



Cush Wind Farm

Environmental Impact Assessment Report

Chapter 9: Landscape

Cush Wind Limited

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9.1 Introduction

This chapter describes the landscape context of the project and assesses the likely significant landscape and visual impacts of the scheme on the receiving environment.

Although closely linked, landscape and visual impacts are assessed separately. Landscape Impact Assessment (LIA) relates to changes in the physical landscape brought about by the project, which may alter its character, and how this is experienced. This requires a detailed analysis of the individual elements and characteristics of a landscape that go together to make up the overall landscape character of that area. By understanding the aspects that contribute to landscape character, it is possible to make judgements in relation to its quality (integrity) and to identify key sensitivities. This, in turn, provides a measure of the ability of the landscape in question to accommodate the type and scale of change associated with the project without causing unacceptable adverse changes to its character.

Visual Impact Assessment (VIA) relates to assessing effects on specific views and on the general visual amenity experienced by people. This deals with how the surroundings of individuals or groups of people may be specifically affected by changes in the content and character of views as a result of the change or loss of existing elements of the landscape and/or introduction of new elements. Visual impacts may occur from: visual obstruction (blocking of a view, be it full, partial or intermittent) or Visual Intrusion (interruption of a view without blocking).

Cumulative landscape and visual impact assessment is concerned with additional changes to the landscape or visual amenity caused by the project in conjunction with other developments (associated or separate to it), or actions that occurred in the past, present or are likely to occur in the foreseeable future.

While this assessment predominately focuses on the likely impacts of the proposed wind turbines due to their scale, detailed appraisal of all elements of the overall project have been assessed including ancillary infrastructure (access tracks and site entrances), electricity substation and associated grid connection, haul route upgrade works, and forestry re-planting.

This assessment uses methodology as prescribed in the following guidance documents:-

- European Union (2017) *Guidance on the preparation of the EIA Report (Directive 2011/92/EU as amended by 2014/52/EU)*;
- Environmental Protection Agency (EPA) publication '*Guidelines on the Information to be contained in Environmental Impact Statements (2022)*' and the accompanying *Advice Notes on Current Practice in the Preparation of Environmental Impact Statements (Draft 2015)*;
- Landscape Institute and the Institute of Environmental Management and Assessment publication entitled '*Guidelines for Landscape and Visual Impact Assessment – Third Addition*' (2013);
- Scottish Natural Heritage (SNH) '*Guidance Note: Cumulative Effect of Wind Farms (2012)*';
- Department of the Environment, Heritage, and Local Government (2006) *Wind Energy Development Guidelines for Planning Authorities 2006*;
- Department of the Housing, Planning, and Local Government (2019) *Draft Revised Wind Energy Development Guidelines*; and,
- Scottish Natural Heritage (SNH) '*Visual representation of wind farms: Best Practice Guidelines*' (version 2.2 - 2017).

9.1 Statement of Authority

This Landscape and Visual Impact Assessment (LVIA) was prepared by Richard Barker (MLA MILI), Principal Landscape Architect at Macro Works Ltd, a specialist LVIA company with over 20 years of experience in the appraisal of effects from a variety of energy, infrastructure and commercial developments. Relevant experience includes LVIA work on over 140 on-shore wind farm proposals throughout Ireland, including six Strategic Infrastructure Development (SID) wind farms. Macro Works and its senior staff members are affiliated with the Irish Landscape Institute.

9.2 Description of the Project

In summary, the project comprises the following main components as described in **Chapter 3**:-

- 8 no. wind turbines with an overall tip height of 200m, and all associated ancillary infrastructure;
- All associated and ancillary site development, excavation, construction, landscaping and reinstatement works, including provision of site drainage infrastructure and forestry felling.
- Temporary alterations to the turbine component haul route; and,
- Construction of an electricity substation, Battery Electricity Storage System and installation of 5.6km of underground grid connection to facilitate connection of the proposed electricity substation to the existing 110kV substation at Clondallow, County Offaly;

The project site is located in rural Co. Offaly, approximately 4km north of the town of Birr and c. 28km south-west of Tullamore, County Offaly. Off-site and secondary developments; including the forestry replant lands and candidate quarries which may supply construction materials; also form part of the project.

The turbine component haul route, and associated temporary alteration works as described at **Chapter 3**, are located within counties Galway, Roscommon, Westmeath, and Offaly. It is envisaged that the turbines will be transported from the Port of Galway, through the counties of Galway, Roscommon, Westmeath and Offaly, to the project site.

A full description of the project is presented in **Chapter 3**.

9.3 Definition of the Study Area

The *Wind Energy Development Guidelines for Planning Authorities 2006* published by the Department of the Environment, Heritage and Local Government specify different radii for examining the zone of theoretical visibility (ZTV) of proposed wind energy developments. The extent of this study area is influenced by turbine height, as follows:-

- 15 km radius for blade tips up to 100m;
- 20 km radius for blade tips greater than 100m; and,
- 25 km radius where landscapes of national and international importance exist.

These radii are mirrored in the *Draft Revised Wind Energy Development Guidelines 2019*. In the case of this project, the blade tips are 200m in height and, given the absence of national and internationally important landscapes, the recommended ZTV radius is 20km from the outermost turbines of the scheme.

Notwithstanding the full 20km extent of the study area, there will be a particular focus on receptors and effects within the central study where there is higher likelihood of

significant effects occurring. When referenced within this assessment, the 'central study area' is the landscape within 5km of the site.

9.2 Methodology

The production of this LVIA involved desktop studies to understand the existing baseline environment; fieldwork recording the elements and characteristics of the landscape and the selection and capture of images to allow the preparation of photomontages; and the professional evaluation of the baseline environment and the effects which may occur as a result of the project based on the photomontages prepared.

9.2.1 Desktop Study

The desk study involved:-

- Establishing an appropriate Study Area from which to study the landscape and visual impacts of the Project.
- Review of a Zone of Theoretical Visibility (ZTV) map, which indicates areas from which the project is potentially visible in relation to terrain within the Study Area.
- Review of relevant legislation and guidance, including County Development Plans, particularly with regard to sensitive landscape and scenic view/route designations.
- Selection of potential Viewshed Reference Points (VRPs/VPs) from key visual receptors to be investigated during fieldwork for actual visibility and sensitivity.

9.2.2 Fieldwork

- Recording of a description of the landscape elements and characteristics within the Study Area;
- Selection of a refined set of VRP's for assessment. This includes the capture of reference images and grid reference coordinates for each VRP location for the visualisation specialist to prepare photomontages; and
- Following the selection of VRPs, photo-realistic images (photomontages) of the project were prepared by Galetech Energy Services (GES).

9.2.3 Appraisal

This assessment, undertaken following the completion of fieldwork and the preparation of photomontages & wireframes has included:-

- Consideration of the receiving landscape with regard to overall landscape character as well as the salient features of the Study Area including landform, drainage, vegetation, land use and landscape designations.
- Consideration of the visual environment including receptor locations such as centres of population and houses, transport routes, public amenities and facilities and designated and recognised views of scenic value.
- Consideration of design guidance and planning policies.
- Consideration of potentially significant construction phase and operation phase effects and the mitigation measures that could be employed to reduce such effects.
- Estimation of the significance of residual landscape impacts.
- Estimation of the significance of residual visual impacts aided by photomontages prepared at all of the selected VRP locations.
- Estimation of cumulative landscape and visual effects in combination with other surrounding developments that are either existing or permitted.

9.2.4 Computer Generated Images, Photomontages and Wireframes

This LVIA is supported by a variety of computer generated maps and graphics as well as verifiable photomontages that depict the Development within the views from a range of represented visual receptor locations. These maps, graphics and visualisations consist of the following:

- Zone of Theoretical Visibility (ZTV) maps; and,
- Photomontages consisting of existing views, wireframe views and proposed views.

9.2.5 Assessment Criteria for Landscape Effect

The classification system used by Macro Works to determine the significance of landscape and visual impacts is based on the IEMA Guidelines for Landscape and Visual Impact Assessment (2013). When assessing the potential impacts on the landscape resulting from a wind farm development, the following criteria are considered:

- Landscape character, value and sensitivity;
- Magnitude of likely impacts; and,
- Significance of landscape effects.

The sensitivity of the landscape to change is the degree to which a particular landscape receptor (Landscape Character Area (LCA) or feature) can accommodate changes or new features without unacceptable detrimental effects to its essential characteristics. Landscape Value and Sensitivity is classified using the following criteria:

Sensitivity	Description
Very High	Areas where the landscape character exhibits a very low capacity for change in the form of development. Examples of which are high value landscapes, protected at an international or national level (World Heritage Site/National Park), where the principal management objectives are likely to be protection of the existing character.
High	Areas where the landscape character exhibits a low capacity for change in the form of development. Examples of which are high value landscapes, protected at a national or regional level (Area of Outstanding Natural Beauty), where the principal management objectives are likely to be considered conservation of the existing character.
Medium	Areas where the landscape character exhibits some capacity and scope for development. Examples of which are landscapes which have a designation of protection at a county level or at non-designated local level where there is evidence of local value and use.
Low	Areas where the landscape character exhibits a higher capacity for change from development. Typically, this would include lower value, non-designated landscapes that may also have some elements or features of recognisable quality, where landscape management objectives include, enhancement, repair and restoration.
Negligible	Areas of landscape character that include derelict, mining, industrial land or are part of the urban fringe where there would be a reasonable capacity to embrace change or the capacity to include the development proposals. Management objectives in such areas could be focused on change, creation of landscape improvements and/or restoration to realise a higher landscape value.

Table 9.1: Landscape Value & Sensitivity

The magnitude of a predicted landscape impact is a product of the scale, extent or degree of change that is likely to be experienced as a result of the Development. The

magnitude takes into account whether there is a direct physical impact resulting from the loss of landscape components and/or a change that extends beyond the Site Boundary that may have an effect on the landscape character of the area.

Magnitude	Description
Very High	Change that would be large in extent and scale with the loss of critically important landscape elements and features, that may also involve the introduction of new uncharacteristic elements or features that contribute to an overall change of the landscape in terms of character, value and quality.
High	Change that would be more limited in extent and scale with the loss of important landscape elements and features, that may also involve the introduction of new uncharacteristic elements or features that contribute to an overall change of the landscape in terms of character, value and quality.
Medium	Changes that are modest in extent and scale involving the loss of landscape characteristics or elements that may also involve the introduction of new uncharacteristic elements or features that would lead to changes in landscape character, and quality.
Low	Changes affecting small areas of landscape character and quality, together with the loss of some less characteristic landscape elements or the addition of new features or elements.
Negligible	Changes affecting small or very restricted areas of landscape character. This may include the limited loss of some elements or the addition of some new features or elements that are characteristic of the existing landscape or are hardly perceivable.

Table 9.2: Magnitude of Landscape Impacts

The significance of a landscape impact is based on a balance between the sensitivity of the landscape receptor and the magnitude of the impact. The significance of landscape impacts is arrived at using the following matrix:

Scale/ Magnitude	Sensitivity of Receptor				
	Very High	High	Medium	Low	Negligible
Very High	Profound	Profound-substantial	Substantial	Moderate	Slight
High	Profound-substantial	Substantial	Substantial moderate	Moderate-slight	Slight-imperceptible
Medium	Substantial	Substantial moderate	Moderate	Slight	Imperceptible
Low	Moderate	Moderate-slight	Slight	Slight-imperceptible	Imperceptible
Negligible	Slight	Slight-imperceptible	Imperceptible	Imperceptible	Imperceptible

Table 9.1: Impact Significance Matrix

*Categories with orange shading are considered to equate with 'significant' impacts in EIA terms.

**The significance matrix provides an indicative framework from which the significance of impact is derived. The significance judgement is ultimately determined by the assessor using professional judgement. Due to nuances within the constituent sensitivity and magnitude judgements, this may be up to one category higher or lower than indicated by the matrix.

9.2.6 Assessment Criteria for Visual Effect

As with the landscape impact, the visual impact of the development will be assessed as a function of receptor sensitivity versus magnitude. In this instance, the sensitivity of visual receptors, weighed against the magnitude of visual effects.

9.2.6.1 Visual Sensitivity

Unlike landscape sensitivity, visual sensitivity has an anthropocentric basis. Visual sensitivity is a two-sided analysis of receptor susceptibility (people or groups of people) versus the value of the view on offer at a particular location.

To assess the susceptibility of viewers and the amenity value of views, the assessors use a range of criteria and provide a four-point weighting scale to indicate how strongly the viewer/view is associated with each of the criterion. Susceptibility criteria is extracted directly from the *IEMA Guidelines for Landscape and Visual Assessment (2013)*, whilst the value criteria relate to various aspects of a view that might typically be related to high amenity including, but not limited to, scenic designations. The susceptibility criteria are set out below.

Susceptibility of Receptor Group to Changes in View

This is one of the most important criteria to consider in determining overall visual sensitivity because it is the single category dealing with viewer susceptibility. In accordance with the *IEMA Guidelines for Landscape and Visual Assessment* visual receptors most susceptible to changes in views and visual amenity are:-

- Residents at home
- People, whether residents or visitors, who are engaged in outdoor recreation, including use of public rights of way, whose attention or interest is likely to be focussed on the landscape and on particular views
- Visitors to heritage assets, or to other attractions, where views of the surroundings are an important contributor to the experience
- Communities where views contribute to the landscape setting enjoyed by residents in the area
- Travellers on road rail or other transport routes where such travel involves recognised scenic routes and awareness of views is likely to be heightened.

Visual receptors that are less susceptible to changes in views and visual amenity include:

- People engaged in outdoor sport or recreation, which does not involve or depend upon appreciation of views of the landscape
- People at their place of work whose attention may be focussed on their work or activity, not their surroundings and where the setting is not important to the quality of working life.

9.2.6.2 Value of Views

To assess the amenity value of views, Macro Works use a range of criteria that might typically be related to high amenity value including but not limited to, scenic designations. These are set out below:

Recognised Scenic Value of the View (County Development Plan designations, guidebooks, touring maps, postcards etc).

These represent a consensus in terms of which scenic views and routes within an area are strongly valued by the population because in the case of County Development Plans, at least, a public consultation process is required.

Views From Within Highly Sensitive Landscape Areas

Again, highly sensitive landscape designations are usually part of a county's Landscape Character Assessment, which is then incorporated with the County Development Plan and is therefore subject to the public consultation process. Viewers within such areas are likely to be highly attuned to the landscape around them.

Intensity of Use & Popularity

Whilst not reflective of the amenity value of a view, this criterion relates to the number of viewers likely to experience a view on a regular basis and whether this is significant at county or regional scale.

Connection with the Landscape

This considers whether or not receptors are likely to be highly attuned to views of the landscape i.e. commuters hurriedly driving on busy national route versus hill walkers directly engaged with the landscape enjoying changing sequential views over it.

Provision of Elevated Panoramic Views

This relates to the extent of the view on offer and the tendency for receptors to become more attuned to the surrounding landscape at locations that afford broad vistas.

Sense of Remoteness and/or Tranquillity

Remote and tranquil viewing locations are more likely to heighten the amenity value of a view and have a lower intensity of development in comparison to dynamic viewing locations such as a busy street scene, for example:

Degree of Perceived Naturalness

Where a view is valued for the sense of naturalness of the surrounding landscape it is likely to be highly sensitive to visual intrusion by obvious human interventions.

Presence of Striking or Noteworthy Features

A view might be strongly valued because it contains a distinctive and memorable landscape feature such as a promontory headland, lough or castle.

Historical, Cultural or Spiritual Value

Such attributes may be evident or sensed at certain viewing locations that attract visitors for the purposes of contemplation or reflection heightening the sense of their surroundings.

Rarity or Uniqueness of the View

This might include the noteworthy representativeness of a certain landscape type and considers whether other similar views might be afforded in the local or the national context.

Integrity of the Landscape Character in View

This criterion considers the condition and intactness of the landscape in view and whether the landscape pattern is a regular one of few strongly related components or an irregular one containing a variety of disparate components.

Sense of Place

This criterion considers whether there is special sense of wholeness and harmony at the viewing location.

Sense of Awe

This criterion considers whether the view inspires an overwhelming sense of scale or the power of nature.

Those locations where highly susceptible receptors or receptor groups are present and which are deemed to satisfy many of the view value criteria above are likely to be judged to have a high visual sensitivity and vice versa.

9.2.6.3 *Visual Impact Magnitude*

The magnitude of visual effects is determined on the basis of two factors; the visual presence of the project and its effect on visual amenity.

