

12. LANDSCAPE AND VISUAL

12.1 Introduction

This chapter of the Environmental Impact Assessment Report (EIAR) addresses the potential landscape and visual impacts of the proposed Lyrenacarriga Wind Farm. The emphasis in this chapter is on the likely significant effects of the proposal. It covers the assessment methodology, a description of the proposed development and the existing landscape based on relevant guidance. It includes a description of the landscape policy of Cork and Waterford County Councils, with specific reference to wind energy and the study area in which the proposed 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 proposed wind farm uses visibility mapping, representative viewpoints and photomontages as tools to inform the assessment which includes an assessment of landscape value and sensitivity. The potential impacts in both landscape and visual terms are then assessed, including cumulative impacts.

12.1.1 Proposed Development Description

The proposed development comprises the construction of a wind farm comprising 17 No. wind turbines and all associated works. A full description of the proposed development is provided in Chapter 4 of this EIAR. The 17 turbines are in two clusters, 6 No. turbines in a western cluster in County Cork and the other 11 No. turbines to the east in County Waterford. The proposed turbines will have a maximum blade tip height of up to 150 metres. The proposed wind farm will also incorporate a meteorological (met) mast with a height of up to 112 metres, a 110 kV substation, access roads, underground cabling, 3 No. borrow pits, 2 No. temporary construction compounds, and associated site works including felling and drainage.

12.1.2 Scoping Replies / Pre-Planning Meetings

A scoping and consultation exercise has been carried out by MKO, as detailed in Section 2.6 of Chapter 2 of this EIAR. Pre-planning meetings were also held with Waterford and Cork County Councils, and with An Bord Pleanála as part of the Strategic Infrastructure Development (SID) determination process, details of which are outlined in Section 2.6.3 of Chapter 2 of this EIAR.

The issues raised during scoping and pre-planning relevant to the LVIA Chapter are set out below.

12.1.2.1 An Bord Pleanála

Two pre-planning consultations were held on the 30th of August 2018 and 11th of June 2019.

No issues with regard to landscape and visual impacts were raised at the first meeting and at the second meeting ABP queried the turbine height with regard to setback distance from residences and was advised that the proposed tip height was 150 metres and the minimum setback distance achieved from residences was 700 metres.

12.1.2.2 Waterford County Council

Two pre-planning meetings were held on the 17th of May 2018 and 16th of October 2019. Specific points in relation to the landscape and visual impact assessment were not raised.

12.1.2.3 Cork County Council

Two pre-planning meetings were held on the 20th of May 2018 and 14th of August 2019.

At the first meeting Cork County Council requested that an assessment of impact on residential amenity be included to ‘*also consider the visual amenity of the relevant dwellings*’, i.e., those located within the area. The Council also advised that with regard to landscape and visual impacts and residential visual amenity, the An Bord Pleanála decisions on the Ardglass wind farm application should be taken into consideration.

12.2 Statement of Authority

This chapter was prepared by Joanna Mole, a Landscape and Visual Impact Assessment Specialist and Chartered Landscape Architect with MKO with 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 is a Chartered Landscape Architect with 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.

12.3 Brief Methodology and Assessment Criteria

This section broadly outlines the methodology used to undertake the landscape and visual impact assessment of the proposed development, a more detailed description of the methodology is outlined in detail in Appendix 12-1, and the guidance used in the preparation of each section. There are four main sections to this assessment:

- Landscape Baseline
- Visual Baseline
- Cumulative Baseline
- Likely and Significant Effects – outlining the assessment of landscape, visual and cumulative effects

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

For the purposes of this EIAR, where the ‘proposed development site’ or ‘the site’ is referred to, this relates to the proposed development site as delineated on the EIAR figures (maps). The proposed development site is discussed in some detail in terms of its landscape character.

However, the landscape and visual baseline mapping and viewpoint selection are based on wider study areas. The landscape study area has been chosen as 20 kilometres for visual effects and effects on landscape designations. As landscape character is primarily reflected by the elements within a certain area rather than those outside it and due to the nature of landscape character areas covering large areas of land within Counties Cork and Waterford, all landscape character areas or parts of same falling within 15 kilometres from the proposed wind turbines are included in this assessment. These are the study areas for which the baseline maps and viewpoint locations are produced and are referred to as the landscape ‘study area’. Furthermore, on the basis of desk studies and survey work undertaken, the professional judgement of the assessment team, experience from other relevant projects and policy guidance or standards, 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 Zone of Theoretical or ZTV mapping; see Section 12.4.1 of this chapter for further details) and/or very distant visibility, and are therefore unlikely to be subject to significant effects.
- Effects on designated landscapes beyond a 20km radius from the proposed 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 15km radius from the proposed development, where it is judged that potential significant effects on landscape character are unlikely to occur.
- Effects on visual receptors beyond a 20km radius from the proposed 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 visual effects beyond a 20km radius from the proposed development
- Cumulative effects on landscape character beyond a 15km radius from the proposed development, where it is judged that potential significant effects on landscape character are unlikely to occur.
- Visual effects during the construction phase and cumulative landscape and visual effects during the construction phase.
- All potential effects occurring during decommissioning of the proposed development.
- Areas in County Tipperary due to distance from the proposed development and the lack of significant visual or landscape receptors within the small area of the county falling within the study area

12.3.2 Guidelines

Ireland signed and ratified the European Landscape Convention (ELC) in 2002, which introduces a pan-European concept which centres on the quality of landscape protection, management and planning. The Department of Arts, Heritage and the Gaeltacht has published a National Landscape Strategy for Ireland in 2015. The Strategy aims to ensure compliance with the ELC and contains six main objectives, which include developing a national Landscape Character Assessment and Developing Landscape Policies.

In 2000, the Department of the Environment and Local Government published *'Landscape and Landscape Assessment: Consultation Draft of Guidelines for Planning Authorities'*, which recommended that all Local Authorities adopt a standardised approach to landscape assessment for incorporation into Development Plans and consideration as part of the planning process. However, this DoEHLG 2000 guidance remains in draft form.

The landscape and visual impact assessment was primarily based on the *Guidelines for Landscape and Visual Impact Assessment* or GLVIA (The Landscape Institute/Institute of Environmental Management and Assessment, UK, 2013). In addition to the EIA guidelines set out in Section 1.7 in Chapter 1 of this EIA, a range of other guidelines also inform the preparation of this landscape and visual impact assessment, which include:

- Guidelines for Landscape and Visual Impact Assessment (The Landscape Institute/Institute of Environmental Management and Assessment, UK, 2013),
- Wind Energy Development Guidelines for Planning Authorities (Department of the Environment, Heritage and Local Government, 2006),
- Visual Assessment of Wind Farms: Best Practice (Scottish Natural Heritage, 2002).
- Visual Representation of Wind Farms: Version 2.2 (Scottish Natural Heritage, 2017).
- Siting and Designing Wind Farms in the Landscape, Version 3a (Scottish Natural Heritage, 2017).
- Assessing the Cumulative Impact of Onshore Wind Energy Developments. (Scottish Natural Heritage, 2012)

- Photography and photomontage in landscape and visual impact assessment (Landscape Institute Advice Note 01/11, 2011)
- Visual representation of development proposals (Landscape Institute Technical Guidance Note 02/17, 2017)
- Guidelines on the Information to be contained in Environmental Impact Assessment Reports – Draft August 2017 (EPA 2017).
- EPA Guidelines on the information to be contained on Environmental Impact Statements (EPA 2002)
- EPA Advice Notes on Current Practice in the preparation of Environmental Impact Statements (EPA, 2003).
- Assessing the Cumulative Impact of Onshore Wind Energy Developments (Scottish Natural Heritage, 2012)
- Spatial Planning for Onshore Wind Turbines – natural heritage considerations (Scottish Natural Heritage, 2015)
- Siting and Designing Wind Farms in the Landscape Version 3a (Scottish Natural Heritage, 2017)
- Cumulative Impact of Wind Turbines on Landscape and Visual Amenity (Carmarthenshire County Council, 2013)
- Environmental Impact Assessment of Projects - Guidance on the preparation of the Environmental Impact Assessment Report (European Commission, 2017)
- Cork County Development Plan 2014, (Cork County Council, 2014)
- Draft Cork County Landscape Strategy (Cork County Council, 2007)
- Waterford County Council Development Plan 2011-2017 (Waterford County Council, 2011)

12.3.3 **Baseline Landscape and Visual Information**

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

Landscape Baseline

- Policies and objectives contained in the relevant county development plans (Waterford County Development Plan 2011 – 2017 as extended and Cork County Development Plan 2014 – 2020 as varied) pertaining to landscape and wind energy
- Identification of Landscape Receptors based on:
 - Landscape designations in the study area
 - Landscape character of the study area
 - Landscape character of the Proposed Development site based on

Visual Baseline

- Identification of Visual Receptors

12.3.4 **Assessment of Potential Impacts**

After visual and landscape receptors have been screened out in the respective preassessments, due to lack of visibility shown through ZTV mapping, on the ground or for other reasons, a set of receptors are put forward for assessment using the methodology presented in Appendix 12-1. These clearly documented methods based on the GLVIA guidelines 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.

12.4 Visibility of the Proposed Development

12.4.1 Zone of Theoretical Visibility (ZTV)

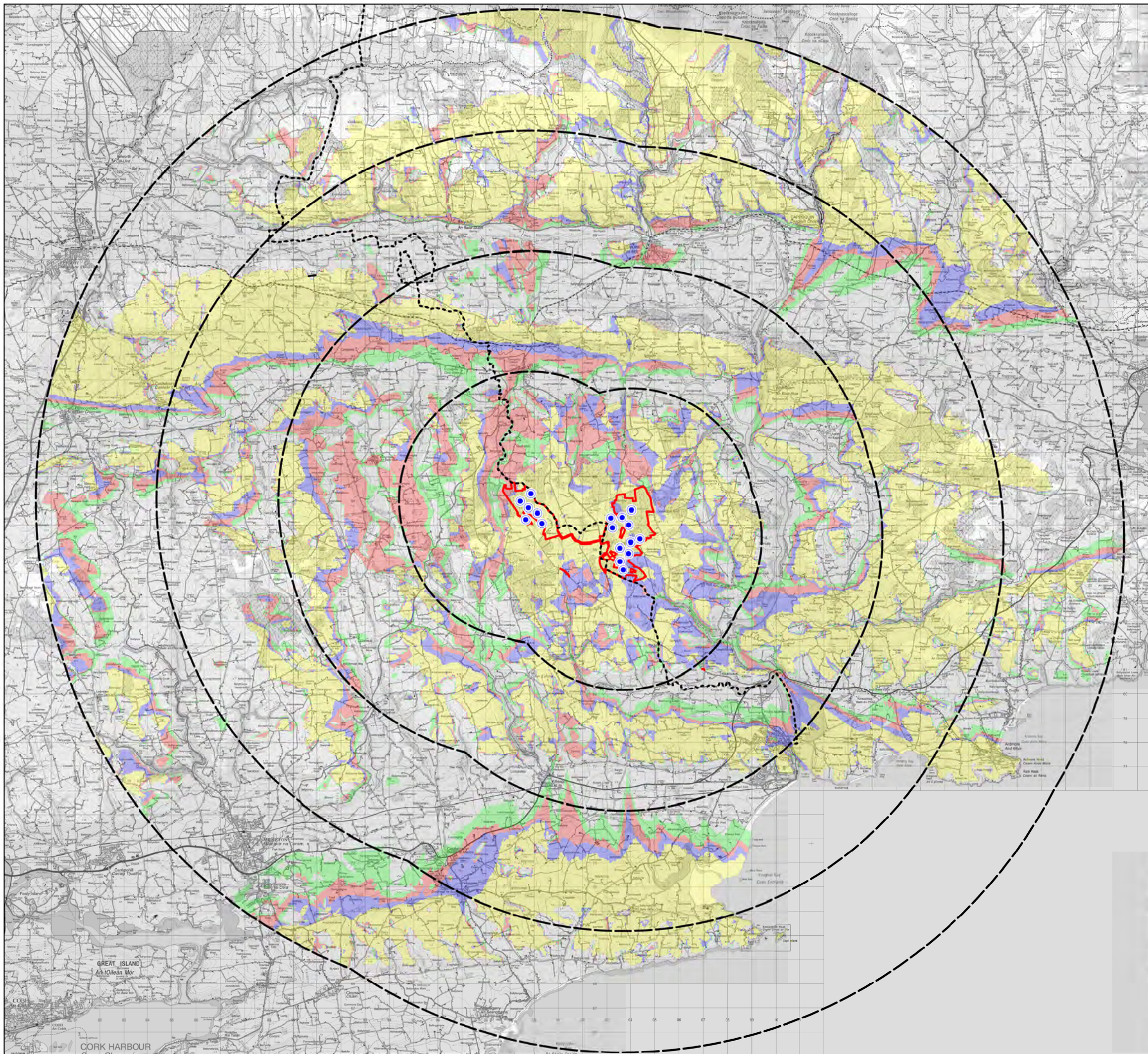
ZTV mapping is an important step in the LVIA process, in that it clearly shows which areas will have theoretical visibility of the proposed turbines and which areas will have no visibility. The ZTV for the proposed wind farm is shown in Figure 12-1 overleaf.

Generally, the assessment of overall visual effects is strongly guided by ZTV mapping (based purely on topography, in this case 10-meter contour data) as an indication of areas that will have no visibility of proposed turbines and areas that will have theoretical visibility. The level of certainty for areas where no visibility is indicated by ZTV is very high. On the contrary, in areas where the ZTV mapping shows theoretical visibility this will not have taken account of local variations in ground levels, which are not represented by the 10 metre contour data and more importantly vertical objects such as vegetation, buildings and other structures that will block views of the proposed turbines.

Using the height above ground of the turbine hub and half blade are the industry standards. Here the half-blade has been used throughout the assessment, which shows the greatest theoretical visibility.

The ZTV map for the proposed Lyrenacarriga turbines shows theoretical visibility concentrated in close proximity to the proposed turbines with mainly full or partial theoretical visibility and two large patches of reduced visibility to the south of the eastern turbines within five kilometres of the proposed development. Towards the edges of the 5km radius visibility is reduced by numerous river valleys: to the north on the southern side of the River Bride Valley, to the east a valley created by an unnamed stream and the western side of the Blackwater Valley and various smaller valleys created by rivers and streams to the west.

The ZTV mapping is used for screening out landscape and visual receptors and more detail on the theoretical visibility is discussed in Section 12.8.3.3.



Map Legend

- Proposed Turbines
- EIAR Site Boundary
- Visual Baseline Study Area

Zone of Theoretical Visibility (ZTV)

- 1 to 4 turbines
- 5 to 8 turbines
- 9 to 12 turbines
- 13 to 17 turbines

Drawing Title:						Figure 12-1 Half Blade ZTV Map
Project Title:						170749 - Lyrenacarriga Wind Farm
Drawn By:	Checked By:	Scale:	Date:	Project No:	Drawing No.:	
JM	LM	1:155,000	13/08/2020	170749	Figure 12-1	

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12.5 Landscape Baseline

This part of the LVIA focusses on identifying the key landscape receptors that form part of the assessment. For this purpose, the County Development Plans of Cork and Waterford were consulted.

Baseline Landscape Receptors:

- Landscape Designations based on:
 - Cork County Development Plan 2014 – 2020 (as varied)
 - Waterford County Development Plan 2011 – 2017 (as extended)
- Landscape Character of the Proposed Development Site and its immediate environment based on:
 - Landscape Type identified using DoEHLG Guidelines 2006
 - Site Visit carried out during November 2019
- Landscape Character of the Study Area based on:
 - Draft Cork County Landscape Strategy 2007
 - Provisional Landscape Character Assessment of County Waterford areas within the LVIA study area (prepared by MKO)

12.5.1 Landscape Designations

The County Development Plans of Cork and Waterford were consulted to identify landscape designations.

While the policy on designated scenic routes is outlined for the respective counties below, the list of scenic routes within 20km of the proposed turbines, mapped in Figure 12-2 are set out under the Visual Baseline, as they are in their nature a visual designation. In this section of the landscape and visual impact assessment chapter they are assessed and form part of the basis of viewpoint selection.

12.5.1.1 County Cork

The Cork County Development Plan 2014 – 2020 (CDP) came into effect on January 15th, 2015. Section 13.6 of the CDP sets out the policies and objectives of the Council with regard to landscape.

The CDP lists the following objectives with regard to landscape:

- a) *Objective GI 6-1: Landscape*
- b) *Protect the visual and scenic amenities of County Cork's built and natural environment.*
- c) *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.*
- d) *Ensure that new development meets high standards of siting and design.*
- e) *Protect skylines and ridgelines from development.*
- f) *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.

Objective 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.

12.5.1.1.1 **High Value Landscape**

The CDP considers that the Landscape Character Types identified in the Draft Cork County Landscape Strategy, 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 areas are highlighted in green in the list in Appendix E and illustrated in Figure 13.2 of the CDP.

HVLs 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 proposed development site is not within a High Value Landscape. There are three such areas within the 20-kilometre radius of the proposed development which are listed in Table 12-1 below and shown in Figure 12-2 below. The HVL located nearest to the proposed development is the LCT 2 Broad Bay Coast, which is approximately 5.6 kilometres at its nearest point to the proposed turbines.



Figure 12-2 County Cork Landscape Designations

Table 12-1 High Value Landscapes within 20 kilometres

No.	Location of View	Landscape Value	Landscape Sensitivity	Landscape Importance
5 to 10 km				
2	Broad Bay Coast	Very High	Very High	County
5	Fertile Plain with Moorland Ridge	Very High	Very High	County
10 to 15 km				
1	City Harbour and Estuary	Very High	Very High	National

12.5.1.1.2 Scenic Amenity, Views and Prospects

Chapter 13 of the Development Plan, 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 CDP.

The CDP 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 CDP 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 Section 13.7 of the CDP 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.

A total of 118 Scenic Routes are identified within the county. A profile of each scenic route is set out in Chapter 5, Volume 2 of the CDP.

Views within 20km of the proposed turbines are mapped in Figure 12-11. As outlined above designated views are listed in Table 12-8 in Section 12.6 *Visual Baseline* and assessed in that section of the landscape and visual impact assessment chapter. However, it should be noted that the closest scenic route, on the R634 regional road, which lies between the turbine clusters is not designated as a scenic route when the R643 passes into County Waterford.

12.5.1.1.3 **Views and Prospects**

A number of designated outstanding views and prospects are identified on Map 3.12 and listed in Table 20 in Section 3.8.9 of Chapter 3 of the CPD. Objectives and policies set out in the CPD in relation to views and prospects are as follows:

- **Policy 102** - It is the Council's policy to protect these views from intrusive development and enhance them by the removal of dereliction and eyesores. Lay-bys and viewing areas will be developed, as appropriate and as funds allow.
- **Objective 82** - It is an objective of the Council to protect the following Views and Prospects, Table 20 refers.

Views within 20km of the proposed turbines are mapped in Figure 12-11. As outlined above designated views are listed in Table 12-8 in the Section 12.6 *Visual Baseline* and assessed in that section of the landscape and visual impact assessment chapter.

