

1 APPENDIX 5.6 - RESIDENTIAL VISUAL AMENITY ASSESSMENT

1.1 Introduction

- 1.1.1 This appendix to Chapter 5: Landscape and Visual of the Environmental Statement (ES) presents a concise Residential Visual Amenity Assessment (RVAA) of the proposed wind farm. It considers the potential visual effects of the proposed wind farm experienced by residents of the nearest groups of properties to the site (i.e. within 2 km of the proposed turbine locations, as agreed at Scoping), and illustrated in Appendix 5.6 Figure 1: Residential Properties within 2 km. The RVAA identifies if any of these residents would experience a significant effect on any view from their property (the dwelling or its curtilage) during the operational period of the proposed wind farm, and specifically details which views would be affected.
- 1.1.2 It is important to stress that this appendix solely considers the visual component of residential amenity and that any consideration of residential amenity in the broader sense must also take account of any noise and shadow flicker effects, which are addressed elsewhere within the ES. Therefore, this RVAA does not comment on the acceptability of the proposed wind farm: it does however provide a reasoned professional opinion on the likely visual effect on living conditions of the nearest residents.
- 1.1.3 It should be noted that this study is limited to a consideration of the potential visual impacts that residents might experience within their property, i.e. their dwelling and its curtilage. It is acknowledged that the occupiers of most dwellings experience the wider landscape in passing on a regular basis as they go about their day-to-day activities and that the components of this wider landscape also influence their broader sense of amenity. Residents of certain properties considered within this RVAA would most likely have views of the proposed wind farm on a regular basis as they leave and approach their properties through the wider landscape.
- 1.1.4 It was beyond the scope of this study to determine trends in the day-to-day activities of the residents in the study area, or to define the features and qualities of the surrounding landscape which influence residents' broader amenity. Whilst not discounting this issue, based on previous wind farm appeal decisions, it appears that greatest weight is usually given to impacts on views from the dwelling itself and its curtilage, as these impacts are likely to have the greatest influence on living conditions. Beyond their property, residents are considered to experience visual effects as users of local roads, footpaths etc. These effects are assessed as such within the main Landscape and Visual Impact Assessment (LVIA) Chapter. The settlements of Pontypool and Cwmbran are also excluded from this assessment, as they are assessed within the main LVIA chapter.

1.2 Assessment Methodology

- 1.2.1 In 2019 the Landscape Institute published Technical Guidance Note 2/19 'Residential Visual Amenity Assessment (RVAA)' (March 2019). This confirmed that '**Residential Visual Amenity Assessment (RVAA) is a stage beyond LVIA and focusses exclusively on private views and private visual amenity**'. The Note goes on to state that the guidance it contains 'is not prescriptive but aims to improve standards'.
- 1.2.2 This analysis has therefore been informed by a methodology developed by Pegasus Group under the overarching guidelines for LVIA, namely The Guidelines for Landscape and Visual Impact Assessment, 3rd Edition (2013), Landscape Institute and the Institute for Environmental Management and Assessment and latterly, the principles set out in Technical Guidance Note 2/19.
- 1.2.3 In accordance with the above guidelines, the level of visual effect experienced in any given view is ascertained by considering in tandem the sensitivity of the baseline visual receptor and magnitude of change in the view as a result of the development. Professional judgement

is then employed to determine whether the effect is significant or not, although this is still based within a recognised framework in line with existing LVIA guidance.

- 1.2.4 The LVIA assessment criteria used by Pegasus Group acknowledges that different receptor groups (e.g. residents, users of public rights of way, people at their place of work) have varying degrees of sensitivity to change in the view. It is generally accepted that residents are of high sensitivity to change in their view, and in all cases in this assessment, each property has been considered in this manner. However, this is an oversimplification of a more complex issue as residents are generally considered to be more sensitive to changes in the views from certain rooms such as the primary day time living rooms (e.g. lounge, dining room, kitchen or conservatory) than rooms such as bedrooms, bathrooms or utility rooms, notwithstanding the overall high sensitivity for the property as a whole. Similarly, residents are usually more sensitive to changes in the view from certain parts of their garden or curtilage than others.
- 1.2.5 Visual impacts are caused by the introduction of new elements into the views of a landscape or the removal of elements in the existing view. Professional judgement has been used to determine the magnitude of impacts using the following criteria as guidance:

Very Low Magnitude of Change

- No change or negligible change in views;

Low Magnitude of Change

- Some change in the view that is not prominent but visible to some visual receptors;

Medium Magnitude of Change

- Some change in the view that is clearly notable in the view and forms an easily identifiable component in the view;

High Magnitude of Change

- A major change in the view that is highly prominent and has a strong influence on the overall view;

Very High Magnitude of Change

- A change in the view that has a dominating or overbearing influence on the overall view.

