13. LANDSCAPE AND VISUAL

13.1 Introduction

This chapter of the Remedial Environmental Impact Assessment Report (rEIAR) addresses the potential landscape and visual impacts of the Cleanrath wind farm development. It covers the assessment methodology, a description of the Cleanrath wind farm development and the existing landscape based on relevant guidance. It includes a description of the landscape policy of Counties Cork and Kerry with specific reference to wind energy and the study area in which the Cleanrath wind farm development site is located.

The landscape of the area is described in terms of its existing character, which includes a description of landscape values and the landscape's sensitivity to change. The landscape and visual impact assessment of the wind farm uses visibility mapping, representative viewpoints and photomontages. The potential impacts in both landscape and visual terms are then assessed, including cumulative impacts.

The key component of the Cleanrath wind farm development with the potential for landscape and visual effects are the wind turbines and these are in place. This means that the assessment is much less theoretical than usual for a project such as this and much more informed by the reality on the ground at and in the vicinity of the site. This assessment uses all of the traditional tools to compile a Landscape and Visual impact assessment as these still have relevance to the assessment process by providing context and illustrating the points that are being explained by text. Although the turbines are in place, the Zone of Theoretical Visibility mapping (which will be explained in the chapter) at a minimum lets the reader know where the turbines will never be visible from. This allows interested parties to focus on the areas and visit the areas where potential visibility may exist. The ZTV also informs the locations used to present photomontages i.e. photomontages are not produced for areas where you know that visibility is not possible. This again allows interested parties to visit locations where there is known visibility of the project but does not preclude anyone (including the MKO team) from visiting many more areas in order to better understand the actual landscape and visual effects.

The photomontages themselves act to inform the reader of potential effects at specific locations. In the case of this project, anyone visiting the site and the areas around the site has the ability to see the turbines, if visible, from all locations around the site. In this case, the assessment is not reliant on the photomontages to the extent that it may be for traditional projects.

A full description of the Cleanrath wind farm development is provided in Chapter 4 of this rEIAR.

13.2 Statement of Authority

This chapter was drafted by Michael Watson and Joanna Mole.

Michael Watson is a qualified Environmental Scientist and environmental consultant with 20 years' experience of EIA and LVIA. Joanna is a Landscape and Visual Impact Assessment Specialist and Chartered Landscape Architect with MKO and has over 15 years of experience in both private practice and local authorities. Joanna holds a BSc (Hons) in Landscape Design & Plant Science from Sheffield University, a Postgraduate Diploma in Landscape Architecture from Leeds Beckett University, a MSc in Renewable Energy Systems Technology from Loughborough University. Joanna has gained specialist knowledge in Landscape and Visual Impact assessments for projects ranging from individual houses to large wind farms, solar farms, cycle route design and landscape contract management. Joanna holds chartered membership of the British Landscape Institute since 1998 and has been an examiner for British Landscape Institute professional practice exam. This LVIA was aided by Jack Workman, Jack is an Environmental Scientist and Landscape and Visual Impact Assessment (LVIA) Specialist with MKO. Jack's primary role at MKO is producing the LVIA chapter of EIA reports. Jack holds an MSc. in

Coastal and Marine Environments and a graduate membership with the Chartered Institute of Water and Environmental Management.

13.2.1 Cleanrath Wind Farm Development Description

The Cleanrath wind farm development is a constructed wind farm located in the west of County Cork, 12 km south-west of Macroom and 2.5 km north of Inchigeelagh. The site of the Cleanrath wind farm development covers approximately 545 Hectares of upland landscape where 9 No. wind turbines have been installed. The various infrastructure elements that were required for the construction and operational phase of the Cleanrath wind farm development are detailed in Chapter 4 of this rEIAR.

13.2.2 Mitigation by Good Design

Through the iterative project design process, informed by early-stage impact assessment work, landscape modelling, ZTV mapping and photomontage preparation, every effort was made to bring forward the optimum design for the Cleanrath wind farm development with respect to landscape and visual factors. The as-built layout of the Cleanrath wind farm development that is the subject of this LVIA, already incorporates the following landscape and visual design considerations for good wind farm design:

- The turbines are located within a remote upland area of mountain moorland landscape character, landscape of this type has the capacity to effectively absorb a wind farm of this scale.
- The surrounding high mountainous landscape also contributes to obscuring views from various sensitive receptors.
- The turbine layout was designed to create a coherent cluster, where possible, turbines have vertical alignment and even spacing to mitigate against stacking and the occurrence of visual confusion.
- All turbines are located greater than 4x tip height from dwellings which assists in protecting residential visual amenity.
- The internal site road layout made use of the existing tracks wherever possible, to minimise the requirement for new tracks within the site; and
- Felling of existing coniferous plantation is predominantly limited to keyhole felling in localised parts of the site, in keeping with existing practices in the commercial forestry plantation on-site.

During the initial site selection process, landscape sensitivity was identified as a key constraint and so landscapes considered to be less sensitive were preferred over sites with more sensitivity to change. The carefully selected site location and layout design minimises the capacity for visibility of the wind farm. Site visits and photomontage assessment show that the actual visibility of the as-built turbines is far less than the theoretical visibility shown by other assessment tools such as ZTV mapping. Where visibility does occur, the design is in accordance with best practice guidance and the wind farm is seen as a coherent project.

13.2.3 Assessments of other alternative turbine designs

Typically, various types and sizes of turbines are considered in the LVIA chapter of the EIAR to assess whether different turbine designs may give rise to landscape and visual effects. Alternative turbine specifications are presented in Chapter 3 of this rEIAR, *Consideration of Reasonable Alternatives.* As this is a rEIAR and the turbine type and size is known, the various assessments throughout this chapter have been completed using the Nordex N117; which has a hub height of 91m, a rotor diameter of 117m and a ground to blade tip height of approximately 150 metres.

13.2.4 Scoping Replies

A scoping and consultation exercise has been carried out by MKO, as detailed in Chapter 2 of this rEIAR.

13.3 Brief Methodology and Assessment Criteria

This section broadly outlines the methodology and the guidance used to undertake the landscape and visual impact assessment of the Cleanrath wind farm development; a more detailed description of the methodology is outlined in Appendix 13-1. There are five main sections to this assessment:

- Visibility of the Cleanrath wind farm development
- Landscape Baseline
- Cumulative Baseline
- Representative Viewpoints and Photomontage Locations
- Likely and Significant Effects – outlining the assessment of landscape, visual and cumulative effects

13.3.1 Scope and Definition of Landscape and Visual Impact Assessment (LVIA) Study Area

For the purposes of this chapter, where the 'Cleanrath wind farm development site' or 'the site' is referred to, this relates to the primary study area for the Cleanrath wind farm development. The development site is discussed in some detail in terms of its landscape character in Section 13.5.

The landscape baseline mapping, visual receptor mapping and viewpoint selection are based on wider study areas. The geographical parameters for this LVIA was determined by desktop study, survey work undertaken, the professional judgement of the assessment team, experience from other relevant projects and best practice policy guidance or standards (Appendix 3, DoEHLG Wind Energy Development Guidelines' 2006 and GLVIA 2013). The LVIA study area was chosen as 20 kilometres for visual and landscape effects and 15 kilometres from the Cleanrath wind farm development wind turbines for effects on landscape character. These are the study areas for which the baseline maps and viewpoint locations are produced and are referred to as the 'study area' or 'LVIA study area'. Furthermore, the following topic areas have been scoped out of the assessment:

- Effects on landscape and visual receptors that have minimal or no theoretical visibility (as predicted by the ZTV) and/or very distant visibility, and are therefore unlikely to be subject to significant effects;
- Effects on designated landscapes beyond a 20 km radius from the Cleanrath wind farm development, from where it is judged that potential significant effects on key characteristics and/or special qualities, or views are judged unlikely to occur;
- Effects on landscape character beyond a 15 km radius from the Cleanrath wind farm development, where it is judged that potential significant effects on landscape character are unlikely to occur;
- Effects on visual receptors beyond a 20 km radius from the Cleanrath wind farm development, where it is judged that potential significant effects are unlikely to occur;
- Cumulative effects in relation to single turbines (except where otherwise stated);
- Cumulative landscape effects beyond a 15 km radius and cumulative visual effects beyond a 20km radius from the Cleanrath wind farm development, where it is judged that potential significant effects on landscape character are unlikely to occur;
- Effects on visual or landscape receptors in County Kerry. During the conduct of baseline mapping exercises, ZTV mapping clearly indicated that mountains on the Cork/Kerry boundary largely restrict views of the Cleanrath wind farm development from adjoining County Kerry. Therefore, visual and landscape receptors within

County Kerry have not been affected by the Cleanrath wind farm development and are not discussed further.

The grid connection infrastructure, close to and within County Kerry had the potential to generate minor visual effects during the construction phase and so the appropriate County Kerry landscape designations and policy has been included in this LVIA. Ancillary project elements associated with delivering, constructing and connecting the Cleanrath wind farm development are assessed in the penultimate section of this chapter (Section 13.8.3.3.5), however, this LVIA is primarily focused on assessing the impact of the turbines of the Cleanrath wind farm development.

13.3.2 Guidelines

While the legislation and general guidance on Remedial Environmental Impact Assessment is set out in Chapter 1 of this report, only guidance specifically pertaining to the Landscape and Visual Impact Assessment is outlined in Appendix 13-1, Landscape and Visual Impact Assessment Methodology.

13.3.3 Baseline Landscape and Visual Information

In order to carry out this assessment, an initial desk study was undertaken which identified:

- Zone of Theoretical Visibility (ZTV) mapping;
- Landscape Receptors;
- Policies and objectives contained in the relevant county development plans pertaining to landscape and wind energy;
- Landscape designations in the study area;
- Landscape character of the study area;
- Landscape character of the Cleanrath wind farm development site based on:
    - Site Surveys undertaken in 2011, 2014, 2015 and 2020;
    - Landscape Character Types identified in 'Landscape and Landscape Assessment: Consultation Draft of Guidelines for Planning Authorities' (Department of the Environment and Local Government, 2006) and 'Draft Revised Wind Energy Guidelines' (Department of Housing Planning and Local Government, 2019).
- Designated Scenic Routes.

13.3.4 Assessment of Potential Impacts

The methodology includes clearly documented methods based on the GLVIA guidelines, in order to arrive at an assessment. These include consideration of landscape and visual sensitivity balanced with the magnitude of the effect to determine the significance of effects. Mitigating factors are then taken into consideration to arrive at residual landscape and visual effects. Residual landscape and visual effects are graded upon an 'impact assessment classification of significance' scale, as defined by the Environmental Protection Agency of Ireland (EPA, 2017). For a more detailed account of the assessment methodology and the various assessment tools used during this LVIA please see Appendix 13-1.

13.4 Visibility of the Cleanrath Wind Farm Development

13.4.1 ZTV Mapping: Theoretical Visibility of the Cleanrath Wind Farm Development.

The ZTV mapping methodology outlined in Section 1.3 of Appendix 13-1 was used to examine the theoretical visibility of the 9 No. turbines built at the Cleanrath wind farm from all landscape and visual receptors within the LVIA study area, using the half blade height of the wind turbines as points of reference. As noted in Appendix 13-1, actual visibility on the ground is significantly less than predicted by the ZTV mapping due to intervening factors such as: on site screening from natural and man-made features, atmospheric weather and/or localised topography. The half blade ZTV map of the Cleanrath wind farm development and LVIA study Area is shown below in Figure 13-1.

Separate colour bands are used on the ZTV map to indicate the number of turbines of which the half blade will potentially be visible. The legend on the map shows the number of visible turbines for each corresponding colour, which are as follows:

- Green: 1-3 turbines visible
- Red: 4-6 turbines visible
- Blue: 7-9 turbines visible

Figure 13-1 illustrates that full theoretical visibility of the 9 turbines is available across a relatively small proportion of the overall LVIA study area. Overall, concentrated areas of full theoretical visibility are limited to areas in close proximity to the Cleanrath wind farm development, as well as pockets of visibility to the north and east of the wider LVIA study area.

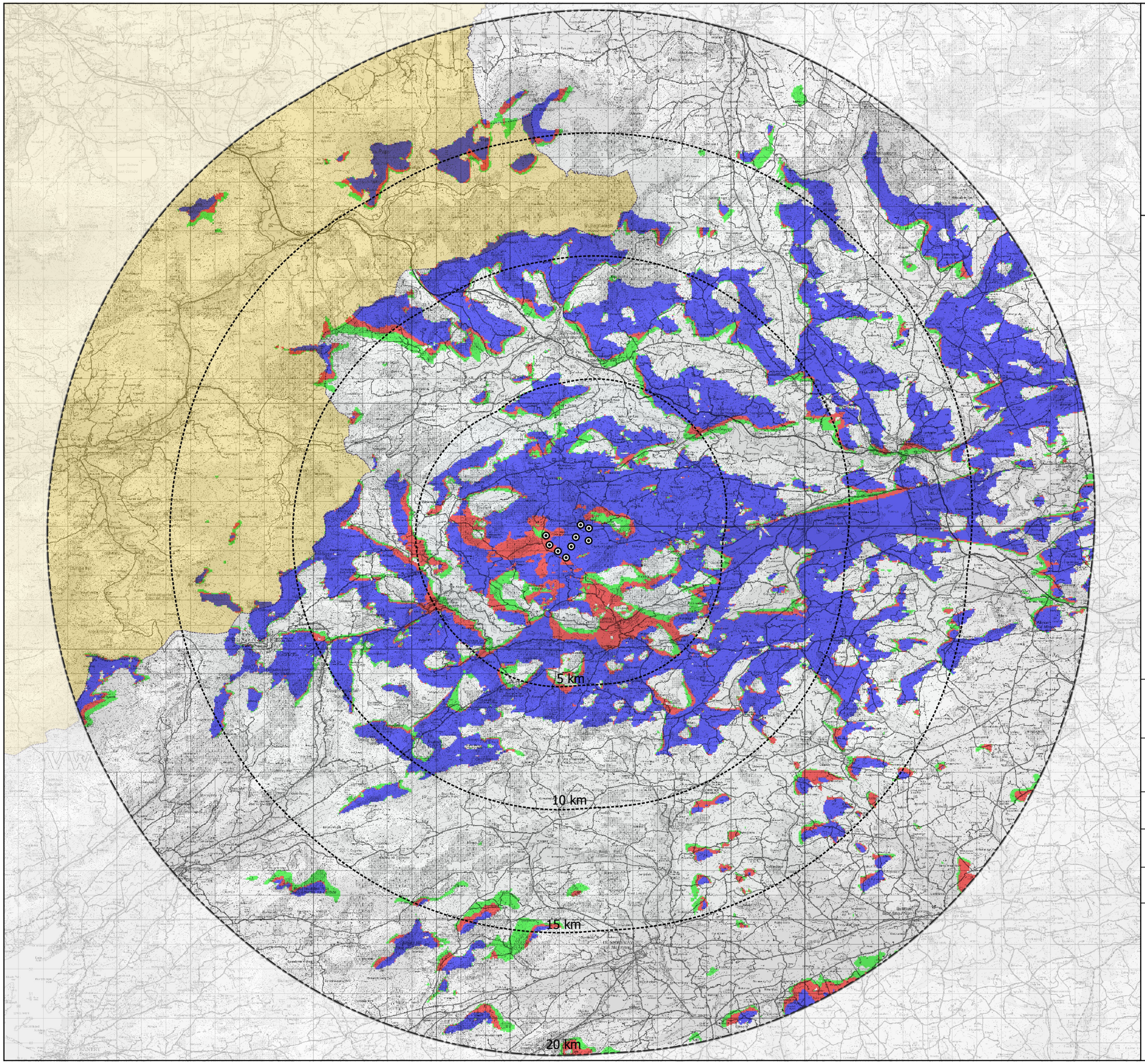
Visibility (in theory) is concentrated within a 5 km radius of the study area, where there is visibility in the immediate vicinity of the site but there are also small pockets which have no visibility. Within 5-10 kilometres, intermittent visibility occurs to the south, east and west mainly, with areas of no visibility occurring to the north-west and north.

