

Tangy IV Wind Farm Section 36C Variation

Technical Appendix 5.1: Assessment and Technical Methodologies

TECHNICAL APPENDIX 5.1: ASSESSMENT AND TECHNICAL METHODOLOGIES

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1. LVIA Assessment Methodology

1.1 Assessment Guidance

- 1.1.1 The Landscape and Visual Impact Assessment (LVIA) has been prepared with reference to Guidelines for Landscape and Visual Impacts Assessment: Third Edition (GLVIA3)¹ and Landscape Character Assessment: Guidance for England and Scotland².

1.2 Professional Judgement

- 1.2.1 GLVIA3 places a strong emphasis on the importance of professional judgement in identifying and defining the significance of landscape and visual effects. As part of this assessment, professional judgement has been used in combination with structured methods and criteria to evaluate landscape value and landscape and visual sensitivity, magnitude and significance of effect. The assessment has been undertaken and verified by two Landscape Professionals (Chartered Landscape Architects) to provide a robust and consistent approach.

1.3 Key Stages of the Assessment

- 1.3.1 GLVIA3 advises that landscape and visual effects should be assessed from a clear understanding of the development proposed and any mitigation measures which are being adopted.
- 1.3.2 The GLVIA3 methodology for landscape assessment involves an appreciation of the existing landscape resource, the susceptibility of its key components to accept the change proposed, and an understanding of the potential effects which could occur and how these could affect these key components.
- 1.3.3 Familiarity with the site and the extent, nature, and expectation of existing views by visual receptors is a key factor in establishing the visual sensitivity in terms of the development proposed. The guidelines require evaluation of magnitude of change to views experienced by sensitive receptors, comprising individuals living, working, travelling and carrying out other activities within the landscape, and the subsequent evaluation of the significance of effects.
- 1.3.4 The potential to mitigate adverse effects should also be considered for both landscape and visual assessment.
- 1.3.5 There are five key stages to the assessment:
- Establishment of the baseline;
 - Appreciation of the development proposed;
 - Identification of key landscape and visual receptors;
 - Identification of potential effects; and
 - Assessment of significance of effect.

¹ Guidelines for Landscape and Visual Impact Assessment (GLVIA3) Third Edition: Landscape institute.

² Scottish Natural Heritage, The Countryside Agency (2002). Landscape Character Assessment : Guidance for England and Scotland.

Establishment of the Baseline

- 1.3.6 Establishment of the baseline conditions has been undertaken through a combination of desk study and site appraisal. The desk review has involved review of the following general documents and sources:
- National and Regional Planning Policy and Guidance as detailed in Chapter 4: Planning;
 - The Scoping Opinion and other consultation responses for the Proposed Varied Development (see **EIA Report, Chapter 5: Landscape and Visual, Table 5.1: Scoping Responses of Relevance to Landscape and Visual Amenity and Technical Appendix 5.2: Summary of Scoping Process**);
 - The Tangy IV Wind Farm 2018 Environmental Impact Assessment Report (EIAR);
 - Online mapping and aerial photography resources from Ordnance Survey, Google, Bing and the National Library of Scotland; and
 - Zone of Theoretical Visibility diagrams (ZTV)s for the Proposed Varied Development (see **Figures V3a-5.1-5.3**).
- 1.3.7 Site surveys were undertaken in January and February 2026.
- 1.3.8 In addition, specific baseline activities were undertaken for the two differing assessments of landscape and visual effects, as described below.

Landscape Assessment Baseline Tasks

- 1.3.9 The desk review for the landscape assessment has included review of the following additional documents and resources:
- Assessment of Highland Special Landscape Areas (Horner + MacLennan and Wood, 2011)³; and
 - NatureScot Landscape Character Types (LCTs) and Descriptions (Scottish Natural Heritage (SNH), 2019 [online])⁴.
- 1.3.10 Site survey was undertaken to verify information gathered from the desk study and included a combination of access via vehicle and on foot and collation of a photographic record.

Identification of Baseline Landscape Value

- 1.3.11 The value of the landscape is an important consideration in informing later judgement of the significance of effects. Landscape value concerns the perceived importance of the landscape when considered as a whole, and within the context of the study area and is established through consideration of the following factors:
- Presence of landscape designations, other inventory or registered landscapes / landscape features or identified planning constraints;
 - The scenic quality of the landscape;
 - Perceptual aspects, such as wildness or tranquillity;

³ Horner + MacLennan (2011): Assessment of Highland Special Landscape Areas. The Highland Council.