12.5.1.1.4 **Landscape Policy pertaining to Wind Energy**

In 2014, Cork County Council reviewed its wind energy policy and formulated a Wind Energy Strategy Map which included a number of policy considerations. These included landscape and natural heritage considerations, as follows:

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

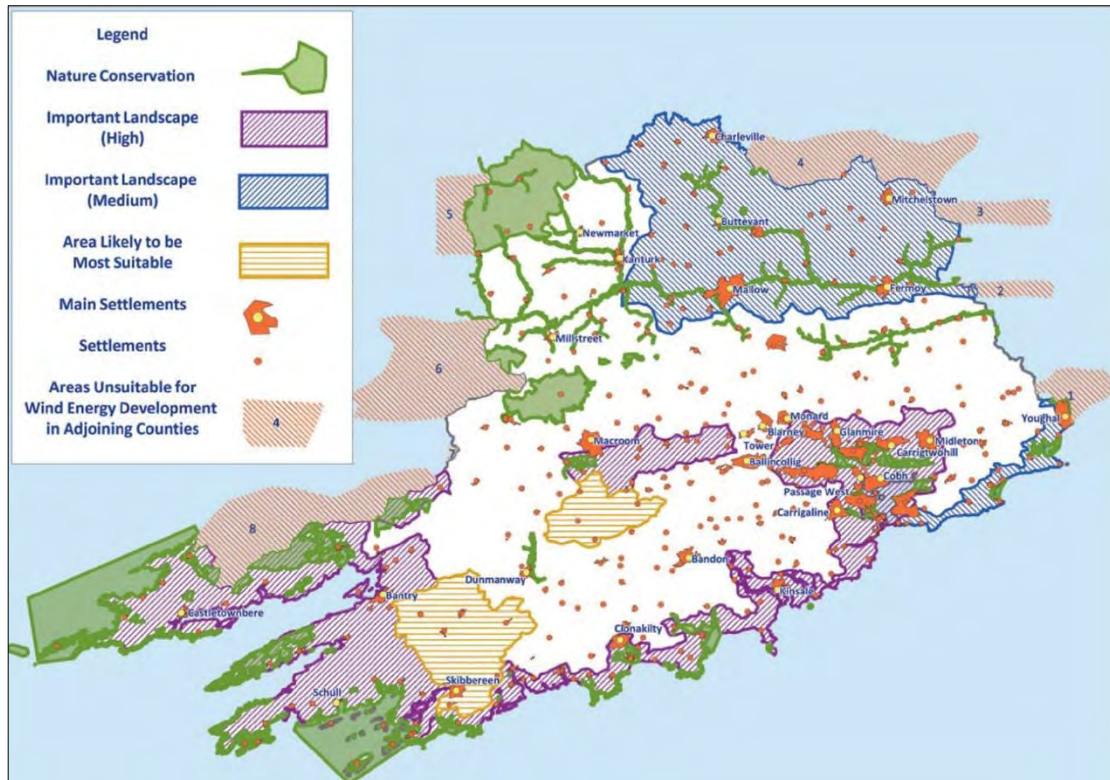


Figure 12-3 Policy Considerations for Wind Energy Projects (Cork Co. Development Plan 2014)

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

The resulting wind energy strategy is set out in the CDP 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

In the ‘Policy Considerations for Wind Energy Projects’ map in the CDP (Figure 12-3 above) the areas shown in white are classed as ‘Open to Consideration’ for wind energy development. This is addressed in the CDP as:

Objective ED 3-5: 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 area of the proposed development site within Co. Cork is located within the ‘Open to Consideration’ area for wind farm development, as shown in Figure 2.1 in Chapter 2 of this EIAR. The CDP 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. Further details on Cork County Council policy are provided in Chapter 2 of this EIAR.

12.5.1.2 County Waterford

Waterford County Council Development Plan 2011-2017 (CDP) is the currently valid development plan after its lifetime was extended in 2014. Policies on landscape are contained in Chapter 8 Environment and Heritage of the CDP.

- **Policy ENV 2** To support provisions of the National Landscape Strategy and provide for the sustainable management of all of County Waterford’s landscapes including archaeological landscapes, coastal, upland, rural and peri-urban landscapes.
- **Policy ENV 4** The Council will assess all proposals for development in terms of the Scenic Landscape Evaluation map, the Development Management Standards (Chapter 10) and the Rural Housing Design Guidelines (that will be prepared within one year of the adoption of the Plan).
- **Policy NH 2** To conserve, manage and enhance the natural heritage, biodiversity, landscape and environment of County Waterford in recognition of its importance as a non-renewable resource, the unique identity and character of the County and as a natural resource asset.

12.5.1.2.1 Scenic Landscape Evaluation Map

The map referred to in policy ENV4 can be found in Appendix A9 Scenic Landscape Evaluation of the CDP and has been reproduced below in Figure 12-4. This evaluation classes landscape sensitivity based on the capacity of the environment to absorb new development and under the following classifications:

- **Degraded:** Areas characterised by breakdown of natural processes or pollution.
- **Robust:** Areas of existing development and infrastructure.
- **Normal:** A common character type with a potential to absorb a wide range of new developments.
- **Sensitive:** Distinctive character with some capacity to absorb a limited range of new developments while sustaining its existing character; and
- **Vulnerable:** Very distinct features with a very low capacity to absorb new development without significant alterations of existing character over an extended area.

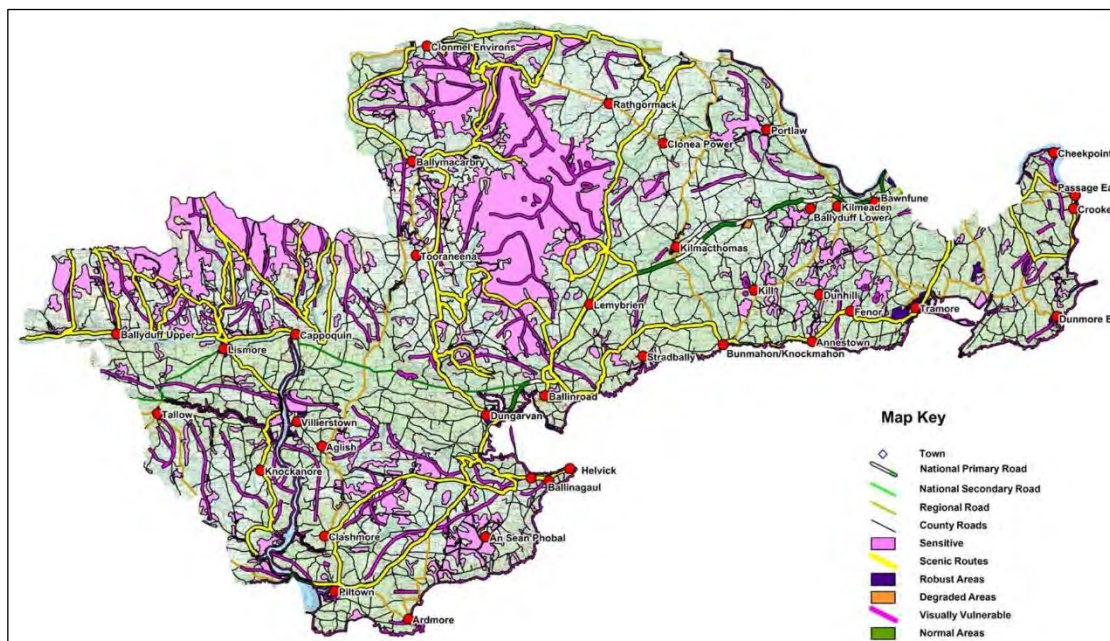


Figure 12-4 County Waterford Scenic Landscape Evaluation Map (from Waterford CDP 2011-2017)

In Section 5.1 (a) in Appendix A9 ‘Visually Vulnerable’ areas are described as follows:

‘Areas included in this category were defined by mapping the shores of the main water bodies - lakes, large rivers, coasts, estuaries, promontories and headlands. The principal skylines were defined from the topographical map and illustrate where the ‘watershed line’ occurs. This is where the highest points along a ridge occur. As mentioned earlier, these are all conspicuous features of the natural landscape to which the eye is drawn because of strong contrasts of form and colour where there is contact between the land and sky or water. The skylines illustrated are the major skylines which, are visible over a wide area (any area will occur against the skyline if viewed from a lower elevation).’

Appendix A9 Section 6.1 also contains the following policy regarding ‘Visually Vulnerable’ areas:

- **6.1(a) Policy with Regard to Areas Designated as Vulnerable:**
 These areas or features designated as vulnerable represent the principal features which create and sustain the character and distinctiveness of the surrounding landscape. To be considered for permission, development in the environs of these vulnerable areas must be shown not to impinge in any significant way upon its character, integrity or uniformity when viewed from the surroundings. Particular attention should be given to the preservation of the character and distinctiveness of these areas as viewed from scenic routes and the environs of archaeological and historic sites.

Section 6.1 lists the different types of ‘Vulnerable’ areas as:

- The coastline
- The banks of the rivers
- The shoreline of all lakes
- The skylines of upland areas
- All headlands and promontories

Figure 12-5 below shows an extract of the County Waterford Appendix A9 Scenic Landscape Evaluation map with the proposed turbines and site boundary falling within Co. Waterford overlaid. It shows that the majority of land is classed as ‘Normal’ with some areas being identified as ‘Sensitive’. Appendix A9 describes this ‘Sensitive’ category as *‘areas which are open and exposed with sparse or low growing vegetation cover’* and further states that tall vegetation unless it is *‘broadleaved, mixed forest and transitional woodland scrub’* would not be appropriate. However, most of the areas marked as ‘Sensitive’ within the site boundary have been planted with commercial coniferous forestry and as such do not comply with the ‘Sensitive’ category as described in Appendix A9.

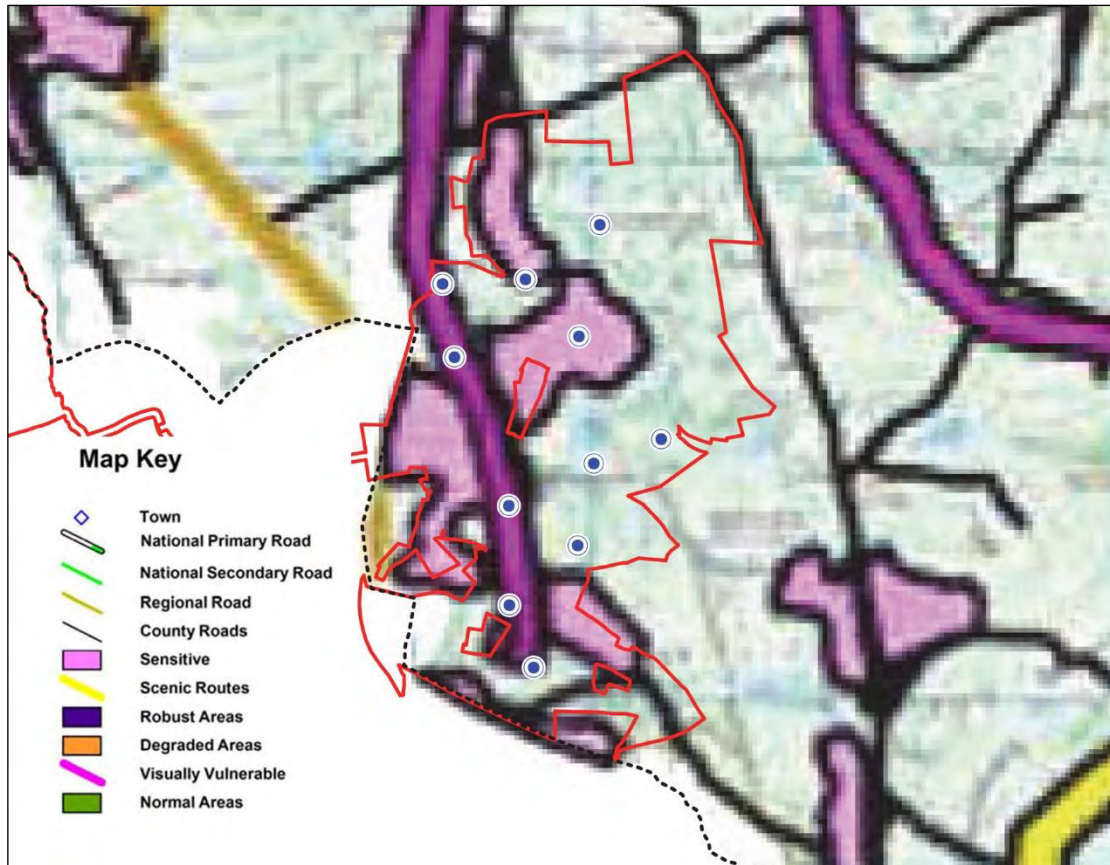


Figure 12-5 Extract of Co. Waterford Scenic Evaluation Map with proposed development overlaid

Furthermore, an area of a ‘Visually Vulnerable’ also crosses into the eastern land parcel. Under ‘Skylines’ Appendix A9 lists areas designated as ‘Vulnerable’ in Section 6.1 (b). Of those, Ballycondon Hill (199m) is within the site boundary and The Pike and Knocknaun are to the north approximately coinciding with the line marked as ‘Visually Vulnerable’ on the Scenic Landscape Evaluation map. While these may be the highest elevations within this local area within Co. Waterford, Figure 12-6 below shows that changes in the local topography are not particularly pronounced and that there are more distinct hills and ridges within view just to the south-west in County Cork. Therefore, the ‘Visually Vulnerable’ skyline within the proposed development site may not be the most ‘conspicuous features of the natural landscape to which the eye is drawn because of strong contrasts of form and colour where there is contact between the land and sky’. Also, unless seen from a similar or higher elevation to that of the site (but not against the backdrop of the higher ground to the south-west in Co. Cork) this higher ground would not be seen as ‘major skylines which, are visible over a wide area (any area will occur against the skyline if viewed from a lower elevation)’.

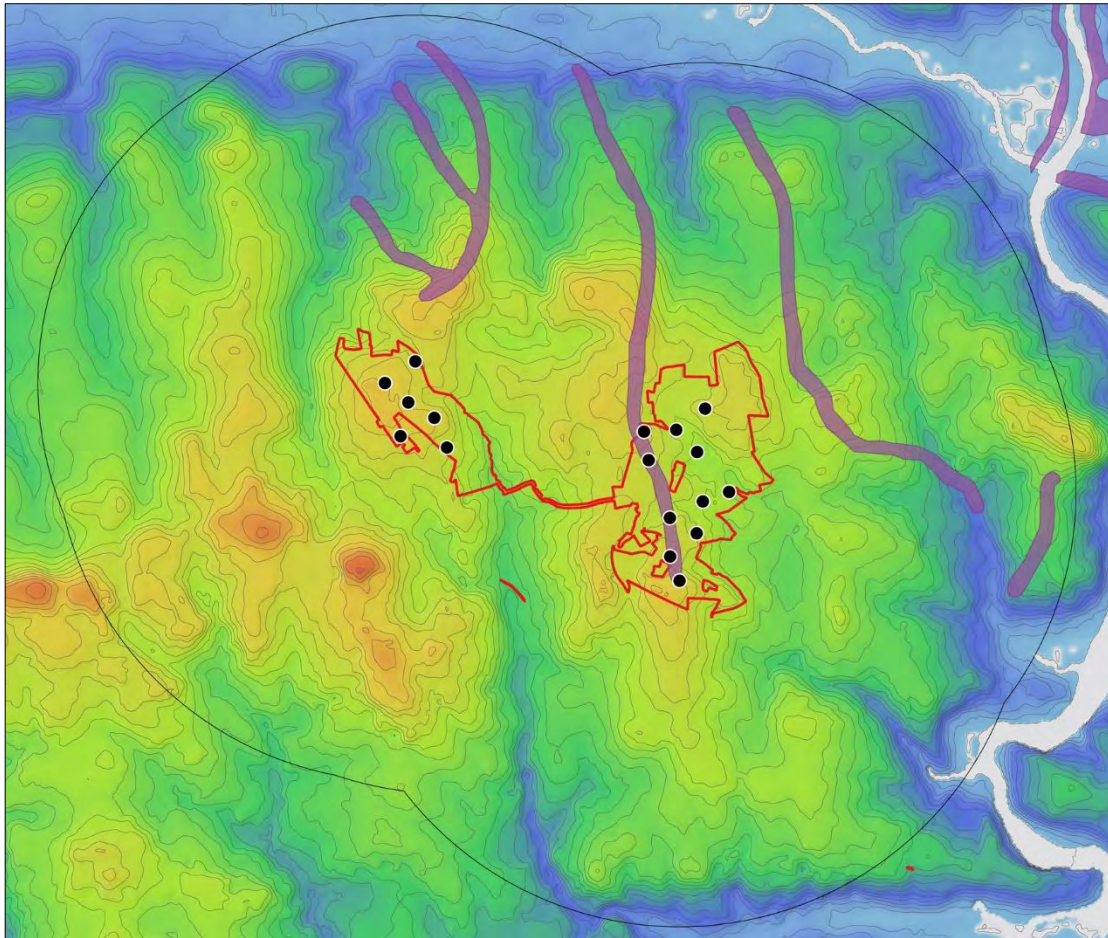


Figure 12-6 Topography and ‘Visually Vulnerable’ features within five kilometres of the proposed turbines

12.5.1.2.2 Scenic Routes

Waterford County Council Development Plan 2011-2017 identifies Scenic Routes, but not Views and Prospects. Scenic Routes are described in the CDP as follows:

“Scenic Routes indicate public roads from which views and prospects of areas of natural beauty and interest can be enjoyed. There is an onus on developers/applicants for planning permission to demonstrate that any proposed development shall not negatively impact on the character of a scenic route and that there shall be no obstruction or degradation of views towards visually vulnerable features or sensitive areas.”

Scenic routes within 20km of the proposed turbines are mapped in Figure 12-4 and Figure 12-11. As outlined above designated views are listed in Table 12-8 in Section 12.6 *Visual Baseline* and assessed in that section of the landscape and visual impact assessment chapter.

12.5.1.2.3 Landscape Policy with regard to Wind Energy

Section 8.10 of the CDP 8 details the council’s policy with regard to wind energy and a separate wind energy strategy map has been devised, see Figure 12-7 below. The different categories with regard to suitability for wind energy development are as follows:

1. Strategic Areas: Areas which are primarily suitable for wind energy and should be reserved for this purpose.

2. Preferred Areas: Areas which are suitable and should generally be considered for permission unless local circumstances dictate otherwise.

3. Open to Consideration: Proposals for wind farms will be assessed on their merits with the responsibility on the developer to demonstrate suitability of the site.

4. No-Go Areas: Areas which are unsuitable for wind farm development.

All the proposed Lyrenacarriga turbines within County Waterford are located in an area classed as ‘Preferred Area’ in the County Waterford Wind Energy Strategy, as shown in Figure 12-7 below.