Visual presence is a somewhat quantitative measure relating to how noticeable or visually dominant the project is within a particular view. This is based on a number of aspects beyond simply scale in relation to distance. Some of these include the extent of the view as well as its complexity and the degree of existing contextual movement experienced such as might occur where turbines are viewed as part of / beyond a busy street scene. The backdrop against which the development is presented and its relationship with other focal points or prominent features within the view is also considered. Visual presence is essentially a measure of the relative visual dominance of the project within the available vista and is expressed as such i.e. minimal, sub-dominant, co-dominant, dominant, highly dominant.

For wind energy developments, a strong visual presence is not necessarily synonymous with adverse impact. Instead, the 2012 Fáilte Ireland survey entitled '*Visitor Attitudes on The Environment – Wind farms*' found that:- "*Compared with other types of development in the Irish landscape, wind farms elicited a positive response when compared to telecommunication masts and steel electricity pylons*".... and that "*most (tourists) felt that their presence did not detract from the quality of their sightseeing, with the largest proportion (45%) saying that the presence of the wind farm had a positive impact on their enjoyment of sightseeing...*".

The purpose here is not to suggest that turbines are either inherently liked or disliked, but rather to highlight that the assessment of visual impact magnitude for wind turbines is more complex than just the degree to which turbines occupy a view. Furthermore, a clear and comprehensive view of a wind farm might be preferable in many instances to a partial, cluttered view of turbine components that are not so noticeable within a view. On the basis of these reasons, the visual amenity aspect of assessing impact magnitude is qualitative and considers such factors as the spatial arrangement of turbines both within the scheme and in relation to surrounding terrain

and land cover. It also examines whether the Development contributes positively to the existing qualities of the vista or results in distracting visual effects and disharmony.

It should be noted that as a result of this two-sided analysis, a high order visual presence can be moderated by a low level of effect on visual amenity and vice versa. Given that wind turbines do not represent significant bulk; visual impacts result almost entirely from visual 'intrusion' rather than visual 'obstruction' (the blocking of a view). The magnitude of visual impacts is classified in the following table.

Magnitude	Description
Very High	The proposal obstructs or intrudes into a large proportion or critical part of the available vista and is without question the most noticeable element. An extensive degree of visual change will occur within the scene completely altering its character, composition and associated visual amenity
High	The proposal obstructs or intrudes into a significant proportion or important part of the available vista and is one of the most noticeable elements. A considerable degree of visual change will occur within the scene substantially altering its character, composition and associated visual amenity
Medium	The proposal represents a moderate intrusion into the available vista and is a readily noticeable element. A noticeable degree of visual change will occur within the scene perceptibly altering its character, composition and associated visual amenity
Low	The proposal intrudes to a minor extent into the available vista and may not be noticed by a casual observer and/or the proposal would not have a marked effect on the visual amenity of the scene
Negligible	The proposal would be barely discernible within the available vista and/or it would not influence the visual amenity of the scene

Table 9.4: Magnitude of Visual Impacts

9.2.6.4 Visual Impact Significance

As stated above, the significance of visual impacts is a function of visual receptor sensitivity and visual impact magnitude. This relationship is expressed in the same significance matrix included for Landscape Impact Significance at **Table 9.3**.

9.2.6.5 Quality of Effects

In addition to assessing the significance of landscape/townscape effects and visual effects, EPA Guidance requires that the quality of the effects is also determined. This could be negative/adverse, neutral, or positive/beneficial.

- Positive Effects: A change which improves the quality of the environment.
- Neutral and/or balanced Effects: No effects, or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error.
- Negative/adverse Effects: A change that reduces the quality of the environment.

In the case of wind energy developments and the associated introduction of new moving structures within rural landscapes, the quality of landscape and visual effects will almost always be negative, rather than positive or even neutral. Unless otherwise stated, the quality of landscape and visual effect judgements herein can be taken as negative.

9.2.7 Assessment Criteria for Cumulative Effects

The Scottish Natural Heritage (SNH) Guidance relating to 'Assessing the Cumulative Effects of Onshore Wind Farms (2012)' identify that cumulative impacts on visual

amenity consist of combined visibility and sequential effects. The same categories have also been subsequently adopted in the Landscape Institute's 2013 revision of the *Landscape and Visual Impact Assessment Guidelines*. The principal focus of wind energy cumulative impact assessment guidance relates to other wind farms – as opposed to other forms of development. This will also be the main focus herein, albeit with a subsequent consideration of cumulative impacts with other forms of notable development (existing, permitted or proposed), particularly within the Central Study Area:

“Combined visibility occurs where the observer is able to see two or more developments from one viewpoint. Combined visibility may either be in combination (where several wind farms are within the observer's arc of vision at the same time) or in succession (where the observer has to turn to see the various wind farms).

Sequential effects occur when the observer has to move to another viewpoint to see different developments. The occurrence of sequential effects may range from frequently sequential (the features appear regularly and with short time lapses between, depending on speed of travel and distance between the viewpoints) to occasionally sequential (long time lapses between appearances, because the observer is moving very slowly and / or there are large distances between the viewpoints.)”

Cumulative impacts of wind farms tend to be adverse rather than positive as they relate to the addition of moving manmade structures into a landscape and viewing context that already contains such development. Based on guidance contained within the *SNH Guidelines relating to the Cumulative Effects of Wind Farms (2012)* and the *DoEHLG Wind Energy Guidelines I(2006)*, cumulative impacts can be experienced in a variety of ways.

Table 9.5 below provides Macro Works criteria for assessing the magnitude of cumulative impacts, which are based on the *SNH Guidelines (2012)*.

Magnitude	Description
Very High	<ul style="list-style-type: none"> The proposed wind farm will strongly contribute to wind energy development being the defining element of the surrounding landscape. It will strongly contribute to a sense of wind farm proliferation and a sense of being surrounded by wind energy development. Strongly adverse visual effects will be generated by the proposed turbines in relation to other turbines.
High	<ul style="list-style-type: none"> The proposed wind farm will contribute significantly to wind energy development being a defining element of the surrounding landscape. It will significantly contribute to a sense of wind farm proliferation and being surrounded by wind energy development. Significant adverse visual effects will be generated by the proposed turbines in relation to other turbines.
Medium	<ul style="list-style-type: none"> The proposed wind farm will contribute to wind energy development being a characteristic element of the surrounding landscape. It will contribute to a sense of wind farm accumulation and dissemination within the surrounding landscape. Adverse visual effects might be generated by the proposed turbines in relation to other turbines.
Low	<ul style="list-style-type: none"> The proposed wind farm will be one of only a few wind farms in the surrounding area and will be viewed in isolation from most receptors. It might contribute to wind farm development becoming a familiar

	<p>feature within the surrounding landscape.</p> <ul style="list-style-type: none"> The design characteristics of the proposed wind farm accord with other schemes within the surrounding landscape and adverse visual effects are not likely to occur in relation to these.
Negligible	<ul style="list-style-type: none"> The proposed wind farm will most often be viewed in isolation or occasionally in conjunction with other distant wind energy developments. Wind energy development will remain an uncommon landscape feature in the surrounding landscape. No adverse visual effects will be generated by the proposed turbines in relation to other turbines.

Table 9.5: Magnitude of Cumulative Impacts

9.3 Description of Existing Environment

9.3.1 Landscape Baseline

The landscape baseline represents the existing landscape context and is the scenario against which any changes to the landscape brought about by the proposed project will be assessed. This also includes reference to any relevant landscape character appraisals and the current landscape policy context (both are generally contained within County Development Plans).

A description of the landscape context of the proposed wind farm site and wider study area is provided below under the headings of landform and drainage, vegetation and land use, centres of population, transport routes and public amenities and facilities as well as the immediate site context. Additional descriptions of the landscape, as viewed from each of the selected viewpoints, are provided under the detailed assessments later using a similar structure. Although this description forms part of the landscape baseline, many of the landscape elements identified also relate to visual receptors i.e. places and transport routes from which viewers can potentially see the proposed wind farm. The visual resource will be described in greater detail below.



Figure 9.1: Aerial Photography Showing the Landscape Context in the Immediate Surrounds of the Turbines

9.3.1.1 Landform & Drainage

The landform of the northern study area is an open, relatively uniform landscape dominated by large areas of both cutover and cutaway bog. There are three water features which converge to the northwest of the study area at Shannon Harbour, where the River Bronsa and Grand canal terminate at the much more influential Shannon River. The Shannon river, tributaries and islands define most of the western study area, as it loops towards the site before winding away to exit the study area at the northern end of Lough Derg. The last major waterway across the study area is the River Suck, which is the main tributaries of the Shannon and enters the study area from the northwest before emptying into the Shannon at Shannonbridge. Working northeast from where they meet the Shannon, the Grand Canal and River Bronsa run generally parallel to one-another, both crossing the north of the study area. The Little Bronsa river follows a similar pattern over the south of the study area, running

southeast/northwest from the southeast of the study area to the Shannon on the west. There is a network of smaller streams and drains across the study area, some feeding wetlands and lakes, generally associated with bogland areas (particularly in the north of the study area).

As the Shannon defines the west of the study area, the main upland areas of the study area define the east of the study area. The Slieve Bloom Mountains, with a maximum height of over 500m (Arderin 527amsl) line the boundary of the study area from east to south, aligned northeast/southeast. Generally, the south and east of the study area have a more varied topography, with distinctive upland areas (most significant of which are the Slieve Blooms), as well as more subtle local rolling landform. There are some localised hilly areas in the southwest, to the north of Lough Derg, as well as isolated features such as Cloghan Hill in the north.

Lastly, there are a number of eskers across the study area, which create localised areas of elevation, contrasted with enclosure between them. The most significant of these is the Clonmacnoise Esker which traces the River Shannon along the northwest boundary of the study area, but there are other smaller examples throughout the study area.

9.3.1.2 *Vegetation & Land use*

Across the central and northern study area there is a high proportion of exploited peatland in different stages/ages of rewilding, set within a network of waterways and improved agricultural land use, generally pastoral production. On a sizeable proportion of the exploited peatland, commercial conifer plantations are apparent (e.g., Sitka spruce plantations), which have been mostly planted this century. While there are very few actively worked commercially harvested cutaway bogs in the study area, there is, nonetheless, a very palpable 20th Century Bord na Mona legacy imbued through the area. Areas included within the Lough Boora Park feature the highest contrasts between the exploited bogland and current day ecological value through restoration. There are also areas of native woodland and scrub amongst the conifers and pasture.

In contrast, the south of the study area features smaller, and partially intact bogs. Along the southeast of the study area, the Slieve Bloom Mountains are capped with bog, while the lower slopes are generally forested. There are also scattered forestry areas over the wider south of the study area, in a similar manner to the north, except of smaller patches and scattered, rather than confined to the perimeter of bogs.

Field sizes are varied across the site, with smaller, irregular field sizes tracing the landform and drainage features identified above, getting larger where more cohesive areas of farmland occur, such as approx. 5km offset around the base of the Slieve Bloom Mountains, and on the south/west sides of the Little Bronsa and Shannon in the southwest of the study area.

There are a number of small-medium sized built up areas, in particular along the waterways across the study area, which are identified further through this chapter with regards to visual receptors.

9.3.2 Landscape Policy Context & Designations

9.3.2.1 *The Department of Environment, Heritage and Local Government Wind Energy Development Guidelines 2006 (and 2019 Draft Revision)*

The Wind Energy Development Guidelines (2006/2019 revision) provide guidance on wind farm siting and design criteria for a number of different landscape types. As described in the landform/drainage and landcover/land use section, the eastern side of the project site is generally located within the 'Flat Peatland' landscape, while the western side is partially 'Flat Peatland' and partially 'Hilly and Flat Farmland'. In such instances, the Guidelines recommend consideration of the advice for each landscape type including:-

Flat Peatland Landscapes

- Location:** *"Wind energy developments can be placed almost anywhere in these landscapes from an aesthetic point of view. They are probably best located away from roadsides allowing a reasonable sense of separation. However, the possibility of driving through a wind energy development closely straddling a road could prove an exciting experience."*
- Spatial Extent:** *"The vast scale of this landscape type allows for a correspondingly large spatial extent for wind energy developments."*
- Spacing:** *"Regular spacing is generally preferred, especially in areas of mechanically harvested peat ridges."*
- Layout:** *"In open expanses, a wind energy development layout with depth, preferably comprising a grid, is more appropriate than a simple linear layout. However, where a wind energy development is located close to feature such as a river, road or escarpment, a linear or staggered linear layout would also be appropriate."*
- Height:** *"Aesthetically, tall turbines would be most appropriate. In any case, in terms of viability they are likely to be necessary given the relatively low wind speeds available. An even profile would be preferred."*
- Cumulative:** *"The openness of vista across these landscapes will result in a clear visibility of other wind energy developments in the area. Given that the wind energy developments are likely to be extensive and high, it is important that they are not perceived to crowd and dominate the flat landscape. More than one wind energy development might be acceptable in the distant background provided it was only faintly visible under normal atmospheric conditions."*

Hilly and Flat Farmland Landscapes

- Location:** *"Location 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:** *"This 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 pattern 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:** *"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."*

Most design options appear to be appropriate for 'Flat Peatland', with the exception of the adjacent existing wind farms and associated cumulative impacts. However, given the transitional nature of the context, and rolling landform within the immediate surrounds, the recommendations from the adjacent landscape types will be considered also. In respect of the above guidance, the moderate spatial extent of the project is in keeping with that recommended for both landscape types, with regards to the hilly and flat farmland context *"in response to the scale of fields and such topographic features as hills and knolls"*, which is true to the west of the site, however the west, where there is bog areas, *"allows for a correspondingly large spatial extent for wind energy developments"*.

The layouts recommended for these landscape types are *"a layout with depth, preferably comprising a grid, which is more appropriate than a simple linear layout"* for Flat Peatland, or clustered along hilltops for farmland.

Siting in Relation to Individual Properties ('Setback')

Section 6.18 of the Draft Revised Wind Energy Development Guidelines 2019 (December 2019) refers to appropriate setback distances for visual amenity purposes. The guidelines outline a mandatory minimum setback distance of *"500 meters"* or the distance of *"4 times the tip height"* of the proposed turbines *"between the nearest point of the curtilage of any residential property"*. This is set out in SPPR2 which is included below:-

“SPPR 2: With the exception of applications where reduced setback requirements have been agreed with relevant owner(s) as outlined at 6.18.2 below, planning authorities and An Bord Pleanála (where relevant), shall, in undertaking their development planning and development management functions, ensure that a setback distance for visual amenity purposes of 4 times the tip height of the relevant wind turbine shall apply between each wind turbine and the nearest point of the curtilage of any residential property in the vicinity of the proposed development, subject to a mandatory minimum setback of 500 metres from that residential property. Some discretion applies to planning authorities when agreeing separation distances for small scale wind energy developments generating energy primarily for onsite usage. The planning authority or An Bord Pleanála (where relevant), shall not apply a setback distance that exceeds these requirements for visual amenity purposes.”

The nearest residential dwelling to any of the proposed turbines is c. 590m. This residence, and one other which is located within 800m (i.e. 4-times overall turbine tip height) are involved in the project and have agreed to and accepted the siting of the wind turbines. In accordance with Section 6.18.2 of the *Draft Revised Wind Energy Development Guidelines 2019*, written confirmation of the residents' acceptance of this reduced separation distance has been submitted in accompaniment of the planning application. All other dwelling in the surrounds of the project site are fully compliant with the necessary setback distances.

9.3.2.2 County Development Plans

The detail of different landscape character designations across the study area are defined in the Landscape Character Sensitivity section, the focus below is context and specific policies for the counties which the project and central study area are located. The key policy context of the wider study area is included where relevant in the Landscape Character Sensitivity and Scenic Views section,

Offaly County Development Plan 2021-2027

As with the previous iteration, the latest Offaly County Development Plan does not incorporate a traditional Landscape Character Assessment. Instead, it simply categorises the landscape of the county into High, Moderate and Low sensitivity classes based on topographical and land cover features such as eskers and peatland.

The project site is classified as Medium and Low sensitivity on the basis of being within peatland, mixed conifer/woodland and farmland, whereas, areas of 'High' sensitivity in the surrounding area are associated with Eskers, Lough Boora and the Shannon River corridor (including Clonmacnoise). Medium sensitivity areas are described as;

“Moderate sensitivity areas can accommodate development pressure but with limitations in the scale and magnitude. In this category of sensitivity, elements of the landscape can accept some changes while others are more vulnerable to change.”

