



Cloud Hill Wind Farm

Technical Appendix 6.2 Residential Visual Amenity Assessment

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1 RESIDENTIAL VISUAL AMENITY ASSESSMENT

1.1 Introduction

This Appendix has been prepared to accompany Chapter 6: LVIA in Volume 1 of the Cloud Hill Wind Farm (hereafter the Proposed Development) EIA Report. In accordance with the third edition of 'Guidelines for Landscape and Visual Impact Assessment' (GLVIA3)¹, the LVIA assesses the visual impact of the Proposed Development on public views and public visual amenity.

This Residential Visual Amenity Assessment goes a stage beyond the LVIA by assessing the impact on the visual component of the amenity and enjoyment of dwellings and their gardens which may reasonably be expected. The threshold of reasonable expectation adopted in this, and all such cases is that impacts should not be overwhelming or overbearing. It has been prepared in accordance with the Landscape Institute's Technical Guidance Note 2/19 'Residential Visual Amenity Assessment' (RVAA)². This guidance sets out the 'Steps' to be followed when undertaking a RVAA and highlights how it should be informed by the principles and processes of GLVIA3. The purpose of the RVAA is to identify those properties where the effect of the Proposed Development leads to the 'Residential Visual Amenity Threshold' being reached or, in other words, where the effect could be described as overwhelming or overbearing.

This RVAA assesses the likely effects of the Proposed Development on the visual component of residential amenity relating to individual properties within a localised study area. The term 'residential amenity' refers to the living conditions at a house, including its gardens and domestic curtilage, which are commonly interpreted to include visual amenity, noise amenity and other factors such as shadow flicker. In a RVAA, such as this, Optimised Environments Ltd (OPEN) deals only with the visual amenity aspect of residential amenity, as this is its area of expertise. The effect on noise and shadow flicker are assessed in Volume 1 of the EIA Report in Chapters 12 and 16 respectively.

The purpose of the RVAA is to inform the planning process. It is in this context that the Technical Guidance makes the following statement: 'It is not uncommon for significant adverse effects on views and visual amenity to be experienced by people at their place of residence as a result of introducing a new development into the landscape. In itself this does not necessarily cause particular planning concern. However, there are situations where the effect on the outlook / visual amenity of a residential property is so great that it is not generally considered to be in the public interest to permit such conditions to occur where they did not exist before.'

1.2 Approach

The approach set out in the Technical Guidance is based on the four following Steps:

- Step 1: Definition of the study area and scope of the assessment, informed by the description of the development, defining the study area extent and scope of the assessment with respect to the properties to be included.
- Step 2: Evaluation of baseline visual amenity at properties to be included having regard to the landscape and visual context and the development proposed.
- Step 3: Assessment of likely change to visual amenity of included properties in accordance with GLVIA3 principles and processes.

¹ Landscape Institute and Institute of Environmental Management and Assessment (2013). Guidelines for Landscape and Visual Impact Assessment, Third Edition. Routledge.

² Landscape Institute (2019). Technical Guidance Note 2/19: Residential Visual Amenity Assessment. [Online] Available at: <https://landscapewpstorage01.blob.core.windows.net/www-landscapeinstitute-org/2019/03/tgn-02-2019-rvaa.pdf> (Accessed 10/01/2023).

- Step 4: Further assessment of predicted change to visual amenity of properties to be included forming a judgement with respect to the Residential Visual Amenity Threshold.

1.3 Step 1

Step 1 involves defining the extent of the study area and establishing the scope of the assessment. In respect of defining the extent of the study area, Landscape Institute Technical Guidance Note presents the following advice, ‘When assessing relatively conspicuous structures such as wind turbines, and depending on local landscape characteristics, a preliminary study area of approximately 1.5 to 2 km radius may initially be appropriate in order to begin identifying properties to include in a RVAA.’

In line with this guidance, the study area for the Proposed Development has been drawn out to the larger 2 km radius recommended. Whilst it is recognised that there are further residential properties beyond 2 km that may also experience a significant visual effect, the Technical Guidance Note explains that the ‘exceptionally large’ study areas of up to 3 km are disproportionate; further stating that *‘The logic for these (exceptionally) large study areas was based on certain findings of LVIA’s which identified significant visual effects from ‘settlements’ or from clusters of residential properties within this range. This fails to recognise that RVAA is a stage beyond LVIA. Consequently, many RVAA’s, including those of windfarms with large turbines (150 m and taller), have included disproportionately extensive study areas incorporating too many properties. This appears to be based on the misconception that if a significant effect has been identified in the LVIA adjacent to a property at 2.5 km it will also potentially lead to reaching the Residential Visual Amenity Threshold.’*

Within the 2 km study area, four residential properties have been identified using Ordnance Survey Address Point data and then verified in the field. These are individually numbered in Figure 6.2.1 and listed in Table 6.2.1 below.

The RVAA approach is to include both residential properties that appear to be occupied and in use as dwelling houses, as well as those that are currently disused, on the basis that the houses might become reinhabited during the lifetime of the Proposed Development. All four properties assessed appear to be inhabited at the time of writing.

The ZTV within this 2 km area shows theoretical visibility is almost continuous across the RVAA Study Area, albeit with patches of no visibility in the glens to the west of the Proposed Development. Theoretical visibility is shown to include 10 to 11 turbines across most of the upland areas, with lower levels occurring across the southern slopes of Cloud Hill and through the valleys of the Euchar Water to the north and Scaur Water to the south. Settlement is sparse across the RVAA Study Area with the few properties that occur located in the lower-lying glens where typically lower levels of visibility occur. All four of the properties lie within the ZTV of the Proposed Development, as shown on Figure 6.2.1 and have therefore been evaluated and assessed in Step 2 and Step 3.

Table 6.2.1 – Properties within 2 km of the Proposed Development Turbines

ID	Property	Grid Ref		Dist. Nearest Turbine (km)
1	Glenmaddie	274256	607296	971
2	Glenglass Cottage	272963	607108	1112
3	Polgown	271874	603862	1243
4	Shiel	274527	604069	1314

1.4 Step 2

Step 2 involves carrying out an evaluation of the baseline visual amenity at the properties to be included, through a combination of desk study and field work. The key considerations of this evaluation are set out in the Technical Guidance as follows:

- 'The nature and extent of all potentially available existing views from the property and its garden / domestic curtilage, including the proximity and relationship of the property to surrounding landform / landcover and visual foci. This may include primary / main views from the property or domestic curtilage as well as secondary / peripheral views; and
- Views as experienced when arriving or leaving the property, for example from private driveways / access tracks.'

In the course of carrying out the baseline evaluation, OPEN has surveyed the visual amenity of the residential properties from adjacent public roads, open land or footpaths. The locations of the residential properties within the 2 km study area are shown on RVAA Overview Plan which includes the blade tip height ZTVs (Figure 6.2.1).