⁴ Scottish Natural Heritage (2019). SNH National Landscape Character Assessment. Available at: <https://www.nature.scot/professional-advice/landscape/landscape-character-assessment/scottish-landscape-character-types-map-and-descriptions>. Accessed: May 2026

- Conservation interests such as cultural heritage features or associations, or if the landscape supports notable habitats or species;
 - Recreational value; and
 - Rarity, either in the national or local context, or if it is considered to be a particularly important example of a specific landscape type.
- 1.3.12 It should be noted that absence of a designation does not necessarily mean that a landscape or component is not highly valued, as factors such as accessibility and local scarcity can render areas of nationally unremarkable quality, highly valuable as a local resource.
- 1.3.13 Criteria for the allocation of perceived landscape value are outlined in **Table 1.1: Landscape Value Criteria** below:

Table 1.1: Landscape Value Criteria

Landscape Value	Criteria
High	• The landscape is closely associated with features of international or national importance which are rare within the wider context; • The landscape is of high scenic quality and forms a key part of an important designated landscape or planning constraint; and/or • The landscape is an example of a scarce resource within the local context and is of considerable local importance for its scenic quality, recreational opportunities or cultural heritage associations.
Medium	• The landscape is associated with features of national or regional importance which are relatively common within the wider context; • The landscape forms part of a designated landscape or is associated with other features of importance but is not rare or distinctive within the local context; and/or • The landscape is one of a number within the local context appreciated for its scenic quality, recreational opportunities or cultural heritage associations.
Low	• The landscape characteristics are common within the local and regional context and the landscape is not associated with any particular features or attributes considered to be important; and/or • The landscape is of poor scenic quality and is not appreciated for any recreational or cultural associations.

Visual Assessment Baseline Tasks

- 1.3.14 A combination of desk and field survey was used to establish the range and distribution of potential visual receptors within the study area. Visual receptors can be defined as individuals occupying and using the study area with the potential to obtain views of the Proposed Varied Development. Potential visual receptors included in the assessment have included those experiencing views from locations such as buildings, recognised routes and popular viewpoints used by the public.

1.3.15 The following additional resources were used to enhance understanding of the use of the study area by potential visual receptors:

- The Argyll and Bute (ABC) Core Paths Interactive Map [online];
- Scottish Hill Tracks (Scottish Rights of Way and Access Society (Scotways), 2011); and
- Other web based and published sources providing information on local resources and activities within the study area.

1.3.16 Site visits were undertaken in January and February 2026 to verify the visual receptors identified through desk study, identify any further potential receptors which had been missed and collate information on baseline visual amenity. This included information on the types of receptors and activities of visual receptors likely to be present, and the nature of the existing views which are obtained. Site recording involved the completion of standardised recording forms and annotation of 1:25,000 and 1:50,000 Ordnance Survey plans, supported by a photographic record of views from key receptor locations.

Appreciation of the Development Proposed

1.3.17 Appreciation of the proposed development involves the accumulation of a thorough knowledge of the proposal, its nature, scale and location within the baseline landscape, and any peripheral or ancillary features proposed. Analysis of the proposed activities and changes which would take place leads to an understanding of the potential effects that may occur to the landscape and visual resource.

1.3.18 This stage has included review of all available desk-based information relating to the proposed development in terms of its long term physical appearance and requirements for construction and access and review of visual aids featuring other, similar development types.

Identification of Key Landscape and Visual Receptors

1.3.19 The identification of key landscape and visual receptors with the potential to be affected by the proposed development is the first step in the analysis of the potential for significant effects to occur. Landscape and visual receptors can be described as follows:

- Landscape receptors comprise key characteristics or individual features which contribute to the value of the landscape and have the potential to be affected by the proposed development. Landscape receptors are identified through analysis of baseline characteristics when considered in relation to the impacts which might result from a development of the type proposed.
- Visual receptors comprise individuals experiencing views from locations such as buildings, recognised routes and popular viewpoints used by the public. Potential visual receptors are identified through analysis of desk resources, mapping and field survey, as described under 'Establishment of the Baseline' above. A review of the ZTV in the context of site survey is used to identify the potential for visual receptors to be affected by the proposed development.

Identification of Potential Effects

1.3.20 The second step in the assessment process involves the identification of potential effects which may occur as a result of the interaction of the proposed development with the identified landscape and visual receptors.

- 1.3.21 The assessment takes into account direct effects upon existing views, landscape elements, features and key characteristics and, also, indirect effects which may occur secondarily to changes affecting another landscape component or area. The identification of potential effects is a two-fold process, giving consideration as to how these effects may arise from aspects of the proposed development and how they may be accommodated by the existing baseline features.
- 1.3.22 Where it is established that potential effects could be limited by mitigation measures, these are also given consideration.
- 1.3.23 Potential effects are evaluated through the allocation of criteria for sensitivity and magnitude.

Landscape and Visual Sensitivity

- 1.3.24 Sensitivity concerns the nature of the baseline landscape or visual receptor, and the ability to accommodate development of the type proposed without compromising the key characteristics and / or composition.
- 1.3.25 There are two aspects which contribute to the evaluation of landscape and visual sensitivity: value and susceptibility to change. The consideration of these two separate aspects in the differing assessments for landscape and visual amenity are outlined below:

Landscape

- Value: The baseline value of the landscape and the contributory value of individual landscape receptors to the landscape as a whole; and
- Susceptibility: The ability of landscape receptors to accommodate development of the type proposed without changing the intrinsic qualities of the landscape as a whole.

Visual Amenity

- Value: The baseline value of a particular view to the visual receptor, including the perceived value of individual features or aspects within the view; and
 - Susceptibility: The susceptibility of the viewer to changes within the view, giving consideration to the particular activity they may be involved in and their likely appreciation of visual amenity. For example, residents or walkers are likely to be more susceptible to change in the view, whilst those partaking in sports or working are usually less susceptible.
- 1.3.26 Criteria for the evaluation of sensitivity to change are presented in **Table 1.2: Landscape and Visual Sensitivity**.