Between 10 km and 20 km theoretical visibility decreases significantly, with very little visibility to the south and west, the higher ground to the south of Lough Allua near Carrigarierk and Shehy Beg and the Kerry Mountains significantly restrict visibility, with the result that there is very little visibility from Co. Kerry.

The amenity area around the lake at Gougane Barra will not have theoretical visibility, while there is theoretical visibility from the higher ridges. To the north the Derrynasaggart mountains restrict visibility. To the east there are some areas of theoretical visibility, including Macroom, though in reality, built form will not allow visibility. There is potential visibility from the Gearagh although the ZTV does not take account of other screening elements, so actual visibility is likely to be less.

Theoretical visibility will be less than shown, as actual visibility is reduced by screening from vegetation and built form. The photomontages in the accompanying Photomontage Booklet illustrate the effect of screening and should be viewed in conjunction with Figure 13-1 and Appendix 13-4 .

Additional ZTV mapping exercises were conducted to assess the theoretical visibility of the Cleanrath wind farm development cumulatively with all other existing, permitted and proposed wind farm developments located within the 20 km LVIA study area. These ZTV maps are presented and discussed in Section 13.6 of this Chapter, *Cumulative Baseline.*



Map Legend

- Cleanrath Turbines
- LVIA Study Area
- County Kerry

Half Blade ZTV

- 7 - 9 Turbines Visible
- 4 - 6 Turbines Visible
- 1 - 3 Turbines Visible

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Drawing Title

Half Blade ZTV

Project Title

Cleanrath Renewable Energy Development, Co. Cork

Drawn By	Checked By
JW	MW
Project No.	**Drawing No.**
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Scale	**Date**
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MKO

Planning and Environmental Consultants

Tuam Road, Galway
Ireland, H91 VW84
+353 (0) 91 735611
email:info@mkoireland.ie
Website: ww.mkoireland.ie

13.4.2 Landscape and Site Context

This section of the LVIA chapter describes the views of the surrounding landscape that are available from the Cleanrath wind farm development site. It also describes the existing views towards the site from the surrounding area, with particular reference to the views from roads, houses, and areas of amenity value.

13.4.2.1 Views from the Cleanrath wind farm development Site

Views of the landscape surrounding the Cleanrath wind farm development site encompass rolling hills and mountains, in which agriculture, forestry and wind energy form the main land-uses. Due to the elevated location of the site, long-ranging views are available in most directions. Views to the southeast show an undulating landscape of farmland and coniferous forestry, as seen in Plate 13-1 below. Occasional glimpses of Lough Allua can be seen from the south of the Cleanrath wind farm development site. Plate 13-2 shows the higher ground to the south and south-west.

Plate 13-1 View to the south from the Cleanrath wind farm development Site

Plate 13-2 View to the hills to the southwest from the Cleanrath wind farm development Site

13.4.2.2 Views towards the Cleanrath wind farm development Site

Views towards the Cleanrath wind farm development site are available from the surrounding local roads, and Regional Roads, some of which are scenic routes although views vary as a result of the undulating landscape. Views are available from the Regional Road to the south of the site, R584. Views are also available from County Cork Scenic Route No. 32 and the R585 Regional road across Lough Allua to the south of the site, where the hills form a backdrop to the lake. There are a number of local roads in the vicinity which have visibility of the study area and these are represented in the Photomontage Booklet.

Further descriptions regarding views towards the site are presented in the photomontage descriptions in Appendix 13-3. A number of photomontages contained in the Photomontage Booklet represent views from these locations (e.g. VP01, VP02, VP03, VP05, VP06 and VP10).

13.5 Landscape Baseline

This part of the LVIA focusses on identifying the key landscape receptors that should form part of the assessment. The LVIA study area is primarily situated in areas of County Cork, therefore, landscape policy determined by Cork County Council was used as the main source of reference in this section.

As noted in Sections 13.3.1 and 13.4 of this chapter, an area in the north-west of the LVIA study area is located in County Kerry, approximately 8 km west of the Cleanrath wind farm development site at its nearest point. During the conduct of baseline mapping exercises, ZTV mapping clearly indicated that mountains on the Cork/Kerry boundary largely restrict views of the Cleanrath wind farm development from adjoining County Kerry. Therefore, County Kerry landscape designations have not been impacted by the Cleanrath wind farm development. However, the grid connection infrastructure within County Kerry had the potential to generate minor short-term visual effects during the construction phase, with regard to this, the appropriate County Kerry landscape designations and policy as determined by Kerry County Council are also included in this section.

Baseline Landscape Receptors:

- **Landscape Designations** based on:
  - Cork County Development Plan, 2014.
  - Kerry County Development Plan 2015-2021.
- **Landscape Character of the Cleanrath wind farm development Site** and its immediate environment based on:
  - Landscape Type identified using the DoEHLG Wind Energy Guidelines, 2006 and the Draft DoHPLG Wind Energy Guidelines, 2019.
  - Site Visits.
- **Landscape Character of the Study Area** based on:
  - Cork County Development Plan, 2014.
  - Draft Cork County Landscape Strategy, 2007.

13.5.1 Landscape Designations

The County Development Plans of Cork and Kerry were consulted to identify landscape designations and relevant policy objectives relating to such designations.

13.5.1.1 County Cork

The Cork County Development Plan 2014 (hereafter referred to as the CCDP) came into effect on the 15th of January 2015. The Plan includes policies and objectives pertaining to wind energy development, landscape and amenity designations which are referred to in the following sections:

- General Landscape Policy
- Landscape Character Assessment
- High Value Landscape
- Scenic Amenity, Views and Prospects
- Wind Energy Policy.

Map Legend

- Cleanrath Turbines
- LVIA Study Area for Landscape Character The
- Cleanrath Wind Farm Development Site
- Cable Connection to County Kerry

Half Blade ZTV

- 7 - 9 Turbines
- 4 - 6 Turbines
- 1 - 3 Turbines

Landscape Designations

- County Kerry Secondary Special Amenity Area
- County Cork High Value Landscape
- County Cork Landscape Character Types
  - LCT 6 - Broad Fertile Lowland Valley
  - LCT 8 - Hilly River and Reservoir Valley
  - LCT 10a - Fissured Fertile Middleground
  - LCT 11 - Broad Marginal Middleground Valleys
  - LCT 12a - Rolling Marginal Middleground
  - LCT 12b - Rolling Marginal and Forested Middleground
  - LCT 13a - Valleyed Marginal Middleground
  - LCT 15a - Ridged and Peaked Upland
  - LCT 15b - Ridged and Peaked Upland
  - LCT 16a - Glaciated Cradle Valleys
  - LCT 16b - Glaciated Cradle Valleys (Cullenagh Lake)
  - LCT 16c - Glaciated and Forested Cradle Valley

Drawing Title

Landscape Baseline and Half Blade ZTV

Project Title

Cleanrath Renewable Energy Development, Co. Cork

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JW	MW
Project No.	**Drawing No.**
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1:120000	07.07.20

MKO
Planning and Environmental Consultants

Tuam Road, Galway
Ireland, H91 VW84
+353 (0) 91 735611
email:info@mkoireland.ie
Website: ww.mkoireland.ie

General Landscape Policy

Chapter 13.6 of the CCDP, *Landscape Character Assessment of County Cork*, sets out the policies and objectives of the Council with regard to landscape. General policy on landscape is covered in the CCDP by the following objectives:

Objective GI 6-1: Landscape

a) *Protect the visual and scenic amenities of County Cork's built and natural environment.*
b) *Landscape issues will be an important factor in all landuse proposals, ensuring that a proactive view of development is undertaken while maintaining respect for the environment and heritage generally in line with the principle of sustainability.*
c) *Ensure that new development meets high standards of siting and design.*
d) *Protect skylines and ridgelines from development.*
e) *Discourage proposals necessitating the removal of extensive amounts of trees, hedgerows and historic walls or other distinctive boundary treatments.*

Objective GI 6-2: Draft Landscape Strategy
Ensure that the management of development throughout the County will have regard for the value of the landscape, its character, distinctiveness and sensitivity as recognised in the Cork County Draft Landscape Strategy and its recommendations, in order to minimise the visual and environmental impact of development, particularly in areas designated as High Value Landscapes, where higher development standards (layout, design, landscaping, materials used) will be required.

Landscape Character Assessment

The CCDP notes that it is proposed to wait until the publication of the National Landscape Strategy before commencing a review of the current 2007 Draft Cork County Landscape Strategy. The plan states that the draft strategy will be used as a supporting background document to inform the CCDP in the interim, while improving its practical application in managing change in the landscape of the county.

As stated in *Objective GI 6*-3 below, the CCDP advises that the 2007 Draft Strategy is to be used as a supporting background document to inform planning processes related to landscape.

GI 6-3: Draft Landscape Strategy and Local Area Plans
Have regard to the Cork County Draft Landscape Strategy (2007) in the preparation of Local Area Plans and other plans.

As stated above, Cork County Draft Landscape Strategy (2007) continues to inform landscape policy within the county, it identifies 76 Landscape Character Areas (LCAs) within the county. The LCAs were then amalgamated into a set of 16 generic Landscape Character Types (LCTs) based on similar physical and visual characteristics. Landscape Character Areas (LCAs) are smaller physical units with a more detailed description.

The Cleanrath wind farm development site straddles two LCTs as defined by the 2007 Draft Cork County Landscape Strategy. As demonstrated in Figure 13-2 (above), the northern part of the site is located within LCT *12(a) Rolling Marginal Middleground* whilst the southern portion of the site lies in the LCT *15(a) Ridged and Peaked Upland*. A detailed description of these LCTs are presented in the Landscape Character Assessment Tables included in Appendix 13-2.

Landscape Value and Sensitivity

Each LCT is assigned a value, sensitivity and importance, which are listed in *Appendix E* of the CCDP.

In terms of Landscape Values, the 2007 Draft Landscape Strategy for County Cork classifies the Landscape Value of each LCT within the county, on a four-point scale, ranging from 'Low' to 'Very High'. The Landscape Value of each area was derived from an assessment of the natural, scenic and cultural value as determined within that area. However, the CCDP notes that the assignment of landscape values in the Draft LCA predated the designation of some nature conservation designations (such as certain Special Protection Areas -SPAs) and therefore do not take these into account.

Landscape Sensitivity is defined as the ability of a landscape to accommodate change without suffering unacceptable effects to its character and values. Landscape sensitivities range from Low, Medium, High and Very high in the 2007 Draft Landscape Strategy for County Cork. Landscape Importance is rated as either of Local, County or National importance.

High Sensitivity landscapes are described as follows in the 2007 Draft Landscape Strategy and in the CCDP:

> *"High sensitivity landscapes are vulnerable landscapes with the ability to accommodate limited development pressure. In this rank landscape quality is at a high level, landscape elements are highly sensitive to certain types of change. If pressure for development exceeds the landscape's limitations the character of the landscape may change."*

Medium Sensitivity landscapes are described as follows in the 2007 Draft Landscape Strategy and the CCDP:

> *"Medium sensitivity landscapes can accommodate development pressure but with limitations in the scale and magnitude. In this rank of sensitivity, landscape elements can accept some changes while others are more vulnerable to change."*

The Cleanrath wind farm development is located in two LCTs (12a & 15a), both have the same landscape value, sensitivity and importance designations in the CCDP, these designations are presented below:

- Landscape Value: High
- Landscape Sensitivity: High
- Landscape Importance: County

County Cork High Value Landscapes

The CCDP considers that the LCTs which have a 'High' or 'Very High' landscape value, and 'High' or 'Very High' landscape sensitivity, and which are of county or national importance, should be designated as High Value Landscapes (HVLs). These are areas where considerable care is needed to successfully locate large scale developments, and such developments should generally be supported by an assessment including a visual impact assessment.

The HVLs are highlighted in green in the list in *Appendix E* of the CCDP and illustrated in *Figure 13.2* of the CCDP. *There are no areas of High Value Landscape located within or immediately surrounding the Cleanrath wind farm development site.* However, there are two designated HVLs located within the LVIA study area (15km for landscape receptors), HVL 8 and HVL 16a.

An area of HVL (No. 8) lies at the Gearagh, south of Macroom, which is located approximately 6.8 kilometres east of the Cleanrath wind farm development. Another area of HVL (No. 16a) is located west of Ballingeary, approximately 8.56 kilometres west of the Cleanrath wind farm development.

These HVLs are identified in Figure 13-2 and addressed in detail in the Landscape Character Assessment Tables included in Appendix 13-2.

Wind Energy Policy

Chapter 9.3 of the CCDP, *On-shore Wind Energy,* refers to areas identified as suitable for wind energy development. The Plan notes that there are three main locations in County Cork designated as viable locations for wind energy development; *"south of Millstreet in the Derrynasaggart Mountains; east of Millstreet in the Boggeragh Mountains; and to the South of Dunmanway".*

The Council reviewed its wind energy policy and formulated a Wind Energy Strategy Map (see Figure 13-3 below) which includes a number of policy considerations. These included landscape and natural heritage considerations, as follows:

- Nature Conservation Areas
- Important Landscapes (High)
- Important Landscapes (Medium)

The development site is not included in any of these important landscape or heritage areas.