Low sensitivity landscapes are described as:

“Low sensitivity areas are robust landscapes which are tolerant to change, such as the county's main urban and farming areas, which have the ability to accommodate development.”

A number of 'Areas of High Amenity' are also designated in County Offaly, eight (of 13) of which are located within the study area and include the Shannon River and Callows (1), The Grand Canal (2), Lough Boora Discovery Park (3), Pallas Lake (4), Slieve Bloom Mountains (5), Eiscir Riada (9), Other Eskers (11), Clonmacnoise (12). These Areas of High Amenity (AHA) are deemed "worthy of special protection / enhancement due to their uniqueness and scenic / amenity value" and the designation is "additional to statutory national and European designations which may overlap with these AHA".

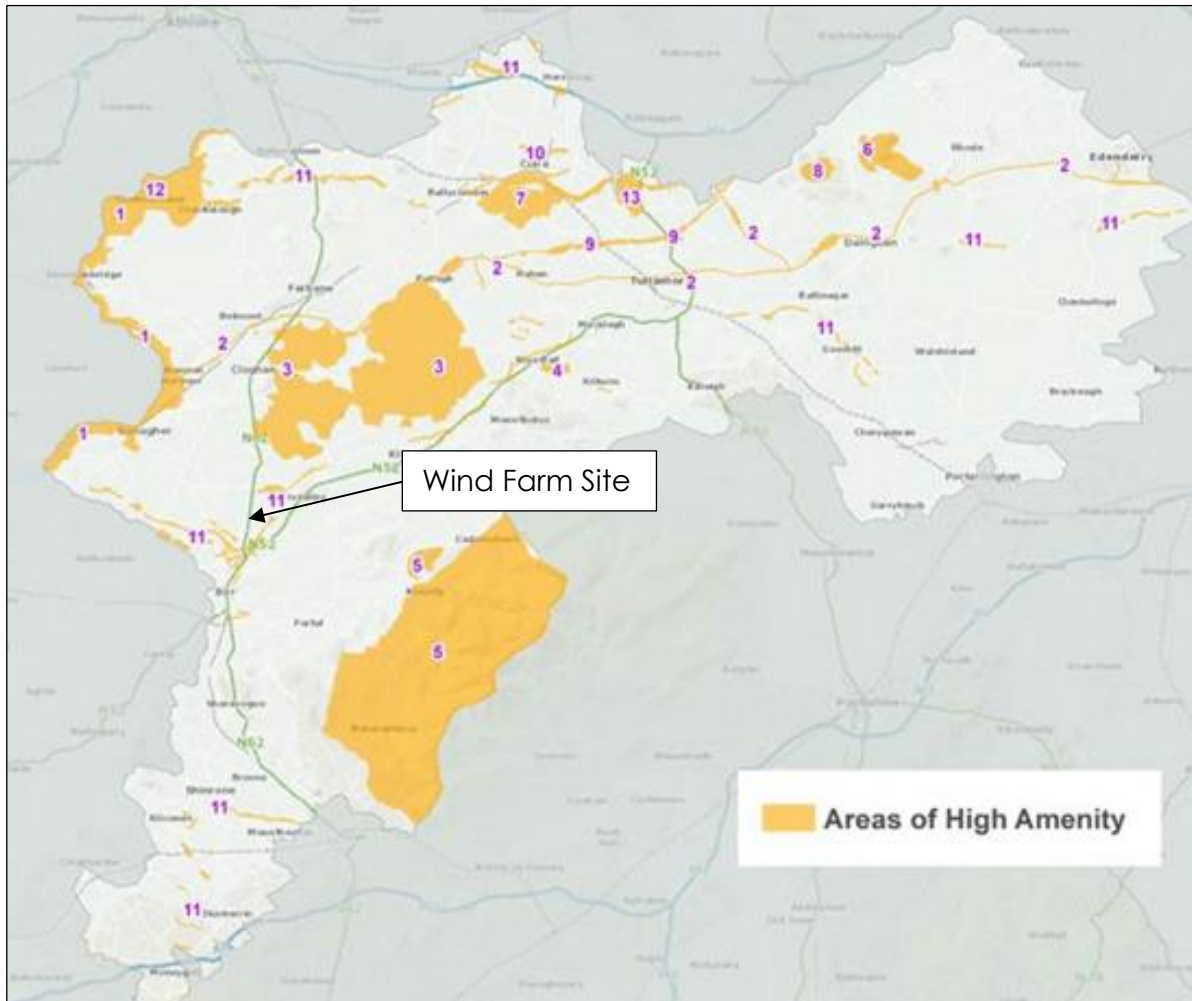


Figure 9.2: Offaly Areas of High Amenity

Offaly County Development Plan 2021-2027 - Chapter 4 (Landscape and Biodiversity-Policies)

The Biodiversity and Landscape Policies of the Offaly County Development Plan 2021-2027 are divided based on landscape features (Designations, Geology, Eskers, Quarries, Peatlands, Waterways, Lakes, Wetlands, Trees, Forestry, and Hedgerows), followed by species specific policies (All Ireland Pollinator Plan, Invasive Species), and strategy/character based policies (Green Infrastructure, Areas of High Amenity, Landscape, Key Scenic Views, Prospects, Amenity Routes), with the addition of a few specific policies not included in the above list. Biodiversity and Landscape Objectives

follow the same format. These are listed below and included in full when relating to amenity, landscape and scenic designations (e.g. Landscape and Visual).

Policies which are pertinent considerations in the assessment of the project include BLP-01 to BLP-07 (Designated and Non-Designated Sites), BLP-09 and BLP-11 (Geology, Eskers and Quarries), BLP-14, BLP-16 and BLP-18 (Peatlands), BLP-19 and BLP-23 (Waterways, Lakes and Wetland Landscapes), BLP-24 (Trees, Forestry and Hedgerows), BLP-35 (Areas of High Amenity - below), BLP-38 to BLP-41 (Landscape - below), and BLP-43 (Scenic designations - below).

Landscape and Biodiversity Policies - Areas of High Amenity

"BLP-35: It is Council policy to protect and preserve the county's Areas of High Amenity namely the Slieve Bloom Mountains, Clonmacnoise Heritage Zone, Durrow High Cross, Abbey and surrounding area, the River Shannon, Lough Boora Discovery Park, Grand Canal, Croghan Hill, Raheenmore Bog, Pallas Lake, Clara Bog, Clara eskers, Eiscir Riada and other eskers. Notwithstanding the location of certain settlements, or parts of, for which there are settlement plans (Towns, Villages, Sráids), within the Areas of High Amenity, it is not the intention of this policy to hinder appropriate sustainable levels of development (as set out in the plans and subject to proper planning). Further, it is policy to facilitate the sustainable extension and expansion of existing visitor, tourist related or other rural enterprises within the Areas of High Amenity, where such development is appropriate and where it can be demonstrated that it gives 'added value' to the extending activity and to the immediate area which is the subject of the 'Area of High Amenity' designation."

Landscape Policy

"BLP-38: It is Council policy to protect and enhance the county's landscape, by ensuring that development retains, protects and where necessary, enhances the appearance and character of the county's existing landscape."

"BLP-39: It is Council policy to seek to ensure that local landscape features, including historic features and buildings, hedgerow, shelter belts and stone walls, are retained, protected and enhanced where appropriate, so as to preserve the local landscape and character of an area, whilst providing for future development."

"BLP-40: It is Council policy to ensure that consideration of landscape sensitivity is an important factor in determining development uses."

"BLP-41: It is Council policy to require a Landscape/Visual Impact Assessment to accompany significant proposals, located within or adjacent to sensitive landscapes. This assessment will provide details of proposed mitigation measures to address likely negative impacts."

Landscape Policy – Protection of Key Scenic Views and Prospects and Key Amenity Routes

"BLP-43: It is Council policy to require a Landscape/Visual Impact Assessment to accompany significant proposals that are likely to significantly affect Key Scenic Views and Prospects as listed in Table 4.21 and Key Amenity Routes as listed in Table 4.22."

Offaly County Development Plan 2021-2027 - Chapter 4 (Landscape and Biodiversity) – Objectives

Objectives which are pertinent considerations in the assessment of the project include BLO-02 (Designated and Non-Designated Sites), BLO-22 (Areas of High Amenity - below), BLO-23 to BLO-25 (Landscape - below), BLO-26, and BLO-27 (Scenic designations - below).

Landscape Objectives - Areas of High Amenity

"BLO-22: It is an objective of the Council to ensure that new development, whether individually or cumulatively, does not impinge in any significant way on the character, integrity and distinctiveness of or the scenic value of the Areas of High Amenity listed in Table 4.17. New development in Areas of High Amenity shall not be permitted if it;

- *Causes unacceptable visual harm;*
- *Introduces incongruous landscape elements; and*
- *Causes the disturbance or loss of (i) landscape elements that contribute to local distinctiveness; (ii) historic elements that contribute significantly to landscape character and quality such as field or road patterns; (iii) vegetation which is a characteristic of that landscape type and (iv) the visual condition of landscape elements."*

Landscape Objectives – Landscape

"BLO-23: It is an objective of the Council to prepare a County Landscape Character Assessment in accordance with all relevant legislation and guidance documents and following the forthcoming National and Regional Landscape Character Assessment."

"BLO-24: It is an objective of the Council to have regard to the Landscape Sensitivity Areas in Tables 4.18, 4.19 and 4.20 in the consideration of planning applications."

"BLO-25: It is an objective of the Council to protect skylines and ridgelines from development where such developments will create significant visual intrusion."

Landscape Objectives - Protection of Key Scenic Views, Key Prospects and Key Amenity Routes

"BLO-26: It is an objective of the Council to protect Key Scenic Views and Key Prospects contained in Table 4.21, and Key Amenity Routes as listed in Table 4.22 from inappropriate development."

"BLO-27: It is an objective of the Council to ensure that proposed developments take into consideration their effects on views from Key Scenic Views and Prospects and Key Amenity Routes and are designed and located to minimise their impact on this views and prospects."

Offaly Wind Energy Designations

The Wind Energy strategy included in the current County Development Plan overlays these higher sensitivity areas, as well as the scenic views and routes, in order to classify areas of the county for a Wind Energy Strategy. The site/central study area is located within areas 7 and 8. Within area 7: Area generally south of Cloghan and Birr Environs, the "Area generally south of Cloghan" is deemed "Open for consideration for Wind Energy Development in principle", while 'Birr Environs' is deemed "not suitable for windfarms". Within Area 8 'Area generally south and west of Kilcormac' is deemed

"Area not deemed Suitable for Windfarms". However, the more detailed 'Wind Energy Designations' map shows that the proposed turbines are located within the identified 'Areas Open for Consideration for Wind Energy Development'.

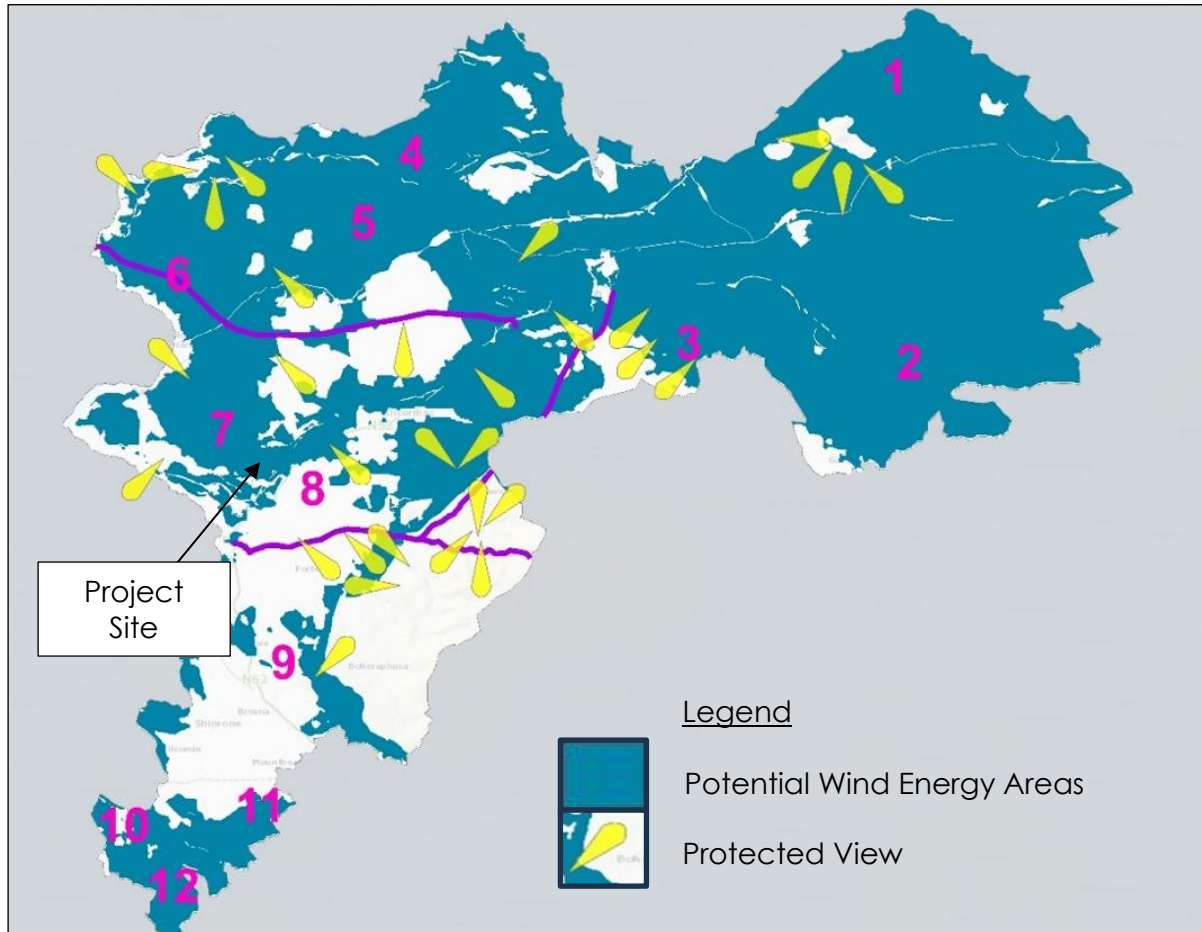


Figure 9.3: Wind Energy Strategy Map No. 8: Protected Views and Potential Wind Energy Areas

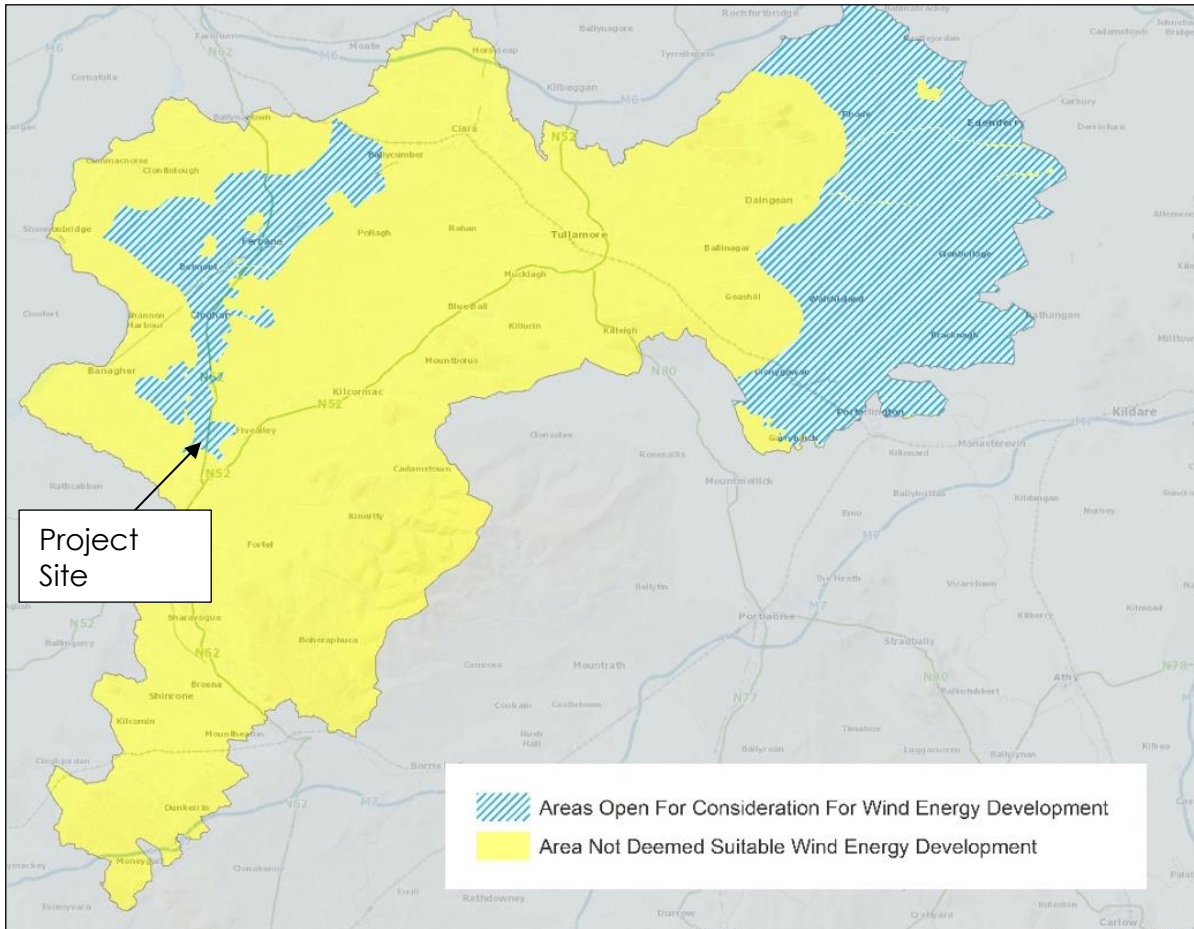


Figure 9.4: Offaly Wind Energy Strategy Map No. 10: Wind Energy Strategy Designations

