites). Assets of acknowledged international importance. Assets that can contribute significantly to acknowledged international research objectives;
- *High* - Scheduled Monuments (including proposed sites). Undesignated assets of schedulable quality and importance. Assets that can contribute significantly to acknowledged national research objectives;
- *Medium* - Designated or undesignated assets that contribute to regional research objectives;
- *Low* - Designated and undesignated assets of local importance. 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; or
- **Unknown** - The importance of the resource has not been ascertained.

3.17 The following list provides an indication as to the predicted effect the Development will have on individual archaeological features. Potential impacts, direct and indirect, have been assessed in terms of their longevity, reversibility and nature (beneficial / neutral / adverse):

- **Permanent impacts** are those that persist beyond the predicted operational lifetime of the Development. All direct impacts are considered to be permanent;
- **Temporary impacts** arise as a result of the presence of elements of the Development but which would be removed by the dismantlement of those elements. Temporary impacts can be short-term (e.g. construction phase impacts); or long-term (arising from the long-term presence of the development affecting the setting of a receptor);
- **Reversible impacts** are those that are removed by the decommissioning / dismantling of the Development;
- **Irreversible impacts** are those that persist beyond the lifetime of the Development. All permanent and direct impacts are irreversible;
- **Beneficial impacts** are those that contribute to the value of a receptor through enhancement of desirable characteristics or the introduction of new, positive attributes. In terms of cultural heritage, beneficial impacts include those that add to an appreciation of the receptor and/or its setting;
- **Neutral impacts** occur where the development can be accommodated comfortably by the receptor while neither contributing to nor detracting from the value of the receptor; and
- **Adverse impacts** are those that detract from the value of a receptor through a reduction in, or disruption of, valuable characterising components or patterns, or the introduction of new inappropriate characteristics. In terms of cultural heritage, adverse impacts include those that detract from an appreciation of the receptor and/or its setting, or compromise views to or from the receptor.

3.18 The magnitude of the effect needs to be viewed in conjunction with the value of the monument, in order to appreciate the overall significance of any effect on a given archaeological feature. The magnitude of the effect (degree of change) can also be negative or positive, and should be ranked without regard to the value of the asset. The total destruction of a Low Value asset will have the same magnitude of impact on the asset as the total destruction of a High Value asset; the value of the asset is factored in when the significance of the effect is assessed.

3.19 The magnitude of the effect was ranked according to the following scale:

- **Major:** Change to most or all key archaeological materials, such that the resource is totally altered. Comprehensive changes to setting;
- **Moderate:** Changes to many key archaeological materials, such that the resource is clearly modified. Considerable changes to setting that affect the character of the asset;

- **Minor:** Changes to key archaeological materials, such that the asset is slightly altered. Slight changes to setting;
 - **Negligible:** Very minor changes to archaeological materials, or setting; or
 - **No Change:** No change
- 3.20 Assessing the significance of the effects of the scheme brings together the value of the resource and the magnitude of the effect for each cultural heritage asset, using the matrix illustrated in the Table 1. The adverse or beneficial significance of effect has been expressed according to the following scale: Major; Moderate; Minor; or Negligible.
- 3.21 For the purpose of satisfying this assessment, those effects that are rated as 'moderate', 'major' or 'major/moderate' based on Table 1, are considered to be 'significant'.

Table 1. Matrix of Significance Criteria						
		Magnitude of Effect				
		No Change	Negligible	Minor	Moderate	Major
Value	Very High	Negligible	Minor	Moderate / Major	Major	Major
	High	Negligible	Minor	Moderate / Minor	Moderate / Major	Major
	Medium	Negligible	Negligible / Minor	Minor	Moderate	Moderate / Major
	Low	Negligible	Negligible / Minor	Negligible / Minor	Minor	Moderate / Minor
	Negligible	Negligible	Negligible	Negligible / Minor	Negligible / Minor	Minor

3.22 Site Inspection

- 3.23 The site visit set the context of the assessment, identifying:
- The location and character of archaeological sites and features within the proposed development area and all high value sites up to a 2.5km radius from the centre of the site that fall within Zones of Theoretical Visibility (ZTV).
 - The current site condition.

3.24 Assessment of Indirect Impact Methodology

- 3.25 In terms of indirect effects concerned with issues of setting, there are no established definitive criteria or methodologies for assessing the setting of listed buildings or scheduled monuments, a concept that was introduced by the Planning (Listed Buildings and Conservation Areas) Act 1990. The requirement to assess the potential effects of a development on the setting of designated heritage features, such as scheduled monuments, conservation areas and listed buildings, is outlined in Planning Policy Wales (2011).
- 3.26 There are no established definitive criteria or methodologies for assessing the setting of listed buildings or scheduled monuments, a concept that was introduced by the Planning (Listed Buildings and Conservation Areas) Act 1990. In the absence of more detailed advice on setting in Wales, the requirement to assess the potential effects of a development on the setting of designated heritage

features, such as scheduled monuments, conservation areas and listed buildings, has to turn to the Government's recent *Planning Policy Statement 5 (PPS5)*, March 2010, *Planning for the Historic Environment: Historic Environment Planning Practice Guide (2010)* (Ref 3).

- 3.27 The PPS5, Policy HE10, sections 113 – 117 refers to setting as,
- 3.28 *"...the surroundings in which an asset is experienced. All heritage assets have a setting, irrespective of the form in which they survive and whether they are designated or not. Elements of a setting may make a positive or negative contribution to the significance of an asset, may affect the ability to appreciate that significance, or may be neutral.*
- 3.29 *The extent and importance of setting is often expressed by reference to visual considerations. Although views of or from an asset will play an important part, the way in which we experience an asset in its setting is also influenced by other environmental factors such as noise, dust and vibration; by spatial associations; and, by our understanding of the historic relationship between places. For example, buildings that are in close proximity but not visible from each other may have a historic or aesthetic connection that amplifies the experience of the significance of each. They would be considered to be within one another's setting.*
- 3.30 *Setting will, therefore, generally be more extensive than curtilage and its perceived extent may change as an asset and its surroundings evolve or as understanding of the asset improves.*
- 3.31 *The setting of a heritage asset can enhance its significance whether or not it was designed to do so. The formal parkland around a country house and the fortuitously developed multi-period townscape around a medieval church may both contribute to the significance.*
- 3.32 *The contribution that setting makes to the significance does not depend on there being public rights or an ability to access or experience that setting. This will vary over time and according to circumstance. Nevertheless, proper evaluation of the effect of change within the setting of a heritage asset will usually need to consider the implications, if any, for public appreciation of its significance."* (Planning Policy Statement 5 (PPS5), March 2010, Planning for the Historic Environment: Historic Environment Planning Practice Guide (2010) (Ref: 3).
- 3.33 The aim in assessing the setting of an archaeological site, particularly one that is designated, such as a listed building, a scheduled monument or further still an historic landscape, is to prevent it becoming isolated from its surroundings.
- 3.34 For the purposes of this assessment, a setting is considered to have two principal dimensions - "immediate or near setting" and "wider or far setting", although some features, by nature of their location and surroundings, may not have a wider setting.
- *immediate/near setting* - ancillary land used with the building or monument, or within the curtilage of the building, e.g. the garden of a listed building or the rear gardens of buildings around the outskirts of a conservation area. Citation boundaries can be an indication of the immediate setting; and
 - *wider/far setting* - an area around the cultural heritage feature, which may be built environment or part of the countryside and which may or may not be functionally linked or contemporaneous with the age of the feature, but which contributes to the special interest and understanding of the feature.

- 3.35 There is no requirement under current statute, guidance or even case law that the wider setting should extend to the extreme limit of visibility, although the extent of a setting will tend to widen with the importance of the principal heritage feature. Regard should be given to views from the cultural heritage feature towards the Proposal, views from the Proposal towards the cultural heritage feature and views from any other relevant location. However, visibility is only the necessary starting point and, thereafter, it must be determined just what of relevance is visible in the heritage feature and its setting, what relationships exist between these visible elements and what weight or importance should be attributed to the whole (Ref. 4).
- 3.36 Further to this approach, regard must be given to the fact that setting is primarily governed by function and even nationally important heritage features may have narrow settings.
- 3.37 Landscapes and land-use often change over time, and thus an assessment of the setting of a designated site within the wider landscape requires a balance to be achieved between the concept of its original historic setting and its development as part of the modern day landscape.
- 3.38 The study has considered the physical attributes of each site and its setting in terms of topography, its original economic function and natural resources, historic resonance with land-use, connections and communications with neighboring features of the historic landscape and inter-visibility between them, as well as cultural associations and issues of public perception. The assessment has also examined what peripheral effect the wind turbine would have on the historic views from each site, and on public appreciation of them as features of special historic and architectural interest.
- 3.39 Assessing the significance of the indirect effects of the scheme brings together the value of the resource and the magnitude of the effect for each cultural heritage asset, using the same matrix illustrated in the Table 1. The adverse or beneficial significance of effect has been expressed according to the following scale: Major; Moderate; Minor; or Negligible.
- 3.40 For the purpose of satisfying this assessment, those effects that are rated as 'moderate', 'major' or 'major/moderate' based on Table 1, are considered to be 'significant'.
- 3.41 The value of archaeological sites have been assessed in accordance with the value scale as set out in the Design Manual for Roads and Bridges (DMRB, Volume 11, Section 3, part 2 HA 208/07) (Ref. 2).
- 3.42 All designated Scheduled Ancient Monuments (SAMs), undesignated sites of schedulable quality and Grade I and Grade II* Listed Buildings have been assessed as being High Value sites and as such are of National importance.
- 3.43 All Grade II Listed Buildings have been assessed as being Medium Value sites and as such are of Regional Importance.
- 3.44 In order to aid and inform the assessment of the potential indirect effect of the proposed development on heritage assets within the 5km radius, a Zone of Theoretical Visibility (ZTV) map was produced (see Figure 14 in Appendix I). By examining the ZTV map, specific sites, where impacts were visually predicted, were targeted and each identified site was assessed on its own merits in conjunction with generated wireframe views (see Figures 16 and 17).
- 3.45 As part of the indirect effect assessment the cumulative effect of the proposed development was assessed in conjunction with other known wind turbine sites within the 2.5km radius (see Figure 19

in Appendix I).

4 Desk-top Assessment and Baseline Conditions

4.1 Previous Archaeological Works

- 4.2 Other than general field work that has taken place in the wider landscape over the decades in the region, there has been no archaeological work undertaken within the application area (red line boundary) itself.

4.3 Historic and Archaeological background

- 4.4 In order to put the study area into historical context a brief parish history of the area is included as described by Samuel Lewis in his extensive *Topographic Dictionary of Wales* of 1833. Following this is a summary of the historic landscape aspect from LANDMAP's Carmarthenshire region. Following this are the results, in chronological order, of the rapid desk based assessment of the application area (red line boundary) and the wider landscape study up to a 5km radius.
- 4.5 The application site falls within the former parish of Penbre. According to Samuel Lewis's *Topographic Dictionary of Wales* (1844), "*PENBREY, otherwise PEMBREY (PENBRE), a parish, formerly in the hundred of Kidwelly, but now annexed to Carnawllon, in the union of Llanelly, county of Carmarthen, in South Wales, 5 miles (W.) from Llanelly; containing 2850 inhabitants. The name of this place, signifying literally the head of a hill or promontory, is derived from its situation at the extremity of a mountainous ridge. The parish is bounded on the east by Llanelly, on the north by Llangendeirn, on the north-west by Kidwelly, and on the south by the river Burry and a wide tract of sands, dividing it from Gower in Glamorganshire. It comprises an area of 14,705 acres. The surface presents rather a barren appearance, with a few fertile spots interspersed, partly arable and partly pasture; the soil is of a clayey and a sandy quality, producing chiefly wheat and barley. There is a small portion of woodland, the prevailing timber consisting of elm and oak. Very little picturesque beauty is displayed, but the views that some parts command of sea and land are extensive and delightful; Tenby, and Lundy and Caldey islands, being discernible on a tolerably clear day. The parish is intersected by the Achddu stream, and separated from Kidwelly by the Gwendraeth Vawr. On the south is the very extensive sandy common already mentioned; it is overflowed occasionally by the tide, but affords good grazing land to numerous flocks of sheep, which the tenants of several farms in this and the adjoining parishes have the right of pasturing.*
- 4.6 *Penbrey contains some mineral wealth, and is thought to be rich in bituminous and hard coal, both being wrought in three collieries. The quality of the soft coal is peculiarly adapted to the production of gas, and other purposes; vast quantities of both sorts were formerly exported to various parts of the kingdom, and of late years it has been discovered that the hard coal can be used, as well as the bituminous, in the smelting of iron-ore. To facilitate the conveyance of the mineral produce of the district, a capacious harbour was constructed, in 1819, by the Penbrey Harbour Company, formed for the purpose, with a pier extending to a distance of 400 yards from the shore; but this harbour fell into disuse, being private property, and was superseded by another constructed to the north-east of it, under the provisions of an act of parliament, obtained in 1825, by a new company. A canal was also formed, connecting the port with the Kidwelly and Llanelly canal, and pursuing hence a northern course; the line of the South Wales railway passes through the parish, and in consequence of these and other advantages, Penbrey promises to become a place of great trade. In the year 1846, 1758 tons of pig-iron were shipped here, from the iron-works lately established in the Gwendraeth and other vales in this part of the county of Carmarthen. The harbour is sometimes called Burry Port, being near the entrance of Burry River; it is capable of holding eighty sail of large coasters, and possesses an excellent depth of water. This part of the coast, however, is of difficult navigation, and, to mariners unacquainted with it, the most fatal on the shores of the Bristol Channel. In November 1828, a French West Indiaman from Martinique was wrecked off Penbrey, and nearly all the crew and passengers perished, among the latter of whom were Colonel Coquelin and his daughter Adeline, niece of Josephine, ci-devant empress of France, who, with the other unfortunate sufferers, were buried in the churchyard of Penbrey, where a very handsome slab was erected to their*

memory, at the suggestion and under the auspices of John Hughes Rees, Esq.

- 4.7 *The living is a discharged vicarage, endowed with £600 royal bounty, and £1400 parliamentary grant; present net income, £69, with a glebe-house; patron and impropiator, the Earl of Ashburnham, whose tithes have been commuted for a rent-charge of £700. The church, dedicated to St. Illtyd, is a spacious and handsome edifice in the later English style, containing sixty pews, all appropriated, with a small gallery, the seats in which are free: the register bears date 1725, and the sacramental cup 1574. At Llandury, a hamlet in the parish, is a commodious chapel of ease, where divine service is performed regularly on Sunday afternoon; and in the hamlet of Pendryn, or more properly, Penrhyn, was a chapel, called Cynnor, which is now in ruins, and the site used as a coal-yard. There are places of worship for Independents, Baptists, Calvinistic Methodists, and Wesleyans. A day school was endowed with £5 per annum, and a house and garden for the master, given by the late Rev. Mr. Pemberton, but the endowment has been withdrawn; a school, however, is supported, principally by Messrs. Norton, Upperton, and Stone, of the Trim Saron iron-works. Nine Sunday schools are also held. A rent-charge of £1, by Hector Morris, in 1775, is distributed on Good Friday among the poor, but a similar sum bequeathed by Hugh Thomas, in 1726, has been discontinued since 1816. A peculiar custom prevails among many in the parish, of not allowing females to enter their houses on New Year's day (Refs 5).*

4.8 Carmarthenshire Historic Landscape – LANDMAP

- 4.9 The proposed application area falls entirely within one (1) historic Landscape character area within the LANDMAP survey region of Carmarthenshire. The Carmarthenshire region survey was surveyed in 2003.
- 4.10 The Carmarthenshire Historic Landscape was defined at Level 3 according to LANDMAP methodology (Ref 6). The application area falls within one (1) identified historic landscape area. This area is listed below followed by a detailed description of its characteristics and value to the Carmarthenshire Historic Landscape as a whole.

Mynydd Penbre (LANDMAP Ref id: CRMRTL 39559)

- 4.11 This character area was surveyed at Level 3 and is described as a Carmarthenshire rural environment, with irregular field-scapes, military remains and industrial extraction sites, „most dating to the 19th centuries.. Mynydd Penbre is a relatively large historic landscape covering approximately 813 hectares in extant, with hedge-banks as the traditional boundary type. Significant archaeological interests are confined to relict earthworks and relict stone monuments of the prehistoric, medieval and post medieval periods.. There are several Scheduled Ancient Monuments (SAMs) and Listed Buildings (LBs) within this historic landscape. There is only one Registered Parks & Garden, that of Stradey Castle. There are no Conservation Areas, but there is part of one Registered Historic Landscape, positioned at the far south-western, the 'Taf and Tywi Estuary' (HLW (D) 9). An historic landscape characterisation has not been undertaken on this landscape.
- 4.12 The area is considered of *High* value historically, as it is a good example of a Carmarthenshire agricultural landscape with outstanding survival of historic remains, which contribute to the general historic landscape character of the wider region. According to LANDMAP evaluation, the landscape is considered to have moderate integrity, outstanding survival, moderate rarity and is generally of High value overall. Management of this area was not assessed. The following table lists the principle evaluation criteria for this character area. The overall evaluation of this landscape concludes that it is

a High value landscape, which scores high and outstanding in two categories, but its integrity and rarity scores are moderate. The areas Condition and Potential criteria have not been assessed.

Table 2 - LANDMAP Evaluation Criteria (Ref Id: CRMRTL42474)					
Integrity	Survival	Condition	Rarity	Potential	Overall Evaluation
Moderate	Outstanding	-	Moderate	-	High

4.13 Heritage Assets within 2.5km radius (Historic Environment Records (2km) and Designated Sites (2.5km))

Prehistoric Periods (Palaeolithic, Mesolithic, Neolithic, Bronze Age)

- 4.14 There are no known prehistoric sites of any period recorded within the application area, neither within the regional Historic Environment Record (HER) and nor within the National Monuments Record database. However, within the prescribed 2km radius from the proposed turbine locations, the HER database records three (3) known undesignated Medium Value prehistoric sites, in the form of one submerged Neolithic forest (PRN: 31318), positioned approximately 1.8km south-south-east of the nearest turbine, and two Bronze Age standing stones (PRN's: 1652 and 1653). Please see Figure 14 for the site locations. Both of these standing stones are located between 1.1km and 1.4km southwest of the proposed nearest turbine in the vicinity of the farm complex known as Lletr'ychenfach.
- 4.15 There are no prehistoric High Value designated sites within the 2.5km radius from the proposed turbine positions.

4.16 Iron Age and Romano-British period

- 4.17 There are no known Iron Age or Romano-British sites within the application site study area recorded within the regional HER, nor within the National Monuments Record database.
- 4.18 However, within the 2km radius there are two (2) known undesignated Iron Age/Romano British site recorded.
- i) *Cyncoed Iron Age Promontory Fort* (PRN: 1648) – This undesignated Medium Value site lies approximately 570m northeast of the nearest proposed turbine location. Cyncoed is an inland promontory fort situated on a spur of land at 100m above sea level overlooking a loop of the Afon Cwm Mawr. To the north, west and southwest the site is protected by steep slopes that drop c.20m to the river below. A single defensive bank protects the easily approachable east side. This bank cuts across the promontory from NNE to SSW and a simple entrance is at the SE end of the bank where it stops short of the edge of the steep slope. The inner enclosure is oval in shape and measures approximately 70m E-W and 55m N-S. The RCAHM in 1917 recorded that local tradition placed a camp here, but could not themselves find any evidence of an earthwork. However, the site is visible on

aerial photographs and in 1967 the Ordnance Survey note that though the site is much spread by ploughing, the bank is visible as a scarp 1.2m high. However, a report by AH Ward records that the bank survives to a height of well over two meters on the south, with some traces of a ditch visible towards the northern end. Also recorded in 1972 was a 4m section of stone revetting on the eastern side near the entrance that the author suggests may be a modern addition. Records of site visits made by Dyfed Archaeological Trust (DAT) in 1985 and 1986 describe the condition of the site as unchanged from that described by AH Ward, but the latest aerial photographs taken by the RCAHMS show the site recently ploughed and the bank as a soil-mark. Unfortunately access to the site was not gained in 2007, but DAT were informed that the site was under arable and is regularly ploughed. This site is not of schedulable quality.

