13. LANDSCAPE AND VISUAL IMPACT ASSESSMENT

13.1 INTRODUCTION

This chapter describes the landscape context of the proposed project and assesses the likely significant landscape and visual impacts on the receiving environment. Although closely linked, landscape and visual effects are assessed separately.

Landscape Impact Assessment (LIA) relates to changes in the physical landscape brought about by the proposed 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 proposed 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 proposed 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.

13.1.1 Statement of Authority

This Landscape and Visual Assessment (LVIA) was prepared by Cian Doughan, Macro Works Ltd. Cian holds a Bachelor of Science in Landscape Architecture and is a Corporate Member of the Irish Landscape Institute (MILI) with nine years' experience as an LVIA consultant. The Assessment was reviewed by Richard Barker (Masters in Landscape Architecture and MILI) of Macro Works Ltd, who has 18 years of experience in the appraisal of landscape and visual effects from a variety of energy, infrastructure and commercial developments.

13.1.2 Definition of the Study Area

Both the 2006 Wind Energy Development Guidelines and Draft Revised 2019 Wind Energy Development Guidelines (WEDGs) published by the Department of the Environment, Heritage and Local Government specify radii for examining the zone of theoretical visibility (ZTV) of proposed wind farm projects. The 2006 guidance and Draft Revised WEDG[1] is identical in relation to defining the radii for examining the ZTV of proposed wind farm projects. The extent of this search 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;

[1] The draft Revised WEDGs represent a consultation draft which are not in force and subject to change.

- 25 km radius where landscape features of national and international importance exist.

In the case of the proposed project, the blade tips are up to a maximum 180 m height (proposed tip height range is between 170 m-180 m) and, thus, the minimum ZTV radius applied is 20 km from the outermost turbines, which represents current best practice with regard to the height of the turbines and scale of the turbine array. There are no landscape features of national or international importance between 20 – 25 km and thus, the radius of the study area will remain at 20 km. Notwithstanding the full 20 km extent of the LVIA study area, there will be a particular focus on receptors and effects within the central study area where there is higher potential for significant effects to occur. When referenced within this assessment, the 'central study area' is the landscape within 5 km of the proposed wind farm site boundary, which represents current best practice.

In relation to other features of the proposed project, such as the Grid Connection Options (GCO) One and Two and works areas of the proposed Turbine Delivery Route (TDR), their study area relates to their immediate context and a 50 m corridor either side of these linear features, as per current best practice. This is principally due to the localised nature of potential effects.

For clarity, a summary of defined terms with regard to the study area that are used throughout this chapter is provided below:

- Site and Immediate Study Area – the proposed wind farm site and immediate surrounding landscape up to 1km.
- Central Study Area – areas outside of the site and immediate study area up to 5km from the proposed turbine array.
- Wider Study Area – parts of the surrounding landscape between 5-20km from the proposed turbine array.