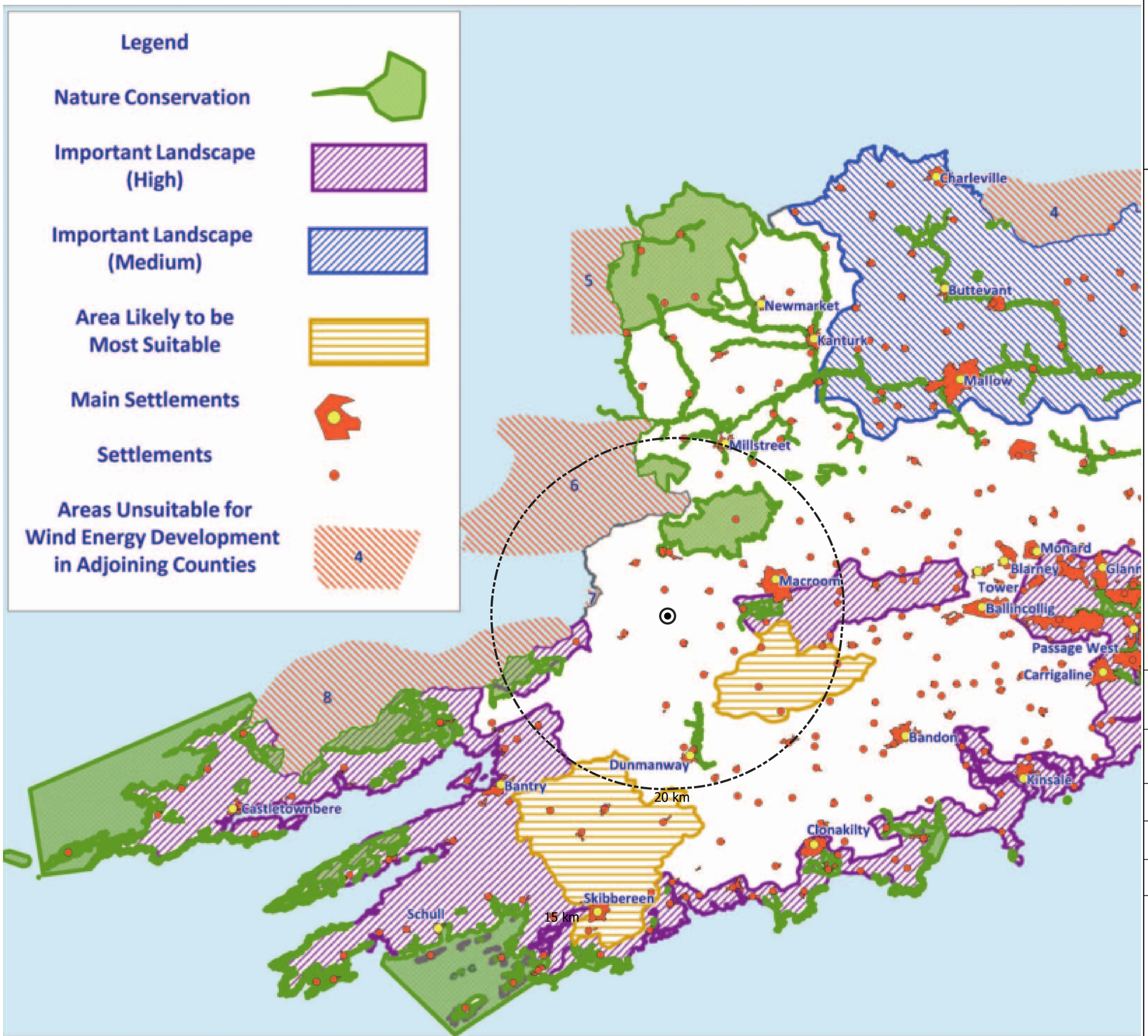
The resulting wind energy strategy is set out in the plan and identifies three categories of 'Wind Deployment Area' for large scale commercial wind energy developments. These categories are:

- Acceptable in Principle
- Open to Consideration
- Normally Discouraged

The CCDP identifies the location of the Cleanrath wind farm development as 'Open to Consideration', this is addressed in the Plan as:

> ***Objective ED 3-5: Open to Consideration:***
> *Commercial wind energy development is open to consideration in these areas where proposals can avoid adverse impacts on:*
> - *Residential amenity particularly in respect of noise, shadow flicker and visual impact;*
> - *Urban areas and Metropolitan/Town Green Belts;*
> - *Natura 2000 Sites (SPA and SAC), Natural Heritage*
> - *Areas (NHA's) or adjoining areas affecting their integrity.*
> - *Architectural and archaeological heritage; Visual quality of the landscape and the degree to which impacts are highly visible over wider areas.*

The Plan notes that in these areas, the cumulative effect of wind energy developments with regard to landscape and visual impacts, as well as Natura 2000 sites, will also be a consideration in these areas.



Map Legend

- Cleanrath Wind Farm Development
- LVIA Study Area

Other mapping elements comprise of Figure 9.2 of the 2014 Cork County Development Plan - 'Policy Considerations for Wind Energy Projects' (Cork County Council, 2014).

Drawing Title

Wind Energy Policy
(Figure 9.2 Cork County Development Plan, 2014)

Project Title

Cleanrath Renewable Energy Development, Co. Cork

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1:450000	06.07.20

MKO
Planning and Environmental Consultants

Tuam Road, Galway
Ireland, H91 VW84
+353 (0) 91 735611
email:info@mkoireland.ie
Website: ww.mkoireland.ie

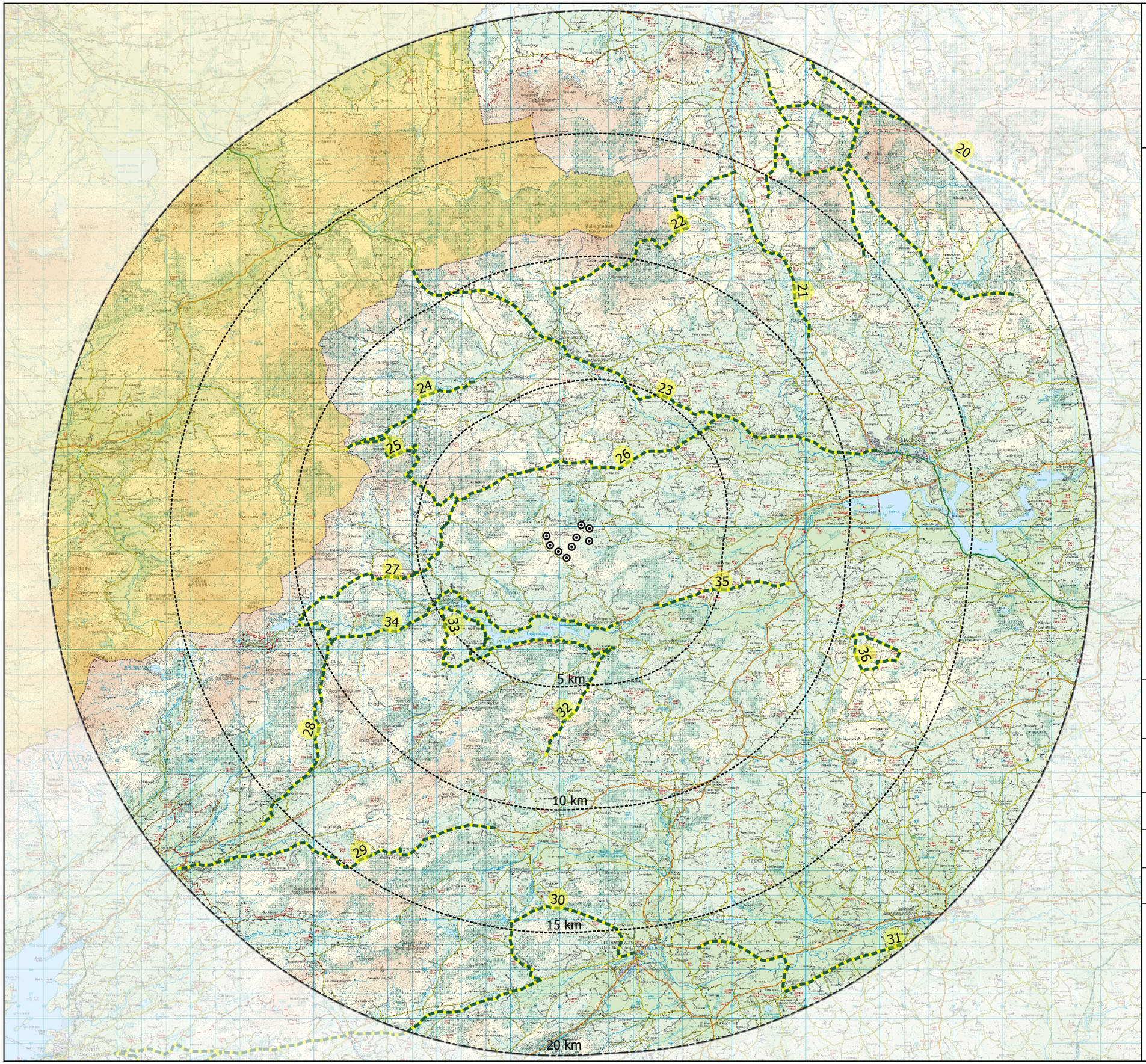
Scenic Amenity, Views and Prospects

Chapter 13 of the CCDP, *Green Infrastructure and Environment*, sets out overall policies regarding views and prospects and scenic routes. These include vantage points from which views of natural beauty may be obtained and include landscape and seascape views. Scenery and landscape are a valued amenity resource to both tourists and residents. Specific scenic routes are therefore identified, and these are set out in Chapter 5 of the CCDP.

The CCDP notes it is particularly important to protect the character and quality of certain stretches of scenic routes that have special views and prospect, particularly those associated with High Value Landscapes. The CCDP also notes that landscapes are living and changing and that it is not proposed that development along these routes is prohibited. Development, where permitted, should not hinder or obstruct these views and prospects. It should be located and designed to minimise the impact. Objectives included in Chapter 13.7 of the CCDP are as follows:

> ***Objective GI 7-1: General Views and Prospects***
> *Preserve the character of all important views and prospects, particularly sea views, river or lake views, views of unspoilt mountains, upland or coastal landscapes, views of historical or cultural significance (including buildings and townscapes) and views of natural beauty as recognized in the Draft Landscape Strategy.*
>
> ***Objective GI 7-2: Scenic Routes***
> *Protect the character of those views and prospects obtainable from scenic routes and in particular stretches of scenic routes that have very special views and prospects identified in this plan. The scenic routes identified in this plan are shown on the scenic amenity maps in the CDP Map Browser and are listed in Volume 2 Chapter 5 Scenic Routes of this plan.*
>
> ***Objective GI 7-3: Development on Scenic Routes***
> *(a) Require those seeking to carry out development in the environs of a scenic route and/or an area with important views and prospects, to demonstrate that there will be no adverse obstruction or degradation of the views towards and from vulnerable landscape features. In such areas, the appropriateness of the design, site layout, and landscaping of the proposed development must be demonstrated along with mitigation measures to prevent significant alterations to the appearance or character of the area*
> *b) Encourage appropriate landscaping and screen planting of developments along scenic routes which provides guidance in relation to landscaping. See Chapter 12 Heritage Objective HE 46.*
>
> ***Objective GI 7-4: Development on the approaches to Towns and Villages***
> *Ensure that the approach roads to towns and villages are protected from inappropriate development, which would detract from the setting and historic character of these settlements.*

Chapter 5, Volume 2, of the CCDP contains the profiles of the scenic routes, views and prospects designated in County Cork. A total of 118 Scenic Routes are identified within the county, 17 of which were identified within the LVIA Study Area. The location of the 17 routes are shown in Figure 13-4 below and described in Table 13-1 below. The closest scenic route is relatively distant at 2.4 km to the north of the nearest turbine.



Map Legend

- Cleanrath Turbines
- LVIA Study Area
- County Kerry
- County Cork Designated Scenic Route

Drawing Title

County Cork Designated Scenic Routes

Project Title

Cleanrath Renewable Energy Development, Co. Cork

Drawn By	Checked By
JW	MW
Project No.	**Drawing No.**
191223-a	Figure 13-4
Scale	**Date**
1:150000	06.07.20

MKO
Planning and Environmental Consultants

Tuam Road, Galway
Ireland, H91 VW84
+353 (0) 91 735611
email:info@mkoireland.ie
Website: ww.mkoireland.ie

Table 13-1 Designated County Cork Scenic Routes within 20km of the Cleanrath wind farm development.

No.	Location Description of the Route	Focus of View	Distance & Direction from The Nearest Turbine
Up to 5 km			
SR25	Section of winding local road joining The Coom & Reananerree Road.	Views of Foilanumera, Mweelin & Carrigalougha Mountains.	3.9 km, North-West
SR26	Local Road between Lissacresig and the Mouth of the Glen.	Views of rugged landscape & valleys.	2.4 km, North
S27	Local Road between Gougane Barra and the Mouth of the Glen.	Views of Coomataggart Mountain, hills, valleys & Gougane Barra	4.6 km, West
SR32	This is a relatively narrow local road and includes the South Lake Road which runs between Inchigeela and Ballingeary, via Curraheen to Tullagh.	Views from this route includes views of Lough Allua, & the surrounding mountains.	3.3 km, South
SR34	The R584 Regional Road between Inchigeela & Ballingeary through the pass of Keimaneigh.	Views are primarily of Lough Allua and the Lee River Valley, Shehy Mountains, hills and the surrounding rugged landscape.	2.5 km, South
SR35	Local Road Between Dromcarra and Rossmore.	Views of rolling hills, open countryside, valley, the River Lee & distant mountain views.	4.1 km, South-East
5 to 10 km			
SR22	Local Road to south east of Derrynasaggart Mountains from Caumcarrig to Bohill River.	Views of Derrynasaggart Mountains, rockscape, river valleys & remote rural landscape.	9.4 km, North
SR23	N22 National Route between Macroom, Ballyvourney and County Boundary.	Views of Derrynasaggart Mountains, surrounding hills, Sullane River Valley and rugged landscape.	5.6 km, North
SR24	Local Road between Coolea and Coom.	Views of the foothills of the Derrynasaggart Mountains, surrounding hills & the Sullane River.	6.9 km, North-East

No.	Location Description of the Route	Focus of View	Distance & Direction from The Nearest Turbine
SR28	Regional Road, Scenic road at the Pass of Keimaneigh to Gougane Barra.	Views of the surrounding remote rural landscape & rugged mountains	9.7 km, South-West
SR33	Local Road between Ballingeary - branch off S. Lake Road and Kealvaugh. The route runs in a loop to the west of Lough Allua and south of Ballingeary.	Views are of Lough Allua, surrounding lakes, hills and remote rural landscape.	5.6 km, South-West
10 to 15 km			
SR21	The Regional Road R582 at Carriganimma.	Views include the Musherabeg Mountains and rural landscape.	11.9 km, North-East
SR29	R585 Regional Road to Kealkill via Cousane Gap to Derragh Bridge.	Views of remote mountainous landscape.	11.4 km, South-West
SR30	Local Roads between Dunmanway and Coolkellure, Castledonovan and Bantry.	Views of hills, mountains, the Rivers Clodagh, Ilen & Owennashingaun, Lough Bofinna & the surrounding rugged remote rural landscape.	14.2 km, South
SR36	Local Roads adjoining Terelton to the east.	Views of valleys & rugged mountainous landscape.	12.1 km, South-East
15 to 20 km			
SR20	Local Roads at Mushera in the Boggeragh Mountains and roads from Mushera to Ballynagree, Lackdotia and Rylane Cross.	Views of and from the Boggeragh Mountains, views of the Knocknagoun Mountains & remote rural landscape	15.8 km, North-East
SR31	Local Road, R637 & R586 Regional Roads between Ballineen and Ballincarriga to Dunmanway.	Views of mature woodland, rolling hills & remote rural landscape.	16.8 km, South-East

Each Scenic Route and View identified here is assessed against its theoretical visibility from the site in Section 13.5.4, *Scenic Routes and Views Preliminary Assessment.*

13.5.1.2 County Kerry Landscape Policy

The Kerry County Development Plan 2015-2021 (hereafter referred to as the KCDP) came into effect on the 15th of March 2015. As mentioned previously, the policy and landscape designations from the KCDP reported in this section is only relevant to the length of communication and electrical cables (approximately 2km) that were laid within County Kerry during the construction phase. In regard of

this matter, it is only necessary to assess effects on landscape designations within 50 metres of such cables. The cables connect to the existing Substation at Grousemount, County Kerry.