- ii) *Stradey Wood Iron Age Defended Enclosure* (PRN: 1650) - This undesignated Medium Value site lies approximately 1.5km southeast of the nearest proposed turbine location. Situated on a moderately steep east facing hill-slope at 85m above sea level, this site was recorded by the RCAHM in 1917 as a circular enclosure with a diameter of 250ft (76m). A single rampart varied in height from 6ft (1.8m) to 10ft (3.0m), but a ditch was hardly visible. They suggested that the entrance was on the south side but that it had been completely altered, and had originally been approached from the north by a narrow track sunk between high banks, the remains of which could be traced in the woods. A small stone summerhouse built in the middle of the 18th century was located within the enclosure. HN Savory (1954) records Stradey Wood as a small circular enclosure. During the 1960's the Ordnance Survey records that the south entrance mentioned by the RCAHM is probably modern and that a flattening out of the bank on the north side would appear to be the entrance, which would correspond with the earlier suggestion that the enclosure was approached from the north. Dyfed Archaeological Trust visited the enclosure in 1985 and found the site so overgrown that its boundaries were impossible to define. The small stone summerhouse was still visible as a ruin. Local tradition states that this building was used as a musical retreat for one of the Lords of Stradey. In 2007 site access could not be gained because of the dense vegetation of deciduous trees, scrub, bracken and gorse that covered the site, making it nearly impossible to enter the area. The dense vegetation also obscured a number of mine shafts in the area, some of which by all account had collapsed in recent years. This site is not of schedulable quality.

4.19 Outside the 2km radius, but within the prescribed 2.5km radius there is only one (1) designated Iron Age site.

- 1) *Y Gaer Iron Age Defended Enclosure* (SAM Ref: CM384 / PRN: 1649) – This High Value designated site lies approximately 2.3km southwest of the nearest proposed turbine location. Y Gaer is a small, partly-bivallate hillfort of no great strength occupying a small, flat-topped knoll overlooked from the north; the banks enclose an area measuring some

135m north-north-east to south-south-west by 40m wide. The north side is weakly defended but the steep south side is defended by a double scarp with a wide, flat berm giving the impression of a cultivation terrace. There is indeterminate scarping on the east and west and the outer bank and north-east entrance have been quarried away.

4.20 *Medieval Periods*

- 4.21 The HER records no known medieval sites within the application area itself. However, within the 2km radius there are six (6) known undesignated Medium Value medieval data-points and two (2) designated High Value SAM sites.

Undesignated Sites

- i) *Green Meadows* (PRN: 7332) – This findspot site lies approximately 968m northeast of the nearest proposed turbine location. Found on Cencoed Isaf Farm. Possible connection with platform house.
- ii) *Penyfedw Settlement* (PRN: 10969) – This undesignated Medium Value site lies approximately 339m north of the nearest proposed turbine location. No further details.
- iii) *Dewles Water Mill* (PRN: 12668) – This undesignated Medium Value site lies approximately 1.5km south-south-east of the nearest proposed turbine location. Ruins of a mill said locally to be Dewles mill. East wall partly standing. Part of Steadey Estate.
- iv) *Pwll Fulling Mill* (PRN: 12669) – This undesignated Medium Value site lies approximately 1.5km south-south-east of the nearest proposed turbine location. No further details.
- v) *Llether ychen Dwelling* (PRN: 25087) – This undesignated Medium Value site lies approximately 1.6km southeast of the nearest proposed turbine location. Llettyrychen appears to be a lobby-entry house of early 17th century date, but the presence of the roof trusses and arched doorway suggests that it was originally a late-medieval hall-house.
- vi) *Cencoed Uchaf Platform* (PRN: 7331) – This undesignated Medium Value site lies approximately 730m northeast of the nearest proposed turbine location. Earthwork platform recorded in 1973. Apparently associated with a field system.

- 4.22 The medieval designated SAM sites include an early medieval standing stone known as the 'Cross marked Cilymaenllwyd Stone' (SAM Ref: CM217) and a medieval Norman motte, known as 'Waun Twmpath motte' (SAM Ref: CM238).

Designated Sites

- i) *Cross marked Cilymaenllwyd Stone* (SAM Ref: CM217 / PRN: 7783 and 49314) - This High Value designated site lies approximately 990m south of the nearest proposed turbine location. This inscribed stone is a Group II ECM (cross-carved pillar) of probable 7th-8th century date. It was revealed during building work during the early 1900s at Cilymaenllwyd House, Pwll, Pembrey. The stone was found in a small enclosure called 'Cae Maen'

('stone field'), immediately northwest of the house (see PRN 49314), which was then in use as a vegetable garden. It was rediscovered in its present location, standing at the top of the drive to the house, in 1975. The house is now a nursing home.

- ii) *Waun Twmpath motte* (SAM Ref: CM238) - This High Value designated site lies approximately 800m west of the nearest proposed turbine location. Waun Twmpath motte is a well-preserved castle mound some 40 meters in diameter at the base and 15 meters diameter at its top. It has a maximum height of about 7 meters above the base of a well-defined ditch which is up to 2.5 meters deep in places. It is located on the northern edge of a protruding spur of high ground overlooking a bend in a stream that runs along the Cwm Ferman. It so happens that this bend in the stream also marks an old parish boundary. This fact would suggest that the Norman motte was originally deliberately positioned in this location in the 11th century as a powerful statement to the local church and its parishioners. The motte is overlooked from the south and by other hills to the north, south and east, of which all average a height of between 150m – 170m AOD.

- 4.23 Outside the 2km radius but within the prescribed 2.5km radius there are no further designated or undesignated high value medieval sites:

4.24 *Post-Medieval periods*

- 4.25 Within the HER database there are no post-medieval sites recorded within the application area itself. Most, if not all of the field boundaries, predominantly hedge-banks, were likely founded in the early post medieval period, in the 18th century as part of parliamentary enclosures.

- 4.26 As would be expected, this chronological period marks the greatest number of known sites within the wider study area, a total of 79 undesignated medium value post medieval sites are located within the 2km radius. Site types include: 1 air shaft, 1 blacksmiths workshop, 2 brickworks, 1 bridge, 2 buildings, 3 chapels, 1 church, 7 coal mines, 9 cottages, 5 farmsteads, 2 fountains, 1 fulling mill, 1 gravel pit, 1 groyne, 3 levels, 7 lodges, 3 mansions, 1 mills (flour), 2 mill races, 2 parks, 2 parliamentary field systems, 1 platform, 2 public houses, 10 quarries, 1 school.

- 4.27 Within the 2km radius there are only four (4) post medieval designated Listed Building sites. Three of these listed sites have Grade II listing. However, one site (No. iv) has a Grade II* listing.

- i) Bethlehem Baptist Chapel (LB Ref: 20544 / PRN: 61071) – Grade II Listed building positioned approximately 1.3km south of the proposed Turbine No.2 location. Bethlehem Church was built in 1834 and enlarged/rebuilt in 1875. The vestry was added in 1898, the baptistery in front of the pulpit in 1900 & the pipe organ in 1967. The present chapel, dated 1875, is built in the Simple Round-Headed style of the gable entry type.
- ii) Old house, including attached bakehouse, at Llettyrychen Fawr Farm (LB Ref: 20147 / PRN: 25087) - Grade II Listed building positioned approximately 1.6km southwest of

the proposed Turbine No.2 location. Llettyrychen was the home of the Vaughan family in the C16, passing to the Mansels of Briton Ferry, and by 1690 was leased to John Bonvill, yeoman. The present house is late medieval in origin, incorporating a 1st-floor chamber with arched-brace trusses. In the C17 a central fireplace was inserted, creating the present lobby-entry plan, with contemporary projecting bay to the rear of the hall. A bakehouse was added at the NW angle of the house in the late C17 or C18. In the C19 a stair projection was built at the rear (now collapsed), and a dairy was built against the uphill gable end, which has subsequently been taken down. The house remained inhabited until c1956 when a new farmhouse was built. A 2-storey house of rubble stone with roughcast front, and slate roof to the R-hand unit, but collapsed to the L-hand, behind coped gables. A central stack has been removed. In the L gable end is a corbelled 1st-floor stack, but taken down to below ridge level. Windows have mostly lost their glazing. The front has a C16 doorway L of centre, in a chamfered dressed-stone surround with 4-centred head. To its R is a window then a former doorway, now partially blocked, to the original hall, and with a single window to the L. The upper storey has 3 windows. In the R gable end is the scar of a former attached dairy. A single 4-pane horned sash window is in the L gable end, where there are dressed stone jambs of an earlier window. In the rear elevation the wall has collapsed on the R-hand side. The L-hand side has a lean-to hall bay, with small single-light window in its side wall, to the R of which are windows in each storey with wooden lintels, and a wide inserted doorway.

- iii) Milepost on Heol Trimsaran (LB Ref: 81327 / PRN: 61590) - Grade II Listed building positioned approximately 1.05km northwest of the proposed Turbine No.1 location.
- iv) Stradey Castle (LB Ref: 11884 / PRN: 60835) - Grade II* Listed building positioned approximately 1.9km southeast of the proposed Turbine No.2 location. Stradey Castle lies within the Registered Historic Park & Garden of Stradey Castle (see below in section 4.32).

4.28 Within the prescribed 2km to 2.5km radius, there are a further two (2) Listed Buildings, both of which are Grade II Listed.

- i) *Milepost on Colby Road* (LB Ref: 82068) –Grade II Listed building positioned approximately 2.3km southwest of the proposed Turbine No.2 location. A late C19 milepost, one of a series on the Llanelly to Kidwelly road cast by Glanmor Foundry Company of Llanelli, and shown on the 1880 Ordnance Survey.
- ii) *Church of St Mary* (LB Ref: 82065) – Grade II Listed Building. Positioned approximately 2.5km southwest from proposed Turbine No.2 location. Within a large churchyard and prominently sited in a high position on the NE side of Burry Port. Built by Wilson, Willcox & Wilson, architects of Bath, and completed in 1877. Its patrons were the Elkington family of Birmingham, founders in 1849 of the Pembrey

Copperworks close to Burry Port harbour. A Gothic Revival church comprising an aisled nave with lower chancel, S porch and SE tower and spire. Of rock-faced stone with Bath stone dressings, quoins, sill bands and corbel table, and slate roof behind coped gables on moulded kneelers. Mostly plate-traceried windows with slender hood moulds. The buttressed 4-bay nave has 2-light aisle windows, and 3-light clerestorey windows between shallow full-height buttresses. The aisles have similar 2-light W windows, the nave a higher 3-light window with head stops. The S porch, in the bay L of centre, has a 2-centred arch with head stops, double wooden gates, leading to a triple-chamfered S doorway and double boarded doors with strap hinges.

The 3-stage tower has angle buttresses in the lower 2 stages, with gabled caps. In the middle stage the ringing chamber has, in the W and S faces, 2 narrow lights under a round plate-tracery light and hood mould with head stops. The richer bell stage has 2-light openings, with ringed colonette, leaf capital, and pointed lights under a continuous hood. An impost band has a disc frieze. The cornice has blind arcading and the broach spire, of ashlar, has lucarnes in the cardinal directions. A polygonal NE turret is square at the base where there is a boarded door under a shouldered lintel. At the top of the turret, at the 2nd stage, are paired narrow round-headed lights in each facet, beneath a pyramidal stone roof.

The chancel has angle buttresses, and 3-light plate-tracery E window with head stops. Below the apex is an empty canopied niche on a corbelled grotesque. On the N side of the chancel are stone steps to a basement boiler room. The N vestry has a pyramidal slate roof on a moulded cornice, and a tall stack above the E wall, the upper portion of which is ashlar. It has a 2 pointed E window, a 2-light square-headed N window, to the R of which is a boarded door under a shouldered lintel, and with nook shafts above the level of a sill band.

- 4.29 Approximately 1.4km to the southeast of the proposed Turbine 2 location is the Registered Historic Park & Garden of Stradey Castle (PGW (Dy) 15(CAM)).
- 4.30 Stradey Castle park and garden is the remains of a formal terraced garden overlooking parkland, water features and woodland walks with a walled kitchen garden.
- 4.31 The parkland, which was probably enclosed in the late sixteenth to early seventeenth century, retains its park'ish feel, although somewhat reduced in size. There is a fine terraced garden associated with the mid nineteenth century mansion. Within the park are some interesting water features, a good range of trees, including some early introductions, and woodland walks. A fine walled garden and nursery area are associated with the seventeenth-century house, whose site was turned into a garden in the mid nineteenth century.
- 4.32 The present house is on slightly elevated ground just over a kilometre to the north-west of Llanelli

town. Today, the approach is from the B 4308 Trimsaran road, which runs to the north of the castle and its grounds. The land that forms the park rises gently from the coastal plain, being mostly a gentle south-facing slope that rises from c. 5 m AOD to just over 10 m AOD. To the west is the small valley cut by the Afon Dulais and the sheltering bluff of the hillside that is covered by Stradey wood, whilst to the north, behind the house, the land rises a little more steeply to c. 30 m AOD.

- 4.33 Some 350 m south-west of the present site of Stradey Castle is the site of the old mansion, which was demolished in c. 1850. The name *Stradey* is derived from the Welsh *Ystrad* (plural *Ystradau*) which means a level area or vale. The old house was indeed on level ground adjacent to the Afon Dulais (from *Cadw's* 'Register of Historic Parks and Gardens of Wales').

4.34 *Modern Period*

- 4.35 Within the HER database there are no post-medieval sites recorded within the application area study area. However, within the prescribed 2km radius there are four (4) recorded modern medium value sites, three of which are Second World War aircraft crash sites (PRN's: 105190, 105249 and 103714). All of these air crash sites are positioned between 640m – 1.6km from the nearest proposed turbine location, one to the north of the study area and the other two to the southeast.

- 4.36 Within the prescribed 2km to 2.5km radius, there are no designated or undesignated high value sites.

4.37 *Unknown Period*

- 4.38 Within the HER database there are eight (8) medium value sites of unknown period. This number includes 1 field system, 2 drainage channels, 1 flood bank, 1 navigation aid, 1 drainage system, 1 lagoon and 1 place name.

4.39 Cartographic Sources

OS Surveyors drawing (1809-1836) (Figure 5)

- 4.40 This early OS map shows the farm of 'Pant', and the full application area study area. Most of the existing hedgebank boundaries are already shown on this early map, which suggests that all of the hedge-banks within the application area are 18th century in date. Interestingly the small farmhouse immediately north of the proposed development area and the area itself is marked as 'Cold blow' on this early map edition.

Tithe Map and Apportionment of the parish of Penbre (1842) (Figure 6)

- 4.41 The Tithe map and apportionment records for the parish of *Penbre* of 1842 clearly marks the farmstead of Pant and all of the existing hedge-banks and a few others now absent. All of the land within the application area in 1842 within the parish of *Penbre* was owned by John Colby, who tenanted the Pant farmhouse and its accompanying land out to one Stephen Griffiths. The Pant estate was over 76 acres in size, with the tithe rent being £5 – 12 Shillings and 6 pence.

Table 3 - Tithe Map and Apportionment details for Penbre parish within Application Area				
Tithe No.	Name	Owner	Occupier	Details
Pant				
2555	House	John Colby	Stephen Griffiths	No details given
2554	Garden	John Colby	Stephen Griffiths	No details given
2553	Cae Ucha	John Colby	Stephen Griffiths	No details given
2557	Cae Tannon	John Colby	Stephen Griffiths	No details given
2560	Erw Issa	John Colby	Stephen Griffiths	No details given
2561	Cae Taeronnen	John Colby	Stephen Griffiths	No details given
2562	Cae bach	John Colby	Stephen Griffiths	No details given
2563	Erw Ucha	John Colby	Stephen Griffiths	No details given
2564	Cae Corndog	John Colby	Stephen Griffiths	No details given
2565	Tir lin	John Colby	Stephen Griffiths	No details given
2566	Cae mar	John Colby	Stephen Griffiths	No details given
2567	Mawvil	John Colby	Stephen Griffiths	No details given

OS First Edition map 1:2500 (1880) (Figure 7)

- 4.42 This first published Ordnance Survey map series shows the area much as it is shown on the Tithe map of 1842. The entire area is laid out as enclosed open fields for pasture and meadow. A further feature is the marked position of a former OS bench mark, shown at the edge of a field boundary to the east.

OS second Edition map 1:2500 (1907) (Figure 8)

- 4.43 No change from the earlier first edition map.

OS 1915 Edition map 1:2500 (Figure 9)

- 4.44 No change from the earlier first edition map.

OS 1970 Edition map 1:2500 (Figure 11)

- 4.45 No change from the earlier first edition map.

OS Edition map 1:10000 (1990) (Figure 12)

- 4.46 No change from the earlier OS map series.

Aerial Photos (Figure 10)

- 4.47 Aerial photos investigated as part of the desk based assessment included the RAF 1946 and 1951 vertical photograph series. These early aerial photos show the application site much as it is today. No apparent crop-marks were identified on any of the aerial photos analysed. The vertical photographs of the area suggest that the entire area was open fields for pasture. However, a number of the fields do appear to have been ploughed

Table 5. Vertical Aerial Photos consulted				
Sheet No.	Sortie	Frame No.	Date	Type
-	106G/UK/1629	5175	08/07/1946	RAF
-	58/671	4093	17/05/19451	RAF

4.48 Site Visit

- 4.49 The field visit to the site walked all of the fields and the perimeter of the application area noting the character and form of all of the boundaries. These were all either late 18th or early 19th century hedge-banks, with occasional modern post and wire fencing.
- 4.50 In the area of the proposed turbines and access tracks, no surface features were readily evident. All of the fields within the study area had been recently ploughed.
- 4.51 The Ordnance Survey bench mark, as marked on the OS 1880 edition map series, was not located.
- 4.52 A site visit was also undertaken to key high value sites within the 2.5km study area, identified by the Zone of Theoretical Visibility (ZTV) maps, in order to assess the potential significance of indirect effect from the proposed turbines on their setting.

4.53 Sites noted within the Application Area

- 4.54 Within the application area, the regional HER database and the NMR database recorded no known archaeological sites present.
- 4.55 The cartographic study and site visit however, identified a total of twenty-four (24) new sites. A list of all those identified is given below in Table 6 below (see also Figure 13).

Table 6. Heritage Assets within application site				
Site No.	PRN	Site Type	Description	Source & period
1		Hedgebank	Still present	OS Surveyors map 1809-1836
2		Hedgebank	Still present	Tithe map (1844)
3		Hedgebank	Still present	OS Surveyors map 1809-1836
4		Hedgebank	Still present	OS Surveyors map 1809-1836
5		Hedgebank	Still present	OS Surveyors map 1809-1836
6		Hedgebank	Still present	Tithe map (1844)

Table 6. Heritage Assets within application site				
Site No.	PRN	Site Type	Description	Source & period
7		Hedgebank	Still present	Tithe map (1844)
8		Hedgebank	Still present	OS Surveyors map 1809-1836
9		Hedgebank	Still present	OS Surveyors map 1809-1836
10		Hedgebank	Still present	Tithe map (1844)
11		Hedgebank	Still present	OS Surveyors map 1809-1836
12		Hedgebank	Still present	OS Surveyors map 1809-1836
13		Hedgebank	Still present	Tithe map (1844)
14		Hedgebank	Still present	OS Surveyors map 1809-1836
15		Hedgebank	Still present	OS Surveyors map 1809-1836
16		Hedgebank	Still present	Tithe map (1844)
17		Hedgebank	Still present	Tithe map (1844)
18		Hedgebank	Still present	OS Surveyors map 1809-1836
19		Hedgebank	Still present	OS Surveyors map 1809-1836
20		Hedgebank	Still present	Tithe map (1844)
21		Hedgebank	Still present	OS Surveyors map 1809-1836
22		OS Bench Mark	Not located	OS Surveyors map 1809-1836
23		Hedgebank	Still present	Tithe map (1844)
24		Track	No longer present	Tithe map (1844)

5 Assessment of Effects

5.1 Direct Physical Effects

5.2 The desk based assessment and site visit has identified no direct physical impact from the proposals on any known heritage asset. However, given the existence of the place name attached to Garn Farm, the farmstead positioned on the lower southwest facing slope, 'garn' meaning *cairn*, it is entirely possible that a prehistoric cairn once stood somewhere within the vicinity of the study area, the most likely position being in the position of the proposed Turbine 1 at the top of the hill at a height of 157m AOD. As such it cannot be completely ruled out that there aren't buried archaeological remains relating to the prehistoric periods present within the application site. However, because the fields within the application site have been improved over the decades, with many appearing to have been repeatedly ploughed over the centuries, any potential buried archaeological remains have very likely been damaged or else destroyed.

