



Upper Ogmore Wind Farm Request for Formal Environmental Impact Assessment (EIA) Scoping Direction

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Date: March 2018

Ref: 2959-001215

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1.0 INTRODUCTION

1.1 The applicant

Renewable Energy Systems Ltd ('RES') are part of the Sir Robert McAlpine group, a British family-owned firm with over 100 years' experience in construction and engineering. RES is one of the world's leading independent renewable energy developers with operations across Europe, North America and Asia-Pacific. RES is active in a range of renewable energy technologies including onshore wind, offshore wind, and solar as well as enabling technologies such as energy storage and demand-side management.

1.2 Background

RES has commissioned the undertaking of an Environmental Impact Assessment (EIA) for a renewable energy project located on land to the south of the A4107 in Bridgend County between Blaengwynfi, Nantymoel and Blaengarw ('the Project'). The Project is centred at E29150 N19450 and its location is illustrated in **Figure 1**.

The purpose of the Project is the generation and storage of renewable electricity. The Project will look to generate renewable electricity through onshore wind technology. Studies to date suggest that the Project could accommodate up to eight (8) wind turbines. In order to match on-site electricity generation to energy demand, as well as facilitate the reduction in any possible grid constraint requirements, the Project will also consider the provision of energy storage units as part of the infrastructure. Further detail about the Project is provided in Chapter 2.

1.3 Determining authority and regulatory requirements

The indicative size and scale of the Project (i.e. greater than 10MW) means that it will be a Development of National Significance (DNS) to be determined by the Welsh Ministers. As such, a planning application will be submitted to the Planning Inspectorate for Wales (PINS) for consideration by an appointed Planning Inspector. PINS examine the application and make a recommendation to the Welsh Minister based on planning merits and national priorities. The Minister then decides whether or not to grant permission.

The statutory basis for the DNS process is provided in Part 5 of the Planning (Wales) Act 2015, which amends the Town and Country Planning Act 1990 ("the Act"), the Developments of National Significance (Procedure) (Wales) Order 2016, and subsequent Regulations.

The Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017, referred to herein as the 'EIA Regulations' implement the requirements of the European Directive on EIA in Wales. The Project will fall under Schedule 2 of the EIA Regulations as an 'installation for the harnessing of wind power for energy production (wind farm)'. For Schedule 2 projects, an EIA is needed if significant environmental effects are likely to arise from implementation of the Project. Based on current available information, RES have concluded that an EIA should be carried out and that an Environmental Statement (ES) will be submitted in support of a planning application. RES will therefore not be seeking an EIA Screening Opinion from PINS.

The undertaking of an EIA will ensure that the likely significant environmental effects, both positive and negative, of the Project, are assessed in a systematic way which will enable the significance of these effects to be clearly understood by PINS, the Welsh Ministers and key stakeholders, including the local community. Where appropriate, the EIA will consider the scope for mitigating any adverse environmental effects and detail the residual effect of any impact.

1.4 About this document

This document is a scoping report submitted under Regulation 33 of the EIA Regulations. Guidance provided by PINS¹ which states that the developer should carefully consider the best time to request a scoping opinion and are encouraged to undertake informal consultation with prescribed consultation bodies to inform the scoping request.

The purpose of this report is to inform PINS, statutory consultees, and other stakeholders about the proposed scope of the EIA, the findings of which will be presented in the ES that will accompany any subsequent planning application for the Project. Whilst at this stage the final design of the Project is not available, a considerable amount of background studies and baseline work has been completed to inform the design.

RES can confirm that this request for a scoping direction is made in relation to a development of national significance for the purposes of section 62D of the Town and Country Planning Act 1990.

In accordance with the requirements of Regulation 33, the following information has been included within this scoping report:

- A plan sufficient to identify the land; and
- A brief description of the nature and purpose of the development and of its possible effects on the environment.

In addition, PINS Procedural Guidance (Appendix 3) sets out that the Scoping Report should include the following information:

- An outline of the main alternatives considered and the reasons for selecting a preferred option;
- Results of desktop and baseline studies where available;
- A record of consultation undertaken with relevant bodies (including any public engagement) to date;
- Referenced plans presented at an appropriate scale to convey clearly the information and all known aspects associated with the proposal;
- Guidance and best practice to be relied upon, and whether this has been agreed with the relevant bodies (for example the statutory nature conservation bodies or local authorities) together with copies of correspondence to support these agreements;
- Methods used or proposed to be used to assess impacts and the significance criteria framework used;
- Any mitigation proposed and the extent to which these are likely to reduce impacts;
- Where impacts from consequential or cumulative development have been identified, how applicants intend to assess these impacts in the ES (for example, a high level assessment of the grid connection where this does not form part of the proposed development for a power station);
- An indication of any European designated nature conservation sites that are likely to be significantly affected by the proposed development and the nature of the likely significant impacts on these sites;
- Key topics covered as part of applicants' scoping exercise; and

¹ PINS Procedural Guidance – Appendix 3: Environmental Impact Assessment

- An outline of the structure of the proposed ES.

1.5 Report structure

This report is structured as follows:

- **Section 2: The Project**
This section provides a description of site and surrounding environs, the main components of the Project, and the anticipated approach to construction, operation and maintenance, and decommissioning of the Project.
- **Section 3: Environmental Impact Assessment (EIA) and the scoping process**
This section outlines the EIA process and methodology, the EIA Scoping process, and proposed structure of the Environmental Statement (ES).
- **Sections 4-10: Environmental Impact Assessment Methodology**
Sections 4-10 will address the scope of the EIA for each environmental discipline. Where relevant, each section will look to summarise:
 - The extent of the study area considered for the EIA;
 - Baseline environmental information gathered to date;
 - Pre-scoping meetings/communication to inform the EIA;
 - Guidance, methodologies, and survey programme to be adopted as part of the EIA; and
 - Identify the potential significant effects of the Project on identified environmental interests to permit recommendations to be made for areas that can be scoped out of the EIA.
- **Section 11 – Topics scoped out of the EIA**
This section will report on environmental and technical topics that are not considered to give rise to any significant effects and have been excluded from the EIA.
- **Section 12 – Summary of Proposed EIA Scope**
This section will summarise the proposed scope for each of the environmental and technical studies that will be undertaken as part of the EIA. It will also clearly outline the areas which have been scoped out of each assessment.
- **Section 13 – Other Supporting Documentation**
This section provides a brief overview of any other supporting documentation that will sit alongside the ES as part of the DNS application.

2.0 THE PROJECT

2.1 Strategic planning and site identification

2.1.1 Introduction

The UK and Welsh Governments have made very clear their commitment to both energy saving and renewable energy sources as ways of meeting the requirements to reduce carbon emissions. There is a strong planning policy direction that much more has to be done through the planning system to meet the greatly enhanced level of renewable energy development that is now required. Most recently, in September 2017 the Cabinet Secretary for Environment, Lesley Griffiths, set Wales a target of generating 70% of its electricity consumption from renewable energy by 2030.

There is no requirement that, in terms of the benefits, any renewable energy project has to have demonstrated that these cannot be economically attained with less adverse impact elsewhere. No such position arises even within the EIA Regulations or indeed in advice on planning and energy at a national level. There is no requirement that a renewable energy developer has to provide proof that there is no alternative that has lesser environmental effects, or that a different proposal on the same site would have lesser effects. There is also no requirement in the case of renewable energy developments, for which there will need to be a number of different sites all making a contribution to the overall targets for renewable energy, that a form of sequential testing has to be carried out in which a series of proposals have to be ranked according to their environmental acceptability, and this is explicitly confirmed in the National Policy Statement EN-3².

The national policy is to secure the deployment of renewable energy resources in large quantities to meet the adopted targets. Targets must be met and, where met, raised as appropriate. Renewables must be developed wherever and whenever the technology is viable and environmental, economic, and social impacts can be addressed satisfactorily. As such, no concept of alternatives arises.

RES's site selection route for the Project has been to identify suitable sites but not to then consider any as alternatives to each other. However, reasonable alternative design options as part of the iterative EIA process and the evolution of the Project will be carefully considered and will be clearly presented as part of the ES.

2.1.2 Identification of Upper Ogmere Wind Farm ('the Project')

The Project has been identified and designed through consideration of the Strategic Search Areas (SSA) identified within TAN8 and in accordance with internal RES procedures that are designed to result in maximum environmental benefit with minimum significant negative effects within the locality of any project. RES maintains sophisticated Geographic Information System (GIS) models for site selection which seek to mirror planning, environmental, technical and commercial requirements.

RES undertook a computer-based analysis to establish wind farm site suitability across Wales. Use of GIS technology enabled objective and consistent treatment of the whole country and this work has since been updated regularly, when new data has become available or other factors have changed. Where available and appropriate, the GIS model incorporates published advice from statutory consultees.

² National Policy Statement for Energy (EN-3), Department for Energy and Climate Change (DECC), July 2011

The key factors included in the GIS modelling are listed below:

- Relevant national/local planning policy and renewable energy suitability studies;
- Wind speed at 45m height in excess of 6 metres per second (m/s);
- Outside Areas of Outstanding Natural Beauty (AONB), National Parks, European and internationally designated sites such as RAMSAR, Special Areas of Conservation (SAC) and Special Protection Areas (SPA);
- Discretionary consideration of Site of Special Scientific Interest (SSSI) and other county/local level environmental designations;
- The location of residential dwellings and local settlements;
- Good site access;
- Radar and aerodrome operations;
- Underground infrastructure and overhead lines; and
- Telecommunications and microwave links.

In response to the results of GIS modelling, initial site visits, and advice from RES technical staff and consultants, the land to the south of the A4107 in Bridgend County between Blaengwynfi, Nantymoel and Blaengarw was considered suitable to investigate in more detail. RES subsequently entered into land agreements with landowners, and a decision was taken to advance development proposals through detailed survey work.

2.2 Site characteristics

The 'Site' is defined as the area of land considered suitable for development of the Project and is represented by the red boundary shown on **Figure 2**. The Site of the Project is centred on the summit of Werfa (568m) and extends east and west across the upland plateau north of the Garw and Ogmore valleys and south of the Afon Afan valley. The closest settlements to the Site include Abergwynfi to the north-west, Blaengarw to the south-west and Nant-y-moel to the south-east, all within 2km. The Site is dominated by unenclosed upland moorland which has been the subject of heavy sheep grazing.

A transmission mast and associated buildings are present in the central part of the Site within a fenced compound. A network of public rights of way (PRoW), including footpaths and bridleways, cross the Site.

A large part of the Site is located within open access common land, which, under the Countryside and Rights of Way (CROW) Act 2005, gives the public rights to use the commons for 'quiet enjoyment and recreation'. Please refer to **Figure 2**, the areas of open access land have yellow shading with a brown border.

The Llynfi Afan Renewable Energy Park (Llynfi Afan REP) is located in close proximity to the north of the Site. The Llynfi Afan REP, which became operational in 2017, comprises 12 wind turbines with a 78m hub height, 80m diameter rotor blades and a maximum output of 24MW.

2.3 Project components

2.3.1 Overview

The Project is still in the design stage, as such the infrastructure requirements and layout will evolve throughout the EIA process. However, to ensure that an accurate response to this EIA scoping request can be provided by PINS (and Statutory Consultees), the main components of the Project, as outlined in this section, are considered worst case.

Based on the initial constraints work which has been carried out, the Project is considered to have sufficient capacity for up to eight (8) horizontal-axis wind turbines and associated infrastructure. An indicative layout has been established to provide a basis for this report, please refer to **Figure 2**. This initial design will, of course, be subject to change based on any technical and environmental constraints that become evident throughout the EIA process.

2.3.2 Permanent infrastructure

The following components would form permanent features throughout the life of the Project:

- Wind turbines;
- Wind turbine transformers and switchgear (if located outside the wind turbine tower);
- Turbine foundations;
- Crane hardstandings;
- Control building, substation, and storage compound;
- Electrical cabling; and
- On-site access tracks, entrances, and exits.

Wind turbines

The wind turbine industry is evolving at a significant rate. Designs continue to improve technically and economically. The most suitable turbine model for a particular location can change with time and, therefore, a final choice of turbine for the Project has not yet been made. The most suitable machine would be chosen before construction, within the overall height limit assessed as part of the EIA and consented as part of the DNS application.

For the purposes of this report, indicative turbine dimensions would be: a hub height of 100m and a rotor diameter of 100m; giving an overall tip height of 150m from ground level. The indicative capacity of each wind turbine is 2-3 Megawatts (MW). The turbines would be painted in a visually recessive colour, typically a light grey or white.

Wind turbine transformers and switchgear

For most current wind turbine models, the transformer and switchgear is located alongside the base of each tower, although for larger turbines some manufacturers install the transformer in the nacelle or tower base. The transformer's function is to raise the generation voltage from typically 690 volts (V) to the higher transmission level of 33 kilo-Volts (kV) that is needed to transport the electricity into the grid. At this stage it is unknown if an internal or external transformer would be used, but the latter has been selected for the purpose of a worst case assessment (i.e. from a land-take and visual perspective).

Turbine foundations

The wind turbines would be supported on steel reinforced concrete foundations. A typical gravity-base foundation will be used if the ground conditions are found to be suitable. The exact quantities of concrete, reinforcement, diameters and depths would vary depending on the actual make of turbine used. Different turbine foundations may also be considered for different turbine locations depending on the local ground conditions. The dimensions, materials, and construction processes associated with the turbine foundations considered as part of the EIA will be clearly outlined within the ES.

Crane hardstanding

The turbines are erected using mobile cranes. These require areas of permanent hardstanding adjacent to the turbine locations, which can support the load of the cranes on their outriggers. Typically, these consist of one main permanent area adjacent to the turbine position where the main turbine erection crane would be located. The dimensions, materials, and construction processes associated with the crane hardstanding considered as part of the EIA will be clearly outlined within the ES.

Control building, substation, and storage compound

The control building compound would accommodate metering equipment, switchgear, the central computer system, and electrical control panels. A spare parts store room, toilet and wash basin along with a kitchenette would also be located in the control building. Although not permanently staffed, the buildings would be visited periodically by maintenance personnel.

The sub-station compound would contain power quality improvement equipment, up to two auxiliary transformers, and possibly a spare turbine transformer.

The energy storage devices will consist of a number of permanent containers mounted on small concrete foundations. Please refer to **Figure 3** for an example drawing of a storage container.

The location, overall size, and individual structures contained within the compound will be clearly defined within the ES.

Electrical Cabling

The turbines would be electrically connected to the substation by means of 33kV cables. These cables would be laid underground (where possible) in trenches running adjacent to the on-site access tracks.

On-site access tracks, entrances, and exits

A network of access tracks will be required to provide access to each turbine location within the Project. Existing tracks will be utilised wherever reasonably practicable and upgraded as required. Tracks will typically be 5m wide with appropriate widening at corners and passing places, as required. RES will consult with appropriate consultees regarding the location of new access tracks which interact with areas of common land, sensitive habitats, and hydrological features.

The location and design of any Site entrances/exits as part of the Project will be discussed with the relevant Statutory Consultees as part of the iterative design process. Any off-site mitigation works required to facilitate the movements of Abnormal Indivisible Loads (AILs) will be identified by swept path analysis.

2.3.3 Temporary infrastructure

The following components would form temporary features throughout the construction phase of the Project:

- Temporary enabling works and construction compounds;
- Hardstanding for lay-down areas; and
- Power performance masts.

Temporary enabling works and construction compounds

Enabling works are erected at the beginning of the construction period. Upon completion of any initial access tracks to the main development area, temporary structures associated with the enabling works would be transferred to a construction compound. The location(s), size, and individual structures contained within the enabling works and construction compound(s) will be clearly defined within the ES. Each temporary construction compound may contain temporary site offices and with services including sealed waste storage toilet facilities; sufficient parking for cars and construction vehicles; containerised storage facilities and a receiving area for incoming vehicles.

Hardstanding for lay-down areas

Areas of temporary hardstanding would also be required as part of the crane hardstanding general arrangement, this would be required during the erection of the wind turbine for laying down wind turbine components and access.

Power performance masts

Temporary guyed meteorological masts, known as power performance or calibration masts, up to the final hub height may be required to confirm the detailed wind flow of the Project. These masts are raised prior to turbine erection and the data they gather is used in the acceptance tests on the turbines.

If required, the masts will be raised around the same time as the turbine foundations are poured, approximately six months before the turbines are erected.

2.4 Access to the Project

The proposed access route to the Site follows the A465 'Heads of the Valleys' highway to Hirwaun, before turning south onto the A4061 for approximately 3km. At this point, the proposed access route will follow existing forestry tracks through the operational Pen-y-Cymoedd Wind Farm to the Bwlch forestry access point at the A4107. Localised widening of the forestry track will be required to allow passage of abnormal indivisible loads. The proposed route then exits the forest onto the A4107 approximately 200m from the Site.

2.5 Grid connection

If overhead lines are necessary, the electrical connection between the Project and the grid network will be subject to a separate planning application under Section 37 of the Electricity Act 1989. Detailed environmental studies and reporting will accompany any separate planning application. If sufficient detail is available from the Distribution Network Operator (DNO) at the time of writing, the ES for the Project will include consideration of the environmental effects of the indicative grid route corridor.

2.6 Phased lifetime of the Project

2.6.1 Construction phase

It is currently estimated that a construction period of 12-18 months would be scheduled for the Project. The main phases of the construction period would include:

- Access route road improvements;
- Site entrance construction;
- Construction/upgrade of on-site access tracks;
- Construction of temporary construction compound and hardstandings;
- Construction of turbine foundations, requiring the import of concrete and steel;
- Construction of the control building, substation, and storage components;
- Excavation of trenches and laying of cables alongside Site tracks;
- Connection of distribution cables;
- Delivery and erection of wind turbines;
- Commissioning of site equipment; and
- Site demobilisation and restoration.

Some of these activities will be carried out concurrently in order to reduce the length of the construction programme. Site restoration will be conducted as early as possible.

Vehicle movements during Construction

Vehicle movements associated with construction works will include:

- Cars and minibuses for transporting construction personnel onto the Site;
- Heavy goods vehicles (HGVs) for pre-construction delivery of site offices and construction equipment;
- Abnormal Indivisible Load (AIL) transport vehicles for delivery of the turbine components and base rings;
- Two mobile road going cranes, used for the erection of the turbines; and
- Standard HGVs for transporting electrical cable, steel reinforcement for foundations, construction plant fuel and other items and equipment.

A Traffic Management Plan (TMP) will be prepared in consultation with the local highway authority and other stakeholders to address scheduling and routing of deliveries, and any mitigation measures pertinent to the project.

Please refer to **Section 13** for further information.

2.6.2 Operational phase / maintenance

A wind farm is typically visited up to four times a month by a small maintenance crew. There will also be a requirement for maintenance of the access tracks and substation.

2.6.3 Decommissioning

Turbines typically have an operational life of 25-30 years and at the end of this period the turbines can be removed, reconditioned or replaced in accordance with planning permission requirements, and appropriate site restoration measures implemented.

3.0 ENVIRONMENTAL IMPACT ASSESSMENT (EIA) AND THE SCOPING PROCESS

This section outlines the EIA process and methodology, the EIA Scoping process, and proposed structure of the Environmental Statement (ES).

3.1 Environmental Impact Assessment (EIA)

The EIA Regulations (as referred to in Section 1) require an EIA to be undertaken for a specified range of major development proposals. EIA was defined in the Department of the Environment, Transport and the Regions Circular 02/99³ as:

“...a means of drawing together, in a systematic way, an assessment of a project's likely significant environmental effects. This helps to ensure that the importance of the predicted effects, and the scope for reducing them, are properly understood by the public and the relevant competent authority before it makes a decision.”

The output of an EIA, in the form of an Environmental Statement (ES) is used to inform the decision making process of the consenting authority. The following key stages will form part of the iterative EIA process:

- **EIA Scoping:** Consultation with statutory consultees and other stakeholders to obtain their views on the proposal; identify potential impacts; identify existing environmental information and to agree methods for the assessment of these impacts. Further information is provided in **Section 3.2**.
- **Baseline studies:** Identification of existing environmental conditions, receptors, and sensitivities through a review of existing information and field studies as required;
- **Design freeze:** Once the baseline information has been recorded and key receptors identified, the final Project will be fixed and will form the basis against which the impact assessment is measured.
- **Assessment of effects and their significance:** An assessment of the significance at local, regional, national and international scales of potential effects;
- **Mitigation:** There are three forms of mitigation which are integrated into the Project as part of the EIA at different stages. ‘Primary Mitigation’ refers to modifications made to the location or design of the Project during the pre-application phase that will become an inherent part of the project, and do not require additional action to be taken. ‘Secondary Mitigation’ refers to actions that will require further activity in order to achieve the anticipated outcome. These may be imposed as part of the planning consent, or through inclusion in the ES. ‘Tertiary Mitigation’ refers to actions that would occur with or without input from the EIA feeding into the design process. These include actions that will be undertaken to meet other existing legislative requirements, or actions that are considered to be standard practices used to manage commonly occurring environmental effects (e.g. considerate contractors’ practices that manage activities which have potential nuisance effects).
- **Residual effects:** Identification and reporting of residual effects after mitigation.

There is no required format for an ES, but it must provide the information specified in part 2 of schedule 4 of the EIA Regulations, and as much of the relevant information in part 1 of schedule 4 as is reasonably required to assess the effects of the Project and which the Developer can reasonably be required to compile. Please refer to **Section 3.6**.

³ Circular 02/99: Environmental Impact Assessment, Department of Communities and Local Government (DCLG), 1999

3.2 Scoping an EIA

Once the requirement for an EIA has been established, 'scoping' is the next important stage because it sets the parameters for the rest of the process. The purpose of scoping is to define environmental effects which need to be assessed as part of the EIA. This recognises that there may be some environmental aspects of the Project that will result in no significant effects and which does not therefore need to be considered further in the more detailed assessment phase. Elements that are likely to result in significant effects or impacts are therefore identified during scoping to be assessed in greater detail in the EIA.

This Scoping Report has therefore been prepared to:

- Provide an overview of the Project and location;
- To establish the availability of baseline data;
- To define a survey and assessment framework from which a comprehensive overall EIA can be produced;
- To invite PINS, the Local Planning Authority, and other Statutory Consultees to comment on the proposed methodology for each topic considered and provide any relevant environmental information relating to the Project and surrounding area.

If the scope of the EIA is defined too narrowly, a critical area of uncertainty or an unexpected adverse effect may emerge later in the process, with potential consequences for the design and timetable for development. If the scope is defined too loosely, then time, expense and effort may be wasted on pursuing unnecessary detail. Careful consideration has been given to the scale and nature of the Project, in the context of site specific and local environmental baseline conditions.

The intention has been to scope issues considered to be potentially significant into the EIA. Where a particular issue has not been included within the proposed scope of the EIA, this is not to suggest that there will be no associated effects, but rather that these will not be significant. It is hoped that all consultees can agree a focussed scope leading to a carefully considered but concise ES.

3.3 The EIA assessment methodology

Once the scope of the EIA is agreed, and the necessary surveys have been completed, potential 'effects' will be verified and assessed by analysing the identified magnitude of change against the established sensitivity of the environmental receptor. For ease of comparison across topic areas this assessment will utilise a standard matrix and terminology, although this may not be appropriate for all topic areas.

The assessment will establish whether identified effects are 'significant' and will also make it clear whether these effects are judged to be minor, moderate, or major, and whether they are direct, indirect, secondary, cumulative, short, medium and long-term, permanent and temporary, positive and negative effects of the development. The assessment of effects will also distinguish between the construction, operational and decommissioning phases of the Project and where appropriate, take account of cumulative effects (see **Section 3.4**).

Each environmental topic will clearly identify mitigation measures which are an inherent part of the design of the Project and will establish a level of significance before and after additional mitigation or control measures that may be required to address an identified significant effect.

The ES may also identify some environmental enhancement measures, which although not required to provide mitigation for an identified significant effect, are nevertheless identified as an opportunity for environmental enhancement. Ultimately the EIA process reported in the ES will identify the 'residual' significant effects that are left after all mitigation and control measures are taken into account.

3.4 Cumulative assessment

Cumulative impacts arise where the effects of one development combine with the effects of another, with the result that, usually, a larger (and possibly more significant) effect might arise. Cumulative effects should be considered in the case of operational and consented wind farms, as well as proposed wind farms which are the subject of undetermined applications.

The cumulative assessment will, therefore, distinguish between predicted cumulative impacts arising from the Project in combination with committed projects in the vicinity and those in combination with projects at an early stage in the planning process. This is because committed or consented proposals are less likely to change, and so impacts can be predicted with greater confidence; whereas projects at earlier stages of planning are less certain, in respect of layout or more fundamentally, simply their feasibility.

Cumulative effects will be considered on an issue-by-issue basis and the scope of the EIA will be expanded where necessary to include them in the assessment of each topic.