RVAA sheets have been prepared for all properties within the study area that are considered to require assessment in the RVAA following Step 1. These assessments contain an OS map and aerial photograph of the property, the orientation of the principal facade of each property, the direction of the view/horizontal field of view which would be affected by the Proposed Development and the theoretical visibility of the Proposed Development. The RVAA sheets record details of the baseline residential amenity and the likely visual effects resulting from the Proposed Development. In respect of some of the properties where close range inspection was not possible, assumptions have been made regarding the principal façade and where the front and rear of the property occurs. Operational wind farms are included in the baseline evaluation, with these existing windfarms considered in the assessment of effects on residential visual amenity. A 53.5 degree wireline is also presented to illustrate the theoretical visibility of the Proposed Development in Figures 6.2.2 to 6.2.5.

1.5 Step 3

Step 3 involves carrying out an assessment of the likely change to the visual amenity of properties by applying the process of assessment advocated by GLVIA3, in which the sensitivity of the receptor is combined with the magnitude of change which would arise as a result of the Proposed Development, to determine whether the effect would be significant or not. The aim of Step 3 is to identify those properties with potential to reach the Residential Visual Amenity Threshold and therefore require further assessment in Step 4. This will only occur where a high magnitude of change is assessed as the threshold describes those effects that are at the extreme where they may become overwhelming or over-bearing.

OPEN's methodology assumes that all occupiers of local residential property within this RVAA typically have a higher sensitivity than other visual receptors. OPEN attaches less weight to views from upper floor rooms in houses compared with ground floor principal rooms, an approach which is reflected in GLVIA3 (paragraph 6.36). The assessment of magnitude of change which would arise from the Proposed Development is determined by the factors influencing magnitude of change on views, the potential change to the outlook from each property, as well as other factors, such as areas of garden ground or property access drives immediately surrounding a property, that would be likely to be affected. The key considerations of this assessment are set out in the Technical Guidance as follows:

- 'Distance of property from the proposed development having regard to its size / scale and location relative to the property (e.g. on higher or lower ground);
- Type and nature of the available views (e.g. panoramic, open, framed, enclosed, focused etc.) and how they may be affected, having regard to seasonal and diurnal variations;

- Direction of view / aspect of property affected, having regard to both the main / primary and peripheral / secondary views from the property;
- Extent to which development / landscape changes would be visible from the property (or parts of) having regard to views from principal rooms, the domestic curtilage (i.e. garden) and the private access route, taking into account seasonal and diurnal variations;
- Scale of change in views having regard to such factors as the loss or addition of features and compositional changes including the proportion of view occupied by the development, taking account of seasonal and diurnal variations;
- Degree of contrast or integration of new features or changes in the landscape compared to the existing situation in terms of form, scale and mass, line, height, colour and texture, having regard to seasonal and diurnal variations;
- Duration and nature of the changes, whether temporary or permanent, intermittent or continuous, reversible or irreversible etc.; and
- Mitigation opportunities – consider implications of both embedded and potential further mitigation.'

While Appendix A6.1 of the EIA Report provides a description of the criteria that contribute to magnitude of change on views and a description of the magnitude ratings used in this assessment, the magnitude of change assessed in respect of the RVAA differs slightly in that the focus is specifically on visual amenity and the potential for reaching the Residential Visual Amenity Threshold which sets a higher bar than the visual assessment in the LVIA. This means that there needs to be more of an impact to reach a high magnitude of change in the RVAA than in the LVIA.

The significance of the effect on residential visual amenity experienced at each property is dependent on all of the factors considered in the sensitivity and the magnitude of change resulting from the Proposed Development. These judgements on sensitivity and magnitude are combined to arrive at an overall assessment as to whether the Proposed Development would have an effect that is significant or not significant on residential visual amenity.

1.6 Step 4

Recognition of the difference between significant visual effects and what might be considered to be an unacceptable or overbearing effect on residential visual amenity has evolved through Public Local Inquiry (PLI) decisions over at least the past decade. The factors considered in such an assessment are widely recognised by professional Landscape Architects and decision makers and are often referred to as 'the Lavender test' after the Inspector who first developed the concept. The factors considered in the so called 'Lavender test' require a level of visual effect to arise which is greater than a significant visual effect in EIA terms, for the impact to be unacceptable in planning terms. In the Technical Guidance this is referred to as the Residential Visual Amenity Threshold.

The magnitude of effect must be to such a degree that a property would become widely regarded as an unattractive place in which to live. This public interest test therefore has a higher threshold than 'significant' in EIA terms. This approach is commonly applied to the assessment of visual effects on residential amenity. The approach has been refined through decisions for Inquiries and Appeals into wind farm applications across the United Kingdom and recognises that, given no person is entitled to a view in law, it is not sufficient for a property to simply sustain a significant visual effect for its residential amenity to be unacceptably harmed. For residential visual amenity to be harmed a higher threshold requires to be triggered, whereby the turbine(s) are at such proximity to a house, or in such number, that they lead to an overwhelming or overbearing effect on the property to the extent that it becomes an unattractive place in which to live. Where this occurs, the matter affects the public interest as such an outcome would be considered to harm the provision of good housing stock.

The Step 4 Assessment differs from the Step 3 Assessment in that it considers whether the visual effects likely to be experienced at the Proposed Development will lead to 'Residential Visual Amenity Threshold' being reached, that is to say, that the effects have the potential to be overbearing in respect of the visual amenity of residents at the property.

In the RVAA, while there is no specific definition of Residential Visual Amenity Threshold to base an assessment upon, there are a number of suggested criteria that may be applicable, including 'blocking the only available view from a property', or 'overwhelming views in all directions'; and 'unpleasantly encroaching' or being 'inescapably dominant from the property'. The Step 4 Assessment is triggered when the Proposed Development is found to give rise to a high magnitude of change in the Step 3 Assessment and is reported in the RVAA sheets for applicable properties.

