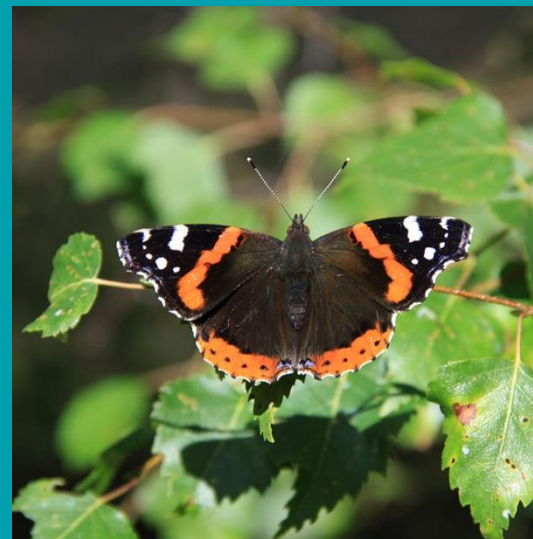


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Pennant Walters Ltd.

Mynydd Carn y Cefn Wind Farm

Draft Design and Access
Statement



Report for

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Document revisions

No.	Details	Date
1	Draft	May 2022

Contents

1.	Introduction	5
1.1	Background	5
1.2	Purpose and structure of report	5
1.3	Approach to the design	6
1.4	Wind power and national policy	6
2.	Summary of the Proposal	8
2.1	The site location	8
2.2	Summary of the Proposed Development	8
2.3	Developments of National Significance (DNS)	11
3.	Vision	12
3.1	Vision for the development	12
4.	Site and Context Analysis	13
4.1	Site location and context	13
4.2	The Development Plan	13
	Future Wales	13
	Blaenau Gwent Local Development Plan	14
5.	Design Development	16
5.1	Introduction	16
5.2	Site selection	16
5.3	Design	17
	Design iterations	18
	Micro-siting	20
5.4	Public involvement and consultation	20
	Introduction	20
	Scoping Report	20
	Scoping Direction	21
	Consultation	21
	Pre-application consultation	21
6.	The Proposal	22
6.1	Introduction	22
6.2	Character	23

	Wind farm design	23
	Site context	24
	Cultural heritage setting	24
6.3	Access	25
	Site access	25
	Construction	25
	Operation	26
	Access for all	26
6.4	Movement	26
6.5	Environmental Sustainability	27
	Renewable Energy	27
	Agricultural land	27
	Landscape assessment	28
	Biodiversity	29
	Water environment	29
6.6	Community safety	29
6.7	Responding to the planning policy context	30
7.	Conclusion	32
7.1	Summary of the Proposed Development design	32

Table 4.1	Blaenau Gwent County Borough Council Local Development Plan policies	14
Table 5.1	Summary of main factors considered in site selection	16
Table 5.2	Design iterations	19

Figure 2.1	Location Plan	9
Figure 2.2	Site Layout	10
Figure 6.1	Objectives of Good Design	22

1. Introduction

1.1 Background

- 1.1.1 This Draft Design and Access Statement (DAS) has been prepared by Wood Group UK Ltd (Wood) on behalf of Pennant Walters Ltd (the Applicant). The Draft DAS forms part of a suite of documents supporting a planning application for the development of up to eight wind turbines located approximately 500m west of Abertillery, Blaenau Gwent (Grid Reference: SO 20347 04330) (from here on referred to as the Proposed Development). Following consultation on the draft documents, the application will be submitted to Welsh Government, via Planning and Environmental Decisions Wales (PEDW), to be considered as a Development of National Significance (DNS).
- 1.1.2 This Draft DAS should be read in conjunction with the accompanying **Draft Planning Statement**, which sets out the planning policy context for how the draft application's design and access issues have been taken into account, and the **Draft Environmental Statement** (Draft ES), which sets out an assessment of the likely significant environmental effects of the Proposed Development.
- 1.1.3 This Draft DAS has been prepared in line with the Planning (Wales) Act 2015 which sets out the requirements regarding the contents of a DAS and reflects the objectives of good design set out in Planning Policy Wales (PPW) (Welsh Government, 2021)¹ and Technical Advice Note 12: Design (TAN 12) (Welsh Government, 2016)². The Draft DAS is informed by the guidance in Design and Access Statements in Wales (Welsh Government, 2017)³.

1.2 Purpose and structure of report

- 1.2.1 The Draft DAS explains the design rationale for the wind farm, providing an explanation of the design principles and concepts that have informed the Proposed Development (as described in **Chapter 3: Scheme Need, Alternatives and Iterative Design Process** and **Chapter 4: Description of the Proposed Development** of the Draft ES), and how access issues have been taken into consideration. The Draft DAS is structured as follows:
- **Section 1: Introduction** – provides background information on Design and Access Statements, the approach to design, and renewable energy policy background.
 - **Section 2: Summary of the Proposal** – provides a summary of the site location, proposed development, and the DNS regime.
 - **Section 3: Vision** – sets out the vision for the proposed development
 - **Section 4: Site and Context Analysis** – sets out the site's context and the relevant planning policy.

¹ Welsh Government (2021) Planning Policy Wales Edition 11

² Welsh Government (2016) Technical Advice Note 12 - Design

³ Welsh Government (2017) Design and Access Statements in Wales

- **Section 5: Design Development** – summarises the factors that were considered in the design process.
- **Section 6: The Proposal** – shows how the Proposed Development responds to PPW's requirements for good design and highlights how the design process has produced an appropriate scheme in relation to the planning policy context.

1.3 Approach to the design

- 1.3.1 The design process involved in formulating the layout of the Proposed Development has been led by a combination of engineering requirements and environmental considerations in order to produce an appropriate layout in terms of function and energy yield, whilst trying to avoid or reduce environmental effects.
- 1.3.2 The Proposed Development has been developed with environmental considerations at the forefront of both site selection and design. This is demonstrated through the site selection process which ensures that technical, environmental and economic criteria are considered. Other factors that have guided the site design have included planning policy and existing infrastructure.
- 1.3.3 A detailed understanding of the existing environment (including land use, infrastructure, ecology, hydrology, ornithology, noise and archaeology) helped to ensure a holistic approach to the design of the wind farm. The design has also been informed by an Environmental Impact Assessment (EIA) (the impact on the design evolution is set out in **Section 5.4**) which has considered the likely significant effects on a range of environmental receptors. The findings of the EIA are contained in the **Draft Environmental Statement**. Where relevant this Draft DAS refers to the findings of the Draft ES.

1.4 Wind power and national policy

- 1.4.1 The need to address climate change is embedded in law. The Climate Change Act 2008 (as amended) requires the UK to achieve a 100% reduction in greenhouse gas (GHG) emissions, otherwise known as net zero, in 2050. Welsh Ministers are bound to deliver net zero in 2050 under the Environment (Wales) Act 2016, which also requires Welsh Ministers to produce a plan to show how Wales will meet the reductions in GHG required for each five-year period to 2050.
- 1.4.2 In September 2017 the Welsh Government Cabinet Secretary for Environment and Rural Affairs announced to the Welsh Assembly that it was setting a target of generating 70% of Wales' electricity consumption from renewable energy by 2030 and a target for one Gigawatt of renewable electricity capacity in Wales to be locally owned by 2030⁴. This target is embedded in PPW and Future Wales: The National Plan 2040⁵ (which is discussed in more depth in the following section). The Welsh Government's Energy Generation in

⁴ Welsh Government (2020). Lesley Griffiths high on ambition for clean energy. (Online) Available at: <http://www.assembly.wales/en/bus-home/pages/rop.aspx?meetingid=4644&assembly=5&c=Record%20of%20Proceedings#C494225> (Accessed April 2022).