3.5 Consultation

Consultation with statutory and non-statutory consultees is an essential part of defining the scope as these organisations will have an important role in guiding and shaping the EIA process. It is intended that this scoping report will form the basis of discussions with many of the consultees, although consultation has already been initiated and will be maintained with key consultees throughout the development stages.

The following organisations have already been consulted on relevant environmental assessments at this pre-scoping stage:

- Natural Resource Wales (scope of ecological baseline studies);
- Neath Port Talbot County Borough Council (landscape and visual scope);
- Rhondda Cynon Taf County Borough Council (landscape and visual scope); and
- Bridgend County Borough Council (noise and landscape and visual scope).

Early consultation has also been carried out with political and community stakeholders to raise awareness of the Project and anticipated timescales to engage and contribute to the design and characteristics of the Project as part of the DNS process. Public exhibitions were held 27th-28th November 2017 in four separate locations (Blaengwynfi, Nantymoel, Blaengarw and Cwmparc) to enable people to find out more about the project and provide RES with any initial comments/views.

3.6 Structure of the Environmental Statement (ES)

The ES would be produced in four (4) volumes:

- Volume I: Non-Technical Summary (NTS) of the detailed ES;
- Volume II: Written Statement;
- Volume III: Supporting technical appendices; and
- Volume IV: Supporting figures and plans.

The written statement (Volume II) structure is likely to be as follows, subject to any changes to the scope identified through the consultation process:

- Chapter 1: Introduction;
- Chapter 2: Design evolution and alternatives;
- Chapter 3: Proposed Development;
- Chapter 4: Landscape and visual;
- Chapter 5: Ecology and biodiversity;
- Chapter 6: Acoustics;
- Chapter 7: Cultural heritage;
- Chapter 8: Traffic and transport;
- Chapter 9: Public access, land use, and socioeconomics
- Chapter 10: Shadow flicker; and
- Chapter 11: Summary of Effects.

The Individual environmental topic chapters within the written statement (Volume II) will look to follow a consistent format:

- Introduction;
- Scope, assumptions, and limitations;
- Methodology;
- Avoidance and primary mitigation measures;
- Assessment of effects;
- Other (secondary and tertiary) mitigation measures;
- Summary of likely residual significant effects;
- Cumulative effects; and
- Monitoring

The ES will be provided in hard copy and electronic format. Volume 1 (non-technical summary) will be provided in English and Welsh.

4.0 LANDSCAPE AND VISUAL

4.1 Introduction

This chapter sets out the proposed approach to assessing the potential effects of the Project on landscape character and visual amenity within a defined study area. The primary guidance for landscape and visual impact assessment (LVIA) is the Guidelines for Landscape and Visual Impact Assessment, 3rd edition (GLVIA3)⁴. In addition, Scottish Natural Heritage (SNH) has published a number of documents that have been adopted as industry standard good practice on landscape and visual assessments of wind farm proposals. The LVIA will be completed by Chartered Landscape Architects, and in accordance with relevant best practice documents, landscape and visual effects will be considered separately.

The landscape assessment will consider the effects of the Project on the existing landscape character, pattern of land and the rural and urban elements within the study area. The visual assessment will consider the visual impact of the development over the study area, including the magnitude of visual impact from nearby villages and settlements, roads and public places of interest. The LVIA will focus on receptors that may experience potentially significant effects.

In line with *Planning Guidance for Wind Turbine Development: Landscape and Visual Impact Assessment Requirements* (2014)⁵, a 15km study area is proposed for the examination of effects on landscape and visual receptors. Any particularly sensitive receptors identified outside this area may be included if significant landscape and/or visual effects are considered to be likely.

The location, indicative turbine layout and preliminary Zone of Theoretical Visibility (ZTV) across a 40km study area are shown on **Figure 1 (Appendix A)**. This map has been produced in line with SNH guidance⁶ which states that 40km is considered the maximum radius within which significant visual effects could occur based on the size of the turbines proposed (up to 150m).

Planning Guidance for Wind Turbine Development will be treated as the applicable local guidance in terms of scope and methodology guidance. Information and guidance will also be drawn from *SPG20 Renewables in the Landscape* (2015)⁷ and the *Heads of the Valleys Wind Turbine Development Landscape Sensitivity and Capacity Study* (2014).

4.2 Consultation

Bridgend County Borough Council, Neath Port Talbot County Borough Council, Rhondda Cynon Taf County Borough Council, and Natural Resources Wales have already been consulted on the approach to the assessment of effects on landscape character and visual amenity. Please refer to **Appendix A** for an example of the information provided to consultees. Please refer to **Appendix B** for a copy of the responses received to date. RES and their consultants will continue to engage with each organisation throughout the EIA process on matters relating to the LVIA.

⁴ Landscape Institute and the Institute of Environmental Assessment (2013) Guidelines for Landscape and Visual Impact Assessment, 3rd Edition ('GLVIA3')

⁵ Gillespies LLP (June 2014) Planning Guidance for Wind Turbine Development: Landscape and Visual Impact Assessment Requirements. Prepared for the Heads of the Valleys Landscape Officers and Planners with support from the South Wales Landscape Liaison Group.

⁶ SNH (2017) Visual Representation of Wind Farms. Version 2.2.

⁷ Bridgend Borough Council (2015) SPG20 Renewables in the Landscape: Supplementary Planning Guidance. Prepared for Bridgend Borough Council by Land Use Consultants

4.4 Assessment methodology

4.4.1 Project design considerations

The development will aim to achieve a coherent and structured form, in line with Welsh Government⁸ and SNH guidance⁹. The ES will present the rationale behind the final design strategy. The objective in designing the wind farm will be to develop a layout that accords with its setting in terms of landform and pattern, and which presents a simple visual image, avoiding the clustering of turbines and the isolation of outlying turbines in views from key locations.

All elements of the proposed wind farm infrastructure will be considered in terms of locational and design choice, and the LVIA will set out how the design of ancillary elements has evolved to minimise visual impact, especially from nearby and sensitive visual receptors.

4.4.2 Landscape character

Landscape receptors to be considered will include:

- Landscape elements and features within the site;
- Landscape character types and/or areas, as identified in published character assessments;
- LANDMAP aspect areas; and
- The implications of effects on landscape character for the special qualities of landscape-related planning designations at the national, regional and local level.

Predicted changes in both the physical landscape and landscape character will be identified. Effects will be considered in terms of the magnitude of change to the landscape, including its key characteristics as set out in published landscape character assessments. The sensitivity of the landscape will also be taken into account, acknowledging its underlying susceptibility, and the value placed on the landscape by society, which may be indicated through designation.

Landscape character assessments have been published by Bridgend¹⁰ and Neath Port Talbot County Borough Councils¹¹. The Bridgend character assessment forms part of the Council's evidence base for supplementary planning guidance on landscape, design and green infrastructure. It defines 14 discrete landscape character areas (LCAs) which are informed by LANDMAP aspect areas. The Site is located in the Mynydd Llangeinwyr Uplands LCA, which comprises remote uplands between the Garw and Ogmore Valleys. The Neath Port Talbot character assessment was undertaken alongside a LANDMAP assessment, and the 53 character areas defined are based on combining the aspect areas.

Significant effects on landscape character are more likely to occur in areas which have a strong landscape or visual relationship with the landscape of the Site. Each LCA within 15km will be considered in terms of its relationship to the Site and the extent of theoretical visibility indicated by the ZTV, to determine whether assessment of effects is required.

⁸ Design Commission for Wales (2014) Designing Wind Farms in Wales.

⁹ Scottish Natural Heritage (2017) Siting and Designing Windfarms in the Landscape - Version 3

¹⁰ LUC (2013) Landscape Character Assessment for Bridgend County Borough. Bridgend County Borough Council

¹¹ White Consultants (2004) Neath Port Talbot LANDMAP Landscape Assessment. Neath Port Talbot County Borough Council.

LANDMAP

In accordance with LANDMAP Guidance Note 3¹², all five aspect areas (Geological Landscape, Geological Landscape; Landscape Habitats; Visual and Sensory; Historic Landscape; and Cultural Landscapes) will be considered in the LVIA, with reference to published LANDMAP data. LANDMAP aspects within the Site are provided in **Table 1**.

Table 1: LANDMAP aspects within the Site

Aspect Type	Aspect ID, Area Name and Classification
Geological Landscape	• NPTGL023, Foel Fynyddau. Upland plateau; • CYNONGL033, U Ogwr Fawr valley, Glacial mountain valley; and • CYNONGL034, U Garw valley, Glacial mountain valley.
Landscape Habitats	• CYNONLH007, Acid Grassland.
Visual & Sensory	• CYNONVS622, Mynydd Llangeinwyr, Upland Grazing.
Historic Landscape	• CYNONHL215, H05 Unenclosed Upland, Marginal Land; and • NPTHL026, Afan Wallia, Woodland.
Cultural Landscape	• CYNONCL056, Designated Landscape Areas, Other Institutions; and • NPTCL046 Eastern High Lands: Resolven Mountain, M Forestry.

A full assessment of the baseline LANDMAP data will be included as an appendix to the LVIA. This will be carried out in accordance with LANDMAP Guidance Note 3.

Designated landscapes

The Site does not fall within any nationally designated landscapes but is located within the locally designated Bridgend Strategic Coalfield Plateau Conservation Area¹³ and borders the Rhondda Special Landscape Area (SLA) to the north-east. The wider area is characterised by low hills and valleys and a land use of commercial forestry and agriculture.

It is proposed that effects on the integrity of nationally and locally designated landscapes within the 15km radius study area will be considered in the assessment. These include:

- Brecon Beacons National Park, approximately 12km to north-east of the Site;
- Special Landscape Areas, within approximately 5km to the north-east of the Site;
- Strategic Landscape Areas, within 15km north-east of the Site;
- Landscape Conservation Areas, within 10km south of the Site; and
- Green Wedges, within 10km to south and west of the Site.

In addition, consideration will be given to any potential for effects on the Gower Area of Outstanding Natural Beauty, approximately 27km to the west of the Site. For each of the above designations, careful consideration will be given to the identified effects of the wind farm on landscape character and visual amenity within the designated area. Any resulting effects on the published special qualities of the designation will be identified, and an assessment will be made of the implications for the integrity of the designated area.

¹² Natural Resources Wales (2013) LANDMAP Guidance Note 3: Guidance for Wales, Using LANDMAP for Landscape and Visual Impact Assessment of Onshore Wind Turbines

¹³ Bridgend Borough Council (2010) Designation of Special Landscape Areas

4.4.5 Visual receptors

Visual receptors to be considered will include:

- People within settlements;
- People travelling on railways, major roads and ferry routes;
- People using walking routes and cycle routes; and
- People visiting areas of interest such as visitor attractions, viewpoints and hill summits.

The closest settlements to the Site include Abergwynfi to the north-west, Blaengarw to the south-west and Nant-y-moel to the south-east, all within 2km. Other nearby settlements include Blaengwynfi, Ogmere Vale, Price Town and Pontycymer. Port Talbot to the south-west is the largest settlement within 15km.

The nearest major road, the A4107, lies immediately north of the Site. Other roads within close proximity to the Site include the A4064 to the south and the A4063 to the west. The closest rail lines are the Rhondda line approximately 3.5km to the north-east and the Maesteg Line, approximately 6km to the south-west of the Site. The closest National Cycle Route is NCN 47 (Newport to Fishguard) to the north and east within approximately 7.5km, and NCN 4 (London to Fishguard). There are a number of popular walking routes within the study area including the Coed Morgannwg Way-St Illtyd's Walk within approximately 6km south-west of the Site. Other popular cycling and walking routes within the study area will be considered in the LVIA.

Visual effects are experienced by people at different locations around the study area, at static locations (for example settlements or viewpoints) and transitional locations (such as sequential views from routes). Visual receptors are the people who will be affected by changes in views at these places, and they are usually grouped by what they are doing at those places (for example residents, motorists, recreational users etc.).

GLVIA3 states that the nature of visual receptors, commonly referred to as their sensitivity, should be assessed in terms of the susceptibility of the receptor to change in views/visual amenity and the value attached to particular views. The nature of the effect should be assessed in terms of the size and scale, geographical extent, duration and reversibility of the effect. These aspects will all be considered to form a judgement regarding the overall significance of effect.

Viewpoint locations have been selected to provide a representative range of viewing distances and viewing experiences, including views from settlements, points of interest and sequential views along routes. A list of proposed viewpoints for the assessment is set out in **Table 2**. Assessment of the visual effects of the wind farm will be based on analysis of the ZTVs, field studies and examination of visualisations. Visualisations for each of the assessment viewpoints will be prepared in line with SNH guidance (2017).

Table 2: Preliminary Viewpoint Locations

No.	Name	Easting	Northing	Distance (km)	Reason for Selection
1	A4107, Hairpin Bend	291705	195705	0.6km	Represents sequential views gained from the A4107.
2	Mynydd Llangeinwyr	291915	193301	1.1km	Representative of views from the highest hill in the Bridgend County Borough area.
3	Craig Ogwr, footpath	293647	194686	1.1km	Representative of views experienced by recreational receptors on the Craig Ogwr footpath.
4	Blaengarw, cycle path	290095	192750	1.4km	Representative of views from cycle route 884 and similar views experienced from settlement Blaengarw.
5	Caroline Street, Blaengwynfi	289287	196535	1.4km	Represents views from settlement Blaengwynfi
6	A4061, Nant-y-Moel	293512	192946	1.7km	Represents sequential views from the A4061 and similar views experienced by residents of Nant-y-Moel.
7	Football field - Pontycymer	290525	191516	2.6km	Representative of views experienced by residents of Pontycymer.
8	Cwmparc	295544	196194	3.4km	Represents views from settlement Cwmparc
9	Pen y Fole, trig point	291900	189555	4.8km	Representative of views gained by walkers to this location.
10	Coed Morgannwg Way	296460	201685	4.9km	Represents views gained by recreational receptors on these popular walking routes.
11	A4061, above Treorchy	292284	202024	7km	Represents sequential views experienced by road users on this route.
12	Western edge of Penrhys	300054	194691	7.5km	Representative of views gained from the settlement of Penrhys and similar views experienced by walkers.
13	Coed Morgannwg Way & St Illyd's Walk	283578	191209	7.7km	Representative of views experienced from walking routes west of Maesteg.
14	Ogwr Ridgeway south west of Llangewyd	284625	187278	9.4km	Representative of views gained by road users and walkers on the Ogwr Ridgeway Walk.
15	Ergyd Isaf	279505	188660	12.5km	Represents views gained from local hill summit.
16	B4287 east of Neath	277724	195863	12.7km	Represents sequential views experienced by road users and similar views gained by walkers and those on horseback.

4.5 Cumulative assessment

A cumulative LVIA (CLVIA) will be undertaken. The scope of the CLVIA will be in accordance with the Planning Guidance for Wind Turbine Development Landscape and Visual Impact Assessment Requirements, in particular Table 7. Initial consideration will be given to all wind farms within the relevant distances which have a valid application, are consented, under construction or are operational.

The intervisibility of the development with other wind farms in the surrounding area will be illustrated using combined ZTV maps, using ZTVs of each wind farm overlain on a base map. Paired ZTVs will be prepared to illustrate the key relationships between the Project and other existing or proposed wind farms close to the Site.

Cumulative visual effects will be assessed through analysis of CZTVs, views from individual viewpoints and sequential views from routes, based on computer-generated wirelines. The magnitude of cumulative change to landscape character is the additional influence the Project has on the characteristics and character of the landscape type assuming the other wind farm schemes are already present.

Table 3 presents all known wind energy developments within 60km, and this list will be used to select those that will be considered within the CLVIA. It is accepted that the cumulative picture will change in time and this will be considered during consultation and updated within the assessment.

Table 3: Wind farm developments to be considered as part of cumulative assessment

Wind Farm	Easting	Northing	Distance (km)	Status
Llynfi Afan	290057	195043	1.6	Operational
Pant y Wal Extension	294934	191615	4.5	Consented
Pant y Wal / Fforch Nest	296123	190975	5.8	Operational
Abergorki	295989	199006	6.1	Consented
Pen y Cymoedd	289656	200850	6.5	Operational
Maerdy	295548	200072	6.7	Operational
Ferndale	298901	196403	7.5	Operational
Ffynnon Oer	284567	198831	8.2	Operational
Mynydd Bwllfa	295411	201989	8.2	Operational
Melin Court	284952	200550	8.9	Application Submitted
Taff Ely	298157	186308	10.6	Operational
Mynydd Portref	298981	185775	11.6	Operational
Mynydd Brombil	279030	188646	14.0	Operational
Maesgwyn (incl. extension)	286389	208211	14.5	Operational
Mynydd y Gwrhyd	272936	210786	24.7	Operational
Swansea Docks	267000	191800	24.8	Operational
Pen Bryn Oer	312090	209160	25.1	Operational
Oakdale Business Park	319193	200008	28.1	Operational
Mynydd y Bettws	267377	210448	28.9	Operational
Mynydd y Gwair	265867	207891	29.0	Operational
Brechfa Forest East	257941	236490	53.7	Consented

Wind Farm	Easting	Northing	Distance (km)	Status
Great House Farm	345074	186932	54.0	Consented
Brechfa Forest West	248471	232503	57.4	Operational
Mynydd Pencarreg	256944	241153	58.0	Consented
Alltwalis	247002	233169	58.9	Operational

4.6 Residential visual amenity

Planning Guidance for Wind Turbine Development (2014) recommends a study area of 10 times tip height for residential visual amenity assessments (RVAA). Therefore, any residential properties within 1.5km will be subject to RVAA. For each property the assessment will be informed by the use of ZTV studies, aerial photography, wireline visualisations and site work to identify the scale and extent of visual effects. The level of detail and illustrative material provided for each property will be proportionate to the likely effects.

For those properties likely to be most affected, information including detailed ZTV studies, wireframes, photography and aerial photography will be provided alongside a detailed description of the predicted view. The focus of the RVAA is on identifying whether any effects are likely to be considered 'overbearing' or 'overwhelming' in the terms set out in numerous previous planning decisions.

Effects on the approaches and surrounding environs of all properties and the wider community will be considered separately within the main body of the LVIA.

5.0 ECOLOGY AND BIODIVERSITY

5.1 Introduction

The approach to characterising baseline ecological conditions for the Site has involved consultation, desk study and field survey. It has been co-ordinated by BSG Ecology and is summarised in the following sections.

The approach to the Ecological Impact Assessment (EclA) for the Project will be based on industry standard assessment methods. The main guiding document for the production of the Ecology chapter within the ES will be the *Guidelines for Ecological Impact Assessment* developed by the Chartered Institute of Ecology and Environmental Management (CIEEM) (2016)¹⁴.

5.2 Consultation

BSG Ecology produced an Ecological Scoping Report which was issued to Natural Resources Wales on 7th December 2015 as part of a pre-application enquiry. The report was issued with the Extended Phase 1 Survey Report and Baseline Breeding Bird Report 2014. The reports were reviewed by David Watkins at NRW (now retired) who issued a response on 16 February 2016 (ref: CAS-13525-N6P1) (please refer to **Appendix D**).

A Discretionary Planning Advice (DPA) meeting was subsequently set up with Natural Resources Wales on the 13th December 2017 to discuss the scope of ornithological survey work, as well as wider ecological and peat considerations at the Site. All baseline ornithology and ecology reports were provided to Natural Resources Wales on CD ahead of the DPA meeting request on 30 August 2017. NRW raised no concerns during the consultation meeting regarding the scope of ornithological survey work to date.

The survey reports that have been produced to date are as follows:

- Extended Phase 1 Habitat Survey Report;
- Ecological Appraisal of the Proposed Access Route;
- Baseline Bird Survey Report 2014-2015;
- Baseline Bird Survey Report 2015-2016;
- Bat Report 2016;
- Great Crested Newt Survey Report 2016;
- Water Vole Survey Report 2016; and
- NVC Survey Report 2018.

5.3 Survey methods

The following sections provide a summary of the methods of survey work conducted at the Site between 2014 and 2017. An updated Phase 1 survey will be completed at the Site in late spring 2018 to demonstrate that the habitats present and management of the Site has remained substantively unchanged since the 2014 Phase 1 work. This will also provide confidence that the use of the Site by birds will also have remained unchanged since the baseline bird survey work.

¹⁴ CIEEM (2016) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal*, 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester

5.3.1 Desk study

The presence of statutory designated Sites of nature conservation interest in relation to the Site was established using the Magic website (<http://magic.defra.gov.uk/>). This was initially accessed ahead of work completed in 2014, with further checks to ensure information remained consistent¹⁵.

The South East Wales Biodiversity Records Centre (SEWBRc) was asked to provide records of non-statutory designated sites and records of protected/notable species and habitats within 2 km of the Site boundary on 06 January 2015. The data request was updated on 21st March 2016, and the resulting data set has been reviewed to inform this report. Detailed information from SEWBRc can be provided on request.

The 2010 Llynfi Afan Renewable Energy Park (REP) Environmental Statement (RPS 2010) was interrogated for ornithological information relevant to the Site and surrounding area. The Llynfi Afan REP Pre-Construction Ornithological Survey Report 2015 (Natural Power 2016) was also reviewed¹⁶.

5.3.2 Phase 1 habitat surveys

Extended Phase 1 habitat surveys were undertaken on the 24th July and 2nd-4th September 2014 covering the entire Site. A survey of the Bwlch forestry track, between the track junctions with the A4107 to the southern extent of the Pen-y-Cymoedd wind farm Site was completed on 07 October 2016. The surveys involved mapping habitats using standard methods (JNCC, 2010)¹⁷, and identifying any signs of protected or rare species, or the presence of suitable habitats for such species following IEA (1995).

5.3.3 Ornithological surveys

Vantage point surveys

Vantage point survey work based on SNH (2014) guidance was completed between April 2014 and March 2016 inclusive resulting in a total of 144 hours of observation from each of two VP locations.

The VP locations provided visual coverage of all indicative turbine locations within the current scheme design and approximately 88% of a 50m buffer zone around them¹⁸. All turbine locations within the current scheme design were observed throughout the 2014 and 2015-2016 surveys, please refer to **Figure 2**.

Following a change to the project design in 2015, the VP locations were adjusted ahead of the second year of survey to provide maximum coverage of the 500m buffer area around a revised layout. The VP locations used in 2015/2016 are shown on the figure in **Appendix C**.

¹⁵ Completed regularly in 2016 and 2017

¹⁶ Following provision by Gamesa

¹⁷ JNCC (2010) Handbook for Phase 1 Habitat Survey. A Technique for Environmental Audit. JNCC

¹⁸ The character of the Site (occupying a steep-sided ridge between two valleys) restricted our opportunities for selecting viable VP locations outside of the development boundary: any VP location fit for purpose would have been located on this ridge. VP locations were chosen following consideration of visual coverage and accessibility. The survey results do not suggest observer influence on bird behaviour. The level of target species activity observed in close proximity to the VP locations was no lower than that observed at distance and no alteration of target species flight trajectory or height was recorded that could be attributed to surveyor presence. The adjusted VP locations following the reduction of the scheme to eight turbines in early 2015 provided greater surveyor screening to reduce the risk of influencing bird behaviour. Again, no evidence to suggest surveyor influence was recorded during the 2015-2016 surveys

Honey buzzard surveys

There are records of honey buzzard *Pernis apivorus* nest sites within the Neath Valley (approximately 10 km north-west of the Site); however, the specific locations of these are confidential and not described in published literature. Honey buzzard survey was recommended by consultees to inform the adjacent Llynfi Afan (REP) application.

There is no suitable foraging or breeding habitat for honey buzzard on the Site. In addition, the nearest breeding locations are within the Neath Valley (approximately 9 km north-west of the Site). However, there are areas of plantation that have some potential to support honey buzzard adjacent to the Site boundary. These are: woodlands north and west of Blaengarw, and an area of plantation north of Nant-y-moel.

The plantation in the Nant-y-Moel valley, adjacent to the east of the Site, has been largely clear-felled, but does retain some mature stands adjacent to the A4061 and surrounding Nant-y-Moel village. These areas may be too disturbed and limited in size to support breeding honey buzzard. Although suboptimal, the habitat structure remains suitable for this species. The woodland to the west of the Site, north and west of Blaengarw, is extensive and includes mature stands, although areas nearest the Site are relatively young and have not been subject to thinning. The land between the Site and this woodland is occupied by open moorland habitat on steep slopes with areas of exposed rock and scree.

An additional twelve hours of survey were completed from each of two additional VP locations during the period when breeding honey buzzards are likely to be displaying (late May / early June) and foraging beyond woodland cover (in late July / early August). The additional VP locations were chosen to provide visual coverage of the woodlands beyond the Site. The locations of the additional VPs also allowed for observation of scree slopes, steep-sided streams and felled plantation, which are suitable habitat for merlin *Falco columbarius*. The survey for merlin was a precursor to more detailed work that was carried out in 2015.