1.7 Summary of RVAA Results

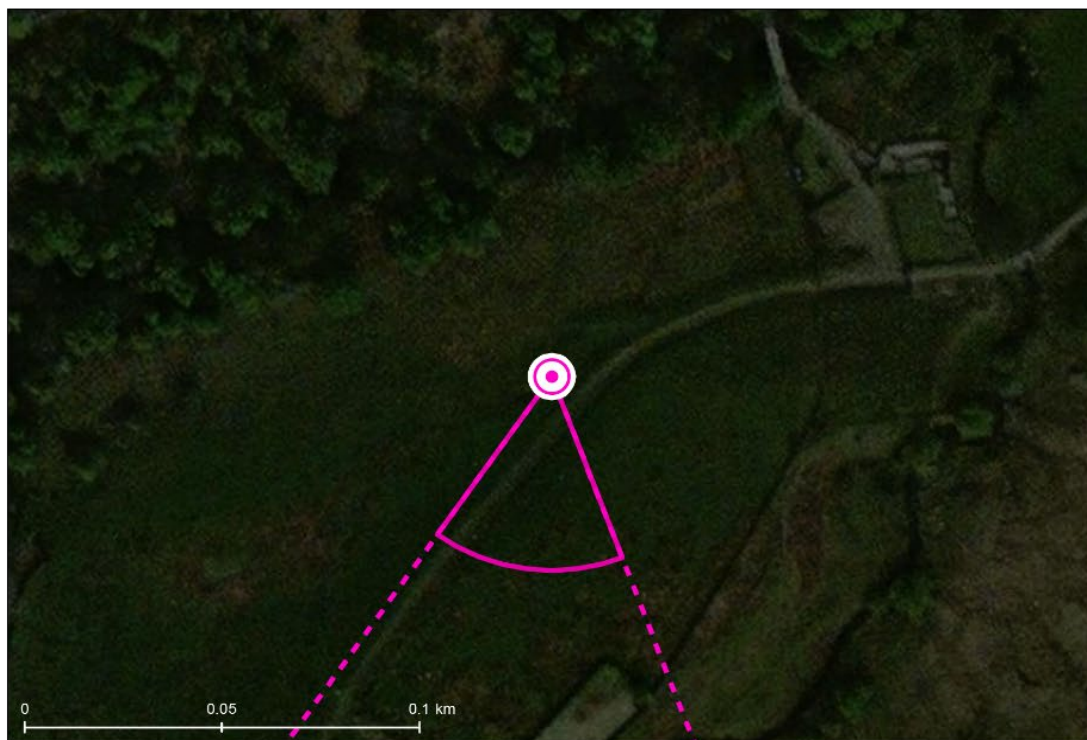
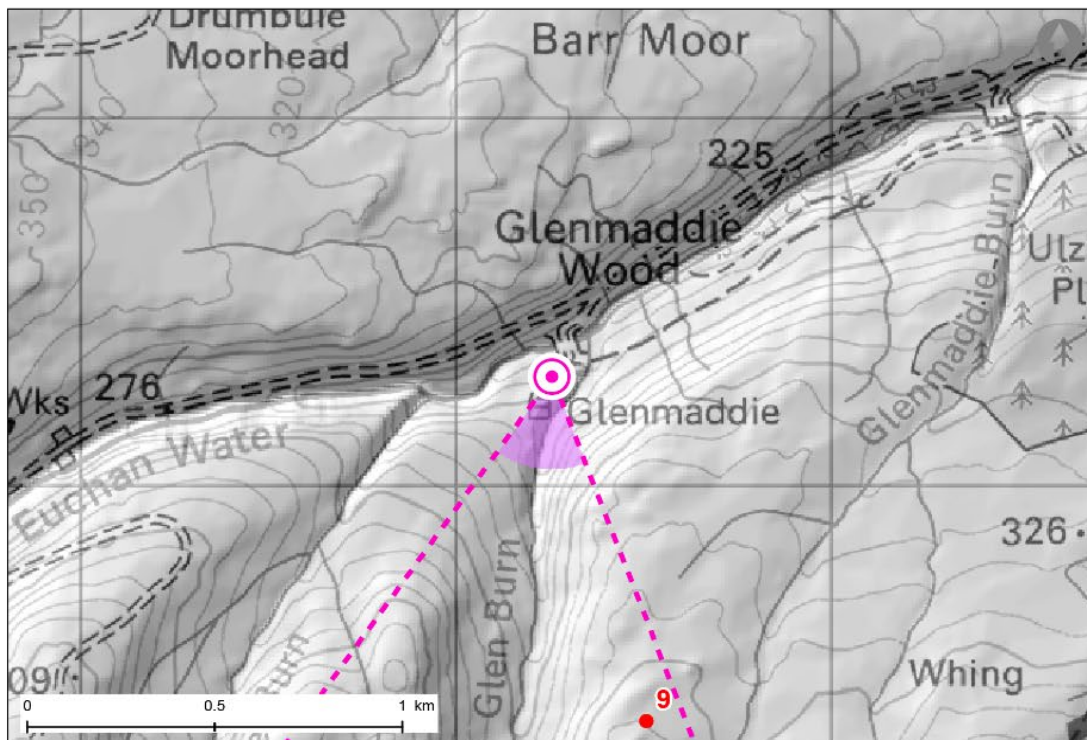
The RVAA identifies one residential property within 1 km and the remaining three properties within 2 km of the Proposed Development. Residents of all four properties have potential views of the Proposed Development and detailed assessment sheets have therefore been prepared and are presented in Section 2.

The effect of the Proposed Development on all four properties would be significant. The magnitude of change on one property would be medium-high, and on the remaining three properties it would be high. The high magnitude of change has meant that these three properties required also to be considered for a Step 4 Residential Visual Amenity Threshold Assessment. The conclusion of this Step 4 assessment is that whilst a high magnitude of change and major significant effect is predicted, the nature of the visual impact at these three properties is not sufficiently adverse to be characterised as an overwhelming or overbearing effect on visual amenity.

In conclusion, the RVAA has assessed all four properties within the RVAA Study Area to have significant visual effects. However, the Proposed Development is not considered to have the potential to lead to the 'Residential Visual Amenity Threshold' being reached. That is to say, that the Proposed Development does not have the potential to give rise to overbearing or overwhelming effects on any of the four properties in respect of the visual amenity of residents at the property.

2. RESIDENTIAL VISUAL AMENITY ASSESSMENT SHEETS

2.1 Glenmaddie



Data Source: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

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Property Description

OS Grid 274256 607296 Distance to Nearest Turbine: 971 m Elevation: 235.6 m
Ref:

Farmhouse	X	Stone-built	X	1 Storey		Derelict		Farmyard	
Detached		Brick-built		1.5 Storey	X	Uninhabited		Front Garden	
Semi-detached		Render		2 Storey		Garage(s)		Rear Garden	
Terraced		Timber-clad		Conservatory		Outbuildings	X	Side Gardens	

Step 2: Existing Residential (Visual) Amenity

Glenmaddie is located on the lower flanks of Little Hill to the south of the Euchar Water and adjacent to the Glen Burn. It comprises a 1.5 storey traditional stone-built farmhouse with a 1 storey adjoining barn. An outbuilding is located to the south-west of the main property. The principal orientation of the property is north towards the valley of the Euchar Water, and the slightly elevated position on the hillside combined with the open landscape means that clear views are afforded in this direction from both the interior and surroundings of the property. Internal and external views to the rear of the property take in the rising landform of Mid Rig, Cloud Hill and Whiteside Hill to the south and west. Access is taken from the minor road that follows the valley of the Euchar Water and from which open views in all directions are experienced, albeit contained within the middle distance by the enclosure of the surrounding hills. The property is surrounded by open land in all directions, with no formal gardens or farmyard. Four turbines within Whiteside Hill Wind Farm are visible on Whiteside Hill to the south-west, with two visible as blade tips only. The hubs and blade tips of three turbines, and blade tips of a further two turbines, within Sanquhar Wind Farm are also visible to the west.