5.3 Indirect non-physical Effects

5.4 Indirect physical effects associated with the development are not considered to be of sufficient magnitude in this instance to warrant separate assessment. There are no known sites within the development site boundary that include fragile deposits (for example waterlogged organic remains)

that might be affected by changes in hydrology or from increased erosion. In terms of dislocating certain features from their attendant landscapes, the development will inevitably however introduce a visual component, which is considered under indirect visual effects below.

5.5 Indirect Visual Effects

- 5.6 Within the 2.5km radius from the proposed turbine locations, the assessment has identified only nine (9) designated sites. Three (3) of these designated sites are Scheduled Ancient Monuments (SAMs) and six (6) are Listed Buildings (LBs). Each of these designated sites has been assessed in terms of the indirect effect of the proposed development on their setting. To aid this assessment, a Zone of Theoretical Visibility (ZTV) map was produced at both hub height and at blade tip (see Figures 16 and 17).
- 5.7 The ZTV maps predict that only two (2) of the SAM sites and only two (2) LB sites will have visibility of the proposed turbines. Both of the LB sites are Grade II Listed Buildings.
- 5.8 With regard to the Registered Historic Park & Garden of Stradey Castle. Although the Park & Garden itself will not be indirectly effected by the proposed turbines, its essential setting boundary, positioned immediately northwest of the park boundary, will be affected very slightly.

5.9 Designated Sites Indirectly affected

SAM Sites indirectly affected

- i) *Waun Twmpath Motte* (SAM Ref: CM238) – Approximately 800m west of proposed turbines.
- ii) *Cross-Marked Stone at Cilymaenllwyd House* (SAM Ref: CM217) – 920m south of proposed Turbine No.2.

LB Sites indirectly affected

- i) *Bethlehem Baptist Chapel* (LB No. 20544) - 1.3km south of proposed Turbine No.2..
- ii) *Milepost on Heol Trimsaran* (LB No. 81327) - 1.06km northeast of proposed Turbine No1.

- 5.9 In view of this prediction, both of the SAM sites have been appraised individually on their own merits. However, given that one of the LB sites is a Grade II milepost (LB No. 81327), which does not have a wider landscape setting, only the remaining listed building of the Bethlehem Baptist Chapel has been appraised.
- 5.10 The Registered Historic Park & Garden of Stradey Castle has also been appraised in the following section, as the ZTV map at blade tip does suggest that a very small region of the park and garden's designated essential setting area may be slightly affected.

5.11 Scheduled Ancient Monuments (SAMs) Indirectly affected

5.12 1) *Waun Twmpath Motte* (SAM Ref: CM238)

Location and Context

- 5.13 This designated medieval Norman motte is positioned on the northeast facing spur of a hill at a

height of approximately 125m AOD, approximately 800m west of the proposed turbine locations.

5.14 *The Site*

5.15 Waun Twmpath motte is a well-preserved castle mound some 40 meters in diameter at the base and 15 meters diameter at its top. It has a maximum height of about 7 meters above the base of a well-defined ditch, which is up to 2.5 meters deep in places.

5.16 The mound is located on the northern edge of a protruding spur of high ground at a height of approximately 125m AOD, overlooking a bend in a stream that runs along the Cwm Ferman. It so happens that this bend in the stream also marks an old parish boundary. This fact would suggest that the Norman motte was originally deliberately positioned in this location in the 11th century as a powerful statement to the local church and its parishioners. This would suggest that the mound in the 11th century was intended to be seen as a powerful Norman symbol when approached via the numerous paths or tracks, which are still in use running between the surrounding hills, each seeming to converge on this point.

5.17 The motte is overlooked from the south and by other hills to the north, south and east, of which all average a height of between 150m – 170m AOD.

5.18 *Immediate and Wider Setting*

5.19 The immediate setting of this castle motte is one of an earthwork mound covered in mature gorse bush, brambles and other mature vegetation. The mound is set on a spur overlooking enclosed fields, each bounded by old hedge-banks. A public footpath and bridleway runs alongside the mound heading in a northeast to southwest direction. This footpath meets up with part of the St. Illtyd's Walk, which runs in a southwest to northeasterly direction. Running alongside the motte's northeastern side is the Cwm Ferman watercourse.

5.20 From its position, set at the point of a parish boundary, marked topographically by a bend in a stream and overlooked by hills from all sides, it seems apparent that the wider setting of this monument was such that the mound was most probably strategically positioned at its location in order to both defend and guard routes or throughways along the narrow valleys to the north, southeast and southwest and at the same time its presence acted as a symbol of power to anyone approaching. In this sense, the setting of this monument was most likely confined to views outwards from the mound along the lower valley routes, rather than views outward looking upward to the surrounding hills, and views inward towards the mound itself when being approached.

5.21 *Assessment of Effects*

5.22 The proposed turbines at Pant Farm lie approximately 800m east of this designated site. Already there are two operational small scale wind turbine sites positioned between approximately 800m - 1000m west and northwest of Waun Twmpath, but neither of these turbines are visible from the base of the mound itself due to their small size and the fact that there is intervening topography, tree and vegetation cover. The ZTV maps at both hub height and at blade tip predict that both of the proposed

turbines will be visible from the monument when looking eastwards and upwards towards the top of the hill near Pant Farm. However, although this will be the case, the turbines will be distant enough to not overpower or detract from the setting of the monument, as its original setting does appear to have been deliberately confined to views looking along the lower valleys, when looking from the monument and when looking toward the monument. Neither will the turbines affect the appreciation of this monument when viewing it from accessible public footpaths.

5.23 Presently, views looking toward the west facing slope of the hill of Pant Farm are characterised by a number of lower valley set farms, including Garm Farm, Penyfedw and a number of other smaller residential dwellings. The intervening landscape is also taken up by hedge-banks, which will also obscure much of the proposed turbine towers.

5.24 In view of the above effects, although the sensitivity of this monument is considered to be high (of national and regional importance) the indirect visual magnitude of effect is considered to be *Minor* and it is predicted that the overall significance of effect on this monument would therefore be *Moderate/Minor* and temporary.

5.25 **2) Cross-Marked Stone at Cilymaenllwyd House (SAM Ref: CM217)**

5.26 *Location and Context*

5.27 This High Value early medieval designated site lies approximately 990m south of the nearest proposed turbine location at a height of approximately 65m AOD..

5.28 *The Site*

5.29 For a descriptive detail of this monument please refer to section 4.24.

5.30 *Immediate and Wider Setting*

5.31 This early medieval monument is positioned within an enclosure complex attached to Cilmaenllwyd House, with buildings to the north and east and a strip of woodland to the north, east and northwest. Just this characteristic alone will secure this monument screening from the proposed development. Added to this, the monument only has an immediate setting with no wider setting dimension.

5.32 *Assessment of Effects*

5.33 The nearest proposed turbine (Turbine No.2) at Pant Farm lies approximately 920m north of this designated site. Evidently the original setting of this monument has already been considerably affected by the presence of Cilmaenllwyd House and other modern farm buildings. Also, as this monument only has an immediate setting and no significant wider setting dimension, then essentially this monument will be unaffected by the proposal.

5.34 Although the sensitivity of this monument is considered to be high (of national and regional importance) the indirect visual magnitude of effect is considered to be *No Change* and it is predicted that the overall significance of effect on the setting of this monument would be *Negligible* and temporary.

5.35 Listed Buildings (LBs) Indirectly affected

5.36 1) Bethlehem Baptist Chapel (LB No. 20544)

5.37 Location and Context

5.38 This listed building is located approximately 1.4km south of the nearest proposed turbine (Turbine No.2) at Pant Farm, at a height of approximately 10m AOD, within the village of Pwll alongside the A484 that runs alongside the mud flats known as Tywyn Bach..

5.39 The Site

5.40 For details of this designated site please see section 4.29.

5.41 Immediate and Wider Setting

5.42 Bethlehem Baptist Chapel is positioned on the south side of the A484 main road, with its main entrance facing north and its associated cemetery set on the southern side looking over the mud flats of Tywyn fach

5.43 With regards to the wider setting of the chapel, views into the wider landscape to the north are dominated by residential dwellings on the other side of the road and woodland on the south facing slope that stretches along the valley to the north and climbing along both of the east and west facing slopes.

5.44 Assessment of Effects

5.45 The ZTV map predicts that the proposed turbines at Pant Farm will be visible from this listed building at hub height and at blade tip. However, due to screening from both intermediate urban and intervening landscape components, any potential views will be significantly diminished. Added to this, due to the small scale of the proposed development and the fact that this listed building is positioned 1.4km south of the proposed turbines, any potential views of the turbines hubs and blades will not dominate and will only merge with other urban and landscape components, making any potential views insignificant.

5.46 So, although the sensitivity of this monument is considered to be of high value (of national and regional importance) the indirect visual magnitude of effect is considered to be *Negligible* and therefore the overall significance of effect on this monument would be *Minor* and also temporary for the lifetime of the turbines.

5.47 Registered Historic Park & Gardens

5.48 1) Stradey Castle Park & Garden (PGW (Dy) 15(CAM))

5.49 Location and Context

5.50 The northern corner of the registered boundary of Stradey Castle Park & Garden is located

approximately 1.3km southeast of the nearest proposed turbine at Pant Farm, at a height of between approximately 20m – 30m AOD. The park is only 700m northeast of the town of Pwll. Stradey Castle itself is positioned at the northern end of the park & garden area. The castle is accessed via a private drive from the B4308. The Grade II* house is on a terraced site with a main basement area which includes external stairs to north-west. The landscaped parkland with woods is located the to north, with other parts of the estate to the south.

- 5.51 Immediately east of the registered parkland is the wooded slopes of the essential setting of Stradey Castle Park, which covers an area of 26.65 hectares.

5.52 *The Site*

- 5.53 For details relating to Stradey Castle Park & Garden see section 4.32.

5.54 *Immediate and Wider Setting*

- 5.55 Stradey Castle Park & Garden is associated with the Grade II* Listed Building of Stradey Castle, which according to the generated ZTV maps will be completely unaffected by the proposed wind turbines at Pant Farm. This parkland, which was probably enclosed during the late sixteenth or seventeenth century, retains its park-like feel, although somewhat reduced in size. There is a fine terraced garden associated with the mid-nineteenth century mansion. Within the park are some interesting water features a good range of trees, including some early introductions, and woodland walks. A fine walled garden and nursery area are associated with the seventeenth century house, the site of which was turned into a garden in the mid-nineteenth century. The main dates are 16th-17th century for the original Park, then c 1850 and 1874 for the later design.

- 5.56 The wider setting of this park and garden is characterised by views looking south toward the mud flats of Cefn Padrig. Views of the urban area of Sandy to the east are screened by mixed woodland. An essential setting area exists to the west of the park, known as Stradey Wood, which occupies the east facing slope overlooking Stradey Castle Park & Garden.

5.57 *Assessment of Effects*

- 5.58 The ZTV map predicts that neither of the proposed turbines at Pant Farm will be visible from the registered park & garden. However, the ZTV maps do predict that both turbines at blade tip may potentially be slightly visible from a very small region on the western side of the essential setting of Stradey Wood. However, due to the small scale of the proposed development and the fact that any potential views of the turbines will very likely be screened by tree cover associated with Stradey Wood itself, any potential views will be diminished enough to make these views insignificant.

- 5.59 So, although the sensitivity of this registered park & garden is considered to be high value (of national and regional importance) the indirect visual magnitude of effect is considered to be *Negligible* and therefore the overall significance of effect on this monument would be *Minor* and also temporary for the lifetime of the turbine.

5.60 **Summary of Indirect Effects on Designated sites within 2.5km**

5.61 The ZTV map predicted that only two (2) SAM sites and one (1) LB sites will have visibility of the proposed turbines which will potentially affect their settings. However, the indirect effects assessment on these sites, informed by site visits, has predicted that none of these designated sites will be significantly affected by the proposed development. A summary table giving the results of the assessment is shown in Table 7 below.

Table 7. Summary of Significance of Indirect Effects on Designated Sites within 2.5km					
Site Ref	Site Name	Site Type	Distance turbine	Magnitude of effect	Significance of Effect
CM238 (SAM)	Waun Twmpath Norman Motte	Medieval motte	800m	Minor	Moderate/Minor (Temporary)
CM217 (SAM)	Cross-Marked Stone at Cilymaenllwyd House	Inscribed early medieval stone	920m	No Change	Negligible (Temporary)
20544 (LB)	Bethlehem Baptist Chapel	Chapel	1.3km	Negligible	Minor (Temporary)
PGW (Dy) 15(CAM) (P&G)	Stradey Castle Park & Garden	Registered Park & Garden	1.38km	Negligible	Minor (Temporary)

5.62 **Undesignated Sites indirectly affected**

5.63 None of the undesignated sites within the 2km radius are considered to be of schedulable quality and importance. As such their value is given as Medium Value and no sites will be significantly affected by the proposal.

5.64 **Significance of the remains**

5.65 In terms of rarity with regards to sites within the application area, the site visit identified no visible surface sites or features which were deemed to be of any importance, apart from post-medieval field boundaries, most of which are most probably late 18th century in date.

5.66 The potential for discovery of any significant buried remains in the area is considered to be low given the fact that fields in the application area appears to have been ploughed over the centuries and the ground vastly improved, and as a result any potential buried archaeological remains have most likely been severely damaged or else already destroyed.

6 **Mitigation**

6.1 The best mitigation for the impact of any development on the archaeological resource is to avoid

direct physical impacts upon all known archaeologically significant sites and features. Where avoidance is not considered possible or where the existence, exact location or extent of a feature is uncertain, additional mitigation measures may be required. A number of mitigation measures can be undertaken in advance of a planning application that will both inform, and potentially reduce or remove the need for archaeological mitigation at a later date. These options are outlined below:

6.2 *Preservation In situ*

6.3 This is the preferred option for all significant cultural heritage features and can be achieved by avoiding direct physical impact upon known features through careful consideration at the design stage. In this instance, there are no heritage assets that will be directly impacted upon by the proposed development.

6.4 *Evaluation*

6.5 If there is an unavoidable impact upon a known archaeological site, or where it is uncertain if there will be an impact because the existence, exact location or extent of the or any archaeology is not known, then an archaeological evaluation (before the submission of the development scheme for planning approval) may be advisable in order to assess the presence or absence of archaeological features and their vulnerability from the development. The results of the evaluation can then inform decisions as to whether to re-design the scheme in order to avoid the features or to mitigate the development impact through 'preservation by record' (see 'excavation' below). In this instance, there are no known heritage assets that will be directly impacted upon by the proposed development.

6.6 *Excavation*

6.7 Where previously identified archaeological features cannot be avoided by the development, or are considered to be of insufficient importance to warrant preservation *in situ*, then 'preservation by record' can be undertaken to excavate and record archaeological deposits before development commences. Such mitigation may also be required as a condition of granting planning consent.

6.8 *Watching brief*

6.9 Development impact upon minor sites, or where the absence of archaeological features has not been established by other methods, can be mitigated against by undertaking an archaeological watching brief to record any unforeseen archaeological features that may be encountered during construction. This can however, result in delays during construction while archaeological recording is undertaken.

6.10 In this instance, as the desk based assessment and site visit identified no archaeological sites within the application area other than post medieval hedge-banks, and the fact that the area appears to have been repeatedly ploughed and improved over the decades, it is considered that no archaeological watching brief would be necessary in this instance.

6.11 Assessment of Cumulative Effects

6.12 Within the 2.5km radius from the proposed application site, there are only two other known consented and operating wind turbine sites. Both of these sites (Cumulative site No's 1 and 2 on

Figures 19 and 20) are located west and west-north-west of the proposed Pant Farm turbines. Cumulative site No.1 is a two wind turbine site associated with Hillcrest Farm, positioned approximately 1.6km west of the proposed Pant Farm Turbine No.1. These two turbines are only 17m high to blade tip.

6.13 Cumulative site No.2 consists of a pair of wind turbines close to the farm known as Emlych, positioned approximately 1.8km west-north-west of the proposed Pant Farm Turbine No.1. These two turbines are both only 32m high to blade tip.

6.14 For details of each of these cumulative sites see Table 8 below.

Table 8. Cumulative Sites within 2.5km radius from proposed Pant Farm Wind Turbines				
Site Name	Turbine No.	Blade Height	Turbine distance	Planning Stage
Hillcrest Farm	1	2 x 17m	1.6km W	Granted S/25993
Emlych	2	2 x 32m	1.8km WNW	Granted S/27576

6.15 According to the generated ZTV maps, the two 32m high turbines near Emlych (Cumulative Site No.2) will both be visible at hub height from the two proposed turbines at Pant Farm. The other cumulative site within the 2.5km radius is a pair of 17m high turbine at Hillcrest Farm, which are positioned on a south facing spur of a hill 1.6km west from Pant Farm. Again, both these turbines are also visible from the proposed Pant Farm turbines.

6.16 As already assessed, the proposed turbines at Pant Farm will have no significant indirect effect on any high value designated sites within the 2.5km radius assessment area. With regard to the two SAM sites assessed, the *Waun Twmpath Motte* (SAM Ref: CM238) and the *Cross-Marked Stone at Cilymaenllwyd House* (SAM Ref: CM217), the two small 17m high turbines at Hillcrest Farm are visible from Waun Twmpath motte, but only when standing on the top of the mound itself and looking westwards. From here the blades of these turbines are visible approximately 808m to the west, but due to their small scale and their distance from this site, their effect is very insignificant and therefore the inclusion of the proposed Pant Farm wind turbines to the east would have no cumulative effect on the monument.

6.17 With regard to the two turbines near Emlych (Cumulative Site No.2), again neither of these turbines are visible when approaching and observing the Waun Twmpath monument from the southern side. However, as with the Hillcrest Farm cumulative site (Cumulative Site No.1), both of these turbines are visible at hub height when looking west-north-west from the top of the mound, but again, due to their small scale and their distance from this site, their effect is also insignificant and therefore the inclusion of the proposed Pant Farm wind turbines to the east would also have no cumulative effect on the monument.

6.18 As the *Cross-Marked Stone at Cilymaenllwyd House* (SAM Ref: CM217) has no wider setting dimension, again there will be no cumulative effect on this monument either. As such, it is predicted that the potential cumulative effect on both of these designated sites will be *Negligible* and therefore of only *Minor* significance.

- 6.19 With regard to the Grade II Listed Building of *Bethlehem Baptist Chapel* (LB Ref: 20544), none of the other cumulative turbine sites within the 2.5km radius are visible from this Chapel
- 6.20 There will also be a negligible cumulative effect from the proposed Pant Farm wind turbines and the turbines within the 2.5km radius on the registered Park & Garden of Stradey Castle.

6.18 Assessment of Residual Effects

- 6.19 The long-term residual effects of the proposed development are considered to be neutral with regard to direct effects on cultural heritage.
- 6.20 There will be no loss of known cultural heritage assets, due to the position of the proposed turbine, access track and electrical box.
- 6.21 Taking into account the known baseline and the archaeological mitigation, the residual direct effect on the archaeological resource is assessed to be of a *No Change* magnitude and therefore of *Negligible* significance. In terms of the residual in-direct effect on all of the assessed designated sites, this will inevitably only be temporary and only lasting the lifetime of the wind turbine. As such, the residual effect is considered to be Negligible and temporary, therefore of Negligible significance.