Moorland breeding bird surveys

Moorland bird survey using a walkover technique based on the Brown & Shepherd (1993) method, as recommended in SNH (2014) guidance were undertaken between April and June 2014 inclusive. The survey area was defined by a 620m perimeter area around an indicative turbine layout, where access allowed. A fourth survey was not considered necessary, as per SNH (2014), as those species that are likely to be under-recorded by three visits (e.g. red grouse *Lagopus lagopus scotica*) were not present on the Site.

Wintering bird walkover surveys

Monthly wintering bird walkover surveys were completed between October 2014 and March 2015 inclusive, covering the Site and a 500m perimeter area. These were not repeated in the 2015/2016 winter period due to the low level of wintering bird interest recorded.

Merlin surveys

Merlin surveys were completed in 2015 following observation of merlin during the 2014 breeding bird surveys. It was considered very unlikely that merlin could breed within the Site. There are no trees within the Site, and less intensively grazed, dry heath habitats occur predominantly on the steep slopes that demarcate the Site. Given this, it was considered that merlin, if present in the locality, would breed off-site. In addition, breeding bird walkover surveys of the Site and a 500m perimeter of it completed between April and June 2014 did not result in records of breeding merlin. Survey work therefore focused on scanning suitable habitat beyond the Developable Area from local vantage points.

Surveys followed standard methods that were adapted to reflect the habitats present. The method included a combination of short VP watches with walks in between to cover all suitable nesting habitat for the species. VP locations were selected for visual coverage of rocky slopes and plantation edges surrounding the Site. Surveys were completed on four days during April-June 2015 by an experienced raptor surveyor. The results did not suggest breeding on, or immediately adjacent to, the Site and so additional visits to confirm breeding and/or establish the number of pairs and breeding success (as per standard methods) were not required.

5.3.4 Bat surveys

Automated detector surveys

The method for automated detector survey at the Site is based on BCT (2012) guidelines¹⁹. The guidance recommends that a representative sample of the turbine locations is surveyed. For open homogeneous moorland it is suggested that a quarter of the turbine locations are sampled and that potentially some additional (control) locations are surveyed next to habitat features away from turbines. At Upper Ogmire, none of the turbine locations are close to any higher quality habitat features for bats, such as woodland, watercourses, or hedgerows. As such the use of paired detectors was not considered necessary.

The Site was categorised as 'low risk' for bats given the exposed, upland setting and the limited diversity and scale of the foraging and roosting habitats present for bats to exploit. Four detectors were deployed for a period of five nights during early October 2015 (in 'autumn') and redeployed for an additional five nights in June ('spring') and August ('summer') 2016. The selected automated detector locations were representative of indicative turbine locations at the time (please refer to **Appendix C**), but were also chosen to provide some security from damage by the public and livestock (as the survey area is partly located on common land). Therefore, detector locations coincide with existing structures to mask their presence, as follows:

- Detector 1 located on a wooden electricity pylon;
- Detector 2 located on the security fence of the Werfa mast compound; and
- Detectors 3 and 4 located on stock fence posts.

The detector locations are presented on the figure in **Appendix C**.

Walked transect surveys

As per the BCT guidelines for survey of a low risk Site, one walked transect survey was completed per season. These were: early October 2015 (autumn), June 2016 (spring) and August 2016 (summer). The transect route is illustrated on the figure in **Appendix C**.

Bat roost surveys

Following Bat Conservation Trust (BCT, 2016) survey guidelines, daytime inspection of a building within the Werfa mast compound, and a single emergence survey (following an assessment of the building as being of low potential to support roosting bats) was carried out as a precautionary measure during August 2016. There are no further structures and trees suitable for roosting bats within 200m of the Site. The extended Phase 1 survey of the proposed access route did not identify any trees that have potential to support a bat roost.

¹⁹ The 2012 edition of the guidance covers onshore wind farms in Chapter 10. This chapter has not yet been superseded, although the rest of the guidance has by the third edition, published in 2016.

5.3.5 Great crested newt surveys

Three ponds with potential for great crested newt *Triturus cristatus* were identified within the Site. The pond locations are shown in **Appendix C**. Survey work of these ponds was completed according to the English Nature GCN mitigation guidelines (2001)²⁰ on four dates between 14th April and 19th May 2016. Survey methods included torch survey, bottle-trapping and egg search (facilitated with the use of egg strips). Two ponds adjacent to the proposed access route were surveyed using an eDNA sample technique in accordance with the published methods (Williams, 2013)²¹ presented in DEFRA's Technical Advice Note WC1067 (Biggs et al 2014)²² on 27 April 2017.

5.3.6 Water vole surveys

Targeted survey for water vole *Arvicola amphibius* was undertaken following identification of water vole droppings and feeding stations during the Phase 1 survey of the Site. Several water courses and a wet flush within the Site were identified as having potential to support water vole and therefore were surveyed for the species (see **Appendix C**). The survey included two visits as recommended within the Water Vole Mitigation Handbook²³. The first visit was conducted during the first half of the breeding season (8th and 9th June 2016) and the subsequent visit was conducted during the second half of the breeding season (3rd August 2016).

5.3.7 Botanical surveys

The presence of some areas of higher quality habitat, including degraded blanket bog (on deep peat), in the north-east of the Site, were identified during the Phase 1 survey in 2014. A National Vegetation Classification (NVC) survey was carried out in this area during June 2016. The survey involved sampling and mapping areas with consistent botanical characteristics (stands of homogenous vegetation), and the classification of these with reference to vegetative communities described in Rodwell (1991b, 1992)^{24 25}.

5.4 Survey results

This section provides a summary of the results of the desk study and survey work conducted at the Site between 2014 and 2017.

5.4.1 Designated sites

There are three statutory sites of nature conservation interest within 2 km of the Site. These are Blackmill Woodlands Special Area of Conservation (SAC) and Site of Special Scientific Interest (SSSI), Mynydd Ty-isaf SSSI, and Cwm Cyffog SSSI.

The Mynydd Ty-isaf SSSI is notified for its crags, scree slopes and ffridd habitats. The higher crags are known to provide nesting sites for peregrine falcon. The Blackmill Woodlands SAC/SSSI and Cwm Cyffog SSSI are notified for sessile oak woodlands and mire habitats respectively.

²⁰ English Nature (2001) Great Crested Newt Mitigation Guidelines. English Nature, Peterborough

²¹ Williams, P. (2013). How to collect a water sample to detect Great Crested Newt eDNA. GCN eDNA protocol, Freshwater Habitats Trust

²² Biggs, J., Ewald, N., Valentini, A., Gaboriaud, C., Griffiths, R.A., Foster, J., Wilkinson, J., Arnett, A., Williams, P., and Dunn, F. (2014). Analytical and methodological development for improved surveillance of the Great Crested Newt. Appendix 5. Technical advice note for field and laboratory sampling of great crested newt (*Triturus cristatus*) environmental DNA. Freshwater Habitats Trust, Oxford

²³ Dean et al. (2016) Water Vole Mitigation Handbook, Mammal Society Mitigation Guidance Series

²⁴ Rodwell, J S (ed.) (1991b) British Plant Communities, Vol. 2: mires and heaths. Cambridge University Press, Cambridge

²⁵ Rodwell, J S (ed.) (1992) British Plant Communities, Vol. 3: grasslands and montane communities. Cambridge University Press, Cambridge

The nearest Special Protection Area (SPA) is the Severn Estuary SPA, located approximately 32km south-east of the Site.

There are 20 local authority designated Sites of Importance for Nature Conservation (SINCs) within 2km of the Site in Bridgend County, and two Sites that meet the SINC criteria within 2km of the Site in Neath Port Talbot County. These Sites form a mosaic of woodlands, upland marshy grasslands and ffridd habitats throughout the local landscape.

5.4.2 Phase 1 habitat surveys

The Site is dominated by unenclosed upland moorland. Unimproved acid grassland occurs in the freer draining areas of the Site such as the steep slopes that occur between the flatter ground and the working Site Boundary. Grazed marshy grassland is present across much of the flatter areas and occasionally on steeper ground. These two habitats form a mosaic across the majority of the Site. Small areas of wet modified bog and marshy grassland are present in the north-eastern part of the Site. Acid dry dwarf shrub heath also occurs where grazing pressure is reduced. A number of enclosed fields are present in the eastern part of the Site. The flatter areas within these fields support improved grassland, with semi-improved acid grassland (also subject to high grazing pressure) present where the ground slopes towards the valleys.

Several small flushes are present beyond the eastern and western sides of the Developable Area where the ground slopes steeply down and groundwater emerges. These areas are frequently punctuated by rock escarpments. Below the natural exposures there are large scree slopes present amongst a mosaic of acid dry dwarf shrub heath and unimproved acid grassland. A larch *Larix decidua* dominated plantation is present immediately beyond the Site to the east, much of which has been felled. Plantations are also present to the north and west of the Site.

5.4.3 Ornithological surveys

Vantage point surveys

The survey work recorded a low number and diversity of breeding and wintering bird species present within the Site. There is no evidence that any target species breed within or adjacent to the Site, although red kite *Milvus milvus* are present in low number throughout the year. Other raptor species have been recorded irregularly, with merlin and hen harrier *Circus cyaneus* occasional during the breeding season and on passage and goshawk presumably breeding in plantation woodland outside the Site.

Records of most of the target species were of birds commuting over the Site and not spending a significant period of time around the Site.

Honey buzzard surveys

No honey buzzard were recorded during the targeted survey work at Upper Ogmere in 2014. In addition, desk study data indicated that no evidence of honey buzzard had been found during targeted survey completed by RPS in 2005 and 2008 to support the adjacent Llynfi Afan REP. The results from the 2014 surveys at the Site, taken with the published results from the baseline Llynfi Afan REP surveys, did not indicate a need to continue survey for honey buzzard in 2015. In addition, Natural Power were commissioned by Gamesa Energy UK to complete updated honey buzzard surveys in 2015 for the Llynfi Afan REP, and an agreement was obtained from Gamesa to allow the use data obtained from the commissioned work to support an impact assessment at Upper Ogmere.

No honey buzzard territories were identified during the 2015 Llynfi Afan REP survey work. A single bird was noted during survey on 5th July, but was not seen again during the remainder of the work. It was suggested in the report that the bird was likely to have been a foraging bird from a known nest Site approximately 9km west of the Site.

Monitoring work completed by Steve Roberts²⁶ indicates that, for at least the last ten years, territories have been typically present in areas in excess of 9km north-west of the Site.

Moorland breeding bird survey

The breeding bird walkover surveys completed during the breeding season 2014 did not suggest breeding waders were present on the Site or the immediate surrounding area. The breeding bird community of the Site was dominated by skylark *Alauda arvensis* and meadow pipit *Anthus pratensis*, and reflective of the homogenous moorland present on the Site. Wheatear *Oenanthe oenanthe* and stonechat *Saxicola rubicola* territories were generally associated with landscape features, such as infrequent rocky outcrops and the Werfa mast compound; while other common species were confined to stream valleys and plantation edge beyond the Site boundary.

Wintering bird walkover surveys

Golden plover were recorded during walkover surveys on 16th December 2014 (five birds) and 6th January 2015 (one bird). The level of golden plover activity recorded on the Site during the walkover and VP survey work suggests that a low number of birds use the Site throughout the winter. Low numbers of snipe *Gallinago gallinago* and a single jack snipe *Lympnocryptes minimus* were also recorded during the work.

Merlin surveys

The targeted merlin survey work completed between April and June 2015 resulted in one flight of merlin being recorded. The flight was made by a female bird to the north of the Site, heading north over Graig Fawr (approximately 500m north of the Site) on 22 April 2015.

Other target species were recorded during the merlin surveys as follows: several sightings of red kite, kestrel, and peregrine, as well as single sightings of hen harrier (to the north of the Site in June) and goshawk (two birds in plantation woodland to the north of the Site).

5.4.4 Bat surveys

Common pipistrelle *Pipistrellus pipistrellus* was the most frequently recorded bat at the detector locations followed by soprano pipistrelle *Pipistrellus pygmaeus*. Very low numbers of passes from Nathusius' pipistrelle *Pipistrellus nathusii*, *Myotis* sp. and long-eared bat *Plecotus* sp. were also recorded.

A total of two bat passes (both by common pipistrelle) were recorded on one transect survey in October. No bat passes were recorded during the spring and summer survey visits.

No bats were recorded during the emergence survey at the Werfa Mast compound.

The recorded data suggests that bat activity and species diversity is consistently low across the Site.

²⁶ Steve Roberts has led long-term honey buzzard monitoring work within the Neath Valley and wider area.

5.4.5 Great crested newt surveys

No great crested newts were found in any of the ponds during the surveys. Palmate newts were present in all ponds, with a peak count of nine individuals. eDNA samples from two ponds adjacent to the proposed access route returned negative results for presence of great crested newt.

5.4.6 Water vole survey

Field signs of water vole (including latrines and a feeding station) were found within a wet flush area approximately 100m north of the Site boundary, please refer **Appendix C**. Some burrows were noted alongside watercourses within the Site that had dimensions suitable for use by water vole and/or bank vole and rats, but did not exhibit signs of current use.

5.5 Assessment methodology

5.5.1 Approach to Ecological Impact Assessment (EcIA)

The approach to the EcIA for the Project will be based on industry standard assessment methods. It is not practical for an EcIA to consider potential impacts on all ecological receptors. It follows that effects on particularly sensitive and important receptors will form the focus of the EcIA, these will include:

- Statutory and non-statutory designated sites of nature conservation interest, protected species;
- Ecological receptors afforded statutory protection under the Conservation of Habitats and Species Regulations 2010 (as amended), the Wildlife and Countryside Act 1981 (as amended) and listed in response to Section 42 of the Natural Environment and Rural Communities (NERC) Act 2006; and
- Bird species afforded enhanced statutory protection under Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) and species of particular conservation priority in Wales.

5.5.2 Valuing ecological features and resources

A key consideration in assessing the effects of any development on flora and fauna is to define the habitats and species that should be considered as part of a detailed assessment. It is impractical to consider every species and habitat that may be affected and it is necessary to focus on ecological receptors of a higher value.

The CIEEM guidance describes setting a “threshold value” and that “effort must be focused on those features or resources that are sufficiently important to merit more detailed consideration”. The approach that is taken through this EcIA process is to identify ecological receptors above a certain threshold value and, separately, to consider legally protected species.

In order to evaluate the importance of ecological features identified in the desk study and field surveys, a set of standard measures are outlined in the CIEEM guidance. For each Site, habitat and species/assemblage, a summary grade is determined using the levels of value recommended in the guidance. This places the importance of each feature in a geographical context, using the following hierarchy: International and European, national, regional, county or other local authority-wide area, and local (including the immediate zone of influence of the Site).

5.5.3 Potential impacts

The following potential impacts have been identified based on information collected on the area affected by the proposed development.

- Direct semi-permanent loss and temporary disturbance of small areas of habitat (largely improved or modified by grazing pressure) as a result of the construction of access tracks, turbine foundations and other associated infrastructure.
- Effects on birds may include:
 - i. Direct collision with turbine blades;
 - ii. Indirect loss of habitat through disturbance, resulting in displacement;
 - iii. Disruption of significant flight paths through the creation of a barrier to movement; and
 - iv. Direct habitat loss resulting from turbines and associated infrastructure.
- Effects on bats may include:
 - v. Direct collision with turbine blades;
 - vi. Loss of foraging habitat; and
 - vii. Fragmentation of habitat, through turbines forming a barrier to commuting or seasonal movements.

Collision risk modelling (CRM) will be completed to inform the ornithological assessment work. A full account of the workings of the model will be appended to the Chapter in order that consultees can independently run the model.

5.5.4 Characterising and quantifying effects and assessing their significance

Ecological effects should be characterised in terms of ecosystem structure and function and reference should be made to: positive or negative effects; extent; magnitude; duration; reversibility; timing and frequency; and cumulative effects. The guidelines provide a list of 'key aspects of ecosystems to consider when predicting effects'.

Following the characterisation of effects, an assessment of the ecological significance of an effect is made. The Guidelines promote an approach in which a beneficial or adverse effect is determined to be significant or not, in ecological terms, in relation to the integrity of the defined Site or ecosystem(s) and/or the conservation status of habitats or species within a given geographical area, which relates to the level at which it has been valued. The decision about whether an effect is significant or not, is independent of the value of the ecological feature; the value of any feature that will be significantly affected is then used to determine the implications, in terms of legislation, policy and or development control.

It is important to consider the likelihood of a predicted impact, along with the degree of confidence in the assessment of the effect on ecological structure and function.

The Guidelines also state that: 'Significant effects on features of ecological importance should be mitigated (or compensated for) in accordance with guidance derived from policies applied at the scale relevant to the value of the feature or resource' and that: 'Any significant effects remaining after mitigation (the residual effects), together with an assessment of the likelihood of success in the mitigation, are the factors to be considered against legislation, policy and development control in determining the application'.

5.6 Cumulative assessment

Consideration will be given to other developments of a similar nature in the area of the proposed development that might be relevant to the study Site. The ES chapter will consider these projects in respect of cumulative effects in so far as it is possible to do so.

Sufficient consultees are invited to comment on what would comprise an appropriate scope for the cumulative ecological and ornithological assessment. We would consider that only development proposals that are in the public domain (i.e. for which multi-disciplinary scoping reports have been submitted) will provide sufficient information to be usefully considered, and understand that the scope of the assessment may evolve. However, early input into the geographical area around the proposal that needs to be covered, and an indication of some of the schemes that might require consideration would be very useful.

6.0 ACOUSTICS

6.1 Introduction

Noise can have an effect on the environment and on the quality of life enjoyed by individuals and communities. The effect of noise, both in the construction and operational phase, is therefore a material consideration in the determination of planning applications. Operational noise emitted by wind turbines can be associated with two types of noise source: aerodynamic sources due to the passage of air over the turbine blades; and mechanical sources associated with the gearbox, generator and other parts of the drive train.

The main focus of the acoustic impact assessment of operational noise will be the most relevant type of noise emission for modern wind turbines: aerodynamic noise, which is broadband in nature. Mechanical noise, which can be tonal in nature, is also considered albeit less relevant to modern wind turbines. Implicitly incorporated within this assessment is the normal character of the noise associated with wind turbines (commonly referred to as 'blade swish') and consideration of a range of noise frequencies, including low frequencies. An assessment of the impact of construction noise, due to the operation of machinery and movement of traffic, will also be undertaken.

6.2 Baseline environment and assessment methodology

Planning Policy Wales (PPW)²⁷ references Technical Advice Note 11: Noise (TAN 11)²⁸ which provides advice on how the planning system can be used to minimise the adverse impact of noise. TAN 11 refers to detailed guidance on noise from wind turbines contained in TAN 8²⁹. TAN 8 identifies ETSU-R-97 - The Assessment and Rating of Noise from Wind Farms³⁰, as providing relevant guidance and this will therefore be utilised to provide a robust basis for assessing the acoustic impact of operational noise from the Project. The guidance makes it clear that the noise restrictions placed on a wind farm must balance the environmental impacts of the development (particularly in relation to residential amenity) with the widely recognised and policy driven benefits that would arise through the development of renewable energy resources.

The Institute of Acoustics' Good Practice Guide to the application of ETSU-R-97 for the assessment and rating of wind turbine noise³¹, which has been endorsed by the Welsh Assembly Government, provides guidance on all aspects of the use of ETSU-R-97. The operational noise assessment process can be outlined as follows:

- Identify the nearest residential properties;
- Identify the type and noise emission characteristics for the candidate wind turbine;
- Calculate the noise levels predicted due to the operation of the proposed wind turbines at the properties being considered;
- Determine the need for a background noise survey;
- Agree the acoustic assessment methodology, and discuss background noise survey locations if required, with Bridgend County Borough Council's Environmental Health Department;

²⁷ 'Planning Policy Wales', Edition 6, Welsh Assembly Government, February 2014

²⁸ 'Planning Policy Wales Technical Advice Note 11: Noise', Welsh Assembly Government, October 1997

²⁹ 'Planning for Renewable Energy', Technical Advice Note 8, Welsh Assembly Government, 2005

³⁰ 'The Assessment and Rating of Noise from Wind Farms' (ETSU-R-97), DTI Working Group on Noise, September 1996

³¹ A Good Practice Guide to the application of ETSU-R-97 for the assessment and rating of wind turbine noise, Institute of Acoustics, May 2013

- Carry out baseline survey, if required;
- Derive noise limits in accordance with relevant planning guidance; and
- Assess the predicted noise levels due to the operation of the proposed wind farm against the derived limits.

TAN 11 also provides advice on the assessment of construction noise in which it refers to the use of BS 5228. BS 5228-1: 2009 'Code of practice for noise and vibration control on construction and open Sites'³² provides well established standardised techniques for calculating and assessing construction noise levels. It will therefore be used to assess noise levels produced during the construction of the Project. The Control of Pollution Act 1974³³ provides information on the need for ensuring that the best practicable means are employed to minimise noise.

6.3 Baseline Environment

Consultation with Bridgend County Borough Council's Environmental Health Department has already taken place regarding the need for background noise measurements and their location. A background noise survey commenced in February 2018 and the results shall be used to inform the acoustic assessment. Steps shall be taken to minimise any impact from existing projects on the survey results. The results from measurements made in 2013 to inform an acoustic assessment of the Llynfi Afan Renewable Energy Park shall also be used where appropriate to give a more complete picture of the baseline environment.

6.3 Predicted impacts

Once the background noise monitoring is complete, an assessment shall be carried out to determine the impact of construction and operational noise in accordance with appropriate guidance as outlined in the methodology section above.

Where there are any other wind energy proposals operational, consented or in planning that are located such that they require consideration, a cumulative impact assessment shall be undertaken.

Projects for inclusion in the cumulative assessment have been discussed with Bridgend County Borough Council's Environmental Health Department and shall include Llynfi Afan Renewable Energy Park along with Pant Y Wal and Pant Y Wal Extension.

If necessary and dependent upon the status of the schemes being cumulatively modelled, iterative designs would be considered to ensure compliance with acceptability thresholds and the protection of amenity for local residents.

6.5 Mitigation measures, conclusion and summary of effects

Where any significant adverse effects cannot be mitigated through design iterations, these will be clearly identified within the ES and requirements for secondary mitigation identified, and the residual effect on receptors, including the potential effects on amenity set out.

³² 'Code of Practice for Noise and vibration control on construction and open sites - Part 1: Noise', British Standards Institution, BS 5228-1:2009

³³ 'Control of Pollution Act', Control of Pollution Act, published by Her Majesty's Stationary Office, 1974

7.0 CULTURAL HERITAGE

7.1 Introduction

This chapter details the proposed approach to assessing the potential effects on the historic environment that would result from the construction and operation of the Project. Historic assets that may be affected include archaeological remains and components of the historic landscape. These assets include statutory designations as well as non-statutory designations and non-designated assets.

7.2 Guidance documents

The approach to protection and management of the historic environment in Wales is detailed in Conservation Principles³⁴. The six principles identified by Cadw for the sustainable management of the historic environment in Wales are:

- Historic assets will be managed to sustain their values;
- Understanding the significance of historic assets is vital;
- The historic environment is a shared resource;
- Everyone will be able to participate in sustaining the historic environment;
- Decisions about change must be reasonable, transparent and consistent; and
- Documenting and learning from decisions is essential.

Conservation Principles define the heritage significance of an asset as being composed of different forms of value: evidential, historical, aesthetic and communal. Each value may contribute to the overall heritage significance of an asset, and impacts on the asset must be considered in relation to the nature of the impact and how it affects those values.

The EIA will be undertaken in accordance with the Code of Conduct of the Institute for Chartered Archaeologists³⁵. The proposed criteria for assessing the sensitivity of historic assets used in the assessment will be adapted from Guidance on Heritage Impact Assessment for Cultural World Heritage Properties³⁶, with reference to comparable approaches in the Design Manual for Roads and Bridges (DMRB)³⁷.

The EIA will also consider best-practice guidance documents to support the Historic Environment (Wales) Act 2016, Planning Policy Wales (specifically Chapter 6), and Technical Advice Note 24: The Historic Environment.

7.3 Baseline data sources

The following sources of data will inform the production of the ES chapter:

- Details of non-designated assets held in the Historic Environment Record (HER) maintained by Glamorgan Gwent Archaeological Trust (GGAT);
- Details of designated assets supplied by Cadw;

³⁴ Conservation Principles for the Sustainable Management of the Historic Environment in Wales, Cadw, 2011

³⁵ Code of Conduct, Chartered Institute for Archaeologists, 2014

³⁶ Guidance on Heritage Impact Assessment for Cultural World Heritage Properties, a publication of the International Council on Monuments and Site, International Council on Monuments and Sites (ICOMOS), 2011

³⁷ Design Manual for Roads and Bridges, Volume 11: Environmental Assessment, Section 2 General Principles of Environmental Assessment, Part 5 (HA 205/08), 2008

- The Register of Landscapes of Outstanding Historic Interest and Register of Landscapes of Special Historic Interest, including alterations and additions recorded in the GGAT Historic Environment Record; and
- Historic Landscapes data contained on LANDMAP, maintained by Natural Resources Wales.