The property is located within the red line boundary of the Proposed Development and its occupiers are financially involved with the Proposed Development.

Step 3: Residential (Visual) Amenity Effects

Affected Field of View: 56° No of Blade Tips Theoretically Visible: 9 No of Turbine Hubs Theoretically Visible: 5

The wirelines in Figure 6.2.2, show that nine of the 11 turbines would be theoretically visible, with four turbines set on the lower northern slopes of Whing Head to the south-east, and five on the high ground around Mid Rig and Cloud Hill to the south-west. The hubs and blades of five turbines would be readily visible, while the blade tips of four additional turbines would be intermittently visible above the horizon. The lower parts of all turbine towers would be screened by the intervening landform. While the principal orientation of the property is north towards the Euchar Water, several turbines would be clearly visible from the rear of the property. While there is also the potential that visibility would arise from within the rear interior of the property, this cannot be confirmed as this rear façade is concealed from publicly accessible locations. The turbines would be readily visible from the surroundings of the property as well as from the access road on approach. With the minimum distance of 971 m between the property and the closest turbine, the Proposed Development would be seen as a close-range feature. The 180 m tall turbines would present large and dynamic structures, and would appear larger in scale than the operational Whiteside Wind Farm turbines.

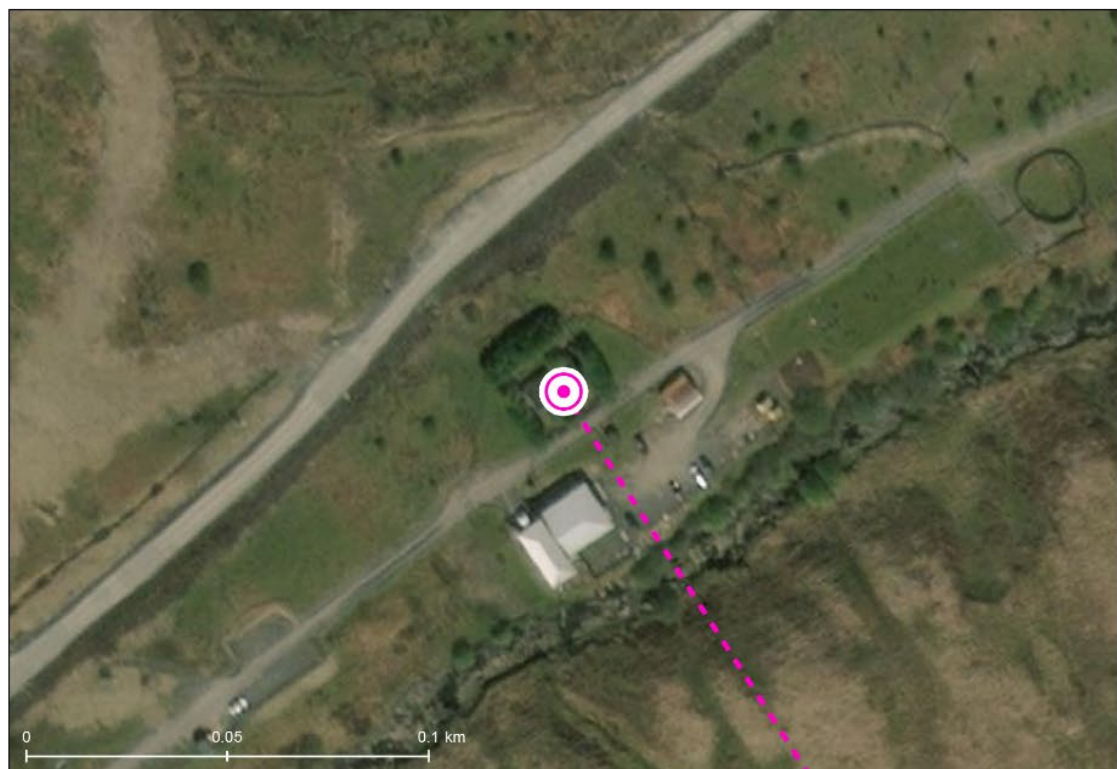
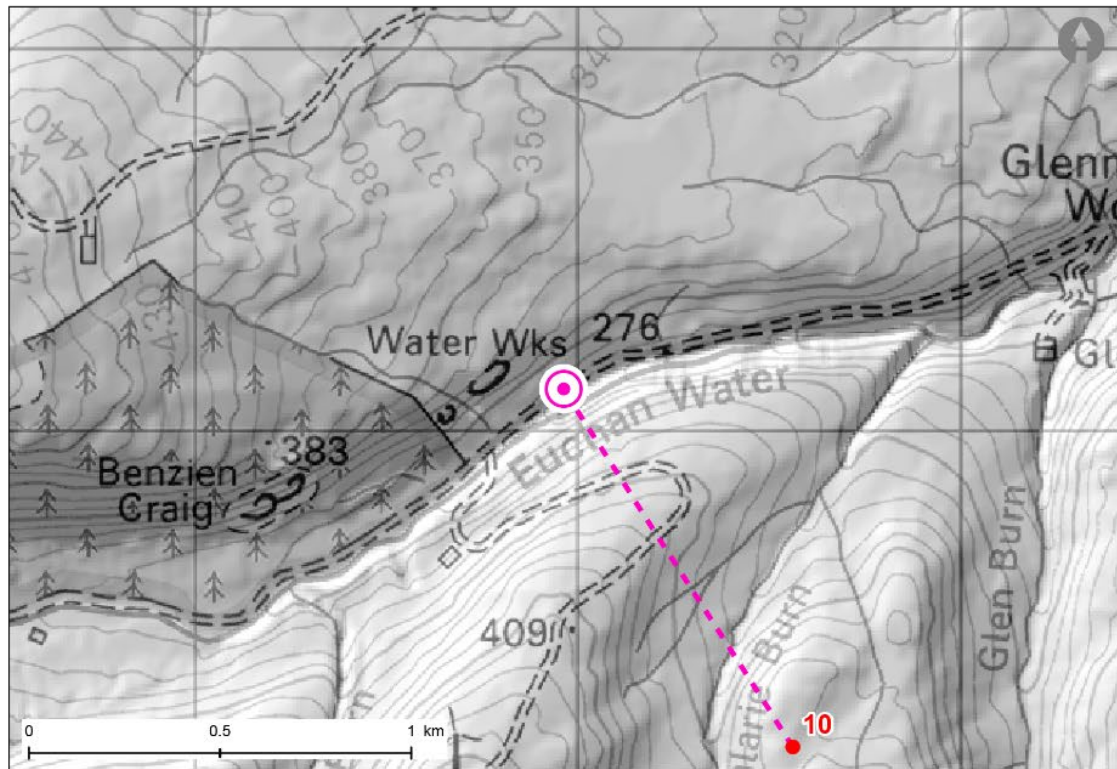
The magnitude of change is predicted to be **high**, which when combined with the **high** sensitivity would result in a **major** and **significant** effect.