The relevant landscape and development designations, policies and objectives reported in the KCDP relevant to the aforementioned cable infrastructure are addressed in the following sections:

- Landscape Zoning
- Landscape Character Assessment
- Scenic Amenity, Views and Prospects

Landscape Zoning

The KCDP recognises that the sensitivity of a landscape is a measure of its ability to accommodate change or intervention without suffering unacceptable effects to its character. On this basis, the KCDP sets out the following policy in regard to zoning of lands in rural areas:

> ***Objective: ZL-3*** *Determine the zoning of lands in rural areas having regard to the sensitivity of the landscape as well as its capacity to absorb further development.*

There are three categories of rural area zoning designations; Rural Prime Special Amenity, Rural Secondary Special Amenity and Rural General, as indicated in Maps *12.1 (a)* to *12.1 (u)* of the KCDP. As shown in Figure 13-2, The cable infrastructure was laid in an area of Secondary Special Amenity, this zoning designation is described in the KCDP as follows:

> ***Rural Secondary Special Amenity:*** *"The landscape of areas in this designation is sensitive to development. Accordingly, development in these areas must be designed so as to minimise the effect on the landscape. Proposed developments should, in their designs, take account of the topography, vegetation, existing boundaries and features of the area, as set out in the Building a House in Rural Kerry Design Guidelines (Kerry County Council 2009). Permission will not be granted for development which cannot be integrated into its surroundings. Development will only be permitted where it is in accordance with the provisions of Chapter 3.3.2."*

Landscape Character Assessment

Kerry County Council has to date not completed its landscape character assessment, but states as an objective in the KCPD:

> ***Objective ZL-2****: Prepare a Landscape Character Assessment of the County following the publication of the proposed National Landscape Strategy. This assessment will include capacity studies for different forms of development and will involve consultation with adjoining local authorities.*

However, within the Renewable Energy Strategy prepared by Kerry County Council in 2012, forty-six Landscape Character Areas (LCAs) were identified. *Map 7.5* of this document shows the cable infrastructure is laid in LCA-21 Upper Roughty River Valley.

Scenic Amenity, Views and Prospects

The policy of Kerry County Council regarding scenic views and prospects is presented in Section 12.4 of the KCDP. The plan states:

> *"County Kerry contains areas of outstanding natural beauty which are recognised internationally. There is a need to protect and conserve views and prospects adjoining public roads throughout the county. These views and prospects are important to the amenity of the County and to its tourist industry.... In assessing views and prospects it is not proposed that*

this should give rise to the prohibition of development along these routes, but development, where permitted, should not seriously hinder or obstruct these views and should be designed and located to minimise their impact."

The following objective of the KCDP relates to views and prospects:

Objective ZL-5: *Preserve the views and prospects as defined on Map No's 12.1, 12.1a– 12.1u*

Maps *12.1a – 12.1u* show that there are no designated scenic views or prospects within 50 metres of the length of cable located in County Kerry, therefore these designations are not of relevance to this rEIAR.

13.5.2 Landscape Character of the Cleanrath Wind Farm Development Site

13.5.2.1 DoEHLG – Wind Energy Development Guidelines (2006)

The DoEHLG Wind Energy Development Guidelines (2006) provide advice to Planning Authorities on planning for wind energy developments through the Development Plan process and in determining applications for planning permission. The guidelines are also intended to be of assistance to developers and the wider public in considering wind energy development.

These guidelines offer guidance for the siting and design of wind energy developments in various landscape contexts by defining six landscape character types that represent most situations where wind turbines may be proposed. The guidance is intended to be indicative and general and notes that it, represents the 'best fit' solutions to likely situations.

The six landscape character types include 'Mountain Moorland', 'Hilly and Flat Farmland', 'Flat Peatland', Transitional Marginal Land', 'Urban/industrial' and 'Coastal' landscape character types. The guidelines note that where a wind energy development is located in one landscape character type but is visible from another, it will be necessary to decide which might more strongly influence the approach adopted for the assessment.

The southern area of the Cleanrath wind farm development site is open landcover mostly comprised of open heath and peatland scattered with rocky outcrops, whereas coniferous woodland is found to the north. Despite the fact that northern areas of the site are covered in commercial forestry, the original landcover would have been moorland. Furthermore, the majority of the site is situated at a relatively high elevation in comparison to the surrounding landscape. In consideration of these factors, 'mountain moorland' landscape character type is the most applicable descriptor of the Cleanrath wind farm development site.

Many areas in close proximity to the Cleanrath wind farm development can be described as 'hilly and flat farmland' or 'transitional marginal land'. In certain areas the turbines are viewed from these landscapes. It is considered however, that in terms of the siting and design, the 'mountain moorland' landscape type most strongly influences the siting and design of the Cleanrath wind farm development. Further details of this landscape character type are presented below:

The key characteristics of the 'Mountain Moorland' landscape type are:

- *Peaked, ridged or rolling mountains and upland with steep sides or gently formed valleys;*
- *Generally unenclosed;*
- *Landcover comprising blanket bog, a mottling of heather, wild grasses and some rush in wet flushes; and*

- *A landscape type of relative remoteness and often comprising pristine, unspoilt and remote landscapes. This landscape type is horizontal, open, extensive and also characterised by a sense of remoteness.*

The best practice siting and design guidance given for 'mountain moorland' in the and DoEHLG(2006) guidelines is set out below:

Location
It may be acceptable to locate wind energy developments on ridges and peaks. They may also be appropriate, in certain instances, in a saddle between two peaks where they will be partially contained or "framed". A third acceptable location is lower down on sweeping mountainsides.

Spatial Extent
Given the typical extensive areas of continuous unenclosed ground, larger wind energy developments can generally be accommodated because they correspond in terms of scale. However, the spatial extent of a wind energy development would need to be reduced where a suggestion of smaller scale is provided by nearby landscape features.

Spacing
All spacing options are usually acceptable. Where a wind energy development is clearly visible on a crest or ridge there is considerable scope to vary the rhythm, though on simple ridges, regular spacing may be more appropriate. On sweeping and continuously even areas of mountain moorland or upland plateaux regular spacing may be most desirable.

Layout
All layout options are usually acceptable. However, the best solutions would either be a random layout, and clustered where located on hills and ridges, or a grid layout on sweeping and continuously even areas of moorland or plateaux. Where a wind energy development is close to a linear element, such as a river, road or long escarpment, a corresponding linear layout or staggered line might be most desirable.

Height
There would generally be no height restrictions on mountain moorlands as the scale of landscape is so great. However, shorter turbines may be more appropriate where they are located on small peaks and outcrops in order to maintain an appropriate scale. Profile, whether even or uneven, is dependent on topography: the more rugged and undulating (e.g., knolls and crags) the more uneven it will be. The profile of the wind energy development should not necessarily run in parallel to that of the topography.

Cumulative Effect
The open expanse of such landscapes can absorb a number of wind energy developments, depending on their proximity. The cumulative impact will also depend on the actual visual complexity of landform, whether steeply rolling, undulating or gently sweeping. The more varied and undulating an area is topographically, the greater its ability to absorb and screen wind energy developments. The aesthetic effect of wind energy developments in these landscapes is acceptable where each one is discrete, standing in relative isolation.

The Cleanrath wind farm development is in accordance with the above guidance in terms of location (appropriately framed in a saddle around the hilltop of Derrineanig), spatial extent (moderate and well within keeping of the surrounding landscape scale) spacing (regular), layout (clustered, appropriate for a hill and ridge), height (in keeping with the landscape scale) and cumulative effect (varied and undulating topography).

13.5.2.2 Site Visit Findings

13.5.2.2.1 *Physical Landscape Unit*

The topography, vegetation and anthropological features on the land surface in an area combine to set limits on the amount of the landscape that can be seen at any one time. These physical restrictions form individual areas or units, known as physical units, whose character can be defined by aspect, slope, scale and size. A physical unit is generally delineated by topographical boundaries and is defined by landform and landcover.

The topography of this physical landscape unit is that of an upland area. The physical landscape unit in which the Cleanrath wind farm development site is located is part of an upland landscape which is surrounded by higher ground on several sides - by the Derrynasaggart mountains to the north, and the Shehy mountains to the west and south-west.

There are no large settlements located within the physical landscape unit. Settlements generally take the form of small, scattered villages, linked by the local road network which includes the settlements of Reananerree, Inchigeelagh and Ballingeary. Pastoral agriculture forms the primary land-use within the physical unit, followed by coniferous forestry.

13.5.2.2.2 *Landform and Geological Processes*

Present-day landscapes owe their form to the geological materials from which they were carved. Landform is the term used to describe the spatial and formal arrangement of landscape components as a natural product of geological and geomorphologic processes in the past and refers primarily to topography and drainage.

Geological Processes

The southern halves of Counties Cork and Kerry are underlain by Old Red Sandstone of the Devonian Age. This is primarily a 'Mountains and rivers' environment in which red sand and mud was deposited among semi-arid mountains by large river systems. This subsiding basin of the southwest received a vast thickness of sediment, which forms the underlying geology today.

The combination action of ice and water during periods of glaciation in Ireland has produced a highly varied landscape. The majority of the sediments visible today are the result of the last glaciation, which was at its maximum some 24,000 years ago. In Munster, differential erosion has produced parallel ridges of Sandstone Mountains with fertile limestone floors between, through which rivers flow east- or westwards. In Counties Cork and Kerry, glaciation has accentuated this topography. The underlying subsoils in the Boggeragh Mountains comprise primarily sandstone till of the Devonian Age ('*The Physical Landscape of Ireland*', P. Abbott, 1998).

Topography

The Cleanrath wind farm development site is located in an area of upland, east and south of the Derrynasaggart and Shehy Mountains. The site lies to the north of Lough Allua. The topography of the site is undulating, and ranges in elevation from approximately 123 metres in elevation in the north of the site, to peak of 302 metres at Derrineanig. In the wider area, the land slopes towards the east, though there are several smaller hills which lie to the southwest, near Inchigeelagh.

To the south the hill of Turnaspidogy is the only hill which separates the Cleanrath wind farm development site from Lough Allua and its associated valley, along which the R585 runs. To the north of the site, the Toon River flows through an area of lowland. Figure 13-9 is a topographical map of the LVIA study area, it is presented and discussed later in this chapter (Section 13.8.3).

Drainage

The western section of the Cleanrath wind farm development site drains into Lough Allua which exists on the River Lee. The eastern section of the site drains into the Toon River which is a tributary of the River Lee. A small section of the turbine delivery route works drains into the Sullane Beg River.

Three turbines exist in the Lough Allua catchment while six turbines exist in the Toon River catchment. The length of the grid connection route within the River Lee catchment drains into Lough Allua. The remaining section of grid route within the Roughty River catchment drains directly into the Roughty River via minor streams.

13.5.2.2.3 *Landcover*

Landcover is the term used to describe the combinations of vegetation and land-use that cover the land surface. It comprises the more detailed constituent parts of the landscape and encompasses both natural and man-made features. The Cleanrath wind farm development site is part of a remote, rural upland landscape.

Current landcover within the site varies between the northern and southern portions of the site. To the north, the landcover consists of coniferous woodland, giving a sense of enclosure, while to the south, the site is more open and landcover comprises mostly open heath and rough grazing areas with rocky outcrops, as shown in Plate 13-3 below. The 9 turbines have been built as well as ancillary infrastructure such as access roads and hardstands which are shown below in Plate 13-4 and Plate 13-5.

Plate 13-3 Landcover consisting of peatland, heath and rocky outcrops in the south of the study area.

Plate 13-4 Access Road and Wind Turbine at the Cleanrath wind farm development Site.

Plate 13-5 Turbine Base and Hardstand Area at the Cleanrath wind farm development Site.

Plate 13-6 Landcover consisting of peatland, heath and rocky outcrops with adjacent coniferous forestry in the background.

The habitat map for the development site is presented in Chapter 6 of this rEIAR. Chapter 6, *Biodiversity* notes that the heath and peatland habitats cover approximately 63% of the study area and these mainly occur in mosaics as shown in Plate 13-6 above. Unvegetated areas of rock outcrops are widely distributed throughout most of the open areas and these give the area a rugged appearance, as shown in Plate 13-7 below. Wet heath is the more common heath type, and this occurs mostly in the south of the site.

Plate 13-7 Exposed rocky outcrops are characteristic throughout most of the Cleanrath wind farm development Site.

Land Use

Current land-use on the site comprises coniferous forestry, land for rough grazing and the infrastructure of the Cleanrath wind farm development.

Coniferous forestry occupies approximately 34% of the north-eastern part of the Cleanrath wind farm development site. To the south of the site, where the landcover is more open, sheep grazing is evident on the open heath areas, occasional cattle and horse grazing occurs at the fringes of the site. There is evidence of turf cutting on some areas of bog. The existing turbines and supporting infrastructure of the Cleanrath wind farm development contribute towards the land-use of the site.

Land uses in the wider landscape also consist of agriculture, forestry and tourism and recreation. It should be noted that there are a number of existing and permitted wind farms in the wider landscape.

Plate 13-8 Landcover consisting of peatland, heath and rocky outcrops with adjacent coniferous forestry in the background.

13.5.2.2.4 Visual Landscape Unit

A visual landscape unit is defined by spatial enclosure and pattern, i.e. by landform and land-cover. The limits of the views that are available from a particular area are therefore determined by the physical landscape, such as topographical and vegetation boundaries. At the site of the Cleanrath wind farm development, topography is the key limiting factor in defining the size of the visual landscape unit. Due to the elevated nature of the site, views of the surrounding landscape are available in most directions, thereby creating a large visual unit. Weather and atmospheric conditions also play a significant role in determining the extent of views available from the site. Hazy, wet or overcast conditions significantly reduce the size of the visual landscape unit. Views to and from the site are shown and described in Section 13.4, *Visibility of the Cleanrath wind farm development.*

In certain landscapes a physical feature, whether natural or cultural, may be of such dominance that it acts as a major focal point. Such features, referred to as image units, contribute to the creation of a strong identity or sense of place, for example Croagh Patrick in County Mayo. Image units are relatively rare. While the Shehy mountains are a distinctive feature of this landscape, there are no comparable image units in this area.