Table 1.2: Landscape and Visual Sensitivity

Sensitivity Rating	Landscape Sensitivity	Visual Sensitivity
High	A highly valued landscape of particularly distinctive character susceptible to relatively small	Visual receptors obtaining views from: • dwellings and publicly accessible buildings where the changed aspect is a highly valued part of the view and there are no detracting features present; and

Sensitivity Rating	Landscape Sensitivity	Visual Sensitivity
	changes of the type proposed.	recreational or recognised scenic routes and locations (including water-based recreational receptors) where the changed aspect is a highly valued part of the view and there are no detracting features present.
Medium	A reasonably valued landscape with a composition and characteristics tolerant of some degree of change of the type proposed.	Visual receptors obtaining views from: - dwellings and publicly accessible buildings where the changed aspect is less valued within the view and / or where some detracting features are present; - recreational or recognised scenic routes and locations (including water-based recreational receptors) where the changed aspect is less valued within the view and / or where some detracting features are present; - roads and transport routes where the changed aspect is a valued part of the view and there are no detracting features present; and - workplaces where the changed aspect is a valued part of the view and there are no detracting features present.
Low	A relatively unimportant landscape which is potentially tolerant of a large degree of change of the type proposed.	Visual receptors obtaining views from: - dwellings and publicly accessible buildings where the changed aspect is unlikely to be valued within the view and / or numerous detracting features are present; - recreational or recognised scenic routes and locations (including water-based recreational receptors) where the changed aspect is unlikely to be valued within the view and / or where numerous detracting features are present; - roads and transport routes where the changed aspect is less valued within the view and / or where some detracting features are present; and - workplaces where the changed aspect is less valued within the view and / or where some detracting features are present.

Landscape and Visual Magnitude

- 1.3.27 Magnitude of change concerns the extent to which the existing landscape character or view would be altered by the proposed development. Elements specific to the evaluation of magnitude of change for the differing assessments of landscape and visual amenity are detailed below:

Landscape

- The degree to which features or characteristics may be removed, altered or added within the landscape;

- The geographical extent of proposed changes;
- Whether changes would be direct or indirect; and
- The potential duration and reversibility of proposed changes (taking into consideration proposed mitigation measures where relevant).

Visual Amenity

- The scale or extent of proposed changes within the view;
- The location of proposed changes within the view, relevant to other existing features;
- The extent to which this may alter the composition or focus of the view; and
- The duration and reversibility of proposed changes (taking into consideration proposed mitigation measures where relevant).

1.3.28 Criteria for the evaluation of magnitude of change are presented in **Table 1.3: Landscape and Visual Magnitude of Change**. In recognition of the differing changes that would occur over time, two ratings for magnitude of change have been included: during the construction of the proposed development and during operation, after approximately 15 years, once landscape / habitat reinstatement and any other mitigation or planting has had time to establish.

Table 1.3: Landscape and Visual Magnitude of Change

Magnitude Rating	Landscape	Visual
High	Notable change in landscape characteristics over an extensive area ranging to a very intensive change over a more limited area.	Where the proposed development would result in a very noticeable change in an existing static view. Where the proposed development would lead to frequent, very noticeable or noticeable change to a sequential view.
Medium	Perceptible change in landscape characteristics over an extensive area ranging to notable change in a localised area.	Where the proposed development would result in a noticeable change in an existing static view. Where the proposed development would lead to occasional very noticeable change ranging to frequent less noticeable change in a sequential view.
Low	Virtually imperceptible change in landscape characteristics over an extensive area or perceptible change in a localised area.	Where the proposed development would result in a perceptible change in an existing static view. Where the proposed development would result in briefly obtained noticeable change ranging to more frequent perceptible change in a sequential view.
Negligible	No discernible change in any landscape	Where the proposed development would result in a barely perceptible change in an existing static or sequential view.

Magnitude Rating	Landscape	Visual
	characteristics or components.	

Assessment of Significance of Effects

- 1.3.29 Evaluation of the predicted significance of effect has been carried out through the analysis of the anticipated magnitude of change in relation to the landscape or visual sensitivity, taking into account any proposed mitigation measures, and is established using professional judgement.
- 1.3.30 In recognition of the potential for effects to vary over time, the assessment has been undertaken at two different stages: during the construction phase, and during operation, once landscape / habitat reinstatement measures and any mitigation measures or other planting have been allowed to establish. This is assumed to be approximately 15 years after the completion of construction and reinstatement works.
- 1.3.31 The significance of effect for landscape and visual elements is considered as follows:

Landscape Effects

- The assessment takes into account identified effects upon existing landscape receptors and assesses the extent to which these would be lost or modified in the context of their importance in determining the existing baseline character.

Visual Effects

- The assessment takes into account likely changes to the visual composition, including the extent to which new features would distract or screen existing elements in the view or disrupt the scale, structure or focus of the existing view.
- 1.3.32 Criteria used for the assessment of effects are presented in **Table 1.4: Landscape and Visual Significance of Effect Criteria**. For the purposes of the LVIA, effects with a rating of moderate or greater are considered to be significant in terms of the EIA Regulations.