Step 4: Residential Visual Amenity Threshold

This property is considered not to have reached the Residential Visual Amenity Threshold, for the following reasons:

- While the Proposed Development would be visible from the garden and driveway, and potentially visible from the interior of the property, it would be contained in the southern aspect with the wider view unaffected;
- Despite the distance of the Proposed Development from the property, and the size of these large dynamic structures, their containment within a specific sector to the south means that there is not the potential for the effects to become overbearing or overwhelming; and
- The presence of existing operational wind turbines in the view to the south-west means that the Proposed Development will be adding turbines to a view which has already been altered by wind farm development, rather than introducing turbines as new features.

2.2 Glenglass Cottage



Data Source: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

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Property Description

Step 2: Existing Residential (Visual) Amenity

OS Grid Ref: 272963 607108 Distance to Nearest Turbine: 1112 m Elevation: 287.1 m AOD

Farmhouse		Stone-built		1 Storey		Derelict		Farmyard	
Detached	X	Brick-built		1.5 Storey		Uninhabited		Front Garden	X
Semi-detached		Render	X	2 Storey		Garage(s)	X	Rear Garden	X
Terraced		Timber-clad		Conservatory		Outbuildings		Side Gardens	X

The property is located to the north of the Euchar Water, on the south-eastern flank of Black Hill. It is a modern rendered bungalow enclosed by narrow areas of garden to the east and south, and a larger rear garden to the north including a shed and kennels. The principal orientation of the property is south-east, and there are large windows on this aspect. The property is located directly adjacent to the minor road which follows the northern bank of the Euchar Water. It is accessed by a driveway to the east. Euchar Water Works is visible at low elevation to the immediate south of the property. Beyond this, there are views over the Euchar Water towards the steep lower flanks of Mid Rig, which form the horizon at close proximity in this direction. To the north, views are contained by the steep rising landform of Black Hill. Longer-distance views are available from the interior and exterior of the property to the east along the valley of the Euchar Water, and from the surroundings of the property to the west along this valley. Views are available from the exterior towards nine turbines within Whiteside Hill Wind Farm to the south-west, six of which are visible to at least hub height, with the remaining three visible as blade tips only. There is also visibility of the blade tips of one turbine within Sanquhar Wind Farm to the north-west. There is the potential that these turbines are also visible from the interior of the property.

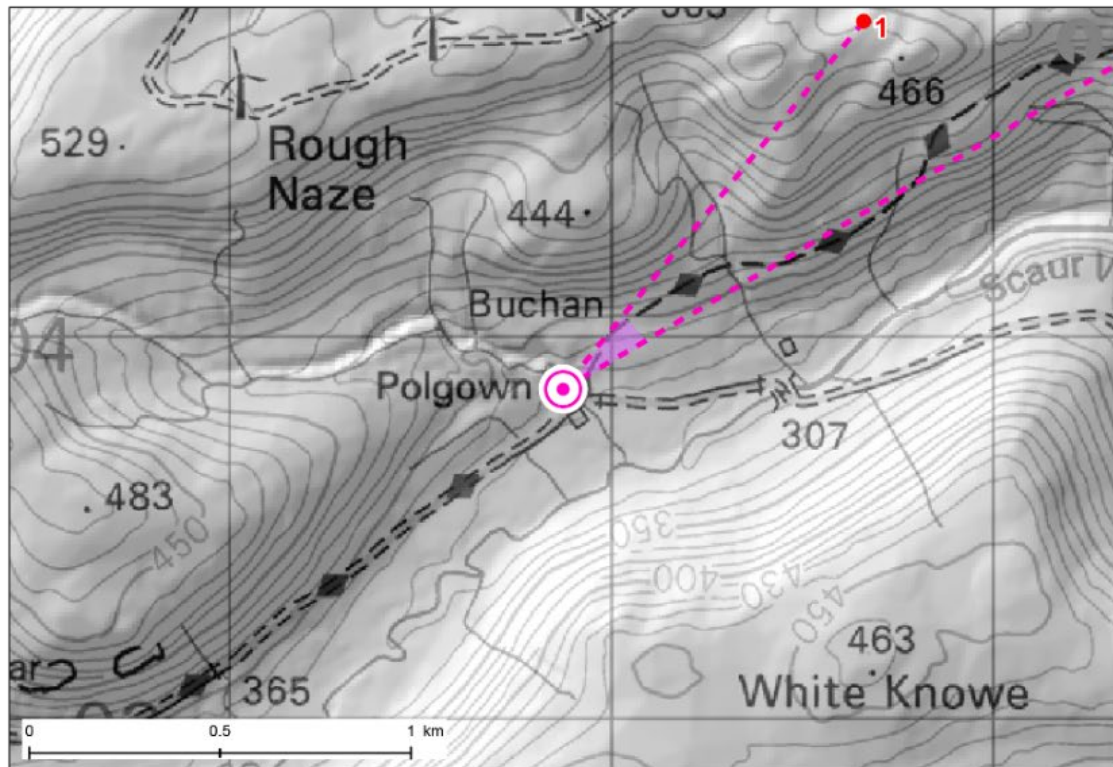
Step 3: Residential (Visual) Amenity Effects

Affected Field of View: 64 No of Blade Tips Theoretically Visible: 3 No of Turbine Hubs Theoretically Visible: 0

The wirelines in Figure 6.2.3, show that three of the 11 turbines would be theoretically visible to the south-east, seen as one blade and two small tips which may not be readily apparent. The blade would be intermittently visible above the horizon, while the hub and tower would be screened by the landform. Given the principal orientation of the property is to the south-east, there is the likelihood that the turbine would be visible from the interior space. The turbine would also be visible from the surroundings of the property, including from the driveway to the east and garden to the north. Views towards the Proposed Development from the larger rear garden would be screened by the property itself. With the minimum distance of 1,112 m between the property and this closest turbine, the blade would be seen as a close-range feature and although screened by the intervening landform, the blade would present a large and dynamic structure, that would appear at variance to the scale and character of the local landscape.

The magnitude of change is predicted to be **medium-high**, which when combined with the **high** sensitivity would result in a **major** and **significant** effect. As there is no high magnitude of change, a stage 4 assessment is not required.