The following additional sources of data will be used to inform the EIA:

- Historic aerial photographs held by the National Monuments Record of Wales (NMR), as well as modern vertical aerial and satellite images;
- Details of any assets currently being considered for designation, to be obtained from Cadw; and
- Historic mapping, primarily any tithe or estate maps and the historic Ordnance Survey mapping series.

7.4 Assessment methodology

7.4.1 Desk-Based Assessment (DBA)

An archaeological desk based assessment (DBA) will be undertaken which will consider the archaeological potential of the Site and surrounding area based on available baseline information. The DBA will form the baseline document for the ES. The DBA will consider:

- Sites on the Register of Landscapes of Historic Interest in Wales within 10km of the centre of the Site;
- Grade I, II*, and II listed buildings, Scheduled Ancient Monuments (SAMs), and sites on the Register of Parks and Gardens of Special Historic Interest in Wales within 10km of the centre of the Site; and
- Below ground archaeological remains on Site and within a 500m radius of the Site.

Not all of the features identified within the DBA will be of relevance to the EIA. As part of the EIA, assets identified will be assessed for their importance, likely adverse impacts, and the significance of any potential impacts.

7.4.2 Field Survey

A site walk-over survey was carried out in May 2017 to inform an initial baseline assessment of the Site. The aim of the walk over survey was to locate and record the character, extent and current condition of all visible cultural heritage sites, monuments, and landscape features. Further site work will be carried out in order to assess the Project against relevant receptors identified within the study area.

7.4.3 EIA Approach

The assessment methodology adopted will be based on accepted guidance and best practice methodologies. A brief for the required content and methodology for the baseline cultural heritage assessment and impact assessment will be sought from Bridgend County Borough Council and Cadw. This guidance will be integrated into the assessment methodology.

Given the proximity of the Rhondda landscape of special historic interest, it is proposed that an ASIDOHL v2 assessment will be undertaken.

The assessment will consider the likely significant effects of the Project during construction and operation. Construction activities associated with the Project have the potential to directly disturb or damage known and unknown archaeological remains or features of cultural heritage. The presence of the Project during construction and operation may also indirectly affect the setting or characteristics of a particular heritage asset. Both these direct and indirect effects on any such features present on or in the vicinity of the Site will be addressed during the environmental assessment process.

Where any significant adverse effects cannot be mitigated through design iterations, these would be clearly identified within the ES and a view offered regarding secondary mitigation and the residual effect on receptors.

The results of the assessment will be presented in an ES chapter together with the production of appendices and figures, where appropriate. Depending upon the outcome of consultation with statutory consultees and the agreed methodology, visualisations (either wireframe or photomontages) may also be produced for key receptors to aid in assessment and representation of visual (in-direct) impacts.

Where there are any other developments operational, consented or in planning that are within distance of the Project that subsequently require consideration, a cumulative impact assessment will be undertaken.

7.4.4 Ongoing Consultation

Ongoing consultation would continue throughout the EIA process, topics of discussion will include:

- The heritage significance of known assets and potential archaeological remains;
- The settings of assets, their capacity to absorb change without harm to heritage significance, and the requirement for detailed assessment regarding setting;
- Opportunities to find design solutions for adverse effects; and
- The scope for potential mitigation and monitoring.

8.0 TRAFFIC AND TRANSPORT

8.1 Introduction

This section of the report provides guidance for the traffic and transport assessment. The assessment will present an assessment of the impacts on regional and local highways. It will cover the impacts that are likely to occur during the construction phase of the Project.

A Traffic Management Plan (TMP) will also be provided in support of the planning application. Further information about the TMP is provided in **Section 13.1**.

8.2 Consultation

In order to agree the scope of the traffic and transport assessment, and confirm the basic principles of the TMP, RES will look to consult with a number of stakeholders, including:

- Bridgend County Borough Council, Neath port Talbot County Borough Council, and Rhondda Cynon Taf County Borough Council;
- Welsh Government Highways – South (WGHS); and
- South Wales Trunk Road Agent (SWTRA).

The scoping discussions will identify the extent of the study area, agree the methodology, consider relevant design components (e.g. site entrance), and identify data sources for use in the assessment.

8.3 Assessment methodology

8.3.1 Issues to be considered

The following key effects will be among those assessed:

- Changes in heavy goods vehicles (HGV) and abnormal load vehicle traffic;
- Alterations to road layout/closures/diversions/widening/alterations (including stopping and passing places) / junction improvements / diversion of PRoW;
- Traffic congestion due to an increase in HGV and abnormal load vehicle traffic related to material and component delivery;
- Traffic congestion due to an increase in non-HGV traffic; and
- Abnormal load vehicles creating road wear and tear on the road network.

8.3.2 Issues to be scoped out of the assessment

The traffic and transport assessment will only cover the construction phase of the project. Once operational, there will be little traffic associated with the Project apart from occasional maintenance vehicles, after which time the Project is expected to be decommissioned. Traffic associated with decommissioning would include HGVs, Light Goods Vehicles (LGVs), abnormal loads and private cars. The number of vehicle trips associated with decommissioning would be significantly less than those associated with construction. At this stage it is not possible to quantify decommissioning traffic volumes as the precedent for decommissioning has not yet been established. It is also not possible to quantify the effect of decommissioning traffic as the baseline conditions will change over the planning permission period.

Traffic and transport impacts and effects associated with operation and decommissioning will therefore not be addressed in the EIA Report.

8.3.3 Establishment of baseline

Traffic data, traffic surveys and, where appropriate, modelling will be undertaken to inform the assessment within a defined study area to be agreed with consultees. These transport data will also be used to provide information to determine the baseline for assessment within the ES.

The assessment will consider a future baseline that will include consideration of the growth in travel demand, including the changes arising from other developments and proposed transport network improvements

8.3.4 Approach to assessment

The traffic and transport effects arising from the construction strategy and engineering design for the Project will be assessed as part of the EIA process. The traffic and transport assessment developed for the Project will provide the forecasts of vehicle movements and transport network characteristics that will be used in the EIA.

The traffic and transport assessment will seek to provide a robust (worst case) assessment of impacts and effects associated with the Project. The assessment will identify the potential traffic and associated environmental effects on sensitive receptors and mitigation will be proposed where necessary.

The assessment will be carried out in accordance with the following guidance documents; Guidelines for Traffic Impact Assessment³⁸, IEMA Guidelines for the Environmental Assessment of Road Traffic ("the IEMA Guidelines")³⁹, and the Design Manual for Roads & Bridges (DMRB)⁴⁰.

The criteria used for the identification and assessment of potentially significant impacts will be clearly presented in the ES chapter. The magnitude of each impact and its significance will be assessed by a variety of mechanisms, including as necessary computer modelling and professional judgement.

The main transport constraints relating to the proposed development relate to the transportation of abnormal loads and the impact of general construction traffic on any sensitive receptors. An assessment of abnormal loads will be undertaken to identify the preferred route to Site, from the nearest suitable port, and to assess what mitigating measures may be required on the public road network. A detailed swept path and pinch point analysis will be carried out once the parameters of the candidate turbines have been defined. If necessary, this would include site measurement and topographical survey.

Access to the Site will require a new access junction designed in accordance with the Design Manual for Roads and Bridges (DMRB) with temporary overrun areas to accommodate the geometric requirements of the abnormal load vehicles. The design of the junction and associated visibility splays will be in accordance with standards agreed with Bridgend County Borough Council.

³⁸ The Institution of Highways and Transportation, 1994. *Guidelines for Traffic Impact Assessment*. London: The Institution

³⁹ Institute of Environmental Assessment, 1993. *Guidelines for the Environmental Assessment of Road Traffic*, Guidance Note 1. Institute of Environmental Assessment

⁴⁰ Highways Agency, 2008. *Design Manual for Roads Bridges*. [pdf] Highways Agency. Available at: <http://www.standardsforhighways.co.uk/dmr/b/>

8.4 Cumulative assessment

Cumulative effects of the Project in combination with other proposed developments may occur as result of concurrent construction programmes within the same study area. It is important to note that a cumulative assessment in respect of traffic and transport effects is dependent on the likelihood of more than one wind farm being under construction at the same time as the proposed development. This is especially pertinent to the peak construction periods associated with the importation of stone which would be dependent on the outputs of local quarries.

9.0 PUBLIC ACCESS, LAND USE, AND SOCIOECONOMICS

9.1 Introduction

This chapter will consider the socioeconomic context of the Project and assess the effects that its construction, operation, and decommissioning might have locally on:

- Employment and job creation;
- Land use;
- Public access; and
- Recreation, amenity, and tourism.

The assessment will identify the potential impacts and set out the socioeconomic baseline of the local (5km), regional (Bridgend County, Neath Port Talbot County, and Rhondda Cynon Taf County) and national (Wales) area.

9.2 Baseline data

Baseline data will be collated in various ways. The most up to date, publicly available data will be used wherever possible. The data will be used to generate a picture of the baseline conditions across the study area for context. Data sources will include, but not be limited to:

- Census 2011;
- Annual Population Survey;
- NOMIS (official labour market statistics);
- Business Register and Employment Survey;
- Index of Multiple Deprivation;
- Local authority reporting and statistics.
- Wales Tourism Alliance; and
- Visit Wales.

9.3 Assessment methodology

The methodology of this assessment will be based on desk based analysis, comprising the collection and review of a wide range of data and information from published material as well as through consultation with key stakeholders. In order to predict the likely impact of a development, it is important to have a clear understanding of the socio-economic conditions of the area. This can be used as a baseline against which the significance of predicted changes can be assessed. In addition, social impacts of similar developments have been reviewed in order to give a good indication of the likely effect of the Project.

There is no standard approach to this element within an EIA; however the general approach will be to outline the areas of the Project where there will be the potential for some economic / social effect within the wider area. This will be undertaken with a view to examining the significance of these effects. Where possible (quantifiable), the significance will be assessed by way of comparison of the factor (e.g. construction jobs) with the variance of related factors within the local economy. Where effects cannot be quantified, the assessment of significance will be undertaken using professional judgement and experience.

9.4 Consultation

Relevant consultees will be contacted during the assessment and as part of the community consultation. Consultees will include, but not be limited to:

- Bridgend County Borough Council;
- Neath port Talbot County Borough Council;
- Rhondda Cynon Taf County Borough Council;
- Local Community Councils;
- Natural Resource Wales;
- Ramblers Cymru and Local Ramblers Groups;
- Visit Wales Tourist Board;
- South West Wales Tourism Partnership; and
- British Horse Society and affiliated groups.

9.5 Potentially significant effects

The assessment will examine the level of construction activity and job creation and the potential linkages with the wider local economy. This will include an assessment of potential multiplier effects within the local economy and the degree to which local businesses could benefit from involvement with the Project, use and eventual decommission. Potential community effects will also be examined and, whilst it is considered unlikely to be significant, the assessment will also qualitatively consider the potential for the Project to have an effect on other existing business activity.

10.0 SHADOW FLICKER

10.1 Introduction

Shadow flicker is an effect that can occur within buildings situated in relatively close proximity to wind turbines when the shadow from rotating blades passes over a window opening. Shadow flicker intensity is defined as the difference or variation in brightness at a given location in the presence and absence of a shadow.

Shadow flicker can be a nuisance to nearby human receptors, and its effects therefore must be considered during the design of the Project. It only occurs when the turbine is in operation (i.e. sufficient wind speed is present), the sun is low in the sky (dawn, dusk, winter days), there is no cloud cover, and the turbine lies between the direction of the sun and the building in question.

10.2 Assessment methodology

There is no guidance on shadow flicker in Welsh planning policy, however, the *Update to Shadow Flicker Evidence Base* (2011)⁴¹ published by the Department for Energy and Climate Change (DECC) (now part of the Department for Business, Energy and Industrial Strategy) states that assessing shadow flicker effects within ten times the rotor diameter of a wind turbine has been widely accepted across different European countries, and is deemed to be an appropriate area. The study area for the Project will therefore encompass all of the properties located within ten times the maximum rotor diameter, in this case, 1,500m.

For an accurate assessment of shadow flicker, complex modelling is required taking into account the turbine's dimensions and the movement of the sun throughout the year. Data will be input into the modelling as follows:

- The locations of properties within ten rotor diameters of each proposed wind turbine;
- The locations and dimensions of the proposed turbines;
- The local topography (Ordnance Survey Digital Terrain Model); and
- The estimated dimensions of windows.

The modelling calculates the position of the sun throughout the day in accordance to the curvature of the earth, the time of year and the Site's position. The software calculates the occurrences of shadow flicker at each identified receptor. Analysis will be conducted to represent a worst case scenario, namely:

- The sun is shining all day, from sunrise to sunset;
- The rotor plane is always perpendicular to the line from the wind turbine to the sun;
- There are no obscuring features such as trees and vegetation;
- The analysis looks at shadow casting over the building from all directions rather than over vertical orientated windows only; and
- The wind turbine is always operating.

⁴¹ Update of UK Shadow Flicker Evidence Base (2011), prepared by Parsons Brinkerhoff on behalf of Department of Energy and Climate Change. The document can be found here: <https://www.gov.uk/government/publications/update-of-uk-shadow-flicker-evidence-base>

11.0 TOPICS SCOPED OUT OF THE EIA

11.1 Introduction

This chapter provides detail about environmental and technical topics that are not anticipated to give rise to any significant environmental effects and have therefore been scoped out of the EIA.

11.2 Hydrology and hydrogeology

In the absence of mitigation, it is acknowledged that the Project would have the potential to increase the rate of surface water run-off from the Site, and / or accidental events including; the discharge of silt contaminated surface water, or hydrocarbon / concrete spills from construction areas into the receiving catchments.

However, the Project will be designed to incorporate good practice construction measures to control surface water run-off rates and water quality, and to implement good practice pollution measures and environmental management measures. Furthermore, as part of the early design work for the Project, hydrological constraints (including; surface water designations, floodplains and flood risk zones, watercourses, waterbodies, and drainage networks) and hydrogeological constraints (including; licensed/unlicensed abstraction points and groundwater protection zones) have been identified and considered. The infrastructure layout has been developed to minimise the effect on these resources as much as possible.

Consultation with Bridgend County Borough Council and Natural Resource Wales has taken place to establish the flood risks associated with the site. Fluvial flood extents as shown on Natural Resource Wales flood maps trace the watercourses, with no notable floodplain areas within the Site boundary. The Project is located outside flood risk areas, and therefore flood risk is limited to controlling run-off from the Project.

The underlying Glacial Till has not been assigned an aquifer status and is therefore assumed to be a non-aquifer. The Site is not located in a ground source protection zone. The risk that the Project will adversely impact controlled groundwater is considered low.

RES would seek to scope out a detailed impact assessment chapter for Hydrology and Hydrogeology from the EIA Report. It is proposed that the following information would be provided in support of the ES to the extent necessary to satisfy Bridgend County Borough Council and NRW's requirements. This information would include:

- An outline Sustainable Drainage Management Plan, incorporating the proposed pollution prevention and environmental management systems to protect the water environment. Provided as a technical appendix to the Project Description chapter;
- Drainage principles to manage runoff during construction and following development of the Project. Provided as a technical appendix to the Project Description chapter;
- A watercourse schedule, provided as a technical appendix to the Project Description chapter. All watercourse crossings will be designed to accommodate the critical 1 in 200 year return period storm event and a 20% allowance for climate change; and
- Information on flood risk, provided as a technical appendix to the Project Description chapter.

11.3 Geology, mining, and peat

Geological features of interest and evidence of past mining activity are present on the Site and surrounding area and have formed an integral part of the Project design to date. In order to ensure a development of this scale can be safely and sensitively constructed at the Site, detailed baseline information of geological features, mining features, and peat have been established through desk studies, site visits, and intrusive site works. This section outlines the conclusions of these works and proposed further work.

11.3.1 Initial desk study

A desk study was commissioned from JNP Group Consulting Engineers in March 2013, which reviewed available documentation available from:

- British Geological Survey Geoindex – solid and superficial geological and seismic conditions;
- Natural Resources Wales - flood risk, surface water vulnerability, groundwater vulnerability and potential presence of landfill sites;
- Coal Authority - historic mining activities;
- Ordnance Survey - mapping of historical and current land use
- Met Office - climatic conditions;
- MOD - low flying activities;
- Zetica - potential unexploded ordnance risk;
- NERC - soil type and pH; and
- DEFRA - potential radiation risk.

The desk study, which covered a much larger study area than the Site boundary, reported the presence of a number of historic mine shafts and adits located in the northern and central part of the Site as well as some areas of shallow coal mining. Available historic maps between 1884 and 1975 indicate significant coal quarrying and mining has taken place within the Site boundary and surrounding area. Mapped coal seams are present within all solid geology denoted to underlie the site. Numerous faults have been mapped within the Site boundary and in the wider area, generally trending northwest to southeast.

The report concluded that there is a very high risk that historic shallow and deep coal mining will present a hazard/constraint to any development at the Site.

11.3.2 Detailed mining desk study

A detailed mining desk study report was prepared by N.A. Brown in August 2015 to provide an assessment of past mining and potential hazards associated with mining at Site and surrounding area. The report, which covered a much larger study area than the Site boundary, identified significant issues which may affect the design of any development.

The mining assessment concluded that the Site and surrounding area has been extensively undermined by deep level coal mining on up to 15 seams of coal, with the most recent date of mining being 1972. Surface subsidence associated with these workings should have ceased, however there is a legacy of large fissures and re-activated fault scarps which are present in a broad zone running north-west to south-east through the central part of the study area. The re-activation of the faults has been a direct result of post Glacial processes exacerbated by changes in the ground stresses due to mining.

The report made a number of recommendations including ground to confirm the ground conditions and level of risk within the areas of the Site under consideration for development of the Project. The scope of the works would vary depending on the classification of the hazard zone and may be necessary for turbine locations, crane pads, temporary site compound, sub-station, buried cables and access tracks.

11.3.3 Geophysics and geotechnical Investigations

A geotechnical and geophysical investigation was commissioned and reported by N.A. Brown in March 2016. An initial non-intrusive geophysics investigation was undertaken by Terradat Ltd in 2015 across the Site which confirmed the presence of discontinuities as well as a number of other anomalies which could form hazards to the Project.

The geophysics investigation concluded that it would be advisable to carry out an intrusive ground investigation at all of the proposed turbine locations to rule out the possibility of encountering unforeseen hazards during construction. The investigation consisted of two parallel trial trenches extending across the full width of the proposed turbine foundation area. At four of the proposed turbine locations, inclined boreholes were drilled.

The ground investigation did not find any features which could be related to re-activated faults, fissures or shallow coal mining. There were several thin coal seams encountered. In the eastern part of the Site the coal seams were slightly thicker and could be tentatively correlated with named seams identified on the British Geological Survey plan of the Site. No mine workings were encountered. The superficial deposits consisted of a relatively thin peaty topsoil overlying weathered bedrock material. In some trenches thin gravel layers were seen which appeared to have been fluvio-glacial in origin. The turbine locations, as presented in **Figure 2**, are all in areas considered to be low risk zones and have been shown to be clear of hazards associated with fissures and faults.

There remains a low risk to the development as a result of potential ongoing ground movements which could be triggered by further collapse of old coal workings deep below the Site, ground movements such as landslides on the steep slopes surrounding the site or changes to surface water flow patterns and ground water levels as a result of global warming or groundwater rebound following cessation of mining operations. However, the likely depth of the turbine foundations is unlikely to exceed 3m to achieve the required bearing capacity, given the ground conditions encountered during the ground investigation.

11.3.4 Peat

Site walkover surveys and peat probing were undertaken on the 21st and 22nd September 2017 by Ramboll Environ. The findings of the surveys have been used to determine the baseline peat depths across the Site. Peat was found to be predominantly shallow or absent within most of the Site. However, peat accumulations are present locally within the Site, located to the north of T8 and between turbines T3 and T7. Please refer to **Figure 4**.

The proposed turbine locations and associated wind farm infrastructure will avoid the areas of deep Peat (i.e. greater than 0.5m in depth).

11.3.5 Further Work

The series of investigations detailed in the preceding sections have quantified the geological and mining hazards relating to the Site. The Project design has been iteratively developed to take account of the information derived from these studies to avoid geological and mining hazards as well as areas of deep peat. On this basis, RES would seek to scope out a detailed impact assessment chapter for geology, mining and peat from the EIA Report. The potential impact on sensitive habitats associated with peat will be considered as part of the ecology and biodiversity assessment.

A detailed geotechnical investigation will be commissioned prior to the construction of the development to provide the parameters for detailed design of the turbine foundations and associated civil infrastructure.

11.4 Aviation and defence

Large scale wind farm developments have the potential to have a significant impact on primary radar stations, secondary radar stations, and weather radar stations, and thus affect operational safety. Developers are encouraged to engage with aviation organisations such as NATS, Civil Aviation Authority (CAA), Ministry of Defence (MoD), and airport operators at an early stage in the design process, to establish the potential impacts and agree acceptable technical solutions. Where actual or potential conflicts exist, it is important that a solution is identified and that the relevant consultee agrees to that solution being realised within a suitable timescale.

Consultation will be carried out with the relevant consultees as part of the design process. Consultation can lead to greater knowledge of existing links and transmitters and the requirement of mitigation measures to offset any disruption such as radar and obstacle effects for aircraft. Information obtained from the consultees will be taken into account and, if necessary, RES will begin discussions with the relevant operators over the likelihood and practicalities of technical mitigation. On the basis that a technical mitigation solution is implemented, there would be no significant effects on aviation or defence. No further assessment is required as part of the EIA process and a summary of the consultation will be presented in the EIA Report rather than a detailed technical assessment.

11.5 Air quality

The Project is not considered likely to give rise to significant impacts on air quality. The main activities will be limited to construction works (dust from soil stripping and earthworks, from excavation, potentially including occasional blasting, and from vehicles running over unsurfaced ground) and exhaust emissions from fixed and mobile construction plant and construction vehicles. Construction works will be localised, short term, intermittent and controllable through the application of good construction practice. Fixed and mobile plant will be limited in size and number, and operate for short periods. The contributions of exhaust emissions (NO₂ and PM₁₀) from construction vehicles are likely to be low, and orders of magnitude below current Air Quality Objectives. Therefore, it is proposed that the EIA will not address air quality impacts.

11.6 Climate change

The Project itself will contribute to climate change mitigation through the production of renewable energy. No detailed assessment is proposed as part of the EIA, however, a statement of the expected carbon savings over the lifetime of the Project will be presented. The 'carbon calculation' will present the carbon emissions associated with ground conditions, access preparations, foundation excavations, materials used on site, the transportation of materials and components to site and any other carbon loss through tree felling or through degradation of peat/peaty soils. This will be summarised within a technical appendix to the Project Description chapter.

The vulnerability of the Project to climate change will be considered as part of the detailed design process which will consider potential consequences of climate change, e.g. increased flood risk potential and more extreme weather conditions. Appropriate design mitigation measures will be implemented, as necessary. No further assessment of climate change is proposed as part of the EIA

11.7 Electromagnetic interference

Wind farm developments have the potential to interfere with electromagnetic signals passing above ground. Consultation will be carried out with OFCOM, television, telecommunication, and other utility providers to clarify that there are no links crossing the Site that will be impacted by the Project. Information obtained from the consultees will be taken into account and if necessary the Project will be designed to take on board existing telecommunication links.

Investigation would be undertaken to examine any potential problems with interference and ways to minimise interference through the Project layout. On the basis that a technical mitigation solution can be implemented, there would be no significant effects on electromagnetic links/infrastructure. No further assessment is required as part of the EIA process and a summary of the consultation will be presented in the EIA Report rather than a detailed technical assessment.

11.8 Human health

The Site has, historically, not been subject to any activities that would lead to any contamination. The Site is not contaminated nor would it involve any hazardous substances or produce hazardous waste. The EIA will consider human health in terms of potential noise impact (**Section 6** of this report) and potential impacts from shadow flicker (**Section 10** of this report). As such, a separate human health impact assessment will not be carried out as part of the EIA.

11.9 Major accidents and/or disasters

Due to the nature of the Project, the risk of a major accident or disaster is considered to be extremely low. In addition, the Site is located in a remote area, with few nearby receptors. A risk assessment process will be followed by the Principal Designer during the design stage as part of the requirements of the Construction (Design and Management) Regulations 2015. This will ensure that all potential risks are identified at an early stage and appropriate mitigation is implemented. During the operational stage of the Project, routine maintenance inspections will be completed in order to ensure compliant operation of the Project.

No further assessment of the risk of major accidents and/or disasters is proposed as part of the EIA.

11.10 Waste and material resources

The principal objective of sustainable waste and material resource management is to use material resources more efficiently, thereby preventing and reducing the amount of waste generated as well as minimising the quantity of waste that requires final disposal to landfill.

During its life-cycle, the Project is not expected to generate a significant volume of waste. Only if excavated material is not required or is unsuitable for the construction of the Project will it become waste. A Site Waste Management Plan (SWMP) will be developed to minimise waste generation and maximise re-use and recycling during the construction phase, this will form part of a wider Construction Environmental Management Plan (CEMP).