Table 1.4: Landscape and Visual Significance of Effect Criteria

Magnitude Rating	Landscape	Visual
Major	The proposed development is at considerable variance with the landform, scale and pattern of the landscape and would be a dominant feature, resulting in considerable reduction in scenic quality and large scale change to the intrinsic landscape character of the area.	The proposed development would become a prominent and very detracting feature in a highly sensitive view and would result in a very noticeable deterioration to visual amenity.

Magnitude Rating	Landscape	Visual
Moderate	The proposed development is out of scale with the landscape, or inconsistent with the local pattern and landform and may be locally dominant and/or result in a noticeable reduction in scenic quality and a degree of change to the intrinsic landscape character of the area.	The proposed development would introduce some detracting features to an existing highly sensitive view or would be more prominent within a somewhat sensitive view resulting in a noticeable deterioration to visual amenity.
Minor	The proposed development does not quite fit with the scale, landform or local pattern of the landscape and may be locally intrusive but would result in an inappreciable reduction in scenic quality or change to the intrinsic landscape character of the area.	The proposed development would form a perceptible but not detracting feature within a somewhat sensitive view or would be a prominent feature within a less sensitive view, resulting in a small deterioration to visual amenity.
Negligible	The proposed development sits well within the scale, landform and pattern of the landscape and would not result in any discernible reduction in scenic quality or change to the intrinsic landscape character of the area.	The proposed development would form a barely perceptible feature within the existing view regardless of sensitivity and would not result in any discernible deterioration or improvement to visual amenity.

2. CLVIA Assessment Methodology

- 2.1.1 The methodology for the cumulative assessment is based on that described in NatureScot guidance: 'Assessing the Cumulative Impact of Onshore Wind Energy proposed development' (SNH, 2012). The assessment considers the potential for combined effects to designated landscapes and LCTs resulting from the addition of the Proposed Varied Development to the baseline wind energy development scenario, which may be experienced both from static locations and whilst moving through the landscape (sequentially).
- 2.1.2 The cumulative assessment considers the landscape character of the LCT's and designated / protected landscapes identified for inclusion in the landscape character assessment. However, areas identified as likely to have a negligible effect in the landscape assessment have not been included, as a negligible effect would not contribute to a significant cumulative effect.
- 2.1.3 The cumulative landscape assessment has involved five key stages:
- Identification of the sensitivity of the identified landscape to the proposed development in isolation;
 - Identification and analysis of the baseline wind energy development scenario;
 - Evaluation of the cumulative landscape sensitivity to change;
 - Evaluation of the potential magnitude of landscape change to the baseline scenario resulting from the introduction of the proposed development;
 - Assessment of the potential cumulative landscape effects arising from the addition of the proposed development to the baseline scenario.
- 2.1.4 The assessment considers the potential for combined views of wind developments from receptors at selected viewpoints and on routes. Combined views of wind energy development may be either 'in combination' (where turbines from different developments would be observable at the same time⁵) or 'in succession'⁶ (where an observer would be required to turn to experience multiple developments). The assessment also considers the potential for sequential effects experienced from receptors on routes where different wind developments become visible whilst moving through the landscape. Sequential impacts may be occasional, frequent or constant.
- 2.1.5 The cumulative visual assessment has involved four key stages:
- Identification and analysis of the baseline wind energy development scenario from receptors at each viewpoint/ route;
 - Evaluation of the cumulative visual sensitivity to change;
 - Evaluation of the potential magnitude of visual change to the baseline scenario resulting from the proposed development; and

⁵ Sites visible **in combination** with the Development refer to those that are visible within the observer's arc of vision with the Development. That is, within a 90° field of view of the Development, where the Development may be on the edge of the 90° field of view. Sites within 60-90° would be within the observer's peripheral field of view and are marked accordingly.

⁶ Site visible **in succession** with the Development refer to those that are visible when the observer turns their head away from the Development.

- Assessment of the potential cumulative visual effects arising from the introduction of the proposed development to the baseline scenario.

Identification of Landscape and Visual Sensitivity

- 2.1.6 NatureScot guidance on cumulative assessment (SNH, 2012) describes the need for an understanding of whether the proposed wind farm crosses the threshold of acceptability for the total number of wind farms in an area. The ability of the landscape to accommodate development of the type proposed without compromising the key characteristics and / or composition has been identified for the proposed development in isolation as described above in **paragraphs 1.3.24 to 1.3.26** and using the criteria set out in **Table 1.2**. Consideration has been given to the scenic quality, value and susceptibility to change of the relevant designated / protected area or LCT.

Evaluation of the Baseline Wind Energy Development Scenario

- 2.1.7 Baseline information on operational, consented and proposed (application) wind developments within the 60 km cumulative search area has been collected and the baseline wind energy development scenario defined, as detailed in **Technical Appendix 5.5: Existing and Proposed Wind Energy Developments within 60km**.

Identification and Analysis of the Baseline Wind Energy Development Scenario

- 2.1.8 Analysis of the cumulative baseline scenarios involves an appreciation of the existing view within the context of the cumulative baseline scenarios, which assumes that all consented and proposed (application) wind developments have been constructed. Proposed sites are taken to be those for which planning applications have been submitted, or where the applications have gone to appeal. For visual receptors, this involves consideration of the scale, location and nature of the cumulative baseline wind developments within the view, the proportion of the view which is occupied by wind turbines and the potential importance of this part of the view to the viewer.