- 1.2.6 In general, the magnitude of visual impact on residential properties is likely to increase with proximity to the turbines. However, distance from the nearest proposed turbine is only one of the factors that needs to be considered when determining the magnitude of visual impacts on any given view from a residential property. Other modifying factors include:
- Whether the view of the turbines is in a direct or oblique angle from the primary orientation of the view (as explained illustratively at Appendix 5.6 Figure 21);
 - The extent to which the view is obstructed or filtered by vegetation, landform or built structures;
 - The extent to which the current view is influenced by existing built structures (e.g. buildings, roads, pylons).
 - The difference in elevation between the property and the base of the nearest turbine;
 - The horizontal and vertical field of view which is occupied by turbines;

- The spacing or relative clustering of the turbines in the view;
 - The scale and openness of the receiving landscape;
 - The availability of other features in the view, which provide a comparison of scale and perspective.
- 1.2.7 As previously indicated, the level of the visual effect experienced in any given view is determined by considering in tandem the sensitivity of the view with the magnitude of change. The level of effect is described as either 'Major', 'Moderate major', 'Moderate', 'Minor moderate', 'Minor', 'Minor/No Effect', 'No Effect'. Professional judgement is then used to inform whether the level of effect identified is significant or not.
- 1.2.8 In this analysis, those effects described as Major, Moderate major and in some cases Moderate, are identified as 'significant effects'.
- 1.2.9 In the case of each privately-owned property, once the potential for significant visual effects to arise has been considered, an overall judgement has been reached about whether the residents of the property would experience such an overbearing effect on visual amenity that the property would become an unattractive place to live. When considering this overall effect of the development on the visual amenity of residents of any given property 'in the round' it is also necessary to take into account the availability of other views from the property which would not be affected by the development.

1.3 Properties within the RVAA Study Area

- 1.3.1 At Scoping, an initial 2 km RVAA study area (referred to as the study area) was proposed, which was agreed.
- 1.3.2 Over 2000 residential properties were initially identified from a combination of Ordnance Survey (OS) Addressbase data, OS 25,000 raster data and aerial photography as being located within the study area. Those that fall outside of the Zone of Theoretical Visibility (ZTV) for the proposed wind farm have been scoped out of the assessment. Those which lie within the urban boundaries of Pontypool and Cwmbran have also been scoped out of this assessment, as visual effects on residential receptors within settlements are assessed within the main LVIA chapter. The remaining residential properties have been grouped geographically and are illustrated by Appendix 5.6 Figure 1: Residential Properties within 2 km. These are listed in the below.

Table 5.6.1 PROPERTIES WITHIN THE 2KM RVAA STUDY AREA

Group ID	Name/Description of Group
1	Craig-Llywarch
2	Garn Wen Farm (and annex) and Gelli-gravog
3	Upper Cwmbran
4	Mountain Road, Upper Cwmbran
5	Cwmlickey Bungalow, Cherry Tree Cottage and Blaendare House
6	Upper Race
7	Properties north and west of Old Furnace
8	Pantygasseg Road and Ty-Bwmpyn Road Crumlin Road
9	Pantygasseg
10	Properties to south-west of Pantygasseg
11	Properties east of Blaen-y-Cwm Road
12	Cefn-y-Crib
13	Properties north of Cefn-y-Crib
14	Ty Richard Jones' Farm
15	Hafodyrynys
16	Pen Y Caeau Farm and The Barn
17	Ty Oakley
18	Blaengwrney Farm
19	Gorse House