No further assessment of waste and material resources is proposed as part of the EIA.

12.0 SUMMARY OF PROPOSED EIA SCOPE

This chapter summarises the proposed scope for each of the environmental studies that will be undertaken as part of the EIA, please refer to **Table 4**.

Table 4 – Proposed scoped of EIA

Environmental topic	Proposed scope of EIA	Elements to be scoped out
Landscape and visual assessment (Section 4.0)	- A full assessment of the baseline LANDMAP data will be included as an appendix to the LVIA, in accordance with LANDMAP Guidance Note 3. - A 15km study area is proposed for the examination of effects on landscape and visual receptors, though more distant receptors may be included, in accordance with Planning Guidance for Wind Turbine Development Landscape and Visual Impact Assessment Requirements. - The scope of the cumulative LVIA will be in accordance with Table 7 of Planning Guidance for Wind Turbine Development Landscape and Visual Impact Assessment Requirements. Relevant projects will be selected from a list of all wind farms within a 60km search area. - Assessment of the implications of landscape and visual effects for the special qualities of nationally and locally designated landscapes. 16 representative viewpoints will inform the visual assessment throughout the study area. - Residential visual amenity assessment will be undertaken for properties within 1.5km of the proposed wind turbines.	- Effects on landscape and visual receptors that are outside the ZTV of the wind turbines. - Effects on landscape and visual receptors that are beyond 15km from the Site, unless the potential for significant effects is identified during consultation.

Environmental topic	Proposed scope of EIA	Elements to be scoped out
Ecological assessment (Section 5.0)	- Assessment will be based on industry standard methods (CIEEM, 2016), and will include: - A review of potential impacts on statutory and non-statutory designated Sites within 2 km of the Site. - Assessment of impacts on ecological receptors afforded statutory protection under the Conservation of Habitats and Species Regulations 2010 (as amended), the Wildlife and Countryside Act 1981 (as amended) and listed in response to Section 42 of the Natural Environment and Rural Communities (NERC) Act 2006. - Assessment of impacts on bird species afforded enhanced statutory protection under Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) and species of particular conservation priority in Wales. - A cumulative assessment of the potential effects of wind farm development.	- Honey buzzard. - Breeding waders. - Great crested newt. - Roosting bats.
Acoustic assessment (Section 6.0)	- Operational noise effects will be considered and will follow 'The Assessment and Rating of Noise from Wind Farms, ETSU-R-97' published by ETSU for the Department of Trade and Industry. - Construction noise will be evaluated although it is likely to be suitably controlled by following best practice guidelines and standard mitigation. - Noise from construction traffic will be assessed on the identified access routes to the Project. - A cumulative noise assessment will be provided.	There will be minimal noise from operational traffic. This has therefore been scoped out of the assessment.

Environmental topic	Proposed scope of EIA	Elements to be scoped out
Cultural heritage assessment (Section 7.0)	• A desk-based assessment (DBA) will be undertaken to conform to best practice guidance. • Consideration of effects on the setting of Registered Landscapes of Historic Interest in Wales within 10km of the Site. • Consideration of effects on the setting of designated heritage assets (Scheduled Ancient Monuments, Grade I, II*, and II Listed buildings, and Sites on the Register of Parks and Gardens of Special Historic Interest in Wales) within 10km of the Site; • Consideration of effects on below ground archaeological remains within the Site and within 500m of the Site; • An ASIDOHL v2 assessment will be undertaken; and • A cumulative impact assessment will be undertaken.	
Transport and traffic (Section 8.0)	• Traffic and transport effects during the construction of the Project within a defined study area. The study area will be agreed with consultees.	• Impacts during the operation and decommissioning phases of the Project.
Public access, amenity, and socioeconomic assessment (Section 9.0)	• Changes in land use will be assessed. • Job creation during construction, operation and decommissioning will be reviewed and related to wider employment within the region. • Public perception in relation to effects on tourism and amenity will be considered based on consultation and general research on this topic. • Issues related to common land will be assessed.	
Shadow Flicker (Section 10.0)	• Technical assessment shadow flicker effects on receptors within 1,500m of the final turbine layout.	

13.0 OTHER SUPPORTING DOCUMENTATION

13.1 Traffic Management Plan (TMP)

The principal objective of a Traffic Management Plan (TMP) is to provide details of the proposals to manage traffic during construction of the Project. The TMP will provide a detailed assessment of the proposed route for the delivery of turbine components and outline any traffic management measures required for the transportation of Abnormal Indivisible Loads (AIL) and Heavy Goods Vehicles (HGV) for general construction traffic.

The scope of this document will include the following:

- The policy and legislative context of the TMP;
- The process of determining the preferred delivery routes for AILs and HGVs;
- An estimate of regular and AIL traffic generation;
- A general description of necessary enabling highway works, highway upgrades, and the site accesses;
- Legal and other transport arrangements that are to be made in conjunction with the wind farm construction, namely with the AIL transport;
- The delivery routes, staging, and details of any enabling works;
- Steps which will be taken during the lead up to the construction of the wind farm to increase the public's awareness of the upcoming deliveries; and
- An assessment of the cumulative impact associated with other developments.

In order to agree the scope of the TMP and confirm the basic principles of the TMP, RES will look to consult with a number of stakeholders, including:

- Swansea County Council, Neath Port Talbot County Borough Council, Bridgend County Borough Council, and Rhondda Cynon Taf County Borough Council;
- Welsh Government Highways – South (WGHS); and
- South Wales Trunk Road Agent (SWTRA).

13.2 Design and Access Statement (DAS)

The design and access statement will contain the design principles and concepts that have been applied to the Project in respect of amount, layout, scale, landscaping and appearance; it will also detail how issues relating to access have been dealt with including how relevant access policies have been considered. The statement will also explain the evolution of the proposals throughout the consultation process and how this has influenced the design.

13.3 Supporting Planning Statement

The Supporting Statement will include a thorough review of planning policy context and appraisal, identifying the policy framework at the national, regional and local levels. National Planning Guidance will include Planning Policy Guidance Notes and Planning Policy Statements where relevant. The planning statement will highlight the benefits and advantages of the Project in terms of the Government's aim to tackle climate change and reduce the dependence on non-renewable sources of power generation.

13.4 Consultation Report

Under article 11 of the Developments of National Significance (Procedure) (Wales) Order 2016, a DNS application must be accompanied by a pre-application Consultation Report. The report should look to include, as a minimum, the following information:

- An account of the statutory consultation, publicity, deadlines set, and activities required under section 61Z of the Town and Country Planning Act 1990 ('the Act');
- Copies of all notices and publications used during the consultation;
- Declarations that the relevant notices and publication requirements comply with the Act and Order;
- The addresses of those given notice of the proposed application;
- A summary of all issues raised by any person consulted under section 61Z (3) of the Act and articles 8 and 9(2), including confirmation of whether the issues raised have been addressed and, if so, how; and
- The particulars of all responses received from persons consulted under section 61Z (3) or (4) of the Act, including copies of responses.

13.5 Secondary consents associated with common land

A large part of the Site is located within open access common land. RES will be submitting the following secondary consents as part of the planning application for the Project: Consent for the exchange of common land, under Section 16 of the Commons Act 2006, and consent for works on common land, under Section 38 of the Commons Act 2006.

Baseline information gathered as part of the EIA process will be used to inform any applications for secondary consents made to the Welsh Minsters. RES will ensure adequate pre-application consultation has been considered, the following parties will be involved as part of the consultation process:

- Relevant landowners;
- Commoners associations and active commoners;
- Bridgend County Borough Council, Neath port Talbot County Borough Council, and Rhondda Cynon Taf County Borough Council;
- Local community councils;
- Open spaces society;
- Natural Resources Wales; and
- Cadw.

APPENDIX A – LANDSCAPE AND VISUAL SCOPING LETTER AND FIGURES

- Scoping letter sent to Bridgend County Borough Council [dated 29th September 2017]
- Supporting Figure 1: Zone of Theoretical Visibility (ZTV) to Turbine Tip Height (150m)
- Supporting Figure 2: Cumulative Wind Farms within 60km

APPENDIX B – LANDSCAPE AND VISUAL CONSULTEES CORRESPONDENCE

- Email received from Rhondda Cynon Taf County Borough Council [dated 9th November 2017]
- Letter received from Bridgend County Borough Council [dated 8th December 2017]

APPENDIX C – ECOLOGY AND BIODIVERSITY SCOPING FIGURE

- Ecology scoping figure produced in support of the Upper Ogmore EIA Scoping Direction report

APPENDIX D – ECOLOGY AND BIODIVERSITY CONSULTEES CORRESPONDENCE

- Letter from NRW to BSG Ecology regarding the scope of ecological surveys at Upper Ogmore Wind Farm [dated 16th February 2016]
- Letter from BSG Ecology to NEW requesting pre-application consultation meeting regarding Upper Ogmore Wind Farm [dated 29th August 2017]
- Meeting minutes prepared by BSG Ecology regarding Upper Ogmore Wind Farm ornithology and peat Pre-application Consultation with NRW [dated 13th December 2017]
- Letter from NRW to BSG Ecology regarding pre-application consultation at Upper Ogmore Wind Farm [dated 6th February 2018]



UPPER OGMORE WIND FARM

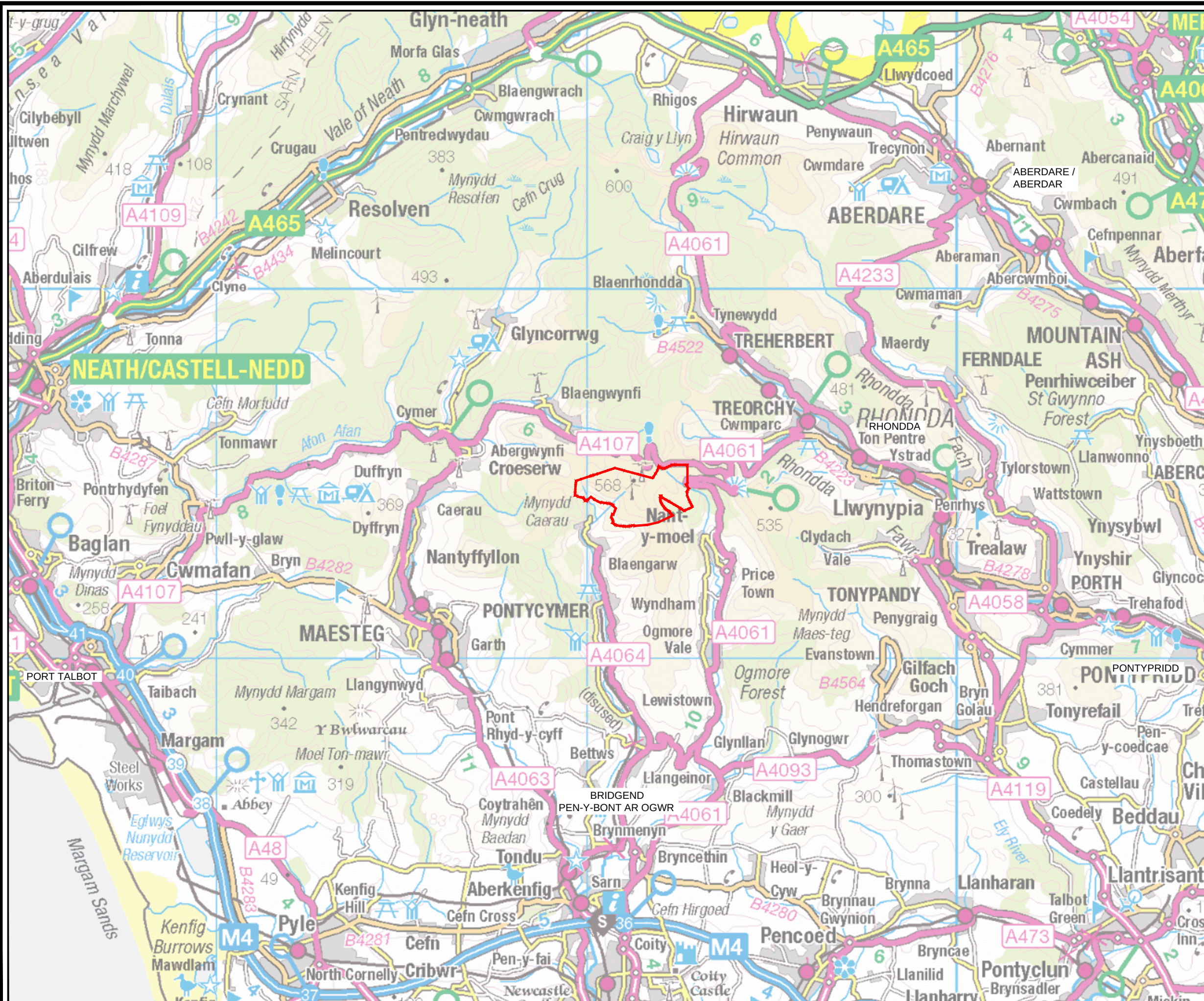
FIGURE 1

SITE LOCATION PLAN

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2018 LICENCE NUMBER 0100031673.

KEY:

— SITE LOCATION



LAYOUT DWG N/A T-LAYOUT NO. N/A

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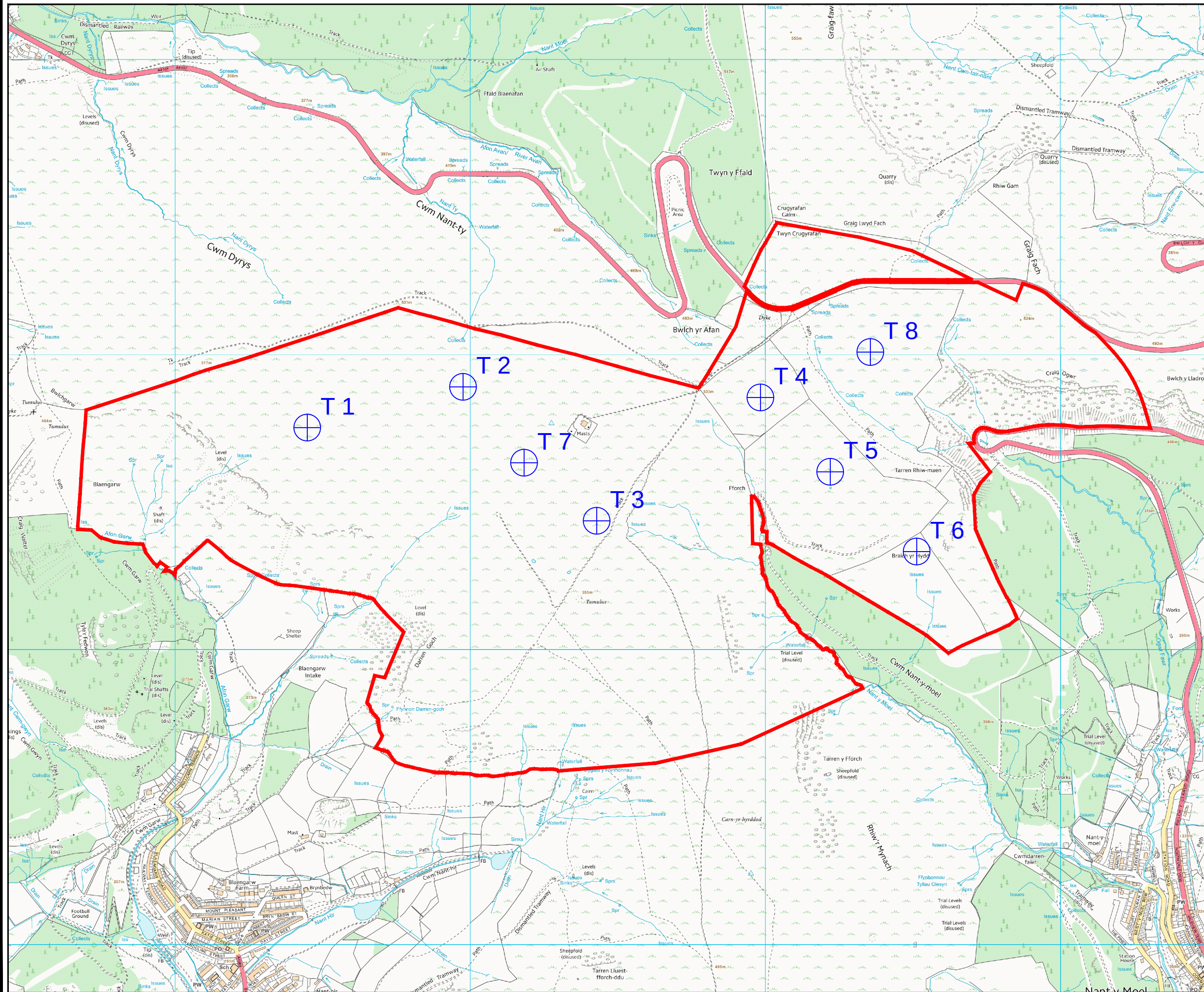
UPPER OGMORE WIND FARM

FIGURE 2 TURBINE LAYOUT OVERVIEW

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KEY:

- SITE BOUNDARY
- ⊕ T xx PROPOSED TURBINE LOCATION

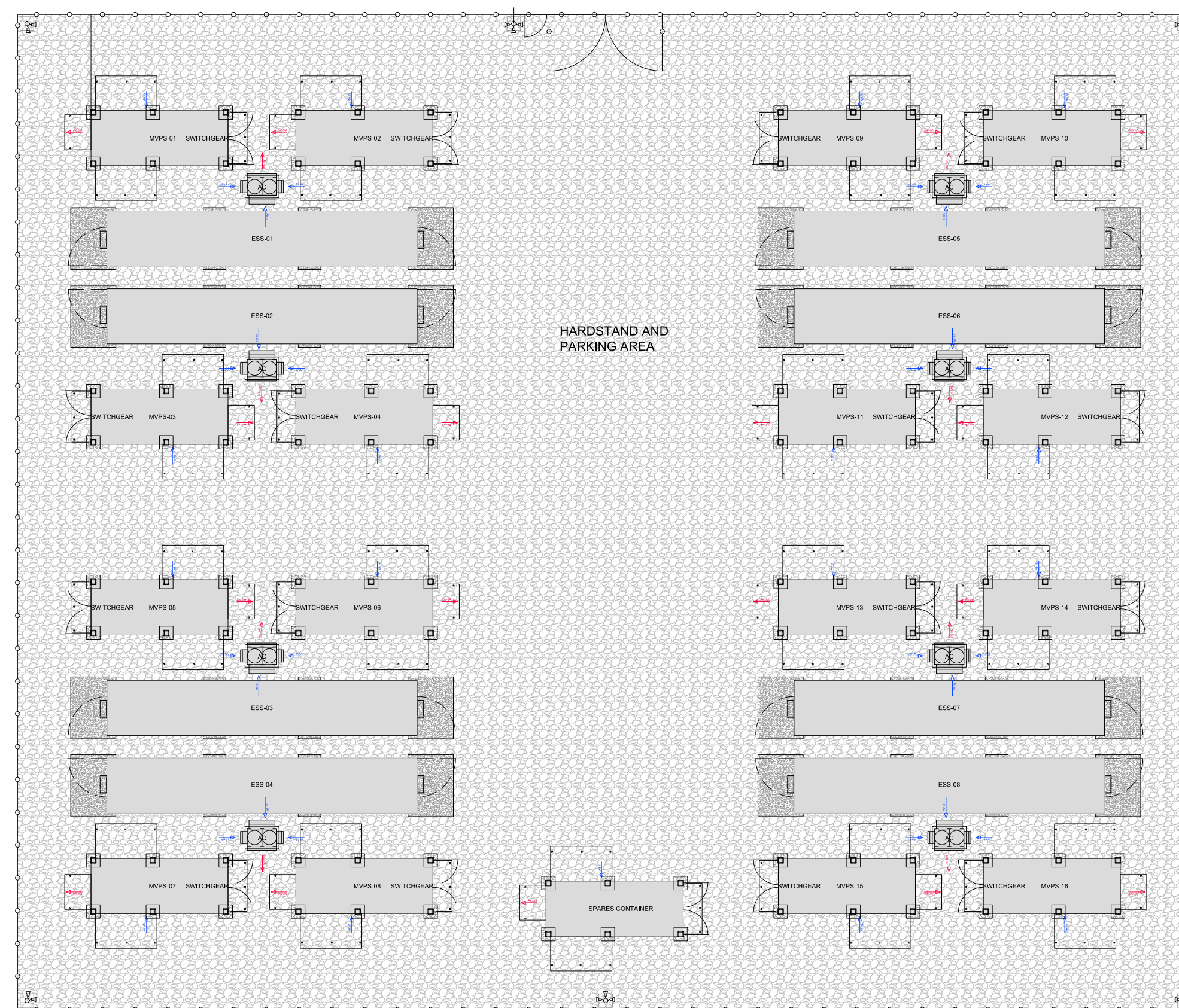


LAYOUT DWG	N/A	T-LAYOUT NO.	N/A
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UPPER OGMORE
WIND FARM

FIGURE 3
ENERGY STORAGE
FACILITY



KEY:

- ESS Energy storage enclosure, based on 45ft shipping container, max. 3.5m high
- MVPS Medium voltage power station, based on 20ft shipping container, max. 3.5m high
- A/C ESS air conditioning unit
- Fence (2.4m high palisade or similar)
- Gravel
- Concrete foundation for containers
- Lighting / CCTV column max. 4.5m high

NOTES:

- Do not scale.
- Equipment positions shown to a tolerance of $\pm 0.5\text{m}$.
- Exact door positions and gate details subject to detailed design.
- Air conditioning unit and auxiliary transformer details may be adjusted to suit supplier product details.

LAYOUT DWG	N/A	T-LAYOUT NO.	N/A
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UPPER OGMORE
WIND FARM

FIGURE 4

PEAT DEPTH
CONTOUR MAP

KEY:

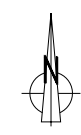
- SITE BOUNDARY
- T xx PROPOSED TURBINE LOCATION
- PEAT DEPTH ASSESSMENT AREA

PEAT PROBE LOCATION:

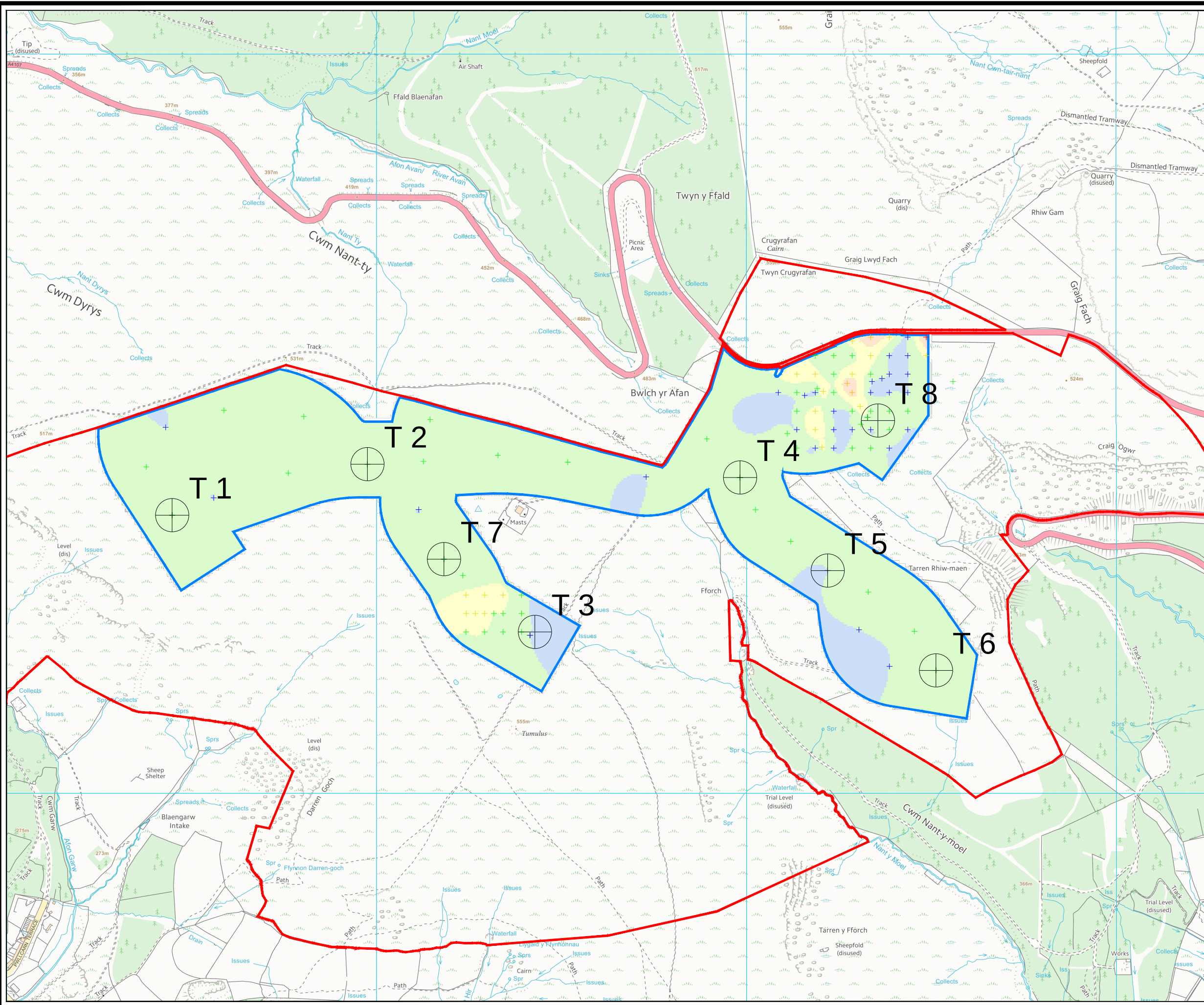
- + 0.00
- + 0.01 - 0.50
- + 0.51 - 1.00
- + 1.01 - 1.50
- + 1.51 - 1.60

PEAT DEPTH (m):

- 0
- 0.01 - 0.5
- 0.51 - 1.00
- 1.01 - 1.50
- 1.51 - 1.82



LAYOUT DWG	N/A	T-LAYOUT NO.	N/A
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Bridgend County Borough Council

By email to phil.thomas2@bridgend.gov.uk

Our reference 6822 Upper Ogmores Windfarm

Date 29/09/2017

Dear Mr Thomas,

Upper Ogmores Wind Farm: Landscape and Visual Impact Assessment

LUC is providing landscape and visual advice to RES UK & Ireland Ltd in relation to the proposed Upper Ogmores Wind Farm. We are writing to confirm our approach to the assessment of effects on landscape character and visual amenity. The methodology used will be closely modelled on the recommendations made in the third edition of *Guidelines for Landscape and Visual Impact Assessment* ('GLVIA3').ⁱ

The proposed site is within Bridgend County Borough, and is located to the north-west of Nant-y-moel on land adjacent to the operational Llynfi Afan Wind Farm. The site is close to the boundaries of Rhondda Cynon Taf and Neath Port Talbot, and we are therefore consulting all three Councils. The wind farm will comprise eight turbines, up to 150m to tip height. Guidance published by Scottish Natural Heritage (SNH) suggests that a zone of theoretical visibility (ZTV) map be generated for a 40km radius around turbines of up to 150m,ⁱⁱ and this is provided on the enclosed Figure 1.