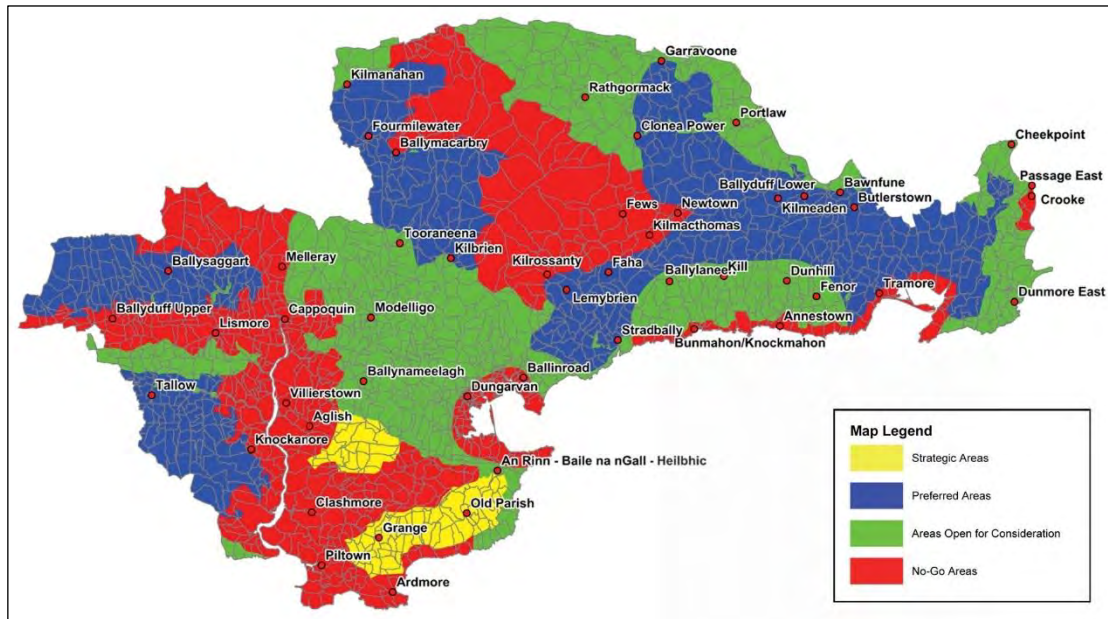


Figure 12-7 County Waterford Wind Energy Strategy (Waterford Co. Development Plan 2011-2017)

Furthermore, the following policy item is also included in the CDP:

Policy ENV 11

To promote and facilitate the sustainable development and use of wind energy in the County and to ensure all wind energy developments comply with the Waterford County Wind Energy Strategy and the DoEHLG guidance document on Wind Energy. Screening for Appropriate Assessment will be carried out where required to ensure that there is no negative impact on the integrity (defined by the structure and function and conservation objectives) of any Natura 2000 site located at or adjacent to a proposed site for wind energy development and that the requirements of Articles 6 (3) and (4) of the EU Habitats Directive 92/43/EEC are fully satisfied. The Planning Authority shall have regard to the possible visual impact of a wind farm development on towns and villages, protected views and amenity areas outside of the administrative area of Waterford County Council in the assessment of wind energy applications.

12.5.1.3 **Summary of Potential Landscape Receptors – Landscape Designations**

While the whole of Co. Waterford has been evaluated in the Scenic Landscape Evaluation detailed in Appendix A9 of the Waterford County Development Plan, the categories assigned are according to landscape sensitivity based on the capacity of the environment to absorb new development. As such this can be seen as a landscape zoning, which for the development site has been discussed above and these landscape categories will not be identified as landscape designations. The Co. Waterford scenic routes will be assessed as visual receptors as part of this Landscape and Visual impact assessment.

The only landscape designations within the study area in County Cork are scenic routes and areas of High Value Landscape (HVLs). Scenic routes, being of a more visual nature will be assessed as a visual receptor and HVLs essentially being Landscape Character Types (LCTs) will be assessed as a landscape receptor alongside the other Co. Cork LCTs and provisional County Waterford Landscape Character Areas.

12.5.2 Landscape Character of the Proposed Development Site

12.5.2.1 DoEHLG ‘Wind Energy Development Guidelines’ (2006)

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 the ‘hilly and flat farmland’ landscape character type. 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.

Despite the fact that the majority of the proposed development site is covered in commercial forestry, the original landcover will have been ‘hilly and flat farmland’ and the proposed development site is surrounded by extensive stretches of more ‘hilly and flat farmland’. Furthermore, the majority of areas in the study area can be described as ‘hilly and flat farmland’ with some areas of ‘transitional marginal land’ in the far north of the study area and there are ‘coastal’ areas in the south and west.

It is considered however that the ‘hilly and flat farmland’ landscape type most strongly influences the siting and design of the proposed development. Further details of this landscape character type are provided below.

12.5.2.1.1 Hilly and Flat Farmland



Plate 12-1 View showing hilly and flat farmland landscape type on the proposed development site

The key characteristics of the hilly and flat farmland landscape type are:

- Intensively managed farmland, whether flat, undulating or hilly
- A patchwork of fields delineated by hedgerows varying in size
- Farmsteads and houses are scattered throughout, as well as occasional villages and towns
- Roads, and telegraph and power lines and poles are significant components; and
- A working and inhabited landscape type

The essential key here is one of rational order and simplicity, as well as respect for scale and human activities. The predominance of field pattern introduces an organised patchwork landcover structure that not only prompts a similar response in the siting and design of wind energy developments, but also provides a spatial structure and rhythm. Although hilly and flat farmland type is usually not highly sensitive in terms of scenery, due regard must be given to houses, farmsteads and centres of population.

Location

The DoEHLG guidelines state that locations “on ridges and plateaux is preferred, not only to maximise exposure, but also to ensure a reasonable distance from dwellings. Sufficient distance should be maintained from farmsteads, houses and centres of population in order to ensure that wind energy developments do not visually dominate them. Elevated locations are also more likely to achieve optimum aesthetic effect. Turbines perceived as being in close proximity to, or overlapping other landscape elements, such as buildings, roads and power or telegraph poles and lines may result in visual clutter and confusion. While in practice this can be tolerated, in highly sensitive landscapes every attempt should be made to avoid it.”

Spatial Extent

Spatial extent is the area covered by a wind energy development within the view or landscape, reflecting the number of turbines involved and their spacing. The DoEHLG guidelines state that ‘*the spatial extent of a wind energy development should be balanced and in scale with its landscape context*’. With regards to areas of hilly and flat farmland the guidelines set out that spatial extent ‘*can be expected to be quite limited in response to the scale of fields and such topographic features as hills and knolls. Sufficient distance from buildings, most likely to be critical at lower elevations, must be established in order to avoid dominance by the wind energy development*’.

Spacing

‘The optimum spacing pattern is likely to be regular, responding to the underlying field pattern. The fields comprising the site might provide the structure for spacing of turbines. However, this may not always be the case and a balance will have to be struck between adequate spacing to achieve operability and a correspondence to field pattern.’

Layout

‘The optimum layout is linear, and staggered linear on ridges (which are elongated) and hilltops (which are peaked), but a clustered layout would also be appropriate on a hilltop. Where a wind energy development is functionally possible on a flat landscape a grid layout would be aesthetically acceptable.’

Height

‘Turbines should relate in terms of scale to landscape elements and will therefore tend not to be tall. However, an exception to this would be where they are on a high ridge or hilltop of relatively large scale. The more undulating the topography the greater the acceptability of an uneven profile, provided it does not result in significant visual confusion and conflict.’

Cumulative Effect

‘It is important that wind energy development is never perceived to visually dominate. However, given that these landscapes comprise hedgerows and often hills, and that views across the landscape will likely

be intermittent and partially obscured, visibility of two or more wind energy developments is usually acceptable.’

The proposed development addresses the above guidance in terms of location (located on plateaux) spatial extent (moderate and within keeping of the surrounding landscape scale) spacing (regular), layout (two clusters) height (in keeping with the expansive landscape scale) and cumulative effect (very few other wind energy developments at some distance hence cumulative impacts not likely to arise).

12.5.2.2 Landscape Character of the Proposed Development Site

12.5.2.2.1 Topography

Present-day landscapes owe their form to the geological materials from which they were carved. Topography 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.

Figure 12-8 below, shows the topography of the proposed development site as well as that within 5 kilometres of the site. Levels in the western landholding range from a highest level of 203 m O.D. (Ordnance Datum) in the north of this land parcel to approximately 125 m O.D. in the most south-easterly corner. Here the topography falls away from the western high point in all directions and then rises again towards the north. The highest proposed turbine is T14 at approximately 190 m, the most westerly turbine in the western landholding and the lowest is the most southerly, T18 at approximately 170 m O.D.

The highest level in the eastern landholding is approximately 200 m O.D. along the southern site boundary down to approximately 130 m O.D. in the most eastern part of the site. The pattern of levels here is that the land is higher on the western side and falls away to the east, with levels lowest in the centre and east. Here, the highest turbine is T10 at approximately 180 m, the most southerly turbine in the eastern landholding and the lowest is the most easterly, T6 at approximately 140 m O.D.

In the wider landscape there are some hills up to 235 m O.D. to the south-west of the western landholding. To the north the land slopes down gradually to the River Bride and to the east towards the Blackwater River.

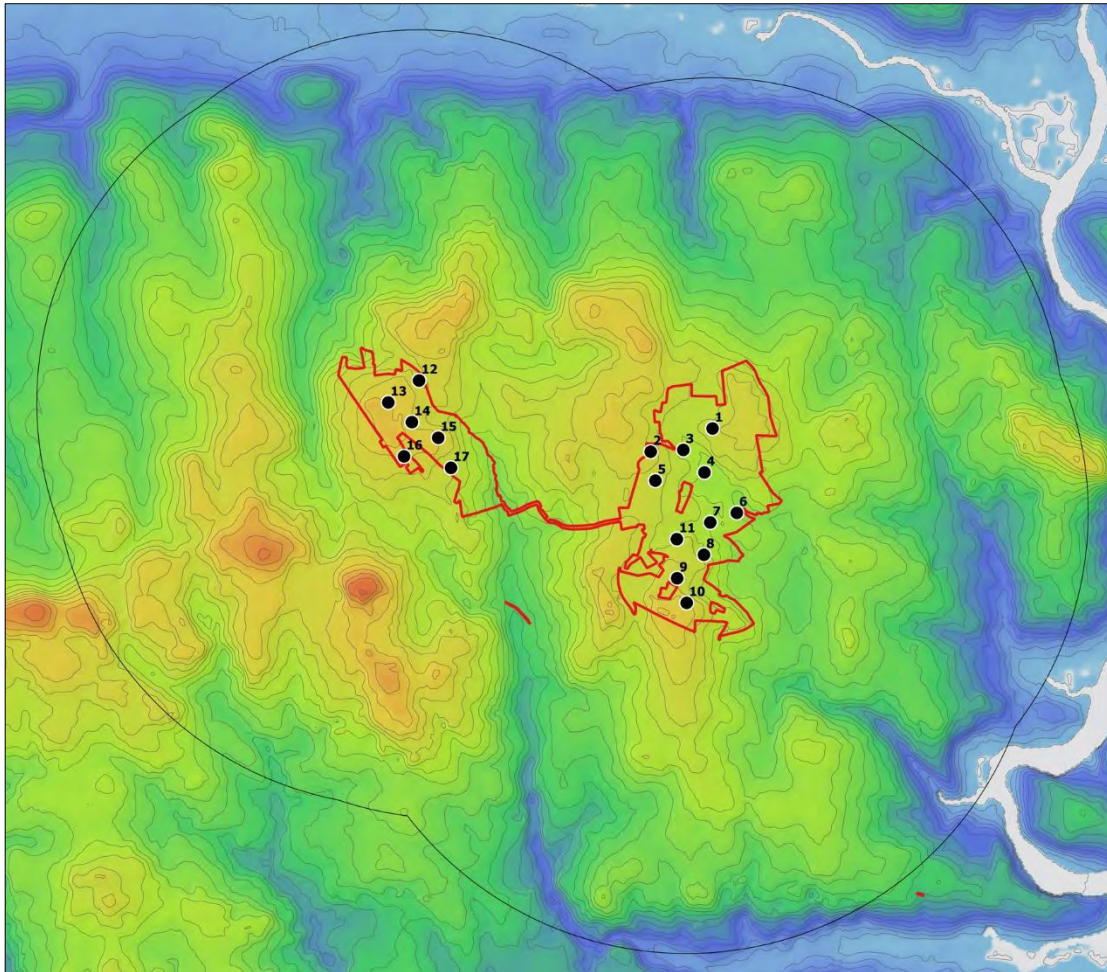


Figure 12-8 Topography within 5 kilometres of the proposed turbines

12.5.2.2.2 **Drainage**

The eastern landholding is drained by a relatively dense network of streams, most of which are headwater streams of the Glendine River, which in turn flows into the River Blackwater. Most of these streams emerge close to the northern and western boundaries and flow the full distance through the landholding in a general south-easterly direction.

Due to the slightly more elevated nature of the western landholding and the steeper sloping topography, the natural stream density is relatively low compared to the eastern landholding area. Two main headwater streams emerge from the western landholding, joining the Glenboy River and the Tourig River. The north-eastern section of the western landholding slopes towards the Kilbeg Stream which emerges approximately 0.5km to the east of the western landholding.

In addition, within both landholding areas there are numerous manmade drains that are in place predominately to drain the forestry plantations, as shown in Plate 12-2 below. The current internal forestry drainage pattern is influenced by the topography, soil type, layout of the forest plantation and by the existing road network. The forestry drains are the primary drainage routes towards the natural streams on the development site, but the flows in these drains are generally very low.



Plate 12-2 On site drainage in western land parcel

12.5.2.2.3 **Landcover**

Figure 12-9 below shows an aerial view of the proposed development site and gives an overview of the different types of landcover present on site (image not to scale, for illustrative purposes only).



Figure 12-9 Aerial Image illustrating landcover

As can be seen in Figure 12-9 overall, the site is predominantly dedicated to commercial coniferous forestry, there are some agricultural fields inside the proposed development site boundary, as shown in Plate 12-3 below.



Plate 12-3 Agricultural field adjacent to turbine T12



Plate 12-4 Typical view of conifer plantation

Sitka spruce and lodgepole pine are the dominant species. The coniferous plantation is dense with occasional access tracks or firebreaks, typical views of this are shown in Plate 12-4 above and Plate 12-5 below.



Plate 12-5 View of felled area below electricity wires

Alongside the forested areas are recently felled or replanted areas as can be seen in Plate 12-6 below.



Plate 12-6 View recently planted area

Although the site is relatively monotonously covered in conifers, there are some areas planted in eucalyptus and beech as shown in Plate 12-7 and Plate 12-8, respectively.



Plate 12-7 Area planted with eucalyptus trees



Plate 12-8 Area of beech trees in western land parcel

This landscape pattern in the wider landscape is predominantly agricultural fields separated by tree lines and hedgerows interspersed with frequent coniferous forests.

12.5.2.2.4 Land Use

Most of the site is currently used for commercial forestry. There are pockets on the site used for agriculture. The existing uses of the site would continue in conjunction with the proposed wind energy development. Land-use in the wider landscape comprises a mix of agriculture, low density residential development and commercial forestry.

12.5.2.2.5 Indications of Landscape Value in the Proposed Development Site

The findings above are summarised in Table 12-2 in order to determine the landscape sensitivity and landscape value for the proposed development. Landscape value includes designations such as scenic views and sensitivity designations found in development plans, as well as values which are attached to undesignated landscapes.

Table 12-2 Summary of landscape policy and elements to determine the landscape value and sensitivity of the site

Indicator	Description
Landscape Designations	The western land parcel is in County Cork and no landscape designations apply to it. However, there is a nearby County Cork scenic route. The majority of land in the eastern land parcel is zoned as ‘Normal’ in the Co. Waterford ‘Scenic Evaluation Map’, however ‘Sensitive’ and ‘Visually Vulnerable’ areas also present on site. Most of these ‘Sensitive’ areas do not comply with the definition set out in Appendix A9 of the CDP and the skyline within the site marked as ‘Visually Vulnerable’ was found not to be particularly distinct from the surrounding local topography.
Landscape Quality/Condition	This refers to the physical state of the landscape and the condition of individual elements. While there are agricultural fields within the site boundary the majority of the site is dedicated to commercial coniferous forestry, which has resulted in the degradation in the landscape quality of the site.
Aesthetic Qualities	Most of the proposed development site is covered in commercial coniferous forestry, which although now a ubiquitous modern landscape element is alien to the Irish landscape and has very few aesthetic qualities. However, some small areas of deciduous forest areas and the minority of the site that is agricultural land have attractive qualities.
Wildness/naturalness	The landscape of the site is predominantly used for commercial forestry and to a lesser degree agriculture and as such has been largely modified by human activity. Therefore, there is very little in terms of natural areas or a sense of wildness.
Recreation Value	The proposed development site is not a recreation site, however, on site forestry tracks may be unofficially used for recreational walking.

Due to the issues summarised in Table 12-2 above the landscape sensitivity and landscape value of the proposed development site are deemed as Low to Moderate.

The proposed development site will be put forward as a landscape receptor for full assessment.

12.5.3 Landscape Character of the Study Area

Landscape character refers to the distinct and recognisable pattern of elements that occurs consistently in a particular type of landscape, and how people perceive this. It reflects combinations of geology, landform, soils, vegetation, land use and human settlement, and creates the sense of place found in different areas.

While the appropriate radius for landscape effects on landscape character in the relevant guidelines varies, the 2013 Landscape Institute *Guidelines for Landscape and Visual Impact Assessment* state the study area for landscape effects should ‘include the site itself and the full extent of the wider landscape around it which the proposed development may influence in a significant manner’. As landscape character is primarily reflected by the elements within a certain area rather than those outside it and due to the nature of landscape character areas covering large areas of land within Counties Cork and Waterford all landscape character areas or parts of falling within 15 kilometres from the proposed wind turbines are included in this assessment.