6.22 Summary of Effects and Conclusions

6.21 Direct Effects and Conclusions

- 6.22 In summary, the appraisal has concluded that there are no direct physical impacts on any known heritage assets from any elements of the proposed development. The assessment of the application site has also concluded that because the application site has been ploughed and improved over the centuries, the chances of any surviving unknown buried archaeological remains is low and as such it has been considered that an archaeological watching brief would not be necessary during groundwork for construction.

6.23 Indirect Effects and Conclusions

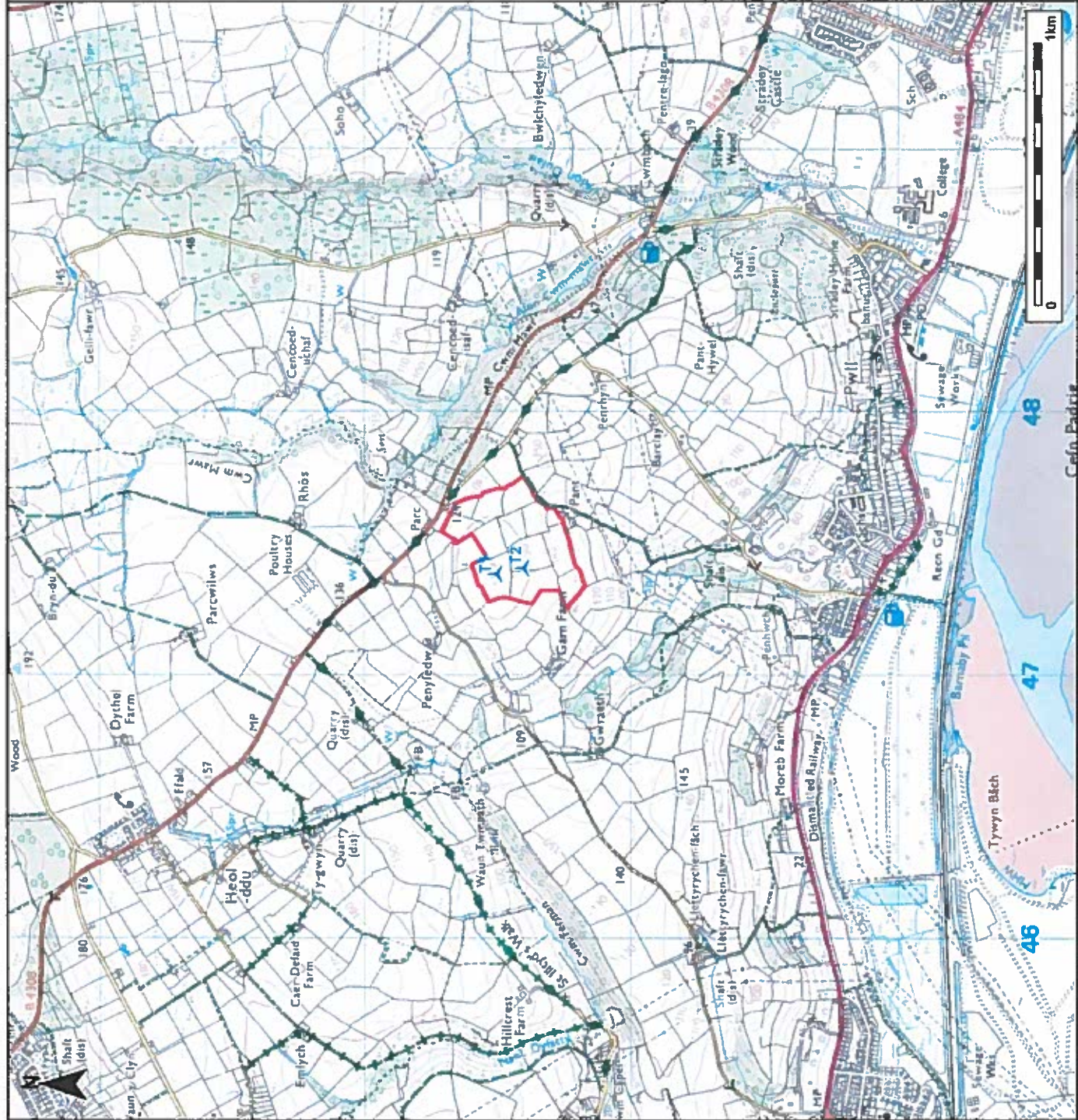
- 6.24 In summary, the appraisal has concluded that none of the settings of designated Scheduled Ancient Monuments (SAMs), Listed Buildings, or any undesignated sites of schedulable quality, would be significantly affected by the proposed development. It was predicted that the most noticeable effect on any designated site within the 2.5km radius, would be the indirect effect on the high value SAM site of *Waun Twmpath Motte* (SAM Ref: CM238), which was predicted to be of *Minor* magnitude and therefore of *Moderate/Minor* significance.
- 6.25 The appraisal also concluded that there would be no significant effect on the registered Park & Garden of Stradey Castle.
- 6.26 With regards to cumulative impacts, the appraisal concluded that there are two known consented and operating wind turbine sites within the 2.5km radius, the two turbine site near Emlych, positioned approximately 1.8km west-north-west from the proposed Pant Farm wind turbines and the two 17m high turbines at Hillcrest Farm to the west. However, due to the small scale of these turbines, the topography, distance and intervening landscape components, it was concluded that none of these sites in conjunction with the proposed Pant Farm wind turbines will have any significant cumulative effect on any designated or undesignated high value sites.

7 References

- Ref 1 Welsh Office Circular 60/96 (Planning and the Historic Environment: Archaeology)
- Ref 2 *Design Manual for Roads and Bridges* (DMRB, Volume 11, Section 3, part 2 HA 208/07)
- Ref 3 *Planning Policy Statement 5 (PPS5)*, March 2010, *Planning for the Historic Environment: Historic Environment Planning Practice Guide (2010)*
- Ref 4 Colcutt, S 1999, *The setting of Cultural Heritage Features*.
- Ref 5 Samuel Lewis in '*A Topographical Dictionary of Wales*' (1833).
- Ref 6 Carmarthenshire LANDMAP Historic Landscape – Technical Report (DAT Report 2009)

APPENDIX I:

Figures



Legend

- Study Area
- Turbine position

Approximate Scale (at A4): 1:20 000

Date: July 2014

Prepared by:

Heritage
Rural Heritage Services Wales

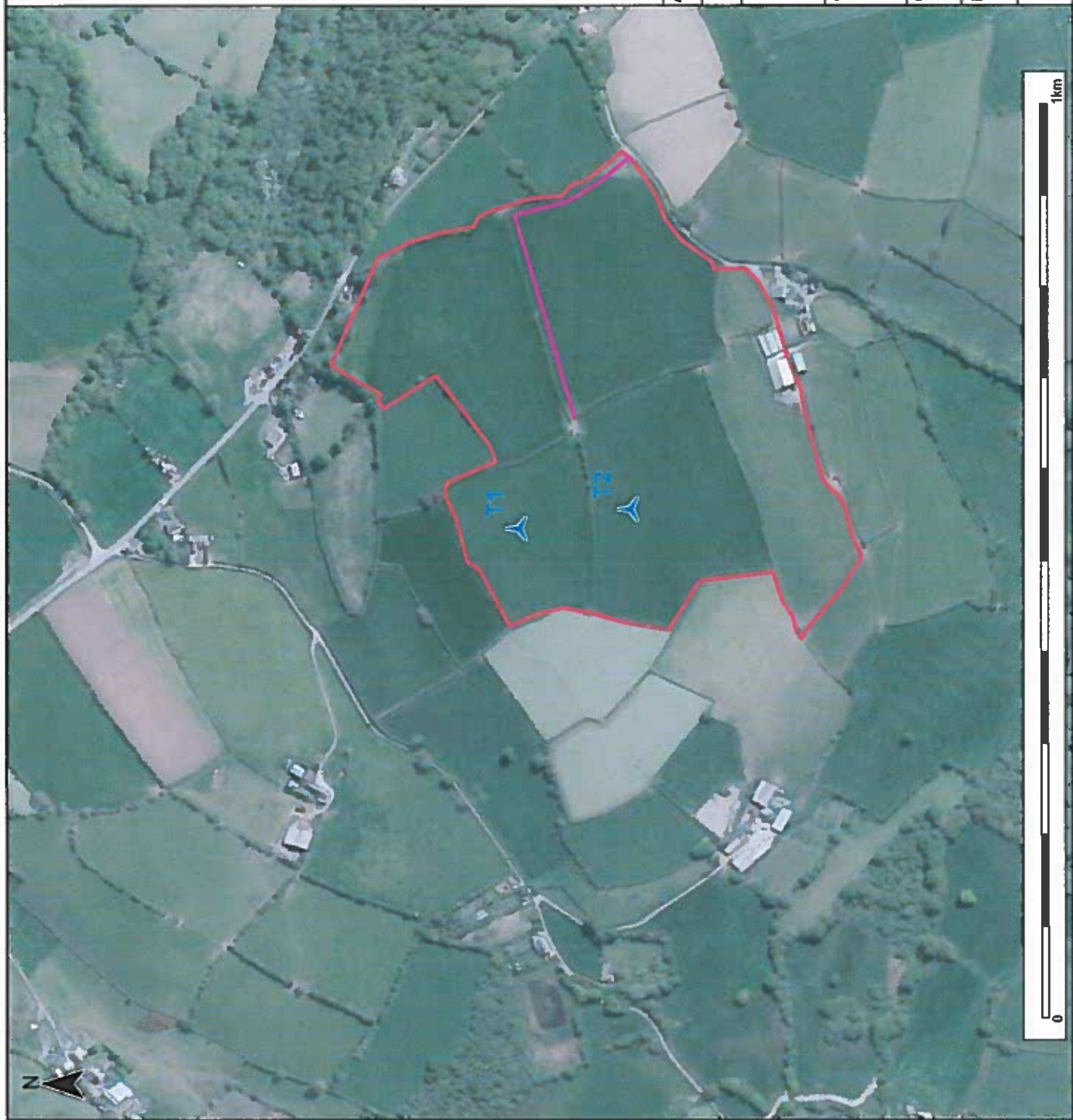
Client:

Force 5 Energy Ltd.

On behalf of:

Project Title: Pant Farm Wind Turbines

Figure 2. Study Area and Proposed Turbine positions



Legend

- Study Area
- T1 Turbine position
- Access track

Approximate Scale (at A4): 1:10,000

Date: July 2014

Prepared by:

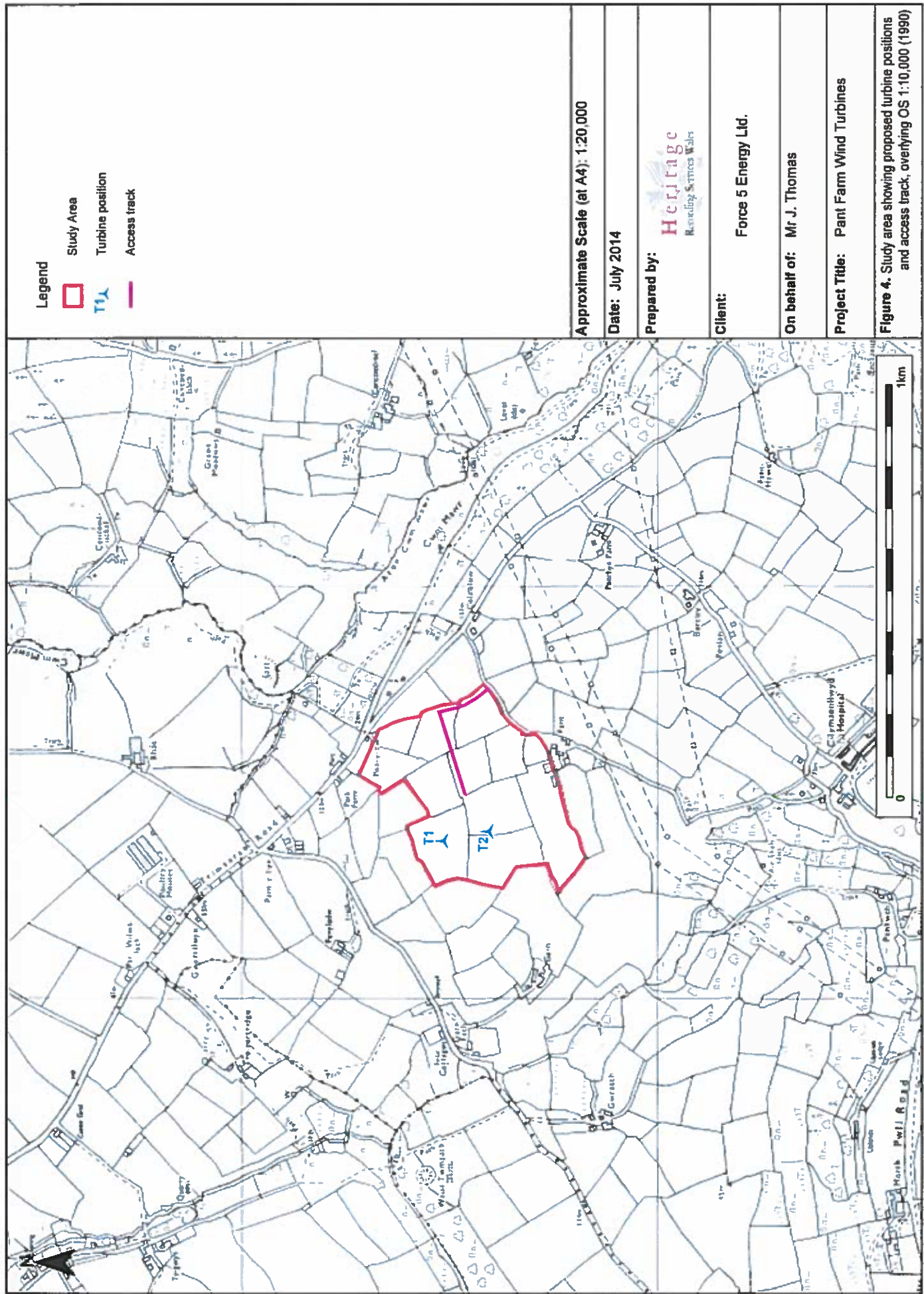
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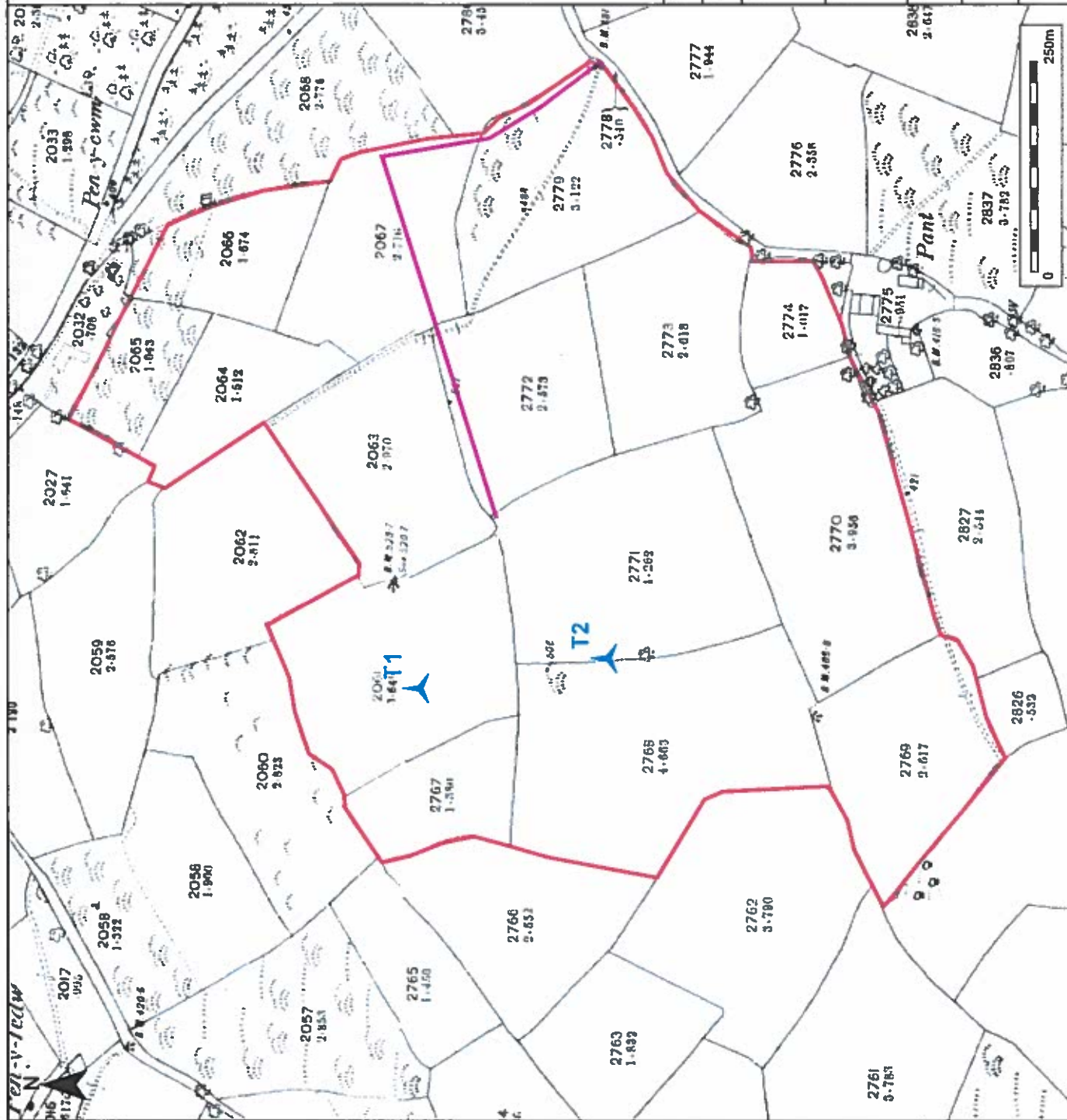
On behalf of: Mr J. Thomas

Project Title: Pant Farm Wind Turbines

Figure 3. Study area showing proposed turbine positions and access track, overlying Aerial Photo (2010)







Legend

- Study Area
- Turbine position
- Access track

Approximate Scale (at A4): 1:500

Date: July 2014

Prepared by:

Heritage
Recording Services Wales

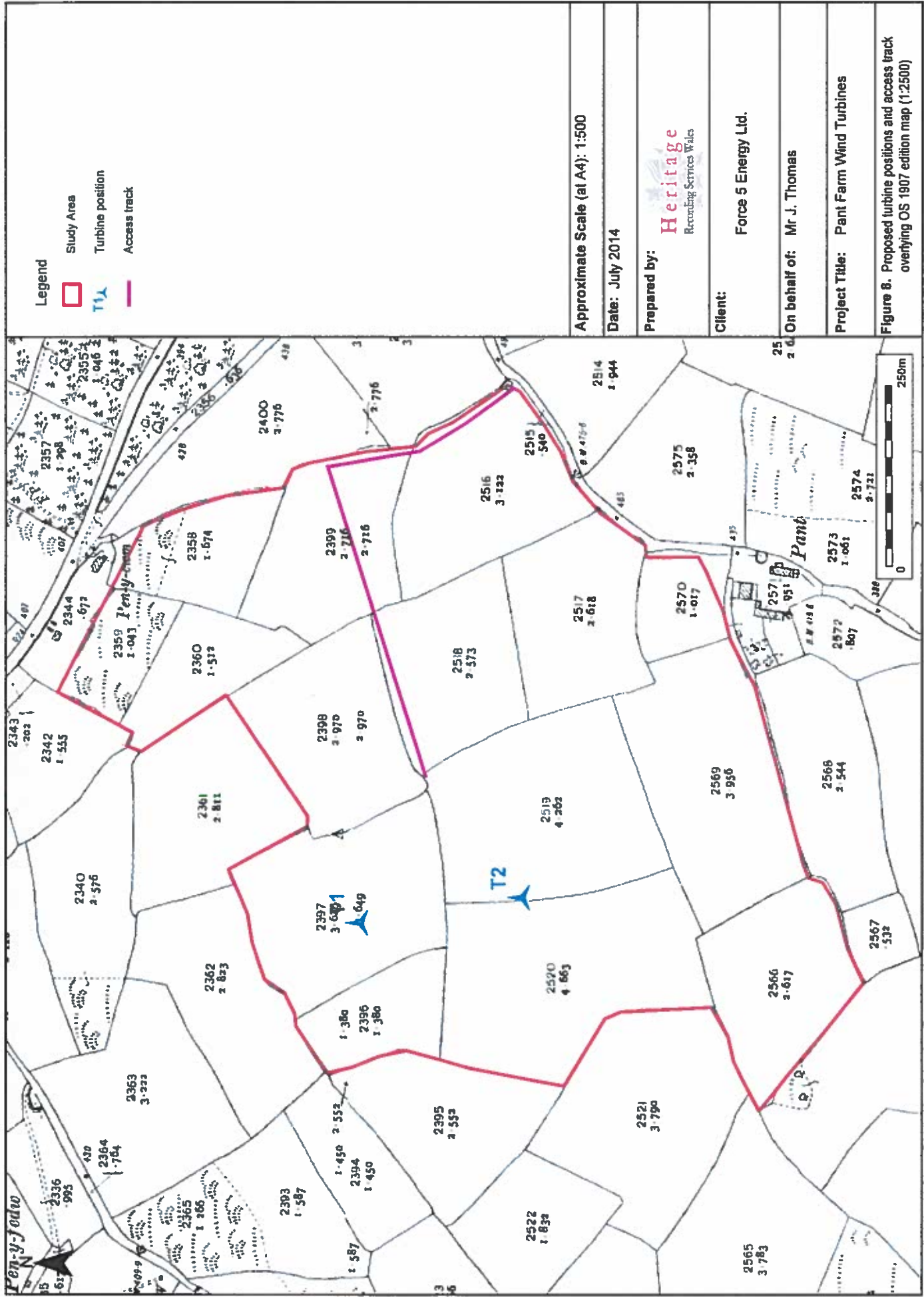
Client:

Force 5 Energy Ltd.