Tipperary County Development Plan 2022-2028

Whilst the project site is wholly contained within county Offaly, the Tipperary County border is situated less than 4km from the site at its nearest point. The nearest and most relevant landscape character areas in County Tipperary are 'LCA 7 – Borrisokane lowlands', which is described as *“Peatlands and wet mixed farmlands. The plains also contain large areas where impeded drainage and peat formation give rise to less densely inhabited areas and more marginal agriculture with very open vistas”*, and LCA 11 – Lakeland Waterside (Shannon Callows), which is described as *“some of Ireland’s most important and cherished large lake scenery and recreation areas”*. The following sensitivity and compatibility with ‘Wind Farm’ land use apply for each landscape character area: LCA 7: Borrisokane Lowlands has been classified with a Moderate sensitivity to change, reduced capacity, and low compatibility with wind farm land use. LCA 7: Borrisokane Lowlands has been classified with a Class 3 High sensitivity to change, low capacity, and least compatibility with wind farm land use.

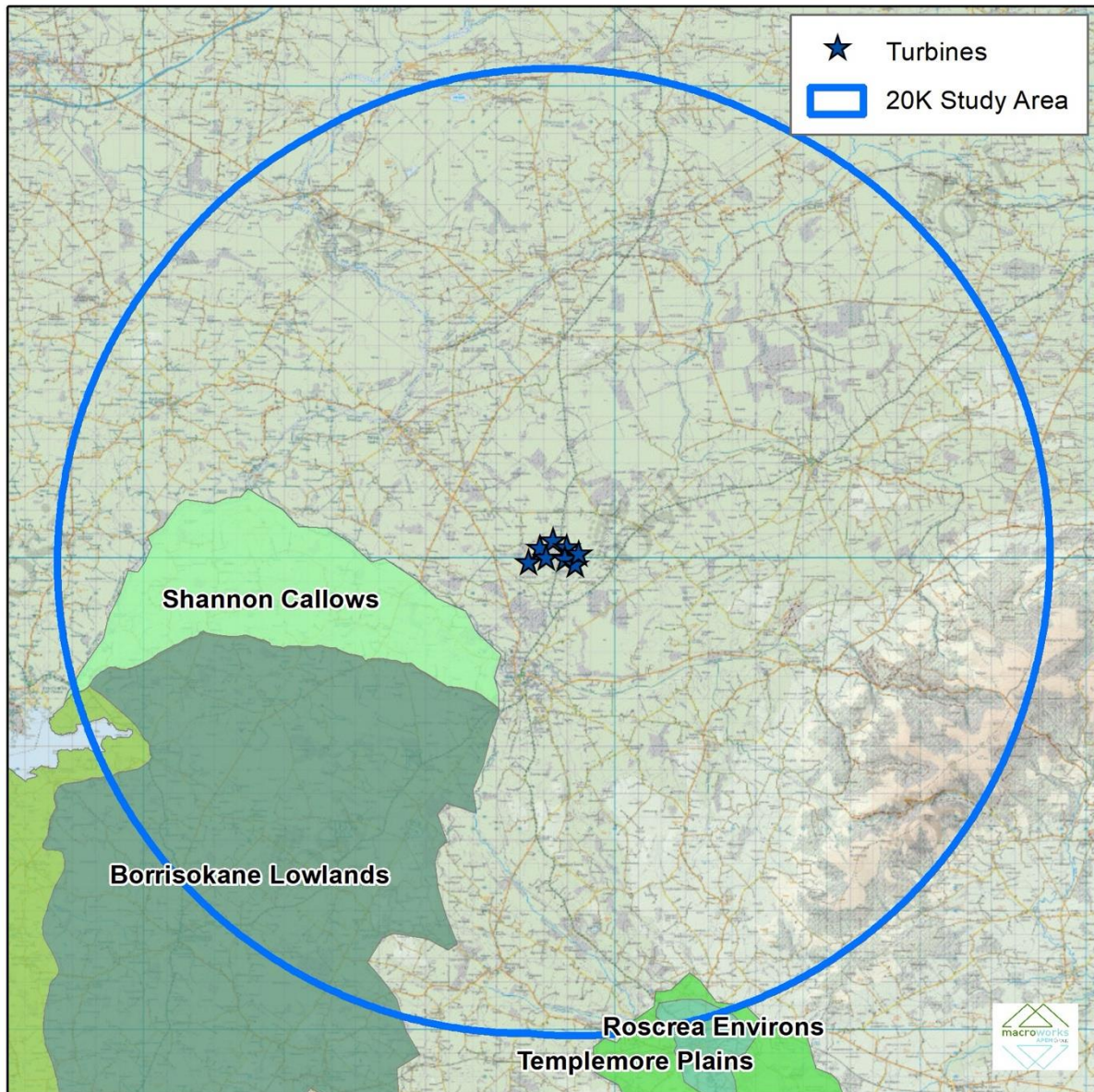


Figure 9.5: Tipperary Landscape Designations

County Development Plan Scenic Designations

Scenic views and routes designations from both the Offaly and Tipperary County Development Plan's will be considered as well as those from other Planning Authority jurisdictions (Galway, Roscommon & Laois) within the study area. Those considered relevant in terms of viewing direction and potential visibility of the project will be included as a representative viewpoint for the purpose of the visual impact assessments.

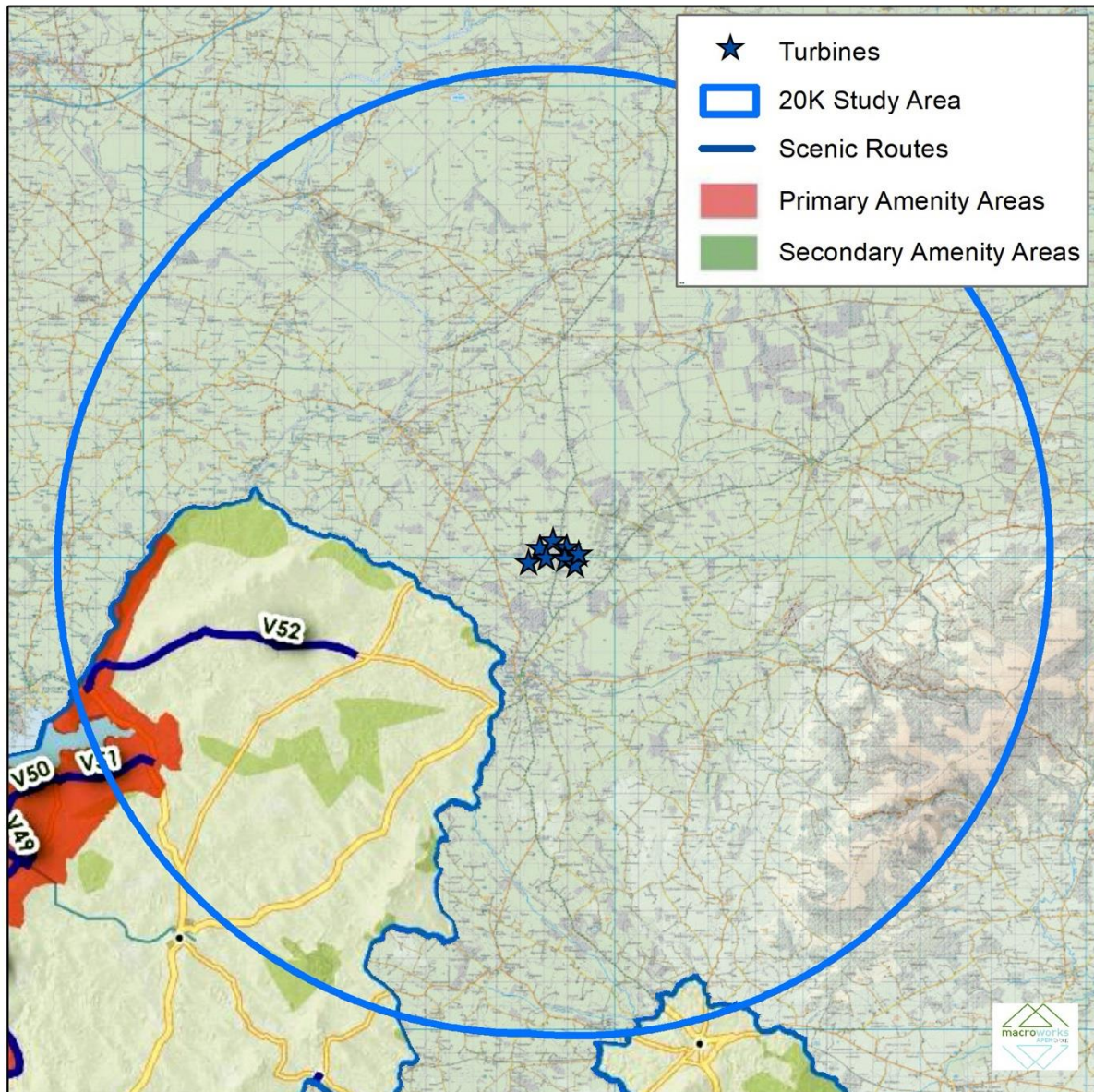


Figure 9.6: Tipperary Scenic Designations

9.3.3 Visual Baseline

Only those parts of the Study Area that potentially afford views of the project are of interest to this part of the assessment. Therefore, the first part of the visual baseline is establishing a 'Zone of Theoretical Visibility' and subsequently, identifying important visual receptors from which to base the visual impact assessment.

9.3.3.1 Zone of Theoretical Visibility (ZTV)

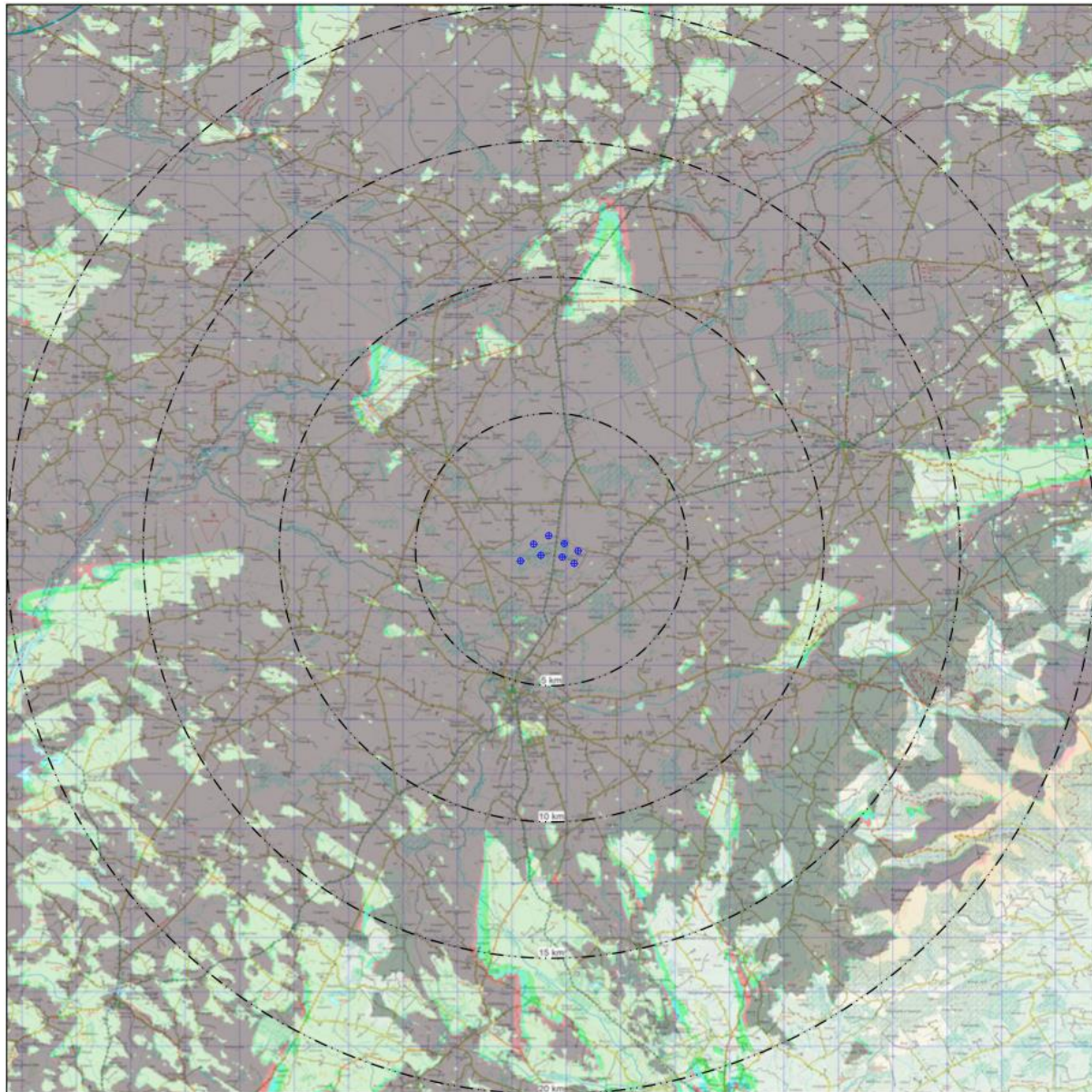


Figure 9.7: Zone of Theoretical Visibility (Tip Height)

The ZTV maps show that comprehensive visibility of all the proposed turbines will be theoretically afforded from the central portions of the study area (<5km from the site) and extending up to 10km. This large block of comprehensive visibility relates to the notably flat nature of the landscape in the central study area which principally comprises of large peatbogs and pastoral farmland. Nevertheless, within the wider surrounds of the 20km study radius consistent theoretical visibility begins to become patchy in places as the terrain begins to transition in to a low rolling landscape comprising of low hills and eskers. This is most evident in the scenic southwest and east/southeast extents of the study area where the Shannon River Corridor towards Lough Derg and the foothills of the Slieve Bloom mountains introduce variety to the landform and influence the degree of visibility. There are pockets of rapidly changing

visibility throughout the study area caused by similar landform variability (including Eskers to the north of the site) although not to the same extent as the southern half.

Key receptors contained within the ZTV (i.e. with potential visibility) within the central study area includes the settlement of Birr (the largest within the study area by some margin). In terms of transport receptors, the N62 and N52 national secondary routes and the R439, R438, R440, R421, R357, R437, R444, and R356 regional roads. The central study area also contains a network of local roads, rural residential dwellings and farmsteads, all of which will be afforded comprehensive theoretical visibility of the project. Consequently, a strong emphasis will be placed on representing these local community receptors in the LVIA.

A relatively large number of settlements are also situated within the wider study area (in addition to Birr) the largest and most notable of which include Ferbane, Kilcormac, Shannonbridge, Banagher, Eyrecourt and Kinnity. Viewpoints will be included from all settlements within the study area where there is likely visibility of the project.