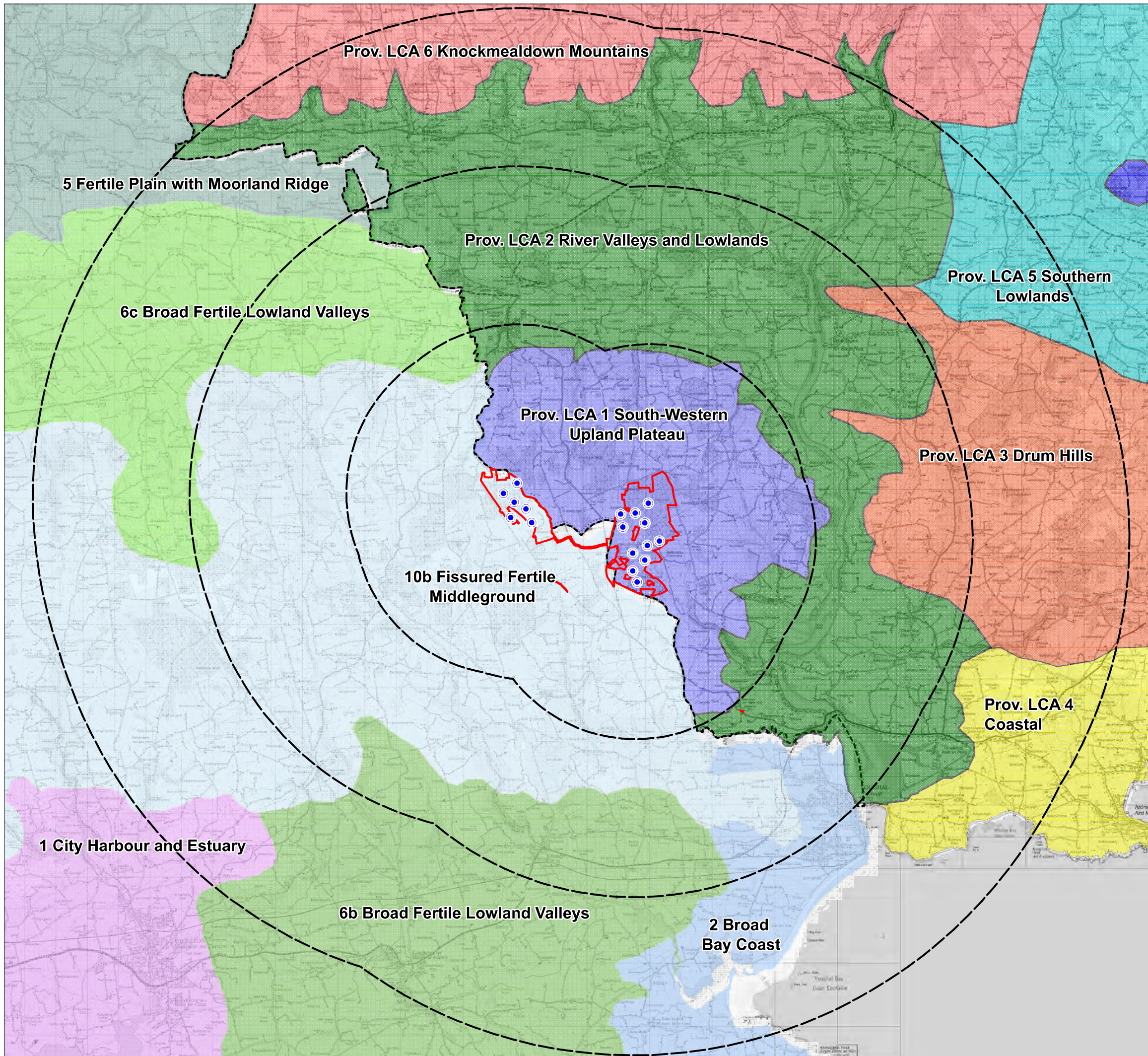
There is no published Landscape Character Assessment for County Waterford. Therefore, for the purpose of this Landscape and Visual Impact Assessment and for the sake of parity between Counties Cork and Waterford, a provisional landscape character assessment for the parts of County Waterford falling within 15km of the proposed wind turbines was carried out by MKO for this LVIA, which is presented in Section 12.5.3.2 below.

12.5.3.1 County Cork Landscape Character Types

The current CDP 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*.

In the *Draft Cork County Landscape Strategy* (2007) 76 Landscape Character Areas (LCAs) have been amalgamated into a set of 16 generic Landscape Character Types (LCTs) based on similar physical and visual characteristics. As there is very little detail on the Co. Cork LCAs, this section focuses on the LCTs falling within the LVIA study area.

Six of the turbines are proposed to be located in *LCT10b Fissured Fertile Middleground* and LCTs 1, 2, 5, 6b and 6c also fall within the study area. These are shown in Figure 12-10 and listed in Table 12-4 County Waterford Landscape Character Areas within 15 kilometres, below.



- Map Legend**
- Proposed Turbines
 - EIAR Site Boundary
 - County Boundary

Drawing Title:					Figure 12-10 Landscape Character Areas				
Project Title:					170749 - Lyrenacarriga Wind Farm				
Drawn By:	Checked By:	Scale:	Date:	Project No:	Drawing No.:				
JM	LM	1:155,000	13/08/2020	170749	Figure 12-10				

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Table 12-3 County Cork Landscape Character Types within 15 kilometres

Landscape Character Type	Theoretical visibility (ZTV)
Up to 5 km	
6c Broad Fertile Lowland Valleys (Castlelyons-Rathcormack)	Partial
10b Fissured Fertile Middleground (Rylane east to Waterford)	Partial
5 to 10 km	
2 Broad Bay Coast	Partial
6b Broad Fertile Lowland Valleys (Cloyne, Castlemartyr, Killeagh and Environs)	Partial
10 to 15 km	
1 City Harbour and Estuary	Partial
5 Fertile Plain with Moorland Ridge	No

12.5.3.2 County Waterford Landscape Character Areas (provisionally prepared by MKO)

A Landscape Character Assessment of County Waterford has at present not been carried out although an objective of the Waterford CDP states:

Objective ENV 1

To prepare a Landscape Character Assessment of County Waterford in accordance with National guidance on landscape from the Department of Environment, Heritage and Local Government.

Hence, as stated above for the sake of parity in the assessment of landscape effects on landscape character in the whole study area, provisional (prov.) landscape character areas were identified by the author of this chapter, a qualified landscape architect of many years' experience, in the absence of a landscape character assessment for County Waterford.

Table 12-4 County Waterford Landscape Character Areas within 15 kilometres

Landscape Character Area	Theoretical visibility (ZTV)
Up to 5 km	
Prov. LCA1 South-Western Upland Plateau	Partial
Prov. LCA 2 River Valleys and Lowlands	Partial
5 to 10 km	
Prov. LCA 3 Drum Hills	Partial
10 to 15 km	
Prov. LCA 4 Coastal	Partial

Landscape Character Area	Theoretical visibility (ZTV)
Prov. LCA 5 Southern Lowlands	No
Prov. LCA 6 Knockmealdown Mountains	Partial

12.5.4 Landscape Receptor Preliminary Assessment

After identifying the landscape receptors in the study area based on landscape designations derived from the respective CDPs and Landscape Character Areas (LCAs) taken from the *Cork County Draft Landscape Strategy* and compiled for County Waterford by MKO, a preliminary assessment will be carried out to screen out landscape receptors that will not be impacted by the proposed development.

Using the Zone of Theoretical Visibility mapping the visual receptors that will have no theoretical visibility were screened out as shown in Table 12-5 below.

Table 12-5 Landscape Receptors Screened Out -no visibility indicated by ZTV map

Landscape Receptor Category	County	Landscape Receptor with no visibility shown on ZTV
Landscape Character Areas	Cork	LCT 5
	Waterford	Prov. LCA 5

For the remaining landscape receptors visibility was assessed during the site visit assisted by the TrueViewVisuals software, which is an iPad-based tool to help visualisation of a project live on the ground before it is built. In the case of the landscape receptors shown in Table 12-15, below, views towards the turbines were either entirely screened or substantially screened. This along with, in some cases, distance to the proposed development site precluded these landscape receptors being selected for full assessment.

Table 12-6 Landscape Receptors Screened Out -no visibility found on site

Visual Receptor Category	County	Visual Receptor with no significant visibility found on site
Landscape Character Areas	Cork	LCT 1
	Waterford	Prov. LCA 5

Following the pre-assessment exercise, the landscape receptors shown in Table 12-7 have been selected for full assessment in Appendix 12-2 of this EIAR due to the potential landscape effects they may experience as a consequence of the proposed wind energy development.

Table 12-7 Landscape receptors screened in for full assessment

Landscape Receptor Category	County	Landscape Receptor
Landscape of Proposed Development Site	Cork/Waterford	Landscape of Proposed Development Site
Landscape Character Areas	Cork	LCT 2 Broad Bay Coast
		LCT 6b Broad Fertile Lowland Valleys

Landscape Receptor Category	County	Landscape Receptor
		LCT 6c Broad Fertile Lowland Valleys
		LCT 10b Fissured Fertile Middleground
	Waterford	Prov. LCA1 South-Western Upland Plateau
		Prov. LCA 2 River Valleys and Lowlands
		Prov. LCA 3 Drum Hills
		Prov. LCA 4 Coastal
		Prov. LCA 6 Knockmealdown Mountains

12.6 Visual Baseline

12.6.1 Visual Receptors

The main purpose of establishing the visual baseline is to identify the key visual receptors that should be considered for viewpoint selection. To this end the following have been identified in order of priority:

- > Designated Scenic Routes and Scenic Views
- > Settlements
- > Recreational and Tourist Destinations
- > Recreational Routes
 - Waymarked Walking Routes
 - Cycle Routes
 - Scenic Drives
 - Tourist Routes (e.g., Wild Atlantic Way)
- > Viewing Points (e.g., marked on OS Maps)
- > Transport Routes

These visual receptors are listed in tables in the following sections along with theoretical visibility at those locations indicated by the ZTV maps. All visual receptors are shown on Figure 12-11 *Half Blade ZTV & Visual Baseline*.

12.6.1.1 Designated Scenic Routes and Scenic Views

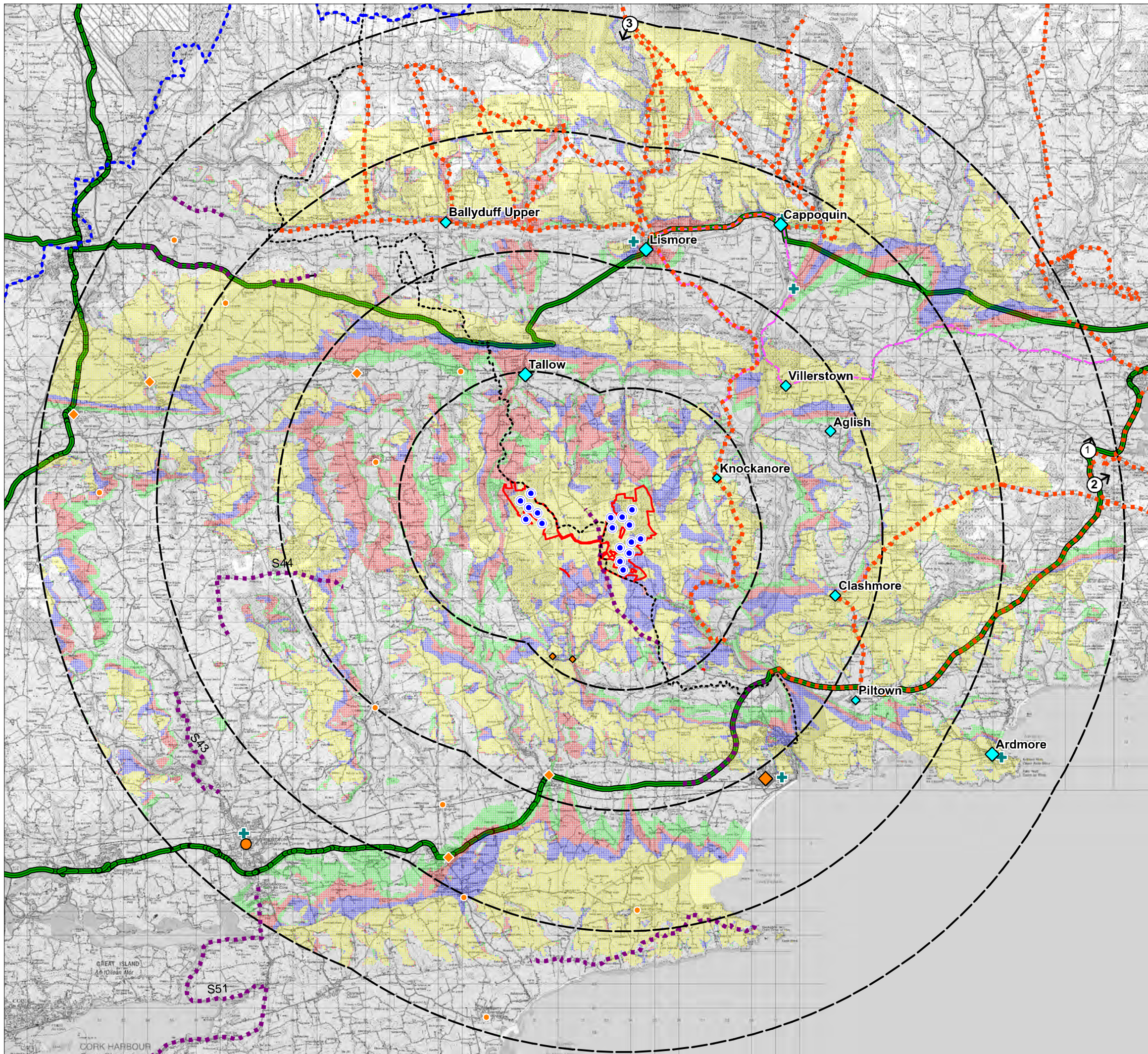
The designated scenic routes and views are addressed separately here by county and were taken from the respective county development plans. In addition to theoretical visibility, where this information is available, whether the focus of the scenic route is directed towards the location of the proposed turbines is also indicated in the tables.

12.6.1.1.1 County Cork

Scenic routes within the study area designated in the Cork County Development Plan 2014 are listed in Table 12-8 below. The table lists the view number, the focus of the view stated in the CDP, whether the view is directed towards the proposed turbines and if there is theoretical visibility indicated by the ZTV map.

Table 12-8 Scenic Routes within 20 kilometres (Co. Cork)

No.	Description	General Views Being Protected	ZTV	Direction
5 km				
S45	Section of the R634 regional road between Youghal and Tallow leading to the County Bounds.	Distant mountain views and rural landscapes.	Full	Yes
5 to 10 km				
S44	Local Road between Ardglass, Gurteen Crossroads and Monaleen Bridge.	Views of hills and rural landscapes.	Partial	Yes
S46	N25 National Primary Route between Coolaha and the County Bounds.	Intermittent views of Youghal Bay, distant mountain views and views of the Tourig and Blackwater Rivers.	Partial	Partially
10 to 15 km				
S6	Local Road to Coolbaun.	Views of pastoral landscape and the Bride River Valley.	Full	Partially
S47	Local Road between Garryvoe and Knockadoon.	Views of Youghal and Ballycotton Bay, Knockadoon Head, Capel Island and coastline.	Partial	No
15 to 20 km				
S5	R666, Regional Road from Coolisheen Bridge to Ballyalacken.	View of the Blackwater River Valley.	No	No
S7	N72 National Secondary Route between Bellvue Cross and Kilbarry overlooking Blackwater Valley.	Views of the Blackwater River Valley and distant Mountain Views.	No	No
S43	R626 Regional Road between Lisgould and Carrigogna.	Views of wooded landscape and intermittent views of open countryside.	No	No
S51	R630 Regional Road and Local Road from Ballynacorra via East Ferry to Whitegate and Roche's Point	Views of the Estuary and Harbour, Roche's Point and the rural coastal environment.	Partial	No



Map Legend

- Proposed Turbine
 - EIAR Site Boundary
 - Visual Baseline Study Area
- Settlements**
- County Cork*
- ◆ Ring Towns
 - County Towns
 - ◆ Key Villages
 - Villages
 - ◆ Village Nuclei (within 5km)
- County Waterford*
- ◆ District Service Centres
 - ◆ Local Service Centres
 - ◆ Settlement Nodes
- Scenic Routes and Views**
- - - County Cork Scenic Route
 - - - County Waterford Scenic Route
- OSi Viewing Points**
- Viewing Point marked on OSi map
 - Direction of View
- Routes & Destinations**
- Walking Routes*
- - - Avonduh Way
- Cycle Trails*
- - - Sean Kelly Cycle Routes
- Recreation Destinations*
- + Recreation Destinations
- Transport Routes*
- National Primary and Secondary
- Zone of Theoretical Visibility (ZTV)**
- 1 to 4 turbines
 - 5 to 8 turbines
 - 9 to 12 turbines
 - 13 to 17 turbines

Drawing Title: **Figure 12-11 Half Blade ZTV & Visual Baseline**

Project Title: **170749 - Lyrenacarriga Wind Farm**

Drawn By:	Checked By:	Scale:	Date:	Project No.:	Drawing No.:
JM	LM	1:155,000	13/08/2020	170749	Figure 12-11

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12.6.1.1.2 County Waterford

The scenic routes listed in Appendix 9 of Waterford County Development Plan 2011-2017 that fall within the 20 km study areas can be found in Table 12-9 below and are shown on Figure 12-4 above and Figure 12-11. Extracted from the CDP are the view number and scenic route description, however, the focus of the view is not outlined in Appendix 9 of the CDP. Additionally, there is a column indicating whether there is theoretical visibility.

Table 12-9 Scenic Routes within 20 kilometres (Co. Waterford)

No.	Location of View	ZTV
Up to 5 km		
4	Third class route from the mouth of the Glendine River, crossing the River Bride and following the Blackwater north, turning west to Lismore.	Partial
5 to 10 km		
6	North from Kinsalebeg to Clashmore on the R671, east at Clashmore along third class route to N25 at Gorteen.	Full
5	From Youghal Bridge east along the N25 to Dungarvan.	Partial
10 to 15 km		
1	The R666 heading west from the County border to Cappoquin.	None
2	The R668 north from Lismore and R669 north from Cappoquin.	Partial
3	Various third-class routes heading north from the R666 through the Comeragh Mountains.	Partial
15 to 20 km		
7	East from Gorteen along third class route via Monamraher to the R674. East to Helvick (Heilbhic) Head, west to N25;	None
8	North-west from Dungarvan to Tooraneena on the R672. Third class North to Ballymacarbry. Join R671 to Clonmel taking the R678 and turning south for third class route through the Comeraghs;	None
11	Third class circular route off R672 to Kilgobnet	None

12.6.1.2 Settlements

In order to identify which settlements within the study area were to be considered for viewpoint selection, the settlement strategies and hierarchies outlined in the core strategies of the CDPs of Cork and Waterford were consulted. The settlement hierarchies are presented by county below.

The network of settlements is set out in Section 2.3 of the Cork County Development Plan 2014 as follows (*Village Nuclei will only be considered within 5km):

- Cork Gateway
- Hub Town

- > Ring Towns
- > County Towns
- > Key Villages
- > West Cork Island Communities
- > Villages
- > Village Nuclei*

The settlement hierarchy listed below was taken from Appendix 17 of the Waterford County Development Plan 2011 – 2017:

- > Primary (County) Service Centre
- > Secondary Service Centre
- > District Service Centre
- > Local Service Centre
- > Settlement Nodes

Table 12-10 below lists the settlements identified from the respective CDPs within the LVIA study area also noting their county status within the settlement strategies and whether there is theoretical visibility indicated by the ZTV.