On behalf of: Mr J. Thomas

Project Title: Pant Farm Wind Turbines

Figure 7. Proposed turbine positions and access track overlying OS 1880 edition map (1:2500)



Legend

- Study Area
- Turbine position
- Access track

Approximate Scale (at A4): 1:500

Date: July 2014

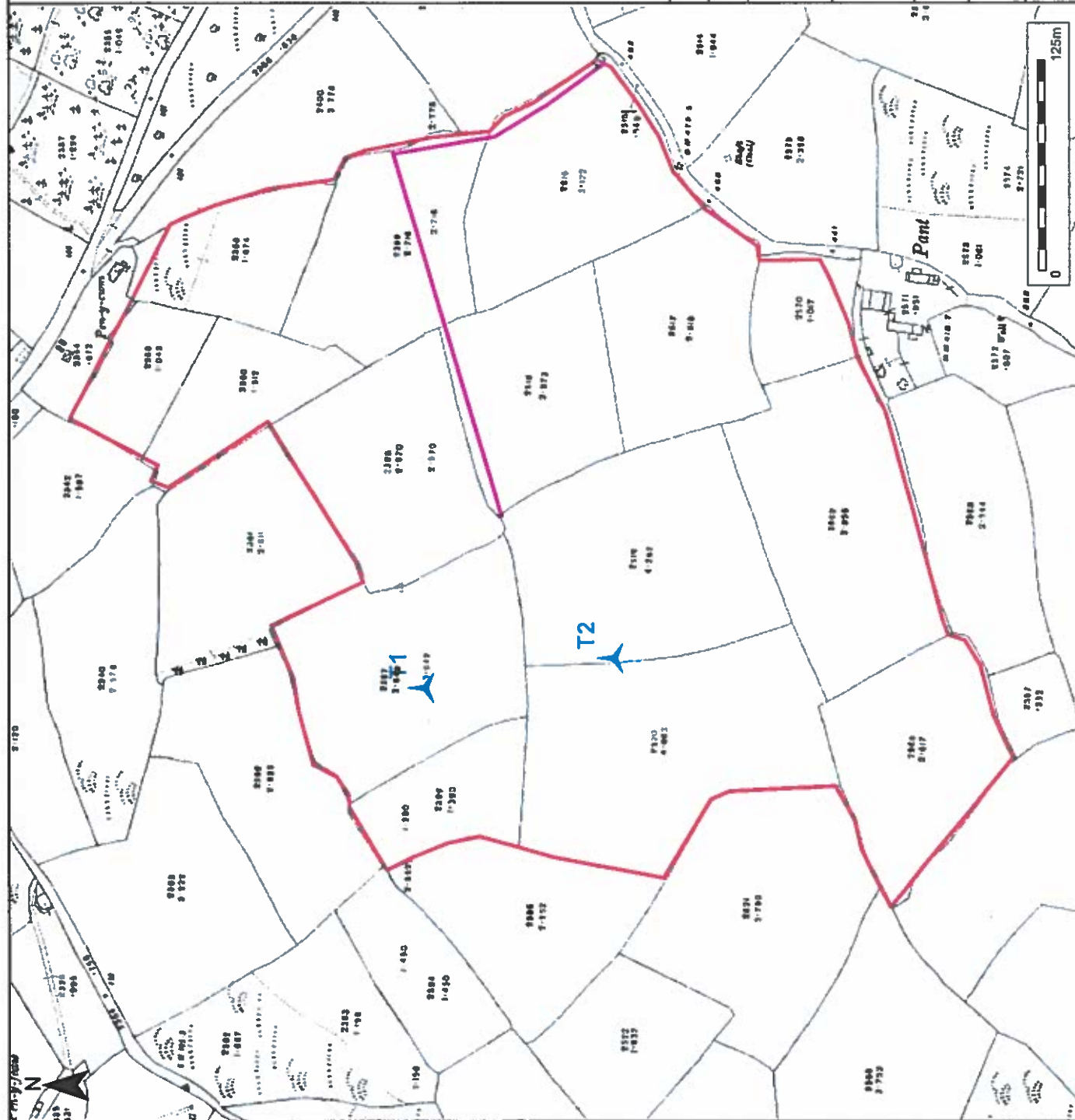
Prepared by:
Heritage
Recording Services Wales

Client:
Force 5 Energy Ltd.

On behalf of: Mr J. Thomas

Project Title: Pant Farm Wind Turbines

Figure 8. Proposed turbine positions and access track
overlying OS 1907 edition map (1:2500)



Legend

- Study Area
- Turbine position
- Access track

Approximate Scale (at A4): 1:500

Date: July 2014

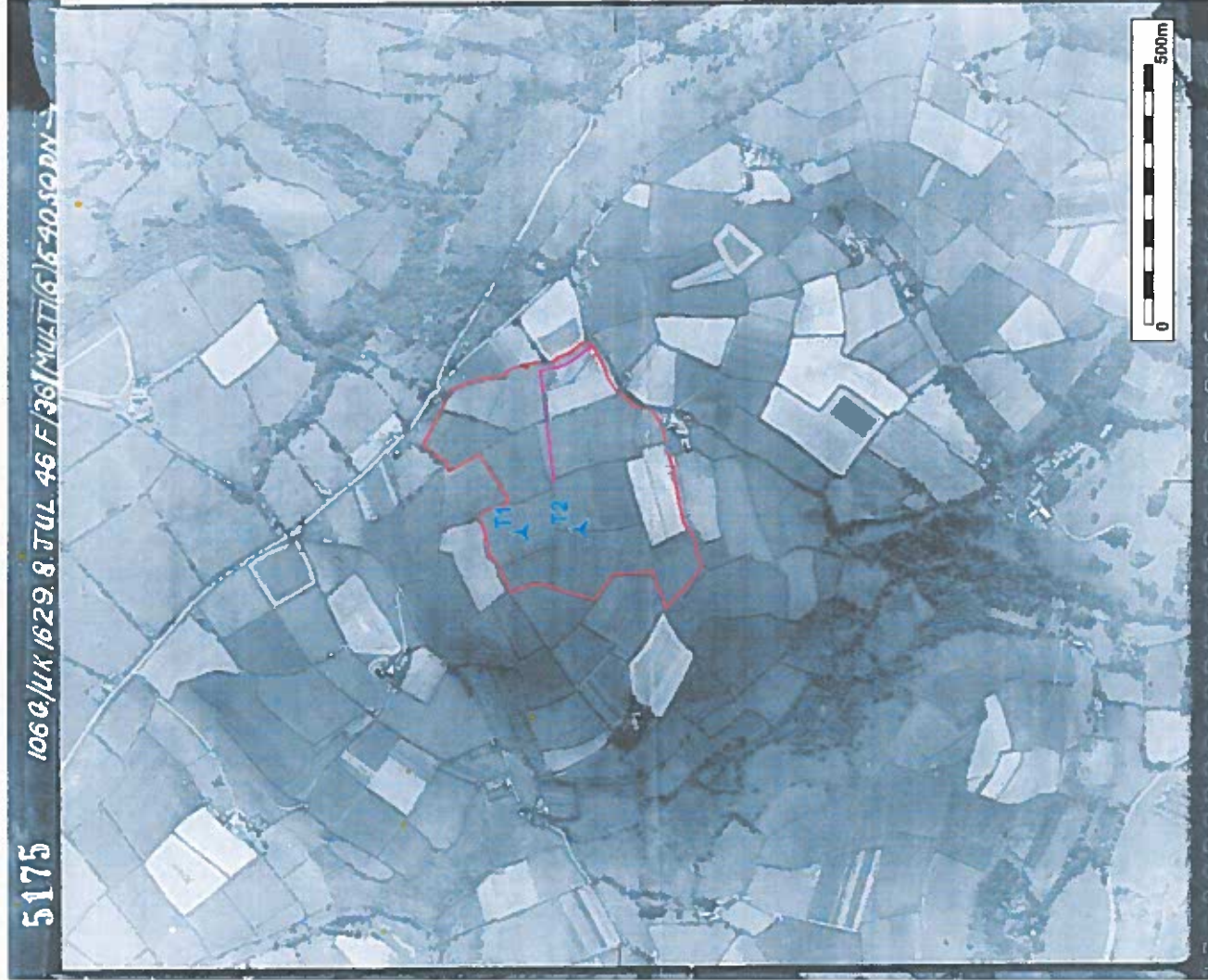
Prepared by:

Client:
 Force 5 Energy Ltd.



On behalf of: Mr J. Thomas

Project Title: Pant Farm Wind Turbines

Figure 9. Proposed turbine positions and access track
 overlying OS 1915 edition map (1:2500)



Legend

-  Study Area
-  Turbine position
-  Access track

Approximate Scale (at A4): 1:10,000

Date: July 2014

Prepared by:



Client:

Force 5 Energy Ltd.

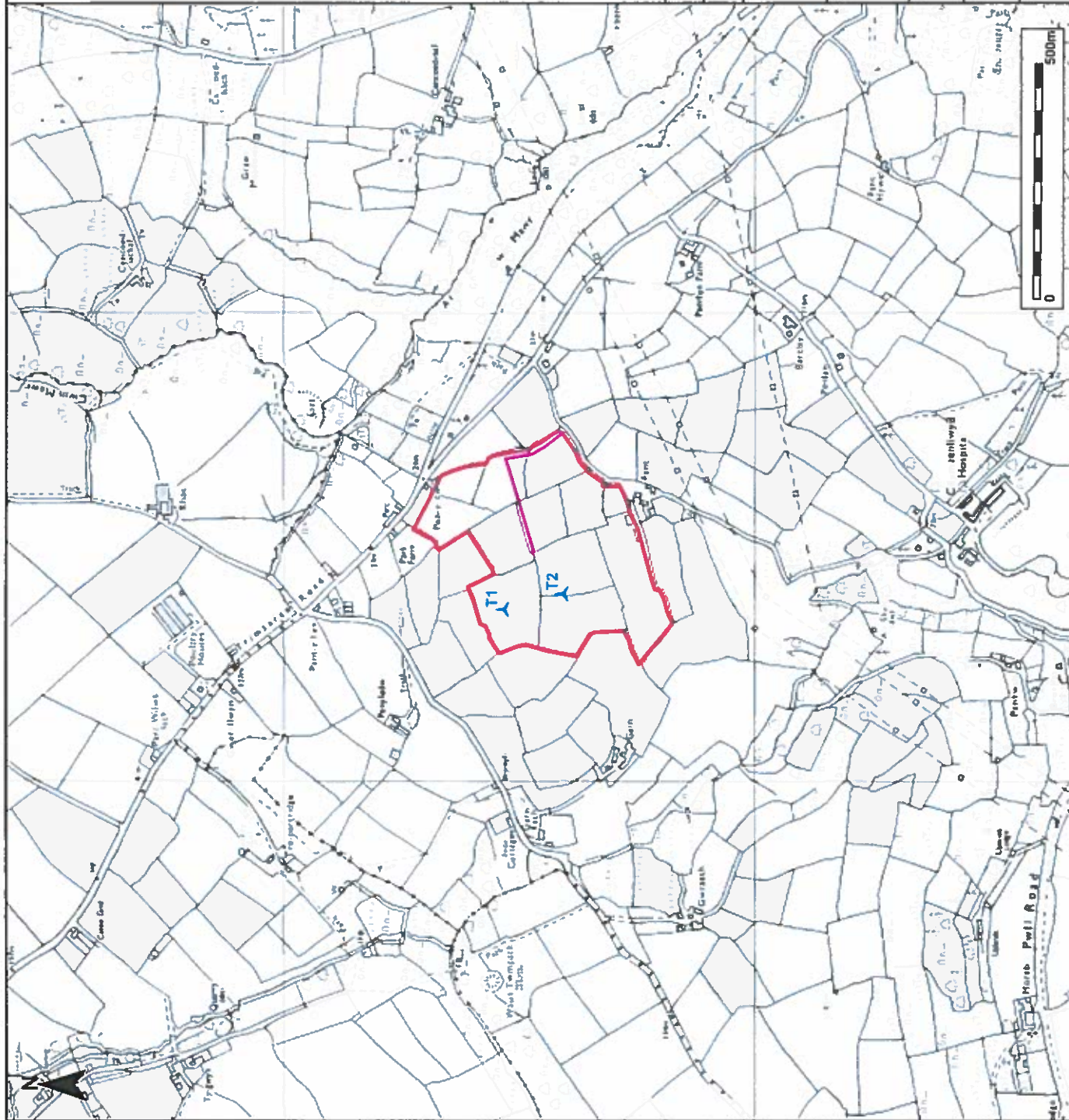
On behalf of:

Mr J. Thomas

Project Title:

Pant Fawr Wind Turbines

Figure 10. Proposed turbine positions and access track, overlying RAF Aerial Photo (1946)



Legend

- Study Area
- Turbine position
- Access track



Approximate Scale (at A4): 1:10,000

Date: July 2014

Prepared by:

Heritage
Recording Services Wales

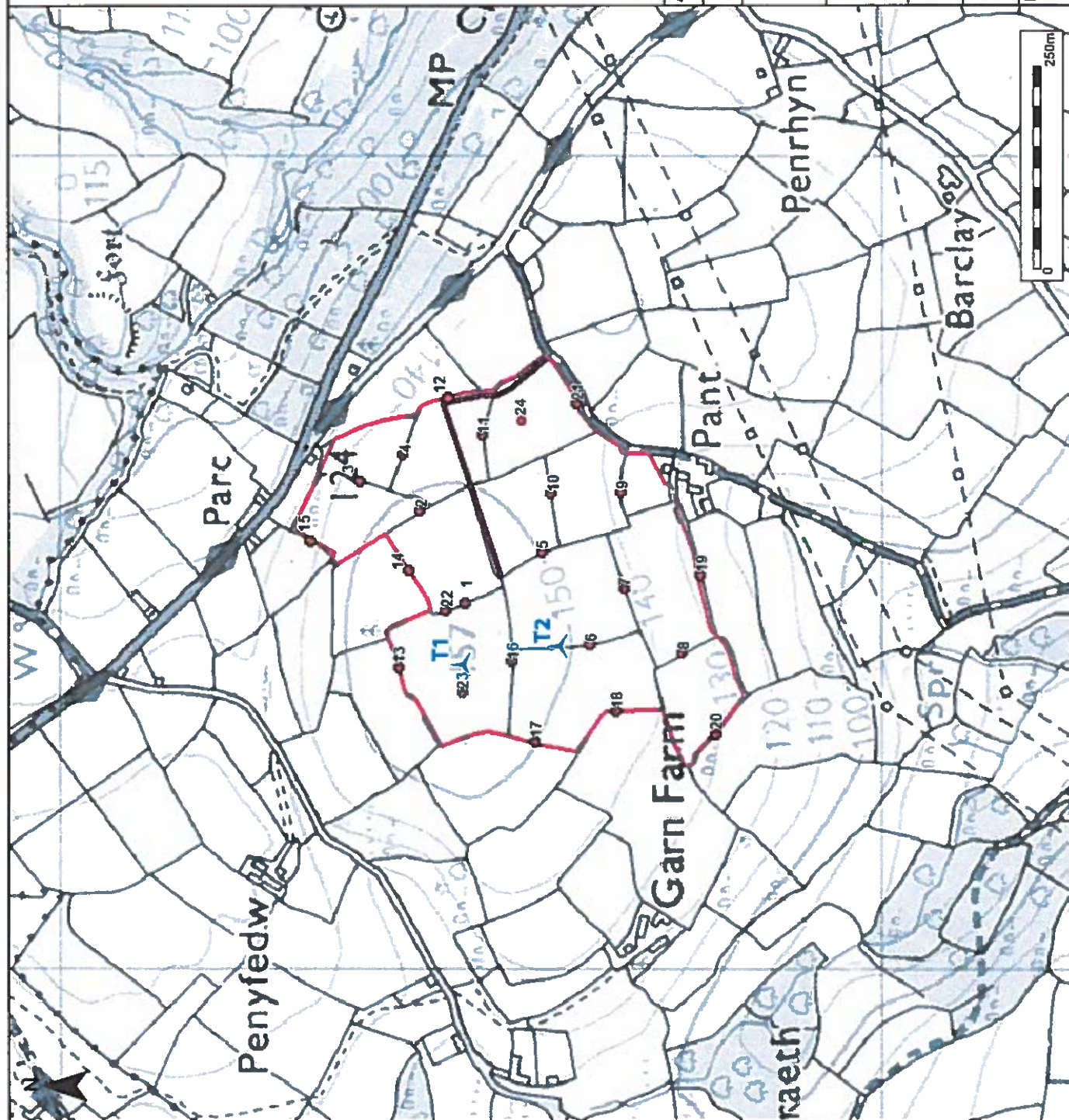
Client:

Force 5 Energy Ltd.