2.3 Polgown



Data Source: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

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Property Description

OS Grid Ref: 271874 603862 Distance to Nearest Turbine: 1243 m Elevation: 326.3 m AOD

Farmhouse		Stone-built	X	1 Storey		Derelict		Farmyard	
Detached	X	Brick-built		1.5 Storey		Uninhabited		Front Garden	X
Semi-detached		Render		2 Storey	X	Garage(s)		Rear Garden	
Terraced		Timber-clad		Conservatory		Outbuildings		Side Gardens	X

Step 2: Existing Residential (Visual) Amenity

Polgown is located to the north of the Scaur Water, on the southern flank of Whiteside Hill, adjacent to the Craw Burn. It is a traditional two-storey stone-built farmhouse. The property is orientated east to west, with principal views to the east towards the Craw Burn, a tributary of the Scaur Water which passes in close proximity to the property. There is a small garden to the north-east of the property enclosed by a dry-stone wall, and a large outbuilding to the south. The principal orientation is to the east, with long-distance interior and exterior views along the valley of the Scaur Water available in this direction. In the foreground, there are views over rough agricultural land on the lower slopes of the hills to the north-east. To the north, a block of coniferous woodland encloses a small garden and filters outward views in this direction. From the rear of the property, there are views over rising ground. Views to the south from the interior and immediate surroundings of the property are screened by an outbuilding. Access is taken from the minor road which follows the route of the Scaur Water, and a short driveway connects the property to this road. From this driveway open views are experienced in all directions. Four turbines within Whiteside Hill Wind Farm are visible to the north, as well as four turbines within Twenty Shilling Hill Wind Farm visible in long distance views to the south-east. Two of these turbines are visible to hub height, with two visible as blade tips only. There is also relatively distant visibility of four turbines within Twenty Shilling Wind Farm above the horizon to the east, with two visible to hub height and two visible as blade tips.

Step 3: Residential (Visual) Amenity Effects

Affected Field of View: 21° No of Blade Tips Theoretically Visible: 5 No of Turbine Hubs Theoretically Visible: 3

The wirelines in Figure 6.4.4 show that five of the 11 turbines would be theoretically visible across the southern part of the site. Turbines to the north of the Proposed Development would be screened by the landform of Cloud Hill. The blades of all five turbines to the north-east would be visible above the horizon. The hubs and upper part of the towers of two turbines would be visible, with the towers of the other three turbines screened by the intervening landform. While the principal orientation of the property is to the east there is the likelihood that the turbines would be visible from the interior space to the north-east. The turbines would also be visible from the surroundings of the property, including from the driveway and small front garden to the east. With the minimum distance of 1,243 m between the property and the closest turbine, the Proposed Development would be seen as a close-range feature. Despite the partial screening, the 180 m tall turbines would present large and dynamic structures, that would appear at variance with the scale and rural character of the local landscape.

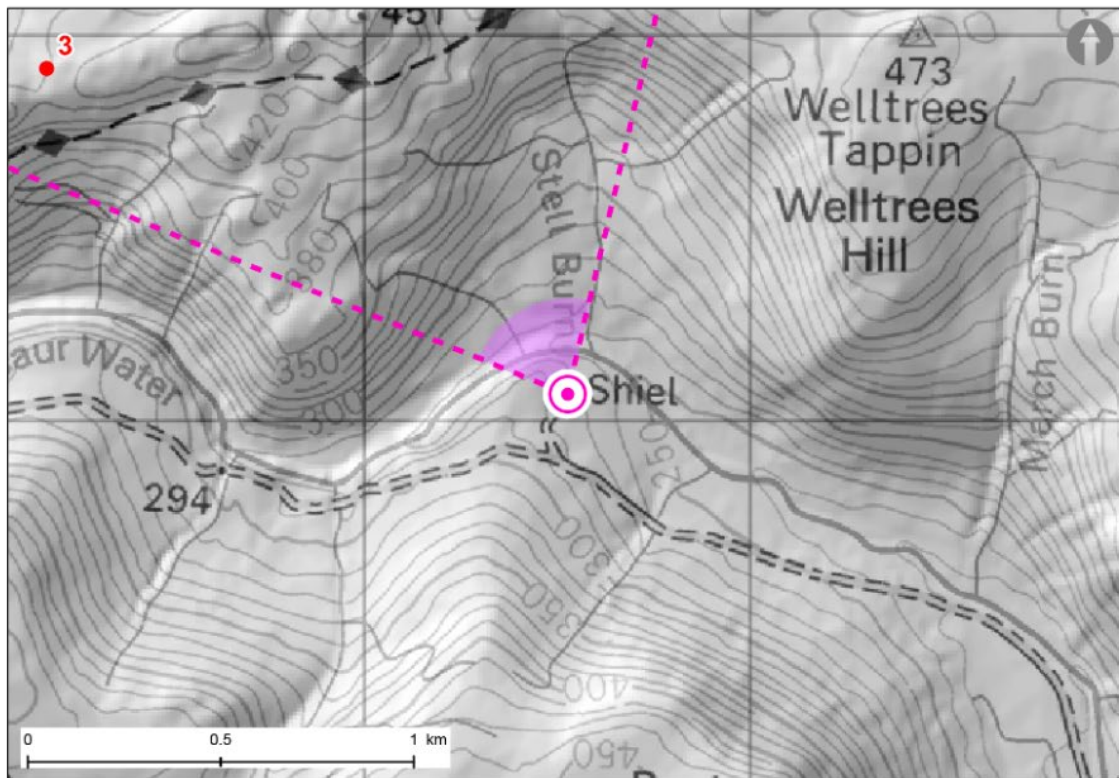
The magnitude of change is predicted to be **high**, which when combined with the **high** sensitivity would result in a **major** and **significant** effect.

Step 4: Residential Visual Amenity Threshold

This property is considered not to have reached the Residential Visual Amenity Threshold, for the following reasons:

- While the Proposed Development would be visible from the interior of the property, garden and driveway, it would be contained in the north-eastern aspect with the wider view unaffected;
- Despite the distance of the Proposed Development from the property, and the size of these large dynamic structures, their containment within a specific sector to the north-east means that there is not the potential for the effects to become overbearing or overwhelming; and
- The presence of existing operational wind turbines in the view to the north and east means that the Proposed Development will be adding turbines to a view which has already been altered by wind farm development, rather than introducing turbines as new features.