Table 12-10 Significant Settlements within the Study Area

Settlement	County	Settlement Hierarchy	Theoretical Visibility
Up to 5 km			
Ballymackibbot	Cork	Village Nuclei	None
Inch	Cork	Village Nuclei	Partial
Knockanore	Waterford	Settlement Node	Full
Tallow	Waterford	District Service Centre	Partial
5 to 10 km			
Aglis	Waterford	Local Service Centre	None
Ballynoe	Cork	Village	Partial
Clashmore	Waterford	Local Service Centre	Full
Conna	Cork	Key Village	None
Curraglass	Cork	Village	Partial
Dungourney	Cork	Village	None
Killeagh	Cork	Key Village	None
Villierstown	Waterford	Local Service Centre	Full
Youghal	Cork	Ring Town	Partial
10 to 15 km			

Settlement	County	Settlement Hierarchy	Theoretical Visibility
Ballyduff Upper	Waterford	Local Service Centre	Partial
Balymacoda	Cork	Village	Full
Castlemartyr	Cork	Key Villages	Partial
Cappoquin	Waterford	District Service Centre	Partial
Coolagown	Cork	Village	Full
Ladysbridge	Cork	Village	Partial
Lismore	Waterford	District Service Centre	Partial
Mogeely	Cork	Village	None
Piltown	Waterford	Settlement Node	None
15 to 20 km			
Ardmore	Waterford	District Service Centre	Full
Ballynacorra	Cork	Village	Partial
Bartlemy	Cork	Village	Partial
Castlelyons	Cork	Key Villages	Full
Clondulane	Cork	Village	None
Midleton	Cork	County Town	None
Rathcormac	Cork	Key Villages	Partial
Shanagarry/Garryvoe	Cork	Village	None

12.6.1.3 Recreational and Tourist Destinations

Recreation and tourist destinations were identified after consulting Chapter 8 of Cork CDP and Section 6.11 Waterford CDP as well as checking the most popular destinations in Counties Cork and Waterford on Tripadvisor.ie. All are shown in Figure 12-11 and listed in Table 12-11 below, however, none are located within 5 kilometres of the proposed development

Table 12-11 Recreational and Tourist Destinations in the Study Area

Destination	Description	County	ZTV
10 to 15 km			
Youghal and Youghal Bay	Youghal Town and extensive beaches	Cork	Partial

Destination	Description	County	ZTV
Dromona Gate	Hindu Gothic gate, the only one of its kind in Ireland.	Waterford	Partial
Lismore	Heritage town including Lismore Castle, the Irish home of the Duke of Devonshire. The historic gardens are open to the public	Waterford	Partial
Cappoquin House and Gardens	Georgian House and gardens open to the public.	Waterford	Partial
15 to 20 km			
Midelton	Town housing the Irish whiskey museum and visitor centre	Cork	None
Ardmore	Seaside resort and fishing village	Waterford	Full

12.6.1.4 Recreational Routes

Waymarked walking routes, cycle routes, scenic drives and tourist routes (e.g., the Wild Atlantic Way) were identified within the study area. None fall within 5km of the proposed development site. The routes are shown in Figure 12-11 and are listed in Table 12-12 below along with theoretical visibility shown on ZTV mapping for the routes.

Table 12-12 Recreational Routes in the Study Area

Route Name	Description	County	Theoretical Visibility
5 to 10 km			
Sean Kelly Cycle Trail	Cycle Route	Waterford	Very limited theoretical visibility or no visibility apart for a stretch east and north of Villierstown
15 to 20 km			
Avondhu Way	National Waymarked Walking Route	Cork/Waterford/Tipperary	Full

12.6.1.5 Viewing Points (OSi)

Within the study area there are three viewing points marked on the OSi map, none of which are within 15 km of the proposed development. All are in County Waterford. Although the viewing points are not named or numbered on the OSi map, names and numbers have been assigned in Table 12-13 below and these numbers are also shown in Figure 12-11. Table 12-13 below also whether there is theoretical visibility indicate in the ZTV map and if the view is in the direction of the turbines.

Table 12-13 Viewing points marked on OSi map in the study area

Location	County	ZTV	Direction
15 to 20 km			
1. Crussera (N25)	Waterford	No	No
2. Barranalira (N25)	Waterford	No	No
3. Glentanagree Bridge (R668)	Waterford	Yes	Yes

12.6.1.6 Transport Routes

For the purpose of viewpoint selection, national primary and secondary roads were assessed in detail. Preference was given to viewpoint selection on regional routes in cases where they passed through settlement areas or coincided with scenic routes to increase the number of visual receptors. There are no national primary and secondary routes within 5km of the proposed development. Transport routes within 5 kilometres of the site were assessed as part of the route screening analysis, where the amount of roadside screening was surveyed and mapped to give a thorough understanding of the actual visibility within 5 kilometres of the proposed turbines from the public roads. Further details on this are outlined in Section 12.8.3.3.3.

Table 12-14 Significant Transport Routes within the Study Area

Transport Route	Theoretical Visibility
5 to 10 km	
N25	Mainly no theoretical visibility apart from a stretch of partial visibility between Castlemartyr and Kileagh, one west of Youghal and one of partial theoretical visibility north of Ardmore Bay
N72	Full theoretical visibility in the north-west of the study area, partial theoretical visibility north of the proposed turbines. Then no visibility for 5 km south west of Lismore. Lastly partial theoretical visibility in Lismore and south-east of Cappoquin.

12.6.2 Visual Receptor Preliminary Assessment

After identifying the visual receptors in the study area based on designated scenic routes, settlements, recreational and tourist destinations, recreational routes, OSi viewing points and transport routes a preliminary assessment is carried out to screen out visual receptors that will not be impacted by the proposed development.

Using the Zone of Theoretical Visibility mapping shown on Figure 12-11 the visual receptors that will have no theoretical visibility are screened out as shown in Table 12-15 below.

Table 12-15 Visual Receptors Screened Out -no visibility indicated by ZTV map

Visual Receptor Category	County	Visual Receptor with no visibility shown on ZTV
Designated Scenic Routes	Cork	S7, S43
	Waterford	1, 7, 8, 11
Settlements	Cork	Ballymackibbot, Clondulane, Conna, Dungourney, Killeagh, Midleton, Mogeely, Shanagarry/Garryvoe
	Waterford	Aglish, Piltown
Recreational and Tourist Destinations	Cork	Midleton
OSi Viewing Points	Waterford	1. Crussera (N25)
		2. Barranalira (N25)

Scenic routes designated in County Cork listed in Chapter 5, Volume 2 of the CDP have a description of the ‘*general view being protected*’. Designated scenic routes within the study area, listed in Table 12-16 below, that are not directed towards the proposed turbines have been screened out from further assessment.

Table 12-16 Designated Scenic and Routes Screened Out–no visibility indicated by direction of view

Visual Receptor Category	County	Views, Scenic Routes and Viewing Points Screened Out
Designated Scenic Routes	Cork	S5, S51

For the remaining visual receptors visibility was assessed on site. In the case of the visual receptors shown in Table 12-17 below views towards the turbines were either entirely screened or substantially screened. This along with in some cases distance to the proposed development site precluded these locations being selected as viewpoints.

Table 12-17 Visual Receptors Screened Out -no visibility found on site

Visual Receptor Category	County	Visual Receptor with no significant visibility found on site
Settlements	Cork	Balymacoda, Bartlemy, Casltemartyr, Castlelyons, Coolagown, Curraglass, Inch, Ladysbridge, Rathcormac, Youghal
	Waterford	Ballyduff Upper, Cappoquin, Clashmore, Knockanore, Lismore, Tallow, Villierstown,
Recreational and Tourist Destinations	Cork	Youghal and Youghal Bay
	Waterford	Dromona Gate
		Lismore

Visual Receptor Category	County	Visual Receptor with no significant visibility found on site
		Cappoquin House and Gardens
Recreational Routes	Waterford	Avondhu Way
		Sean Kelly Cycle Trail

Following the pre-assessment exercise, the visual receptors shown in Table 12-18 have been selected as viewpoints due to their significance within the study area and the potential visual effects they may experience due to the proposed wind energy development.

Table 12-18 Visual receptors screened in and selected as viewpoints

Visual Receptor Category	Description	Viewpoint No.
Designated Scenic Routes and Scenic Views	Cork - S6	13
	Cork -S45	7
	Cork -S44	12
	Cork -S46	8
	Cork -S47	9
	Waterford - 2	1
	Waterford - 3	15
	Waterford - 4	3
	Waterford - 5	5
	Waterford - 6	4
Settlements	Ardmore	6
Recreational and Tourist Destinations	Ardmore	6
OSi Viewing Points	3. Glentanagree Bridge (R668)	1
Transport Routes	N25	14
	N72	5 & 8

Furthermore, three viewpoints within 2 kilometres (Viewpoints 2, 10 and 11) were also included to assess the visual effects closer to the proposed development.

12.7 Cumulative Baseline

Other wind energy developments, within 20km of the proposed development, were identified by searching past planning applications lodged through the various Planning Authorities (Cork County Council, Waterford 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 12-19 listed below:

Table 12-19 Existing and Permitted Wind Farms within 20 kilometres

Wind Farm	Status	No of Turbines	Tip Height (m)
Co. Waterford			
Barranafaddock	Existing	12	126.5
Woodhouse Part 1	Existing	5	125
Woodhouse Part 2	Existing	3	130
Knocknamona	Permitted	8	126.6

The proposed Lyrenacarriga turbines will be assessed in Section 12.8 of this chapter alongside the above turbines to determine the cumulative landscape and visual effects.

12.8 Likely Significant Landscape and Visual Effects

12.8.1 ‘Do-Nothing’ Scenario’

In the Do-Nothing scenario, the proposed development would not take place. The opportunity to harvest the wind resource at the site would be lost. The existing land use of commercial coniferous forestry would continue to be carried out on the site, including felling and replanting, in addition to use of parts of the site for agriculture.

12.8.2 Construction Phase Effects

It is estimated that the construction phase of the proposed development will last between approximately 18 to 24 months. This stage of the development will involve construction of site roads, turbine hardstand areas, met mast, borrow pits, temporary construction compound, collector cabling route and the electricity substation as well as turbine erection and the movement of construction and turbine transport vehicles.

12.8.2.1 Landscape Effects

It is considered that the construction phase works will result in Short-term, Imperceptible, Negative landscape effects.

12.8.2.2 Visual Effects

Most of the 18 to 24 months of the construction phase will be close to ground level and therefore not generally visible outside the proposed site boundary. The erection of turbines occurs towards the end

of this period, at which point the visual effects will be similar to those during the operational phase. The works required along the haul route will only last for the duration of the construction phase and will be temporary in nature. For more details on the visual effects of the ancillary project elements see ‘Ancillary Project Elements’ in Section 12.8.3.3.3 under Operational Phase Effects, below.

Hence, during the construction phase, the proposed turbines and ancillary project elements will give rise to a Short-term, Not Significant, Negative visual effect.

12.8.3 Operational Phase Effects

12.8.3.1 Landscape Effects

12.8.3.1.1 Landscape Character of the Proposed Development Site

The introduction of vertical structures in the proposed development site will result in a change to its landscape character from its present condition. However, as summarised in Table 12-2 the landscape of the site has been previously modified in character due to the coniferous commercial forestry occupying most of the lands within the site boundary. Therefore, the landscape of the proposed development site is predominantly seen by forestry workers or from outside the proposed site boundary. There will also be a minor localised change around the ancillary project infrastructure which is outlined in more detail in Section 12.8.3.3.2 *Ancillary Project Elements*.

12.8.3.1.2 Landscape Character in the Study Area

An assessment of the effects on landscape character was undertaken for the nine LCTs/LCAs within the study area that were identified as having significant theoretical visibility in the Landscape Receptor Preliminary Assessment above and listed in Table 12-7 of the same section. As outlined in Appendix 12-1 of this EIAR, each LCT/LCA was assigned a value for ‘magnitude of change’ and ‘landscape sensitivity to wind farm development’. These values were then entered into the ‘Landscape Effects Assessment Matrix’, which produced the ‘Significance of Landscape Effects’. The individual assessments for each LCA are presented in Appendix 12-2 and summarised in Table 12-20 below.

Table 12-20 Landscape effects on landscape character assessment summary

Landscape Character Types/Areas	LCA Sensitivity to Wind Farm Development	Magnitude of Change	Significance of Landscape Character Effect (EPA Draft 2017)
LCT 2 Broad Bay Coast	Very High	Slight	Significant
LCT 6b Broad Fertile Lowland Valleys	High	Slight	Moderate
LCT 6c Broad Fertile Lowland Valleys	High	Slight	Moderate
LCT 10b Fissured Fertile Middleground	Low	Slight	Not Significant
Prov. LCA1 South-Western Upland Plateau	Moderate	Moderate	Moderate
Prov. LCA 2 River Valleys and Lowlands	High	Negligible	Slight

Landscape Character Types/Areas	LCA Sensitivity to Wind Farm Development	Magnitude of Change	Significance of Landscape Character Effect (EPA Draft 2017)
Prov. LCA 3 Drum Hills	High	Slight	Moderate
Prov. LCA 4 Coastal	High	Slight	Moderate
Prov. LCA 6 Knockmealdown Mountains	Moderate	Negligible	Not Significant

The greatest magnitude of change will be experienced in the Co. Waterford Provisional (prov.) LCA1 *South-Western Upland Plateau*, in which parts of the proposed development are to be located. In the Co. Cork LCT 10b *Fissured Fertile Middleground*, turbines are proposed just within the eastern edge of this LCT. LCT 10b covers a vast area and stretches up to approximately 61 kilometres west of the nearest turbine, therefore, the magnitude of change on the LCT as a whole will be ‘Slight’ at best.

When the landscape sensitivities to wind farm development are taken into consideration for both these landscape character units, LCT 10b (Low) and prov. LCA1 (Moderate), this resulted in landscape character effects of ‘Moderate’ and ‘Not Significant’, respectively. Mitigating factors that should be taken into consideration for Co. Waterford prov. LCA1 are that full theoretical visibility is mainly restricted to areas classed as ‘Preferred Areas’ on the Waterford Wind Energy Strategy Map and that there is widespread screening by forestry and roadside vegetation. While the forestry plantation is subject to cyclical felling, each section of forestry is at a different level of maturity. Hence, if one area is felled adjacent mature or semi-mature areas of trees will provide continuing screening meaning that when views towards the turbines are opened up, they will be localised over narrow areas.

In the other LCAs/LCTs the magnitudes of change were either ‘Slight’ or ‘Negligible’ and coupled with landscape sensitivities ranging from ‘Moderate’ to ‘Very High’ this resulted in landscape character effects of ‘Not Significant’ to ‘Moderate’ with the exception of LCT 2 Broad Bay Coast, where the landscape sensitivity of ‘Very High’ meant that although the magnitude of change will only be ‘Slight’ due to the significant areas of no theoretical visibility and considerable distance from proposed development, the ‘Landscape Effects Assessment Matrix’ produced a landscape character effects of ‘Significant’.

12.8.3.2 Cumulative Landscape Effects

After identifying the cumulative baseline, the cumulative status for each LCA was identified in Appendix 12-2. It was then assessed whether the proposed turbines would change the status of the individual LCAs.

The status for the four County Cork LCTs was predominantly ‘1 - LCA with no wind turbines’, but one of the four was classed as ‘2 - LCA with occasional wind turbines in it and/or inter-visible in another landscape character area/s’. Three will retain the same status if the proposed wind turbines will be built, meaning that the cumulative landscape effects in these LCTs will be ‘Low’. The status of LCT 10b *Fissured Fertile Middleground*, where the turbines are proposed to be built, will change from status 1 to status 2, resulting in ‘Medium’ cumulative landscape effects.

Of the five provisional County Waterford LCAs four have been assigned a status 2 and one a status 1. None of the statuses will change as a result of the proposed development and therefore the cumulative landscape effects in Co. Waterford are considered ‘Low’ throughout.

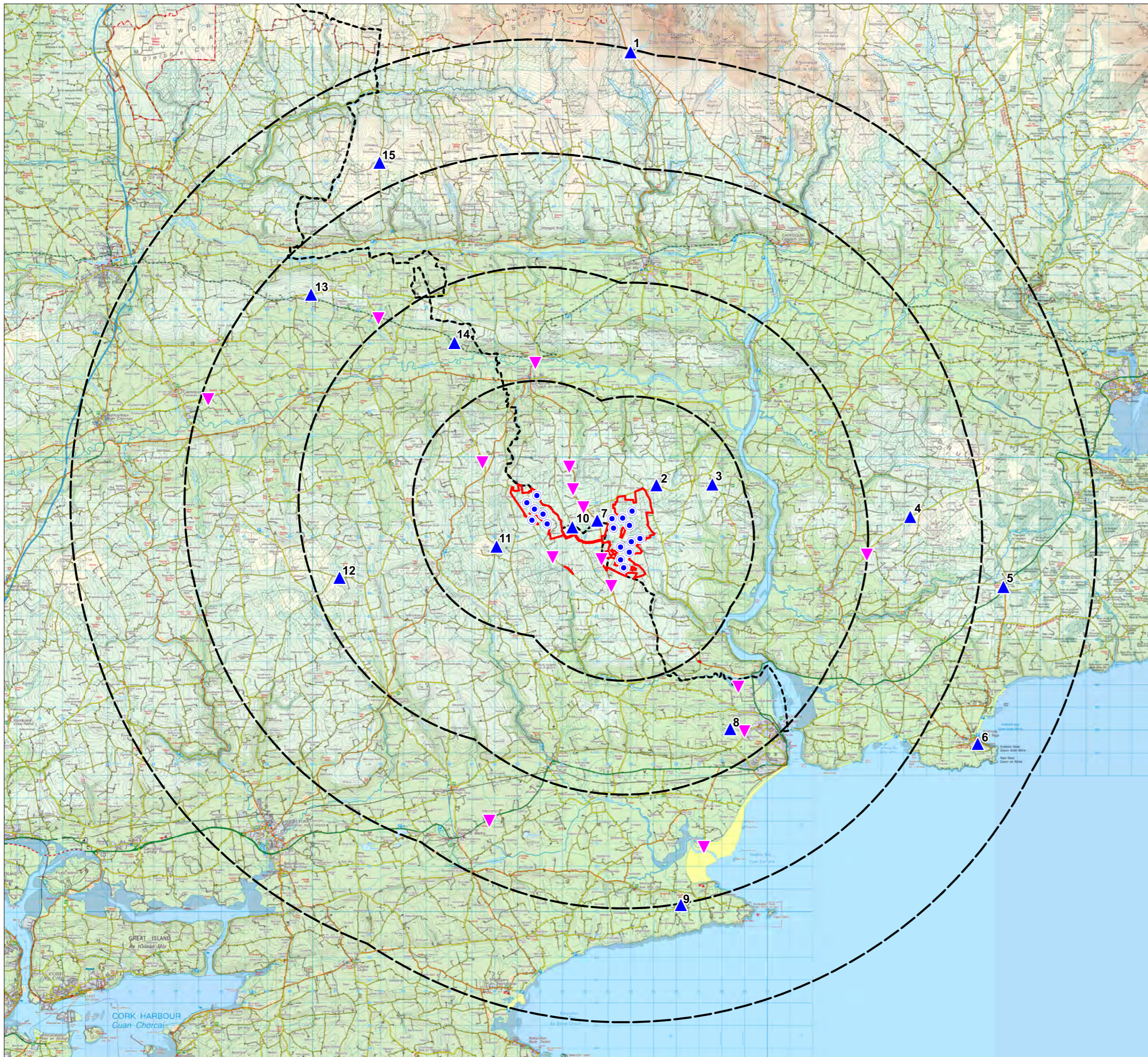
12.8.3.3 Visual Effects

12.8.3.3.1 Summary of Viewpoint Assessment

An assessment of the visual effects of the proposed turbines was undertaken from the 15 viewpoint locations, identified in Section 12.5.2 above and shown in Figure 12-12 below, in using the assessment methodology described in Appendix 12-1. The individual assessments from the 15 viewpoints are presented in Appendix 12-3 and summarised in Table 12-21 below. Appendix 12-3 and Table 12-21 should be read in conjunction with the photomontage booklet forming Volume 2 of the EIAR.