13.5.3 Landscape Character of the LVIA Study Area

13.5.3.1 County Cork

Twelve LCTs included in the CCDP and the 2007 County Cork Draft Landscape Strategy are located within the LVIA landscape character study area (within 15km of the Cleanrath wind farm development). As demonstrated in Figure 13-2 (above), these LCTs are identified as: 6; 8; 10a; 11; 12a; 12b; 13a; 15a; 15b; 16a; 16b; 16c.

Utilising the ZTV mapping exhibited in Figure 13-2, a preliminary assessment was conducted to screen out landscape receptors (LCTs) that have very little or no theoretical visibility of the Cleanrath wind farm development.

ZTV mapping shows only seven of the twelve LCTs will have any significant areas of theoretical visibility of the Cleanrath wind farm development. The remaining five LCTs (6; 11; 12b; 16b; 16c) have therefore been screened out from further assessment due to a lack of theoretical visibility and other mitigating factors such as onsite screening, and distance from the Cleanrath wind farm development.

The seven LCTs identified with areas of theoretical visibility of the Cleanrath wind farm development are:

- LCT 8 - Hilly River and Reservoir Valley;
- LCT 10a - Fissured Fertile Middleground (South of the Gearagh);
- LCT 12a - Rolling Marginal Middleground;
- LCT 13a - Valleyed Marginal Middleground;
- LCT 15a - Ridged and Peaked Upland;
- LCT 15b - Ridged and Peaked Upland; and,
- LCT 16a - Glaciated Cradle Valleys.

Appendix 13-2 details the key characteristics and sensitivity designations of each of these seven LCTs as designated by the CCDP and the County Cork Draft Landscape Strategy. Appendix 13-2 also utilises a best practice assessment methodology (detailed in Appendix 13-1) to determine the likely significant landscape and visual effects of the Cleanrath wind farm development on each of the seven LCTs. The results of these assessments are summarised and discussed in Section 13.8 of this Chapter.

Landscape Receptors likely to receive the most significant landscape and visual effects are evaluated further via assessment from representative viewpoints and photomontages, details of which are demonstrated in the photomontage assessment tables in Appendix 13-3.

13.5.3.2 County Kerry

Landscape Character Areas within county Kerry have been screened out of the LVIA study area due to the restricted visibility demonstrated on ZTV mapping as detailed in Section 13.3.1, *Scope and Definition of Landscape and Visual Impact (LVIA) Study Area.*

The communication and electricity connection cable laid in County Kerry is located in 'LCA-21 Upper Roughty River Valley' and an area of Rural Secondary Special Amenity. The description of LCA 21 prepared for the Kerry Renewable Energy Strategy 2012-2015 does not describe it as being a landscape of importance or of high sensitivity, the surrounding landscape receptors are determined to be of moderate sensitivity and there are no visual receptors of importance in the vicinity of the cable. The process of installing the cable only occurred for a short period of time during the construction phase, it induces no visual effects on the landscape during the operational phase of the Cleanrath wind farm development. Therefore, the magnitude of change of the cable on landscape and visual receptors in

County Kerry is negligible and the likely significant effects on the landscape has been determined as: 'imperceptible'.

13.5.4 Scenic Routes and Views - Preliminary Assessment

Using the ZTV mapping shown in Figure 13-5 (seen below), the Scenic Routes and Views existent within the LVIA Study Area (identified in section 13.5.1) that demonstrate no theoretical visibility, are not directed towards the site or have on-site visibility limitations have been screened-out from further assessment.

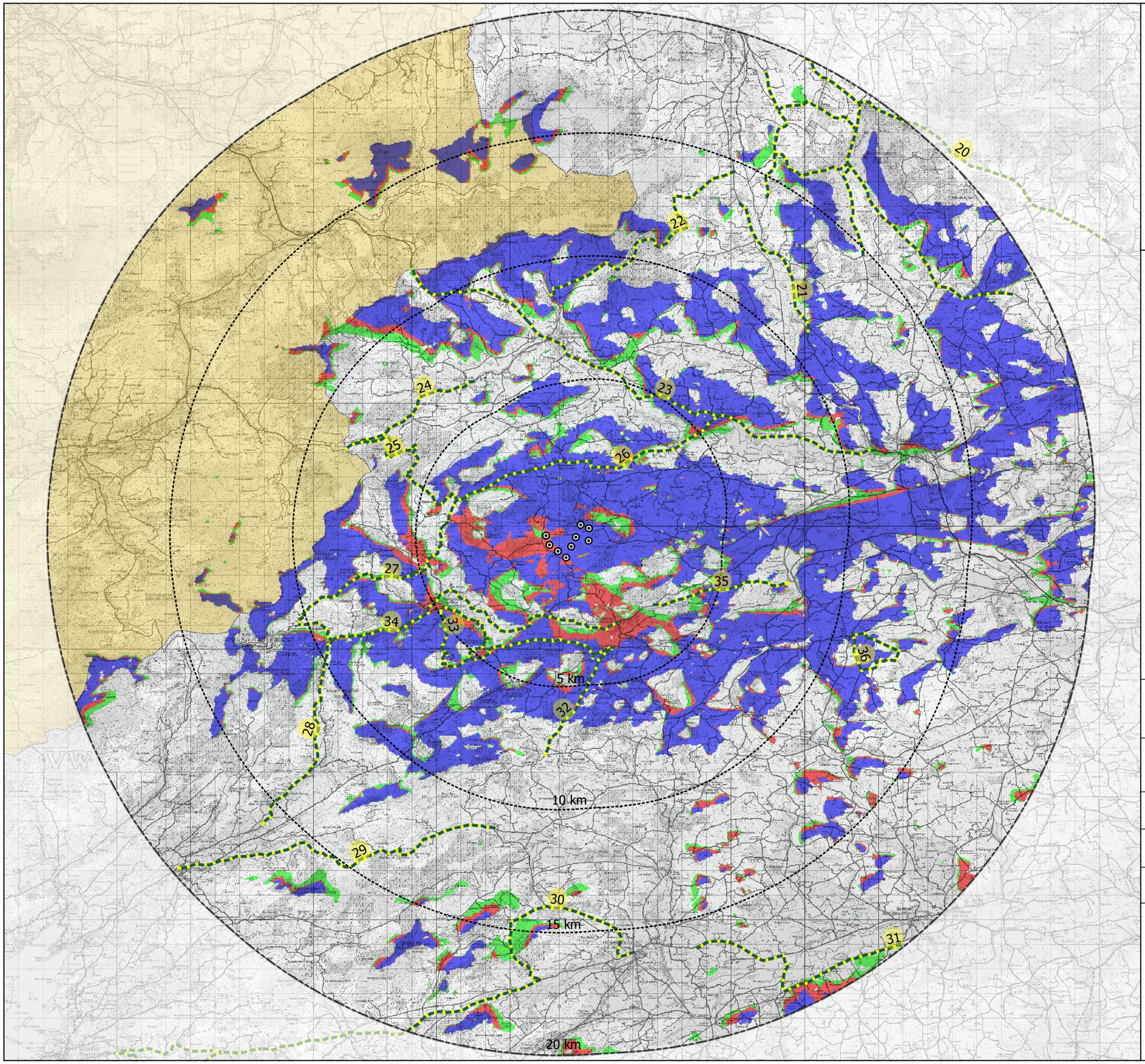
The screening process and photomontage viewpoints selected for assessing the visual effects of the scenic routes and views that have been screened in for further assessment are presented below:

Table 13-2 Scenic Routes Preliminary Assessment.

Scenic Route Number	Theoretical Visibility (TV) from ZTV Mapping Exercise.	View Directed towards the Site	Is Further Assessment Required?	Photomontage Viewpoint Location
Up to 5km				
SR25	No TV.	Partially	No	NA
SR26	Large stretch of Full TV located north of the Site.	Partially	Yes	VP01, VP10
SR27	Several sections of the route have Full TV of the site, these segments are >5km from the site.	Yes	Yes	VP08, VP09
SR32	Full TV along the south bank of Lough Allua.	Yes	Yes	VP06
SR34	Primarily no TV, Slight TV of the site near the town of Inchigeelach	Partially	Yes	VP05
SR35	Primarily no TV. One substantial area of Full TV at Kilbarry Hill.	Yes	Yes	VP04
5 to 10 km				
SR22	Minimal TV along the route. One area of full TV, however views are not directed towards the Site.	No	No	NA
SR23	Minimal visibility; small areas of Full TV at high elevations, >10km from the site.	No	No	VP11
SR24	No TV	No	No	NA
SR28	No TV	No	No	NA

Scenic Route Number	Theoretical Visibility (TV) from ZTV Mapping Exercise.	View Directed towards the Site	Is Further Assessment Required?	Photomontage Viewpoint Location
SR33	A stretch of Full TV is evident along higher elevations of the route at a distance >5 km from the site.	Partially	Yes	VP07
10 to 15 km				
SR21	No TV	No	No	NA
SR29	No TV	No	No	NA
SR30	No TV	No	No	NA
SR36	Areas of Full TV and No TV on the route. Vegetation and settlement screening found around the town of Terrelton. Views intermittent and are limited by distance.	Partial	No	NA
15 to 20 km				
SR20	Primarily No TV. One small area of Full TV evident on the route. Views of the development from this area of Full TV were very limited by vegetation screening and distance (area is approximately 17.5 km from the site).	Partial	No	NA
SR31	No TV	No	No	NA

Utilising the assessment methodology detailed in Appendix 13-1, the likely significant visual effects of the Cleanrath wind farm development on the seven designated Scenic Routes screened in for further assessment is summarised in Section 13.8 of this Chapter with assessment details presented in the photomontage tables in Appendix 13-3.



Map Legend

- Cleanrath Turbines
- LVIA Study Area
- County Kerry
- County Cork Designated Scenic Route

Half Blade ZTV

- 7 - 9 Turbines
- 4 - 6 Turbines
- 1 - 3 Turbines

N

Drawing Title

County Cork Designated Scenic Routes and Half Blade ZTV

Project Title

Cleanrath Renewable Energy Development, Co. Cork

Drawn By	Checked By
JW	MW
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Scale 1:150000	Date 07.07.20

MKO
Planning and Environmental Consultants

Tuam Road, Galway
Ireland, H91 VW84
+353 (0) 91 735611
email:info@mkoireland.ie
Website: ww.mkoireland.ie

13.6 Cumulative Baseline

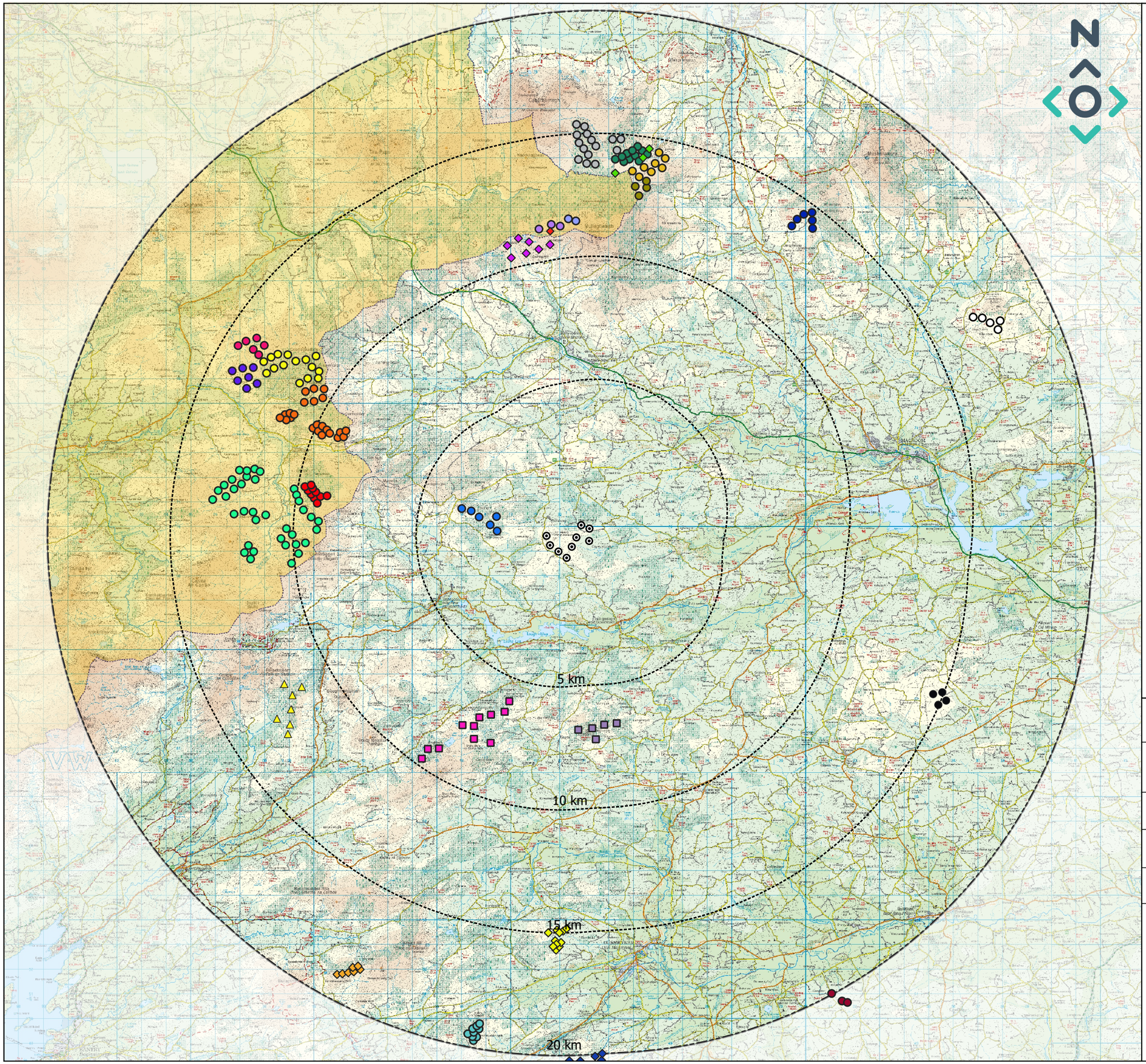
In terms of cumulative landscape and visual effects, only other wind energy projects have been considered, as only these would be described as very tall vertical elements in the landscape and therefore give rise to significant cumulative effects. Other wind energy developments, within 20 km of the Cleanrath wind farm development, were identified by searching past planning applications lodged through the various planning authorities (Cork County Council, Kerry County Council and An Bord Pleanála) online planning portals. The information identified in the initial planning search was then used to verify, by means of a desk-based study and ground-truthing, whether the permitted wind energy developments had been constructed. The list of existing and permitted wind turbines present within the study area are listed in Table 13-3 below:

Table 13-3 Existing, Permitted and Proposed Wind Farms within 20 km of the Cleanrath wind farm development.