⁵ Welsh Government (2021) Future Wales: the national plan 2040. (Online) Available at: <https://gov.wales/future-wales-national-plan-2040> (Accessed April 2022).

Wales 2019 Report⁶ published in October 2020 assessed the percentage of energy consumption provided by renewables to be at 51% (against the target of 70%).

- 1.4.3 The Welsh Government recognises the importance of wind power in meeting the renewable targets for 2030 and to ensure that the necessary carbon reductions are achieved on the path to net zero in 2050.

⁶ Welsh Government (2020) Energy Generation in Wales 2019

2. Summary of the Proposal

2.1 The site location

2.1.1 The site is within the Blaenau Gwent County Borough Council (BGCBC) administrative area and its boundary is located approximately 500m from the western edge of Abertillery (Grid Reference: SO 20347 04330). The village of Cwm is located approximately 700m to the north-west of site at its closest point at Marine Industrial Estate, at an elevation approximately 150m lower than the Site. The site encompasses an area of approximately 208 hectares (ha) and is accessed from a forestry haul road off the A4046 Aberbeeg Road to the west of the Site. The site location is shown in **Figure 2.1**.

2.2 Summary of the Proposed Development

2.2.1 The Proposed Development is a wind farm consisting of a maximum of eight wind turbines, each with a three-bladed rotor with a diameter of up to 150m, a hub height of up to 105m and maximum height to blade tip of 180m.

2.2.2 The Proposed Development will also incorporate associated infrastructure including:

- Internal wind farm tracks off the main access corridor;
- Crane pads at each turbine location;
- Turbine foundations;
- Laydown and storage areas;
- Underground power cables linking the turbines and the on-site substation;
- Temporary construction compounds; and
- Grid connection infrastructure, including an on-site substation and control building together with construction enabling works.

2.2.3 A grid connection from the on-site substation to the electricity grid at Crumlin will be subject to a separate application although the Draft ES considers the likely environmental effects of the grid connection corridor. A full development description is provided in Draft ES **Chapter 4: Description of the Proposed Development**.

2.2.4 The layout of the site is set out in **Figure 2.2**.

Figure 2.1 Location Plan

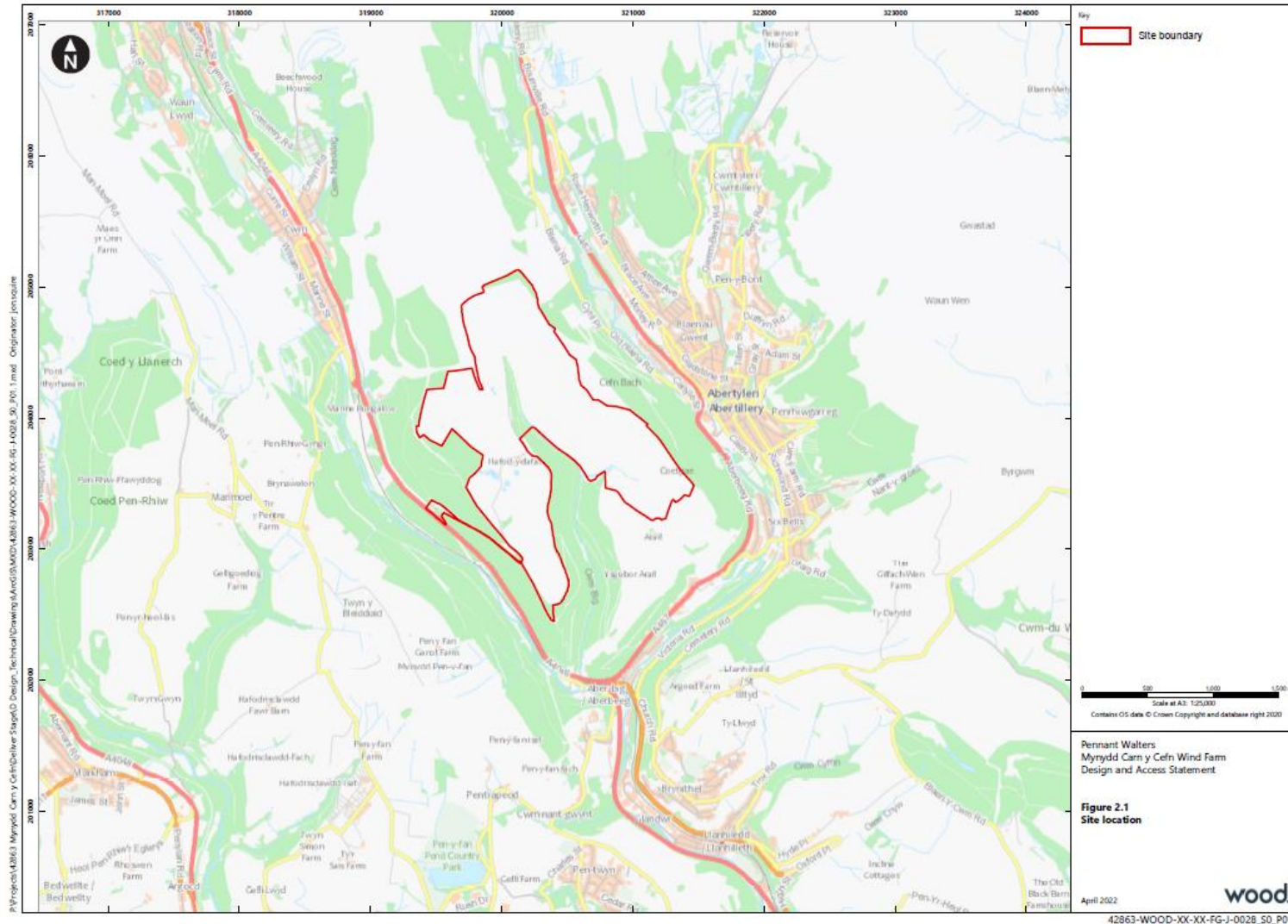
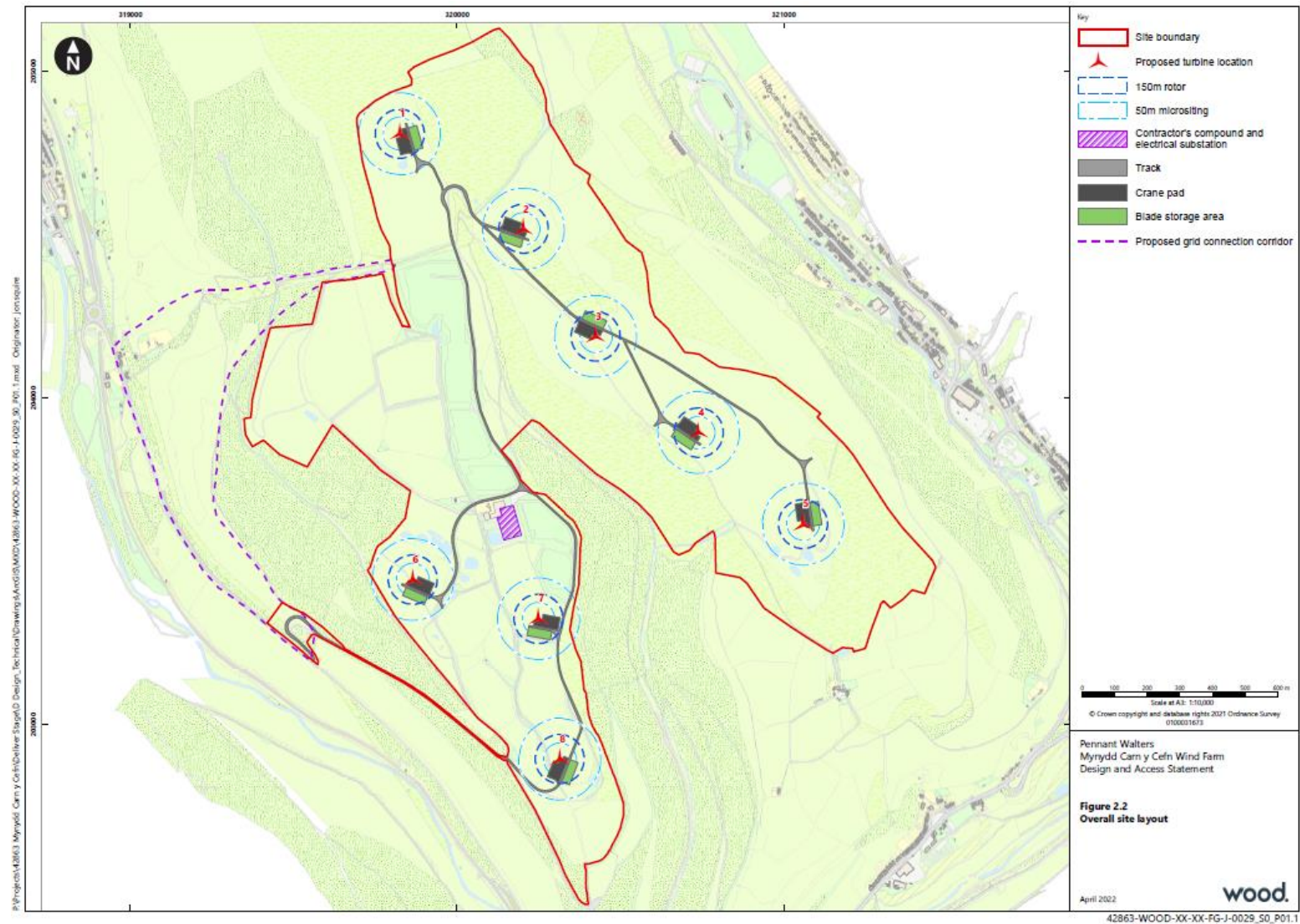