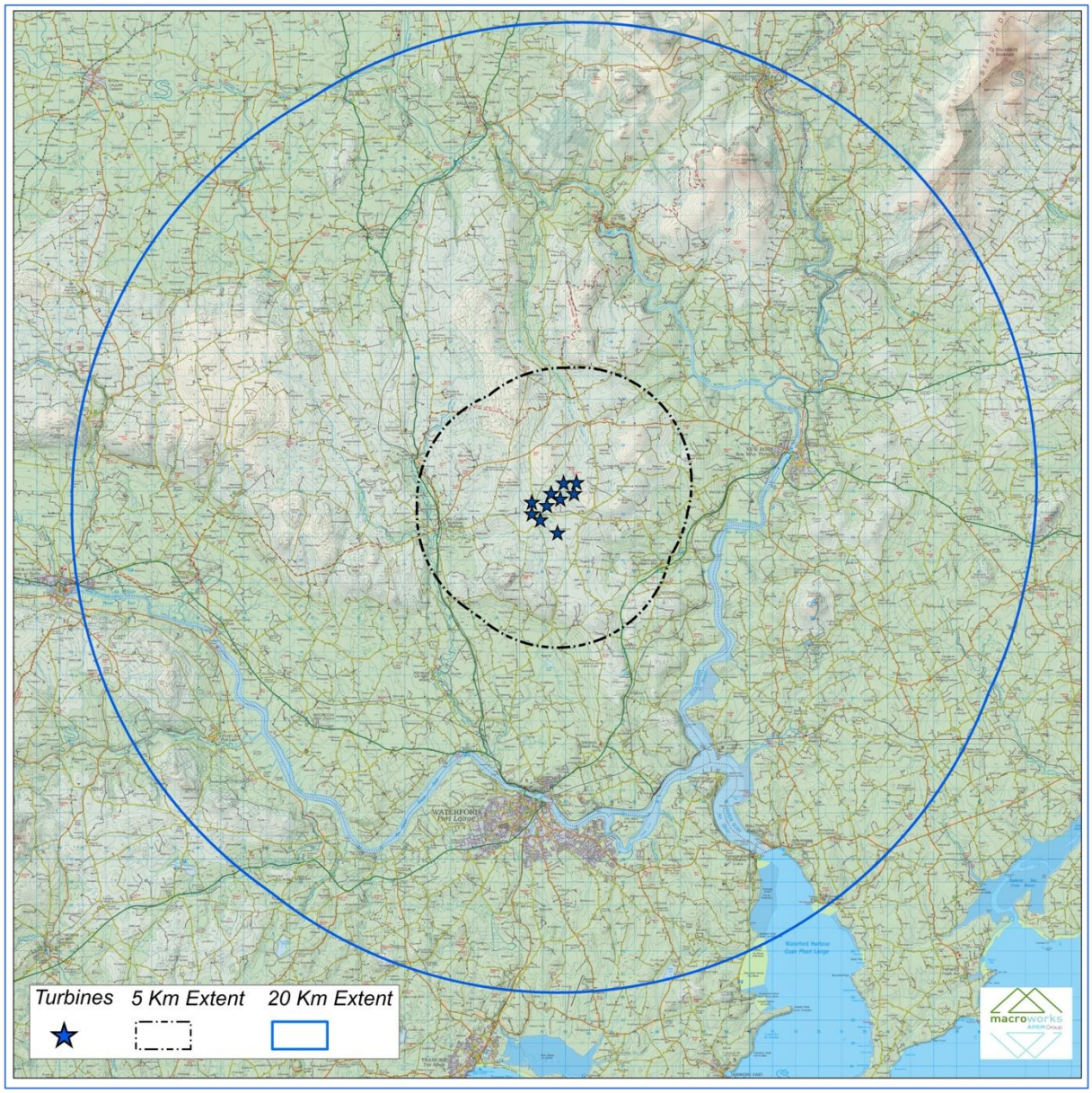

Figure 13-1: Full 20 km extent of the Study Area

13.2 ASSESSMENT METHODOLOGY

The LVIA adheres to 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) (2022) publication Guidelines on the Information to be contained in Environmental Impact Assessment Reports (2022);
- Landscape Institute and the Institute of Environmental Management and Assessment (IEMA) publication entitled Guidelines for Landscape and Visual Impact Assessment – Third Addition (2013);

- NatureScot (2021) Guidance - Assessing the cumulative landscape and visual impact of onshore wind energy developments [online];[2]
- Department of the Environment, Heritage and Local Government Wind Energy Development Guidelines (2006);
- Scottish Natural Heritage Visual Representation of Wind Farms: Best Practice Guidelines (version 2.2 - 2017).[3]

Department of the Environment, Heritage and Local Government Wind Energy Development Guidelines (2019 Draft)

The draft revised WEDGs represent a consultation draft which are not in force and subject to change. Nevertheless, this document represents current best practice, and thus is relevant to this assessment. It is important to note that all information and guidelines relating to landscape areas and types in the current wind energy development guidelines (2006) are duplicated in the draft revised wind energy development guidelines (2019). The only additional information relating to landscape and visual in the draft revised guidelines relates to the visual amenity setbacks. Thus, the current (2006) and draft revised (2019) guidelines have been referenced.