Wind Farm	County	Status	No. of Turbines
Up to 5 km			
Derragh	Cork	Existing	6
5 to 10 km			
Carrigarierk	Cork	Under Construction	5
Grousemount/Barnastooka	Kerry	Existing	38
Midas	Kerry	Existing	23
Sillahertane/Coomagearlaghy II	Kerry	Existing	10
Shehy More	Cork	Under Construction	11
10 to 15 km			
Bawnmore 2	Cork	Existing	6
Caherdowney	Cork	Existing	4
Clydraghroe	Kerry	Existing	3
Clydraghroe/Cummeenabuddoge	Kerry	Existing	2
Clydraghroe Extension	Kerry	Permitted	1
Coomacheo	Cork	Existing	15
Coomagearlaghy /Kilgarvan	Kerry	Existing	15
Curragh	Cork	Existing	8
Curraglass	Cork	Proposed	7
Garranereagh	Cork	Existing	4

Wind Farm	County	Status	No. of Turbines
Gneeves	Cork	Existing	11
Gneeves Extension	Cork	Permitted	3
Inchincoosh	Kerry	Existing	6
Knocknamork	Cork	Permitted	7
Lettercannon	Kerry	Existing	7
15 to 20 km			
Bawnmore 1 / Kilberrihert	Cork	Existing	5
Derreenacrinnig West	Cork	Permitted	7
Dromleena	Cork	Permitted	11
Kilvinane	Cork	Existing	3
Knockeenboy	Cork	Permitted	6
Millane Hill	Cork	Existing	9

There are 27 number of existing, permitted and proposed wind farms within a 20-kilometre radius of the Cleanrath wind farm development. The locations of the 27 wind farms can be identified on the Cumulative Baseline map (Figure 13-6 seen below).



Map Legend

- Cleanrath Turbines
- LVIA Study Area
- County Kerry

Other Wind Farms in the LVIA Study Area

- Bawnmore 1 / Kilberrihert - Existing
- Bawnmore 2 - Existing
- Caherdowney - Existing
- Carrigarierk - Under Construction
- Clydraghroe - Existing
- Clydraghroe Extension - Permitted
- Clydraghroe / Cummeenabuddoge - Existing
- Coomacheo - Existing
- Coomagearlaghy/ Kilgarvan - Existing
- Curraglass - Proposed
- Curragh - Existing
- Derragh - Existing
- Derreenacrinnig West - Permitted
- Dromleena - Permitted
- Garranereagh - Existing
- Gneeves - Existing
- Gneeves Extension - Permitted
- Grousemount / Barnastooka - Existing
- Inchincoosh - Existing
- Kilvinane - Existing
- Knockeenboy - Permitted
- Knocknamork - Permitted
- Lettercannon - Existing
- Midas - Existing
- Milane Hill - Existing
- Shehy More - Under Construction
- Sillahertane / Coomagearlaghy II - Existing

Drawing Title
Cumulative Baseline

Project Title
Cleanrath Renewable Energy Development, Co. Cork

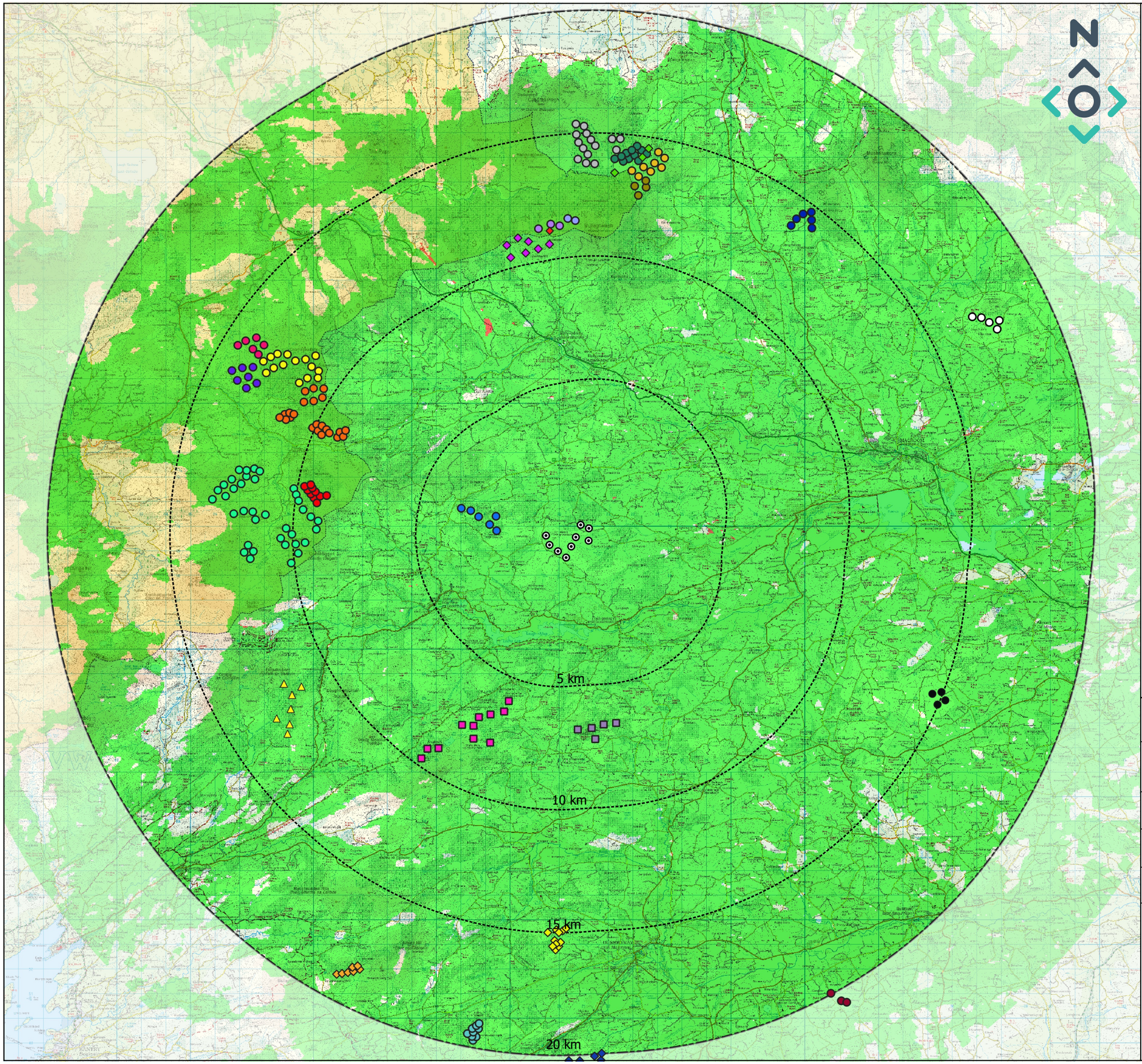
Drawn By	Checked By
JW	MW
Project No.	Drawing No.
191223-a	Figure 13-6
Scale	Date
1:150000	07.07.20

MKO
Planning and Environmental Consultants

Tuam Road, Galway
Ireland, H91 VW84
+353 (0) 91 735611
email:info@mkoireland.ie
Website: ww.mkoireland.ie

13.6.1 Comparative Cumulative Theoretical Visibility to Half-Blade Height

Figure 13-7 compares the cumulative theoretical visibility of all existing, permitted and proposed wind farms (represented in green) with any additional theoretical visibility of the Cleanrath wind farm development represented in red. Only two very small areas of red are evident in Figure 13-7, these areas are located north-west of the site and are the only areas within the LVIA study area where cumulative theoretical visibility increases as a result of the Cleanrath wind farm development. The very small proportion of red in the map clearly shows that due to the high proportion of existing, permitted and proposed turbines within 20 kilometres, and the insignificant visibility of the Cleanrath wind farm development from surrounding areas, the addition of the Cleanrath wind farm development is a negligible addition to the extent and pattern of visibility. Therefore, the absence of the Cleanrath wind farm development will be of negligible significance to cumulative theoretical visibility.



Map Legend

- Cleanrath Turbines
- LVIA Study Area

ZTV - Areas of Cumulative Theoretical Visibility

- Current - Any Existing or Permitted Turbines
- Additional Visibility - Cleanrath Turbines Only

Other Wind Farms in the LVIA Study Area

- Bawnmore 1 / Kilberrihert - Existing
- Bawnmore 2 - Existing
- Caherdowney - Existing
- Carrigarierk - Under Construction
- Clydraghroe - Existing
- Clydraghroe Extension - Permitted
- Clydraghroe / Cummeenabuddoge - Existing
- Coomacheo - Existing
- Coomagearlaghy/ Kilgarvan - Existing
- Curraglass - Proposed
- Curragh - Existing
- Derragh - Existing
- Derreenacrinnig West - Permitted
- Dromleena - Permitted
- Garranereagh - Existing
- Gneeves - Existing
- Gneeves Extension - Permitted
- Grousemount / Barnastooka - Existing
- Inchincoosh - Existing
- Kilvinane - Existing
- Knockeenboy - Permitted
- Knocknamork - Permitted
- Lettercannon - Existing
- Midas - Existing
- Milane Hill - Existing
- Shehy More - Under Construction
- Sillahertane / Coomagearlaghy II - Existing

Drawing Title	Comparative Cumulative Half Blade ZTV
Project Title	Cleanrath Renewable Energy Development, Co. Cork
Drawn By: JW	Checked By: MW
Project No.: 191223-a	Drawing No.: Figure 13-7
Scale: 1:150000	Date: 07.07.20

MKO
Planning and Environmental Consultants

Tuam Road, Galway
Ireland, H91 VW84
+353 (0) 91 735611
email:info@mkoireland.ie
Website: ww.mkoireland.ie

13.7 Representative Viewpoints and Photomontage Locations

The LVIA conducted in this chapter is part of a rEIAR and the turbines of the Cleanrath wind farm development are already built. The process of selecting viewpoint locations, taking representative photos and generating wide perspective photomontages follows the regular methodology prescribed by best practice guidance for LVIA. As the turbines are already constructed, there is no requirement to super-impose the Cleanrath wind farm development turbines within the photomontages as would be normal procedure, as the turbines are already existent within the landscape and images. Assessment of likely significant effects is based on the actual visibility of the project as determined by site visits and aided by the Photomontages.

Wireframe graphics and specialist software (See Appendix 13-1) have been used to superimpose recently permitted, proposed and under construction wind farms into the photomontages and baseline images in order to assess the cumulative effects of all other wind farms within the LVIA study area.

Locations within the LVIA study area were chosen to serve as representative viewpoints of the Cleanrath wind farm development from landscape and visual receptors screened in for further assessment after multiple site visits and a desktop mapping assessment. Several other factors governed the choice of viewpoint locations:

- The methodology outlined in Appendix 13-1 based on best practice guidance for viewpoint selection and photomontage assessment.
- Landscape and Visual receptors screened in through ZTV mapping exercises and site visits, including views from local settlements, populated areas, local and regional roads and scenic routes and views.
- Viewpoint locations were chosen that incorporate the cumulative landscape effects of other wind farm developments within the LVIA study area.
- The photomontage locations are consistent with the previously permitted planning application (PL Ref: 15/06966), providing continuity and the capacity for direct comparison with the previous proposal and EIS documentation.

Please refer to Appendix 13-1 for a comprehensive description of the methodology deployed during the creation and assessment of the photomontages used for this LVIA, also included in Appendix 13-1 are an overview of the limitations that can inhibit the utility of the photomontage method.

11 No. viewpoint locations were selected for the preparation of photomontages in this LVIA, the location of these viewpoints are described in Table 1-1 of Appendix 13-3. The photomontages are presented in the photomontage booklet accompanying this rEIAR. Assessment of likely or significant landscape and visual effects of the Cleanrath wind farm development are demonstrated in the Photomontage Assessment tables in Appendix 13-3, photomontage assessment results are summarised in the following Section.

A total of 27 photomontage viewpoints were used in the previous EIS (PL Ref: 15/06966). The 11 viewpoint locations selected (from the previous 27) in this rEIAR are representative of the actual visual effects of the Cleanrath wind farm development and have been deemed appropriate to aid the assessment. The assessment is predominantly based on multiple site visits taking account of the actual views of the Cleanrath wind farm development from all receptors in the LVIA Study area.

Table 13-4 (below) shows the assessment results of the 16 photomontage viewpoint locations used in the previous EIS that were not used in this LVIA. In 2015, the likely visual effects of the proposed development at these locations were low and insignificant, recorded as: Slight(11), Imperceptible(3), Imperceptible/Slight(1) and Moderate(1). The current assessment concurs with these findings based on actual views of the actual Cleanrath wind farm development in 2020.

Considering that the as-built Cleanrath wind farm development has 2 no. less turbines than the originally proposed development, there is no likelihood that visual effects are greater as a result of the Cleanrath wind farm development and this has been confirmed on the ground.

Table 13-4 Visual Impact Assessment Results from 2015 EIS, includes Viewpoints precluded from assessment in this rEIAR.

Photomontage Viewpoint (EIS - PL Ref: 15/06966)	Significance of Visual Effects
1	Slight
2	Slight
4	Slight
5	Imperceptible
6	Slight
8	Slight
13	Slight
14	Imperceptible
18	Slight
19	Imperceptible to Slight
20	Imperceptible
22	Moderate
23	Slight
24	Slight
26	Slight
27	Slight

Photomontage viewpoint No.22 is the only location that recorded 'Moderate' visual effects in the 2015 EIS (Table 13-4, above) that has not been brought forward for assessment in this rEIAR; this viewpoint location was not assessed as part of this LVIA due to its close proximity and the similarity in view to Viewpoint 01 which is addressed in Table 13-6 of this LVIA.

The locations of the 11 photomontage viewpoints taken forward for assessment in this rEIAR are demonstrated in Figure 13-8 below. Table 13-7, *Summary of Viewpoint Impact Assessment Results* shows the Viewpoint numbers used for this rEIAR.

Map Legend

- Cleanrath Turbines
- Photomontage Viewpoint Locations

5 km

10 km

Drawing Title

Photomontage Viewpoint Locations

Project Title

Cleanrath Renewable Energy Development, Co. Cork

Drawn By	Checked By
JW	MW
Project No.	**Drawing No.**
191223-a	Figure 13-8
Scale	**Date**
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MKO
Planning and Environmental Consultants

Tuam Road, Galway
Ireland, H91 VW84
+353 (0) 91 735611
email:info@mkoireland.ie
Website: ww.mkoireland.ie

13.8 Likely or Significant Landscape and Visual Effects

13.8.1 'Do-Nothing' Scenario

A do-nothing option to developing the Cleanrath wind farm development would have been to leave the site as it was prior to construction, with no changes made to the land-use practices of low-intensity agriculture, turf cutting and commercial forestry. This option would have no positive impact with regards to the production of renewable energy or the offsetting of greenhouse gas emissions. On the basis of the positive environmental effects arising from the Cleanrath wind farm development, the do–nothing scenario was not the chosen option. Instead, an application for planning permission was made and granted ultimately by An Bord Pleanála.

The Cleanrath wind farm development has been constructed, has been operational and is now operating in Sleep Mode with the site essentially in a shut-down mode with no export of electricity pending the outcome of the Substitute Consent process. In the event that Substitute Consent is obtained, the intention is to recommence and continue the full operation of the Cleanrath wind farm development until the end of 25 years from the formal commissioning of the turbines in July 2020 and implement the decommissioning plan for the Cleanrath wind farm development at the end of the operational period.