Figure 2.2 Site Layout



2.3 Developments of National Significance (DNS)

- 2.3.1 Due to the potential generating capacity being over 10MW the Proposed Development constitutes a Development of National Significance (DNS). The DNS category was established under the Planning (Wales) Act 2015 to ensure timely decision making on applications of national significance for Wales. As a DNS the application for development is submitted to the Welsh Government for determination via the Welsh Government's PEDW department rather than being submitted to the local planning authority. Following submission, a Planning Inspector will be appointed who will consider the application and supporting evidence before recommending to Welsh Ministers whether or not planning permission should be granted for the application.
- 2.3.2 As part of the DNS procedure proposed application documents (including this Draft DAS) are subject to six weeks pre-application prior to submission for formal consideration by the Welsh Government.

3. Vision

3.1 Vision for the development

3.1.1 Underpinning the design of the Proposed Development is the intention to provide a wind farm that will provide a source of renewable energy to support the energy needs of Wales without having significant effects on the environment. This means that the Proposed Development has been located and designed to:

- Ensure carbon emissions are reduced;
- Provide the most appropriate locations for wind turbines to ensure that the maximum amount of wind energy can be utilised from the site;
- Ensure that visual impacts on the surrounding area are minimised;
- Ensure that the public access to the site is maintained, in a safe manner; and
- Ensure the residential and the environmental amenity of features in and around the site are protected.

3.1.2 The design process reflects the vision for the Proposed Development.

4. Site and Context Analysis

4.1 Site location and context

- 4.1.1 The site encompasses an area of approximately 208 hectares (ha). The site's location is set out in **Figure 2.1**.
- 4.1.2 The site comprises a mix of semi-improved and improved grassland which forms the southern end of a forked upland ridge between the Ebbw Fawr valley and the Ebbw Fach valley. It is split by an area of coniferous plantation woodland on the slopes of Cwm Big, some recently felled, and a forestry haul road which follows the course of the Nant Big watercourse northwards from Aberbeeg.
- 4.1.3 An operational solar farm is located on the western fork to the north of Hafod-y-Dafal farmhouse. Another farmhouse, Arail, is located to the south of the site boundary on the eastern fork of the site. The Hafod-y-Dafal farmhouse area also accommodates the Steelhouse Festival, a rock music festival, on an annual basis.
- 4.1.4 A number of Public Rights of Way (PRoW) cross the site, and an area of Access Land is located immediately to the north and west. The western and eastern slopes of the site are characterised by coniferous plantation woodland.

4.2 The Development Plan

Future Wales

- 4.2.1 Future Wales: The National Plan 2040 (Future Wales from here on) was adopted in February 2021. Future Wales sets out national policy and is the highest tier of the development plan against which DNS applications are assessed. Future Wales includes a range of high-level policies which are intended to shape local authority development plans and inform decision making on applications for DNS.
- 4.2.2 There are two specific policies on renewable and low carbon energy:
- **Policy 17 – Renewable and Low Carbon Energy and Associated Infrastructure** sets out the Welsh Government's support for the development of all renewable and low carbon technologies in principle. The policy sets out the presumption in favour of large-scale wind in the Pre-assessed Areas subject to the requirements of Future Wales' Policy 18, which requires detailed consideration of certain criteria. The site is located in Pre-assessed Area for wind 10.
 - **Policy 18 – Renewable and Low Carbon Energy Developments of National Significance** states sets out a range of criteria that developments must meet including ensuring no unacceptable adverse: visual impacts on nearby communities; impacts on heritage assets; impacts by virtue of shadow flicker; and impacts on the transport network. The supporting text of Policy states that "*Irrespective of location or scale, the design and micro-siting of proposals must seek to minimise the landscape and visual impact, particularly those in close proximity to homes and tourism receptors.*"

Blaenau Gwent Local Development Plan

4.2.3 The relevant local policy for the site is set out in the BGCBC Local Development Plan (LDP) which was adopted in November 2012. The LDP provides the County Borough wide strategic and development management land use policies until 2021. **Table 4.1** highlights the relevant LDP policies.