Use of the Term 'Effect' vs 'Impact'

The GLVIA3 advises that the terms 'impact' and effect' should be clearly distinguished and consistently used in the preparation of an LVIA.

'Impact' is defined as the action being taken. In the case of the proposed works, the impact would include the construction of the proposed project.

'Effect' is defined as the change or changes resulting from those actions, e.g. a change in landscape character, or changes to the composition, character and quality of views in the receiving environment. This report focusses on these effects.

Assessment of Both 'Landscape' and 'Visual' Effects

Another key distinction to make in a LVIA is between landscape effects and the visual effects of development.

'Landscape' results from the interplay between the physical, natural and cultural components of our surroundings. Different combinations of these elements and their spatial distribution create distinctive character of landscape in different places. 'Landscape character assessment' is the method used in LVIA to describe landscape, and by which to understand the potential effects of a development on the landscape as 'a resource'. Character is not just about the physical elements and features that make up a landscape, but also embraces the aesthetic, perceptual and experiential aspects of landscape that make a place distinctive.

Views and 'visual amenity' refer to the interrelationship between people and the landscape. The LVIA prescribes that effects on views and visual amenity should be assessed separately from landscape, although the two topics are inherently linked. Visual assessment is concerned with changes that arise in the composition of available views, the response of people to these changes and the overall effects on the area's visual amenity.

[2] There is no current guidance document in Ireland relating to the assessment of cumulative landscape and visual effects for onshore wind energy development, and thus, it is standard practice to use the NatureScot guidance
[3] As above.

Production of this Landscape and Visual Impact Assessment involved baseline work in the form of desktop studies and fieldwork comprising professional evaluation by qualified and experienced Landscape Architects. This entailed the following:

13.2.1 Desktop Study

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

13.2.2 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.

13.2.3 Appraisal

- 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 effects and the mitigation measures that could be employed to reduce such effects.
- Estimation of the significance of residual landscape effects.
- Estimation of the significance of residual visual effects 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, permitted or in the planning system and pending a decision from a planning authority. Projects that are at the pre-planning stage where information is available to the public are also be included in the cumulative impact assessment.

13.2.4 Assessment Criteria for Landscape Effect

The classification system to determine the significance of landscape and visual impacts complies with the Landscape Institute and 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 effects; 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 outlined in Table 13-1.

Table 13-1: Landscape Value and Sensitivity

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.

The magnitude of a predicted landscape effect is a product of the scale, extent or degree of change that is likely to be experienced as a result of the proposed project. 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 proposal site boundary that may have an effect on the landscape character of the area, see Table 13.2.

Table 13-2: Magnitude of Landscape Effects

Magnitude of Effect	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 extensive 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 a considerable 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 noticeable 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 that would lead to discernible changes in landscape character, and quality.
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 leading to no material change to landscape character, and quality.

The significance of a landscape effect is based on a balance between the sensitivity of the landscape receptor and the magnitude of the effect. The significance of landscape effects is arrived at using the following matrix set out in Table 13-3.

Table 13-3: Effect Significance Matrix

	Sensitivity of Receptor				
Magnitude	*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

Note: Judgements deemed 'substantial (yellow colour)' and above are considered to be 'significant effects' within this assessment. All other effects are deemed Not significant

13.2.5 Assessment Criteria for Visual Effects

As with the landscape effect, the visual effect of the proposed project 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.

13.2.5.1Visual 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 Landscape Institute and 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. These 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 Landscape Institute and IEMA Guidelines (2013), 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; and
- 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; and
    - 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.
- <u>Value Associated with the View</u>
- **Recognised scenic value of the view** (County Development Plan designations, International, National and Regional 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; and
- **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.