- 1.3.3 For each of the property groupings, information was gathered through a combination of desk study and site visits, including:
- Name of property/properties;
 - Type of property/properties;
 - Approximate distance from nearest property to closest turbine;
 - Maximum number of proposed hubs and blade tips theoretically visible within group;
 - Magnitude of change;
 - Significance of effect;
 - Rationale for assessment (including record of any intervening obstructions e.g. screening from vegetation, landform or built structures, any features in the view which provide a comparison of scale, and the availability of other views that are not affected by the proposed wind farm).
- 1.3.4 Where a distance between a residential property and a turbine is provided, the figure given is an approximate measurement between the centre point of the turbine tower and the corner of the nearest façade to the proposed wind farm.
- 1.3.5 Defining the limits of private gardens can be subjective and considering the view from all corners of any individual garden is not possible. Therefore, this assessment has appraised what is considered the worst-case scenario from gardens. Where a property is set back from the public road along an access track that extends beyond the curtilage of the property, views on approach and departure from the property are also assessed.
- 1.3.6 For each of the property groupings, a wireframe model was generated from the property with the greatest theoretical visibility to help identify the scale, arrangement and visibility of the Proposed turbines. These wireline images were reviewed to factor in how natural and built screening would affect visibility of the turbines. In many cases this screening would be such that the wireline images illustrate a far greater potential visibility than would be seen in reality.
- 1.3.7 A bare earth wireframe showing a 90-degree angle of view towards the proposed turbines, from the corner of the nearest façade of the nearest property within each group is provided in Appendix 5.6 Figures 2 to 20. These wireframes which does not take account of any vegetation screening.
- 1.3.8 A summary of the level of effect experienced from each property is provided at Table 5.6.2: Visual Assessment of Property Groups Within the 2 km RVAA Study Area.

1.4 Assessment of Effects

- 1.4.1 The following section presents the information gathered through field and desktop study and provides a summary of analysis and discussion of the effects on visual amenity likely to be experienced during the operational phase of the proposed wind farm, for each property within the 2 km RVAA study area.
- 1.4.2 While the area was visited during summer months whereby increased screening from vegetation, the assessment of effects assumes the worst-case scenario (winter views) unless otherwise stated.
- 1.4.3 For the purposes of this assessment the sensitivity of residential receptors is assumed to be high.

Table 5.6.2 VISUAL ASSESSMENT OF PROPERTY GROUPS WITHIN THE 2 KM RVAA STUDY AREA

Group ID and Name/ Description	Approx. Distance to nearest turbine (from nearest property)	Proposed turbines theoretically visible (from nearest property)	Magnitude of Change (worst case)	Level of Effect (worst case)	Description of predicted views
1 - Craig-Llywarch (detached)	1.6km	1 no. blade tip (T13)	Very low	Minor	Slightly oblique views of blade tips of a single turbine to the north, partially restricted by intervening buildings and vegetation adjacent to property. The small amount of the proposed wind farm which is theoretically visible from this property, together with the filtering/screening effect of trees and buildings around the property would result in no potential for the proposed wind farm to be overbearing.
2 - Garn Wen Farm and Gelli-gravog (detached)	1.0km	1 no. blade tip (T9)	Very low	Minor	Slightly oblique views of the blade of a single turbine to the north north-west of 'Garn Wen Farm', likely obscured by intervening vegetation. Views of upper parts of T9 and blade tip of T2 from Gelli-gravog restricted by surrounding woodland. The small amount of the proposed wind farm which is visible from these properties, due to the screening effect of intervening landform combined with surrounding woodland in the case of Gelli-gravog, would result in no potential for the proposed wind farm to be overbearing.
3 - Upper Cwmbran (Mix of property types including terraced and detached)	1.0km	1 no hub (T9) 2 no. tips (T10 and T11)	Medium	Moderate significant	Oblique views of a single turbine and blade tips of two others to the north-west of 1 Mine Slope Cottage (nearest and most elevated property), obscured by surrounding conifer plantation. Views from properties on The Square in Upper Cwmbran are generally more open, except where partially restricted by intervening trees or buildings. Existing telecoms mast and electricity pylons are visible on horizon and telegraph poles between houses. Although there is a greater degree of theoretical visibility from properties on Belle Vue Lane, views are filtered through intervening trees. The oblique angle of view combined with the small amount of the proposed wind farm which is theoretically visible above the horizon from these properties, and the partial screening effect of