2.4 Shiel



Data Source: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

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Property Description

OS Grid Ref: 274527 604069 Distance to Nearest Turbine: 1314 m Elevation: 353 m AOD

Farmhouse		Stone-built	X	1 Storey		Derelict		Farmyard	
Detached	X	Brick-built		1.5 Storey	X	Uninhabited		Front Garden	X
Semi-detached		Render		2 Storey		Garage(s)		Rear Garden	X
Terraced		Timber-clad		Conservatory		Outbuildings		Side Gardens	

Step 2: Existing Residential (Visual) Amenity

Shiel is located to the south of the Scaur Water and north of the minor road, within the gently sloping valley of the Shiel Burn between the lower flanks of Welltrees Hill and Cloud Hill. It is a 1.5-storey traditional property orientated south-east to north-west. The property takes the form of an 'X'-shape with windows on the south-eastern and north-western aspects. Principal views are to the south-east, although outward views in this direction are limited by dense vegetation, which also limits views to the north and north-west. The property is enclosed on all sides by a low dry-stone wall. Access is taken from the minor road that follows the valley of the Scaur Water, and open views are available in all directions from this route across open moorland and the steep hills to north and south. From the high ground, where the access track meets the road, turbines within Whiteside Hill Wind Farm are visible. There are no operational wind farms seen in views from the property or its garden.

Step 3: Residential (Visual) Amenity Effects

Affected Field of View: 81° No of Blade Tips Theoretically Visible: 8 No of Turbine Hubs Theoretically Visible: 4

The wirelines in Figure 6.2.5 show that eight of the 11 turbines would be theoretically visible, all set on the hills to the southern extent of the site, with turbines to the north of the Proposed Development screened by the intervening landform of Cloud Hill. The hubs and blade tips of four turbines would be seen, with the blade tips of an additional five turbines intermittently visible above the horizon. With the minimum distance of 1,314 m between the property and the closest turbine, the Proposed Development would be seen as a close-range feature and would occupy a large proportion of the view to the north-west. Despite being partially screened, the 180 m tall turbines would present large and dynamic structures, which would appear at variance with the more intimate scale and enclosure of the relatively well-contained glen. Although views of the Proposed Development from the interior of the property are not considered likely, several turbines would be apparent from the surroundings of the property, including the access track to the south. The Proposed Development would introduce views of turbines into a part of the landscape in which there are currently no visible wind farm developments.

The magnitude of change is predicted to be **high**, which when combined with the **high** sensitivity would result in a **major** and **significant** effect.

Step 4: Residential Visual Amenity Threshold

This property is considered not to have reached the Residential Visual Amenity Threshold, for the following reasons:

- While the Proposed Development would be visible from the surroundings of the property, including the access road, it would be contained in the north-western aspect with the wider view unaffected;

- Despite the distance of the Proposed Development from the property, and the size of these large dynamic structures, their containment within a specific sector to the north-west means that there is not the potential for the effects to become overbearing or overwhelming.

3. ASSESSMENT OF CUMULATIVE EFFECTS

3.1 Introduction

All operational and under construction wind farms have been included as part of the baseline situation in the main RVAA. This section considers the cumulative effect of the Proposed Development on residential visual amenity, in relation to two different scenarios:

- Cumulative Scenario 1 assesses the effects of adding the Proposed Development to a cumulative situation comprising all operational, under construction and consented wind farms.
- Cumulative Scenario 2 assesses the effects of adding the Proposed Development to a cumulative situation comprising all operational, under construction, consented and application wind farms.

The methodology for this assessment follows the methodology used in the cumulative assessment within the main LVIA and adapts it for residential visual amenity. Please refer to Appendix A6.1 for further details of the cumulative assessment methodology.

The wind farms considered for inclusion under each scenario are listed in Table 6.2.2 below. An assessment of the effects under each scenario is carried out only where there is theoretical intervisibility between the Proposed Development and at least one cumulative wind farm from the relevant residential property.

Table 6.2.2: Cumulative Wind Farms relevant to the RVAA

Cumulative Wind Farm	Status	Number of turbines	Blade Tip Height	Distance of Proposed Development* (km)
Whiteside Hill	Operational	10	121.2	0.54
Sanquhar	Operational	9	126.5	2.32
Twentysilling	Operational	9	140	3.49
Lorg	Consented	9	149.9	5.79
Sanquhar II	Application	44	200	1.69
Euchanhead	Application	21	230	4.54

*Distance between closest turbine of the Proposed Development and closest turbine of the cumulative wind farm.

3.2 Property 1: Glenmaddie

3.2.1 Scenario 1

The addition of the Proposed Development to the operational and consented wind farms is considered under Scenario 1. From Glenmaddie, there is no theoretical visibility of any consented wind farms. The effects of the addition of the Proposed Development to a baseline context comprising the operational Whiteside Hill Wind Farm at a minimum of 2.0 km and Sanquhar Wind Farm at a minimum of 2.9 km, has been assessed in the main RVAA as major and significant, but not considered to reach the Residential Visual Amenity Threshold.

3.2.2 Scenario 2

The addition of the Proposed Development to the operational, consented and application stage wind farms is considered under Scenario 2. From Glenmaddie, application stage wind farms with theoretical visibility comprise Sanquhar II at a minimum of 2.3 km and Eucharhead at a minimum of 5.8 km, and these are considered alongside the operational wind farms to determine the likely effects of the addition of the Proposed Development to the baseline context under Scenario 2.

Under this cumulative scenario, the blade tips of two turbines within Sanquhar II Wind Farm and one blade tip within Eucharhead Wind Farm would be intermittently visible above the horizon in long-distance views to the west. The very limited extent to which these turbines would be visible would limit their influence on the cumulative situation. The Proposed Development would bring turbines in closer proximity to the property than any existing or proposed wind farms and would extend the horizontal field of view occupied by turbines to the east.

The turbines within Eucharhead and Sanquhar II Wind Farms would be seen in the same field of view as turbines within Sanquhar Wind Farm and the application stage wind farms would present only a small change from the main LVIA and Scenario 1 baselines. As such, the Proposed Development is considered to result in similar effects under this scenario as in the main assessment. The cumulative magnitude of change would, therefore, be **low** and the cumulative effect would be **moderate / minor** and **not significant**. The property is not considered to reach the Residential Visual Amenity Threshold.

3.3 Property 2: House to North of Water Works

3.3.1 Scenario 1

The addition of the Proposed Development to the operational and consented wind farms is considered under Scenario 1. From this property, there is no theoretical visibility of any consented wind farms. The effects of the addition of the Proposed Development to a baseline context comprising the operational Whiteside Hill Wind Farm at a minimum of 1.1 km and Sanquhar Wind Farm at a minimum of 1.6 km has been assessed in the main RVAA as major and significant, but not reaching the Residential Visual Amenity Threshold.

3.3.2 Scenario 2

The addition of the Proposed Development to the operational, consented and application wind farms is considered under Scenario 2. From this property, application stage wind farms with theoretical visibility comprise Sanquhar II only, at a minimum of 2.3 km. This is considered alongside the operational wind farms to determine the likely effects of the addition of the Proposed Development to the baseline context under Scenario 2.

Under this cumulative scenario, the hub of one turbine, blades of two turbines and tips of a further two within Sanquhar II Wind Farm would be visible. These turbines would be seen beyond and to the north of turbines within Whiteside Hill, extending the influence of wind farm development further to the west along the Euchar Valley in views from this property. However, it is likely that this wind farm would read as part of a larger development, in combination with Whiteside Hill and Sanquhar Wind Farms, thereby moderating its influence.