13.2.6 Magnitude of Visual Effects

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

Visual presence is a somewhat quantitative measure relating to how noticeable or visually dominant the proposal 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 project 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 proposal 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…"*. A further study by Fáilte Ireland titled 'Report on Visitor Awareness and Perceptions of the Ireland Landscape' (2018) found that in relation to views from prominent tourism sites in Ireland "there is consistent evidence of the majority of visitors not reporting the visibility of large, visually prominent developments that were close and directly in their line of sight". Some examples of this were where no visitors

reported the visibility of a windfarm or nearby industrial units at Cashel and no visitor noticed the offshore windfarm at Brittas Bay. 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 project 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 effect is classified in in Table 13-4.

Table 13-4: Magnitude of Visual Effect

Criteria	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

13.2.6.1Significance of Visual Effect

As stated above, the significance of visual effect is a function of visual receptor sensitivity and magnitude of visual effect. This relationship is expressed in the same significance metric included for Landscape Effect Significance at Table 13-3.

13.2.6.2Quality and Timescale in Effects

In addition to assessing the significance of landscape effects and visual effects, the EPA EIAR Guidelines (2022) requires that the quality of the effects is also determined. This could be negative/adverse, neutral, or positive/beneficial. In the case of new energy / infrastructure developments within rural and semi-rural settings, the landscape and visual change brought about by an increased scale and intensity of built form is seldom considered to be positive / beneficial.

Landscape and Visual effects are also categorised according to their duration:

- Temporary – Lasting for one year or less;
- Short Term – Lasting one to seven years;
- Medium Term – Lasting seven to fifteen years;
- Long Term – Lasting fifteen years to sixty years; and
- Permanent – Lasting over sixty years.

13.2.6.3 Approach to Design Flexibility

For the landscape and visual assessment, the pertinent aspect of the approach to design flexibility relates to the turbine dimensions used to prepare the photomontages, upon which, the visual impact assessment is based.

Macro Works has taken the approach of using the highest possible tip height and the largest rotor diameter. This is on the basis that the largest possible rotor diameter will have the greatest degree of visual exposure due to its broader expanse than all other turbine options. In this regard, it has the potential to have a marginally greater visual presence that turbines with the same tip height but smaller rotor diameter.

Whilst the assessment of visual effects will be undertaken using a single turbine option, a sub-set of comparative photomontages showing the full extent of potential turbine parameters, including tip heights, hub heights and rotor diameters, will be provided for assessment to highlight any potential differences in the assessment of visual effects in the visual impact appraisal.

13.2.6.4 Limitations/Difficulties Encountered

No limitations or difficulties were encountered during the preparation of the LVIA Chapter.

13.3 EXISTING ENVIRONMENT

13.3.1 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 proposal 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 and vegetation and land use. Centres of population, transport routes and tourism, recreation and heritage features form part of the visual baseline and are dealt with in Section 13.3.3.

Figure 13-2: Landscape context of the proposed wind farm site and central study area

13.3.1.1Landform and Drainage

Wind Farm Site and Central Study Area

The proposed wind farm site and central study area comprise a crest of low rolling hills and ridges located to the west of the River Barrow and to the east of the Black Water River. The proposed wind farm site itself is relatively elevated in comparison to its immediate surroundings, sitting atop a slight rise in the undulating landscape. The centre of the proposed wind farm site has an elevation of approximately 200 m AOD, while the nearby Tory Hill (approximately 2.8 km to the southwest) reaches an elevation of 292 m AOD and is the highest point in the central study area.