The study area is highly variable with regards to scenic amenity, with large swathes of low landscape sensitivity across the central study area, however intersecting these and overlaying the periphery of the study area are areas of medium and high landscape sensitivity, alongside a high density of scenic views. In particular, the wider southern (to the east and west) portions of the study area in both Offaly and Tipperary are of higher scenic amenity and sensitivity as a consequence of the rolling terrain and bordering the natural attractions of the Shannon River, Lough Derg, and Slieve Bloom Mountains. The same landform changes that introduce higher levels of amenity through the southern section of the landscape reflect the degree of visibility through these areas, and aside from upper reaches of hills and ridges, the southern portion of the study here has varied potential for visibility. The northern and north-eastern quadrants of the study area similarly have a notable degree of scenic amenity due to the numerous river and canal corridors, however there is a more consistent (high) degree of visibility through these areas. Where there is potential for scheme visibility from any of these designated viewpoints, they are to be included as viewpoints within this Landscape chapter. It is important to note that due to the large number of scenic views within the wider study area, one viewpoint may be chosen to represent a cluster of designated views.

9.3.3.2 Views of Recognised Scenic Value

Views of recognised scenic value are primarily indicated within County Development Plans in the context of scenic views/routes designations, but they might also be indicated on touring maps, guide books, road side rest stops or on post cards that represent the area. The relevant scenic designations contained are identified below.

All of the scenic routes and views that fall inside the ZTV pattern (see **Figure 9.7**) were investigated during fieldwork to determine whether actual views of the proposed wind farm might be afforded. Where visibility may occur, a viewpoint has been selected for use in the visual impact appraisal later in this chapter.

ID	Description	Relevance to assessment	VRP No
Offaly County Development Plan 2021 - 2027			
2	From: Road No. L-08003 in the Slieve Bloom Mountains, To: Slieve Bloom Mountains, River Shannon northwards over lowlands	Yes, Relevant – Elevated views oriented in the direction of the site. Representative view has been selected.	VP27

3	From: Pilgrims Road (Road No. L-07013) To: Clonmacnoise and River Shannon, Eskers, Mongan Bog and Finlough.	Yes, Relevant – Views oriented in the direction of the site. (One illustrative view has been chosen from this area to represent multiple elevated designated views)	VP1
4	From: Road No. R444 in the townlands of Clonmacnoise, Creevagh. To: River Shannon and bog lands	Yes, Relevant – Views oriented in the direction of the site. (One illustrative view has been chosen from this area to represent multiple elevated designated views)	VP27
5	From: N52 in the townlands of Heath, Bunaterin, Derrydolney, Ballywilliam, Curraghmore, Ballynacard, Bally na Curra. To: Slieve Bloom Mountains	Yes, Relevant – Scenic view oriented away from the project, however due to proximity, a representative view has been selected.	VP14
6	From: R356 and Road No. L-07014 in the townlands of Cushcallow, Park, Mullaghakeeraun and Curralahan. To: River Shannon and bog lands	Not Relevant – Scenic view oriented away from the project.	-
10	From: Road No. L-03004 in the townlands of Skehannagh, Killagally Glebe, Ballyclare. To: Southwards towards Slieve Bloom Mountains	Yes, Relevant – Views oriented in the direction of the site.	VP5
11	From: Regional Road R357 in the townlands of Lumcloon, Bun, Rin, Leabeg and Leamore. To: Southwards toward Slieve Bloom Mountains	Yes, Relevant – Views oriented in the direction of the site.	VP6
12	From: Road No. L-07009 in the townland of Stonestown. To: Over bog lands and Slieve Bloom Mountains	Yes, Relevant – Views oriented in the direction of the site.	VP7
13	From: Road No. L-03012 in the townlands of Glaster, Ballynasrah, Newtown, Kilmochonna. To: Over Little Brosna and Callows	Not Relevant - Scenic view oriented in the opposite direction to the proposed project and partially screened on ZTV.	-
14	From: R440 in the townlands of Kyle, Cloghanmore, Streamstown, Ballinree, Killaun. To: Towards Slieve Bloom Mountains	Yes, Relevant – Scenic view oriented away from the project, however due to proximity and presence in the periphery of the view, representative view has been selected (representative of length of R440)	VP25
15	From: Road No. L-04006 in the townland of Knock. Slieve Bloom Mountains, Leap Castle	Not Relevant - Scenic view oriented in the opposite direction to the project and outside of ZTV. Leap Castle VP selected in close proximity.	VP31
16	From: Road No. L-04025 in the townlands of Clonee, Cumber Lower. To: Westward over farmland	Yes, Relevant – Views oriented in the direction of the site.	VP32
17	From: Road No. L-06034 in the townlands of Knockhill and Drinagh. To: Towards North East and North West over lowlands	Not Relevant - Scenic views feature a high degree of mature vegetation occurs in the direction of the site. Alternative location chosen in close proximity	VP15
18	From: Road No. L-08008 in the townlands of Grange, Belhill, Longford Big and Church Land. To: Views towards Seir Keiran Monastic Site	Yes, Relevant – Views oriented in the direction of the site.	VP32
Tipperary County Development Plan 2022 - 2028			
51	West of the R493 north of Terryglass	Yes, Relevant – Views oriented in the	VP28

		direction of the site. (One illustrative view has been chosen from this area to represent multiple elevated designated views)	
52	South on the R489 east of Lorrha	Yes, Relevant – Views oriented in the direction of the site. (Illustrative views have been chosen from this area to represent multiple elevated designated views)	VP19/ VP20
Laois County Development Plan 2021-2027			
7	From: Road No. L10317 in the Slieve Bloom Mountains To: Slieve Bloom Mountains, Killeen River	Not Relevant – Viewpoint located outside of ZTV	-
Galway County Development Plan 2022-2028			
51	From: Meelick Quay picnic and parking area To: The focus of this view is the River Shannon and the Incherky in the background. The old battery (covered in trees) is an important feature of this view.	Yes, Relevant – Views afforded in the direction of the site	VP10
52	From: the middle of the Banagher bridge To: The focus of this view is the Shannon River, Banagher Park and the Castle ruins.	Not Relevant - Scenic view oriented in the opposite direction to the project.	-
Roscommon County Development Plan 2022-2028			
25	From: Western end of L76055 To: West/Southwest over River Suck	Not Relevant – Scenic view oriented in the opposite direction to the project.	-

Table 9.3: Scenic View Analysis

9.3.3.3 Centres of Population & Houses

Birr is the largest settlement within the study area. Smaller towns include Ferbane (in the northern extents of the study area), Kilcormac (northeast), and Banagher (northwest on the Shannon).

Clusters of residences and settlements generally occur at the intersection of main routes or waterways, of which there are many scattered over the study area. These include: Pollagh, along the grand canal to the northeast, Cloghan, along the N62 to the northwest, Shannonbridge, at the junction of the Shannon and Suck to the far northwest, and Kinnitty at the base of the Slieve Blooms. The nearest cluster of residences and services is at Fivealley, along the N52, directly west of the site.

Finally, the entire study area, with the exception of the most sensitive areas around the Shannon and Slieve Blooms, is scattered with residences and short bursts of linear residential settlements along local roads.

9.3.3.4 Transport Routes

The main transport routes across the study area are the national roads which cross the central study area, converging at Birr, south of the site. The N62 is located approx. 300m from a turbine at the nearest point, running north/south across the central study area. The N62 combines with the N52 to the south of the site, running into Birr, before diverging again to the south of the population centre. The only other national road

across the study area is the N65 which skirts the southwest of the study area to the north of Lough Derg.

Connecting the national roads and population centres throughout the study area are the following regional roads; R357, R356, R421, R436, R437, R438, R439, R440, R444, R491, R492, and R493. The nearest of these is the R439, which runs along the west of the site to/from Birr to Banagher. The R489 and R440 also diverge from Birr, to the west and east respectively. The R421 and R438 cross the study area diagonally on opposite sides of the site. The R421 traces the Slieve Bloom foothills, while the R438 follows the Shannon Corridor.

A network of local roads traverse the study area. It should be noted that, consistent with several lowland areas across the Midlands, some roads in the study area are elevated above the immediately surrounding terrain. This has meant that views of the immediate land use in the vicinity of the road are often more pronounced from these roads than may be the case elsewhere in the country. Be that as it may, such marginally elevated views are often curtailed by roadside vegetation.

9.3.3.5 *Tourism, Heritage & Public Amenities*

Whilst the central study area is not synonymous with tourism, heritage and recreational activities, a number of these features occur within the study area's wider surrounds. The most notable of these is the monastery at Clonmacnoise on the southern bank of the River Shannon in County Offaly. Clonmacnoise is located marginally outside of the study area, but included due to its significance. It is a candidate world heritage site with a rich and varied history. A submission prepared by the Department of Environment, Heritage and Local Government in respect of its nomination as a world heritage site states that Clonmacnoise is; "*an unparalleled and outstanding example of a relict early medieval insular monastic city unobscured by modern building development*". It adds that it is set "*within a superlative semi-natural landscape that deepens its spiritual qualities, adding greatly to its authenticity and integrity*".

The River Shannon is the largest river in the country and the section within the study area is an important recreational asset enjoyed by anglers and boating enthusiasts. At its nearest point, the River Shannon is 8km to the north/west of the site, and is joined by the Grand Canal from Dublin a further 1km north (9km from the site). The Grand Canal runs east-west across the study area to the north of the site. The Grand Canal is currently only a modest recreational asset enjoyed predominantly by walkers and canal boat enthusiasts. However, there is potential for it to become more popular with the potential to host similar walking and cycling facilities as applied to the Royal Canal.

Lough Boora Parklands is a composite area of Bord na Mona cutaway bogs that have been regenerated as naturalistic wetlands and amenity features over the last 20 years. This is a pilot project for the regeneration of potentially vast areas of cutaway bog throughout the country. The strategy for some areas of the Parklands, such as the Drinagh Wetland, is little intervention or public access in order to allow for natural regeneration of undisturbed habitat. For other areas, such as Lough Cloghan and Lough Boora/Finnimore Lakes, there is a greater emphasis on recreational amenity. This is generally in the form of walking and cycling tracks, but also includes stocked fishing ponds and a sculpture garden. The Lough Boora Parklands occur throughout the area to the east of the site with the most recent addition, Drinagh Wetland, just over 1km away. The nearest publicly accessible feature of the Parklands is Lough Cloghan, approximately 2.5km to the northeast.

There are multiple national way-marked trails across the study area, with The Slieve Bloom Way, The Offaly Way, the Grand Canal Way and the Hymany Way. The Slieve Bloom Way winds its way through the valleys of the Slieve Bloom range at the south-eastern periphery of the study area. It links with the Offaly Way near the settlement of Kinnitty, which runs northward for 37km to Lemanaghan on the R436. The Offaly Way is approximately 10km to the northeast of the project site at its nearest point, and intersects the Grand Canal Way where it crosses the Grand Canal over the northern sections of Lough Boora. The Grand Canal Way follows the Grand Canal across the study area to terminate at the Shannon River. Slightly further south along the Shannon is the Hymany Way which follows the river to Portuma/Lough Derg.

There are smaller (in physical extent) features throughout the study area, in particular built features of scenic and historic amenity values such as Kinnitty Castle, and Birr Castle. Further details on the heritage values of the site will be discussed within the relevant specialist chapters.

9.3.4 Identification of Viewshed Reference Points

The results of the ZTV analysis provides a basis for the selection of Viewshed Reference Points (VRP's), which are the locations used to study the landscape and visual impact of the proposed wind farm in detail. It is not warranted to include each and every location that provides a view of this development as this would result in an unwieldy report and make it extremely difficult to draw out the key impacts arising from the project. Instead, a variety of receptor locations was selected that are likely to provide views of the proposed wind farm from different distances, different angles and different contexts.

The visual impact of a project is assessed using up to 6 no. categories of receptor type, as listed below:

- Key Views (from features of national or international importance);
- Designated Scenic Routes and Views;
- Local Community views;
- Centres of Population;
- Major Routes; and
- Amenity and heritage features.

Where a VRP might have been initially selected for more than one reason it will be assessed according to the primary criterion for which it was chosen. The characteristics of each receptor type vary as does the way in which the view is experienced. These are described below.

9.3.4.1 Key Views

These VRPs are at features or locations that are significant at the national or even international level, typically in terms of heritage, recreation or tourism. They are locations that attract a significant number of viewers who are likely to be in a reflective or recreational frame of mind, possibly increasing their appreciation of the landscape around them. The location of this receptor type is usually quite specific.

9.3.4.2 Designated Scenic Routes & Views

Due to their identification in the County Development Plan this type of VRP location represents a general policy consensus on locations of high scenic value within the Study Area. These are commonly elevated, long distance, panoramic views and may

or may not be mapped from precise locations. They are more likely to be experienced by static viewers who seek out or stop to take in such vistas.

9.3.4.3 Local Community Views

This type of VRP represents those people who live and/or work in the locality of the proposed EIA Development, usually within a 5km radius of the site. Although the VRPs are generally located on local level roads, they also represent similar views that may be available from adjacent houses. The precise location of this VRP type is not critical; however, clear elevated views are preferred, particularly when closely associated with a cluster of houses and representing their primary views. Coverage of a range of viewing angles using several VRPs is necessary in order to sample the spectrum of views that would be available from surrounding dwellings.

9.3.4.4 Centres of Population

VRPs are selected at centres of population primarily due to the number of viewers that are likely to experience that view. The relevance of the settlement is based on the significance of its size in terms of the Study Area or its proximity to the site. The VRP may be selected from any location within the public domain that provides a clear view either within the settlement or in close proximity to it.

9.3.4.5 Major Routes

These include national and regional level roads and rail lines and are relevant VRP locations due to the number of viewers potentially impacted by the project. The precise location of this category of VRP is not critical and might be chosen anywhere along the route that provides clear views towards the Site, but with a preference towards close and/or elevated views. Major routes typically provide views experienced whilst in motion and these may be fleeting and intermittent depending on screening by intervening vegetation or buildings.

9.3.4.6 Tourism, Recreational and Heritage Features

These views are often one and the same given that heritage locations can be important tourist and visitor destinations and amenity areas or walking routes are commonly designed to incorporate heritage features. Such locations or routes tend to be sensitive to development within the landscape as viewers are likely to be in a receptive frame of mind with respect to the landscape around them. The sensitivity of this type of visual receptor is strongly related to the number of visitors they might attract and, in the case of heritage features, whether these are discerning experts or lay tourists. Sensitivity is also heavily influenced by the experience of the viewer at a heritage site as distinct from simply the view of it. This is a complex phenomenon that is likely to be different for every site.

Experiential considerations might relate to the sequential approach to a castle from the car park or the view from a hilltop monument reached after a demanding climb. It might also relate to the influence of contemporary features within a key view and whether these detract from a sense of past times. It must also be noted that the sensitivity rating attributed to a heritage feature for the purposes of a landscape and visual assessment is not synonymous with its importance to the Archaeological or Architectural Heritage record.

The Viewshed Reference Points selected in this instance are set out in **Table 9.7** below and shown on the VP selection Map in the Photomontage Booklet.