Table 4.1 Blaenau Gwent County Borough Council Local Development Plan policies

Policy title	Summary
SP7 Climate Change	The policy sets out overall approach to address climate change and reduce energy demand and includes (at criteria (1a)) encouraging renewable/low/zero carbon electricity and heat generation.
SP9 Active and Healthy Communities	This policy promotes the delivery of active and healthy communities including protecting and enhancing accessibility to natural greenspaces.
SP10 Protection and Enhancement of the Natural Environment	Seeks to protect and, where possible, enhance natural environment and provides criteria through which this will be achieved within Blaenau Gwent related landscapes, green infrastructure, biodiversity and nature conservation.
SP11 Protection and Enhancement of the Historic Environment	Seeks to protect, preserve and enhance the historic environment through safeguarding nationally designated sites and protecting locally designated buildings and conservation areas, enhancing sites of historic/archaeological value and promoting heritage tourism,
DM1 New Development	<p>Sets out a range of criteria for good design in new development regarding:</p> <ul style="list-style-type: none"> • Sustainable design including energy efficiency, effective use of resources, minimisation of construction waste, and no net loss of biodiversity; • Amenity including consideration of compatibility with other uses in the locality, adverse visual impacts, adverse impacts on the water environment, health, and land stability; and <p>Accessibility including the provision of safe, effective and efficient access and parking, servicing and operational space.</p>
DM2 Design and Placemaking	Sets out a range of criteria to including ensuring development proposals are appropriate to the local context in form, scale and mix; are of a good design which reinforces local character and distinctiveness and responds to the area's context.
DM4 Low and Zero Carbon Energy	The policy provides criteria against which low and zero carbon development, such as onshore wind will be considered. The criteria covers a range of issues including landscape impacts, archaeology, noise and amenity, electro-magnetic fields, and removal of infrastructure.
DM14 Biodiversity Protection and Enhancement	Projects within 10km of Usk Bat Sites SAC that would have impacts on connectivity or cause direct/indirect effects to be subject to HRA. Proposals close to or within SINC or LNR or affect ecological corridors of Priority Habitats and Species subject to criteria.
DM16 Trees, Woodland and Hedgerow Protection	Requires that development proposals not give rise to unacceptable harm to trees, woodlands and hedgerows that have natural heritage value or contribute to the character or amenity of a particular locality.

ENV2 Special Landscape Areas	Lists the eight SLAs that have been identified within the area administered by BGCBC using a regionally agreed methodology. Development within the defined SLAs will be expected to conform to the highest standards of design, siting, layout and materials appropriate to the character of the area.
ENV3 Sites of Importance for Nature Conservation	The policy lists the Sites of Importance for Nature Conservation (SINC's). There are 26 SINC's within 2km of the Site;
M2 Mineral Buffer Zones	The policy seeks to (a) avoid development that prejudices the extraction of mineral or operation of sites whilst (b) no new mineral extraction will be permitted except in exceptional circumstances.

5. Design Development

5.1 Introduction

5.1.1 This section sets out the process undertaken to evolve the Proposed Development from site selection through to the onsite design options chosen. A full description of the approach to the selection of the site and to deciding on the specific design is set out in Draft ES **Chapter 3: Scheme Need, Alternatives and Iterative Design Process**.

5.2 Site selection

5.2.1 Pennant Walters Ltd undertook a site selection process in 2019. The site selection was informed by national policy considerations and specific technical criteria relevant to the proposed use for wind turbines and landscape.

5.2.2 As set out in **Section 4.2**, Future Wales sets out a series of Pre-Assessed Areas (PAA) for Wind Energy within which the principle of developing large scale wind farms is supported. Although at the time of the site selection process the approach to PAA was emerging it was clear that the final version of Future Wales would include PAA. The Applicant undertook a high-level review of areas with a more detailed review of options that were within or close to PAAs.

5.2.3 The consideration of wind speed was a key consideration. Areas that did not have a mean annual average wind speed above 7 metres per second (considered by the Applicant to be the minimum required for a commercially viable scheme) in the ETSU NOABL database were excluded from further consideration. Those areas with wind speeds above 7m/s within the Brecon Beacons National Park (BBNP), and any other national landscape designations, were excluded from the search exercise.

5.2.4 A summary of the main factors considered in the site selection and the performance of the site is set out in **Table 5.1**.

Table 5.1 Summary of main factors considered in site selection

Assessment Category	Specific factor	Site performance
Wind resource	Average annual wind speed	7m/s
	Wind direction	Predominantly southwest
Electronic Infrastructure	Proximity of transmission lines	33kv, 66kv and 132kv sufficiently close to the site
	Proximity of grid connection points	Possibility on or adjoining the site
Land Value	Land ownership	Willingness of landowner
	Ecological value	Low/moderate
	Archaeological value	Low/moderate
	Landscape value (and designations)	Within a PAA but outside any sensitive landscape designations; sufficiently

Assessment Category	Specific factor	Site performance
		distant from Brecon Beacons National Park and Blaenavon World Heritage Site.
Land Form	Size of site, useable area Steepness of terrain Smoothness of hill tops Alignment of high ground to prevailing wind	Predominantly flat ridge areas Plateau on steep sided banks Good Very Good
Land use/Land cover	Road network and access Radio-telecommunications masts Current land use Nearby land use Proximity of urban settlements	Classified highway immediately to the west Grazing mixed livestock Solar farm adjacent Abertillery 1km to east and Cwm 1km to north west

5.2.5 Overall, the present application site was considered to be a suitable site due to a range of factors:

- Excellent wind resource;
- Wholly within Future Wales PAA for Wind Energy area 10;
- Large usable area;
- Low vulnerability to major accidents and disasters arising from, for example, flooding or sea level rise, due to location;
- Good potential access;
- Nearby wind farm developments where cumulative visual effects could likely be accommodated;
- Available existing electric infrastructure;
- Not common land or any other statutory or non-statutory designations; and
- Likely low impact on ecology, archaeology, geology etc. given the baseline conditions, both from the Proposed Development and from potential major accidents and disasters.

5.3 Design

5.3.1 Following site selection the design has been informed by the technical and site-specific requirements. The design was optimised to maximise the capability for wind generation whilst reducing the environmental impact as far as possible. The design process was informed by a number of criteria:

- Ground conditions – ground conditions must be suitable for the installation of wind turbines, access tracks and cables;

- Site topography – the site topography is computer modelled to establish the wind flow on and around the site to provide guidance on the best locations for the wind turbines;
- Distance between turbines – to minimise turbulence interaction between wind turbines (wake effect), turbines should be separated by set distances both perpendicular to, and in line with, the prevailing wind direction. This design feature is a key factor in maximising the overall power generating capacity of a site;
- Proximity to occupied dwellings – wind turbines have to be located sufficiently far away from houses to protect local amenity;
- Environmental constraints – features and areas of local environmental sensitivity (ecology, archaeology, hydrology etc.) are identified and their implications considered;
- Landscape and visual design considerations are taken into account and the layout modified accordingly;
- Existing land use – whilst the wind turbines and their associated infrastructure typically occupy no more than 2% of the site, the existing use of the land is considered in the layout of tracks and turbines. For example, existing track lines are used where practicable;
- The presence and magnitude of woodland is also important, as these can reduce energy production from wind turbines;
- Proximity to obstructions – such as tall trees or buildings;
- Available spare capacity of the electricity grid to take power from the wind farm; and
- Proximity to a road network suitable to allow the transport of construction plant, equipment and wind turbine components to the site.

5.3.2 In addition to the above considerations, planning guidance and discussions with statutory and non-statutory consultees and the landowners have influenced the evolution of the design.

Design iterations

5.3.3 Wind farm design is an iterative process, and the layout of the Proposed Development has evolved in response to a number of environmental and technical constraints – including site character and appearance of the scheme – and discussions with the local community and statutory and non-statutory consultees. **Table 5.2** identifies the main iterations of the design and the rationale for such changes.