A selection of representative viewpoints will be used to inform the assessment of impacts. We have listed these viewpoints in Table 1 below, and they are shown on the enclosed Figure 1. This list has been informed by the viewpoints used for the adjacent Llynfi Afan Wind Farm, but all viewpoints have been carefully chosen to illustrate likely views of the Upper Ogmores proposal.

The existing and predicted views from each of these locations will be illustrated with photography and photomontages, prepared to technical standards as set out in good practice publications.ⁱⁱⁱ

Visualisations for each viewpoint will be produced in accordance with current SNH guidance.^{iv} We propose the following set of visualisations for each viewpoint:

- A3 viewpoint location plan on 1:50k OS base mapping;
- Large format 90 degree baseline context view with aligned wirelines showing colour coded and labelled cumulative schemes (up to 4 No. 90 degree sections, depending on visibility of cumulative schemes);
- Large format 53.5 degree wireline showing proposed development;
- Large format 53.5 degree photomontages showing proposed development; and
- A3 single frame photomontage showing proposed development.

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We would also welcome your comments on the proposed approach to the cumulative landscape and visual impact assessment (CLVIA), including any key issues you may wish to raise at this point, or wind farms to be considered in the assessment. The focus of the CLVIA will be on the relationship between Upper Ogmore and Llynfi Afan wind farms. Other schemes within 60km of the proposed wind farm of which we are aware are listed in Table 2 and illustrated in the enclosed Figure 2. We propose to map and assess the effects of the following:

- All wind farms (operational, consented and proposed) above 50m to blade tip height within 40km;
- All single turbines (operational, consented and proposed) above 50m to blade tip height within 5km; and
- Wind farms at scoping (above 50m to blade tip height) within the more immediate landscape context.

We propose to exclude turbines below 50m to blade tip height from the assessment, as cumulative effects with smaller turbines are less likely to result in significant interactions.

The approach will involve the identification of broad groups of wind farms, based on those of a similar development status and geographical location, and undertaking an assessment of cumulative landscape and visual effects together with each group. We typically assess two scenarios, i.e. the identification of additional effects with other schemes which are consented, and the identification of effects with other schemes which are still in planning. We assess the effects of the proposal together with operational projects as part of the landscape and visual impact assessment process, as they are already part of the baseline (and as such will be seen in baseline photography). We also intend to use the enclosed selection of viewpoints for the cumulative landscape and visual impact assessment.

We would be grateful if you could respond in writing with any comments on the selected assessment viewpoints and the scope of works for visualisation material. This will enable us to progress with detailed field survey work and viewpoint photography.

In addition to help further assessment can you please supply GIS datasets for local landscape designations within the Bridgend County Borough Council area, including:

- Bridgend Strategic Coalfield Plateau Conservation Area;
- Bridgend Special Landscape Areas; and
- Bridgend Green Wedges.

If you have any comments on the approach, require more information or would like to discuss any of the above then please do not hesitate to contact us.

Yours sincerely,

Graham Cameron
Landscape Planner
LUC
Graham.Cameron@landuse.co.uk

Table 1: Preliminary Viewpoint Locations

No.	Name	X	Y	Distance (km)	Reason for Selection
1	A4107, Hairpin Bend	291705	195705	0.6km	Represents sequential views gained from the A4107.
2	Mynydd Llangeinwyr	291915	193301	1.1km	Representative of views from the highest hill in the Bridgend County Borough area.
3	Craig Ogwr, footpath	293647	194686	1.1km	Representative of views experienced by recreational receptors on the Craig Ogwr footpath.
4	Blaengarw, cycle path	290095	192750	1.4km	Representative of views from cycle route 884 and similar views experienced from settlement Blaengarw.
5	Caroline Street, Blaengwynfi	289287	196535	1.4km	Represents views from settlement Blaengwynfi
6	A4061, Nant-y-Moel	293512	192946	1.7km	Represents sequential views from the A4061 and similar views experienced by residents of Nant-y-Moel.
7	Football field - Pontycymer	290525	191516	2.6km	Representative of views experienced by residents of Pontycymer.
8	Cwmparc	295544	196194	3.4km	Represents views from settlement Cwmparc
9	Pen y Fole, trig point	291900	189555	4.8km	Representative of views gained by walkers to this location.
10	Coed Morgannwg Way and St Illyd's Walk	283538	191246	4.9km	Represents views gained by recreational receptors on these popular walking routes.
11	A4061, above Treorchy	292284	202024	7km	Represents sequential views experienced by road users on this route.
12	Western edge of Penrhys	300054	194691	7.5km	Representative of views gained from the settlement of Penrhys and similar views experienced by walkers.
13	Coed Morgannwg Way & St Illyd's Walk	283578	191209	7.7km	Representative of views experienced from walking routes west of Maesteg.
14	Ogwr Ridgeway south west of Llangewyd	284625	187278	9.4km	Representative of views gained by road users and walkers on the Ogwr Ridgeway Walk.
15	Ergyd Isaf	279505	188660	12.5km	Represents views gained from local hill summit.
16	B4287 east of Neath	277724	195863	12.7km	Represents sequential views experienced by road users and similar views gained by walkers and those on horseback.

Table 2: Cumulative Wind Farms

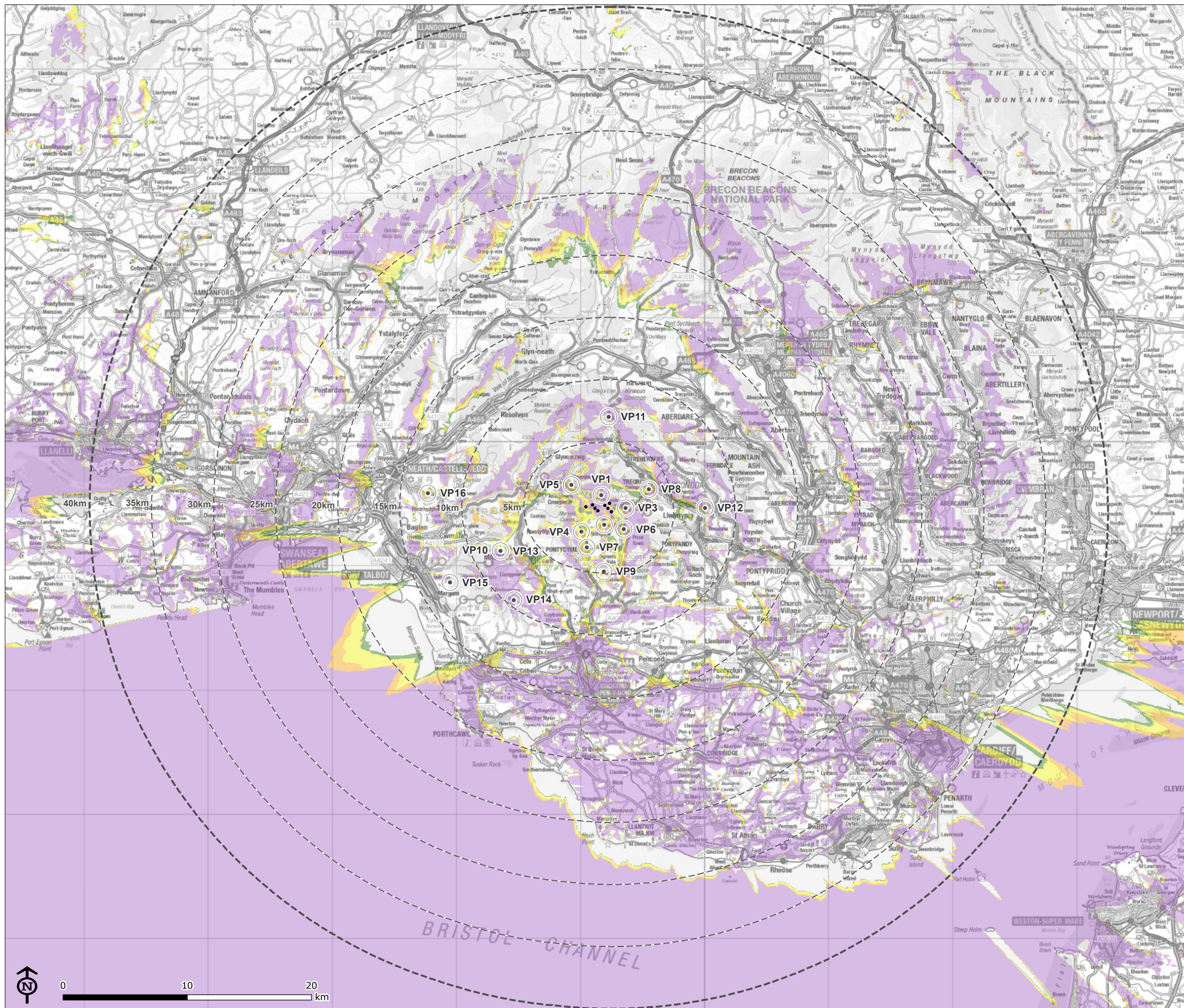
Wind Farm	X	Y	Distance (km)	Status
Llynfi Afan	290057	195043	1.6	Operational
Pant y Wal/Fforch Nest	296123	190975	5.8	Operational
Pant y Wal Extension	As above	As above	As above	Consented
Abergorki	295989	199006	6.1	Consented
Pen y Cymoedd	289656	200850	6.5	Operational
Maerdy	295548	200072	6.7	Operational
Ferndale	298901	196403	7.5	Operational
Ffynnon Oer	284567	198831	8.2	Operational
Mynydd Bwllfa	295411	201989	8.2	Operational
Melin Court	284952	200550	8.9	Application Submitted
Taff Ely	298157	186308	10.6	Operational
Mynydd Portref	298981	185775	11.6	Operational
Mynydd Brombil	279030	188646	14.0	Operational
Maesgwyn	286389	208211	14.5	Operational
Maesgwyn Extension	As above	As above	As above	Operational
Mynydd y Gwrhyd	272936	210786	24.7	Operational
Swansea Docks	267000	191800	24.8	Operational
Pen Bryn Oer	312090	209160	25.1	Operational
Oakdale Business Park	319193	200008	28.1	Operational
Mynydd y Bettws	267377	210448	28.9	Operational
Mynydd y Gwair	265867	207891	29.0	Operational
Brechfa Forest East	257941	236490	53.7	Consented
Great House Farm	345074	186932	54.0	Consented
Brechfa Forest West	248471	232503	57.4	Operational
Mynydd Pencarreg	256944	241153	58.0	Consented
Alltwalis	247002	233169	58.9	Operational

ⁱ Landscape Institute and Institute of Environmental Management and Assessment (2013) *Guidelines for Landscape and Visual Impact Assessment*. 3rd Edition.

ⁱⁱ Scottish Natural Heritage (2017). *Visual Representation of Wind Farms*. Version 2.2 [http://www.snh.gov.uk/docs/A2203860.pdf]

ⁱⁱⁱ Including Scottish Natural Heritage (2017) *Visual Representation of Wind Farms*, and Landscape Institute Advice Note 01/11 *Photography and photomontage in landscape and visual impact assessment*. [https://www.landscapeinstitute.org/PDF/Contribute/LIPhotographyAdviceNote01-11.pdf]

^{iv} Visual Representation of Wind Farms - Version 2.2 (2017) SNH



UPPER OGMORE Scoping Report

**Figure 1: Zone of Theoretical
Visibility (ZTV) to Turbine Tip
Height (150m)**

- Turbine location
 - 5km intervals from outermost turbines
 - 40km from outermost turbines
 - Viewpoint location
- 1:A4107, Hairpin Bend
 - 2:Mynydd Llangeinwyr
 - 3:Craig Ogwr, footpath
 - 4:Blaengarw, cycle path
 - 5:Caroline Street, Blaengwynfi
 - 6:A4061, Nant-y-Moel
 - 7:Football field - Pontycymer
 - 8:Cwmparc
 - 9:Pen y Fole, trig point
 - 10:Coed Morgannwg Way and St Ilyd's Walk
 - 11:A4061, above Treorchy
 - 12:Western edge of Penrhys
 - 13:Coed Morgannwg Way and St Ilyd's Walk
 - 14:Ogwr Ridgeway south west of Llangewyd
 - 15:Ergyd Isaf
 - 16:B4287 east of Neath

Theoretical turbine visibility

- 1-2 Turbines are visible
- 3-4 Turbines are visible
- 5-6 Turbines are visible
- 7-8 Turbines are visible

Notes

The ZTV is calculated to turbine tip height (150m), based on the RES 02959D0001-05 8TL layout, from a viewing height of 2m above ground level. The terrain model assumes bare ground and is derived from OS Terrain 50 height data (obtained from Ordnance Survey in Spring 2017). Earth curvature and atmospheric refraction have been taken into account. The ZTV was calculated using ArcMap 10.4.1 software.

Map Scale @ A3: 1:300,000



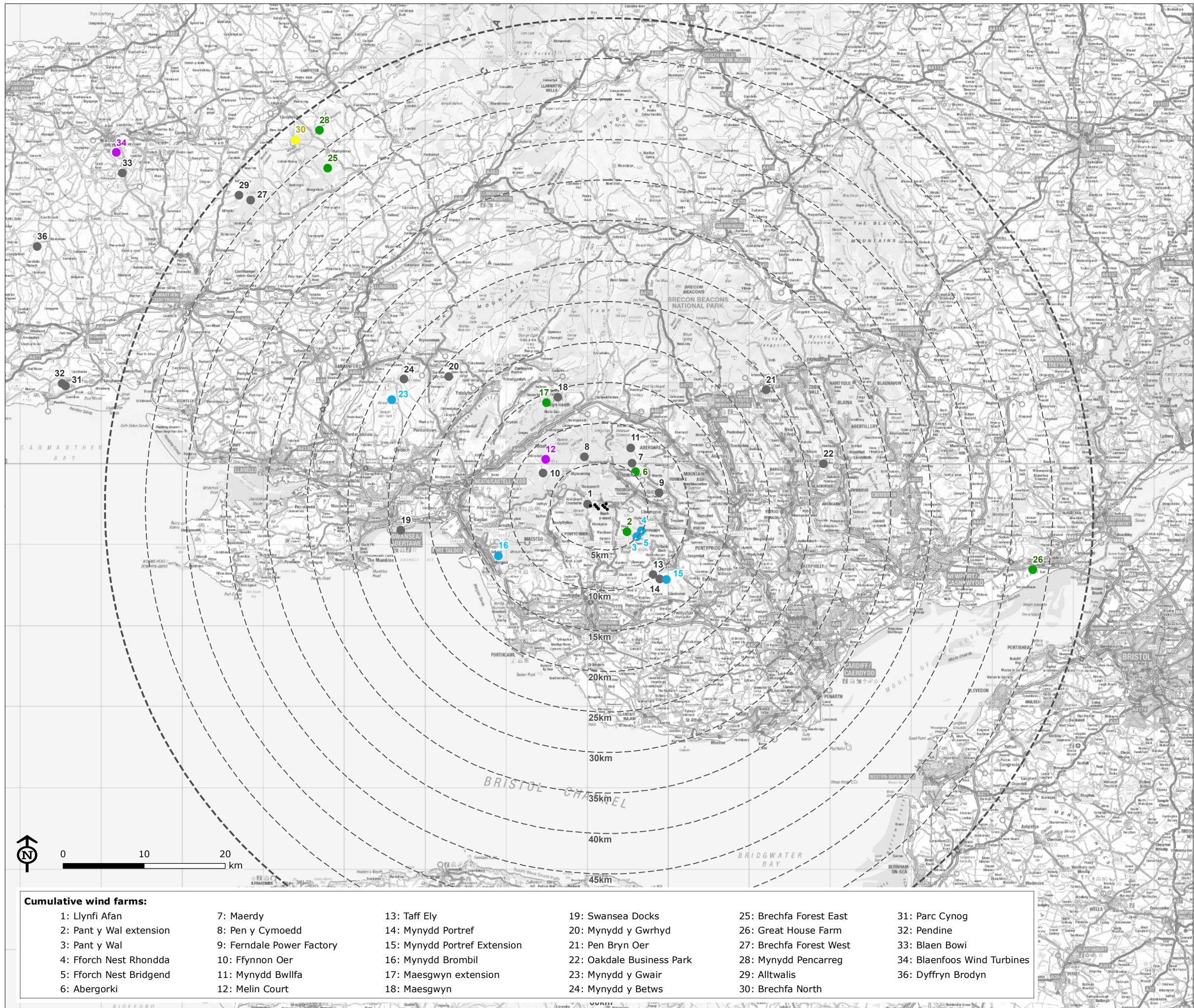
UPPER OGMORE
Scoping Report

Figure 2: Cumulative Wind
Farms within 60km

- Turbine location
- 5km intervals from outermost turbines
- 60km from outermost turbines
- Cumulative wind farms (by status)
- Operational
- Under Construction
- Consented
- Application Submitted
- Design/Scoping

Note
Based on data available to LUC on 29/09/2017.

Map Scale @ A3: 1:460,000



Cumulative wind farms:

- | | | | | | |
|-------------------------|---------------------------|------------------------------|---------------------------|-------------------------|-----------------------------|
| 1: Llynfi Afan | 7: Maerdy | 13: Taff Ely | 19: Swansea Docks | 25: Brechfa Forest East | 31: Parc Cynog |
| 2: Pant y Wal extension | 8: Pen y Cymoedd | 14: Mynydd Portref | 20: Mynydd y Gwrhyd | 26: Great House Farm | 32: Pendine |
| 3: Pant y Wal | 9: Ferndale Power Factory | 15: Mynydd Portref Extension | 21: Pen Bryn Oer | 27: Brechfa Forest West | 33: Blaen Bowi |
| 4: Fforch Nest Rhondda | 10: Ffynnon Oer | 16: Mynydd Brombil | 22: Oakdale Business Park | 28: Mynydd Pencarreg | 34: Blaenfoos Wind Turbines |
| 5: Fforch Nest Bridgend | 11: Mynydd Bwlfa | 17: Maesgwyn extension | 23: Mynydd y Gwair | 29: Alltwalis | 36: Dyffryn Brodyn |
| 6: Abergorki | 12: Melin Court | 18: Maesgwyn | 24: Mynydd y Betws | 30: Brechfa North | |

From: Feist, Sarah [<mailto:Sarah.J.Feist@rctcbc.gov.uk>]

Sent: 09 November 2017 09:48

To: Graham Cameron

Cc: Edwards, Raymond

Subject: FW: Upper Ogmere Wind Farm - Landscape and Visual Impact Assessment Viewpoint Consultation, Rhondda Cynon Taf CBC

Hi Graham,

Thank you for your recent emails regarding the above proposal and again, my apologies for the delay in responding. Having consulted the Council's Landscape Architect Ray Edwards, the following response has been received:

I have made a check on the proposed Landscape and Visual Impact Assessment being proposed by the consultants LUC .

Generally everything is covered but they also need to undertake an impact assessment of NRW Landmap:

<https://naturalresources.wales/guidance-and-advice/business-sectors/planning-and-development/evidence-to-inform-development-planning/landmap-the-welsh-landscape-baseline/?lang=en>

The proposed approach to the cumulative landscape and visual impact assessment (CLVIA) seems reasonable I can't see an issue in excluding turbine below 50 m blade tip but this is not an issue for RCT.

Information about the Rhondda Strategic Landscape Area I believe this is the Cadw designation this can be obtained from Gwent and Glamorgan Archaeological Trust:

http://www.ggat.org.uk/cadw/historic_landscape/main/english/historical.htm

The SLAs – can be viewed on our Proposals Map at the following location:

<http://www.cartogold.co.uk/rhondda/Rhondda.htm>

The Heads of the Valleys Wind Turbine Development Landscape Sensitivity and Capacity Study the main document can be obtained from the following weblink:

<http://www.monmouthshire.gov.uk/app/uploads/2015/01/1cAppendix-C-Wind-Turbine-Advice.pdf>

RCTCBC supports but apparently the Council would not adopt such a study.

The following comments on the selected view points are also made:

It is generally difficult to identify using X and Y coordinates, would have preferred to have seen OS Grid references.

No. 8 - Cwmparc difficult to locate but if it is in the settlement of Cwmparc it is unlikely to be seen.

No. 10 and 13 - it should be noted that NRW Forestry have discontinued the Coed Morgannwg Way.

In respect of the advice contained in your email of 18 October regarding VP10, Ray Edwards has advised:

I think they need to amend the name of the viewpoint 10. Instead of Coed Morgannwg Way it should be given the footpath reference which is ABD/3/1 situated just along the top of Tarren y Bwllfa approx OS Grid Ref SN 96493 01806 (East 296493 West 201806).

As previously mentioned the Coed Morgannwg Way is not being supported by NRW Forestry anymore and therefore the title should be changed. However, Viewpoint 10 is on the line of ABD/3/1

The following is a link which sort of shows it but slight to the south- west:

<https://www.ordnancesurvey.co.uk/osmaps/51.7054220969009,-3.49933781958607,12/pin>

I trust you will find the above comments of some assistance, however if you have any further queries, please let me know.

With regards,

Sarah Feist

Arweinydd Carfan Rheoli Datblygu / Team Leader Development Control

Uwchadran Adfwyio & Chynllunio / Regeneration & Planning Division

Ty Sardis / Sardis House

Heol Sardis / Sardis Road, Pontypridd, CF37 1DU

☎01443 494800 / ✉ Sarah.J.Feist@rctcbc.gov.uk

www.rctcbc.gov.uk/planning

Dewiswch iaith a diwyg eich dogfen / Available in alternative formats and languages

Fydd gohebu yn y Gymraeg ddim yn arwain at oedi / Corresponding in Welsh will not lead to delay

Cyngor Bwrdeistref Sirol Pen-y-bont ar Ogwr Bridgend County Borough Council

Swyddfeydd Dinesig, Stryd yr Angel, Pen-y-bont, CF31 4WB / Civic Offices, Angel Street, Bridgend, CF31 4WB



Mr Graham Cameron
Landscape Planner
37 Otago Street
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Grwp Datblygu
/ Development Group (Planning)
Deialu uniongyrchol / Direct Line: 643173
Gofynnwch am / Ask for: Philip Thomas

Ein cyf / Our ref: PE/664/2017
Eich cyf / Your ref:

Dyddiad / Date: 8 December 2017

Dear Mr Cameron

UPPER OGMORE WIND FARM: LANDSCAPE AND VISUAL IMPACT ASSESSMENT

I refer to your letter dated 29th September and subsequent conversations concerning the above proposal.

Firstly, I fully support your approach to the assessment of landscape character and visual amenity which you confirm will closely follow the recommendations made in the third edition of '*Guidelines for Landscape and Visual Impact Assessment (2013)*'.