VRP No.	Location	Receptor/Representative of:	Distance to Site (km)	Direction of view
VP1	Clonmacnoise	Amenity and heritage feature Designated scenic view	20.6km	SE
VP2	Offaly Way Start Point	Amenity and Heritage feature	17.8km	SW
VP3	N62 at Ferbane	Centre of population	14.5km	S
VP4	Shannonbridge	Designated scenic view	18.3 km	SE
VP5	Moyclare	Designated scenic view	12.6 km	S
VP6	Lough Boora	Designated scenic view	11.5 km	SW
VP7	Stonestown	Designated scenic view	7.4 km	S
VP8	Shannon Harbour	Amenity and heritage feature	9.3 km	SE
VP9	Taylor's Cross	Major Route	4.6 km	SE
VP10	Meelick Quay	Designated scenic view Amenity and heritage feature	12.1 km	E
VP11	L3006 at Garbally	Local community views	2.6 km	E
VP12	L3006 at Ballyslavin	Local community views	1.7 km	S
VP13	N62 at Galros Cross Roads	Major route Local community views	643m	S
VP14	Fivealley	Major Route Local community views	2.0 km	W
VP15	Local Road at Knockhill and Drinagh	Designated scenic view Local community views	11.9 km	W
VP16	R438 at Deerpark	Local community views Major Route	4.2 km	E
VP17	Local Road at Birr Golf Club	Local community views	848m	N
VP18	N62 at Cooleeny	Major route	1.2 km	N
VP19	R489 at Lisinisky	Designated scenic view	16.1 km	NE

VP20	R489 at Pike	Designated scenic view	9.6 km	NE
VP21	Walled Garden within Birr Castle and Demesne	Amenity and heritage feature.	4.4 km	NE
VP22	N52 at Birr	Centre of population Amenity and heritage feature	4.6 km	N/NE
VP23	'The Leviathan' telescope within Birr Castle and Demesne	Amenity and heritage feature.	4.7 km	N/NE
VP24	St Johns Hall, William Parsons, 3rd Earl of Rosse Statue, R440	Centre of population, Major Route, Amenity and heritage feature	4.8 km	N
VP25	R440 at Ballygowan	Designated scenic view	6.4 km	NW
VP26	R421 at Lissanure	Designated scenic view	12.9 km	W
VP27	R440 at Slieve Blooms	Designated scenic view	19 km	W/NW
VP28	R493 at Carrigahorig	Designated scenic view	18.9 km	E/NE
VP29	N52 at Hazelfort	Major Route	13.8 km	N
VP30	N62 at Rathbeg Lane	Major Route	10.2 km	N
VP31	Local Road at Leap Castle	Amenity and heritage feature	13.1 km	N/NW
VP32	Local Road at Clonlee	Designated scenic view	11.7 km	NW

Table 9.7: Outline Description of Selected Viewshed Reference Points (see also VRP Map in Photomontages Booklet)

9.3.5 Cumulative Baseline

The Scottish Natural Heritage (SNH) *Guidelines relating to the Cumulative Effects of Wind Farms (2012)* identify that cumulative impacts on visual amenity consist of combined visibility and sequential effects. The same categories have also been subsequently adopted in the Landscape Institute's 2013 revision of the *Landscape and Visual Impact Assessment Guidelines*:-

“Combined visibility occurs where the observer is able to see two or more developments from one viewpoint. Combined visibility may either be in combination (where several wind farms are within the observer's arc of vision at the same time) or in succession (where the observer has to turn to see the various wind farms).

Sequential effects occur when the observer has to move to another viewpoint to see different developments. The occurrence of sequential effects may range from frequently sequential (the features appear regularly and with short time

lapses between, depending on speed of travel and distance between the viewpoints) to occasionally sequential (long time lapses between appearances, because the observer is moving very slowly and / or there are large distances between the viewpoints."

Cumulative impacts of wind farms tend to be adverse rather than positive, as they relate to the addition of moving manmade structures into a landscape and viewing context that already contains such development. Based on guidance contained within the SNH *Guidelines relating to the Cumulative Effects of Wind Farms (2005)* and the DoEHLG *Wind Energy Development Guidelines for Planning Authorities (2006)*, cumulative impacts can be experienced in a variety of ways.

In terms of landscape character, additional wind energy developments might contribute to an increasing sense of proliferation. A new wind farm might also contribute to a sense of being surrounded by turbines with little relief from the view of them.

In terms of visual amenity, there is a range of ways in which an additional wind farm might generate visual conflict and disharmony in relation to other wind energy developments. Some of the most common include visual tension caused by disparate extent, scale or layout of neighbouring developments. A sense of visual ambivalence might also be caused by adjacent developments traversing different landscape types. Turbines from a proposed wind farm that are seen stacked in perspective against the turbines of nearer or further developments tend to cause visual clutter and confusion. Such effects are exacerbated when, for example, the more distant turbines are larger than the nearer ones and the sense of distance is distorted. **Table 9.8** below provides criteria for assessing the magnitude of cumulative impacts.

Magnitude of Impact	Description
Very High	<ul style="list-style-type: none"> The proposed wind farm will strongly contribute to wind energy development being the defining element of the surrounding landscape. It will strongly contribute to a sense of wind farm proliferation and being surrounded by wind energy development. Strongly adverse visual effects will be generated by the proposed turbines in relation to other turbines.
High	<ul style="list-style-type: none"> The proposed wind farm will contribute significantly to wind energy development being a defining element of the surrounding landscape. It will significantly contribute to a sense of wind farm proliferation and being surrounded by wind energy development. Significant adverse visual effects will be generated by the proposed turbines in relation to other turbines.
Medium	<ul style="list-style-type: none"> The proposed wind farm will contribute to wind energy development being a characteristic element of the surrounding landscape. It will contribute to a sense of wind farm accumulation and dissemination within the surrounding landscape. Adverse visual effects might be generated by the proposed turbines in relation to other turbines.
Low	<ul style="list-style-type: none"> The proposed wind farm will be one of only a few wind farms in the surrounding area and will be viewed in isolation from most receptors. It might contribute to wind farm development becoming a familiar feature within the surrounding landscape. The design characteristics of the proposed wind farm accord with other schemes within the surrounding landscape and adverse visual effects are not likely to occur in relation to these.

Negligible	<ul style="list-style-type: none"> The proposed wind farm will most often be viewed in isolation or occasionally in conjunction with other distant wind energy developments. Wind energy development will remain an uncommon landscape feature in the surrounding landscape. No adverse visual effects will be generated by the proposed turbines in relation to other turbines.
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Table 9.8: Outline Magnitude of Cumulative Impact

There are 6 no. other existing or permitted wind farm developments within the central study area or its surrounds. The name, relative distance and number of turbines of these are included at **Table 9.9** below:

Wind Farm	Number of Turbines	Approximate Distance from the project site	Status
Derrinlough Wind Farm	21	3km (N)	Permitted
Cloghan Wind Farm	9	4km (N)	Existing
Meenwaun Wind Farm	4	2km (NW)	Existing
Carrig Renewables Wind Farm	7	10km (SW)	Proposed
Leabeg Wind Farm	2	11km (NE)	Existing
Skehanagh Wind Farm & Carrig Wind Farm	5 + 3	13km (S/SW)	Existing

Table 9.9: Cumulative Baseline

The majority of these are clustered within the central study area, to the north of the site, (Meenwaun, Derrinlough, Cloghan) however there are three other developments on the rolling landform to the south of the study area, the smaller developments of Carrig & Skehanagh are existing, whilst Carrig Renewables Wind Farm is proposed. The largest development is Derrinlough, which is permitted but not constructed, while the largest constructed wind farm is Cloghan, located between the two permitted clusters of Derrinlough to the north of the site.

9.4 Description of Likely Effects

9.4.1 Landscape Impacts

Landscape impacts are assessed on the basis landscape sensitivity weighed against the magnitude of physical landscape effects within the Site and effects on landscape character within the wider landscape setting. This wider setting is considered in respect of the immediately surrounding landscape (<5km) as well as the broader scale of the Study Area (5-20km).

9.4.1.1 Landscape Character, Value & Sensitivity

Landscape value and sensitivity are considered in relation to a number of factors highlighted in the Guidelines for Landscape and Visual Impact Assessment 2013, which are set out below and discussed relative to the project, including the central study area and wider study area.

The below identifies the landscape policy context of the site itself, followed by the central study area (within 5km), followed by the wider study area (5-20km).

Where a classification is described in the previous table, it will not be repeated in the following, but rather reference made to the preceding table.

As above, the site is fully contained within County Offaly, which does not designate landscape character areas, but rather overlays a number of different land uses or features, resulting in different 'Landscape Sensitivity Areas' rated High, Medium, Low.

Landscape Character Analysis of the Project Site	
Landscape Character and Wind Designations (Co. Offaly)	
<p>Classification Low (6 no. turbines – T1, T2, T4, T5, T7, T8) Generally southwest of site</p>	<p>Definition:- <i>Low sensitivity areas are robust landscapes which are tolerant to change, such as the county's main urban and farming areas, which have the ability to accommodate development.</i></p> <p>Key Characteristics:- <i>County Offaly is largely a rural county which comprises of a predominantly flat and undulating agricultural landscape coupled with a peatland landscape. Field boundaries, particularly along roadside verges which are primarily composed of mature hedgerows typify the county's rural landscape.</i></p>
<p>Classification Moderate (2 no. turbines – T3, T6) Generally northeast of site</p>	<p>Definition:- <i>Moderate sensitivity areas can accommodate development pressure but with limitations in the scale and magnitude. In this category of sensitivity, elements of the landscape can accept some changes while others are more vulnerable to change.</i></p> <p>Key Characteristics:- <i>Cutaway bogs cover a large part of the landscape of Offaly and in their entirety, are approximately 42,000 hectares. Generally, there are a number of land uses suitable for cutaway bog, not included in High Sensitivity Areas, which include wilderness, grassland, forestry and recreation. Some cutaway bog landscapes are more robust and may be considered for other uses.</i></p> <p>It should be noted this classification only applies due to the location of these turbines within bog lands.</p>
<p>Wind Energy Designation/Sensitivity "Areas Open for Consideration"</p>	<p>Definition: <i>These areas are open for consideration for wind energy development as these areas are characterised by low housing densities, do not conflict with European or National designated sites and have the ability by virtue of their landscape characteristics to absorb wind farm developments.</i></p> <p>(Subject to Development Management Conditions)</p>
<p>With consideration of the above, the site is deemed to have Low Landscape Sensitivity to Wind Development, due to being located within a robust, rural and highly modified landscape, which is classified as having the 'ability to absorb' wind development.</p>	
Non-designated considerations	
<p>Visibility</p>	<p>Full theoretical visibility, however this will vary based on vegetation and detail of landform screening. There are no views from 'within' the site, however VP13 is the closest view, at 643m from the nearest turbine.</p>
<p>Cumulative Effects</p>	<p>There are no existing turbines located within the project site, the nearest are Meenwaun (existing) and Derrinlough (permitted). The cumulative impacts of these will be addressed below.</p>

Table 9.10: Landscape Character Areas of the Project Site

Landscape Character Analysis of central study area (<5km)	
Landscape Character and Wind Designations (Co. Offaly)	
<p>Classification Low and Moderate (Immediate surrounds)</p>	Same as site itself – refer to Table above
<p>Classification High Sensitivity</p> <p>Located 550m east at nearest point, where the designation follows High Amenity Area 11 'Other Eskers'</p> <p>To the north and south, the 'High Sensitivity' designation overlays pNHAs.</p>	<p>High Sensitivity Areas are vulnerable landscapes with the ability to accommodate limited development pressure. In this category of landscape, landscape elements are highly sensitive to certain types of change. If pressure for development exceeds the landscapes limitations the character of the landscape may change. The following include identified features or areas of natural beauty or interest which have extremely low capacity to absorb new development.</p> <p>High Sensitivity Area C – Wetlands/High Amenity Area 3 – Lough Boora Discovery Park) (North of the site):-</p> <ul style="list-style-type: none"> • Wetlands are of importance for their habitat value and their provision of wildlife shelter. • Wetlands provide an important recreational space with a distinctive sense of place and peacefulness. • Any development proposed which occurs within these areas, should demonstrate a necessity to be developed in this location, be very small scale and have minimum visual impacts ensuring that it does not detract from the open expansive vistas present at these locations. <p>High Sensitivity Area G – The Esker Landscape/High Amenity Area 11 – Other Eskers (South and East of the site):-</p> <ul style="list-style-type: none"> • There is a need to balance the conservation of the important landscape features associated with eskers providing educational / tourism and recreational potential with the requirements of aggregate extraction and economic development.
<p>Wind Energy Designation/Sensitivity “Areas Open for Consideration”</p>	Definition: Refer to Table above for full description
<p>Wind Energy Designation/Sensitivity “Areas Not Deemed Suitable Wind Energy Development”</p>	Definition: This area is considered to be generally unsuitable for wind farm development due to significant environmental, heritage and landscape constraints and housing density.
Tipperary County Development Plan	
<p>Classification Landscape Architype A – The Plains</p> <p>LCA Sensitivity Class 2 – Transitional Sensitivity (Of a 0, 1, 2, 3, 4, 5 rating scale)</p>	<p>A – The Plains Within this Architype is Landscape Character Type A2 – Peatlands and Wet Mixed Farmland, and Landscape Character Area 7 – Borrisokane Lowlands. This landscape Character Area is described as: <i>This large, generally low-lying area contains good quality pasture though there are also quite extensive pockets of tillage, largely in the southern part of this LCA. Towards the north, the landcover starts to share characteristics with the Shannon Callows LCA as well as a number of raised bogs.</i></p>

Wind Energy Designation/Sensitivity "Low Compatibility"	Land Use Compatibility between the above LCAs and Energy – Windfarm Land Use is designated 'Low' (second to lowest compatibility of a 5 point scale)
With consideration of the above, the central study is deemed to have Medium-Low Landscape Sensitivity to Wind Development. As the higher sensitivity areas are offset from the proposed project and trace distinctly different landcover/landform areas than the site itself, although there is some overlap between the bog landscape (Moderate sensitivity within Offaly County Development Plan) which the site is partially located in, and the 'Wetland' area of Lough Boora.	
Non-designated considerations	
Visibility	Full theoretical visibility, however this will vary based on vegetation and detail of landform screening. Views from within 5km of the site, include VP11, VP12, VP3 (mentioned above), VP14, VP17, VP18.
Cumulative Effects	The nearest cumulative wind developments are Meenwaun (existing) and Derrinlough (permitted). Cloghan Wind Farm is mainly located in the wider study area, with only one turbine within 5km, and is addressed below. These add a layer of existing land use to the surroundings of the site, linked with bogland landscapes, in terms of the energy production narrative, in particular surrounding Lough Boora (which has the historic landuse overlay). However, this does result in the potential for cumulative impacts, which are addressed in detail within the cumulative impacts section below.

Table 9.11: Landscape Character Areas within Central Study Area (<5km)

Landscape Character Analysis of wider study area (5-20km)	
Landscape Character and Wind Designations (Co. Offaly)	
Classification Low, Moderate, and High (varied distances)	<p>The key point with regards to the Offaly High Sensitivity designations is the introduction of additional high sensitivity areas, these include:</p> <p><i>High Sensitivity Area D/ High Amenity Area 1 – The River Shannon and Callows (west of the study area):-</i></p> <ul style="list-style-type: none"> <i>This area is extremely sensitive to all categories of development, given its scientific, ecological, recreational and scenic value.</i> <i>The protection of views of special interest and the landscape of this area is paramount.</i> <p><i>High Sensitivity Area B/High Amenity Area 2 – The Grand Canal Corridor (north of the study area):-</i></p> <ul style="list-style-type: none"> <i>This area is extremely sensitive to all categories of development, and the upland area itself is visible from extensive surrounding areas. It is particularly sensitive to large agricultural structures, sporadic housing, major afforestation proposals and masts.</i> <p><i>High Sensitivity Area D –Slieve Bloom Mountains/High Amenity Area 5 – Slieve Bloom Mountains) (east of the study area):-</i></p> <ul style="list-style-type: none"> <i>This area is extremely sensitive to all categories of development, and the upland area itself is visible from extensive surrounding areas. It is particularly sensitive to large agricultural structures, sporadic housing, major afforestation proposals and masts.</i> <p><i>High Sensitivity Area H – Archaeological and Historical Landscapes /High Amenity Area 12 - Clonmacnoise Heritage Zone</i></p> <ul style="list-style-type: none"> <i>These landscapes are highly sensitive to new developments, which could potentially damage the historical character and the cultural and social importance of the area.</i>