Table 5.2 Design iterations

Design Iteration	Rationale / Summary
Layout 1	Initial layout based on known information and good design practice.
Jukes and Pontypool Park Estate 7 turbine layout	This layout served as a starting point for consideration of the Proposed Development.
March 2020	The turbine locations proposed were on the Jukes and Pontypool Estate.
Layout 2 7 turbine layout	This iteration was prepared following some initial constraints identification and mapping including national and international designations, existing infrastructure, woodland and waterbodies.
April 2020	This layout included 7 turbines of 175m blade tip / 132m rotor blade.
Layout 3 Additional land acquired 8 turbine layout	This design iteration worked to an 8 turbine layout with an additional turbine located on an additional piece of land brought into the scheme in the south west corner of the Site. Three turbines were located along the western flank of the Site, four along the east, and one at the extreme north.
May 2020	
Layout 4 9 turbine layout	Following the incorporation of additional land (see above) further design work, including consideration of turbine spacing, was undertaken and a 9 turbine layout developed with an additional turbine located on the western Site flank.
October 2020	
Layout 5 Design update following surveys 8 turbine layout	Following an extensive suite of ecology surveys and initial modelling of potential views from local sensitive receptors (using wirelines) the proposed layout was refined with the aim of minimising potential effects on sensitive receptors as far as practicable, including reducing the number of turbines from 9 to 8. This iteration also introduced initial locations for construction compounds, the on-site substation, borrow pits and access tracks.
September 2021	
Layout 6 Revised layout	This iteration updated the layout as follows: <ul style="list-style-type: none"> • Adding an access track to the substation position. • Moving two turbines outside key habitat avoidance zone buffer for bats. • Moving another turbine to lie between bat key flight lines.
October 2021	
Layout 7 Red line boundary amended	Following Layout 6, the red line boundary of the Site was modified to remove an areas not required for the infrastructure but to allow for micro-siting distances of up to 50m for each turbine.
November 2021	
Layout 8 Design chill for Draft ES	Following an engineering review, the changes from the previous layout include: <ul style="list-style-type: none"> - Addition of crane pads and storage areas - Minor changes to access track layouts - Movement of electrical substation – now co-located with contractors compound adjacent the farmhouse - Movement of some turbines
December 2021	

Design Iteration	Rationale / Summary
	<p>The non-turbine infrastructure required on site was designed and arranged in such a way as to avoid the identified on-site constraints where possible. Whilst the majority of the infrastructure layout was designed following the turbine layout design, some minor iterations to turbine locations and track alignments were necessary to facilitate the optimum on-site infrastructure requirements. Access track routes in particular are designed to minimise water crossings and to avoid potentially sensitive areas within the Site.</p>

Micro-siting

- 5.3.4 The application seeks a micro-siting allowance for the turbines and associated infrastructure. The allowance which is being sought is up to 50m for turbines and 100m for internal wind farm tracks and other infrastructure such as substations and compounds. This would allow minor changes to turbine locations at the construction stage and this allowance has been accounted for in the EIA process.

5.4 Public involvement and consultation

Introduction

- 5.4.1 EIA scoping is the process of identifying those aspects of the environment which need to be considered when assessing the effects of a particular development proposal. This recognises that there may be some environmental elements where there will be no significant effects resulting from the development and hence where there is no need for further investigations to be taken.
- 5.4.2 Scoping is undertaken through consulting organisations and individuals with an interest in and knowledge of the site combined with the professional judgement of the EIA team. It takes account of published guidance, the effects of the kind of development proposed and the environmental resources which could be affected.

Scoping Report

- 5.4.3 As the proposed development qualifies as a DNS, a formal Scoping Direction was sought from Planning Inspectorate Wales (PINS)⁷ on 20 April 2021 in order that the Environmental Statement contains the information required for it to evaluate the environmental effects of the Proposed Development. To assist it in reaching its opinion, and to allow broader consultation on the scope with bodies which may be unfamiliar with the proposals, the following information was provided in a Scoping Report:
- The development characteristics;
 - The anticipated temporal and technical scope;

⁷ On 1 October 2021 PINS Wales became the Planning and Environment Decisions Wales (PEDW) (or Penderfyniadau Cynllunio ac Amgylchedd Cymru)

- An overview and evaluation of the main environmental issues, including;
 - ▶ Landscape and Visual amenity;
 - ▶ Historic Environment;
 - ▶ Biodiversity;
 - ▶ Ornithology;
 - ▶ Water Environment;
 - ▶ Ground Conditions;
 - ▶ Traffic and Transport;
 - ▶ Noise;
 - ▶ Infrastructure and other issues including Shadow Flicker; Socio-economics; Major accidents and disasters.
- An outline of the proposed methodologies for completing the identification of the baseline conditions and the assessment of predicted impacts and effects; and
- A summary of the proposed scope of the EIA.

Scoping Direction

5.4.4 A Scoping Direction was received from the Planning Inspectorate dated 15 June 2021. The Draft ES details the final scope of the assessment in relation to effects that it has assessed could be significant and therefore needed to be subject to more detailed assessment. Both the Scoping Report and the subsequent Scoping Direction have been used as a basis to assess, and inform the design of, the scheme.

Consultation

5.4.5 The proposals for the site were subject to early public consultation which closed in July 2021⁸. The consultation sought views on the site constraints, emerging proposals, environmental impacts, transport issues and community benefit. An Interim Consultation Report summarising the responses received is available.

Pre-application consultation

5.4.6 The proposed application documents including this Draft DAS are subject to a formal six-week pre-application consultation process prior to the submission of the application to PEDW for examination. The final application will be accompanied by a Pre-Application Consultation (PAC) Report summarising the responses received and how the consultation responses have been responded to.

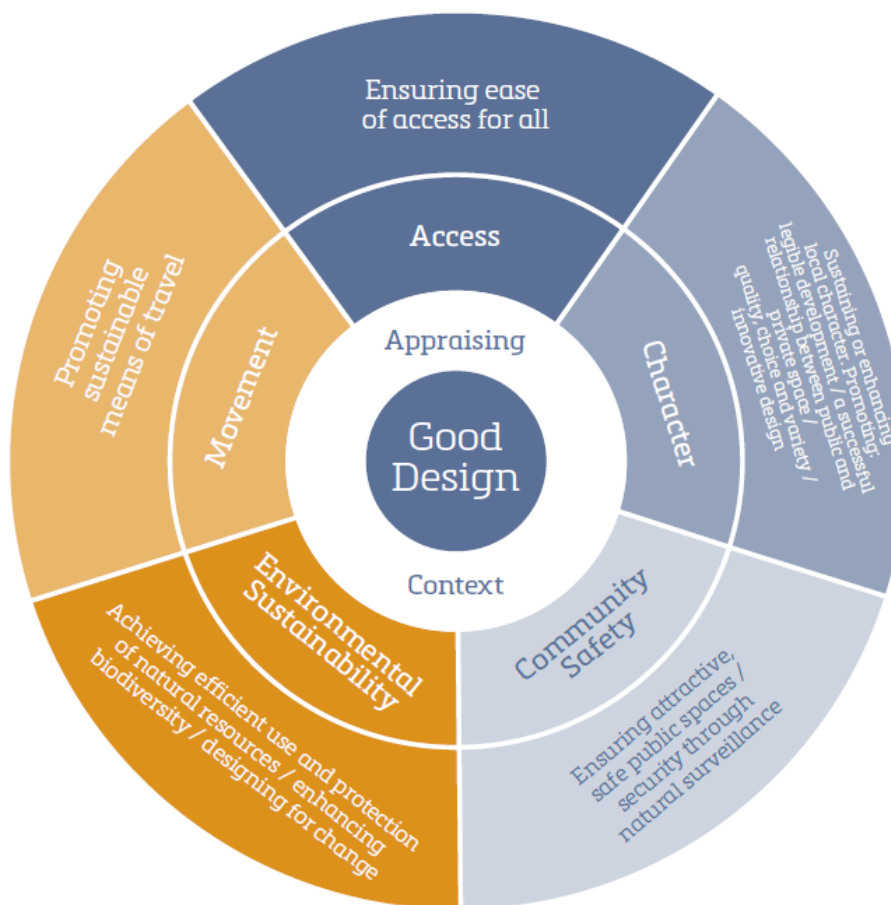
⁸ Details of the public consultation are available via: Pennant Walters (2022). Consultation (Online) Available at: <https://can-y-cefn.co.uk/consultation/> (Accessed April 2022).