The visualisations you intend to produce will also accord with the '*Scottish Natural Heritage - Visual Representation of Wind Farms - Guidance - February 2017*' which again is an approach this Council supports. Having now completed a review of the 'Preliminary Viewpoint Locations' it is recommended that a number of the positions are amended and additional viewpoints provided to assist the Landscape Visual Impact Assessment and the Cumulative Landscape Visual Impact Assessment. The following table includes revised and additional viewpoints which I would advise you should consider:

NO	Name	X	Y	Reason for Selection
1	Coed Morgannwg Way - National Trail	284487	193376	Representative of views by recreational receptors on National Trail.
2	Parc Calon Lan - Blaengarw (Replaces Viewpoint 4)	289974	193027	Representative of views from this important recreational receptor
3	Bridleway adjacent to Llangeinor Arms in Llangeinor Conservation Area	292494	187964	Representative of views from the conservation area and users of this important recreational route

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Text relay: Put 18001 before any of our phone numbers for the text relay service

Rydym yn croesawu gohebiaeth yn Gymraeg. Rhwch wybod i ni os mai Cymraeg yw eich dewis iaith

We welcome correspondence in Welsh. Please let us know if your language choice is Welsh

4	Ogmore Terrace Nantymoel (Nantymoel Conservation Area) (Replaces Viewpoint 6)	293504	192774	Representative of views from residential street in Nantymoel Conservation Area.
5	A4061 Hairpin Bend (Replaces Viewpoint 3)	293700	194607	Representative view as road users enter Bridgend County Borough from the RCT and NPT
6	Mynydd William Meyrick (Trig Point 517m)	295218	192723	Representative of views from high point in the county borough and 'Open Access' land – will provide view of development in the context of the Llynfi Afan windfarm
7	B4281 Cefn Road	287671	182793	Representative view on western approach to the Valley Gateway community of Aberkenfig – enable to cumulative impact of development to be assessed
8	Bridgend Circular Walk/A4061	291013	182988	Panoramic view of from recreational receptor and principal access road/gateway to the Ogmore and Garw Valleys

Following the exhibitions, I have been approached by residents of Blaengarw requesting the submission of a visualisation from the recreation ground to the south of Pwllcarn Terrace (Grid Refr: 290021 - 193477). Although not included on your original list or the Council's viewpoint amended list, I believe RES will be approached directly with this request.

Gillespies LLP prepared 'Planning Guidance for Wind Turbine Development - Landscape and Visual Impact Requirements' for a number of South Wales Local Planning Authorities back in 2013 which a number of Council's have adopted as Supplementary Planning Guidance. I attach for your consideration an extract that provides guidance on the 'Methodology for EIA Screening for Cumulative Issues' and sets out the distances at which the various types and scale of wind turbines need to be considered in a CLVIA. It recommends that for 'Very Large' turbines, the CLVIA would need to consider the following operational, consented or in planning turbines:

Micro Turbines (<25m)	within 2km
Small Turbines (25-50m)	within 8km
Medium Turbines (50-80m)	within 12km

Large/Very Large (>80m) within 17-23Km

I note your comments regarding the potential interaction with smaller turbines and, if it is your intention to discount these structures this will need to be justified given the above guidance which may also be referred to by neighbouring councils.

I would draw your attention to the Council's adopted development plan, Bridgend Local Development Plan (2013) and Supplementary Planning Guidance (SPG): 20 - Renewables in the Landscape (2014) (see links below) where you should be able to access the plans of the local landscape designation prior to providing your client with landscape and visual advice. The maps within these documents also reference the Special Landscape Areas and Green Wedges, (similar to Green Belts). Strategic Coalfield Plateau Conservation Areas are no longer designations in the adopted plan but are referred to as Primary and Secondary Coal Resource Safeguarding Areas.

<http://www.bridgend.gov.uk/media/320603/spg20-renewables-in-the-landscape.pdf>

<http://ldp.bridgend.gov.uk/policies/ldp/ldp.html>

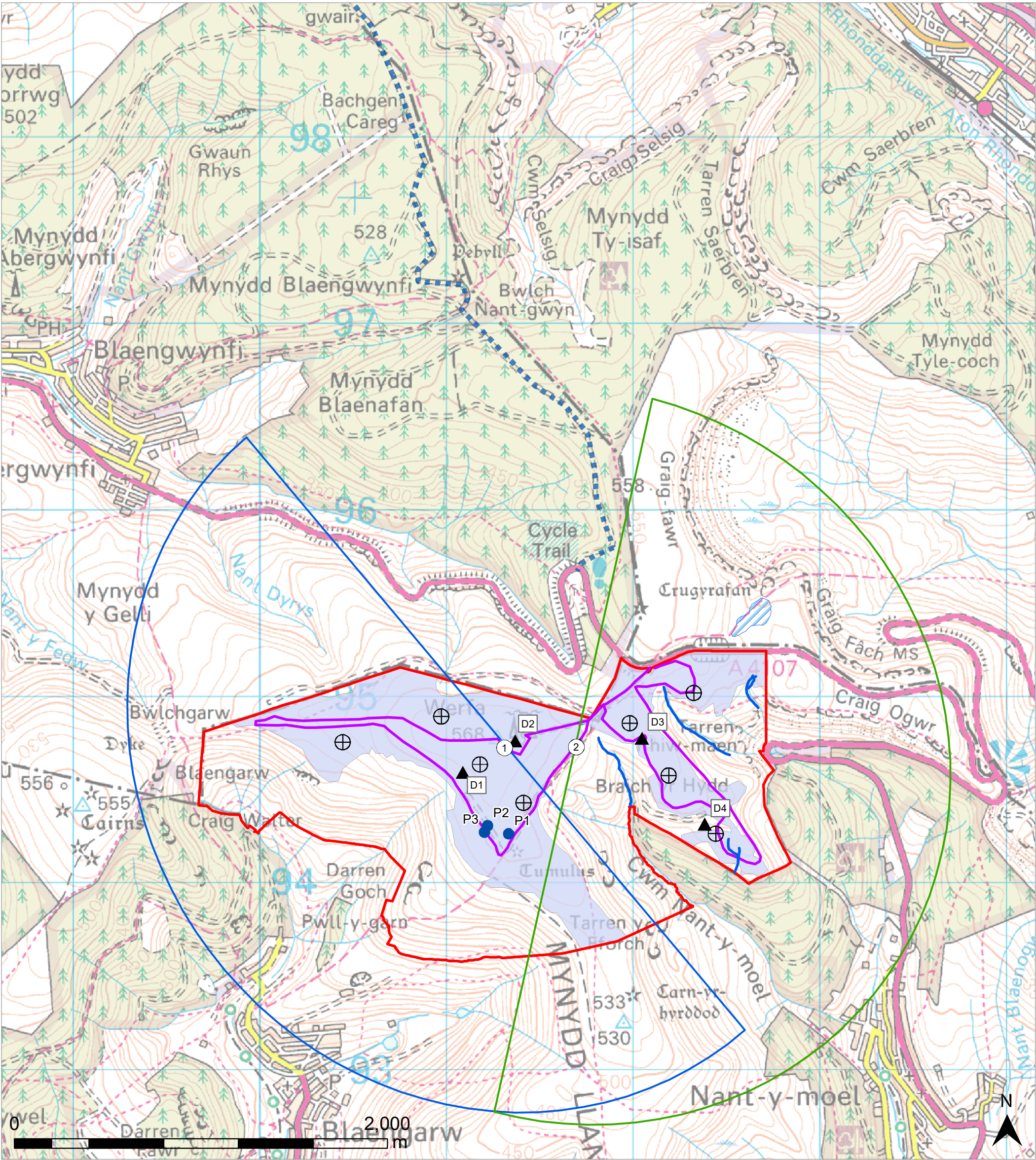
<http://ldp.bridgend.gov.uk/>

I trust that the aforementioned information is of assistance to you but should need to discuss this response, do not hesitate to contact my assistant Phil Thomas (see contact details above).

Yours sincerely

DEVELOPMENT AND BUILDING CONTROL MANAGER

V:\Contracts\Live Contracts\7401-7500\7485.01 - Upper Ogmore bird surveys\Mapping\02 GIS\01 projects\Scoping Response\7485.03_Figure 1_gi_061217.mxd



JOB REF: 7485.02

PROJECT TITLE
UPPER OGMORE WIND FARM

DRAWING TITLE
Ecology Scoping Report 2017

DATE: 06.12.2017 CHECKED: GL SCALE: 1:20,000
DRAWN: GL APPROVED: OG STATUS: FINAL

LEGEND

- Wind Farm Site Boundary
- Developable Area (<15% Slope)
- Turbine Locations
- Access Route
- Pond
- Water courses surveyed for water vole
- Wet flush surveyed for water vole
- Automated bat detector locations
- Bat survey transect route
- Vantage point (VP) locations
- VP View Arc
- 2 km 180° arc of view
- Vantage point 1
- Vantage point 2



**Cyfoeth
Naturiol**
Cymru
**Natural
Resources**
Wales

Mr. Daniel Patterson,
Development Manager,
RES
Cedar House,
Cardiff, CF23 8RD.

Our ref: CAS-13525-N6P1
Your ref: Upper Ogmre Windfarm
Date: 16 February 2016

Annwyl/Dear Mr. Patterson,

Re; Pre-application enquiry for Wind Turbines – proposed Upper Ogmre Wind Farm.

Thank you for recently consulting Natural Resources Wales with regards to the proposed wind farm at Ogmre and please accept our sincere apologies for the belated response.

We have reviewed the following ecological reports by BSG Ecology:

- 'Extended Phase 1 Survey Report' issued 22nd December 2014;
- 'Baseline Breeding Bird Report 2014' issued 22nd December 2014; and
- 'Ecological Scoping report' issued 7th December 2015.

Additionally we are conscious of similar previous planning proposals within the locality and accordingly we have taken the opportunity to liaise with;

1) Our Landscape Architect to assess the potential landscape implications of the proposals and

Natural Resources Wales/Cyfoeth Naturiol Cymru
Maes Newydd, Llandarcy, Neath Port Talbot, SA10 6JQ.
Llinell gwasanaethau cwsmeriaid/Customer services line: 0300 065 3000
www.cyfoethnaturiolcymru.gov.uk / www.naturalresourceswales.gov.uk
Croesewir gohebiaeth yn y Gymraeg a'r Saesneg
Correspondence welcomed in Welsh and English

2) Our Environmental Management team regarding pollution prevention.

Our comments are as follows;

Ecology comments.

Our comments are made in reference to the above reports and considering the proposed site application boundary shown on the '*site location plan*' by Renewable Energy Systems limited, drawing number '02959d2206-02'.

Extended Phase 1 Survey Report

We advise the application is supported by a baseline ecological survey that covers the whole application site boundary. We note the '*Extended Phase 1 Survey Report*' covers a wider area to the south of the submitted site location plan, however the '*Phase 1 Survey Area*' in Figure 1 of this report does not cover the whole footprint of the submitted site boundary.

Baseline Breeding Bird Report 2014

With regards to vantage point surveys and honey buzzard surveys we advise that vantage points cover the entirety of the proposed application boundary and follow best practice guidance, which can require the survey area to extend 500m beyond the site boundary. We note vantage point surveys used two vantage point locations shown on Figure 1, along with the honey buzzard survey vantage points shown in Figure 2. However these vantage points do not provide visual coverage of the whole of the submitted site boundary, including some of the proposed turbine locations shown in Figure 1 in the following '*Ecological Scoping report*'.

Please note NRW also advises, in line with best practice guidelines, that vantage point locations should be located outside the development boundary, and use of hill/ridge summits should also be avoided to minimise surveyor presence on the site and the risk of bird flight behaviour being influenced by the presence of the surveyor.

Ecological Scoping report

We note further surveys are recommended for birds, bats, great crested newts and water voles and that they will follow published best practice guidance.

Details, additional from the above '*Baseline Breeding Bird Report 2014*', are provided in this scoping report indicating additional surveys for merlin. However without any the

methods for these surveys or further information we are unable to provide advice at this stage.

We welcome that buildings on site have been assessed for their potential to support roosting bats and further surveys are proposed for 2016. However we advise confirmation is provided that if any trees within the proposed site or access track with the potential to support roosting bats and that maybe effected by the proposals are appropriately assessed.

We note in Figure 1 in this report the location of the four automated bat detectors but would advise clarification of the selected of these locations. Additionally we welcome the bat transect surveys but the details of the route have not been provided and we are unable to provide further comment at this stage.

NRW are able to provide further advice on receipt of the above information.

Other Ecological factors.

Our records indicate that there are some areas of peat within the site area which require particular attention in respect of these proposals. Surveys relating to peat depth or the consideration of hydrological impacts to date and/or potential are lacking, which need addressing. Appropriate mitigation measures of any impacts and long term management plans stem from these initial peat information/data.

Our records indicate that there are at least two (2) Sites of Special Scientific Interest (SSSI) either within the site boundary or lying just outside and by definition require appropriate consideration and protection. They are;

- Mynydd Ty-Isaf SSSI
- Cwm Cyffogand SSSI

Other matters.

Landscape.

Our advice relates to the potential impact on the Rhondda Registered Historic Landscape.

The site is adjacent the Rhondda Landscape of Special Historic Interest, which is included on the Register of Landscapes of Historic Interest in Wales. There are a number of Scheduled Monuments in and around the site, including cairns/barrows,

dykes, earthwork at Crug yr Avan & Mynydd Maendy hillfort. Some are within, some just outside the Registered Landscape. There are also a number of listed buildings, both within the Registered Landscape to the north east and to the south in the Garw & Ogmore valleys.

The proposal has the potential to adversely impact the setting of the Registered Landscape and the individual features within it. The impact of 8-9 turbines will vary according to their size and location within the site, but are likely to have a more than local impact on the Registered Landscape. An ASIDOHL2 assessment is recommended, in accordance with the *Guide to Good Practice on Using the Register of Landscapes of Historic Interest in Wales in the Planning and Development Process* (CCW, Cadw, Welsh Assembly Government, 2nd Edition 2007. Given the numerous operational, consented and proposed wind farms in the area, we recommend that an assessment of the cumulative effects of wind turbines on the Registered Landscape is carried out as part of this assessment. Information on the Historic Landscape Characterisation and Historic Environment Record can be obtained from the Glamorgan Gwent Archaeological Trust.

The site lies outside but close to TAN8 SSAF. TAN8 advises that large scale (over 25MW) onshore wind developments should be concentrated into Strategic Search Areas. Most areas outside SSAs should remain free of large wind power schemes. Within and immediately adjacent to the SSAs, the implicit objective is to accept landscape change i.e. a significant change in landscape character from wind turbine development, however not all land within SSAs may be environmentally suitable for major wind power proposals and cumulative effects should also be considered.

Information from the ASIDOHL2 assessment should inform the Landscape and Visual Impact Assessment, which will also be required, and vice versa. The LVIA should be carried out in accordance with GLVIA3 and Landscape Institute/SNH guidance on use of photography/photomontages and visual representations of wind farms in LVIA. All 5 layers of LANDMAP should be consulted, along with any local Landscape Character Assessments. We also recommend that the Gillespies LLP guidance for the Heads of the Valleys is consulted as the site lies adjacent to the study area (*Planning guidance for Wind Turbine Development Landscape & Visual Impact Assessment & Heads of the Valleys Wind Turbine Development Landscape Sensitivity & Capacity Study*). A number of footpaths cross the site and parts of the open upland site are open access land with potential for wide ranging views. Cumulative effects with other wind farms in the area will need to be considered as part of the LVIA.

Environmental Management/Pollution prevention.

It is imperative that appropriate and robust environmental management/pollution prevention measures are implemented on site by the developers to avoid any unfortunate incidents which may cause environmental harm.

Our experience has shown that surface water runoff is a common problem associated with the construction phase of wind turbine developments and a sound surface water drainage regime is imperative to ensure an incident free building programme.

Such measures could include;

- Ensure appropriate steps have been proposed to maintain existing drainage paths and to avoid alternative preferential flow paths forming.
- Ensure that during development additional runoff from tracks will be dealt with via swales/small ponds in order to attenuate runoff rates, such that they do not exceed existing (greenfield) rates.
- Ensure that during development additional rate and volume of runoff from impermeable areas such as crane hard standing(s) will be managed via Sustainable Urban Drainage systems (SudS).
- Ensure that any trenches excavated on site for cabling are relatively short in length to avoid any potential large scale rainfall saturation and the resultant overtopping of surface water.

We hope the above comments are helpful however, please note that they do not set a precedent for our response to any formal application for planning permission or other legal consent. Such applications shall be assessed on the information submitted and regulations of relevance at that time. The details contained in this letter are based on the information available to date.

Yn ddifffuant /yours sincerely

Mr. David Watkins

Senior Development Planning Advisor

Direct dial 0300 065 3327

Direct e-mail david.watkins@naturalresourceswales.gov.uk

Our ref: 7485.03_L_APPR_290817

Your ref:

29 August 2017

Giles Cuthbert
Senior Development Planning Advisor
Natural Resources Wales
Neath Port Talbot
SA10 6JQ

By email only

Dear Giles

Re: Request for pre-application consultation meeting regarding Upper Ogmore Wind Farm

Further to our recent telephone conversation I have provided (below) a summary of the proposed Upper Ogmore Wind Farm development and ecological survey work completed to date in order to support a planning application. The intention is to set up a meeting (preferably site based) with you to discuss our approach to ecological survey at Upper Ogmore and any outstanding issues that you, or your team, may have. This letter aims to provide you with sufficient information to inform our discussions during the meeting.

Description of the Project

RES UK Ltd propose to build and operate a wind farm at Upper Ogmore (the 'Site'), in the County of Bridgend, South Wales (approximate central Ordnance Survey Grid Reference (OSGR) SS918935).

The Site is characterised by unenclosed, heavily grazed upland moorland at the head of the Garw and Ogmore Valleys. The proposed development includes eight turbines and associated infrastructure. The maximum height of the turbines is yet to be finalised. These will all be positioned on the flatter ground (defined by <15% slope) within the working Site boundary. The original scheme for an array of seventeen turbines extending south beyond the current Site, was reduced in early 2015 (as a result of non-ecological constraints). The wind farm will be located on private farmland and common land on Mynydd Llangeinwyr. The Site is currently used to graze livestock and horses.

The proposed access route will follow existing forestry tracks between the southern extent of the operational Pen-y-Cymoedd Wind Farm to the Bwlch forestry access point at the A4107 (a distance of approximately 3.6 km). Localised widening of the forestry track will be required to allow passage of abnormal indivisible loads. The Site and proposed access route are presented in the Figure in Appendix 1.

It is anticipated that a planning application will be submitted in spring 2018.

Project Background

RES UK Ltd commissioned BSG Ecology to begin ornithological survey work in spring 2014 and wider ecological survey in October 2016. The details of the work completed to inform the proposals are set out below.

BSG Ecology produced an Ecological Scoping Report which was issued to Natural Resources Wales (NRW) on 07 December 2015 as part of a pre-application enquiry. The report was issued with the Extended Phase 1 Survey Report and Baseline Breeding Bird Report 2014. The reports were reviewed by David Watkins at NRW (now retired) who issued a response on 16 February 2016 (ref: CAS-13525-N6P1). BSG Ecology produced a letter responding to the points David had raised; however, the project was placed on hold temporarily (owing in part to changes in funding policy within the renewables sector) and, as a result, the letter was not issued. The draft letter containing our responses to David's comments is provided in Appendix 2.

All baseline ornithology and ecology reports (except for the Extended Phase 1 Survey Report and Baseline Breeding Bird Report 2014, already issued to NRW for comment on 22 December 2014) are provided with this letter for information.

Designated Sites

There are three statutory sites of nature conservation interest within 2 km of the Site. These are Blackmill Woodlands Special Area of Conservation (SAC) and Site of Special Scientific Interest (SSSI), Mynydd Ty-isaf SSSI, and Cwm Cyffog SSSI.

The Mynydd Ty-isaf SSSI is notified for its crags, scree slopes and ffridd habitats. The higher crags are known to provide nesting sites for peregrine falcon. The Blackmill Woodlands SAC/SSSI and Cwm Cyffog SSSI are notified for sessile woodlands and mire habitats respectively.

The nearest Special Protection Area (SPA) is the Severn Estuary SPA, located approximately 32 km south-east of the Site.

There are 20 local authority designated Sites of Importance for Nature Conservation (SINCs) within 2 km of the Site in Bridgend County Borough, and two sites that meet the SINC criteria within 2 km of the Site in Neath Port Talbot County Borough. These sites form a mosaic of woodlands, upland marshy grasslands and ffridd habitats throughout the local landscape.

Baseline Ornithology Surveys

Vantage point survey work based on SNH (2014)¹ guidance was completed between April 2014 and March 2016 inclusive resulting in a total of 288 hours of observation from two VP locations. Breeding bird walkover survey, wintering wader walkover survey, breeding merlin survey (in response to some early season sightings) and additional VP work targeting honey buzzard were also completed.

The survey work resulted in low levels of use of the site by red kite, hen harrier, peregrine, kestrel, merlin, hobby, goshawk, short-eared owl, and golden plover being recorded. No breeding waders were noted on site; small flocks of golden plover were recorded sporadically through the winter period. No honey buzzard or breeding merlin were recorded during the work.

The Baseline Bird Reports 2014-15 and 2015-16 are provided with this letter.

Baseline Ecology Surveys

Phase 1 Survey

An Extended Phase 1 habitat survey of the Site was undertaken over five dates between July and September 2014 of a much wider area than the current Site boundary. An extended Phase 1 survey of the proposed access route was also completed in October 2016. The findings of the surveys can be found in the Extended Phase 1 Survey Report (issued to NRW for comment on 22 December 2014) and the Ecological Appraisal of the Proposed Access Route (provided with this letter).

¹ Scottish Natural Heritage (2014). Recommended bird survey methods to inform impact assessment of onshore wind farms. Scottish Natural Heritage 2014.

NVC Survey

The presence of some areas of higher quality habitat, including degraded blanket bog (on deep peat), in the north-east of the site), were identified during the Phase 1 survey in 2014.

The scheme design is yet to be finalised and so it is unclear whether these areas are to be affected. As such, a National Vegetation Classification (NVC) survey was carried out within the north-east of the site in July 2016.

Bat Survey

Static and transect surveys were carried out in autumn (2015), spring and summer (2016) in line with current Bat Conservation Trust guidance² for a site of low value for bats. An inspection of buildings within the Werfa mast compound was completed in August 2016, and supplemented by a single emergence survey (based on an assessment of low potential to support a bat roost).

Common pipistrelle was the most frequently recorded bat at the detector locations followed by soprano pipistrelle. Very low numbers of passes from Nathusius' pipistrelle, *Myotis* sp. and long-eared bat sp. were also recorded.

A total of two bat passes (both by common pipistrelle) were recorded on one transect survey in October. No bat passes were recorded during the spring and summer survey visits.

The recorded data suggests that bat activity and species diversity is consistently low across the Site.

The Bat Report has been provided with this letter.

Great Crested Newt Survey

Three ponds with potential for GCN were identified within the Site boundary. Survey work of these ponds was completed based on industry standard guidelines³ on four dates between 14 April and 19 May 2016. No GCN were found in any of the ponds during the surveys. Palmate newts were present in all ponds, with a peak count of 9 individuals.

eDNA survey was completed on two ponds adjacent to the proposed access route in May 2016. Both samples returned negative results for presence of great crested newt.

The Great Crested Newt Report has been provided with this letter.

Water Vole Survey

Targeted survey for water vole was undertaken following identification of water vole droppings and feeding stations during the Phase 1 survey of the Site.

Several water courses and wet flushes within the Site were identified as having potential to support water vole and therefore were surveyed for the species.

Field signs of water vole (including latrines and a feeding station) were found within a wet flush area approximately 100 m north of the Site boundary. Some burrows were noted alongside watercourses within the Site that had dimensions suitable for use by water vole and/or bank vole and rats, but did not exhibit signs of current use.

The Water Vole Survey Report has been provided with this letter.

Conclusion

The survey work at Upper Ogmore has identified low level use of the Site by birds and bats. The habitats present are largely improved or modified by grazing pressure. Great crested newts are

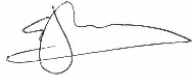
² Hundt, L. (2012). Bat Surveys: Good Practice Guidelines, 2nd Edition. Bat Conservation Trust.

³ English Nature (2001) The Great Crested Newt Mitigation Guidelines Peterborough, English Nature.

unlikely to occur within 500 m of the Site boundary; however, water vole may be present within the Site and measures to implement sympathetic working practices will be implemented during construction.

I hope that this letter is useful in informing future discussions.

Yours Sincerely

A handwritten signature in black ink, appearing to read 'Gareth Lang', with a stylized flourish at the end.