	Plus the addition of further 'Wetland Areas' and 'Eskers' higher sensitivity areas.
Wind Energy Designation/Sensitivity "Areas Open for Consideration" and "Areas Not Deemed Suitable Wind Energy Development"	Definition: Refer to Table above for full description The main 'Open for Consideration Areas' of the study area loop north and west around the study area, while the 'Areas Not Deemed Suitable' bracket the south of the study area.
Tipperary County Development Plan (c. 3.5km south)	
Classification Landscape Architype A – The Plains, and B- The Lakelands LCA Sensitivity Class 2 – Transitional Sensitivity (within central study area) and Class 3 – Sensitive (Of a 0, 1, 2, 3, 4, 5 rating scale)	A – Plains Described above in central study area B – The Lakelands Within this Architype is Landscape Character Type B1 – Watersides, and Landscape Character Areas 10 – Upper Lough Derg, and 11 – The Shannon Callows. Landscape Character Area 10 – This LCA extends from the northern bays of Lough Derg, east of Portumna, following the lake southwards to Youghal Bay. Thereafter, it extends inland, with the eastern boundary defined by the lower contours of the drumlin belt. Landcover is dominated by pasture but there is a higher percentage of land under tillage within this LCA compared to the peaty soils within the Callows LCA. Upland or rough grazing can be seen in the elevated parts of the drumlins and there are occasional small coniferous plantations. Deciduous woodland is notable along the shoreline, with birch, willow, ash and hazel dominating. Landscape Character Area 11 - This large, generally low lying area contains good quality pasture though there are also quite extensive pockets of tillage, largely in the southern part of this LCA. Towards the north, the landcover starts to share characteristics with the Shannon Callows LCA as well as a number of raised bogs. Sensitivity of both LCA 10 and 11 is 'dominantly' Class 3 – Sensitive, however is has the potential to extend from Class 0 – Robust, to Class 5 – Vulnerable.
Wind Energy Classification 'Least Compatibility'	Land Use Compatibility between the above LCAs and Energy – Windfarm Land Use is designated 'Least' (lowest compatibility on a 5 point scale)
Galway County Development Plan (c. 8.5km west)	
Classification Shannon Environs Landscape Character Type/ Shannon Environs Landscape Character Unit – Special Sensitivity (3/4) Central Galway Complex Landscape Character Type/ Kilcrow Basin Landscape	8. Shannon Environs Landscape Character Type/ 8a. Shannon Environs Landscape Character Unit <i>Natural, seasonal processes dominate the landscape. Contains large areas of bog, wetlands and callows. Also supports large parklands and regular fields.</i> This LCU traces the border with Co. Offaly along the Shannon at the west of the study area, and is of 'Special' landscape sensitivity (3 out of a four-point scale) 6. Central Galway Complex Landscape Character Type/6d. Kilcrow Basin Landscape Character Unit <i>Working landscape, locally elevated. Larger areas of bog and forestry. Elevated concentrations of settlements and infrastructure.</i>

Character Unit – Low Sensitivity (1/4)	This LCU traces the border with Co. Offaly along the Shannon at the west of the study area, and is of 'Low' landscape sensitivity (1 out of a four-point scale)
Wind Energy Classification 'Not Normally Permissible' and 'Open for Consideration'	'Not Normally Permissible' – Along Shannon and Suck Rivers, with areas outside of the river corridors at the far west of the study area deemed 'Open for Consideration' These designations generally align with the landscape character units above.
Laois County Development Plan (c. 15km east)	
Classification and Value	Mountains, Hills and Upland Areas (Slieve Bloom Mountains) The Slieve Blooms are particularly sensitive to many forms of development including large agricultural structures, sporadic housing, transmission lines, masts and windfarm developments. There is increasing concern about the visual impact of widespread coniferous tree plantations on the mountains as well. Lowland Agricultural Areas It is generally a flat open landscape [around Ballylynan, Barrowhouse and the environs of Graiguecullen especially] with long range views towards the upland areas. Field patterns tend to be of large scale and are generally bounded by deciduous hedgerows containing mature trees. Farm sizes are larger than average. Much of the lowlands have an enclosed character with well-treed road corridors, dense hedgerows, parkland and areas of woodland.
Wind Energy Classification Areas Not Open for Consideration Undesignated	Not Favoured These are areas identified as particularly unsuitable for windfarm development. This category is used for areas which due to their scenic, ecological or tourism values are unable to accommodate development of this type.
Roscommon County Development Plan (c. 21.5km north)	
Classification and Value LCA 9: Cloonown and Shannon Callows (Very High Value 3/4) Roscommon LCA 13: Suck Callows (High Value (2/4))	Roscommon LCA 9 Cloonown and Shannon Callows The Cloonown and Shannon Callows is of Very High Value due to its flood plain habitat and unique ecology. The flat landform affords extended views from the River Shannon across the raised bogland landscape. (3 out of a four-point scale, 4 being the highest) Roscommon LCA 13: Suck Callows The Value of this LCA is High. When flooded in winter the Suck River and adjoining raised bogs become a valuable habitat for wintering birds. This habitat is further supported by the tranquillity of the area because it is sparsely populated and there are very few roads. (2 out of a four-point scale, 4 being the highest)
Wind Energy Classification Not Favoured	Not Favoured – Wind Farm Development will not be considered favourably in these areas.
With consideration of the above, the wider study is deemed to have Medium-Low Landscape Sensitivity to Wind Development. While there is a number of distributed areas of higher sensitivity, this is balanced with the surrounding lower sensitivity landscapes and landuses/values.	
Non-designated considerations	
Visibility	Generally full to partial theoretical visibility, however this will vary based on vegetation and detail of landform screening. Views from within the higher sensitivity landscapes (5km of the site, include VP11, VP12, VP3 (mentioned above), VP14, VP17, and VP18.
Cumulative Effects	There are 5 existing/permitted wind developments within the wider study area (in addition to the one within the central study area). Two of these

	are grouped to the north of the site (Cloghan, Leabeg), within the Offaly 'Open for Consideration' designation. Three smaller developments are located within Co. Tipperary to the south of the study area, between 10-15km away. These are the proposed Carrig Renewables Wind Farm, the existing Carrig Wind Farm and the existing Carrig & Skehanagh Wind Farms. There is the potential for cumulative impacts, which are addressed in detail within the cumulative impacts section below.
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Table 9.12: Landscape Character Areas of the Wider Study Area (5-20km)

9.4.1.2 Magnitude of Landscape Effect

The physical landscape as well as the character of the project site and its central Study Area (<5km) is affected by the proposed wind turbines as well as ancillary development such as access and circulation roads, areas of hard standing for the turbines, borrow pits, grid connection and the substation compound. By contrast, for the wider landscape of the Study Area, landscape impacts relate exclusively to the influence of the proposed turbines on landscape character. The aspects of the project that are likely to have an impact on the physical landscape and landscape character are described in **Chapter 3: Description of the Development**.

Construction Phase

It is considered that the proposed wind farm development will have a modest physical impact on the landscape within the site as none of the project features have a large 'footprint' and the site already includes modified ground in the form of cutover bog. The topography and land cover of the proposed site will remain largely unaltered with construction being limited to Access Tracks, Turbine Hardstands, the On-site Substation compound, Temporary Construction Compounds and proposed Met Mast. Excavations will tie into existing ground levels and will be the minimum required for efficient working. Any temporary excavations or stockpiles of material will be re-graded to marry into existing site levels and reseeded appropriately in conjunction with advice from the project ecologist.

The finalised internal Access Track layout has been designed to take advantage of the existing road and access track network where possible. The track network has also been designed to avoid environmental constraints, and every effort has been made to minimise the length of new internal roadways. There will be an intensity of construction stage activity associated with the turbine access tracks and turbine hardstands consisting of the movement of heavy machinery and materials, but this will be temporary/short term in duration and transient in location. The construction stage effects on landscape character from these activities will be minor.

All internal site cabling will be underground and will follow site access tracks without the need for trenching through open ground. Indeed, the land cover of the site will only be interrupted as necessary to build the structures of the proposed wind farm and to provide access. Impacts from land disturbance and vegetation loss at the site are considered to be modest in the context of this commercial forestry landscape setting.

A temporary meteorological mast currently exists at the wind farm site. It is proposed to remove this mast and replace it with a permanent 30m meteorological mast comprising of a slender lattice structure. Some ground works, including the construction of a concrete foundation and anchors, will be required to erect the proposed permanent mast. Mast components will be brought to site by 4x4 vehicles which will utilise the proposed access tracks and site entrances.

Site activity will be at its greatest during the construction phase due to the operation of machinery on site and movement of heavy vehicles to and from site. This phase will have a more significant impact on the character of the site and cable routes than the operation phase, but it is a 'short-term' impact that will cease as soon as the project is constructed and becomes operational.

There will be some long term/permanent construction stage effects on the physical landscape in the form of turbine foundations and hardstands, and access tracks. It is likely that with the exception of residually useful access tracks, all other development features will be removed from the Site and it will be reinstated / restored to the prevailing land cover as part of the proposed decommissioning process. Thus, the construction stage landscape effects of the project are largely reversible. Whilst many of the access tracks and turbine locations will be located in boglands and open fields, some turbines and sections of access track are proposed to be situated in areas of existing conifer and woodland. As a result, c. 23ha of tree felling will be required to facilitate proposed infrastructure, including turbine hardstand and set down areas and access tracks. Impacts from land disturbance and vegetation loss at the site are considered to be relatively minor in the context of this modified and managed landscape setting. Furthermore, it is proposed to replant the c. 23ha of felled forestry at replacement forestry lands in Co. Monaghan. The replant lands are relatively modest in scale, characterised by undulating terrain, and are situated in a productive rural landscape context. It is assessed that the planting of these will not generate any significant landscape effects.

A 110kv electricity substation is also assessed as part of the project. The proposed substation will be situated in the southwestern extent of the wind farm, and located in an existing pastoral field, adjacent to an area of existing woodland to the north and east. The substation location will be heavily screened from the local road to the south by several intervening layers of hedgerow vegetation. Thus, the substation will not be a prominent visual element in the local landscape. It is proposed to bolster the existing hedgerows as necessary, with a native whip planting mix and advanced nursery stock. The bolstered and existing hedgerow vegetation will be let 'grow out' to reach a consistent height of c. 3-4m, creating a strong visual screen from receptors along the local road south of the site.

The grid connection will run from the wind farm site across public roads which will generate some land disturbance works and the removal of some small pockets of vegetation. This will require ground excavation, laying of cables and subsequent reinstatement of trenches, and will result in minor and very localised construction stage landscape effects. No overhead lines are required for the grid connection.

Minor and temporary land disturbance is likely to occur as a result of the proposed haul route works; however, these effects will be temporary and reversible and therefore are not assessed to be significant.

There will be some construction stage effects on landscape character generated by the intensity of construction activities (workers and heavy machinery) as well as areas of bare-ground and stockpiling of materials as identified in the Construction and Environmental Management Plan (CEMP), see **Annex 3.4**. Such effects will be temporary/short term in duration and are, therefore, not considered to be significant. Overall, construction stage landscape effects are considered to be of a High-medium magnitude within the site and its immediate surrounds (<1km), diminishing to Medium and Low thereafter as ground-level construction activities become screened by

intervening terrain and vegetation leaving the emerging turbines as the only noticeable element to influence landscape character.

Operation Phase

For most wind energy developments, the greatest potential for landscape impacts to occur is as a result of the change in character of the immediate area due to the introduction of tall structures with moving components. Thus, wind turbines that may not have been a characteristic feature of the area become a new defining element of that landscape character. In this instance, wind turbines are present in both the immediate and wider context, the largest existing (Derrinlough is permitted but not built) array is Cloghan Wind Farm, located 5km north of the site, and the nearest is Meenwaun Wind Farm, located 2km Northwest. Other, smaller developments are scattered over the north and south of the study area. Those to the north of the site are within a similar landscape context and exhibit the same relationship between the bog landscapes and wind energy potential as is applied at the project site. The effect, therefore, is one of intensification and extension of an established land use in this landscape and not the introduction of a new and unfamiliar feature.

In terms of scale and function, the proposed wind farm is well assimilated within the context of the Central Study Area, more so to the north than the south of the site. This is due to the broad scale of the landform and landscape elements, with low intensity rural land use patterns, to the north of the site, which varies south of the site, closer to the periphery of Birr. The impact on the south of the site is mitigated by the physical division provided by the eskers which skirt the central study area to the south and east. These attributes prevent the height and extent of the proposed wind farm causing the type of scale conflict that can occur in more intricate landscape areas.

Although the project represents an increased scale and intensity of built development than currently exists within and around the site, it will not detract significantly from its diverse productive rural character to the north within which wind turbines are already a feature of the landscape character, and is separated from the central southern study area by landform and landuse. In summary, there will be physical impacts on the land cover of the site as a result of the project during the operation phase, but these will be relatively minor in the context of this productive rural landscape that comprises existing wind energy developments and extensive areas of commercial conifer forestry. The scale of the project will be well assimilated within its landscape context without undue conflicts of scale with underlying land form and land use patterns.

For these reasons the magnitude of the landscape impact is deemed to be High-medium within the site and its immediate environs (c.1 km) reducing to Medium for the remainder of the central Study Area. Beyond 5km from the site, the magnitude of landscape impact is deemed to reduce to Low and Negligible at increasing distances as the wind farm becomes a proportionately smaller and integrated component of the overall landscape fabric.

Decommissioning Phase

It is important to note that in terms of duration, this project represents a long term, but not permanent effect on the landscape and is reversible. The lifespan of the project is 35 years, after which time it will be dismantled and the landscape reinstated to prevailing conditions. Within 2-3 years of decommissioning there will be little evidence that a wind farm ever existed on the site.

The decommissioning phase will have similar temporary impacts as the construction phase with the movement of large turbine components away from the site. There may be a minor loss of roadside and trackside vegetation that has grown during the operation phase of the project, but this can be reinstated upon completion of decommissioning. Areas of hard standing that are of no further use will be reinstated and reseeded to blend with the prevailing surrounding land cover of the time. It is expected that the decommissioning phase would be completed within a period of approximately 12 months.

9.4.1.3 Significance of Potential Landscape Impacts

The significance of landscape impacts is a function of landscape sensitivity weighed against the magnitude of landscape impact. This is derived from the significance matrix (**Table 9.3**) which is used in combination with professional judgement.

Location relative to Project	Sensitivity	Magnitude of Landscape Impact	Landscape Impact Significance
Project Site (Immediate site area)	Low	Construction & Decommissioning Phase: High-Medium	Moderate/ Negative/ Short term
		Operation Phase: High-Medium	Slight/ Negative/ Long term
Central Study Area (<5km)	Medium-Low	Construction & Decommissioning Phase: Medium	Moderate-slight/ Negative/ Short term
		Operation Phase: Medium	Slight/ Negative/ Long term
Wider Study Area (5 – 20km)	Medium-Low	Construction & Decommissioning Phase: Low-negligible	Slight-imperceptible/ Negative/ Short term
		Operation Phase: Low-negligible	Slight-imperceptible/ Negative/ Long term

Table 9.13: Significance of Landscape Impacts

9.4.2 Visual Impacts

In the interests of brevity and so that this chapter remains focussed on the outcome of the visual assessment (rather than a full documentation of it), the visual impact assessment at each of the 32 no. selected representative viewpoint locations has been placed into **Annex 9.1**. This section should be read in conjunction with both **Annex 9.1** and the associated photomontage and visualisation pack contained at **Annex 9.2**. A summary of the visual impact assessment is provided within **Table 9.14** below, which collates the assessment of visual impacts. A discussion of the results is provided thereafter.

VP No.	Distance to nearest turbine	Visual Receptor Sensitivity	Magnitude of Visual Impact	Visual Impact Significance
VP1	20.6km	High	Low-negligible	Slight/ Negative/ Long-term
VP2	17.8km	Medium	Negligible	Imperceptible/ Neutral / Long-term

VP3	14.5km	Medium-Low	Medium-Low	Moderate-slight / Negative / Long-term
VP4	18.3 km	High-medium	Low-negligible	Slight-imperceptible / Negative / Long-term
VP5	12.6 km	Medium	Low	Slight / Negative / Long- term
VP6	11.5 km	Medium-Low	Negligible	Imperceptible / Neutral / Long-term
VP7	7.4 km	Medium-Low	Medium-Low	Moderate-slight / Negative / Long-term
VP8	9.3 km	Medium	Low-negligible	Slight-imperceptible / Negative / Long-term
VP9	4.6 km	Low	Medium-Low	Slight / Negative / Long- term
VP10	12.1 km	High-Medium	Low	Slight / Negative / Long- term
VP11	2.6 km	Medium-Low	Medium-Low	Moderate-slight/ Negative/ Long-term
VP12	1.7 km	Medium-Low	High-Medium	Moderate/ Negative/ Long-term
VP13	643m	Medium-Low	Medium	Moderate/ Negative/ Long-term
VP14	2.0 km	Medium-Low	Low	Slight/ Negative/ Long- term
VP15	11.9 km	Medium	Medium-Low	Moderate-slight/ Negative/ Long-term
VP16	4.2 km	Medium-Low	Medium-Low	Moderate-slight/ Negative/ Long-term
VP17	848m	Medium-Low	High-Medium	Moderate/ Negative/ Long-term
VP18	1.2 km	Medium-Low	High-Medium	Moderate/ Negative/ Long-term
VP19	16.1 km	Medium-Low	Low-negligible	Slight-imperceptible/ Negative/ Long-term
VP20	9.6 km	Medium-Low	Negligible	Imperceptible/ Neutral/ Long-term
VP21	4.4 km	High	Negligible	Imperceptible/ Neutral/ Long-term
VP22	4.6 km	Medium	Medium	Moderate / Negative/ Long-term
VP23	4.7 km	Very High	Negligible	Imperceptible/ Neutral/ Long-term

VP24	4.8 km	Medium	Negligible	Imperceptible/ Neutral/ Long-term
VP25	6.4 km	Medium-Low	Low	Slight/ Negative/ Long-term
VP26	12.9 km	Medium-Low	Low	Slight/ Negative/ Long-term
VP27	19 km	High-Medium	Low	Slight/ Negative/ Long-term
VP28	18.9 km	Medium	Low-Negligible	Slight-imperceptible / Negative / Long-term
VP29	13.8 km	Medium-Low	Low-Negligible	Slight-imperceptible / Negative / Long-term
VP30	10.2 km	Medium-Low	Low	Slight / Negative / Long-term
VP31	13.1 km	Medium-Low	Low-Negligible	Slight-imperceptible / Negative / Long-term
VP32	11.7 km	Medium	Low-Negligible	Slight-imperceptible / Negative / Long-term

Table 9.14: Summary of Visual Impact Assessment at Representative Viewpoint Locations (see also Annex 9.1 for full assessment)

Visual impacts are summarised, below, by receptor type, based on the primary reason for selecting that view. There are instances where a view is representative of multiple receptor types (e.g. major routes and/or scenic designations and local community views).