Evaluation of the Cumulative Landscape and Visual Sensitivity to Change

- 2.1.9 An evaluation of cumulative landscape sensitivity to change has been attributed to each landscape designation and LCT based on analysis of the actual baseline scenario in relation to each of the identified cumulative baseline scenarios. This is based on a three-point scale from high to low as detailed in **Table 2.1: Cumulative Sensitivity** below.
- 2.1.10 The evaluation of cumulative visual sensitivity to change concerns the nature of the existing view in the context of the cumulative baseline scenarios, and the potential for further wind turbines to be accommodated within that view without significantly altering, obstructing or dominating the view. An evaluation of sensitivity to change has been attributed to each receptor based on a three-point scale, detailed in **Table 2.1 Cumulative Sensitivity**.

Table 2.1: Cumulative Sensitivity

Cumulative Sensitivity	Landscape Criteria	Visual Criteria
High	A highly valued landscape of particularly distinctive character susceptible to relatively small changes of	Highly susceptible visual receptors obtaining views where wind energy developments within the cumulative baseline scenario are well accommodated within a valued view and/or

Cumulative Sensitivity	Landscape Criteria	Visual Criteria
	the type proposed in the context of the cumulative baseline scenario.	the proposed changed landscape forms an important part of the view.
Medium	A reasonably valued landscape with a composition and characteristics tolerant of some degree of change of the type proposed given the cumulative baseline scenario.	- Highly susceptible visual receptors where wind energy developments within the cumulative baseline scenario are present within a somewhat valued view forming a detracting but not dominating feature. - Somewhat susceptible visual receptors where wind energy developments within the cumulative baseline scenario are more prominent but not dominating feature within a somewhat valued view.
Low	A relatively unimportant landscape which is potentially tolerant of a large degree of change of the type proposed given the cumulative baseline scenario.	- Less susceptible visual receptors where wind energy developments within the cumulative baseline scenario are prominent potentially forming a dominant feature within in a less valued view. - Visual receptors where wind energy developments within the cumulative baseline scenario are barely discernible within the view.

Evaluation of the Cumulative Magnitude of Landscape Change

- 2.1.11 Magnitude of change concerns the measurement of change which would occur due to the addition of the proposed development into the cumulative baseline scenario. For landscape receptors this is identified based on the consideration of the potential nature, size, scale and location of the proposed change within the context of the cumulative baseline scenario. For visual receptors This is identified based on the consideration of the potential nature, size, scale and location of the proposed change within the existing view, and in relation to the existing wind farms/turbines within the view. The evaluation of the magnitude of change is based on the criteria outlined in the main landscape assessment methodology (see **Table 1.3: Landscape and Visual Magnitude of Change**).

Assessment of Potential Cumulative Landscape and Visual Effects

- 2.1.12 Assessment of potential cumulative effects is based on analysis of the relationship between the cumulative sensitivity to change and the magnitude of change and is made using a degree of professional judgement. It should be noted that the cumulative effect assessed is the result of the addition of the proposed development to the existing baseline scenario. In this case, this also includes the removal of the Operational Development turbines, which would be replaced by the Proposed Varied Development. Cumulative effects are assessed against the scale detailed in **Table 2.2: Cumulative Landscape and Visual Effects**.

Table 2.2: Cumulative Landscape and Visual Effects

Cumulative Effect	Landscape Criteria	Visual Criteria
Major	The addition of the proposed development to the cumulative baseline scenario would result in wind farms becoming a dominant feature, resulting in considerable reduction in scenic quality and large scale change to the intrinsic landscape character of the area.	The addition of the proposed development to views of the cumulative baseline scenario would become a prominent and very detracting feature in a highly sensitive view resulting in a very noticeable deterioration to visual amenity. It would result in a very noticeable increase in wind turbines, to the extent whereby they would become a dominating or obstructive feature within the view.
Moderate	The addition of the proposed development to the cumulative baseline scenario would result in wind farms becoming locally dominant and/or result in a noticeable reduction in scenic quality and a degree of change to the intrinsic landscape character of the area.	The addition of the proposed development to views of the cumulative baseline scenario would introduce some detracting features to an existing highly sensitive view or would be more prominent within a somewhat sensitive view. It would result in a noticeable increase in wind turbines to the extent whereby they would become prominent but would not dominate or obstruct the view resulting in a noticeable deterioration to visual amenity.
Minor	The addition of the proposed development to the cumulative baseline scenario may be locally intrusive but would result in an inappreciable reduction in scenic quality or change to the intrinsic landscape character of the area.	The addition of the proposed development to views of the cumulative baseline scenario would form a perceptible but not detracting feature within a somewhat sensitive view or would be a prominent feature within a less sensitive view. It would result in a perceptible increase in wind turbines but would not increase the prominence of wind farms/turbines as a feature in the view resulting in a small deterioration to visual amenity.
Negligible	The addition of the proposed development to the cumulative baseline scenario would not result in any discernible reduction in scenic quality, change to the intrinsic landscape character of the area, or increase in the dominance of wind turbines in the landscape.	The addition of the proposed development to views of the cumulative baseline scenario would form a barely perceptible feature within the existing view regardless of sensitivity. It would not result in any discernible increase in the appearance of wind turbines in the view and would not result in any discernible deterioration or improvement to visual amenity.