On behalf of: Mr J. Thomas

Project Title: Pant Farm Wind Turbines

Figure 12. Proposed turbine positions and access track
overlying OS 1990 edition map (1:10,000)



Legend

- Study Area
- Turbine position
- Access track

Approximate Scale (at A4): 1:2500

Date: July 2014

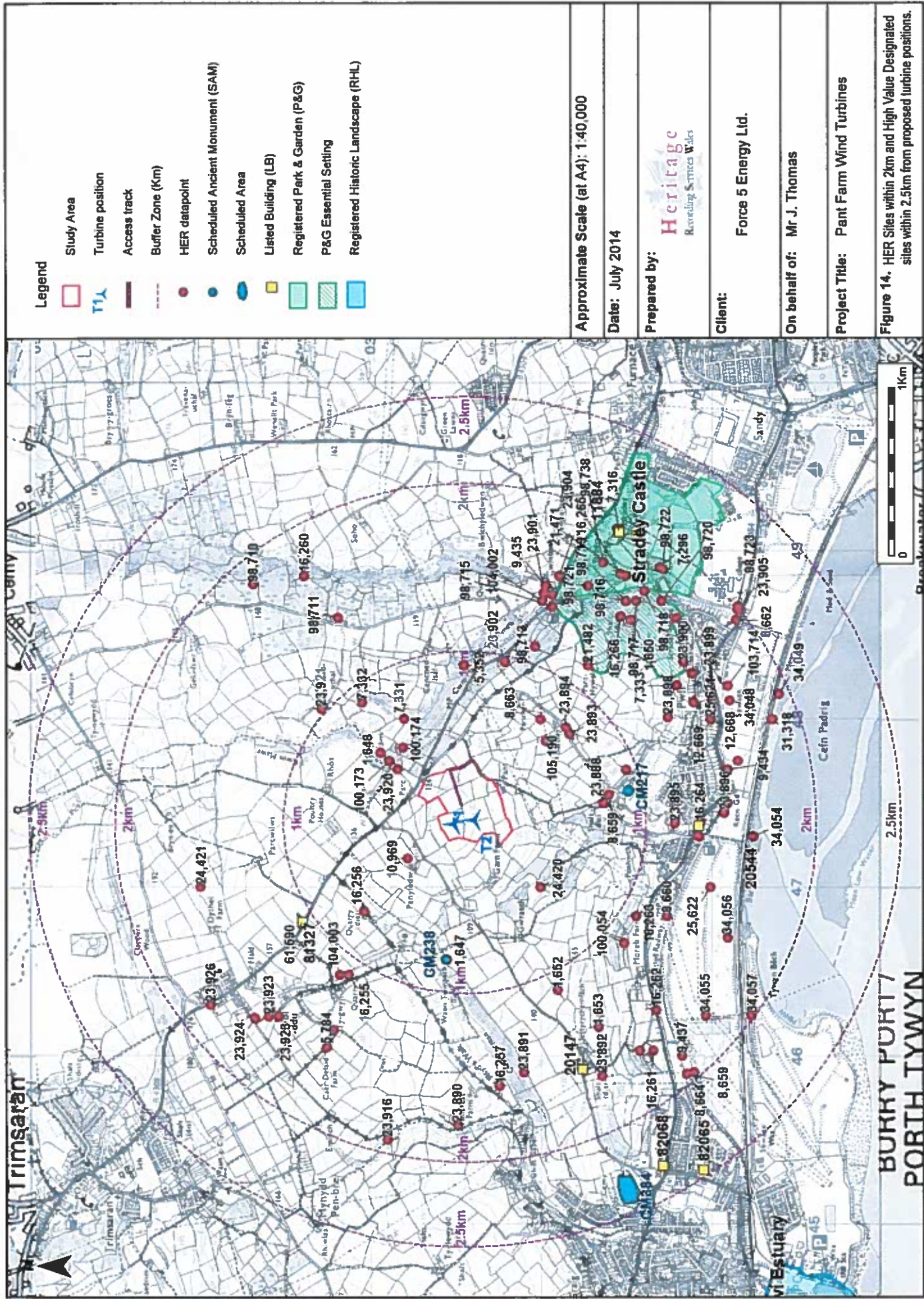
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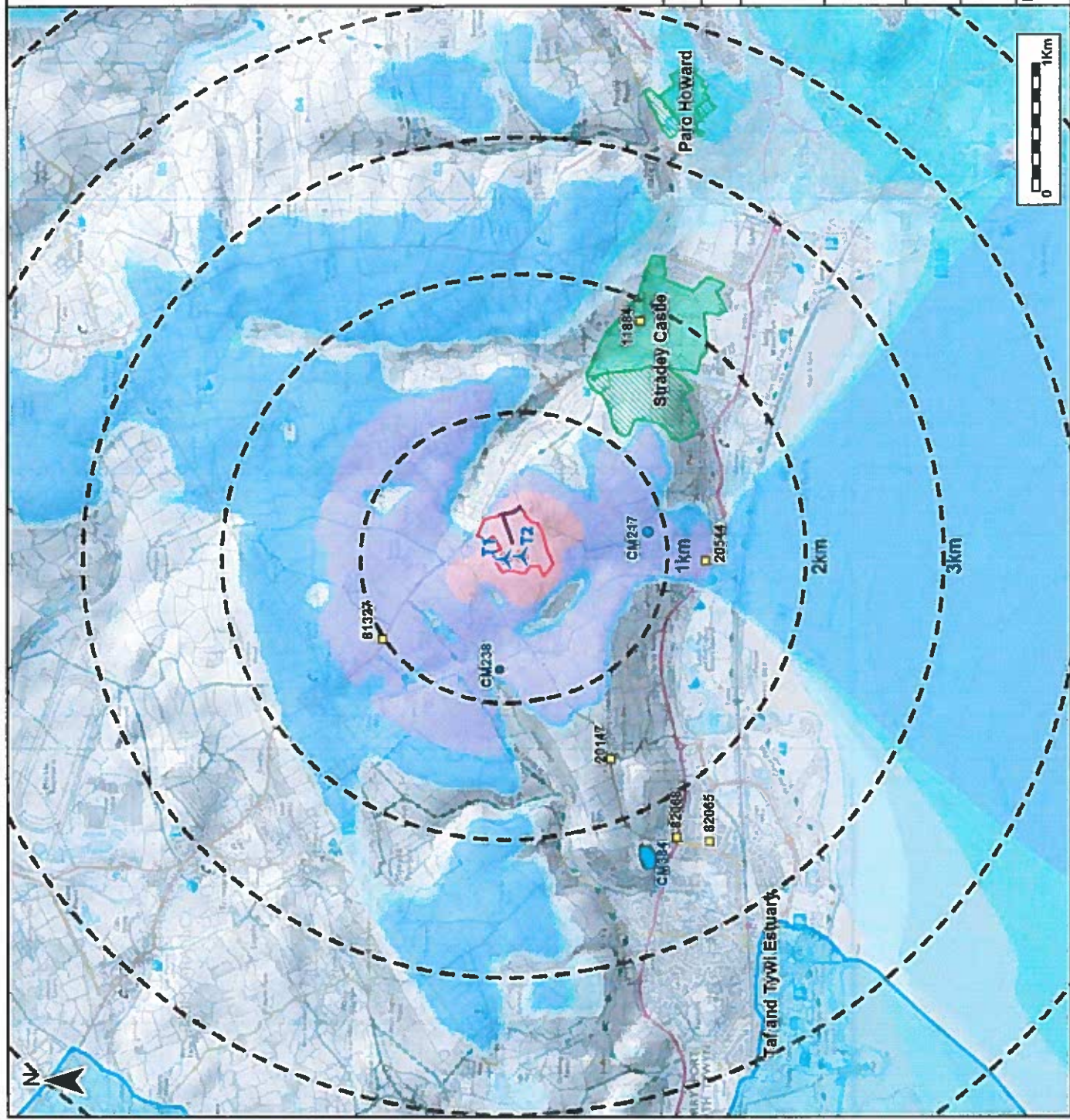
Client: Force 5 Energy Ltd.

On behalf of: Mr J. Thomas

Project Title: Pant Farm Wind Turbines

Figure 13. Archaeological features within study area boundary





Legend

- Study Area
- Turbine position
- Access track
- Distance banding from site at 1km radii
- Scheduled Ancient Monument (SAM)
- Scheduled Area
- Listed Building (LB)
- Registered Park & Garden (P&G)
- P&G Essential Setting
- Registered Historic Landscape (RHL)

Zones of Theoretical Visual Influence

(by vertical angle of view)
This vertical angle is the sector angle the site forms when viewed from a specific location. The edge of the coloured area defines the visual envelope within the Local Study Area.

>3.0°	1.0 - 3.0°	0.3 - 1.0°	0.2 - 1.0°	0.1 - 0.2°	0.0 - 0.1°
-------	------------	------------	------------	------------	------------

Area where views of the development are likely to have higher magnitude of impact



Area where views of the development are likely to have lower magnitude of impact



Approximate Scale (at A4): 1:50,000

Date: July 2014

Prepared by:

Heritage
Heritage Services Wales

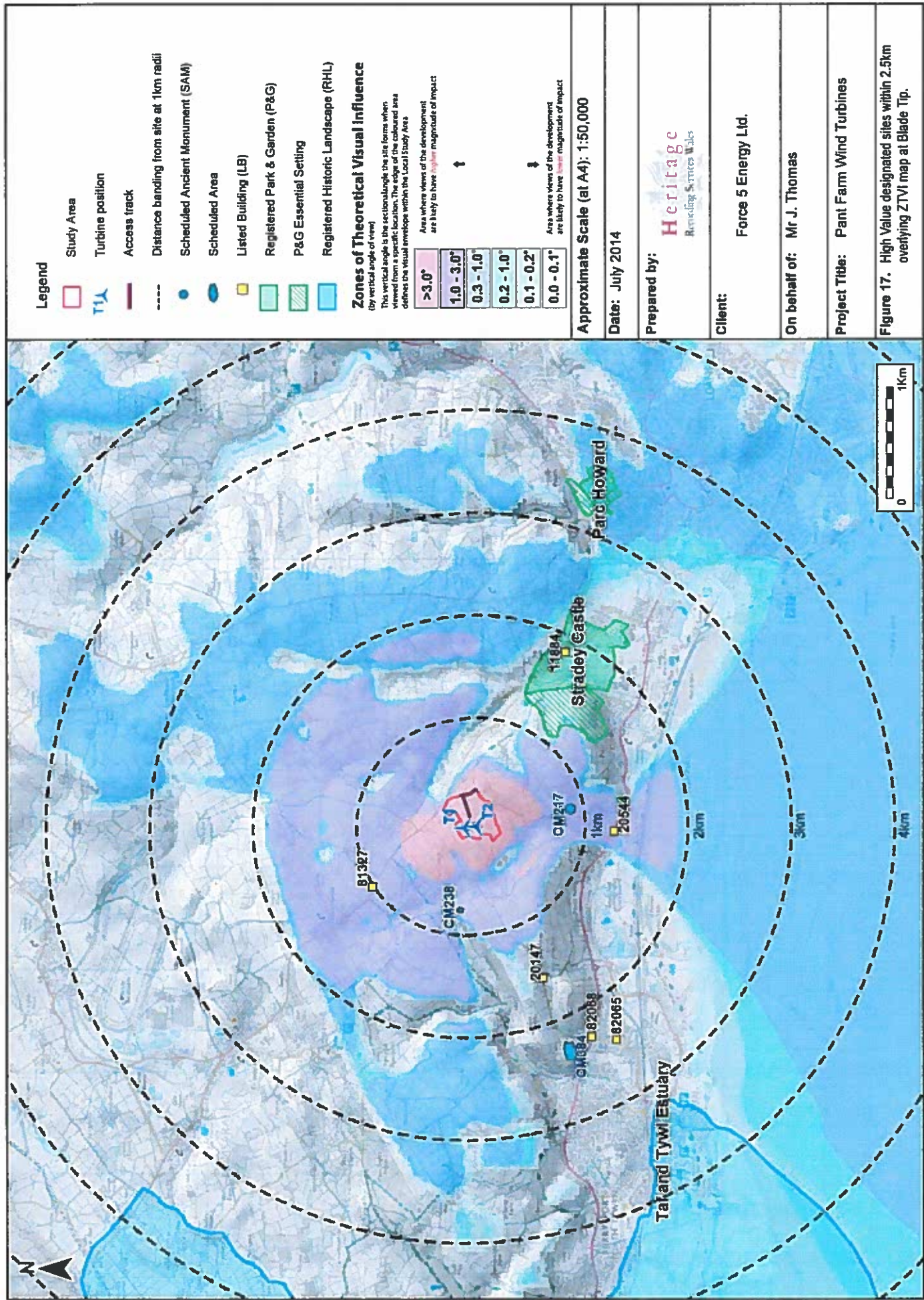
Client:

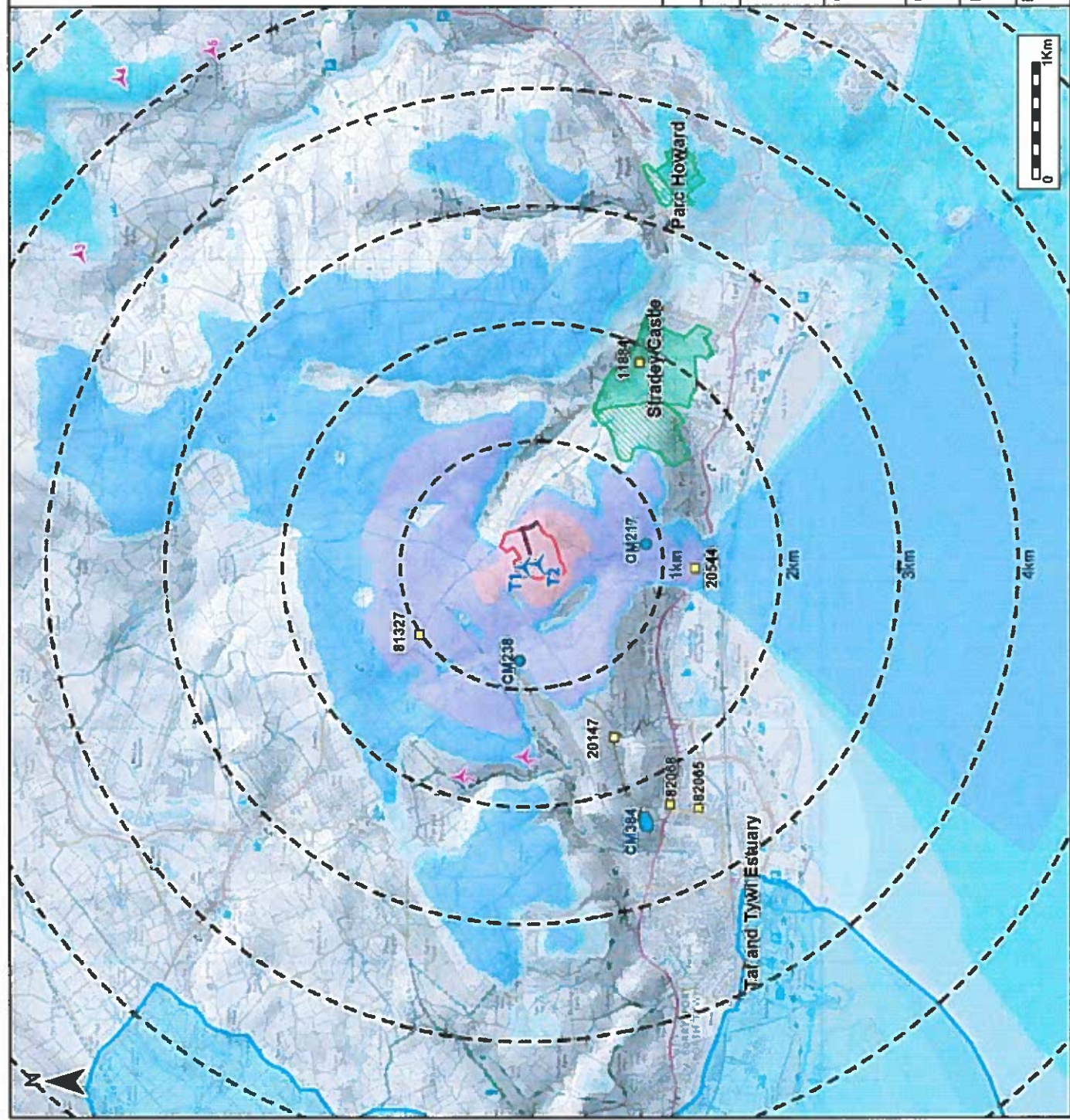
Force 5 Energy Ltd.

On behalf of: Mr J. Thomas

Project Title: Pant Farm Wind Turbines

Figure 16. High Value designated sites within 2.5km overlying ZTVI map at Hub Height.





Legend

- Study Area
- T Turbine position
- Access track
- Buffer Zone (Km)
- Scheduled Ancient Monument (SAM)
- Scheduled Area
- Listed Building (LB)
- Registered Park & Garden (P&G)
- P&G Essential Setting
- Registered Historic Landscape (RHL)
- T Cumulative site

Zones of Theoretical Visual Influence

(by vertical angle of view)
The vertical angle is the sector through the site forms when viewed from a specific location. The edge of the coloured area defines the visual envelope within the Local Study Area

Area where views of the development are likely to have **higher** magnitude of impact



Area where views of the development are likely to have **lower** magnitude of impact

- >3.0°
- 1.0 - 3.0°
- 0.3 - 1.0°
- 0.2 - 1.0°
- 0.1 - 0.2°
- 0.0 - 0.1°

Approximate Scale (at A4): 1:60,000

Date: July 2014

Prepared by:

Heritage
Revealing Services Walks

Client:

Force 5 Energy Ltd.

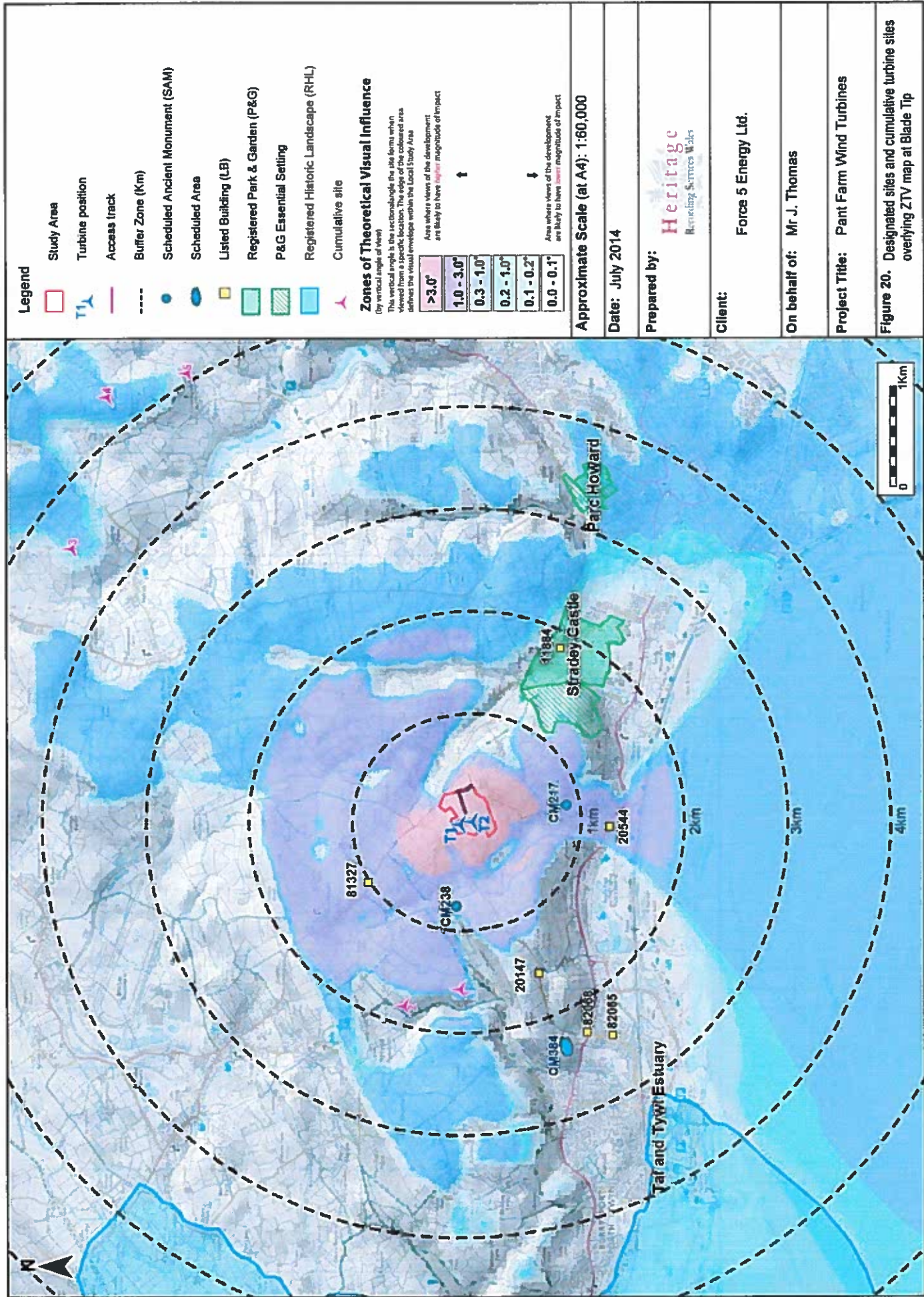
On behalf of:

Mr J. Thomas

Project Title:

Pant Farm Wind Turbines

Figure 18. Designated sites and cumulative turbine sites overlying ZTV map at Hub Height



APPENDIX II:

Photo plates



Plate 1. Position of access track entrance at south-south-east end of study area.