In the event that Substitute Consent is not granted and full operation of the development is not recommenced, it will remain in Sleep Mode which is, in effect, the "do nothing" option insofar as it represents the current situation as at the date of the application for Substitute Consent. There is the possibility that the decommissioning plan may need to be implemented early, should Substitute Consent not be granted and therefore this is also assessed in this rEIAR and below.

13.8.2 Construction Phase Effects

The construction phase of the Cleanrath wind farm development lasted approximately 16 months. This stage of the development involved temporary construction compounds, borrow pit, construction of access roads and all associated underground electrical and communications cabling connecting the turbines to the existing ESB Networks Coomataggart substation in the townland of Grousemount, Co. Kerry. The associated effects resulting from the movement of construction and turbine transport vehicles into and out of the site, to allow the construction of the turbines and associated elements.

13.8.2.1 Landscape Effects

There was a short-term, imperceptible, negative effect in terms of landscape effects associated with the construction of the Cleanrath wind farm development.

13.8.2.2 Visual Effects

During the construction phase many of the requisite construction activities such as building tower sections and erecting the turbines gave rise to a short-term, slight, negative visual effects. The equipment and vehicles required to transport and erect the wind farm components included large cranes and large haulage vehicles, these may have induced minor short-term negative visual effects. A detailed description of other construction activities are included in Chapter 4 of this rEIAR, *Description of the Cleanrath wind farm development* and the Construction and Environmental Management Plan that forms an Appendix of Chapter 4.

For more details on the visual effects of the ancillary project elements see 'Ancillary Project Elements' in Section 13.8.3 Operational Phase Effects.

13.8.3 Operational Phase Effects

The turbines have been constructed and during the current 'Sleep Mode' the turbines are allowed to turn and face the wind. Should the Cleanrath wind farm development recommence full operation, the potential landscape and visual effects will essentially be the same as the current 'Sleep Mode' and so the rEIAR and EIAR assessments are similar.

13.8.3.1 Landscape Effects

13.8.3.1.1 *Landscape Character Areas*

An assessment of the effects on landscape character was undertaken for the seven LCTs within the LVIA study area that were identified as having significant theoretical visibility in the Landscape Receptor Preliminary Assessment. The individual assessments for each LCT are presented in Appendix 13-2 and are summarised in Table 13-5 below.

Table 13-5 Summary of Landscape Effects of Landscape Character Types.

Landscape Character Type (LCT)	LCT Sensitivity to Wind Farm Development	Magnitude of Change	Significance of Landscape Character Effect
LCT 8 - Hilly River and Reservoir Valley.	High	Slight	Moderate
LCT 10a - Fissured Fertile Middleground (South of the Gearagh);	Low	Slight	Not Significant
LCT 12a - Rolling Marginal Middleground;	Moderate	Moderate	Moderate
LCT 13a - Valleyed Marginal Middleground;	Moderate	Slight	Minor
LCT 15a - Ridged and Peaked Upland;	Moderate	Moderate	Moderate
LCT 15b - Ridged and Peaked Upland	Moderate	Slight	Slight
LCT 16a - Glaciated Cradle Valleys	High	Negligible	Slight

The Cleanrath wind farm development is located in both LCT 12a and LCT 15a neither of which are considered High Value Landscape in the CCDP. These LCTs recorded Moderate landscape character effects due to the moderate changes that the Cleanrath wind farm development has brought about in isolated areas of both LCTs. These landscape effects are only limited to areas of the LCTs in close proximity to the Cleanrath wind farm development. Factors such as topographical screening and distance greatly mitigate the effects of the Cleanrath wind farm development on the landscapes of these LCTs.

The assessments determined that the Cleanrath wind farm development induces only Slight, Not Significant or Moderate effects on the landscapes of the other LCTs assessed within the LVIA study area. No significant landscape effects occur in these LCTs as a result of the Cleanrath wind farm development.

Where Slight or Moderate landscape effects are present, they are often mitigated by several factors such as: Strategic siting and design of the Cleanrath wind farm development; Screening from topography and vegetation; Distance from the Cleanrath wind farm development; or they are remote areas with a lack of visual receptors.

13.8.3.2 Cumulative Landscape Effects

After identifying the cumulative baseline and cumulative status for each LCT it was assessed to what extent the addition of the Cleanrath wind farm development changes the status of the individual LCTs. It was found that only in the LCTs within which the Cleanrath wind farm development is located (LCT 12a & LCT 15a) and do the cumulative landscape status change.

Although, it was found that the Cleanrath wind farm development adds to the cumulative landscape status, it would not change the character of the individual LCTs in terms of wind energy and therefore the cumulative landscape effects are considered Low.

There are other wind farms in the landscape surrounding the Cleanrath wind farm development (LVIA Study Area) which primarily consists of areas designated for wind energy development. When viewed from the vast majority of selected photomontage viewpoints, the Cleanrath wind farm development is often framed within a view with other existing or permitted wind energy developments and does not therefore solely increase the vertical or horizontal spatial extent of wind farms seen within the landscape. When viewed cumulatively with the other existing or permitted wind farms, the Cleanrath wind farm development does not transform or redefine the baseline landscape character.

13.8.3.3 Visual Effects

13.8.3.3.1 *Summary of Viewpoint Assessment*

An assessment of the visual effects of the Cleanrath wind farm development was undertaken from the eleven photomontage viewpoint locations identified in Section 13.7 and Appendix 13-3 using the assessment methodology described in Appendix 13-1. The locations of the photomontage viewpoints are shown above in Figure 13-8. The individual assessments from the eleven viewpoints are presented in Appendix 13-3 and summarised in Table 13-6 below. Appendix 13-3 and Table 13-6 should be read in conjunction with the photomontage booklet forming Volume 2 of the rEIAR.

The visual effects of the Cleanrath wind farm development wind turbines were assessed from each viewpoint in terms of the sensitivity of the visual receptors, along with the magnitude of change, as recommended in the GLVIA (2013) guidelines. This, in conjunction with a detailed review of the photomontages themselves and the ZTV maps, informed the visual effects assessment.

Visualisations such as photomontages are tools that can represent the likely effect of a development and are used to inform the reader's prediction of how that development will appear in the landscape. The photomontages themselves act to inform the reader of potential effects at specific locations. In the case of this project, anyone visiting the site and the areas around the site has the ability to see the turbines, if visible, from all locations around the site. In this case, the assessment is not reliant on the photomontages to the extent that it may be for traditional projects.

In terms of the visual quality of the as-built Cleanrath wind farm development however, i.e. whether a visual effect is deemed to be positive, negative or neutral, this involves a degree of subjectivity. What

appears to be a positive effect to one viewer could be deemed to be a negative effect by another viewer. All visual effects of the viewpoints below are Long Term and Direct effects.

In general, Mountain Moorland wind farm sites tend to be capable of absorbing suitably designed wind farm projects of scale. Key reasons enabling the Cleanrath wind farm development to be effectively absorbed by the landscape of the site and surrounding area are outlined below and will be evident in the photomontages:

1. ***Topography and positioning of the site saddled around a hilltop ridge:***
   Topographical landform screens most visibility from the central and northern locations of the Landscape Character Area within which the site is located. In general, the surrounding high mountainous landscape contributes to obscuring views from various sensitive receptors and also forms a backdrop when viewing the turbines from certain sectors (See the ZTV and VP 02, 03, 04 and 05 as examples). Visual clutter and confusion are avoided as the topography ensures minimal overlapping with other landscape elements such as buildings, roads, power or telegraph poles. The exposed and remote nature of the Cleanrath wind farm development enables the landscape to absorb the scale of the wind farm in comparison to any surrounding forestry and settlements, mitigating the potential for overbearing or domineering effects whilst providing adequate setback from visual receptors.

2. ***Presence of commercial forestry and surrounding agricultural land:***
   Stands of commercial forestry are a prominent feature to the north of the Cleanrath wind farm development, also, agricultural land and roads in surrounding landscape areas are regularly bordered by hedgerows and pockets of woodland or shrub. Located between visual receptors and the Cleanrath wind farm development turbines, these vegetational elements of the landscape provide screening, obscuring large numbers of turbines or making those views of the turbines intermittent in nature. The ZTV does not take into account this screening and hence ZTV mapping can only be considered accurate where no visibility is indicated. In areas where theoretical visibility is indicated, actual visibility on the ground is often diminished by screening factors.

3. ***Mountain ranges and steep glaciated valleys:***
   The landscape of the LVIA study area (particularly to the west, north-west and south-west) are composed of steep glaciated valleys and mountainous terrain; the location of settlements and transport networks in these areas tend to be located on lower ground within the valleys where views of the Cleanrath wind farm development are mostly screened by the topography and landform. Where the ZTV mapping indicates full visibility in these areas, it is typically confined to higher elevations on valley ridges where the presence of visual receptors is reduced, therefore, the visual and landscape effects of the Cleanrath wind farm development in these areas are greatly limited.

Table 13-6 Viewpoint Assessment Summary

VP No	2015 EIS PL No.	Description	Grid Ref.	Approx. distance & direction to nearest turbine	Visual Sensitivity of Receptor(s) (at viewpoint)	Magnitude of Change	Residual Significance of Visual Effect
01	10	View from a local road outside the village of Reananerree in the townland of Reananerree. The view is located on County Cork Scenic Route 26.	E120796; N72600	2.53 km N	**Medium**	**Moderate**	**Moderate**
02	9	View from a local road outside the village of Kilnamartery in the townland of Ballyvoge.	E126025; N72142	5.29 km NE	**Medium**	**Moderate**	**Moderate**
03	21	The view from a local road in the townland of Lisboy More.	E123620; N69928	2.4 km E	**Low**	**Moderate**	**Slight**
04	16	View from a local road in the townland of Carrignaneelagh. The view is located on County Cork Scenic Route 35.	E126772; N67408	5.90 km SE	**Medium**	**Moderate**	**Moderate**
05	3	View from the R584 regional road in the townland of Inchigeelach. The view is located on County Cork Scenic Route 34.	E122154; N65987	3.32 km SE	**Medium**	**Slight**	**Slight**
06	7	View from South Lake local road on the southern shore of Lough Allua in the townland of Coornahahilly. The view is located on County Cork Scenic Route 32.	E118939; N65404	3.60 km SW	**Medium**	**Moderate**	**Moderate**
07	12	View from a local road in the townland of Kealvaugh More south of Ballingeary. The view is located on County Cork Scenic Route 33.	E115313; N65368	5.78 km SW	**Medium**	**Slight**	**Slight**
08	15	View from a local road in the townland of Gortnaloughra. The view is located on County Cork Scenic Route 27.	E111367; N67619	8.32 km SW	**High**	**Negligible**	**Imperceptible**

VP No	2015 EIS PL No.	Description	Grid Ref.	Approx. distance & direction to nearest turbine	Visual Sensitivity of Receptor(s) (at viewpoint)	Magnitude of Change	Residual Significance of Visual Effect
09	25	View from a local road in townland of Keamcorravooly. The view is located on County Cork Scenic Route 27.	E113966; N67998	5.72 km SW	**Medium**	**Moderate**	**Moderate**
10	11	View from a local road in the townland of Derryfineen. The view is located on County Cork Scenic Route 26.	E118005; N72103	2.88 km NW	**Medium**	**Moderate**	**Moderate**
11	17	View from the N22 National Primary Road between Ballyvourney and Ballymakeery in the townland of Flats. The view is located on County Cork Scenic Route 23.	E120373; N76937	6.89 km N	**High**	**No Change**	**No Impact**

The assessment of visual effects determined the residual significance of the visual effects to range from 'imperceptible' to 'moderate', with the number of findings at each level of significance listed in Table 13-7 below.

Table 13-7 Summary of Viewpoint Impact Assessment Results

Significance of Residual Visual Effect	Description	No. of Viewpoints
Profound	An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment	0
Very significant	An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment	0
Significant	An effect, which by its character, magnitude, duration or intensity alters a sensitive aspect of the environment	0
Moderate	An effect that alters the character of the environment in a manner consistent with existing and emerging baseline trends	6
Slight	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities	3
Not Significant	An effect which causes noticeable changes in the character of the environment but without significant consequences.	0
Imperceptible	An effect capable of measurement but without significant consequences	1
No Impact	No Visual or Landscape Effects	1

The significance of the residual visual effect was not considered to be "Profound", "Very Significant" or "Significant" at any of the 11 viewpoint locations. A residual visual effect of "Moderate" was deemed to arise at six of the 11 viewpoint locations. All other viewpoints were assessed as resulting in Slight (3) Imperceptible (1) residual visual effects, whilst no landscape and visual effects occurred at one viewpoint location.

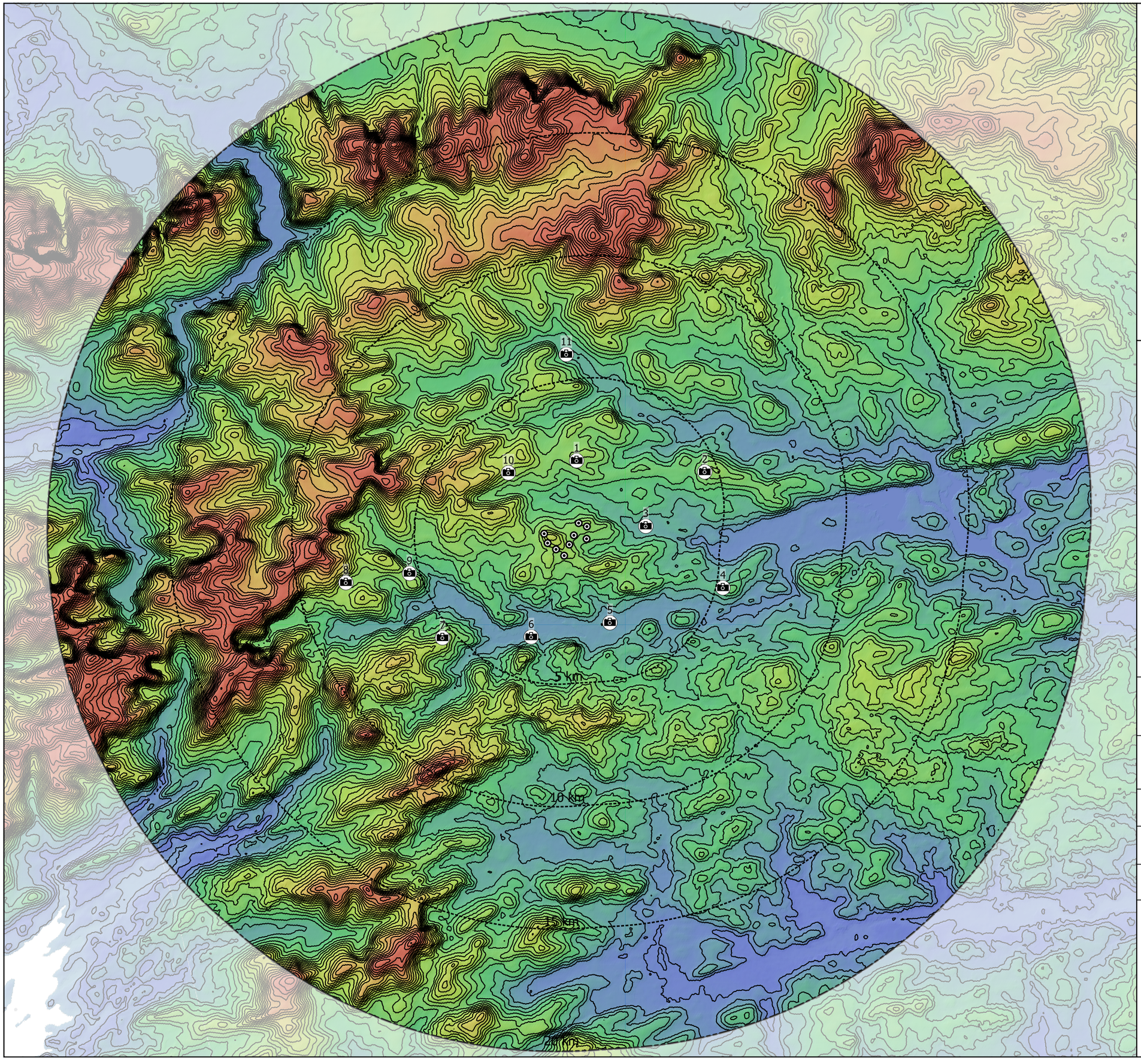
The viewpoint assessment results will be discussed in more detail in the following sections.