- 2.1.13 The above criteria and levels of significance represent points on a continuum. Where required, interim ratings, such as minor - moderate, have been used to indicate the anticipated significance of effect.
- 2.1.14 For the purposes of the assessment, effects with a rating of moderate or above are considered to be significant in the context of the EIA regulations.

2.2 Limitations of Cumulative Assessment

- 2.2.1 Due to the uncertainty of construction activity timing for the Proposed Varied Development and other such activity, temporary structures, tracks and activity relating to construction have not been considered within the cumulative assessment. The cumulative assessment therefore focuses on the potential effects during operation relating to the main permanent structures.

3. Technical Methodologies for Visual Representation

3.1 Introduction

3.1.1 The following is a detailed methodology for production of technical outputs contributing to the Landscape and Visual Impact Assessment (LVIA).

3.1.2 The LVIA of the Proposed Varied Development is informed by several technical models and drawings. The methods for producing these are described below.

3.1.3 It should be remembered that,

“visualisations, whether they are hand drawn sketches, photographs or photomontages, can never exactly match what is experienced in reality. They should, however, provide a representation of the proposal that is accurate enough for the potential impacts to be fully understood” (SNH, 2017g: para 96, p22) and that *“visualisations in themselves can never provide the full picture in term of potential impacts; they only inform the appraisal process by which judgements are made”* (SNH, 2017g; para 98, p22).

3.1.4 Viewpoint (VP) photography has been undertaken by ASH design + assessment Ltd (ASH), and Creative Sides Photography. All editing and modelling has been completed by ASH.

Turbine Specifications

3.1.5 The turbines considered in the assessment of the Proposed Varied Development were modelled in accordance with the dimensions stated in **Chapter 2: Design Iteration & Proposed Varied Development** as follows:

- Hub Height: 125m
- Rotor Diameter: 150m
- Overall Tip Height: 200m.

3.1.6 The location of each turbine included in the visualisations is detailed in **Table 3.1**.

Table 3.1: Proposed Varied Development – Turbine Locations

Turbine Number	Ordnance Survey (OS) Grid Coordinates	Base Elevation (m AOD)	Turbine Number	Ordnance Survey (OS) Grid Coordinates	Base Elevation (m AOD)
T01	167221 628135	158	T09	168130 629820	166
T02	167852 628232	161	T10	168693 629727	197
T03	167392 628558	180	T11	169208 629483	220
T04	168420 628383	175	T12	169002 629037	202
T05	168850 628597	162	T13	168407 628906	201
T06	167409 628983	186	T14	167951 628835	189
T07	167411 629457	191	T15	168040 629307	194
T08	167555 629887	156	T16	168498 629317	201

Current Guidance

- 3.1.7 The main guidance documents which have informed the technical methodologies used to undertake this LVIA and prepare the supporting drawings and visualisations are as follows:
- Scottish Natural Heritage (SNH), (2017), Visual Representation of Wind Farms (Version 2.2) (SNH, 2017g) (the NatureScot⁷, 2017 Guidance).
- 3.1.8 The Landscape Institute also provides technical guidance on visualisation production (below). While the guidance prepared by NatureScot is the most relevant for the Proposed Varied Development, this document is also a useful reference guide:
- The Landscape Institute, (2019), TGN 06/19 Visual Representation of Development Proposals.
- 3.1.9 Location plans for the photomontages and wirelines are also provided. These plans also illustrate the field of view for each set of photomontages.

3.2 Zone of Theoretical Visibility (ZTV) Production

- 3.2.1 Zone of Theoretical Visibility (ZTV) diagrams have been prepared using Esri ArcGIS, Version 10.8 (ArcGIS) and Esri ArcGIS Pro 3.5.2 and an Ordnance Survey (OS) Terrain 5 digital terrain model (DTM) to illustrate the potential visibility of the wind farm. The ZTVs have been prepared based on a viewer height of 2m above ground level in line with the NatureScot, 2017 Guidance, with earth curvature and light refraction set to 0.075.
- 3.2.2 Terrain 5 is a grid of heightened points with regular five metre post spacing. The software uses this information to create a virtual, three-dimensional, bare ground model which is representative of the earth's surface. It does not take into account elements above the ground such as buildings or trees. Therefore, while the ZTV indicates areas of potential visibility of the Proposed Varied Development, in reality, not all locations within the ZTV would necessarily afford a view of it. Nevertheless, the ZTV is a valuable tool in both landscape character and visual impact appraisal.
- 3.2.3 Terrain 5 is a product which is updated by OS on a quarterly basis. The terrain model was created using data available in 2025 and supplied to ASH by SSE Renewables.
- 3.2.4 ZTV diagrams produced as part of the cumulative landscape and visual assessment (CLVIA) have also been prepared using ArcGIS and the OS Terrain 5 data. Cumulative ZTVs have been produced with a radius of 40 km for turbines below 150 meters and 45 km for turbines above 150 meters.