The visual effects of the proposed 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.

It should be noted that Viewpoints 7 and 10 were taken from the R634 and L-7809, which run between the eastern and western turbine groups. The angle between the two groups of turbines from these two locations was so great that all turbines could not be fitted onto one 90-degree photomontage, therefore in both cases, two sets of 90 degree and 53.5 degree photomontages, a “view A” and a “view B”, were prepared for both these viewpoints. This also helps to illustrate that the viewer would have to turn to take in both groups of turbines.



Map Legend

- ▲ Selected Viewpoint
(included in Photomontage Booklet)
- ▼ Viewpoint not selected
(wireframe overlaid onto panoramic photos available)
- Proposed Turbine
- EIAR Site Boundary

Drawing Title:						Figure 12-12 Viewpoint Locations
Project Title:						170749 - Lyrenacarriga Wind Farm
Drawn By:	Checked By:	Scale:	Date:	Project No:	Drawing No.:	
JM	LM	1:155,000	13/08/2020	170749	Figure 12-12	

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Table 12-21 Viewpoint assessment summary

VP 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 (EPA Draft 2017)
1	View from a viewing point on County Waterford Scenic Route No. 2 on the R668 regional road in the townland of Knockacomortish	E 203,975 N 107,781	19.85 km N	High	Negligible	Not Significant
2	View from the L2003 local road in the townland of Killeenaghmountain	E 205,111 N 85,752	1.53 km NE	Medium	Slight	Slight
3	View from County Waterford Scenic Route No. 4 on an unnamed local road in the townland of Knockanore	E 207,569 N 88,787	3.73 km E	High	Moderate	Moderate
4	View from County Waterford Scenic Route No. 6 on the L2024 local road in the townland of Reanaboola	E 216,270 N 87,362	11.88 km E	Medium	Slight	Slight
5	View from County Waterford Scenic Route No. 5 on the N25 national road adjacent to Kiely's Cross Roads in the townland of Boherboy	E220,366 N84,280	16.08 km E	Medium	Slight	Not Significant
6	View was taken from New Line Road in the Village of Ardmore in the townland of Dysert	E 219,241 N 77,384	17.36 km SE	High	Slight	Not Significant
7A	View from the R634 regional road in the townland of Knockaun South	E 202,510 N 87,199	0.67 km W	Low	Moderate	Slight
7B	View from the R634 regional road in the townland of Knockaun South	E 202,510 N 87,199	0.67 km W	Low	Moderate	Slight

VP 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 (EPA Draft 2017)
8	View from the County Cork Scenic Route S46 on the N25 national road in the townland of Propoge	E 208,356 N 78,038	8.52 km SE	Medium	Slight	Not Significant
9	View from Cork Scenic Route S47 on L-3819-65 local road in the townland of Ballypherode	E 206,190 N 70,306	15.07 km S	Medium	Slight	Not Significant
10A	View from L-7809 local road in the townland of Breeda	E 201,411 N 86,904	1.12 km SE	Low	Substantial	Moderate
10B	View from L-7809 local road in the townland of Breeda	E 201,411 N 86,904	1.12 km SE	Low	Substantial	Moderate
11	View from L-7804 local road in the townland of Glenacrogbery	E 198,083 N 86,055	2 km SW	Medium	Moderate	Moderate
12	View from L-7814 local road on County Cork Scenic Route S44 in the townland of Gurteen	E 191,180 N 84,687	8.84 km W	High	Slight	Slight
13	View from L-5856 local road on County Cork Scenic Route S6 in the townland of Currabeha	E 189,926 N 97,129	13.12km NW	Medium	Slight	Slight
14	View from the N72 national road in the townland of Shanacoole	E 196,233 N 95,006	7.57 km NW	Low	Slight	Not Significant
15	View from County Waterford Scenic Route No. 3 on an unnamed road in the townland of Labbanacallee	E 192,938 N 102,928	16.11 km N	Medium	Slight	Not Significant

The assessment of visual effects determined the residual significance of the visual effects to range from ‘imperceptible’ to ‘moderate’, with the number at findings at each level of significance listed in Table 12-22. It should be noted that in the case of Viewpoints 7 and 10, where there are a View A and B the two residual visual effect assessments have been averaged and counted as one value here.

Table 12-22 Summary of Viewpoint Impact Assessment Results

Significance of Residual Visual Effect	Description (EPA Draft 2017)	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	3
Slight	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities	5
Not Significant	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities	7
Imperceptible	An effect capable of measurement but without significant consequences	0

The significance of the residual visual effect was not considered to be “Profound”, “Very Significant” or “Significant” at any of the 15 viewpoint locations. A residual visual effect of “Moderate” was deemed to arise at three of the 15 viewpoint locations. All other viewpoints were assessed as resulting in Slight (5) or Not Significant (7) residual visual effects.

The individual viewpoints will be discussed in more detail in the following sections.

12.8.3.3.2 **Visual Effects in the overall study area**

The ZTV map shows bands of theoretical visibility in the north and south of the study area running mainly east to west as the lowlands in the wide Blackwater and Bride River Valleys in the north will have no visibility. The large stretch of no visibility in the south is around, but mainly to the north of the N25 national road. To the west of the turbines there are mainly narrow, consecutive concentric bands of full or partial visibility, but there is a large area surrounding the Owennacurra and Templebodan Rivers where there will be no visibility of the turbines.

To the east again the Blackwater River will have no visibility until some patches of partial visibility appear from Newport East downstream. East of the Blackwater river there is a mix of no, partial and

full visibility until at a distance of approximately 15 kilometres onwards there are only patches of partial and full visibility around Ardmore and in more inland areas to the north of Ardmore.

Theoretical visibility within 5 kilometres of the site will be discussed in more detail in Section 12.8.3.3.3 *Visual effects within five kilometres of the site*, below.

12.8.3.3.3 **Visual effects within five kilometres of the site**

While many of the turbines are on higher ground there are many nearby areas that are at greater elevations as illustrated in Figure 12-8 in Section 12.5.2.2.1 Topography. Therefore, where visibility occurs it is often only partial or only of the upper parts of the turbines. This is one of the reasons why this site and scale of project is being brought forward to seek consent.

ZTV Map

The ZTV map shows theoretical visibility concentrated in close proximity to the proposed turbines with mainly full or partial theoretical visibility and two large patches of reduced visibility to the south of the eastern turbines within five kilometres of the proposed development. Towards the edges of the 5km radius visibility is reduced by numerous river valleys; to the north on the southern side of the River Bride Valley, to the east a valley created by an unnamed stream and the western side of the Blackwater Valley and various smaller valleys created by rivers and streams to the west.

Ancillary Project Elements

For the purposes of this LVIA, a number of individual elements of the proposed development, ancillary to the proposed wind turbines, have been grouped together for the assessment of effects, given the similar nature of the works required. The proposed turbine hardstand areas, meteorological mast, temporary construction site compounds, electricity substation compound (and ancillary elements thereto), collector cabling route and borrow pits will all require the felling of forestry and in some cases its replacement with hard surface areas, giving rise to potentially similar landscape and visual effects.

The SNH 2017 Siting and Designing Wind Farms in the Landscape guidelines advise that ‘it is important that these elements do not confuse the simplicity of the wind farm design, or act as a scale indicator for the turbines themselves and that ‘wind turbines can create an over-complex visual image in association with transmission lines and other infrastructure’. To this end the visibility of the ancillary elements in the wider landscape is addressed as well as whether they will be seen together with the turbines.

The keyhole felling to be used to clear the areas for these ancillary elements, will leave adjacent forestry to screen the elements from view from the wider area. However, ancillary project elements will be visible from certain aspects in the immediate surroundings, hence, any visual effects will be localised and predominantly confined to within the proposed development site.

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

Road Construction, Turbine Hardstands

Maximal use will be made of the existing roads on site, which are currently used for the on-site forestry operations. Some localised vegetation clearance will occur as a result of the widening of 10.7 kilometres of existing and in the construction of 5.9 kilometres new roadway as part of the proposed development, which will also involve tree felling. It is proposed to construct approximately 6.9 km of new wind farm site roads. Details of the required works are contained in Chapter 4 of this EIAR on Description of the Proposed Development. The visual impact of the roads and turbine hardstands will be very localised and not seen from outside the site due to the forestry setting and additional intervening screening. The

visual effect of the road widening and construction of new roads is considered long-term where areas will not be replanted to the edge of the road, localised, but not significant.

Meteorological Mast

The proposed meteorological mast will be a slender structure up to 112 metres in height, and in itself will not be an imposing structure in terms of visual impact. The met mast can be seen in the closest Viewpoints, 7A and 10B, which show that due to its lattice construction it will not be as prominent as a solid structure. Due to this it will be much less noticeable at greater distances. Therefore, the visual effect of the proposed meteorological mast is considered to be long-term but Slight, in that it will be significantly less visible than any turbine given its slender lattice form and will fade from view at a distance of anything more than a few kilometres.

Electricity Substation

The proposed electricity substation is to be located in the eastern part of the eastern land parcel of the proposed development site in an area of forestry. Its construction will involve felling of an existing forestry area approximately equivalent to its footprint, however, adjacent forestry will screen the substation from all areas except those immediately adjacent. Hence, the landscape and visual impact of the proposed electricity substation will be localised, long-term and imperceptible in significance.

Borrow Pits, and Temporary Construction Compound

There are two proposed temporary construction compounds, one in the north of the western land parcel between turbines Nos. 12 and 13 and the other in the eastern part of the eastern land parcel between turbines Nos. 1 and 6.

There are three borrow pits proposed. The largest is in the southern part of the eastern land parcel, between Turbines 9 and 10. There are two in the western land parcel. One in the centre between Turbines 14 and 16 and a second further north between Turbines 12 and 13.

Both the two proposed temporary construction compounds and the three proposed borrow pits are in forested areas, requiring limited areas of felling, but due to the screening afforded by the surrounding forestry to be retained will not be visible beyond their immediate surroundings.

Therefore, these project elements will have localised, long-term and imperceptible landscape and visual impact.

Proposed Collector Cabling Route

An underground collector cable route measuring approximately 3 km is proposed to run from near Turbine 17 in the western land parcel in an approximately south easterly direction finishing where the R634 meets the eastern land parcel.

The route has been carefully designed to avoid the loss of existing hedgerows and tree lines. In the vast majority of cases the cabling route will run parallel to these landscape features or across fields. At the few locations where passing through hedges or treelines is necessary existing gaps have been selected. An example of this is at the intersection with the River Tourig, where an existing opening is to be used that currently is used for cattle to cross. Hence, tree and hedgerow removal due to this proposed project element is seen as long-term, imperceptible negative landscape and visual impact.

The excavation of the cable route will result in soil and groundcover disturbance, but due to subsequent reinstatement this will have a temporary, not significant negative landscape and visual impact

Proposed Haul Route

There will be two locations along the haul route where temporary works will be required. Those are Lombards Crossroads on the R634, opposite the post office and Breeda Bridge.

At Lombards Crossroads temporary hard surfacing is to be installed on the southwest corner at road verge/edge of field, in area measuring approx. 70 square metres. This will be restored following delivery of turbines to the site.

At Breeda Bridge a new access road measuring approx. 300 metres is to be constructed on geogrid/geotextile. The field will be reinstated during the post-construction period. The road uses an existing entrance and a new exit point will be cleared of existing vegetation resulting in a small amount of hedgerow removal, which will be reinstated following the construction phase.

This work along the construction route will have a temporary, not significant negative landscape and visual impact

Route Screening Analysis

In order to comprehensively demonstrate the varying characteristics of the roads and to record the actual visibility in comparison to the theoretical visibility, a methodology was developed termed Route Screening Analysis, and this was undertaken from all roads within a five-kilometre radius of the proposed turbines. The full methodology is outlined in Appendix 12-1 and the categories recorded were as follows:

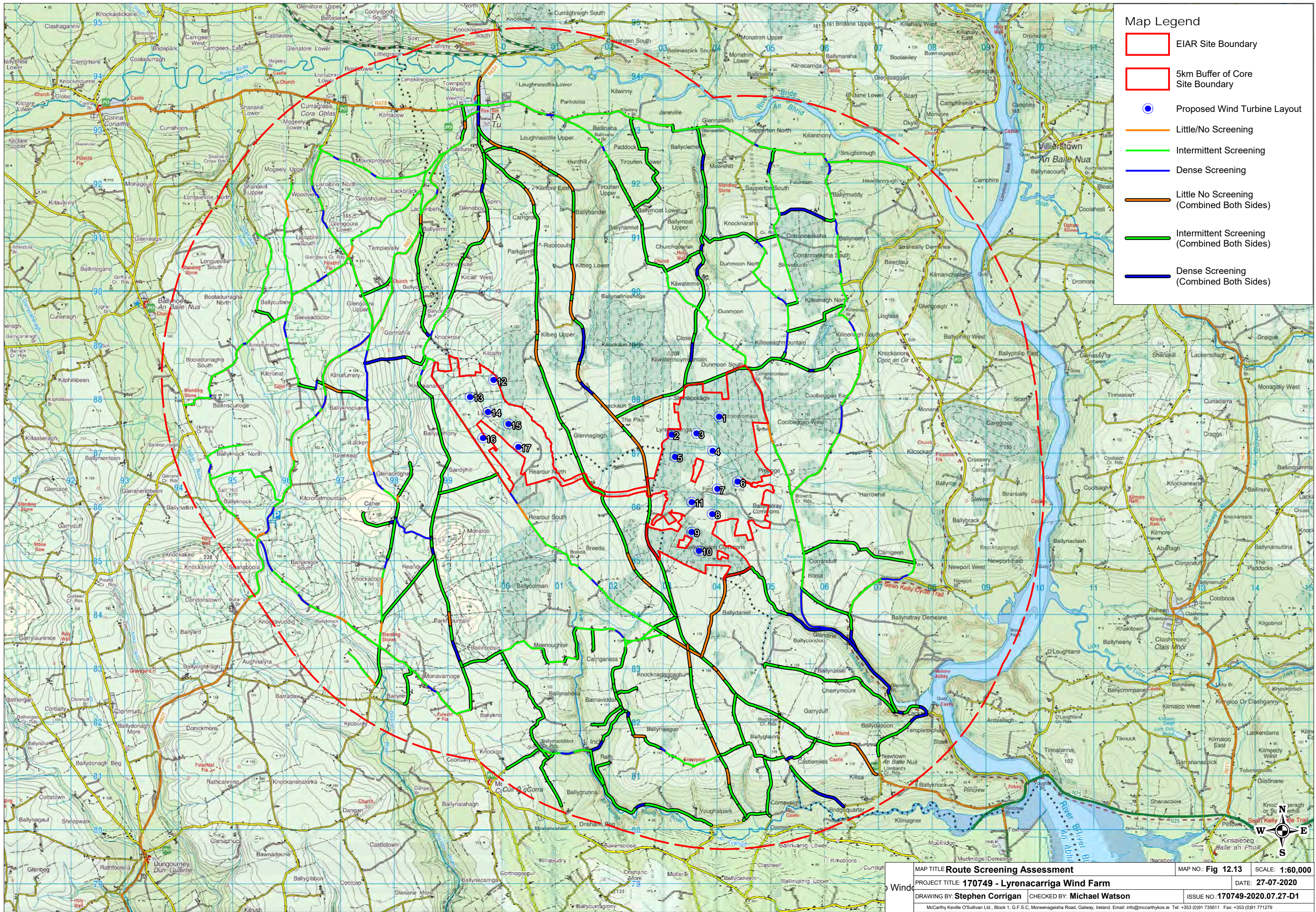
- Little/no screening – mainly open and with some very light vegetation (see Plate 12-9)
- Intermittent/Partial Screening – light deciduous roadside vegetation and vegetation with short gaps which would allow intermittent or partial views (see Plate 12-10)
- Dense Screening – vegetation which is dense enough to block views (e.g., coniferous forestry) (see Plate 12-11)



Plate 12-9 Example of 'little/no screening' Route Screening Category –on R634 regional road



Plate 12-10 Example of 'intermittent/partial screening' Route Screening Category –on R634 regional road



Map Legend

- EIAR Site Boundary
- 5km Buffer of Core Site Boundary
- Proposed Wind Turbine Layout
- Little/No Screening
- Intermittent Screening
- Dense Screening
- Little No Screening (Combined Both Sides)
- Intermittent Screening (Combined Both Sides)
- Dense Screening (Combined Both Sides)

MAP TITLE Route Screening Assessment	MAP NO.: Fig 12.13	SCALE: 1:60,000
PROJECT TITLE: 170749 - Lyrenacarriga Wind Farm	DATE: 27-07-2020	
DRAWING BY: Stephen Corrigan	CHECKED BY: Michael Watson	ISSUE NO.: 170749-2020.07-27-D1
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Plate 12-11 Example of 'dense screening' Route Screening Category –on R634 regional road

Figure 12-13 above outlines the roadside screening within a five-kilometre radius of the proposed turbines. This figure indicates that many of the roads within 5 kilometres of the site have intermittent/partial screening. This shows that these roads, for which the ZTV shows full or partial theoretical visibility, will have more screening and therefore reduced views, rather than the full or partial visibility that the ZTV suggests. The presence of roadside screening is particularly important in contexts such as the proposed development site, where the site is at a slightly higher elevation to the surrounding roads, and the presence of screening, particularly higher levels of screening that includes mature trees, will contribute to reducing views of the turbines. It should be noted that the majority of the proposed turbines are within an extensive area of forestry, which will also screen turbine bases and in some cases parts of the towers.

Roads within 1 kilometre of the proposed development, are mainly local roads, but also include the R634 regional road. Screening here is a mixture of 'intermittent/partial screening', 'dense screening' and 'little/no screening, however, 'intermittent/partial screening' is the most frequent type. The R634 is also a scenic route and passes between the two core clusters of turbines. On this regional road approximately half the length of road within one kilometre has little/no screening the rest being predominantly 'intermittent/partial screening' and a short section of 'dense screening'.

Within 1-3 kilometres of the site, 'intermittent/partial' screening becomes the dominant category with areas of 'dense screening' and of 'little/no screening' along the mainly small local roads. The R634 in the north of this area has a majority of 'little/no' screening, but also 'intermittent/partial' and 'dense' screening. To the south screening on the R634 is mainly 'intermittent/partial' with some stretches of 'little/no screening'.

Between 3 and 5 kilometres, the dominant screening category remains 'intermittent/partial' screening. Within this area is the villages of Tallow and multiple small townlands such as Newtown. North of the site screening is a mosaic of 'little/no screening' and 'intermittent/partial' screening on the roads surrounding Tallow. Within Tallow itself buildings provide 'dense' screening. The regional roads entering and leaving the village of Tallow, noted as the R628 and R634, mainly represents 'intermittent/partial' and 'open' screening. The intermittent and dense screening effects are illustrated by

Plate 12-12, which clearly show the effect of screening by vegetation and buildings in Tallow village and along the R628 and R634.