9.4.2.1 Visual impacts at Amenity & Heritage Receptors

The heritage and amenity sites which are located across the study area are typically clustered, with the Shannon River and associated sites (VP1, VP8, & VP10), and Birr (VP21, VP23, & VP24), with an isolated heritage feature at VP2. As above, while there are other views with heritage/amenity elements, (VP22 & VP31) these values are secondary to other attributes.

Of these views, the highest impacts are experienced at Meelick Quay (VP10), which is also a designated scenic view in Co. Galway. This view is located along the banks of the Shannon and has a number of historic features in the surrounds, resulting in a high-medium sensitivity (when combined with the scenic designation). The magnitude of impact is low due to the screening between the viewer and the site, this results in a final significance of slight. Another receptor along the Shannon and the next highest final significance was Clonmacnoise, which is represented by VP1, located slightly outside of the historic site and oriented inland from the Esker Riada, away from the Shannon (the more sensitive context). The magnitude of impact for this view was rated low-negligible due to distance and separation from the sensitive landscape elements, resulting in a final significance of slight. The last heritage/amenity view located along the Shannon Corridor section of the study area was VP8, located at Shannon Harbour along the Grand Canal. This view featured a magnitude of Low-negligible due to intervening vegetation, resulting in a final significance of slight-imperceptible.

Of the three heritage/amenity views within Birr (VP21, VP23, & VP24), all are screened and therefore feature a negligible magnitude of impact, resulting in imperceptible impact significance. Two of these (VP21 & VP23) are located within the grounds of Birr Castle, the most notable heritage and amenity feature of Birr and as such, VP23 has the highest visual receptor sensitivity of this assessment (very high). The third (VP24) is located in close proximity to a number of listed heritage sites, along the R440 regional road, so is also representative of 'Centres of Population' and 'Major Route' receptors.

Finally, the isolated heritage and amenity receptor at VP2 is located at the start of the Offaly Way. With regards to heritage, this is adjacent to local historic complex, comprising multiple ruins and other historic features. VP2 is substantially screened, leading to an imperceptible effect.

9.4.2.2 Visual Impacts at Scenic Designations

The study area overlays multiple different counties, with consideration for all scenic designations. Those which were deemed to be relevant to this assessment (as refined within the main report, above), are represented by VP1, VP4, VP5, VP6, VP7, VP10, VP15, VP19, VP20, VP25, VP26, VP27, VP28, VP31, & VP32. A number of these are representative of a group of designated views, or the combination of scenic views and amenity routes. Additionally, there is overlap between a number of other receptors (mainly Major Routes). VP1 and VP10 are discussed above, as these also feature prominent heritage and amenity values.

VP27 (high-medium sensitivity), is located on the R440 regional road as it crosses the Slieve Blooms (one of the highest sensitivity landscapes of the study area), with clear elevated views over much of the study area, and the project site. The magnitude of impact is low due to distant and oblique views of the project. This results in a final impact significance of Slight.

VP15 (medium sensitivity) is a more localised view, which is representative of (rather than located precisely) an adjacent scenic view, as well as local community views. The combination of medium sensitivity with medium-low impacts (due to clear views of the project across elevated rural views), results in moderate-slight impact significance, of a negative quality, and long-term duration.

VP4 is located within the higher sensitivity landscape context surrounding the Shannon Corridor, but is representative of the combined major route, local community, and adjacent scenic view. There are partial views featuring screening by vegetation, resulting in a low-negligible magnitude of visual impact and slight-imperceptible final significance. In contrast, VP5 is located directly on a designated view, but within a less sensitive landscape, and as such is rated medium, with a low impact magnitude as there are more direct views to the project (resulting in a slight final significance). VP7 is located within the bog landscape surrounding the central study area, to the north of the largest group of permitted/existing wind energy development. This results in the impact from the project being related to potential cumulative effects from extending the depth of wind energy development into the distance. VP7 is rated medium-low sensitivity, and features medium-low magnitude impacts from the project, resulting in a moderate-slight significance.

The other designated locations within the assessment are rated between slight (VP9, VP25, VP26), slight – imperceptible (VP19, VP28, VP31, & VP32), and imperceptible (VP6 & VP20). Of these, six (out of eight) are located on regional roads. The exceptions are VP31 and VP32, which are otherwise representative of local receptors and VP31

a nearby scenic designation. Both VP31 and 32 experience a low-negligible magnitude of impact, with a final significance of slight-imperceptible.

VP19 and VP20 are both located along the R489, to cover off major route and local community receptors in combination with the Tipperary scenic designation. Both are rated medium-low sensitivity, while VP19 features low magnitude of impact, impacts at VP20 are negligible, resulting in final significance of slight/negative/long term (VP19), and imperceptible/neutral/long term (VP20).

VP6 is located along the R357, within the context of Lough Boora Park, however the actual visibility along this section of road is limited, resulting in a negligible magnitude of impact and imperceptible significance.

VP25 is located along a section of the R440 designated amenity route, and experiences low magnitude of impact, resulting in a final significance of slight, as does VP26, located along the R421 along the base of the Slieve Blooms. VP26 is also representative of the nearby Kinnitty Castle (a heritage and amenity receptor).

Finally, VP28 is located in Co. Tipperary, along the designated view at the R493. This view experiences low-negligible magnitude of impact, with a slight-imperceptible significance (negative/long term).

9.4.2.3 Visual Impacts at Major Routes (where not already covered)

Aside from the above views located along regional roads, there are a number of views located along the national roads which dissect the study area and are representative of the user's transient view along these main transport corridors (VP3, VP13, VP14, VP18, VP22, VP29, & VP62). There are additional regional road views included at VP16 and VP9. Of the above, VP3 and VP22 are excluded and discussed below as 'Centres of Population' receptors. It can be assumed that the other listed views are somewhat representative of local community views in addition to the major route receptors.

The highest impact significance applied to a major route receptor is moderate, with a negative quality and long-term duration as experienced at VP13 and VP18, as the N62 passes between the proposed turbines and these views are located to the north and south of the project, in close proximity. At VP13, the relationship between the turbine location and surrounding bog provides a legible relationship, mitigating impacts to medium, while at VP18, the proposed turbines are separated by the ridgeline across the middle of the view of an anthropogenically-influenced landscape, but appear above the viewer and adjacent residence, prompting a high-medium magnitude impact.

Within the south of the study area, VP29 and VP30 are located along the N52 and N62 respectively, as they diverge south from Birr. These are both designated medium-low sensitivity, with views over the surrounding rural landscape, however VP30 features clearer visibility. As such, VP29 features low-negligible magnitude of Impact, and slight-imperceptible significance, while VP30 experiences a low magnitude of Impact, with slight overall significance.

The only other view representative of the national road (aside from VP3, N62 at Ferbane and VP22, N52 at Birr, which are addressed below), is VP14, taken from the N52 at Fivealley. This view features medium-low sensitivity, and low impacts, resulting in slight significance of a negative quality and long-term duration.

Regional road viewpoint at VP9 (R349 at Taylors Cross) features relatively clear views of the project, however these are from a robust rural landscape, resulting in a final impact significance of slight/negative/long-term. Meanwhile, VP16 (R438 at Deerpark) experiences effects of a moderate-slight significance.

9.4.2.4 Visual Impacts at Centres of Population

There are two views representative of centres of population, both are located along national roads as they pass through population centres. These are VP3, located along the N62 at Ferbane (north of the study area) and VP22, along the N52 at Birr (south of the study area). Of these, VP22 (as discussed above) is also representative of heritage and amenity features, located in the centre of Birr, with directed views towards the wider landscape down the rows of buildings on either side – resulting in a medium viewpoint sensitivity. In contrast, Ferbane is a smaller centre of population, and the viewpoint is consequently located within less dense built form and less directed/framed/channelled views along the road corridor. VP3 is rated medium-low sensitivity. In terms of impacts, the extent of the proposed project is less visible from Birr, (VP22) but the framed nature of the view increases the magnitude of impact (which is mitigated by the separation provided by intervening vegetation along the horizon), resulting in a medium magnitude of impact and a significance of moderate. At Ferbane, the proposed project is visible across a broader extent of the view and with greater surrounding context. As such, the magnitude is medium-low, resulting in moderate-slight significance.

9.4.2.5 Local Community Views

There are 12 views within the central study area (within 5km), however the majority (nine) of these have been discussed above. The remaining three viewpoints were selected in close proximity to the project, to be specifically representative of the local receptors and local roads surrounding the site. VP11 and VP12 are both located along the L3006 to the north of the site, while VP17 is located to the south of the site, along the boundary of Birr Golf Club. All three views are of medium-low sensitivity due to the limited number of receptors and transitional manner of views along the enclosed local roads. VP11 and VP12 feature the Meenwaun Wind Farm development in the immediate surrounds, while VP17 has views north to the wider baseline context of Cloghan and (permitted) Derrinlough. VP11 features the lowest magnitude of impact, at medium-low, resulting in a moderate final significance. VP17, which features high-medium magnitude of impact, resulting in a moderate (negative/long term) impact. VP12 also features High-medium impacts, resulting in moderate significance of impact.

9.4.3 Cumulative Impacts

The cumulative scenario with regard to other existing wind farms in the study area is assessed within the viewpoint analysis included at **Annex 9.1**. In general, when viewed from the north, the project provides depth and additional intensity / clutter to the combination of the Meenwaun/Cloghan/Derrinlough developments. The proposed Carrig Renewables Wind Farm, located in the southwest of the study area most often presents in the background of these northern (southfacing) views, relating to the existing and permitted cumulative developments adding visual clutter in the distance (where visible). This cumulative relationship is represented in VP1, VP2, VP3, VP4, VP5, VP6, VP7, & VP8. VP5 in particular offers clear views of this pattern, where the proposed project is viewed in the central background of Derrinlough and Cloghan developments, filling in the background and any visual spaces between these two

schemes. In VP5 the proposed project's turbines overlap and increase clutter to a higher degree with the existing Cloghan turbines than the other developments with only one turbine (T2) overlapping with a Derrinlough turbine. However this changes across the northern study area, for example with VP3, where the project predominantly overlaps with Derrinlough, or VP1, where the eastern cluster of Derrinlough is viewed overlapping with Cloghan, while the western Derrinlough cluster reads as a separate cluster combined with Meenwaun and the project. VP7 experiences a similar pattern, from much closer proximity. However, the overall cumulative impact across the north of the study area is similar, with an increase in density and depth of wind development, within the same or similar lateral extent as that of the permitted and existing setting.

When viewed from the south of the study area, the project presents in the foreground, while the permitted and existing wind development (in particular Derrinlough and Cloghan) are visible between the project's wind turbines. This is represented in VP17 in particular, as the slightly elevated location allows clear views across all schemes, as does VP30. There is a higher degree of clutter present at greater distances as there is a reduction in depth/perspective and visual separation between the arrays. Additional views where the proposed project is grouped with the surrounding permitted and existing developments when viewed from the south, albeit to a lesser degree are VP18, VP21, VP22, VP23, VP24, VP25, VP29, & VP31.

When viewed from elevated and oblique angles, the proposed project extends the proportion of the lowland landscape which is occupied by turbines. This can be seen clearly in VP15 and VP27, where the project is viewed with a clear separation from the existing and permitted development. This can also be seen in VP9, VP10, VP16, VP19, VP26, VP28, & VP32. In one instance, at VP15 the proposed project is a visual link between the northern and southern areas of existing/permitted/proposed wind turbines. Overall, the proposed Carrig Renewables Wind Development is typically separated by distance/perspective or landform, and the primary cumulative relationship is between the proposed project and those cumulative developments within the central and northern study area.

Overall, there is a balance between the increase in clutter and intensity of development against the containment of a number of medium-large wind energy developments in a relatively uniform/cohesive area. In particular given the relationship most have with the cutover bog or conifer forestry land use. As Derrinlough is not constructed, the difference within the montages between 'existing' and 'proposed' appears more dramatic than the permitted baseline context, however this does serve to indicate that it will be a large number of turbines (over a relatively contained and cohesive area), and will result in cumulative effects. It should also be noted that the proposed project and surrounding wind development are generally directed towards these compatible areas in the County Development Plan. Overall, it is deemed that the addition of the project to the permitted baseline will have **Medium** cumulative impact, as with the combination of the project with the surrounding wind development, there is the beginnings of an (relatively localised – 7km radius) area which may come to be defined by the large wind energy development within it, particularly as the N62 runs between turbines at multiple locations.

9.5 Mitigation Measures

9.5.1 Construction Phase

Aside from construction stage mitigation measures to minimise land and vegetation disturbance and dust emissions (which may reduce visual amenity), there are no specific mitigation measures to be implemented. The appropriate management and reinstatement of excavations, in a timely manner, will ensure that any adverse effects caused, for example at site entrances or road upgrade locations, are minimised insofar as possible. Similarly, the progressive reinstatement and landscaping of the site will remediate any short term adverse effects on the local landscape.

9.5.2 Operation Phase

Given the highly visible nature of commercial wind energy developments it is not generally feasible to screen them from view using on-site screening measures typically employed for other forms of development during the operation phase. Instead, landscape and visual mitigation measures have been incorporated into the siting and design of the project at an early stage (see **Chapter 2**). In the case of the wind farm, the guidance provided in the *Wind Energy Development Guidelines for Planning Authorities 2006* (and 2019 revision) was the principal consideration. The relevant guidance for the landscape types that constitute the landscape and visual setting of the wind farm are discussed in detail in **Section 9.3.2.1** above. It is considered that the wind farm is broadly in line with the recommendations contained within the Guidelines.

The project has embedded landscape and visual mitigation measures and thus, the appraisal of potential landscape and visual effects is equivalent to any appraisal of residual effects in this instance.

Some of the general mitigation measures that will be implemented to make the development less intrusive and less eye catching on a localised level include:-

- The colour will be industry standard off-white/light grey semi-matt non-reflective finish;
- Electricity lines between individual turbines and the substation, and the grid connection infrastructure, will be placed underground;
- Special care will be taken to preserve any features, insofar as possible, which contribute to the landscape character of the study area; and,
- Counter rotation of blade sets will be avoided.

9.5.3 Decommissioning Phase

The turbines are expected to be fully operational for up to 35-years. After this period, and if planning permission is not sought for an extension of this use at the site, the turbines and ancillary developments will be deconstructed and removed from the site with the exception of electricity grid infrastructure which may remain as part of the national grid network in perpetuity. Aspects of the ancillary site development including the access tracks may be retained in-situ. These may facilitate the use of the site for, as stated, suitable future rural development uses including animal grazing.

9.6 Summary

Based on the landscape, visual, and cumulative assessment contained herein, it is not considered that there will be any significant landscape or visual effects arising from the project, however there is potential for localised moderate visual impacts, in

particular within the immediate surrounds, specifically in combination with existing and permitted cumulative development.