3.3 Photography

- 3.3.1 Photographs have been taken using a full frame sensor (equivalent to a 35mm film frame), digital single lens reflex (DSLR) cameras. Cameras used include:
- Canon EOS 5D Mark II with Canon EF 50mm f/1.4 USM lens;
 - Sony ILCE-7RM3 with Sony 50mm f/1.2 Sony DT50mm lens.

⁷ In 2020, Scottish Natural Heritage (SNH) rebranded as NatureScot. However when referencing guidance published by the organisation before this date, SNH has continued to be referred to as this was the name under which the guidance was published at that time.

- 3.3.2 The details of the camera and lens used for each VP are included on the relevant photograph or photomontage.
- 3.3.3 Lenses were fitted with a Polarising filter and/or Neutral Grad filter where appropriate to maximise the quality of light balance and photography at source and minimise the need for computer enhancement.
- 3.3.4 The VP photographs were taken in landscape format by a camera attached to a tripod and rotating panoramic head unit (set to 20° intervals for daytime photographs) with a levelling base in order to maintain a stable platform for photography work, and to ensure an even overlap for successive panorama images. Photography was taken at a height of 1.5m above ground level.
- 3.3.5 On arrival at each VP location, a global positioning system (GPS) navigation device was switched on and allowed to acquire satellite positions. This device will identify its location, to the nearest metre, using a 12 figure OS grid reference, e.g. 252294 925050 or NC 52294 25050. In order to increase the accuracy of readings, the grid reference was not recorded until all other work at the VP was completed and the GPS device had been switched on for several minutes. This passage of time allows the GPS device to increase the accuracy of readings through repeated, automated measurements. All GPS readings taken were to a maximum of $\pm 5\text{m}$ accuracy.
- 3.3.6 Night-time baseline photography was taken at twilight (approximately thirty minutes after sunset). The appearance of existing lights (street lighting, domestic lighting, etc.) within the photographs is considered to be an accurate representation of the conditions.
- 3.3.7 While at a VP, the landscape architect or photographer recorded the grid reference, ground level and camera viewing height along with a brief description of the nature of view, weather conditions and visibility. The camera embeds details of the date, time, camera make and model, the lens focal length, shutter speed, f-number and ISO speed rating as metadata in each photograph file. A photograph of the tripod position was also taken.
- 3.3.8 Baseline photographs were then downloaded and combined to create 360° baseline panoramic images in cylindrical projection using PTGui software. Where applicable these were converted to planar projection using Hugin – Panorama Stitcher software (Hugin). All single frame images conform to the fields of view characteristic of the lenses they represent (50mm or 75mm).
- 3.3.9 As detailed in **Table 3.2: Viewpoint Photography** below, some adjustments were made using Adobe Photoshop CC 26.3.0 (Photoshop) to the baseline photographs. For example, to alter the brightness and/or contrast; to enhance the depiction of the existing turbines when they were not clear in the original photograph; and/or to remove and re-montage back in operational cumulative turbines to face the VP in line with best practice guidance.

Table 3.2: Viewpoint Photography

VP	OS Grid Coordinates	Date and Time	Weather Conditions	Notes
VP1	166434 634642	15/11/2025 14:09	Sunny with partial cloud	Minor enhancement to brightness and contrast and existing visible cumulative baseline wind turbines, removed and re-montaged.

VP	OS Grid Coordinates	Date and Time	Weather Conditions	Notes
VP2 - Daytime	167001 637068	21/04/2026 15:48	Sunny, scattered cloud	Minor enhancement to brightness and contrast and existing visible cumulative baseline wind turbines, removed and re-montaged.
VP2 - Nighttime	167020 637059	14/11/2025 16:49	Clear, scattered cloud	Minor enhancement to brightness and contrast and existing visible cumulative baseline wind turbines, removed and re-montaged.
VP4	157264 651562	05/06/2014 10:55	Overcast	Single frame photo included for context only
VP5	164238 646434	16/11/2025 10:14	Clear, sunny, no cloud	Minor enhancement to brightness and contrast and existing visible cumulative baseline wind turbines, removed and re-montaged.
VP6	163769 620727	14/11/2025 10:26	Clear, sunny, scattered cloud	Minor enhancement to brightness and contrast and existing visible cumulative baseline wind turbines, removed and re-montaged.
VP6 - Nighttime	163769 620727	08/11/2025 17:01	Clear, scattered cloud	Minor enhancement to brightness and contrast.
VP8	168418 617437	14/11/2025 10:10	Clear, sunny, scattered cloud	Minor enhancement to brightness and contrast and existing visible cumulative baseline wind turbines, removed and re-montaged.
VP9	171238 619830	14/11/2025 09:16	Clear, sunny, scattered cloud	Minor enhancement to brightness and contrast and existing visible cumulative baseline wind turbines, removed and re-montaged.
VP10	172071 618578	14/11/2025 08:29	Sunny, scattered cloud, haze in distance	Minor enhancement to brightness and contrast and existing visible cumulative baseline wind turbines, removed and re-montaged.
VP12	172724 631512	15/11/2025 09:28	Overcast	Minor enhancement to brightness and contrast and existing visible cumulative baseline wind turbines, removed and re-montaged.
VP16	182725 620605	11/07/2014 09:44	Overcast	Single frame photo included for context only
VP17	167123 626901	15/11/2025 11:14	Overcast	Minor enhancement to brightness and contrast and existing visible cumulative baseline wind turbines, removed and re-montaged.