13.8.3.3.2 Visual Effects in the overall study area

The ZTV map and the site visits shows that visibility is impeded by various significant upland areas to the north, west and south of the Cleanrath wind farm development. Reduced theoretical visibility is attributed to the large topographical gradients occurring in the LVIA study area surrounding the Cleanrath wind farm development, as illustrated in the topographical map, Figure 13-9 below.

As demonstrated in the ZTV map (Figure 13-1), theoretical visibility is concentrated within a 5 km radius of the Cleanrath wind farm development, most of which is located in the immediate vicinity of the site. Large patches of no theoretical visibility occur immediately to the south-west, south and south-east of the Cleanrath wind farm development, the most concentrated areas of full theoretical visibility extend to the north and north east. Within a 5-10 km radius of the Cleanrath wind farm development, visibility occurs to the south, east and west mainly, with areas of no visibility occurring to the northwest and north.

Between 10 and 20 Kilometres theoretical visibility decreases greatly, with very little visibility to the south and west, the higher ground to the south of Lough Allua near Carrigarierk and Shehy Beg and the Kerry Mountains significantly restricting visibility, with the result that there is very little visibility from Co. Kerry. The amenity area around the lake at Gougane Barra will not have theoretical visibility, while there is theoretical visibility from the higher ridges. To the north, the Derrynasaggart mountains restrict visibility. To the east, there are some areas of theoretical visibility, including Macroom, though on-site assessments found that there was limited visibility on the ground. To the east, ZTV indicates potential visibility from the Gearagh although the undulating hilly landscape and winding valleys were found to mitigate the effects on visual receptors as well as vegetational screening factors.



Map Legend

- Cleanrath Turbines
- LVIA Study Area
- Photomontage Viewpoint Locations

Elevation Above Ordnance Datum

- 0 metres
- 1 metres
- 50 metres
- 150 metres
- 250 metres
- 350 metres
- 450 metres
- Elevation Contour - 20 Metre Interval

Drawing Title

Topography

Project Title

Cleanrath Renewable Energy Development, Co. Cork

Drawn By	Checked By
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MKO
Planning and Environmental Consultants

Tuam Road, Galway
Ireland, H91 VW84
+353 (0) 91 735611
email:info@mkoireland.ie
Website: ww.mkoireland.ie

13.8.3.3.3 Visual Effects Within Five Kilometres of the Cleanrath wind farm development Site

Viewpoints 02 & 03:
Within 5km of the Cleanrath wind farm development, there are relatively unrestricted views of the turbines from the north-east, these views are represented by Photomontage Viewpoints 02 and 03 which were deemed to have Moderate and Slight residual visual effects respectively. As demonstrated in Viewpoint 02, the open undulating character of this landscape is populated with an abundance of screening elements such as mixed woodland and roadside hedgerows which mitigate the impacts of the Cleanrath wind farm development on localised visual receptors. From viewpoint 02 the Cleanrath wind farm development is appropriately scaled and absorbed effectively within the landscape as the turbines are viewed against a backdrop of distant mountains. Viewpoint 03 is in close proximity to the Cleanrath wind farm development and demonstrates how forestry and treelines to the north and northeast of the site has a capacity to reduce visual effects of the Cleanrath wind farm development on visual receptors in that area.

Viewpoints 01 & 10:
The ZTV shows full theoretical visibility extending approximately 3 kilometres to the north and north-west, these areas are represented by Photomontage Viewpoints 01 and 10 which were deemed to have Moderate residual visual effects. These viewpoint locations are considered receptors of relatively high sensitivity due to their locations on scenic routes and close proximity to small settlements and residential housing. The visual effects were greatly mitigated by strategic siting and scaling of the Cleanrath wind farm development. From both viewpoints, visual stacking is avoided and the turbines read as a coherent understandable element of the landscape. Most turbine blades and all turbine nacelles are viewed above the horizon and do not significantly obstruct or interfere with any views from both perspectives, eliminating the potential for visual confusion. Also, road users in these areas typically travel in a direction perpendicular to the Cleanrath wind farm development and the focus of their view is not focussed towards the turbines.

Viewpoints 05 & 06:
Within 5 kilometres of the Cleanrath wind farm development, ZTV mapping shows that elevated landforms north of Lough Allua and Inchigeelach reduce visibility of the Cleanrath wind farm development to the south-west, south and south-east. Visual receptors such as settlements and roads are predominantly located at lower elevations within the steep glaciated valleys where there is significantly less theoretical visibility of the Cleanrath wind farm development. Photomontage Viewpoints 05 and 06 are representative of areas to the south-east and south-west with Slight and Moderate residual visual effects respectively. Where the Cleanrath wind farm development can be seen from these lower elevated viewpoints, turbines of the Cleanrath wind farm development are only seen above the horizon with no other landscape elements visible as a backdrop, mitigating visual clutter or confusion. As demonstrated in Viewpoint 06, the Cleanrath wind farm development does not obscure or obstruct the views over Lough Allua.

13.8.3.3.4 Visual Effects Greater Than Five Kilometres from the Cleanrath wind farm development Site

Viewpoints 08 & 09:
Photomontage Viewpoints 08 & 09 were selected for their proximity to the highly sensitive landscape of the Gaugane Barra and their location on Scenic Route 27 to the south-west of the Cleanrath wind farm development. No visibility was found within the Gaugane Barra. Imperceptible residual visual effects were recorded at Viewpoint 08 and Moderate residual visual effects at Viewpoint 09. Views of the Cleanrath wind farm development from Photomontage Viewpoint 08 was greatly mitigated by distance and both Viewpoints 08 and 09 were screened by topography, with evidence of vegetational screening found along other sections of Scenic Route 27. Due to its close proximity with the Derragh Wind Farm,

views from Viewpoint 09 included cumulative effects, however, strategic design and siting mitigated these cumulative visual effects, enabling the landscape to absorb both developments effectively.

Viewpoint 04:
Photomontage Viewpoint 04 represents areas of theoretical visibility to the south-east of the Cleanrath wind farm development on Scenic Route 35 where there is an open undulating landscape with open views towards the Cleanrath wind farm development from higher elevations. The Cleanrath wind farm development is visible from this viewpoint location as are several other wind farms in the background of the view. Visual effects from this area are greatly mitigated by distance, appropriate scaling of the Cleanrath wind farm development turbine envelopes within the landscape and vegetational screening. The residual visual effects were recorded as Moderate from this perspective.

Viewpoint 07:
The town of Ballingeary is situated approximately 5.3 km south-west of the Cleanrath wind farm development, ZTV mapping shows theoretical visibility to be partial in some areas of the town, on-site visibility of the Cleanrath wind farm development from Ballingeary was greatly limited by screening of vegetation and man-made structures within the town. Photomontage Viewpoint 07 is located on higher ground 1.3 km south of Ballingeary, it is therefore representative of visual receptors in proximity to the town and also Scenic Route 33 where the viewpoint is located. Residual visual effects were recorded as Slight, as the Cleanrath wind farm development does not obstruct or impede the open and expansive view from the scenic route. The Cleanrath wind farm development is suitably sited to avoid visual clutter and appropriately scaled, enabling effective absorption within the landscape. Also, views from this location and cumulative effects of the Derragh wind farm are both greatly mitigated by distance.

Viewpoint 11:
Photomontage Viewpoint 11 is located 6.89 km north of the Cleanrath wind farm development, on the N22 National road just outside the town of Ballyvourney on Scenic Route 23. This Viewpoint location incorporates receptors of high sensitivity as the N22 is an important transport network between County Cork and County Kerry. No visibility of the Cleanrath wind farm development was recorded at this location, therefore, there was no impact on landscape or visual receptors.

13.8.3.3.5 *Ancillary Project Elements*

For the purposes of this LVIA, a number of individual elements of the Cleanrath wind farm development, ancillary to the wind turbines, have been grouped together for the assessment of effects, given the similar nature of the construction work that was completed. These operational project elements include the roads and turbine hardstand areas and grid connection components that give rise to similar landscape and visual effects.

Due to the topography of the Cleanrath wind farm development site and surrounding areas, the lower ancillary project elements are visible in their immediate surroundings, hence, any visual effects will be localised and predominantly confined to within the Cleanrath wind farm development site.

Visual effects arising from the ancillary project elements are slight, localised and long-term where seen, but remain largely unseen from within and outside the site.

13.8.4 Cumulative Visual Effects

Cumulative visual effects were assessed as part of the Photomontage Viewpoint Assessment Tables found in Appendix 13-3. The methods used for assessing cumulative visual effects are outlined in the methodology appendix - Appendix 13-1. Several key factors are used to determine the cumulative visual effects: visual separation from other wind farms, visual disparity caused by wind farms of different scale and design being seen alongside the Cleanrath wind farm development, stacking and visual confusion that can occur from turbine overlap and also the extent at which the Cleanrath wind farm development increases the spatial extent of turbines within the landscape. For each cumulative

photomontage, the Cleanrath wind farm development is viewed in conjunction with all permitted, under-construction and recently proposed wind farm developments and assessed against aforementioned factors (visual separation, visual disparity, stacking, spatial extent). Mitigating factors are then considered to arrive at an overall result. The overall cumulative visual effects recorded for each photomontage viewpoint are exhibited in Table 13-8 below.

Table 13-8 Cumulative Effects

Photomontage Viewpoint No.	Overall Cumulative Visual Effects
01	Slight
02	Slight / Moderate
03	No Impact
04	Moderate
05	Imperceptible
06	Slight / Moderate
07	Slight / Moderate
08	Negligible
09	Slight
10	Negligible
11	No Impact

The photomontage assessments indicate that cumulative visual effects are Moderate from one viewpoint location, Slight/Moderate for three locations and are either Slight (2), Negligible (2), Imperceptible (1) or No Impact (2) for the other seven.

The Derragh wind farm is located in close proximity to the Cleanrath wind farm development, as such, the Derragh turbines contributed to the Moderate and Slight/Moderate cumulative visual effects recorded from viewpoint locations VP02, VP04, VP06 and VP07. Viewpoints VP07 and VP09 are located in close proximity to Derragh, in these instances, cumulative visual effects arising from the view of both the Derragh wind farm and the Cleanrath wind farm development together are mitigated by similar scaling, turbine design and strategic siting. Cumulative visual effects from other wind farm developments are significantly mitigated by distance from the Cleanrath wind farm development. A comparative ZTV (Figure 13-7, above) shows that the cumulative visibility over that of the existing and permitted turbines within the LVIA study area only increased in a small number of tiny pockets due to the addition of the Cleanrath wind farm development, and therefore it is considered that the Cleanrath wind farm development has not had a significant impact on the extent of cumulative visibility within the LVIA study area.

The landscape character is one of a large scale which contains open, expansive views, and these assist in allowing the landscape to accommodate a large number of turbines. Overall, it is considered that the cumulative impact can be described as Long term, Slight Cumulative Impact, given the amount of wind farm development that has already occurred and the limited numbers of additional turbines that have come into view as a result of the Cleanrath wind farm development.

13.8.5 Decommissioning Phase Effects (early or after 25 years)

The wind turbines installed as part of the Cleanrath wind farm development are expected to have a lifespan of approximately 25 years. Following the end of their useful life, the wind turbines may be replaced with a new set of machines, subject to planning permission being obtained, or the site may be decommissioned fully. Should early decommissioning be required the same process as outlined in Section 4.10 of the rEIAR will be employed and the same landscape and visual effects will occur.

The important element of decommissioning of the Cleanrath wind farm development from a landscape and visual impacts perspective is the dismantling and removal of the wind turbines. This will occur for a limited period of time and will predominantly involve cranes adjacent the turbines during the dismantling process. The landscape and visual effect of this is considered to be a temporary, imperceptible effect.

13.9 Conclusion

The Cleanrath wind farm development and associated infrastructure was well designed, and the design was informed by a detailed iterative process.

There will be no landscape effects on designations in County Kerry. The majority of landscape and visual receptors located in County Cork are not adversely affected by the Cleanrath wind farm development.

The seven designated County Cork Scenic Routes with visibility of the Cleanrath wind farm development were assessed based on site visits and using the photomontage methodology that follows best practice guidance for LVIA. Residual Visual Effects were recorded as Slight, Moderate and Imperceptible for these sensitive visual receptors. No significant visual effects were recorded for any designated Scenic Route as a result of the Cleanrath wind farm development.

In terms of landscape character, only County Cork's Landscape Character types *12a Rolling Marginal Middleground* and *15a Ridged and Peaked Upland*, in which the Cleanrath wind farm development turbines are located, experience direct effects on landscape character as a result of the Cleanrath wind farm development. Any other effects on other LCTs are indirect, as the Cleanrath wind farm development is visible from within these LCTs but located outside them. The site is not located within or close to any High Value Landscape areas designated with the CCDP and has not had any significant effect on these areas.

Although, it was found that the Cleanrath wind farm development adds to the cumulative landscape status, it has not changed the character of the individual LCTs in terms of wind energy and therefore the cumulative landscape effects are considered Low.

The visual assessment concluded that residual visual effects of "Moderate" was deemed to arise at six of the 11 viewpoint locations. All other viewpoints were assessed as resulting in Slight (3), No impact (1) or Imperceptible (1) residual visual effects.

Furthermore, it was shown that visibility is greatly restricted by the surrounding topography and actual visibility is further restricted by the effects of localised screening and changes in local topography. Therefore, the turbine locations and heights are considered appropriate for the Cleanrath wind farm development site.