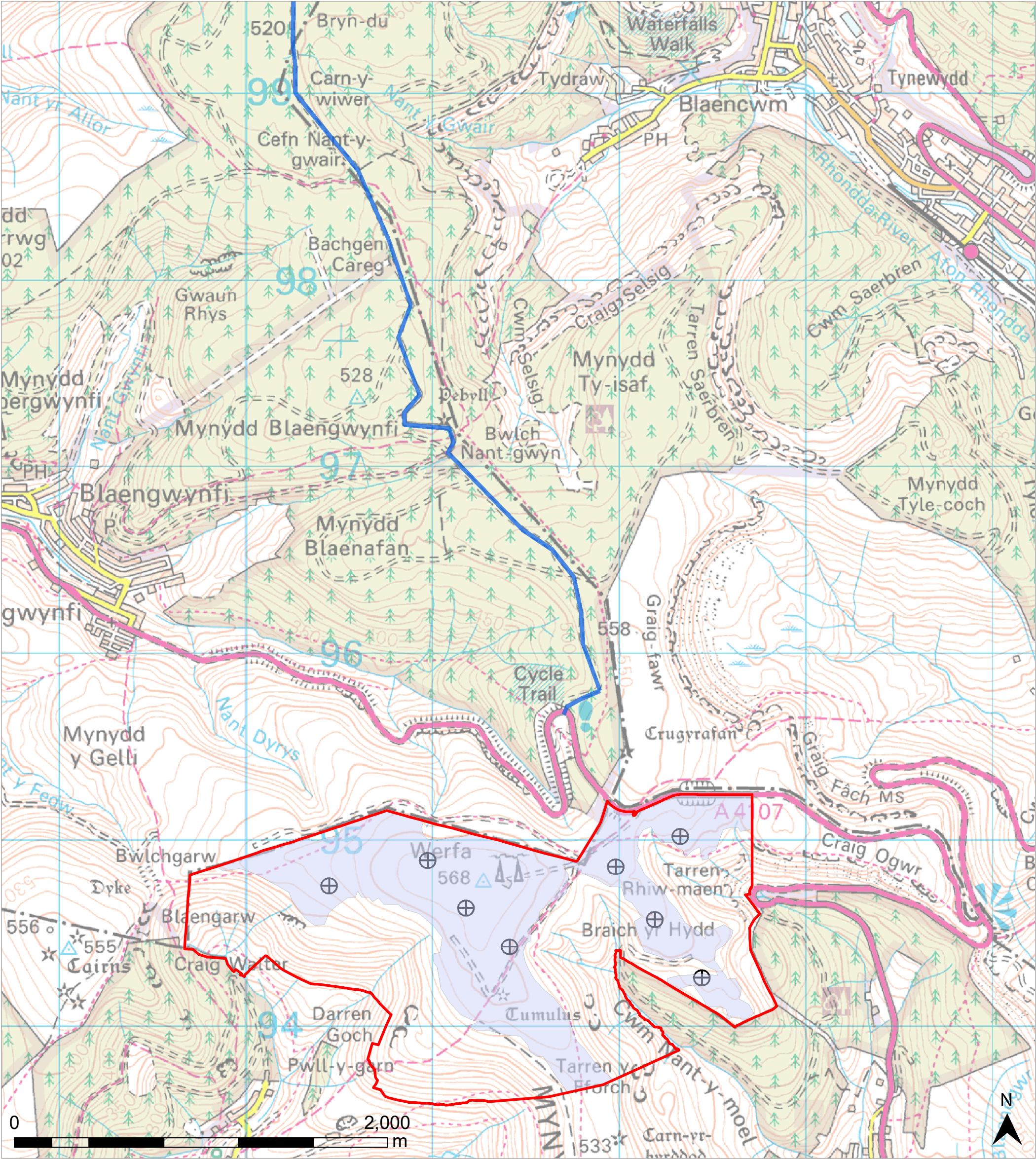
Gareth Lang

Senior Ecologist

For and on behalf of BSG Ecology

Appendix 1: Figure

Overleaf



JOB REF: 7485.02

PROJECT TITLE
UPPER OGMORE WIND FARM

DRAWING TITLE
Upper Ogmore Wind Farm Site Boundary and Access Route

DATE: 22.03.2017 CHECKED: MH SCALE: 1:20,000
DRAWN: GL APPROVED: MH STATUS: FINAL

LEGEND

- Wind Farm Site Boundary
- Developable Area (<15% Slope)
- Turbine Locations
- Access Route

Appendix 2: Responses to comments received from David Watkins

The text below addresses comments by David Watkins in his scoping response letter dated 16 February 2016, ref: CAS-13525-N6P1 (David's comments in blue text, our responses in black).

Extended Phase 1 Survey Report

We advise the application is supported by a baseline ecological survey that covers the whole application site boundary. We note the 'Extended Phase 1 Survey Report' covers a wider area to the south of the submitted site location plan, however the 'Phase 1 Survey Area' in Figure 1 of this report does not cover the whole footprint of the submitted site boundary.

The Phase 1 Survey Area shown on Figure 1 of the Extended Phase 1 Survey Report was defined by the potentially developable area at that time. This was defined by RES as the area within the red line boundary with a gradient of < 15 %.

The scheme has since been reduced to eight turbines in response to non-ecological constraints. The current turbine and infrastructure layout has been surveyed entirely.

Baseline Breeding Bird Report 2014

With regards to vantage point surveys and honey buzzard surveys we advise that vantage points cover the entirety of the proposed application boundary and follow best practice guidance, which can require the survey area to extend 500m beyond the site boundary. We note vantage point surveys used two vantage point locations shown on Figure 1, along with the honey buzzard survey vantage points shown in Figure 2. However these vantage points do not provide visual coverage of the whole of the submitted site boundary, including some of the proposed turbine locations shown in Figure 1 in the following 'Ecological Scoping report'.

The VP locations provide visual coverage of all indicative turbine locations within the current scheme design and approximately 88% of a 500 m buffer zone around them.

We were aware, when selecting the VP locations, that the southernmost turbines of the indicative layout were likely to be dropped, but this took some time to be realised hence the inclusion of them on the (now superseded) figure in the 2014 Baseline Breeding Bird Report. All turbine locations within the current scheme design have been observed throughout the 2014 and 2015-2016 surveys.

The reduction of the scheme in 2015 allowed for the adjustment of VP locations ahead of the second year of survey to provide maximum coverage of the 500 m buffer area around the revised layout. The VP locations used in 2015-2016 are shown on Figure 1 in the Baseline Bird Survey Report 2015-2016. The location of VP 1 was moved approximately 140 m north-west of its original location, to the western corner of the Werfa mast compound at approximate Ordnance Survey Grid Reference (OSGR) SS 91324 94732. VP 2 was moved approximately 50 m east to a slightly lower elevation (approximate OSGR SS 91722 94759).

There is no suitable foraging or breeding habitat for honey buzzard on the site; however, there are areas of plantation that have some potential to support honey buzzard adjacent to the site boundary. These are: woodlands north and west of Blaengarw, and an area of plantation north of Nant-y-moel. The honey buzzard VP locations were therefore chosen to provide visual coverage of these areas. The locations of the additional VPs also allowed for observation of scree slopes, steep-sided streams and felled plantation, which are suitable habitat for merlin. The survey for merlin was a precursor to more detailed work that was carried out in 2015.

No honey buzzard were recorded during the targeted survey work at Upper Ogmores in 2014. In addition, desk study data indicated that no evidence of honey buzzard had been found during targeted survey completed by RPS in 2005 and 2008 to support the adjacent Llynfi Afan REP.

The results from the 2014 surveys at Upper Ogmore, taken with the published results from the baseline Llynfi Afan REP surveys, did not indicate a need to continue survey for honey buzzard in 2015. In addition, Natural Power were commissioned by Gamesa Energy UK to complete updated honey buzzard surveys in 2015 for the Llynfi Afan REP, and an agreement was obtained from Gamesa to allow the use data obtained from the commissioned work to support an impact assessment at Upper Ogmore.

No honey buzzard territories were identified during the 2015 Llynfi Afan REP survey work. A single bird was noted during survey on 05 July, but was not seen again during the remainder of the work. It was suggested in the report that the bird was likely to have been a foraging bird from a known nest site at Pelenna, approximately 9 km west of the Upper Ogmore Site.

Please note NRW also advises, in line with best practice guidelines, that vantage point locations should be located outside the development boundary, and use of hill/ridge summits should also be avoided to minimise surveyor presence on the site and the risk of bird flight behaviour being influenced by the presence of the surveyor.

The character of the site (occupying a steep-sided ridge between two valleys) restricted our opportunities for selecting viable VP locations outside of the development boundary: any VP location fit for purpose would have been located on this ridge. VP locations were chosen following consideration of visual coverage and accessibility. The survey results do not suggest observer influence on bird behaviour. The level of target species activity observed in close proximity to the VP locations was no lower than that observed at distance and no alteration of target species flight trajectory or height was recorded that could be attributed to surveyor presence. The adjusted VP locations following the reduction of the scheme to eight turbines in early 2015 provided greater surveyor screening to reduce the risk of influencing bird behaviour. Again, no evidence to suggest surveyor influence was recorded during the 2015-2016 surveys.

Ecological Scoping Report

Details, additional from the above 'Baseline Breeding Bird Report 2014', are provided in this scoping report indicating additional surveys for merlin. However without any the methods for these surveys or further information we are unable to provide advice at this stage.

Merlin surveys were completed in 2015 following observation of merlin during the 2014 Breeding Bird Surveys. Surveys followed standard methods that were adapted to reflect the habitats present on site^{4,5}. The method included a combination of short VP watches with walks in between to cover all suitable nesting habitat for the species. VP locations were selected for visual coverage of rocky slopes and plantation edges surrounding the site. Surveys were completed on four days during April-June 2015 by an experienced raptor surveyor. The results did not suggest breeding on, or immediately adjacent to, the site and so additional visits to confirm breeding and/or establish the number of pairs and breeding success (as per standard methods) were not required.

Full methods and results are provided in the Baseline Bird Survey Report 2015-2016.

We welcome that buildings on site have been assessed for their potential to support roosting bats and further surveys are proposed for 2016. However we advise confirmation is provided that if any trees within the proposed site or access track with the potential to support roosting bats and that maybe effected by the proposals are appropriately assessed.

⁴ Hardey, J., Crick, H., Wernham, C., Riley, H. & Thompson, D. (2009): Raptors: a field guide to survey and monitoring. 2nd Edition Edinburgh: The Stationery Office.

⁵ Gilbert, G., Gibbons, D.W. & Evans, J. (1998) Bird Monitoring Methods. RSPB, Sandy.

Following Bat Conservation Trust (BCT) survey guidelines, daytime inspection of a building within the Werfa mast compound, and a single emergence survey (following an assessment of the building as being of low potential to support roosting bats) was carried out as a precautionary measure during August 2016. There are no further structures and trees suitable for roosting bats within 200 m of the developable area. We did not think that it would be necessary to carry out emergence surveys off rocky slopes /cliff faces etc. bounding the site, as these are very unlikely to be used by bats. The extended Phase 1 survey of the proposed access route did not identify any trees that have potential to support a bat roost.

We note in Figure 1 in this report the location of the four automated bat detectors but would advise clarification of the selected of these locations.

The method for automated detector survey at Upper Ogmere is based on BCT guidelines. The 2012 edition covers onshore wind farms in Chapter 10 and this chapter has not yet been superseded, although the rest of the guidance has by the third edition, published in 2016. The guidance recommends that a representative sample of the turbine locations is surveyed. For open homogeneous moorland (as at Upper Ogmere) it is suggested that a quarter of the turbine locations are sampled and that potentially some additional (control) locations are surveyed next to habitat features away from turbines. At Upper Ogmere, none of the turbine locations are close to any higher quality habitat features for bats, such as woodland, watercourses, or hedgerows. As such the use of paired detectors was not considered necessary.

The site was categorised as 'low risk' for bats given the exposed, upland setting and the limited diversity and scale of the foraging and roosting habitats present for bats to exploit. Four detectors were deployed for a period of five nights during early October 2015 (in 'autumn') and redeployed for an additional five nights in June ('spring') and August ('summer') 2016.

The selected automated detector locations were representative of the indicative turbine locations, but were also chosen to provide some security from damage by the public and livestock (as the survey area is partly located on common land). Therefore, detector locations coincide with existing structures to mask their presence, as follows:

Detector 1 located on a wooden electricity pylon.

Detector 2 located on the security fence of the Werfa mast compound.

Detectors 3 and 4 located on stock fence posts.

Additionally we welcome the bat transect surveys but the details of the route have not been provided and we are unable to provide further comment at this stage.

As per the BCT guidelines for survey of a low risk site, we completed one walked transect survey per season. These were: early October 2015 (autumn), June 2016 (spring) and August 2016 (summer). The transect route is illustrated on Figure 2 in the Bat Report.

Other Ecological factors.

Our records indicate that there are some areas of peat within the site area which require particular attention in respect of these proposals. Surveys relating to peat depth or the consideration of hydrological impacts to date and/or potential are lacking, which need addressing. Appropriate mitigation measures of any impacts and long term management plans stem from these initial peat information/data.

Our records indicate that there are at least two (2) Sites of Special Scientific Interest (SSSI) either within the site boundary or lying just outside and by definition require appropriate consideration and protection. They are;

>-> Mynydd Ty-Isaf SSSI

>-> *Cwm Cyffogand SSSI*

Peat surveys have not yet been carried out. We anticipate that these will be completed in September 2017 by RES (or a suitably qualified contractor thereof) (pers. comm. Chris Jackson, RES).

These sites (and other statutory sites within 5 km and non-statutory sites within 3 km of the site) have been considered to inform the scope of surveys at Upper Ogmre, and will be appropriately assessed within an ecological impact assessment.

Upper Ogmore Wind Farm Ornithology and Peat Pre-application Consultation

Weds 13 December 2017. RES offices, Cardiff Gate. Duration 09:45-11:25

Items:	Action								
The meeting was requested through Natural Resources Wales' (NRW) Discretionary Pre-Planning Advice (DPA) service to discuss the scope of ornithological survey work and peat issues at the site. A budget for advice on wider ecology and protected species was not included in the DPA request.									
Present: Leila Thornton, Lisa Jones, Richard Facey, David Reed (present via telecom for peat discussions only) (Natural Resources Wales [NRW]); Gareth Lang (BSG Ecology); Chris Jackson, Mark Crabtree (RES).									
Introductions & Scene Setting: Apologies were made on behalf of Rhian Isaac of NRW who was unable to attend the meeting. David Reed from NRW (based in Aberystwyth) would be able to attend the discussion on peat via teleconference. For Natural Resources Wales: Rhian Isaac (RI) would continue to be the point of contact at NRW for the project with support from Lisa Jones (LJ) Richard Facey (RF) is a specialist on Ornithology at NRW (based in Cardiff) Leila Thornton (LT) is a Biodiversity Officer at NRW (based in Neath). For BSG Ecology: Gareth Lang (GL) has been managing the ecology and ornithology work for the project. For RES Ecology: Chris Jackson (CJ) is the project manager at RES Mark Crabtree (MC) is the design engineer for the project at RES CJ gave a brief overview of the proposed development, indicating it was unlikely to enter planning before April 2018. CJ Indicated that the layout is not final, with possibility of a reduction in the number of turbines and track alterations owing to various constraints (including landscape and visual impact).									
1. Ornithology									
<table border="1"> <tr> <td data-bbox="193 1592 316 1637">1.1</td><td data-bbox="316 1592 1273 1637">GL outlined the scope of the breeding and wintering bird work.</td></tr> <tr> <td data-bbox="193 1637 316 1760">1.2</td><td data-bbox="316 1637 1273 1760">GL confirmed that all work was being completed in accordance with industry standard SNH (2014) guidance and generally accepted survey methods (as detailed in the baseline survey reports).</td></tr> <tr> <td data-bbox="193 1760 316 1861">1.3</td><td data-bbox="316 1760 1273 1861">RF acknowledged that he had received and reviewed the reports ahead of the meeting.</td></tr> <tr> <td data-bbox="193 1861 316 1989">1.4</td><td data-bbox="316 1861 1273 1989">RF stated that it was good to see that kestrel had been included as a target species owing to their decline in Wales. RF also acknowledged that sufficient data had been collected for honey buzzard to inform an assessment.</td></tr> </table>	1.1	GL outlined the scope of the breeding and wintering bird work.	1.2	GL confirmed that all work was being completed in accordance with industry standard SNH (2014) guidance and generally accepted survey methods (as detailed in the baseline survey reports).	1.3	RF acknowledged that he had received and reviewed the reports ahead of the meeting.	1.4	RF stated that it was good to see that kestrel had been included as a target species owing to their decline in Wales. RF also acknowledged that sufficient data had been collected for honey buzzard to inform an assessment.	
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1.5	Following the overview of survey effort and results to date provided by GL, RF asked whether monitoring at the site was proposed. GL said that it wasn't due to the low level of activity by target species recorded during baseline surveys. RF indicated that nearby wind farm sites that had recorded similar (low) levels of peregrine activity had subsequently recorded a number of turbine collisions post-construction. GL acknowledged that there are a number of peregrine territories (both current and historical) surrounding the site, but that peregrine do not appear to fly over the site (likely owing to the lack of prey). RF also indicated that there is a potential for waterfowl passage over the site (based on observations at a similar site (in altitude and habitat) near Neath). With this in mind, RF indicated that post-construction monitoring may be requested as there is a lack of understanding regarding actual effects of wind farms on birds. GL asked about the setting of the sites at which waterfowl passage had been recorded, and suggested that there are likely to be geographical differences and that there's no evidence to suggest that waterfowl fly over Upper Ogmere.	
1.6	RF asked whether collision risk modelling would be included within the Ornithological Impact Assessment (OIA). GL indicated that it would be, and that impacts on species and populations will further be informed by a cumulative impact assessment. GL would submit a copy of the OIA to NRW ahead of formal submission for comment. RF indicated that the need for monitoring will be reviewed following receipt of the OIA.	GL
1.7	GL requested some guidance from RF on the scope of the cumulative assessment. RF stated that he would look into it.	RF
1.8	GL asked whether the baseline data would still be considered up-to-date given the anticipated submission date of June 2018. RF agreed that it would be (following SNH (2014) guidance on data longevity being valid up to 5 years). Summary: RF happy overall with baseline bird survey work. RF suggested that consideration should be given to monitoring depending on the outcome of collision risk modelling and assessment of impacts in the OIA.	
2	Ecology	
2.1	GL gave a brief overview of the survey work completed for great crested newt, water vole, and bats.	
2.2	LT indicated that formal comment would be provided by the species team at scoping, but that water vole may need to be considered further if there are direct effects on streams within the site.	
2.3	GL suggested that construction phase checks would be completed and methods to avoid impacts on water vole would be implemented. Summary: Water vole is likely to require consideration at construction phase to ensure impacts are avoided. Formal comment on ecology will be given at the scoping stage.	
3.	Peat	
3.1	David Reed (DR) joined the meeting by teleconference (10:40).	
3.2	MC stated that peat surveys had been completed, and that a contour map of peat location had been provided to NRW. MC asked if DR was happy with the layout provided regarding impact on peat. DR acknowledged that it was evident that there has been an effort to avoid areas of deep peat. However, there may be some issues with the tracks between T7 and T3, and the tracks leading to T8.	
3.3	DR asked whether T8 could be relocated, and questioned why there were	

	multiple tracks leading to T8. MC advised that the tracks shown were options, and that only one would be needed. MC added that the turbine locations were restricted by a number of constraints (including geology and radio interference), but that it may be possible to rotate the crane pad of T8 out of the area of >0.5m peat.	
3.4	[MC sent a copy of the most recent layout (with single track to T8 illustrated) to DR via email during the teleconference]	
3.5	MC indicated that the current site access options include: 1) a spur off the Llynfi Afan Wind Farm site entrance, and 2) using the existing access to the Werfa Masts (which would require widening of the existing track). The first option would be the preference but depends on the outcome of discussions with the owner of Llynfi Afan Wind Farm. The second option would depend on consultation with CADW [the existing track passes through a Scheduled Ancient Monument (SAM) which appears to be degraded near to the track].	
3.6	DR added that the proposed track to T8 should float over the underlying peat resource to maintain the flow of groundwater between areas of deeper peat to the north and south. DR added that this could be achieved through use of larger rocks as a permeable bed to support the relatively impermeable material forming the track surface. MC agreed that this could be achievable.	
3.7	DR asked whether there was any botanical survey for this area. GL stated that a botanical survey report for the area was forthcoming. GL to issue botanical survey report to RES and NRW in early 2018.	GL
3.8	DR asked if turbine T3 could be moved to avoid the track passing over an area of deeper peat. MC suggested moving the track further east to avoid the deeper peat. DR accepted that this would minimise impacts.	
3.9	MC asked whether the track between T1 and T2 was ok in its current location. DR suggested that either proposed route would be satisfactory. MC stated that he would issue a revised scheme design layout (based on the alterations suggested during the meeting) with constraints (other than peat) removed.	MC
3.10	DR asked when it would be likely that a fix on the route to T8 would be determined. CJ stated that this would depend on the discussions with Llynfi Afan owners regarding use of that access.	
3.11	DR asked about the electricity outtake plans. CJ stated that the wind farm substation is likely to be sited immediately west of T4 with an overhead line connecting to WPD's substation at Pyle. It is hoped that the output could be carried by the Llynfi Afan line, but this depends on the outcome of discussions with WPD. CJ added that there is the possibility of battery storage at the same location as the substation. This may be included in the wind farm planning application depending on how quickly the grid discussions progress.	
3.12	MC asked about advice on peat waste. DR stated that peat moved should be kept wet until re-instatement, not piled too high and kept separate from glacial till. Peat should be replaced with as great a depth as possible, and not spread thinly. DR suggested that he would send on some legacy guidance relating to impacts on deep peat. LT added that she would send the document through with further pollution prevention guidance.	LT
3.13	LJ indicated that NRW would prepare a formal response to the meeting	LJ

	following receipt and review of the meeting minutes.	
3.14	CJ indicated that a scoping report for the site will be submitted early in 2018.	
3.15	Close [11:25] Summary: The turbine and infrastructure layout has been designed to avoid areas of deep peat. The location of the site access will depend on the outcome of discussions with the Llynfi Afan Wind Farm owners. The grid connection detail and inclusion of energy storage in the planning application for the wind farm will depend on how quickly discussions with WPD resolve.	



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Dyddiad/Date: 6 February 2018

Annwyl / Dear Mr Lang

PROPOSAL: PRE-APPLICATION ENQUIRY FOR WIND TURBINES

SITE ADDRESS: UPPER OGMORE WIND FARM

Further to our meeting of the 13 December 2017 at the RES Offices, Cardiff Gate in which we discussed the scope of the ornithology survey work and peat issues at the Upper Ogmere Wind Farm site and the submission of the meeting minutes, which we received on 2 January 2018. Please see our detailed comments regarding these minutes below.

Ornithology

Under point 1.5, last sentence of paragraph one where it says "RF indicated that post-construction monitoring may be requested". Richard Facey advised that we **will** require post construction monitoring (e.g. carcass surveys) to be brought forward.

Under point 1.6 "RF indicated that the need for monitoring will be reviewed following the receipt of the OIA". "Monitoring" here refers to additional survey, rather than post-construction/operational monitoring.

Peat

Please find attached legacy Countryside Council for Wales (CCW) guidance “Assessing the Impact of Windfarm Development on Peatlands” and general Pollution Prevention Guidance which can be found at the following link: <http://www.netregs.org.uk/environmental-topics/pollution-prevention-guidelines-ppgs-and-replacement-series/guidance-for-pollution-prevention-gpps-full-list/>

Also, SEPA have good links to guidance including information on peat which can be found at the following links:

<https://www.sepa.org.uk/media/136117/planning-guidance-on-on-shore-windfarms-developments.pdf>

<http://www.snh.org.uk/pdfs/strategy/renewables/Good%20practice%20during%20windfarm%20construction.pdf>

Ecology

We were not asked to provide wider ecology review as part of the pre-application discussions therefore discussions were only informal and formal comment will be provided by our Species Team once we receive the formal submission. We are happy that you acknowledged that further consideration will need to be given to any potential impacts on Water Vole. We would reiterate that we will need confirmation of the track route in the North East of the site to further understand any potential impacts and would also recommend that habitat enhancements for Water Vole are considered in the final submission.

Our comments above only relate specifically to matters that are included on our checklist Natural Resources Wales and Planning Consultations (March 2015) which is published on our website at this link (<https://naturalresources.wales/guidance-and-advice/business-sectors/planning-and-development/our-role-in-planning-and-development/our-role-in-planning-and-development/?lang=en>).

We have not considered potential effects on other matters and do not rule out the potential for the proposed development to affect other interests, including environmental interests of local importance. The applicant should be advised that, in addition to planning permission, it is their responsibility to ensure that they secure all other permits/consents relevant to their development.



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I hope these comments are of assistance. If you have any queries, or if you require any further information, please do not hesitate to contact us at the above address.

Yn ddiffuant / Yours sincerely

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