The Proposed Development would extend the influence of turbines further east and into closer proximity to this property than any of the cumulative developments. While the Proposed Development would have a notable effect on this viewpoint, as assessed in the main assessment, the cumulative effect would be limited by the limited additional influence that the consented wind farm has on this view, as described above. The cumulative magnitude of change would, therefore, be **low** and the cumulative effect would be **moderate / minor** and **not significant**. The property is not considered to reach the Residential Visual Amenity Threshold.

3.4 Property 3: Polgown

3.4.1 Scenario 1

The addition of the Proposed Development to the operational and consented wind farms is considered under Scenario 1. The effects of the addition of the Proposed Development to a baseline context comprising the operational Whiteside Hill Wind Farm, Sanquhar Wind Farm and Twentysilling Hill Wind Farm has been assessed as major and significant in the main assessment presented above. The focus of this cumulative assessment is the potential effect of the addition of the Proposed Development to a cumulative baseline context comprising the consented wind farms, as well as the operational wind farms.

From this property, turbines within the consented Lorg Wind Farm would be visible to the south-west at a minimum of 4.5 km. The hubs and blades of four turbines, would be visible above the hills at the head of the valley. These turbines would introduce wind farm development into a sector of the view not currently influenced by turbines. However, they would be seen as comparatively small scale structures and likely only in external views from this property, given the principal orientation to the east.

While the Proposed Development would have a notable effect on this viewpoint, as assessed in the main assessment above, the cumulative effect would be limited by the limited additional influence that the consented wind farm has on this view, as described above. The cumulative magnitude of change would, therefore, be **low** and the cumulative effect would be **moderate / minor** and **not significant**. The property is not considered to reach the Residential Visual Amenity Threshold.

3.4.2 Scenario 2

The addition of the Proposed Development to the operational, consented and application wind farms is considered under Scenario 2. From this property, application stage wind farms with theoretical visibility comprise Sanquhar II Wind Farm at a minimum of 1.1 km, Eucharhead Wind Farm at a minimum of 3.4 km, and Lorg Variation at a minimum of 4.5 km, and these are considered alongside the operational wind farms to determine the likely effects of the addition of the Proposed Development to the baseline context under Scenario 2.

From this property, Sanquhar II Wind Farm has an extensive influence on the view. A total of 16 turbines within this development would be visible at a minimum of 1.1 km on the hills to the south and west. Eight turbines within Eucharhead would be visible beyond the turbines within Sanquhar II, at a minimum of 3.4 km, in views to the south-west, contained within a narrower horizontal field of view. Turbines within Lorg Variation would also be visible in this direction, largely contained within the horizontal field of view occupied by Eucharhead Wind Farm, and seen at a minimum of 4.5 km. It is likely to be difficult to read the distinctions between each of these developments, as well as between these developments and the operational Whiteside Hill Wind Farm. This may give rise to the experience of being 'surrounded' by wind farm development from this property, with developments extending across the field of view from the south-east to south, west and north. Turbines within Sanquhar II Wind Farm may be visible from the interior of the property, although it is likely that the majority of turbines within these other developments would be seen only from the exterior of the property, including the garden and access track.

The addition of the Proposed Development to this cumulative context would increase the horizontal extent of wind farm development across the view to the north-east. The Proposed Development would introduce wind farm development to a sector of the view, which is currently unaltered by turbines, and would be seen in views from the interior and exterior of the property. At a minimum of 1.24 km, the Proposed Development is likely to be perceived as a distinct development, in contrast to the application stage developments and Whiteside Hill. The cumulative magnitude of change would be **medium-high** and would give rise to a **major** and **significant** cumulative effect. This is not considered to result in the Proposed Development reaching the Residential Visual Amenity Threshold

for this property as the Proposed Development to the north-east and Whiteside Hill to the north-west would be limited in horizontal extents and partly contained behind the intervening ridgeline.

3.5 Property 4: Shiel

3.5.1 Scenario 1

The addition of the Proposed Development to the operational and consented wind farms is considered under Scenario 1. From Shiel, there is no theoretical visibility of any operational or consented wind farms. The effects of the addition of the Proposed Development to this baseline context has been assessed in the main RVAA as major and significant, but not considered to reach the Residential Visual Amenity Threshold.

3.5.2 Scenario 2

The addition of the Proposed Development to the operational, consented and application wind farms is considered under Scenario 2. From this property, the only application stage wind farm with theoretical visibility is Sanquhar II Wind Farm, and this is considered alongside the operational wind farms to determine the likely effects of the addition of the Proposed Development to the baseline context under Scenario 2.

From this property, Sanquhar II Wind Farm would be visible at a minimum of 1.6 km in views to the south-west. Two of the turbines would be seen at almost full height, one from the hub up, one as a blade and one as a tip. They would be seen above the moorland hills that form the horizon in the middle distance. The small number of turbines and their contained extents would mean that they would occupy only a small proportion of the much wider view around this property.

The addition of the Proposed Development to this cumulative context would introduce wind farm development in the sector to the north of the property. The two wind farms would read as distinct developments, seen at a similar distance to the south-west and north-west of the property. The relatively compact extent of Sanquhar II compared to the broader extent of the Proposed Development means that the cumulative effect would relate principally to the Proposed Development, with Sanquhar II having a lesser contribution. The similar scale of the turbines within the two developments would help to moderate the cumulative magnitude of change and integrate the Proposed Development into the wider pattern of wind farm development. Taking these factors into account, the cumulative magnitude of change would be **medium**, and the cumulative effect would be **major / moderate** and **significant**. This is not considered to result in the Proposed Development reaching the Residential Visual Amenity Threshold for this property.

3.6 Summary

The cumulative assessment has considered the cumulative effects of the Proposed Development in conjunction with other operational, consented and application stage wind farms. This has found that significant cumulative effects would arise at two of the four properties with these findings relating to the extent of cumulative wind farms that would be visible and the additional influence that the Proposed Development would add. The assessment has also found that these cumulative effects would not give rise to overbearing or overwhelming effects, partly owing to the screening effect of the landform around these settled glens reducing the extent to which the development and other wind farms would be visible, but also the fact that certain sectors would remain undeveloped such that the properties would not be enveloped by wind farm developments.

In respect of the cumulative assessment, it was found that in respect of Scenario 2 a major and significant cumulative effect would occur at Polgown and a major / moderate and significant cumulative effect would occur at Shiel, but that these effects would also not be overbearing or overwhelming in respect of visual amenity. The other properties would not undergo significant cumulative effects during either scenario.

4. REFERENCES

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Guidelines for Landscape and Visual Impact Assessment, Third Edition (GLVIA3).

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