					intervening properties in some cases, would result in no potential for the proposed wind farm to be overbearing.
4 - Mountain Road, Upper Cwmbran (detached)	1.3km	5 no. hubs (T9, T10, T11, T12, T13)	Medium	Moderate significant	Direct views of upper parts of five turbines to the west of 'Little Greenmeadow Farm' (closest property), restricted by intervening building in foreground. Views from other properties in group frequently restricted by vegetation. Existing telecoms mast and electricity pylons visible on horizon. The small amount of the proposed wind farm which is theoretically visible above the horizon from these properties, and the filtering/screening effect of intervening vegetation around some properties, would result in no potential for the proposed wind farm to be overbearing.
5 - Cwmlickey Bungalow, Cherry Tree Cottage and Blaendare House (detached)	1.3km	1 no. tip (T9)	Very low	Minor	Direct views of the blade tip of a single turbine to the south-west of 'Cwmlickey Bungalow' (nearest property). Although a slightly greater degree of visibility is available of from other properties within the group, views are partially restricted by intervening vegetation or buildings. The small amount of the proposed wind farm which is theoretically visible from these properties, and the filtering/screening effect of intervening trees around some properties would result in no potential for the proposed wind farm to be overbearing.
6 - Upper Race (Mix of property types including terraced and detached)	1.3km	1 no. hub (T9) 2 no tips (T2 and T10)	Medium	Moderate	Direct views of upper parts of single turbine to the south-west of 'Blaendare View' (nearest property). Blade tips of other turbines potentially obscured by vegetation on horizon. Although a slightly greater degree of theoretical visibility is available from other properties within the group, views are frequently partially filtered through intervening vegetation. The small amount of the proposed wind farm which is theoretically visible from these properties, and the filtering/screening effect of intervening trees around some properties would result in no potential for the proposed wind farm to be overbearing.
7 - Properties to north and west of Old Furnace (detached)	1.3km	8 no hubs (T1- T8) 1 no. tips (T9)	Medium high	Moderate major significant	Slightly oblique, elevated views towards the proposed wind farm to the south-west from 'Horseland' (closest property), however the surrounding heavily wooded landscape would reduce visibility. Properties on Crumlin Road lie at a lower elevation, near the valley floor, where landform would reduce visibility in combination with intervening trees.

					Properties on the western edge of Tranch have oblique views towards the proposed wind farm and would also experience filtering of views by intervening trees. The combination of all the factors described above results in no potential for the proposed wind farm to be overbearing.
8 - Pantygasseg Road and Ty-Bwmpyn Road (Mix of property types including semi- and detached)	1.6km	2 no. blade tips	Very low	Minor	Oblique views towards proposed wind farm in the south from properties on these roads. Due to their position within a steep valley surrounded by woodland, actual visibility of the turbines would be no more than very low, and therefore no potential for an overbearing effect.
9 - Pantygasseg (Mix of property types including terraced and detached)	1.0km	8 no. hubs (T1-T8) 2 no. tip (T9 and T10)	High	Major significant	Direct, elevated views across valley towards ridgeline that contains the proposed wind farm to the south. Existing telecoms poles and electricity poles form vertical features in the near to middle distance. The intervening valley between the proposed wind farm and the properties in Pantygasseg provides a degree of separation that would prevent the turbines from being overbearing.
10 - Properties to south-west of Pantygasseg (detached)	1.1km	7 no. hubs (T1-T7) 2 no. tips (T8 and T10)	Medium high	Moderate major significant	Oblique, elevated views across valley towards ridgeline that contains proposed wind farm to the south-east. Intervening buildings and trees in foreground of properties provide some partial screening, with telecoms and electricity poles forming vertical structures in views. The intervening valley between the proposed wind farm and these properties, combined with the availability of views in other directions, would prevent the turbines from being overbearing.
11 - Properties to east of Blaeny-Cwm Road (detached)	1.4km	9 no. hubs (T1-T9) 2 no. tips (T10 and T11)	Medium high	Moderate major significant	Direct views towards proposed wind farm in the south from 'Cefn Y Crib Farm' (closest and most elevated property), partially filtered by intervening trees. Other properties within group lie at lower elevations on the slopes of a shallow valley, which provides some screening of the lower parts of turbines at oblique angles of view. Views from this group of properties are partially filtered through vegetation and/or partially screened by topography and appear set beyond the immediate landscape to the south. These factors,