VP	OS Grid Coordinates	Date and Time	Weather Conditions	Notes
VP18	170853 626802	14/11/2025 14:07	Sunny, partial cloud cover	Minor enhancement to brightness and contrast and existing visible cumulative baseline wind turbines, removed and re-montaged.
VP19	166313 619745	30/12/2025 10:44	Clear, blue sky, haze in distance	Minor enhancement to brightness and contrast and existing visible cumulative baseline wind turbines, removed and re-montaged.
VP21	176180 625509	14/11/2025 09:41	Overcast, slight haze in distance	Minor enhancement to brightness and contrast and existing visible cumulative baseline wind turbines, removed and re-montaged.
VP23	189438 642239	22/04/2026 09:44	Blue sky, low cloud with some haze	Minor enhancement to brightness and contrast and existing visible cumulative baseline wind turbines, removed and re-montaged.
VP24	164727 625567	11/07/2014 11:13	Overcast	Single frame photo included for context only
VP27	165929 624216	14/11/2025 15:27	Sunny, partial cloud	Minor enhancement to brightness and contrast and existing visible cumulative baseline wind turbines, removed and re-montaged.
VP28	187543 637854	16/11/2025 10:37	Sunny, blue sky, scattered cloud	Minor enhancement to brightness and contrast and existing visible cumulative baseline wind turbines, removed and re-montaged.

3.4 Wireline Preparation

- 3.4.1 Wirelines of the Proposed Varied Development turbines and cumulative development turbines as required, were created for all viewpoints using ReSoft WindFarm software (ReSoft) using the specified turbine model (see **paragraph 3.1.5**) and Terrain 5 DTM (see Section 1.2. Where appropriate, wirelines were converted to planar projection using Hugin. The turbines in the wirelines are shown to face the viewer with the turbine tip pointing directly vertical.
- 3.4.2 The DTM shown in the wirelines is drawn as a mesh seen in perspective. In some instances, this can result in more distant parts of the view merging into a solid colour as the grid lines get closer together. To counteract this, an adaptive grid is used. The adaptive grid doubles the grid spacing every 2km from the viewpoint. This ensures a simple, readable image is maintained. However, because of the limitations of the project size in Resoft, the terrain model cannot extend to infinity and is restricted to around 40km from the viewpoint. For this reason, the full backdrop and horizon line visible in photographs is not always represented in the wireline view. Wirelines should therefore always be viewed in combination with baseline photographs and photomontages.
- 3.4.3 Similar to the limitations of the ZTV, these visualisations provide an indication of the Proposed Varied Development's potential appearance but do not take account of screening elements such as buildings, trees or minor variations in topography.

3.5 Photomontage Preparation & Rendering

- 3.5.1 Photomontage visualisations were created using the wirelines and baseline panoramic photograph images described above. Turbines were rendered in Resoft and exported to Photoshop, using the wireline to position these accurately into the photograph. Tracks and other structures including the on-site substation and LiDAR positions were added where these would be visible using 3d georeferenced models and 43d Topos R2 which accurately places these features in the view. Final touch-up rendering to create a realistic image was applied in photoshop.
- 3.5.2 As with the wirelines, the turbines in the photomontages are shown to face the viewer directly. However, the turbine blades, are shown at random rotations to provide a greater sense of realism. However, where this would result in a blade not being visible due to foreground screening, the rotation of the affected turbine has been adjusted accordingly to ensure visibility.
- 3.5.3 The appearance of turbine lighting in the photomontages is based on experience of similar intensity turbine lighting in similar conditions and is considered to be an accurate representation.

3.6 Viewing Instructions

- 3.6.1 The graphic material used in this assessment is for illustrative purposes only and should not be considered completely representative of what the human eye will see. While visualisations can give a reasonable impression of the scale and distance to the Proposed Varied Development, they cannot show exactly what they will look like in reality. This is due to various factors, including the resolution of the image; and the static nature of visualisations which cannot convey movement of the turbine blades and changing light/shadows, weather and seasonality etc. As such, visualisations are best viewed at the viewpoint location to appreciate the wider context.
- 3.6.2 All visualisations should be printed at the specified size and viewed flat at a comfortable arm's length.
- 3.6.3 If visualisations are viewed on a computer screen, rather than printed at the specified size, they should be enlarged to the full screen height to give a realistic impression. Use of devices with smaller screens, such as tablets, should be avoided for viewing visualisations.
- 3.6.4 It should be noted that the NatureScot, 2017 Guidance 53.5° field of view images, when printed at the correct size, illustrate an image greater than actual size if held at a comfortable arm's length. This is intended to counteract the effects of a loss of relative perspective when viewing a flat image. It is important to note that these visualisations are provided for illustrative purposes to support the LVIA and are presented in a format to conform with the NatureScot, 2017 Guidance. Whilst they provide a helpful tool for assessment purposes, the judgements of landscape and visual effects reported in the LVIA are not reached wholly on the basis of these images, but through the landscape architect's professional experience and understanding of how the Proposed Varied Development would appear in the field.