Plate 2. View of proposed Turbine No.2 location looking southwest.



Plate 3. View of proposed Turbine No.1 location looking west.



Plate 4. Enlarged view (using 80mm lens) of SAM site 'Maun Twmpath molte' from looking over hedgebank in field of proposed Turbine No. 1.

Date:	July 2014
Prepared by:	Heritage Recording Services Wales
Client:	Force 5 Energy Ltd.
On behalf of:	Mr J. Thomas
Project Title:	Pant Farm Wind Turbines
Photo plates:	1-4



Plate 5. SAM site 'Waun Twmpath Motte' (SAM Ref: CM328). Looking northwest.



Plate 6. SAM site 'Waun Twmpath Motte' (SAM Ref: CM328).

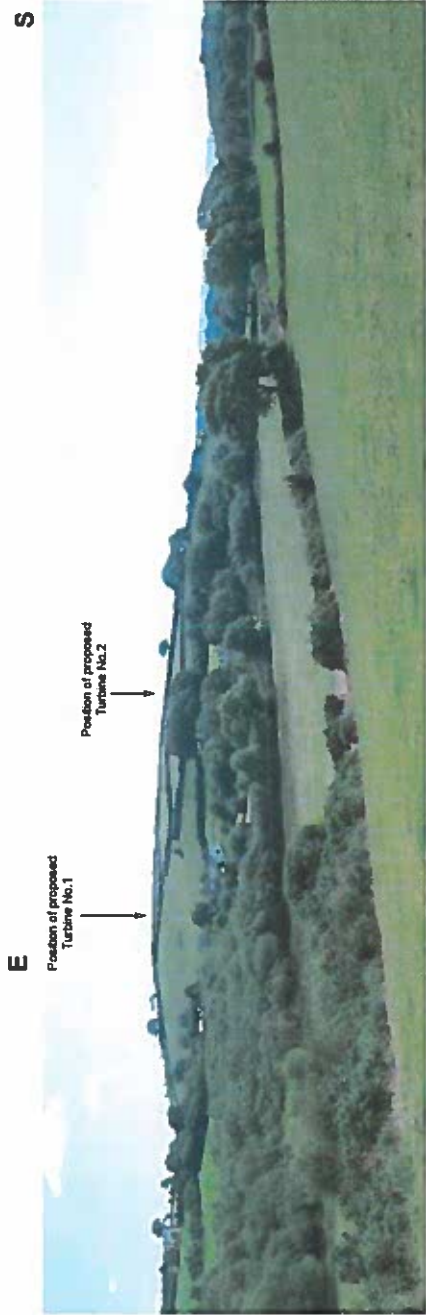


Plate 7. View of position of proposed wind turbines on top of hill from 'Waun Twmpath motte' SAM site (SAM Ref: CM238). Looking west.

Distance from proposed Turbine No.1 = 802 meters
Camera lens length = 50mm

Date:	July 2014
Prepared by:	Heritage Recording Services Wales
Client:	Force 5 Energy Ltd.
On behalf of:	Mr J. Thomas
Project Title:	Pant Farm Wind Turbines
Photo plates:	5-7

APPENDIX III: Site Gazetteer

APPENDIX III

Site Gazetteer

of

Historic Environment Record (HER) Sites within 2km from turbine locations

&

Scheduled Ancient Monuments (SAMs) and Listed Buildings (LBs) within 2.5km radius

A) Historic Environment Record (HER) Sites within 2km from turbine locations

PRN: 1647 **TYPE:** Motte **PERIOD:** Medieval **NGR:** SN46570255
NAME: WAUN TWMPATH
SUMMARY TEXT:

COMMUNITY: Cefn Sidan **STATUS:**

PRN: 1648 **TYPE:** Promontory Fort **PERIOD:** Iron Age **NGR:** SN47800294
NAME: CENCOED;CWM MAWR;CAER GLAS
SUMMARY TEXT:

Cencoed is an inland promontory fort situated on a spur of land at 100m above sea level overlooking a loop of the Afon Cwm Mawr. To the north, west and southwest the site is protected by steep slopes that drop c.20m to the river below.

COMMUNITY: Cefn Sidan **STATUS:**

PRN: 1650 **TYPE:** Defended Enclosure **PERIOD:** Iron Age? **NGR:** SN48590147
NAME: STRADEY WOOD
SUMMARY TEXT:

Situated on a moderately steep east facing hillslope at 85m above sea level, this site was recorded by the RCAHM in 1917 as a circular enclosure with a diameter of 250ft (76m). A single rampart varied in height from 6ft (1.8m) to 10ft (3.0m).

COMMUNITY: Llanelli Rural **STATUS:**

PRN: 1652 **TYPE:** Standing Stone **PERIOD:** Bronze Age **NGR:** SN46390190
NAME: LLETY'R YCHEN FACH
SUMMARY TEXT:

COMMUNITY: Llanelli Rural

STATUS:

PRN: 1653 **TYPE:** Standing Stone
NAME: LLETY'R YCHEN FACH
SUMMARY TEXT:

PERIOD: Bronze Age

NGR: SN46170166

COMMUNITY: Llanelli Rural

STATUS:

PRN: 5350 **TYPE:** Church
NAME: HOLY TRINITY
SUMMARY TEXT:

PERIOD: Post Medieval

NGR: SN48100110

COMMUNITY: Llanelli Rural

STATUS:

PRN: 5352 **TYPE:** Coal Mine
NAME: CWM MAWR COLLIERY DAY LEVEL
SUMMARY TEXT:

PERIOD: Post Medieval

NGR: SN48320245

COMMUNITY: Cefn Sidan

STATUS:

PRN: 5784 **TYPE:** Unknown
NAME: CAER DEFAID
SUMMARY TEXT:

PERIOD: Unknown

NGR: SN46050326

COMMUNITY: Trimsaran

STATUS:

PRN: 7296 **TYPE:** Mansion
NAME: OLD STRADEY HOUSE
SUMMARY TEXT:

PERIOD: Post Medieval

NGR: SN489013

The site of the Old Stradey Mansion, demolished c.1850. Original appearance unknown but a detailed map of 1805 shows an L-shaped structure, with outhouses and yard on the northern side and lawns and oriental gardens on the eastern and southern sides.

COMMUNITY: Llanelli

STATUS:

PRN: 7316 **TYPE:** Mansion
NAME: STRADEY CASTLE
SUMMARY TEXT:

PERIOD: Post Medieval

NGR: SN49120154

COMMUNITY: Llanelli

STATUS:

PRN: 7331 **TYPE:** Platform
NAME: CENCOED UCHAF

PERIOD: Post Medieval,Me

NGR: SN480028

SUMMARY TEXT:

Earthwork platform recorded in 1973. Apparently associated with a field system.

COMMUNITY: Llanelli Rural

STATUS:

PRN: 7332 **TYPE:** Findspot

PERIOD: Medieval

NGR: SN48100305

NAME: GREEN MEADOWS

SUMMARY TEXT:

COMMUNITY: Llanelli Rural

STATUS:

PRN: 7333 **TYPE:** Field System

PERIOD: Unknown

NGR: SN482012

NAME: PWLL

SUMMARY TEXT:

COMMUNITY: Llanelli Rural

STATUS:

PRN: 7783 **TYPE:** Inscribed Stone

PERIOD: Early Medieval

NGR: SN47550160

NAME: CILYMAENLLWYD HOUSE;CAE MAEN

SUMMARY TEXT:

Group II ECM (cross-carved pillar) of probable 7th-8th century date. It was revealed during building work during the early 1900s at Cilymaenllwyd House, Pwll, Pembrey. The stone was found in a small enclosure called 'Cae Maen' ('stone field').

COMMUNITY: Llanelli Rural

STATUS: scheduled ancient monument

PRN: 8659 **TYPE:** Coal Mine

PERIOD: Post Medieval

NGR: SN45890114

NAME: NEW LODGE COLLIERY

SUMMARY TEXT:

COMMUNITY: Cefn Sidan

STATUS:

PRN: 8660 **TYPE:** Coal Mine

PERIOD: Post Medieval

NGR: SN46830126

NAME: NEW POOL COLLIERY

SUMMARY TEXT:

COMMUNITY: Llanelli Rural

STATUS:

PRN: 8662 **TYPE:** Bridge

PERIOD: Post Medieval

NGR: SN48590085

NAME: YARD BRIDGE

SUMMARY TEXT:

COMMUNITY: Cefn Sidan

STATUS:

PRN: 8663 **TYPE:** Tramway
NAME: CWM MAWR TRAMWAY
SUMMARY TEXT:

PERIOD: Post Medieval

NGR: SN4802

COMMUNITY: Llanelli Rural

STATUS:

PRN: 8664 **TYPE:** Tramway
NAME: PWLL TRAMWAY
SUMMARY TEXT:

PERIOD: Post Medieval

NGR: SN459011

COMMUNITY: Llanelli Rural

STATUS:

PRN: 9434 **TYPE:** Brickworks
NAME: PWLL BRICKWORKS
SUMMARY TEXT:

PERIOD: Post Medieval

NGR: SN47700090

COMMUNITY: Llanelli Rural

STATUS:

PRN: 9435 **TYPE:** Woollen Mill
NAME: CWM BACH FACTORY
SUMMARY TEXT:

PERIOD: Post Medieval

NGR: SN48740193

COMMUNITY: Llanelli Rural

STATUS:

PRN: 9437 **TYPE:** Brickworks
NAME: NEW LODGE BRICKWORKS
SUMMARY TEXT:

PERIOD: Post Medieval

NGR: SN46000117

COMMUNITY: Cefn Sidan

STATUS:

PRN: 10969 **TYPE:** Settlement
NAME: PENYFEDW
SUMMARY TEXT:

PERIOD: Medieval

NGR: SN47170278

COMMUNITY: Llanelli Rural

STATUS:

PRN: 12668 **TYPE:** Water Mill
NAME: DEWLES MILL
SUMMARY TEXT:

PERIOD: Medieval

NGR: SN4801

COMMUNITY: Cefn Sidan

STATUS:

PRN: 12669 **TYPE:** Fulling Mill
NAME: PWLL
SUMMARY TEXT:

PERIOD: Medieval

NGR: SN4801

COMMUNITY: Llanelli Rural

STATUS:

PRN: 16255 **TYPE:** Quarry
NAME:
SUMMARY TEXT:

PERIOD: Post Medieval

NGR: SN46480313

COMMUNITY: Trimsaran

STATUS:

PRN: 16256 **TYPE:** Quarry
NAME:
SUMMARY TEXT:

PERIOD: Post Medieval

NGR: SN46860304

COMMUNITY: Trimsaran

STATUS:

PRN: 16257 **TYPE:** Chapel
NAME: CAPEL CARMEL
SUMMARY TEXT:

PERIOD: Post Medieval

NGR: SN45820224

COMMUNITY: Cefn Sidan

STATUS:

PRN: 16260 **TYPE:** Quarry
NAME:
SUMMARY TEXT:

PERIOD: Post Medieval

NGR: SN48850339

COMMUNITY: Llanelli Rural

STATUS:

PRN: 16261 **TYPE:** Lodge
NAME: NEW LODGE
SUMMARY TEXT:

PERIOD: Post Medieval

NGR: SN46030134

COMMUNITY: Llanelli Rural

STATUS:

PRN: 16262 **TYPE:** Lodge
NAME:
SUMMARY TEXT:

PERIOD: Post Medieval

NGR: SN46270132

COMMUNITY: Llanelli Rural

STATUS:

PRN: 16263 **TYPE:** Lodge

PERIOD: Post Medieval

NGR: SN46830144

NAME:

SUMMARY TEXT:

COMMUNITY: Llanelli Rural

STATUS:

PRN: 16264 **TYPE:** Chapel

PERIOD: Post Medieval

NGR: SN47380106

NAME:

SUMMARY TEXT:

COMMUNITY: Llanelli Rural

STATUS:

PRN: 16265 **TYPE:** Lodge

PERIOD: Post Medieval

NGR: SN48850189

NAME: STRADEY LODGE

SUMMARY TEXT:

COMMUNITY: Llanelli Rural

STATUS:

PRN: 16266 **TYPE:** Coal Mine

PERIOD: Post Medieval

NGR: SN4861001530

NAME:

SUMMARY TEXT:

COMMUNITY: Cefn Sidan

STATUS:

PRN: 20940 **TYPE:** Mansion

PERIOD: Post Medieval

NGR: SN47700150

NAME: CILYMAENLLWYD

SUMMARY TEXT:

Now used as a Hospital. 8:11:1984. "Note. The mansion of Kilymaenllwyd in the plain Domestic style is of considerable age but the date of its erection is not precisely known." T. Nicholas 1872. Dwelling first recorded here in 1609.

COMMUNITY: Llanelli Rural

STATUS:

PRN: 21471 **TYPE:** Mill,Flour Mill

PERIOD: Post Medieval

NGR: SN48850150

NAME: DEWLES MILL

SUMMARY TEXT:

Identified as Dulais Mill (Flour) on the Ordnance Survey 1st edition (1880 Carms. Sheet 58.02, 25). Marked in outline on the recent mapping, presumably abandoned.

COMMUNITY: Cefn Sidan

STATUS:

PRN: 21482 **TYPE:** Farmstead **PERIOD:** Post Medieval **NGR:** SN48320172
NAME: PANTHYWEL
SUMMARY TEXT:

Farmstead recorded from documents. RPS July 2001

COMMUNITY: Llanelli Rural **STATUS:**

PRN: 21503 **TYPE:** Farmstead **PERIOD:** Post Medieval **NGR:** SN48600120
NAME: HOME FARM
SUMMARY TEXT:

Described as farmstead in state of disrepair in 1985. RPS July 2001

COMMUNITY: Cefn Sidan **STATUS:**

PRN: 23888 **TYPE:** Lodge **PERIOD:** Post Medieval **NGR:** SN47500163
NAME: CIL-Y-MAEN-LLWYD
SUMMARY TEXT:

COMMUNITY: Llanelli Rural **STATUS:**

PRN: 23889 **TYPE:** Public House **PERIOD:** Post Medieval **NGR:** SN47300107
NAME: PONT-YR-ODYN
SUMMARY TEXT:

COMMUNITY: Llanelli Rural **STATUS:**

PRN: 23890 **TYPE:** Quarry **PERIOD:** Post Medieval **NGR:** SN45590249
NAME: NANT DYFATTY
SUMMARY TEXT:

COMMUNITY: Cefn Sidan **STATUS:**

PRN: 23891 **TYPE:** Coal Mine **PERIOD:** Post Medieval **NGR:** SN45900210
NAME: CWM FERMAN
SUMMARY TEXT:

COMMUNITY: Cefn Sidan **STATUS:**

PRN: 23892 **TYPE:** Shaft **PERIOD:** Post Medieval **NGR:** SN45880164
NAME: LLETTY'R-YCHEN-FAWR
SUMMARY TEXT:

COMMUNITY: Cefn Sidan

STATUS:

PRN: 23893 **TYPE:** Cottage
NAME: NEWGATE
SUMMARY TEXT:

PERIOD: Post Medieval

NGR: SN47910183

Cottage shown on early 20th century maps. RPS July 2001

COMMUNITY: Llanelli Rural

STATUS:

PRN: 23894 **TYPE:** Level
NAME: NEWGATE
SUMMARY TEXT:

PERIOD: Post Medieval

NGR: SN47950185

COMMUNITY: Llanelli Rural

STATUS:

PRN: 23895 **TYPE:** Quarry
NAME: PONT-YR-ODYN
SUMMARY TEXT:

PERIOD: Post Medieval

NGR: SN47380121

COMMUNITY: Llanelli Rural

STATUS:

PRN: 23896 **TYPE:** Coal Mine
NAME: PWLL COLLIERY
SUMMARY TEXT:

PERIOD: Post Medieval

NGR: SN47440092

COMMUNITY: Llanelli Rural

STATUS:

PRN: 23897 **TYPE:** Chapel
NAME: CAPEL LIBANUS
SUMMARY TEXT:

PERIOD: Post Medieval

NGR: SN48270111

COMMUNITY: Llanelli Rural

STATUS:

PRN: 23898 **TYPE:** Quarry
NAME: PWLL
SUMMARY TEXT:

PERIOD: Post Medieval

NGR: SN48010125

COMMUNITY: Llanelli Rural

STATUS:

PRN: 23899 **TYPE:** School
NAME: PWLL
SUMMARY TEXT:

PERIOD: Post Medieval

NGR: SN48110099

COMMUNITY: Llanelli Rural

STATUS:

PRN: 23900 **TYPE:** Quarry

PERIOD: Post Medieval

NGR: SN48340116

NAME: PWLL

SUMMARY TEXT:

COMMUNITY: Llanelli Rural

STATUS:

PRN: 23901 **TYPE:** Blacksmiths Workshop **PERIOD:** Post Medieval

NGR: SN48750198

NAME: CWM BACH

SUMMARY TEXT:

COMMUNITY: Llanelli Rural

STATUS:

PRN: 23902 **TYPE:** Quarry

PERIOD: Post Medieval

NGR: SN48340221

NAME: PENRHYN

SUMMARY TEXT:

COMMUNITY: Llanelli Rural

STATUS:

PRN: 23903 **TYPE:** Sunday School

PERIOD: Post Medieval

NGR: SN48790197

NAME: CWM BACH

SUMMARY TEXT:

COMMUNITY: Llanelli Rural

STATUS:

PRN: 23904 **TYPE:** Mill

PERIOD: Post Medieval

NGR: SN48860153

NAME: DULAIS MILL

SUMMARY TEXT:

Same as PRN 21471

COMMUNITY: Cefn Sidan

STATUS:

PRN: 23905 **TYPE:** Lodge

PERIOD: Post Medieval

NGR: SN48650084

NAME: YARD BRIDGE

SUMMARY TEXT:

COMMUNITY: Llanelli Rural

STATUS:

PRN: 23916 **TYPE:** Coal Mine

PERIOD: Post Medieval

NGR: SN45500290

NAME: RHIW-LAS COLLIERY
SUMMARY TEXT:

COMMUNITY: Cefn Sidan

STATUS:

PRN: 23920 **TYPE:** Cottage
NAME: BERLLAN-DYWYLL
SUMMARY TEXT:

PERIOD: Post Medieval

NGR: SN47700284

Cottage shown on early 20th century maps. RPS July 2001

COMMUNITY: Llanelli Rural

STATUS:

PRN: 23921 **TYPE:** Cottage
NAME: CENCOED MAWR
SUMMARY TEXT:

PERIOD: Post Medieval

NGR: SN48060329

Cottage shown on early 20th century maps. RPS July 2001

COMMUNITY: Llanelli Rural

STATUS:

PRN: 23922 **TYPE:** Cottage
NAME: PARC-TY-COCH
SUMMARY TEXT:

PERIOD: Post Medieval

NGR: SN46150322

Cottage shown on early 20th century maps. RPS July 2001

COMMUNITY: Trimsaran

STATUS:

PRN: 23923 **TYPE:** Cottage
NAME: BLAEN-Y-CWM
SUMMARY TEXT:

PERIOD: Post Medieval

NGR: SN46230354

Cottage shown on early 20th century maps. RPS July 2001

COMMUNITY: Trimsaran

STATUS:

PRN: 23923 **TYPE:** Cottage
NAME: BRYN-HYFRYD
SUMMARY TEXT:

PERIOD: Post Medieval

NGR: SN46230360

Cottage shown on early 20th century maps. RPS July 2001

COMMUNITY: Trimsaran

STATUS:

PRN: 23924 **TYPE:** Cottage
NAME: BRYN-MELIN
SUMMARY TEXT:

PERIOD: Post Medieval

NGR: SN46220368

Cottage shown on early 20th century maps. RPS July 2001

COMMUNITY: Cefn Sidan

STATUS:

PRN: 23926 **TYPE:** Cottage **PERIOD:** Post Medieval **NGR:** SN46300394
NAME: EITHIN-MAN
SUMMARY TEXT:

Cottage shown on early 20th century maps. RPS July 2001

COMMUNITY: Trimsaran **STATUS:**

PRN: 24420 **TYPE:** Parliamentary Field System **PERIOD:** Post Medieval **NGR:** SN4702
NAME: MYNYDD BACH
SUMMARY TEXT:

COMMUNITY: Llanelli Rural **STATUS:**

PRN: 24421 **TYPE:** Parliamentary Field System **PERIOD:** Post Medieval **NGR:** SN4702
NAME: MYNYDD CROESLAW
SUMMARY TEXT:

COMMUNITY: Trimsaran **STATUS:**

PRN: 25087 **TYPE:** Dwelling **PERIOD:** Post Medieval,Me **NGR:** SN4591701752
NAME: LLETHYR YCHEN;LLETTY'R YCHEN
SUMMARY TEXT:

Llettyrychen appears to be a lobby-entry house of early 17th century date, but the presence of the roof trusses and arched doorway suggests that it was originally a late-medieval hall-house. P.Davis. 1996

COMMUNITY: Cefn Sidan **STATUS:** listed building

PRN: 25621 **TYPE:** Park **PERIOD:** Post Medieval **NGR:** SN4801
NAME: STRADEY
SUMMARY TEXT:

COMMUNITY: Llanelli Rural **STATUS:**

PRN: 25622 **TYPE:** Park **PERIOD:** Post Medieval **NGR:** SN4701
NAME: CIL-Y-MAES-LLWYD
SUMMARY TEXT:

COMMUNITY: Llanelli Rural **STATUS:**

PRN: 30738 **TYPE:** Tramway **PERIOD:** Post Medieval **NGR:** SN475009
NAME: POOL TRAMROAD
SUMMARY TEXT:

2.4km long tramroad designed to link the Kidwelly canal and Llanelli. By 1826 only the Pool Colliery - Llanelli part had been completed, known as the Pool Tramroad. P.Sambrook, 1995.