6. The Proposal

6.1 Introduction

- 6.1.1 This section sets out further information about the Proposed Development and how it meets the objectives of Good Design contained in the PPW in line with the Welsh Government's DAS guidance (2017). The objectives of Good Design are included in **Figure 6.1**.

Figure 6.1 Objectives of Good Design



Source: Welsh Government (2021) Planning Policy Wales – Edition 11

- 6.1.2 The five objectives examined in the following sections are:

- **Character** – sustaining or enhancing local character promoting legible design and a successful relationship between public and private spaces;
- **Access** – ensuring access for all;
- **Movement** – promoting sustainable means of transport;
- **Environment sustainability** – ensuring the efficient and protection of resources; and

- **Community safety** – ensuring safe and attractive spaces.

6.1.3 At the start of each section the Welsh Government's DAS guidance (2017) requirements are captured. Additionally, in the final section, consideration is given to how the proposed development responds to the policy context.

6.2 Character

DAS Guidance: How does the proposal sustain or enhance local character and promote legible development, a successful relationship between public and private space, quality, choice and variety and innovative design?

Wind farm design

Turbines

- 6.2.1 The Proposed Development consists of up to eight turbines, each with a three-bladed rotor with a radius of up to 75m, a hub height of 105m and maximum height to blade tip of 180m. The turbines proposed are three bladed variable speed pitch regulated, with the rotor and nacelle mounted on a cylindrical tower. This is a typical modern, horizontal axis design comprising four main components: a rotor (consisting of a hub and three blades); a nacelle (containing the generator and also often a gearbox) to which the rotor is mounted; a tower; and a foundation. This reflects ongoing innovation in wind turbine design.
- 6.2.2 The specific choice of wind turbine is dependent on the final commercial and technical choice by the Applicant but would not exceed the physical parameters specified in the consent (and as assessed in the Draft ES). The turbines would be supported by a transformer which is likely to be located immediately adjacent to the turbine tower (although they can be incorporated into the nacelle or base of the tower and this will be dependent on final turbine choice.).
- 6.2.3 The design process has considered an appropriate colour for the wind turbines and determined that a neutral colour (colour specification, light grey RAL 7035) with a semi-matt finish, so as to minimise the visual intrusion, is the preferred colour to minimise contrast against the sky.
- 6.2.4 The wind farm has been designed to be operational for up to 30 years and will include site management to ensure that site facilities such as roads, boundaries, gates and signage are maintained. At the end of the operational life of the turbines, there are two possible options. Firstly, to decommission the wind farm and remove the turbines; or apply to install new equipment on the site (for which a further planning consent would be required).

Foundations

- 6.2.5 The full foundation requirements will be subject to finalisation dependent on detailed ground investigation. The design of foundations will minimise excavation requirements

and visible projection above ground level and allow for the re-establishment of surface vegetation when construction is complete. Foundations will usually comprise a reinforced concrete base slab with dimensions of approximately 20m diameter x 4m depth.

Substation

- 6.2.6 The Applicant has received an offer of a grid connection from Western Power Distribution (WPD). The connection between the on-site substation and the electricity grid at Crumlin will be the subject of a separate application. The specific arrangement for the substation, to be located adjacent the Hafod y Dafal farm buildings close to the site of Turbine 6 and 7 (see **Figure 2.2**), depends on WPD's requirements. A transformer may be required to be located onsite. If required, a transformer would be provided within a substation compound which would comprise a stoned area of approximately 37.5m x 35m containing the transformer and associated equipment (isolators, circuit breakers). If a transformer is not required then all electrical equipment would be housed within the substation building.
- 6.2.7 The substation building (approximately 14m x 10m) would be a single storey building which will house metering, protection and control equipment, storage and welfare facilities. The substation building would be traditional blockwork construction and faced in stone with a slate roof. Any associated fencing would be finished in either moorland green/brown or dark grey in order to blend with either the existing landscape colours or traditional building colours for the area.

Site context

- 6.2.8 The assessment of the site's wider context formed a key part of the site selection process as illustrated by **Section 5.2** of this DAS. Furthermore, the Proposed Development is supported by a Draft ES, which has considered the likely significant environmental effects of the development on environmental and human receptors, and reiterates the appropriateness of the chosen site and how its features are acceptable for this kind of development.

Cultural heritage setting

- 6.2.9 An assessment of the impact on the cultural heritage setting has been undertaken. The design has avoided possible remains of Bronze Age barrow and post-medieval sites and farmsteads. The Proposed Development will include the recording of archaeology – where the limited intrusive groundworks are required – with the exact approach to be secured through DNS condition.
- 6.2.10 Draft ES **Chapter 7: Historic Environment** assesses that the visibility of the Proposed Development would be very limited from within the Blaenavon Industrial Landscape World Heritage Site, with no turbines visible from within the historic 'core' comprising Blaenavon town. No significant effects are assessed for cultural heritage.

6.3 Access

DAS Guidance: How do the proposals ensure ease of access for all into the development and to all elements within the site?

Site access

- 6.3.1 The principal point of access into the site is from the forestry haul road off the A4046 Aberbeeg Road to the west of the site. The site access is approximately 1.8 km north-west of the A467/A4046/Aberbeeg Road/B471 junction. The A4046 operates under the national speed limit in the vicinity of the site access. The site access route approach to the A4046 is on a relatively steep gradient. Upgrading works will be required to this junction to ensure it is suitable to accommodate all general construction traffic (site staff) and concrete, stone and turbine deliveries which will enter the site.

Construction

Site access

- 6.3.2 The access for construction will be the principal point of access outlined above. **Chapter 12: Traffic and Transport** of the Draft ES assesses the likely effects on the traffic and transport network. A total of 62 two-way HGV trips per day are predicted. This is predicted to increase HGV traffic on A4046 (Ebbw Vale) by 37.4% during construction with overall traffic movements predicted to increase by 0.4%. For the A4046 (Aberbeeg) the predicted HGV traffic increase is 34.1% with 0.9% assessed for overall. **Chapter 12** of the Draft ES considers the effects of HGV traffic upon matters such as driver delay, severance, pedestrian delay, pedestrian amenity, fear and intimidation and accidents and safety. The Chapter concludes that significant environmental effects are unlikely to occur.
- 6.3.3 The Draft ES chapter is supported by an Abnormal Indivisible Loads (AIL) access study (Draft ES **Appendix 12A**). The following route is identified as the preferred route for AIL transit: Swansea Docks – Baldwins Crescent – A483 - A483/Ffordd Amazon/Ashleigh Terrace Roundabout - A483- A483/M4 - M4 - A4051 - A4042 - A4042 Turnpike Road – A472 - A467- A4046 - Site. The study identifies temporary structural improvements are required at a number of junctions.
- 6.3.4 A Draft Construction Traffic Management Plan (CTMP) (Draft ES **Appendix 12B**) has also been prepared to manage daily delivery profiles and control construction vehicle movements and routing of HGVs to/from the site.