Plate 12-12 Example of dense screening within the village of Tallow looking in the direction of the proposed turbines

The regional road R634 entering and leaving the village of Newtown mostly consists of ‘intermittent screening’ with a stretch of ‘little/no’ screening ‘Intermittent’ screening on the R634 is illustrated by Plate 12-13, which shows the effect of screening by vegetation.



Plate 12-13 Example of intermittent screening on the R 634 west of the village of Newtown looking in the direction of the proposed western turbines

Viewpoints

Despite ZTV mapping showing widespread theoretical visibility, viewpoint selection within 5 kilometres of the proposed turbines was made difficult by extensive vegetative screening illustrated by the route screening analysis. However, five representative viewpoints displayed sufficient visibility for selection, these are Viewpoints 2, 3, 7, 10 and 11, as shown on Figure 12-14 below.

Viewpoint 7, less than 700 metres from the nearest turbine is on Co. Cork scenic route S45 and from this viewpoint the residual visual effects are considered ‘Slight’. Viewpoint 3 located 3.73 kilometres east from the nearest turbine is on Co. Waterford scenic route No.4 and from this viewpoint the residual visual effects are considered ‘Moderate’. Both Viewpoints 3 and 7 are discussed in more detail under Section 12.8.3.3.4

At Viewpoints 2, 10 and 11 residual visual effects were found to be ‘Slight’ and ‘Moderate’ due to considerable vegetative screening or low visual receptor sensitivity. The viewpoints are also at fairly remote locations on roads with very low traffic volumes.

Photographs were taken at six more viewpoint locations for the preparation of photomontages as shown on Figure 12-14. In the selection of viewpoint locations within five kilometres the viewpoints with the greatest visibility of the proposed turbines were selected. In these other six viewpoints, the visibility of the proposed turbines shown when wireframes were overlaid onto the photographs did not merit their inclusion for visual assessment. Of these two, AV4 and AV5, are on the Co. Cork designated Scenic Route S45 and will be discussed in more detail under Section 12.8.3.3.4.

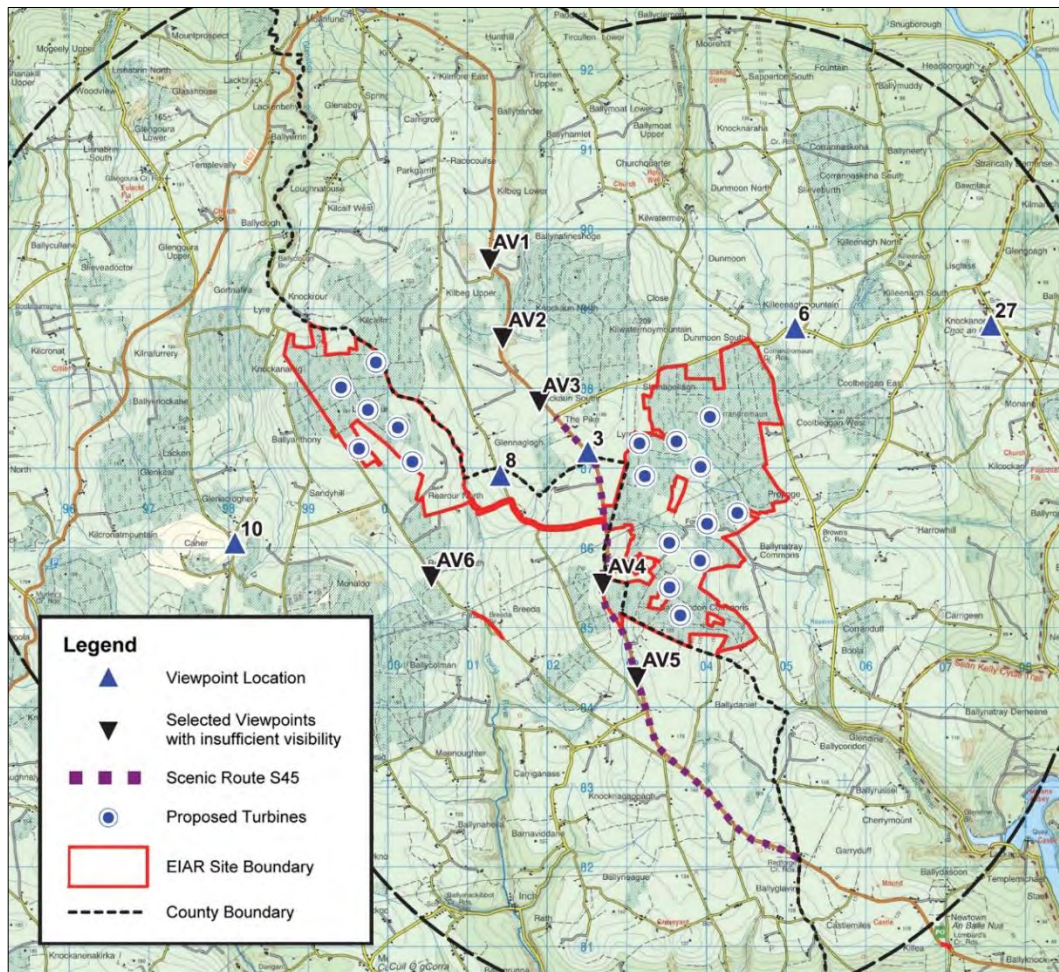


Figure 12-14 Map showing Scenic Route S45 with viewpoints selected within 5 kilometres

Plate 12-14 and Plate 12-15 below show the visibility either side of the R634 at location AV1 shown on Figure 12-14, while Plate 12-16 and Plate 12-17 show views on the same road further south at location AV2. Due to extensive screening by landform and vegetation neither were chosen as viewpoints.



Plate 12-14 Wireframe overlaid on photographs taken at AV1 looking south-east towards the proposed eastern turbines



Plate 12-15 Wireframe overlaid on photographs taken at AV1 looking south-west towards the proposed western turbines

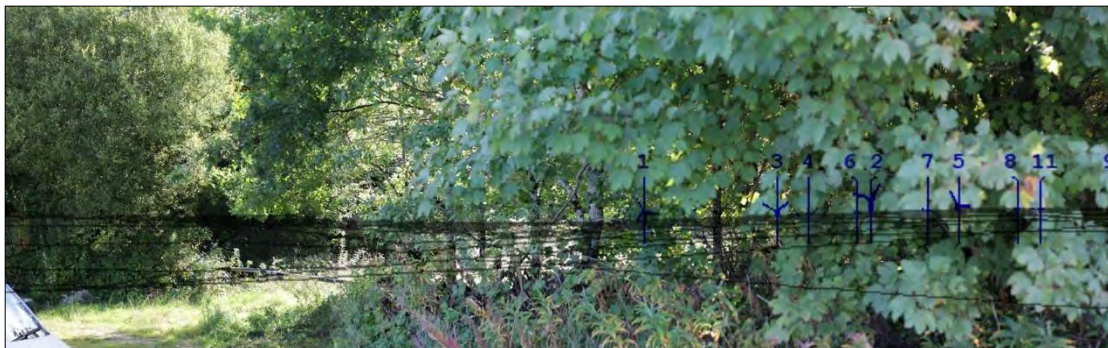


Plate 12-16 Wireframe overlaid on photographs taken at AV2 looking south-east towards the proposed eastern turbines



Plate 12-17 Wireframe overlaid on photographs taken at AV2 looking south-west towards the proposed western turbines

The views at location AV3, Plate 12-18 and Plate 12-19, exhibited greater visibility, however, when compared to nearby Viewpoint 7 to the south, the latter viewpoint was chosen in preference as the visual effects appeared greater due to reduced screening and being closer to the eastern turbines.



Plate 12-18 Wireframe overlaid on photographs taken at AV3 looking south-east towards the proposed eastern turbines



Plate 12-19 Wireframe overlaid on photographs taken at AV3 looking west towards the proposed western turbines

The same applied at location AV6, see Plate 12-20 and Plate 12-21, where adjacent Viewpoints 10 and 11 showed greater visibility.



Plate 12-20 Wireframe overlaid on photographs taken at AV6 looking north towards the proposed western turbines



Plate 12-21 Wireframe overlaid on photographs taken at AV6 looking east towards the proposed eastern turbines

This sequence of eliminated viewpoint helps to illustrate the intermittent actual visibility as opposed to the widespread theoretical visibility shown by the ZTV mapping.

Visual effects on specific visual receptors

Designated Scenic Routes

County Cork

There are 9 designated Cork Scenic routes within the LVIA study area. Two were screened out as no visibility was shown on the ZTV maps and two others were excluded as the focus of the scenic views stated in the CDP is away from the site of the proposed development. The visibility from the remaining, Cork Scenic Routes, S6, S44, S45, S46 and S47 was assessed from Viewpoints 7, 8, 9, 12 and 16, respectively. These viewpoint locations are shown on Figure 12-12.

Cork Scenic Routes S44 and S46 are at a distance greater than 5 kilometres from the proposed turbines and the residual visual effects at the viewpoints were ‘Slight’ and ‘Not Significant’, respectively.

The closest parts of Cork Scenic Routes S6 and S47 were more than 10 kilometres from the nearest turbine and residual visual effects were ‘Slight’ and ‘Not Significant’, respectively.

Cork Scenic Route S45 is the closest scenic route to the proposed turbines and passes between the two groups of turbines on the R634 regional route as close as approx. 500 metres from the nearest turbine. Hence, visibility of the proposed turbines from this road and Scenic Route S45 itself will be discussed in more detail below.

Scenic Route S45

First of all it should be stressed that Scenic Route S45 crosses over into County Waterford border at its start and finish as well as briefly in its middle. At none of these sections has it been designated as scenic by Waterford County Council. Furthermore, no parts of the R634 regional road have been classed as scenic by County Waterford. The views from Scenic Route S45, westwards where available are medium-distance views of local hills such as Caher, Monaloo and Parkmountain across agricultural fields. To the east the views are mainly short- to medium distance and in many cases greatly restricted by the adjacent coniferous forestry or roadside vegetation. It is only in the most southerly section this route that there are more medium to long-distance views to the south across agricultural land in the opposite direction to the turbines. These type of views are widely available around the local area and further afield, hence none of the views along Scenic Route S45 can be considered unique or remarkable.

The landscape and visual impact assessment focussed on this scenic route in particular and various locations were chosen to investigate and assess the visibility of the proposed turbines along this route. To this end, photographs were taken at three potential viewpoint locations along this short scenic route, as shown in Figure 12-14 above. Of these three potential viewpoints only Viewpoint 7 showed sufficient visibility for inclusion in the visual impact assessment. After wireframes were overlaid onto the panoramic photographs for views at AV4 and AV5, these did not exhibit sufficient visibility of the turbines and were not selected as viewpoints. Plate 12-22 shows the overlaid wireframes at location AV4 for the view from the scenic route to the north-east and Plate 12-23 was taken from the same location looking north-westwards. They show that the eastern turbines will be fully screened by trees and the western turbines will be screened by landform except for a blade tip appearing above the horizon. As can be seen in Plate 12-24 at AV5 the visibility is nearly identical to that at AV4, with a slight increase in visibility of the proposed western turbines.



Plate 12-22 Wireframe overlaid on photographs taken at AV4 looking towards the proposed eastern turbines



Plate 12-23 Wireframe overlaid on photographs taken at AV4 looking towards the proposed western turbines



Plate 12-24 Wireframe overlaid on photographs taken at AV5

Although Viewpoint 7 is officially in Co. Waterford, the Cork CDP shows the scenic route continuing into this part of Waterford. At this location there was also substantial screening and therefore the viewpoint assessment in Appendix 12-3 concluded that residual visual effects at this location would be ‘Slight’.

The results of the route screening assessment for the scenic route is shown in Figure 12-15 overleaf.

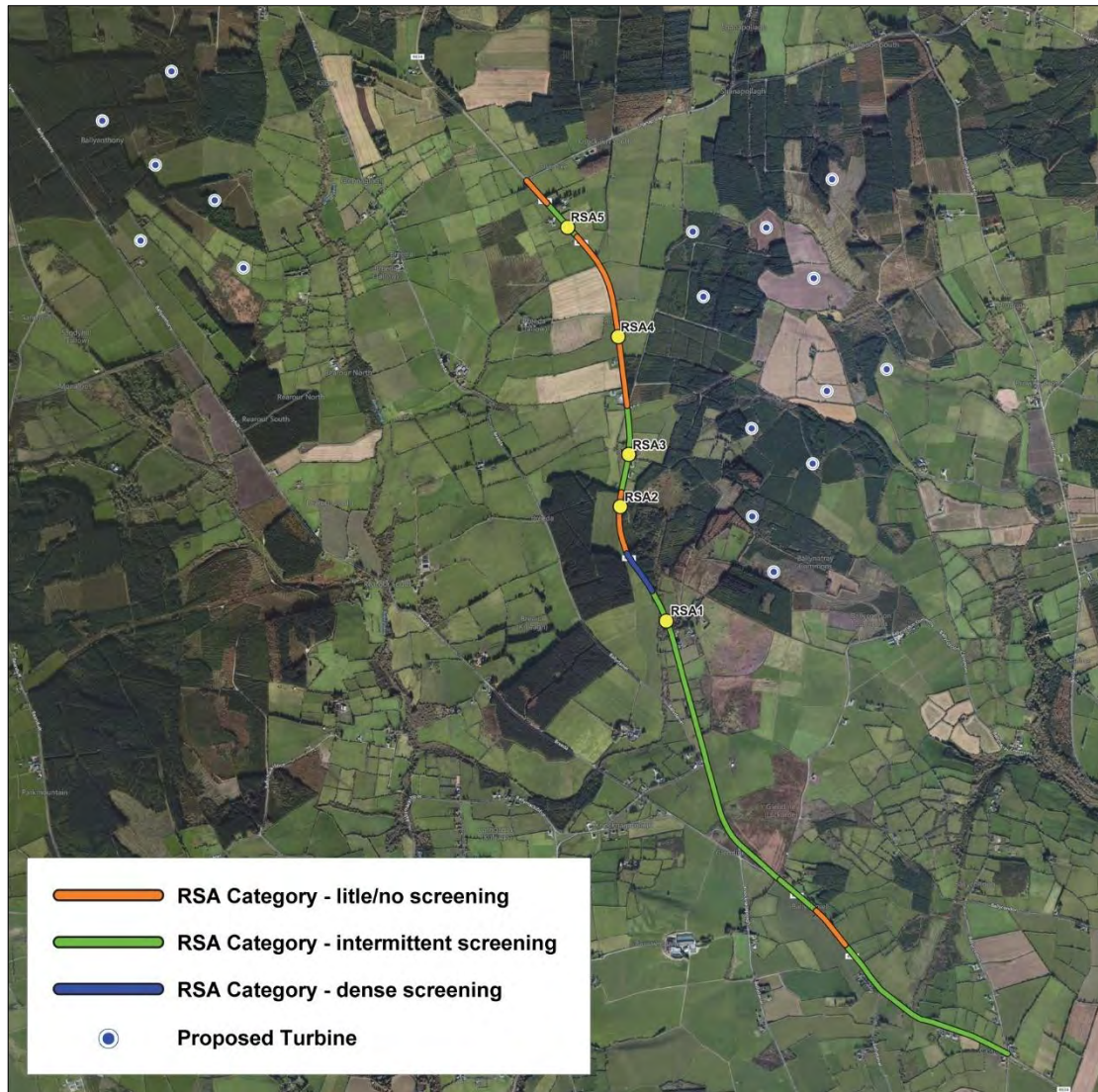


Figure 12-15 Map showing Route Screening Assessment along the S45 Scenic Route

It shows that while there are some areas with very little screening the majority of the route has intermittent screening with one area of dense screening.

As part of the route screening assessment photographs were taken at regular intervals along the routes surveyed, including Scenic Route S45 to illustrate the level of screening.



Plate 12-25 View looking northwards taken at location RSA1 shown on Figure 12-15 classed as ‘intermittent’ in the Route Screening Assessment



Plate 12-26 View looking southwards taken at location RSA2 shown on Figure 12-15 classed as ‘open’ in the Route Screening Assessment



Plate 12-27 View looking northwards taken at location RSA3 shown on Figure 12-15 classed as ‘intermittent’ in the Route Screening Assessment



Plate 12-28 View looking south-eastwards taken at location RSA4 shown on Figure 12-15 classed as ‘open’ in the Route Screening Assessment



Plate 12-29 View looking south-eastwards taken at location RSA5 shown on Figure 12-15 classed as ‘intermittent’ in the Route Screening Assessment

These pictures also serve to show the nature of County Cork Scenic Route S45 along the section of road closest to the proposed turbines.

County Waterford

Of the 9 designated scenic routes within county Waterford, the ZTV map indicated no visibility for four. Viewpoints were selected for the remaining five. County Waterford scenic routes Nos. 2 and 3 are along multiple local roads descending the southern slopes of the Knockmealdown Mountains. Despite this it was difficult to find suitable viewpoints due to screening by roadside vegetation and local topography. For both viewpoints (PL28 and PL29) the residual visual impact was found to be ‘Not Significant’.

The viewpoints selected for Scenic Routes Nos. 5 and 6 are to the east of the proposed development and were deemed Not significant and Slight respectively. For the closest County Waterford scenic route to the proposed turbines, Scenic Route No. 4, the residual visual effect was considered ‘Moderate’, partially due to the high sensitivity of the visual receptors.

Settlements, Recreational Routes and Destinations

ZTV mapping and site visits using TrueView showed that there was no visibility from any settlements, recreational and tourist destinations or recreational routes other than Ardmore Village, which falls into all three categories.

Although the ZTV indicates full theoretical visibility for the vast majority of Ardmore, actual visibility was difficult to establish on the ground due to screening by vegetation, buildings and other structures. Viewpoint 6 was selected as being the ‘worst case scenario’ view for Ardmore. Although, the magnitude of change from this viewpoint was deemed as ‘Slight’, due to the high visual receptor sensitivity the significance of the effect arrived at using the visual effects assessment matrix (see methodology in Appendix 12-1) resulted in a ‘Moderate’ visual effect. However, the residual effect was deemed ‘Not Significant’, due to numerous mitigating factors such as that the primary visual focus of residents and

visitors would be on the sea and the limited spatial extent of the proposed turbines in the view due to significant intervening distance to the proposed turbines from Ardmore.

Transport Routes

National primary and secondary routes were assessed in detail. Regional routes were assessed when they fell within settlement areas or coincided with scenic routes and preference was given to viewpoint selection on regional routes in these cases to increase the number of visual receptors.

There were two national routes within the study area, the N25 and N72. As outlined in Section 12.5.1.6 the N25 mainly had no theoretical visibility apart from a stretch of partial visibility between Castlemartyr and Kileagh, one west of Youghal and one of partial theoretical visibility north of Ardmore Bay. Viewpoint 14 was selected to assess the N25 and residual visual effects at that location were found to be ‘Not Significant’.