COMMUNITY: Llanelli Rural

STATUS:

PRN: 31318 **TYPE:** Submerged Forest **PERIOD:** Neolithic **NGR:** SN48000064
NAME: CEFN PADRIG
SUMMARY TEXT:

Peat shelf and submerged forest extending in a long narrow strip, badly eroded and truncated by present alignment of the Loughor channel. Few stumps surviving, better preservation towards the western end whereby there are a few horizontal trunks.

COMMUNITY: Llanelli Rural

STATUS:

PRN: 34047 **TYPE:** Drainage Channel **PERIOD:** Unknown **NGR:** SN47750084
NAME: PWLL
SUMMARY TEXT:

Relict drainage channel identified from aerial photographs, seen as a very clear light scar crossing other relict channel, 34048 diagonally, dissected by sewage farm. Not depicted on 1st Edition OS. BDA 1997.

COMMUNITY: Llanelli Rural

STATUS:

PRN: 34048 **TYPE:** Drainage Channel **PERIOD:** Unknown **NGR:** SN48110089
NAME: PWLL
SUMMARY TEXT:

Relict drainage system identified from aerial photographs, very clear and perfectly straight, not depicted on 1st Edition OS. BDA 1997.

COMMUNITY: Llanelli Rural

STATUS:

PRN: 34049 **TYPE:** Groyne **PERIOD:** Post Medieval, Mo **NGR:** SN48150060
NAME: CEFN PADRIG
SUMMARY TEXT:

Four groynes identified from aerial photographs. Site visit, the four wooden groynes are subject to erosion, worked timbers associated with these structures were found scattered within the vicinity. The groynes are no longer in use. BDA 1997.

COMMUNITY: Llanelli Rural

STATUS:

PRN: 34053 **TYPE:** Flood Bank **PERIOD:** Unknown **NGR:** SN47450092
NAME: PWLL
SUMMARY TEXT:

Very clear slightly curving earth bank identified from aerial photographs. BDA 1997.

COMMUNITY: Llanelli Rural

STATUS:

PRN: 34054 **TYPE:** Navigation Aid **PERIOD:** Unknown **NGR:** SN47300075
NAME: DEATH STONE
SUMMARY TEXT:

Death Stone alongside Barnabys Pill, identified from 1st and 2nd Edition OS. BDA 1997.

COMMUNITY: Llanelli Rural

STATUS:

PRN: 34055 **TYPE:** Drainage System **PERIOD:** Unknown **NGR:** SN46240103
NAME: ASH LAGOON
SUMMARY TEXT:

Relict drainage system identified from aerial photographs prior to the area extensively excavated to accomodate two massive lagoons. The majority of these drainage channels can be matched with those depicted on the 1st Edition OS. BDA 1997.

COMMUNITY: Llanelli Rural

STATUS:

PRN: 34056 **TYPE:** Lagoon **PERIOD:** Unknown **NGR:** SN46700090
NAME: ASH LAGOON
SUMMARY TEXT:

Lagoon depicted on the 1st Edition OS. No longer evident due to the construction of two massive lagoons. BDA 1997.

COMMUNITY: Llanelli Rural

STATUS:

PRN: 34057 **TYPE:** Tramway **PERIOD:** Post Medieval,Mo **NGR:** SN46240076
NAME: TYWYN BACH
SUMMARY TEXT:

Trammway/bank identified from aerial photographs, as a very wide dark straight line. BDA 1997.

COMMUNITY: Llanelli Rural

STATUS:

PRN: 49314 **TYPE:** Findspot **PERIOD:** Early Medieval **NGR:** SN47550160
NAME: CILYMAENLLWYD HOUSE;CAE MAEN
SUMMARY TEXT:

Early medieval D site, ie. possible early medieval origins. Findspot of Group II ECM PRN 7783, a cross-carved pillar stone of probable 7th-8th century date. It was revealed during building work during the early 1900s at Cilymaenllwyd House, Pwll, Pembre

COMMUNITY: Llanelli Rural

STATUS:

PRN: 60835 **TYPE:** Country House **PERIOD:** Post Medieval **NGR:** SN4910901537
NAME: STRADEY CASTLE
SUMMARY TEXT:

Grade II* listed country house

COMMUNITY: Llanelli Rural

STATUS: listed building

PRN: 61071 **TYPE:** Baptist Chapel **PERIOD:** Post Medieval **NGR:** SN4736301069
NAME: BETHLEHEM BAPTIST CHAPEL
SUMMARY TEXT:

Grade II listed baptist chapel

COMMUNITY: Llanelli Rural

STATUS: listed building

PRN: 61590 **TYPE:** Unknown
NAME: MILEPOST ON HEOL TRIMSARAN
SUMMARY TEXT:

PERIOD: Post Medieval

NGR: SN4679103400

Grade II listed unknown

COMMUNITY: Trimsaran

STATUS: listed building

PRN: 98710 **TYPE:** Gravel Pit
NAME:
SUMMARY TEXT:

PERIOD: Post Medieval

NGR: SN48800369

A quarry recorded on the Ordnance Survey 1st edition map (1880 Carms. Sheet 54.10, 25). Not marked on the recent Ordnance Survey mapping.

COMMUNITY: Llanelli Rural

STATUS:

PRN: 98711 **TYPE:** Farmstead
NAME: CENCOED-BACH
SUMMARY TEXT:

PERIOD: Post Medieval

NGR: SN48600319

A farmstead recorded on the Ordnance Survey 1st edition map (1880 Carms. Sheet 54.10, 25). Buildings shown in outline on the recent Ordnance Survey mapping suggesting that the farmstead is now abandoned.

COMMUNITY: Llanelli Rural

STATUS:

PRN: 98713 **TYPE:** Farmstead
NAME:
SUMMARY TEXT:

PERIOD: Post Medieval

NGR: SN48430203

Two buildings marked in outline on the Ordnance Survey 1st edition (1880 Carms. Sheet 58.02, 25) may represent the site of a former farmstead. Present condition unknown.

COMMUNITY: Llanelli Rural

STATUS:

PRN: 98715 **TYPE:** Public House
NAME: FARRIERS ARMS
SUMMARY TEXT:

PERIOD: Post Medieval

NGR: SN48670193

A former public house recorded on the Ordnance Survey 1st edition map (1880 Carms. Sheet 58.02, 25) and identified as The Farriers Arms. The pub is no longer marked on the recent Ordnance Survey mapping.

COMMUNITY: Llanelli Rural

STATUS:

PRN: 98716 **TYPE:** Level
NAME:
SUMMARY TEXT:

PERIOD: Post Medieval

NGR: SN48700150

Old Levels (Coal) are shown here on the Ordnance Survey 2nd edition map (1907 Carms. Sheet 58.02, 25).

COMMUNITY: Llanelli Rural

STATUS:

PRN: 98717 **TYPE:** Quarry
NAME:
SUMMARY TEXT:

PERIOD: Post Medieval

NGR: SN48700144

COMMUNITY: Llanelli Rural

STATUS:

PRN: 98718 **TYPE:** Air Shaft
NAME:
SUMMARY TEXT:

PERIOD: Post Medieval

NGR: SN48760139

Old Air Shafts are depicted here on the Ordnance Survey 1st edition map (1880 Carms. Sheet 58.02, 25).

COMMUNITY: Llanelli Rural

STATUS:

PRN: 98719 **TYPE:** Level
NAME:
SUMMARY TEXT:

PERIOD: Post Medieval

NGR: SN48700150

Old Coal Level with associated mining features to the north is shown here on the Ordnance Survey 1st edition (1880)

COMMUNITY: Llanelli Rural

STATUS:

PRN: 98720 **TYPE:** Quarry
NAME:
SUMMARY TEXT:

PERIOD: Post Medieval

NGR: SN48700129

An Old Quarry is recorded at this location on the Ordnance Survey 1st edition map (1880 Carms. Sheet 58.02, 25)

COMMUNITY: Llanelli Rural

STATUS:

PRN: 98721 **TYPE:** Mill Race
NAME: DULAIS MILL
SUMMARY TEXT:

PERIOD: Post Medieval

NGR: SN48790172

A mill race serving Dulais Mill (PRN 98722), extending for approximately 340m, marked on the Ordnance Survey 1st edition map (1880 Carms. Sheet 58.02, 25).

COMMUNITY: Llanelli Rural

STATUS:

PRN: 98722 **TYPE:** Fountain
NAME:
SUMMARY TEXT:

PERIOD: Post Medieval

NGR: SN48890128

A fountain recorded on the Ordnance Survey 1st edition map (1880 Carms. Sheet 58.02, 25). Absent from the recent mapping.

COMMUNITY: Llanelli Rural

STATUS:

PRN: 98723 **TYPE:** Lodge
NAME:
SUMMARY TEXT:

PERIOD: Post Medieval

NGR: SN48670084

One of two buildings recorded as Lodge on the Ordnance Survey 1st edition map (1880 Carms. Sheet 58.06, 25).

Present condition unknown.

COMMUNITY: Llanelli Rural

STATUS:

PRN: 98738 **TYPE:** Ornamental Lake **PERIOD:** Modern **NGR:** SN48930163

NAME:

SUMMARY TEXT:

A series of lakes, ponds and weirs are recorded at this location on the Ordnance Survey 3rd edition map (1916 Carms. Sheet 58.02, 25). Mostly ornamental (one of the lakes referred to as the skating pond) although they also fed the saw mill. Present condition unknown.

COMMUNITY: Llanelli Rural

STATUS:

PRN: 98740 **TYPE:** Fountain **PERIOD:** Post Medieval **NGR:** SN49130155

NAME:

SUMMARY TEXT:

A fountain is recorded behind Stradey Castle on the Ordnance Survey 1st edition (1880 Carms. Sheet 58.02, 25)

COMMUNITY: Llanelli Rural

STATUS:

PRN: 100054 **TYPE:** Farmstead **PERIOD:** Post Medieval **NGR:** SN46670151

NAME: UPLANDS

SUMMARY TEXT:

A farmstead is recorded at this location on the Ordnance Survey 1st edition map (1880). Present status unknown.

COMMUNITY: Llanelli Rural

STATUS:

PRN: 100173 **TYPE:** Fulling Mill **PERIOD:** Post Medieval **NGR:** SN47750289

NAME:

SUMMARY TEXT:

A Tucking Mill recorded on the 1880 map 1st edition Ordnance Survey map by the side of the Avon

COMMUNITY: Llanelli Rural

STATUS:

PRN: 100174 **TYPE:** Building **PERIOD:** Post Medieval **NGR:** SN47830281

NAME:

SUMMARY TEXT:

A small square building recorded on the 1880 1st edition and 1907 2nd edition OS maps on the bank of the Avon Cwm Mawr. Its function is not known. It is depicted on modern mapping as a probable ruin.

COMMUNITY: Llanelli Rural

STATUS:

PRN: 103714 **TYPE:** Air Crash Site **PERIOD:** Modern **NGR:** SN482009

NAME: HURRICANE W9231

SUMMARY TEXT:

Assigned to 316 squadron. Engine problems, crashed at Pwll during forced landing, 17 May, 1941. Pilot survived. F. Sage 03/2013

COMMUNITY: Cefn Sidan

STATUS: Protected Place

PRN: 103998 **TYPE:** Building **PERIOD:** Post Medieval **NGR:** SN46030142
NAME: NEW LODGE MEWS
SUMMARY TEXT:

Complex of buildings recorded on the historic Ordnance Survey maps, probably associated with New Lodge Mews, but not shown on mastermap.

COMMUNITY: Llanelli Rural **STATUS:**

PRN: 104002 **TYPE:** Mill Race **PERIOD:** Post Medieval **NGR:** SN48700199
NAME:
SUMMARY TEXT:

Mill race associated with Woollen Mill PRN 9435

COMMUNITY: Llanelli Rural **STATUS:**

PRN: 104003 **TYPE:** Cottage **PERIOD:** Post Medieval **NGR:** SN46480318
NAME:
SUMMARY TEXT:

Possible cottage recorded on the historic Ordnance Survey maps but not shown on mastermap.

COMMUNITY: Trimsaran **STATUS:**

PRN: 105190 **TYPE:** Air Crash Site **PERIOD:** Modern **NGR:** SN47870197
NAME: MARTIN B-26B MARAUDER 41-18252
SUMMARY TEXT:

The aircraft was named MI LAINE was caught in thick fog on 4 June 1943 and was descending in an attempt to find a place to land. It flew into a hay barn at Penrhyn Farm at Pwll, near Llanelli and exploded.

COMMUNITY: Llanelli Rural **STATUS:** Protected Place

PRN: 105249 **TYPE:** Air Crash Site **PERIOD:** Modern **NGR:** SN4704
NAME: HANDLEY PAGE HEREFORD I L6036
SUMMARY TEXT:

This Hereford was one of 100 delivered to the RAF by Short & Harland, Belfast, to contract 580498/36 between August 1938 and June 1940. It was assigned to 14 Operational Training Unit. The aircraft's engine cut and it crash landed 4 miles northwest of Llanelli.

COMMUNITY: Llanelli **STATUS:** Protected Place

B) Scheduled Ancient Monuments (SAMs) and Listed Buildings (LBs) within 2.5km radius

i) Scheduled Ancient Monuments (SAMs)

SAM Ref: CM238 **SITE TYPE:** Motte **PERIOD:** Medieval **NGR:** SN465025
SAM_NAME: Waun Twmpath Motte

COMMUNITY: Pembrey and Burry Port Town

SAM Ref: CM217 **SITE TYPE:** Cross-marked stone **PERIOD:** Early Medieval **NGR:** SN475014
SAM_NAME: Cross-Marked Stone at Cilymaenllwyd House

COMMUNITY: Llanelli Rural

SAM Ref: CM384 **SITE TYPE:** Enclosure – Defensive **PERIOD:** Prehistoric **NGR:** SN452014
SAM_NAME: Y Gaer Defended Enclosure

COMMUNITY: Cefn Sidan

ii) Listed Buildings (LBs)

LB No. 11884 **NAME:** Stradey Castle
LOCATION: Entered by private drive from the B4308. House on terraced site with main basement area

COMMUNITY: Llanelli Rural **EASTINGS:** 249109 **NORTHINGS:** 201537

GRADE: II*

LB No. 20147 **NAME:** Old house, including attached bakehouse, at Llettyrychen Fawr Farm
LOCATION: About 1.5km NE of Burry Port, on S side of minor road between A484 and B4308.

COMMUNITY: Cefn Sidan **EASTINGS:** 245917 **NORTHINGS:** 201752

GRADE: II

LB No. 20544 **NAME:** Bethlehem Baptist Chapel
LOCATION: At south side of the A484 in the village of Pwll.

COMMUNITY: Llanelli Rural **EASTINGS:** 247363 **NORTHINGS:** 201069

GRADE: II

LB No. 81327 **NAME:** Milepost on Heol Trimsaran
LOCATION: Approximately 600m SE of the hamlet of Heol-ddu.

COMMUNITY: Trimsaran **EASTINGS:** 246791 **NORTHINGS:** 203400

GRADE: II

LB No. 82065 **NAME:** Church of St Mary
LOCATION: Within a large churchyard and prominently sited in a high position on the NE side of Burry Port.

COMMUNITY: Cefn Sidan **EASTINGS:** 245321 **NORTHINGS:** 201043

GRADE: II

LB No. 82068 **NAME:** Milepost on Colby Road
LOCATION: On the E side of Bramble Lodge, almost opposite the junction with the B4311 (Church Road).

COMMUNITY: Cefn Sidan

EASTINGS: 245347 **NORTHINGS:** 201284

GRADE: II

APPENDIX IV:
Archive Cover Sheet

ARCHIVE COVER SHEET

Pant Farm Wind Turbines
Trimsaran Road, Llanelli, Carmarthenshire

ARCHIVE DESTINATION – RCHAMW

Site Name:	Pant Farm Wind Turbines
Site Code:	PF/2014/AA
PRN:	
NPRN :	N/A
SAM:	N/A
Other Ref No:	HRSW Report No. 144
NGR:	SN 4740 0250
Site Type:	Post Medieval landscape
Project Type:	Archaeological Appraisal
Project Manager:	Richard Scott Jones
Project Dates:	July 2014
Categories Present:	N/A
Location of Original Archive:	HRS Wales
Location of duplicate Archives:	Dyfed Archaeological Trust
Number of Finds Boxes:	
Location of Finds:	
Museum Reference:	
Copyright:	HRS Wales
Restrictions to access:	None

$$= \frac{1}{\sqrt{2}} \begin{pmatrix} 1 & 1 \\ 1 & -1 \end{pmatrix} \begin{pmatrix} \sqrt{2} \\ 0 \end{pmatrix} = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$$

$$\begin{aligned} \frac{1}{\sqrt{2}} \begin{pmatrix} 1 & 1 \\ 1 & -1 \end{pmatrix} \begin{pmatrix} \sqrt{2} \\ 0 \end{pmatrix} &= \frac{1}{\sqrt{2}} \begin{pmatrix} \sqrt{2} \\ \sqrt{2} \end{pmatrix} = \begin{pmatrix} 1 \\ 1 \end{pmatrix} \end{aligned}$$