Onsite access

- 6.3.5 It is anticipated that 6.3km of onsite track will be required for the Proposed Development overall with approximately 2.9km of this track already existing. The tracks will be approximately (~)5m wide, ~0.6m deep (dependent of ground conditions), with a ~2m grass verge either side. The tracks will be constructed of suitable roadstone. The existing

tracks will be upgraded. Gradients for new tracks will be kept to less than 8 percent with radius curves to 50m where practicable. This will help to accommodate the requirements of delivery vehicles and allow construction plant to move safely round the site.

Operation

- 6.3.6 During the operational phase the expectation is that the Proposed Development would require the maintenance of turbines at six monthly intervals and at other times when faults occur. More maintenance may be required early in the 30 year operation life and towards the end of the period.

Access for all

- 6.3.7 The type of Proposed Development is such that it is not designed to enable access for members of the public regardless of levels of mobility. Therefore, specific provisions for disabled access have not been incorporated into the design. Although onsite tracks are capable of being used by the public and have been designed to provide safe and appropriate access, they are not designed for the purpose of enabling access for all.
- 6.3.8 A number of Public Rights of Way (PRoW) cross the site. **Section 6.6** sets out considerations of the PRoW with respect to ensuring safe access during construction and operation.

6.4 Movement

DAS Guidance: How does the proposal promote sustainable means of travel?

- 6.4.1 The wind turbines, substation and other infrastructure on site will only be accessed by construction personnel and maintenance teams who will periodically attend the development site to, for example, maintain and service the turbines.
- 6.4.2 As stated in the Draft ES **Chapter 12**, given the site's location in relation to the public transport network, the opportunity for contractors to travel to the site by public transport is not viable. Additionally, the distance to the established cycle network and lack of footway connections to local amenities and establishments means that travel by alternative sustainable modes is unlikely to be chosen by contractors.
- 6.4.3 However, PRoW exist on site, therefore the public will have some access to the area. The Draft ES states that areas which are currently publicly accessible will remain so during both the construction and operation phases of the Proposed Development (with the exception of the footpath which crosses the site entrance which may require very temporary, occasional closures lasting minutes in duration). However, there is expected to be a need to divert and/or provide alternative permissive routes to protect members of the public from potential conflict with construction traffic, and during operation to ensure that suitable standoff radii from the wind turbines is provided for safety reasons.
- 6.4.4 The approach to ensuring safe access in the construction phase will be specified by the Construction Traffic Management Plan (CTMP), as part of the Construction Method

Statement (CMS), and Construction Environmental Management Plan (CEMP). Construction works will be sign posted, and users of the PRow network notified of activity.

6.5 Environmental Sustainability

DAS Guidance: How does the proposal achieve efficient use and protection of natural resources, enhance biodiversity, and demonstrate designing for change?

Renewable Energy

- 6.5.1 The Welsh Government has set a target for 70% of energy consumption in 2030 to be provided by renewable sources. Dependant on the final turbine choice, the Proposed Development of up to 8 turbines could generate up to 34MW⁹ of power which is capable of powering approximately 21,084 average households.^{10,11} With regards to resource efficiency, and supporting a reduced reliance on fossil fuels, this is considerable.
- 6.5.2 The Proposed Development will help to ensure environmental sustainability through the production of renewable energy thus supporting the move away from fossil fuels. The Proposed Development would equate to taking around 36,003 tonnes of CO₂ out of the atmosphere each year.¹² This will assist in meeting the wider policies and goals set by Welsh and UK Governments to ensure a security of supply of renewable electricity and reductions in GHG emissions.
- 6.5.3 The site design has been influenced by the optimal scheme for wind power generation, taking into account consideration of achieving the best wind resource and reducing turbulence from turbines. The design responds to site conditions whilst balancing the effects arising from construction and operation. The design layout was found to be the most sustainable and appropriate for the type of development proposed.

Agricultural land

- 6.5.4 As set out in Draft ES **Chapter 11: Ground Conditions**, the site is assessed as Agricultural Land Classification (ALC) Grade 4. Therefore, no land that is considered to be the 'best and most versatile' (Grades 1 to 3a) will be lost through the development. The actual built development covers a relatively small percentage of the overall land take. Measures embedded in the design will ensure that soil removed during construction is reused on

⁹ Based on turbines with an output of 4.2M being implemented. The anticipated range of generation is 4MW to 6MW per turbine which reflects that the specific choice of turbine by the Applicant has yet to be finalised.

¹⁰ Assuming maximum rated capacity of 33.6MW and load factor average for Wales of 27.8% which takes into account the intermittent nature of the wind, the availability of the wind turbines and array losses. The load factor is based on: Department of Energy and Climate Change (2021) Long term average figures for Wales and the UK - Energy Trends Section 6: Renewables (ET6.1 Renewable Electricity Capacity and Generation, September 2021. Capacity factor for UK.). (Online) Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/437811/et6_1.xls (Accessed April 2022)

¹¹ Homes Equivalent = rated capacity of wind farm (kW) x average load factor for wind x number of hours in a year/average household energy consumption (MWh)

¹² Based on BEIS Digest of UK Energy Statistics estimated carbon dioxide emissions per GWh of electricity supplied by all of fossil fuels of 440 tonnes per GWh of electricity supplied.

site where possible and low ground pressure machinery will be used where possible to minimise soil impactation.

Landscape assessment

- 6.5.5 The landscape and visual assessment is set out in Draft ES **Chapter 6: Landscape and Visual Impact Assessment**. With regards to the BBNP, the LVIA considers that given the site's location there are no direct impacts on this nationally designated landscape. An assessment has been undertaken of potential indirect effects on the special qualities for which the BBNP is designated (based on composite Landscape Character Areas (LCAs)). The LVIA has assessed that there would be no significant landscape effects upon the distinctive characteristics and character of the LCAs within the BBNP.
- 6.5.6 The LVIA has also assessed likely effects on locally designated Special Landscape Areas (SLA). Given the location of the wind turbines, direct effects have been assessed for Mynydd Carn-y-Cefn and Cefn yr Arail SLA. The level of effect has been assessed as ranging from Major and Significant to None and Not Significant. The LVIA notes that the alteration to a proportion of some of the primary landscape qualities and features as a consequence of the introduction of the wind farm would give rise to a *"Medium to High magnitude of change across the Southern End and Open Upland Ridge landscape types defined within the SLA which would change to a Low to Zero magnitude across the wooded Ebbw Fach and Ebbw Fawr valley sides and across the far northern slopes where the primary landscape qualities and features would be unaffected."*
- 6.5.7 Indirect effects have also been assessed for the SLAs entirely or partly located within 10km of the proposed turbines. The following landscape effects are assessed:
- Eastern Ridge and Mynydd James SLA – effect would range from Moderate to None and would be Significant;
 - Cwm Tyleri and Cwm Celyn SLA – effect of the Proposed Development would range from Major/Moderate to None and would be Significant.
 - Cefn Manmoel SLA – effect of the Proposed Development would consequently range from Moderate to None and may locally be Significant.
 - St. Illtyd Plateau and Ebbw Eastern Sides SLA – effect of the Proposed Development would range from Major/Moderate to None and would be Significant.
- 6.5.8 The Proposed Development has been designed so as to minimise the effects on these local landscape designations through the use of non-reflective pale grey on the rotor blades and upper towers.
- 6.5.9 It is recognised under Future Wales Policy 17 that the Welsh Government has already modelled the likely impact on the landscape within the PAA for Wind Energy and has found them to be capable of accommodating development in an acceptable way. Therefore, although some localised significant effects are concluded by the assessment, it is not considered that the presence of the turbines would exceed the capacity of landscape to accommodate the development.