					combined with the availability of views in other directions prevents the proposed wind farm being overbearing.
12 - Cefn-y-Crib (detached)	1.5km	8 no. hubs (T1-T8) 5 no. tips (T9-T13)	Medium high	Moderate major significant	Oblique views towards proposed wind farm in the south-east from all properties within group. Intervening trees provide filtering of views. The combination of factors described above together with the separation provided by the intervening valley would prevent the proposed wind farm from being overbearing.
13 - Properties to north of Cefn-y-Crib (detached)	1.8km	None	Very low- No change	Minor/ No effect	This group of properties are located on a north-west facing slope, away from the proposed wind farm. Oblique views from the closest property ('Tir Sammy Farm') would be screened by intervening landform. Although the blade tips of two turbines (T6 and T7) are theoretically visible from 'Ty'r-hen-forwyn' to the north of the group, views are filtered by surrounding trees. The combination of factors described above together with the separation provided by the intervening valley would prevent the proposed wind farm from being overbearing.
14 - Ty Richard Jones' Farm (detached)	1.9km	3 no. hubs (T5-T7) 4 no tips (T1-T3 and T8)	Medium low	Moderate minor	This property is located on a north-west facing slope, away from the proposed wind farm. Oblique angles of view would be partially screened by intervening landform, with some filtering by intervening vegetation. The combination of factors described above together with the separation provided by the intervening valley would prevent the proposed wind farm from being overbearing.
15 - Hafodyrynys (terraced)	2.0km	6 no. hubs (T1, T3, T4, T5 and T7) 2 no. tips (T2 and T8)	Medium	Moderate significant	All properties within group are orientated towards the north, away from the proposed wind farm in the east. Intervening landform provides partial screening of the turbines, with intervening trees providing additional filtering of oblique views. Garages and a hand car-wash station provide visual context to the foreground. The combination of factors described above would prevent the proposed wind farm from being overbearing.
16 - Pen Y Caeau Farm and The Barn (detached)	1.5km	13 no. hubs (T1-T13)	Medium high	Major moderate significant	'Pen Y Caeau' is orientated towards the south, towards the proposed access track. 'The Barn' has direct views towards the proposed wind farm in the east. The landform slopes gradually upwards from these properties towards the proposed turbines. There is some partial screening the lower parts of turbines by

					<p>intervening landform, and some filtering is provided by intervening trees.</p> <p>The combination of factors described above would prevent the proposed wind farm from being overbearing.</p>
<p>17 - Ty Oakley (detached)</p>	1.9km	<p>6 no. hubs (T5, T7 and T10-T13) 4 no. tips (T4, T6, T8 and T9)</p>	Medium low	Moderate minor	<p>This property is located to the south of the proposed access track on a west-facing slope, orientated away from the proposed wind farm in the east. The lower parts of the turbines are screened by intervening landform. Views from the rear of the property towards the proposed wind farm are partially filtered through intervening trees. There are existing vertical structures in the view in the form of electricity pylons crossing the intervening landscape.</p> <p>The combination of factors described above would prevent the proposed wind farm from being overbearing.</p>
<p>18 - Blaengwrney Farm (detached)</p>	1.9km	<p>2 no. hubs (T5 and T7) 5 no tips (T3, T4, T6, T6 and T10)</p>	Low	Moderate minor	<p>This property is located on a south-facing slope, orientated away from the proposed wind farm in the east. The intervening landform would screen much of the proposed turbines, together with buildings associated with the farm to the east of the property.</p> <p>The combination of factors described above would prevent the proposed wind farm from being overbearing.</p>
<p>19 - Gorse House (detached)</p>	1.7km	1 no. tip (T9)	Very low	Minor	<p>Direct views of the blade tip of a single turbine to the north-west of 'Gorse House.</p> <p>The small amount of the proposed wind farm which is visible from this property, due to the screening effect of intervening landform, would result in no potential for the proposed wind farm to be overbearing.</p>

1.5 Summary and Conclusions

- 1.5.1 Table 5.6.2: Visual Assessment of Property Groups Within the 2 km RVAA Study Area above summarises the predicted worst-case level of effect on visual amenity resulting from the proposed wind farm, from any view from the house and curtilage from each residential property group.
- 1.5.2 Having undertaken an appraisal of the relationship between the proposed turbines and the residential property groups within the 2 km RVAA study area, it is assessed that residents at nine of the 19 groups would experience a significant visual effect.
- 1.5.3 In all cases, the properties would all continue to have other views available that are not affected by the proposed turbines.
- 1.5.4 Although it is acknowledged that some properties within the 2 km RVAA study area would experience significant visual effects, it is not the case that any of the effects would be of such a scale so as to become dominant or overbearing.

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