The ZTV map showed full theoretical visibility in the north-west of the study for the N72, partial theoretical visibility north of the proposed turbines. Then no visibility for 5 km south west of Lismore. Lastly partial theoretical visibility in Lismore and south-east of Cappoquin. The viewpoint assessment for both viewpoints (4 and 8) along this national road resulted in a ‘Not Significant’ residual visual effect. In both cases mitigation factors such as screening of the proposed turbines, the small number of nearby houses, road users travelling at high speeds broadly perpendicular to the view, intervening distance and very limited spatial extent of the proposed development were taken into consideration.

Viewing Points (OSi)

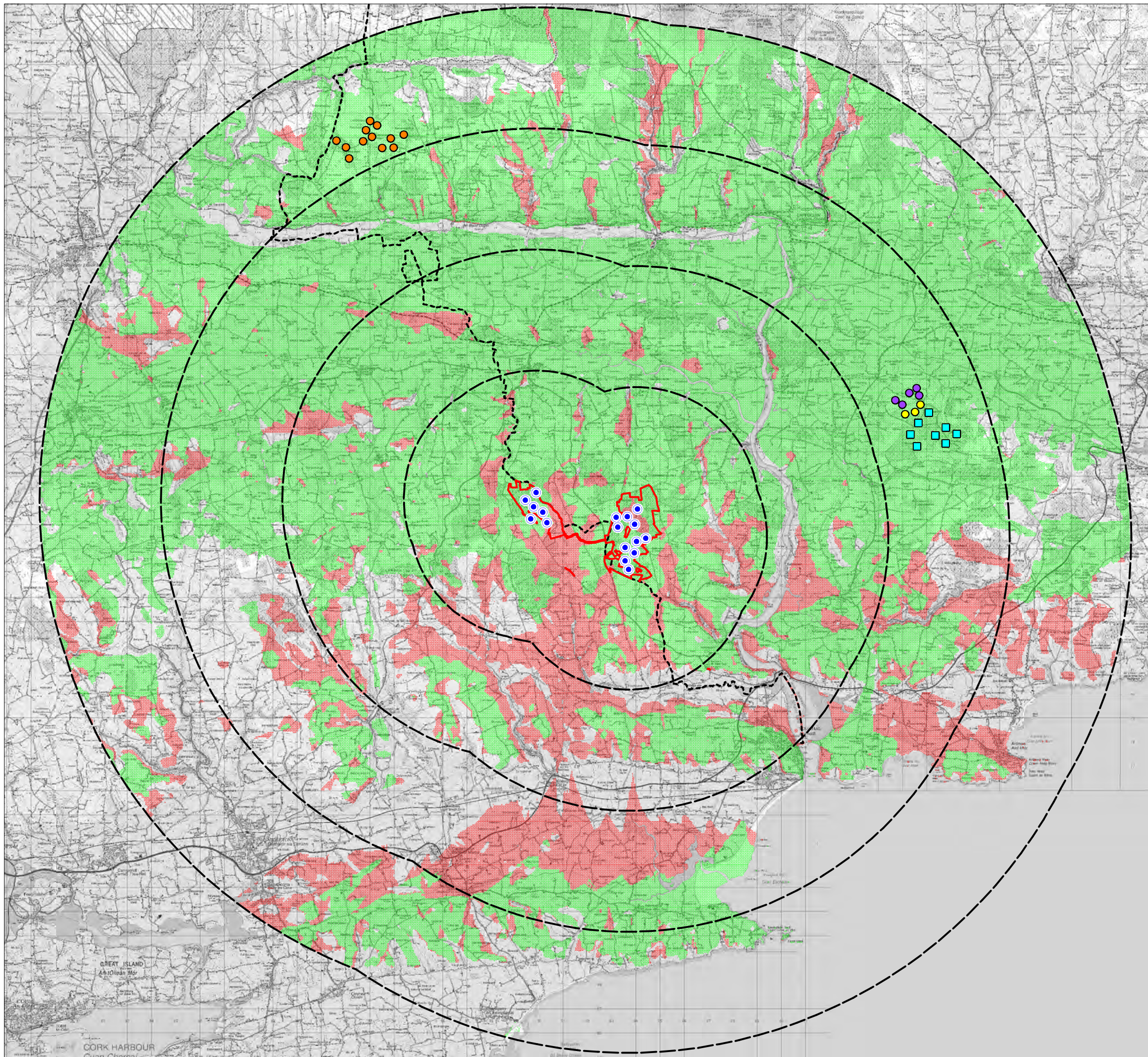
No local scenic viewing points could be found in Co Cork, but three were identified in Co. Waterford. Two of these were neither directed towards the proposed turbines nor is any theoretical visibility indicated. The viewing point along the R668 at Glentanagree Bridge also doubling as a parking area for the Knockmealdown – Sugarloaf Horseshoe Walk was selected as Viewpoint 1. The magnitude of change from this viewpoint is ‘Negligible’ and after taking the high visual receptor sensitivity and mitigating factors, particularly the intervening distance of nearly 20 kilometres, into account the residual effect was deemed not significant.

12.8.3.4 Cumulative Visual Effects

Cumulative visual effects only arose in two viewpoints, Viewpoints 11 and 15. In Viewpoint 11 the existing Woodhouse turbines and the permitted Knocknamona turbines appear in the far distance behind the proposed eastern turbines, however, due to distance the existing or permitted turbines will not be sufficiently visible to give rise to any but imperceptible cumulative effects. Viewpoint 15 was taken amongst the existing Barranafaddock turbines. Here although theoretically the existing Woodhouse and permitted Knocknamona should be visible, distance makes these wind developments imperceptible. The viewpoint assessment found that there was complete separation between the existing and permitted turbines and proposed development and that difference in scale and design was negligible. Furthermore, the addition of the proposed turbines would only increase the spatial extent of turbines within the view slightly.

Therefore, it can be concluded that the cumulative visual effects will be long-term, neutral imperceptible.

A comparative ZTV, Figure 12-16 below, shows that the total areas where wind turbines will be theoretically visible over the current theoretical visibility of the existing and permitted turbines will increase marginally towards the north and in approximately half the areas south of the proposed development due to the addition of the proposed Lyrenacarriga turbines.



Map Legend

- Proposed Turbine
- EIAR Site Boundary
- County Boundary

Existing Turbines

- Barranafaddock
- Woodhouse Part 1
- Woodhouse Part 2

Permitted Turbines

- Knocknamona

Zone of Theoretical Visibility (ZTV)

- Theoretical Visibility of all Existing and Permitted Turbines
- Additional theoretical Visibility for the Proposed Lyrenacarriga Turbines

Drawing Title:						Figure 12-16 Comparative Half-Blade ZTV
Project Title:						170749 - Lyrenacarriga Wind Farm
Drawn By:	Checked By:	Scale:	Date:	Project No:	Drawing No.:	
JM	LM	1:155,000	13/08/2020	170749	Figure 12-16	

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12.8.3.5 Visual Effects on Residential Properties between the two Turbine Clusters

As the distance between the two turbine groups is in excess of 2.8 kilometres there are residential properties that have the potential to experience the turbines from more than one direction. For this reason, four representative housing groups between the two turbine clusters were identified, one along the R 364, two on the L-7809 and one on the L-2003, as shown in Figure 12-17, below, to determine whether these dwellings would be subject to domineering visual effects above and beyond other properties that would only be able to see the turbines direction. The collective visual effects for the housing cluster is discussed as well as an indicating the visual effects for each house.



Figure 12-17 Map showing assessed house clusters

12.8.3.5.1

House Cluster 1



Figure 12-18 Cluster 1 Houses

Cluster 1 includes nine residential properties at an approximate distance of 0.8 kilometres from the nearest turbine (T11 in the eastern cluster). Four of these properties are on the near side of the road and will see the eastern cluster from the rear of the houses and five properties face the turbines. Ten of the eastern turbines will be located within 2 kilometres of this location and one is beyond two kilometres. These turbines will occupy 127 degrees of the view to the east. The nearest of the eastern turbines is over 2.6 kilometres away. Of the three properties facing the turbines (numbered 1 to 3 on to the left) the two most northern dwellings are opposite dense, mature roadside screening and are unlikely to see more than the blade tips of the nearest turbines appear over the conifers. The house numbered No.4 has fairly open views to the rear of the property and will see the upper parts of most of the eastern turbines. Property No.5 has a mature line of trees between it and the eastern turbines. Properties numbered 6 and 7 back on to fields followed by coniferous plantation and will see the upper parts of some of the turbines above the trees. Property 8 backs directly only coniferous forestry and is likely to have very limited or no views of the eastern turbines. The house numbered No.9 has fairly open views from the front of the house and will see the upper parts of some of the eastern turbines.

12.8.3.5.2

House Cluster 2

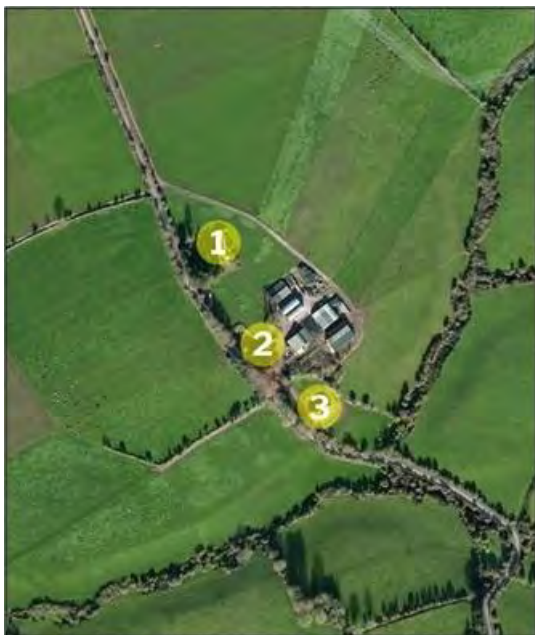


Figure 12-19 Cluster 2 Houses

Cluster 2 consists of 3 houses located on the eastern side of the L-7809 local road and these will be approximately 1.49 kilometres from the nearest western turbine. The turbines are theoretically visible from both sides and the six turbines within 2 kilometres cover 66 degrees of the 360-degree visual field. Due to mature tree lines to the west, it is unlikely that there will be much visibility of the western turbines from all three houses. The eastern turbines are at a distance in excess of 2.4 kilometres and will be substantially screened by landform, with only the upper parts of these turbines visible.

12.8.3.5.3

House Cluster 3

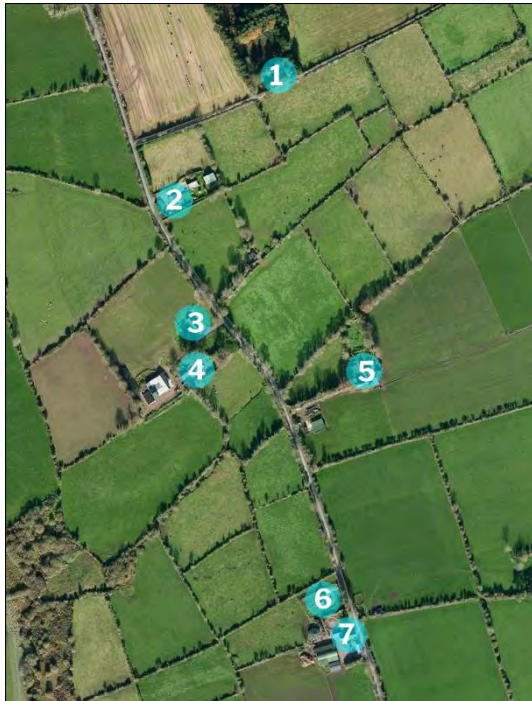


Figure 12-20 Cluster 3 Houses

Cluster 3 represents seven dwellings at a distance of 0.92 kilometres from the nearest eastern turbine. Here, only the western turbine group will be within 2 kilometres of the cluster and these theoretically occupy 70 degrees of the view on one side. Mature vegetation along the roadside or along the property boundaries will substantially screen most of the turbines from the three houses located on the eastern side of the road (Properties numbered 1, 2 and 5 in Figure 12-20 opposite) as well as property No. 4. Properties numbered 3, 6 and 7 may have more open views from the rear of their properties.

12.8.3.5.4

House Cluster 4

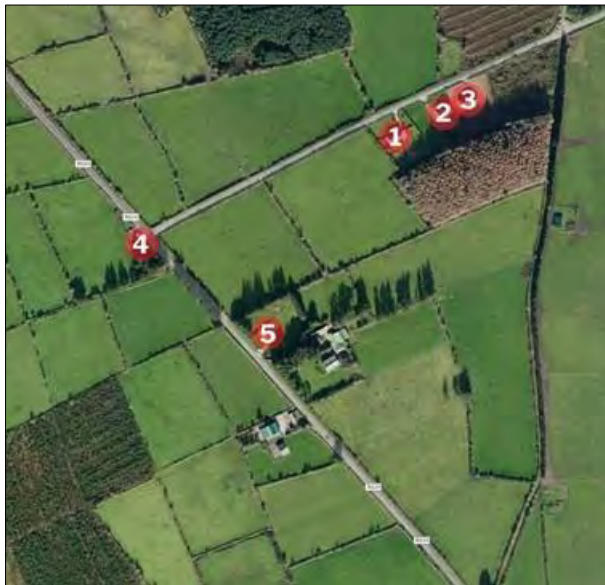


Figure 12-21 Cluster 4 Houses

Five residential properties are located around Cluster 4 at a distance of 0.98 kilometres from the nearest turbine in the eastern group of turbines. Five of these eastern turbines fall within 2 kilometres of the houses and these represent 53 degrees of the view. Houses numbered 1, 2 and 3 are on the southern side of the L2003 local road and the conifer plantation to the south of these houses will entirely screen the nearest turbines. These three houses will be very oblique views of the eastern turbine cluster, the nearest of which is over 2 kilometres of this location. Two houses, Nos. 4 and 5, are located either side of the R634 regional road. House No. 4 will have partially screened, oblique views to most of the eastern turbines from the front of the house. House No. 5 is surrounded by coniferous tree lines on three sides, which will substantially screen the nearest western turbines.

12.9 Summary

12.9.1 Landscape Effects

The introduction of vertical structures in the proposed development site will result in a change to its landscape character from its present condition. However, this needs to be put into the context that the landscape of the site has already been substantially modified in character due to coniferous commercial forestry and that other than forestry workers the majority of people will experience the changes from outside the proposed site boundary.

Of the 12 landscape character areas identified in the study area three were screened out at the pre-assessment stage as they will experience no or very minor visibility of the proposed turbines.

For the two landscape character areas in which the turbines will be located, Co. Waterford prov. LCA 1 *South-Western Upland Plateau* and Co. Cork LCT 10b *Fissured Fertile Middleground*, the landscape effects are considered ‘Moderate’ and ‘Not Significant’ respectively. Mitigating factors that contributed to this assessment were that for Co. Waterford prov. LCA1 full theoretical visibility is mainly restricted to areas classed as ‘Preferred Areas’ on the Waterford Wind Energy Strategy Map and that there is widespread screening by forestry and roadside vegetation. In the case of Co. Cork LCT 10b covers a vast area and stretches to approximately 61.4 kilometres westwards of the nearest turbine, therefore, the magnitude of change on the LCT as a whole will be ‘Slight’ at best.

12.9.2 Cumulative Landscape Effects

The cumulative baseline and the cumulative status for each LCT in Co. Cork and each prov. LCA in Co. Waterford where the ZTV map showed sufficient theoretical visibility was identified in Appendix 12-2. It was then assessed whether the additional proposed turbines would change the status of the individual LCAs. Only the status of the status of LCT 10b *Fissured Fertile Middleground*, where the turbines are proposed to be built, will change from status 1 to status 2, resulting in ‘Medium’ cumulative landscape effects. All the other landscape character areas will experience ‘Low’ cumulative landscape effects.

Hence, overall, the cumulative landscape effects will be ‘Imperceptible’.

12.9.3 Visual Effects

The area that the proposed turbines are to be located has been designated as ‘Open to Consideration’ in County Cork and ‘Preferred’ in County Waterford, with regard to wind farm development. Hence, turbines in this landscape are not inappropriate as long as the design and local siting of these turbines is seen to be appropriate.

No designations apply to the site within the County Cork portion of the proposed development. Within Co. Waterford the Scenic Landscape Evaluation shows small areas of ‘Sensitive’ and a line of ‘Visually Vulnerable’ area within the proposed development site. However, areas classed as sensitive within the site do not comply with the description set out in Appendix A9 of the CDP in terms of their character or vegetation cover. The skyline that is shown on the Scenic Landscape Evaluation as a ‘Visually Vulnerable’ was found not to be particularly distinctive relative to the surrounding topography.

The ZTV map shows many areas that will have no visibility of the proposed turbines throughout the 20-kilometre study area. The most significant of these are the lowlands in the wide Blackwater and Bride River Valleys, an area around and to the north of the N25, and a large area surrounding the Owennacurra and Templebodan Rivers.

Within five kilometres, higher ground partially screens the turbines from many areas and fully at the periphery of the 5-kilometre radius from the turbines. Extensive areas of forestry and road-side screening provide additional screening as illustrated by the route screening analysis.

Key visual receptors, such as scenic routes and views, settlements, recreational destinations and routes as well as major transport routes were identified within the study area, after which those where visibility could be excluded due to ZTV mapping or site surveys were screened out. For the remaining visual receptors, viewpoints were selected for which photomontages were prepared to assess the visual effects on the visual receptors as well as selecting a number of viewpoints within 5 kilometres of the site from various aspects to assess the visual effects. The visual assessment concluded that residual visual effects of ‘Moderate’ was deemed to arise at three of the 15 viewpoint locations. All other viewpoints were assessed as resulting in ‘Slight’ (5) or ‘Not Significant’ (7) residual visual effects.

Particular attention was given to the Co. Cork Scenic Route S45 on the R634 regional road passing between the two proposed turbine clusters. Views from this route were found to be limited by topography and screening, except for in the stretch of this route furthest away from the turbines where the long-distance views were in the opposite direction to that of the turbines. Furthermore, the nature of the views, across agricultural fields, are widely available around this area and not unique. Viewpoints were attempted to various locations along the scenic route, but due to limited visibility only one was selected. At this viewpoint, Viewpoint 7, which is located between the two turbine groups on a scenic route and only 0.67 kilometres from the nearest turbine, the visual effects are considered ‘Slight’, due to extensive screening of much of the turbines.

Two of the location where ‘Moderate’ visual effects are expected are within approx. 2 kilometres of the proposed turbines and the third is approx. 3.7 km away. While due to extensive screening only a ‘Slight’ residual effect will occur at two other locations within 2 kilometres.

Hence, overall, the visual effects are deemed to be ‘Slight’ for the visual study area as a whole.

12.9.4 Cumulative Visual Effects

Due to the lack of cumulative wind projects in the 20-kilometre visual study area and their distance from the proposed turbines, cumulative visual effects only arose in two of the 15 viewpoints, Viewpoints 11 and 15. In both cases the cumulative effects were considered ‘Negligible’ primarily due to the distance between the wind energy developments. Hence, overall, the cumulative visual effects will be ‘Imperceptible’.