Biodiversity

- 6.5.10 **Chapter 8: Biodiversity** of the Draft ES examines how the proposals will affect non-avian ecological and biodiversity connectivity and outlines the incorporated mitigation measures identified to reduce or eliminate negative effects. No significant effects are assessed. Environmental measures required to avoid or reduce biodiversity impacts will be incorporated into a Habitat Management Plan (HMP). The Draft ES includes an Outline HMP (Chapter 8 **Appendix 8F**) which sets out a range of enhancement and management prescriptions focused on two SINCs which would be impacted as a result of the Proposed Development (Cefn Bach and Pond Group 3) and an additional SINC (Craig I Deri) which would not be impacted but would benefit from enhancement measures.
- 6.5.11 **Chapter 9: Ornithology** of the Draft ES considers the effects on ornithology, including breeding and non-breeding birds. Significant effects on birds are ruled out with regards to the proposed wind turbines. It is anticipated that through design development and following the mitigation hierarchy that any impacts would be minimised and significant effects avoided. Measures developed for the site as part of the HMP are expected to benefit breeding species and more than compensate for temporary disturbance during construction and permanent loss of habitat during the operational phase. Collision Mitigation Monitoring Strategy will also be employed.

Water environment

- 6.5.12 Draft ES **Chapter 10: Water Environment** outlines a series of embedded measures including good working practices, drainage and materials management and management of water discharges which would support appropriate management of the aquatic environment, water resources and flood risk during the construction phase. Measures such as a detailed drainage design utilising SuDS principles and appropriate fuel storage would be implemented in the operational phase. No significant effects are concluded for the water environment.

6.6 Community safety

DA DAS Guidance: How has the proposal ensured attractive, safe public spaces and security through natural surveillance?

- 6.6.1 The Proposed Development will be delivered in a safe manner and ensure that the opportunities for crime are minimised through effective design measures, such as fencing around the substation compound being incorporated into the scheme. Additionally, the construction compound would be lit with security lighting and it is anticipated that a small security area would be established at the junction to the public highway.
- 6.6.2 A number of PRow cross the site. Some amendments are proposed to the PRow network to ensure that the wind farm and the use of the site by the public is delivered in a safe manner and PRow diverted where required. **Chapter 16: Socio Economics** of the Draft ES sets out the proposed diversions to the PRow with these identified in **Figure 16.3**. A

range of embedded measures are proposed to ensure community safety and the maintenance of a PRoW:

- Signage will be placed at appropriate locations to inform the public of the construction activities taking place. An overall Construction Method Statement (CMS) will be prepared by the appointed site contractor that that will provide a commitment to ensure that all workers understand that the site is open to access, and public safety should be considered at all times. The construction works will be undertaken in accordance with all health and safety legislation and in accordance with a Construction (Design and Management) (CDM) Regulations. A Construction Phase (Health & Safety) Plan that will be prepared for the works.
- A stand-off distance between bridleways and turbines of approximately 200m has been identified. As identified within **Figure 16.2** of the Draft ES a bridleway (PRoW 331/68/1; 331/71/1; 331/70/1; 331/108/1; 331/109/1) crosses the 200m radii buffer zones for T2, T3, T4 and T5. During construction and operation, the bridleways will require partial closure due to the close distance to the turbines in this location, to ensure safety of horse riders and horses. Therefore, to ensure this is completed a new permissive route has been provided, which is illustrated in **Figure 16.3** of the Draft ES, ensuring that access moving from north to south across the site is maintained in a safe manner.
- Similarly, a stand-off distance to footpaths and restricted byways has been applied. Byway 334/41/1 crosses the standoff buffer at T7 and T8 whilst footpath 331/75/1 crosses this at T2 (see **Figure 16.2**). Proposed diversions are illustrated in **Figure 16.3** of the Draft ES.

6.7 Responding to the planning policy context

DAS Guidance: This section of the document provides the opportunity to explain how the proposals have responded to relevant planning policy and guidance. The relevant policy and guidance should have been identified at the site and context analysis stage, this section should provide a summary of the design decisions that have been made in response to these policies.

- 6.7.1 The planning policy context is set out in **Section 4**. The proposal would see the development of a wind farm within an area identified in Future Wales Policy 17 as a location suitable for large scale wind development (as a PAA for Wind Energy).
- 6.7.2 The Proposed Development would make a contribution to the generation of renewable energy, required to support the reduction in carbon emissions that Future Wales and PPW are seeking to achieve. The development would also support the BGCBC Local Development Plan policy provisions under Policy SP7 that seek to address climate change within the borough. The design vision therefore responds to these policy requirements.
- 6.7.3 The development has been designed so as to minimise the take up of land, the impact on the landscape and the effects on biodiversity assets. Additionally, through the Draft ES the effects on a range of other environmental receptors have been assessed. The EIA process

has helped to ensure that where possible the design of the windfarm has sought to avoid or reduce the environmental impacts. Detailed consideration has therefore been given to the criteria in Policy 18 of Future Wales through site selection and design refinement.

- 6.7.4 The **Draft Planning Statement** provides a detailed assessment of the Proposed Development against the planning policy framework.

7. Conclusion

7.1 Summary of the Proposed Development design

- 7.1.1 The Proposed Development positively contributes to the achievement of the UK and Wales' goal to increase renewable energy generation to help combat the challenges posed by climate change. The design of the Proposed Development has been informed by consideration of technical, environmental and policy constraints. Additionally, the iterative design process has been informed by consultation with key stakeholders and the local community.
- 7.1.2 The design has been informed by the EIA process. The Draft ES demonstrates that the effects on a range of environmental receptors have been assessed and a range of measures have been proposed to reduce, and avoid, impacts of the Proposed Development on the environment where possible.
- 7.1.3 Whilst the Draft ES identified that some significant environmental effects are predicted to occur at a local level, national policy highlights that these are often inherent in the development of onshore wind energy and that the level of effect should be balanced against the socio-economic benefits and environmental benefits arising from the mitigation of climate change.
- 7.1.4 There will be some disruption to public access within the site during the construction phase, but this will be temporary and once operational the Proposed Development will not restrict access with appropriate mitigation measures. The Draft ES states there will be no significant negative effects regarding access to the development site, or upon it, as a result of the construction activities proposed. Furthermore, non-significant effects will be further reduced via the adoption of management measures in the form of a Construction Traffic Management Plan.

wood.