The closest notable watercourse to the proposed wind farm site is a tributary of the Glendonnell River, which flows approximately 500 m west of the nearest turbine. Two other streams traverse the site and include the Smartscastle Stream and the Arrigle River. The Glendonnell

River flows through the settlement Mullinavat and into the Black Water River. The Poulanassy River joins the Black Water just south of Mullinavat, approximately 4.7 km southwest of the proposed wind farm site. Also within the central study area, the Arrigle River flows approximately 1.2 km east of the nearest turbine.

Wider Study Area

In the wider study area lies the River Barrow, one of the more prominent watercourses within the region. It flows generally in a southerly direction and is located just over 6.5 km east of the proposed wind farm site at its nearest point. A section of the River Suir (between 11.5 km and 20 km from the proposed wind farm site) flows east from Carrick-on-Suir until it meets the River Barrow. The River Nore also meets the River Barrow approximately 9.2 km northeast of the nearest turbine.

The terrain in the wider study area generally comprises low rolling hills and ridges, often heavily influenced by the numerous rivers that traverse the surrounding landscape. Bandon Hill is the highest point within the study area, rising to a height of 515 m AOD. The southern extent of the Blackstairs Mountains also encroaches upon the northern periphery of the study area, comprising similarly elevated, mountainous terrain. Some locally elevated hills and ridges also rise in the southeast and western extents of the wider study area and include Slievecoiltia (322 m AOD), Corbally Hill (285 m AOD) and Carricktriss Gorse (314 m AOD).

Grid Connection Option (GCO) - One & Two

Much of the GCO One route is consistent with the landform of the central study area, that being a locally elevated plateau of hills and ridges. The GCO One route passes just west of the River Arrigle, before heading west towards a locally elevated ridge oriented in a north-south direction in the townland of Castlebanny.

The GCO Two route is entirely contained within the immediate study area and is consistent with the landform and drainage descriptions provided above.

Turbine Delivery Route (TDR)

The TDR is entirely contained within the 20 km study area and begins in the wider southern extent of the study area, to the north of the River Suir. As the TDR follows the N29 northwards and the N25 westwards to the north of Waterford, the landform is generally flat to gently rolling. Much of this section of both the N29 and N25 lies within a cutting, enclosed by steep embankments on either side of the road corridor. As the TDR continues north along the M9, the terrain becomes more gently undulating. Where the TDR leaves the motorway corridor north of Mullinavat, the land rises slightly towards the plateau of hills and ridges that form the central part of the study area.

13.3.1.2Vegetation and Land Use

Proposed Wind Farm Site and Central Study Area

The proposed wind farm site and central study area comprise a mix of coniferous forest and agricultural farmland, bounded by mixed hedgerow vegetation and mature tree lines. Indeed, the central and wider study area are predominantly characterised by pastoral lands, interspersed with blocks of coniferous forest, much of which is located along higher ground and transitional foothills.

In terms of vegetation, while the surrounding hedgerows and blocks of coniferous forest constitute the most notable features, linear swathes of riparian vegetation and woodland are also evident throughout the central and wider study area. These typically flank the numerous rivers and streams that traverse the surrounding landscape.

The settlement of Mullinavat represents the most prominent form of urban land use within the central study area. The linear infrastructure of the M9 Motorway and the N25 National Primary Route also constitutes noteworthy land use features. An existing established wind farm development is also contained to the west of the wind farm site, whilst another similar sized development is located to the north east, and represent notable anthropogenic land uses within the central study area.

Wider Study Area

Beyond the central study area, pastoral farmland remains the dominant land use. However, land cover becomes more varied, comprising a mix of coniferous forest plantations, moorland across elevated areas in the northern periphery of the study area, and various land uses surrounding larger urban settlements including existing wind farm development.

Waterford City is the principal urban centre within the wider study area, encompassing a mix of industrial and commercial land uses, particularly along its periphery, while residential land uses dominate its central areas. There is also a notable industrial presence at Waterford Port and along the River Barrow and River Suir corridors. Other anthropogenic land uses within the wider study area include quarries, motorway and national road corridors, and a section of the national railway line.

Grid Connection Option (GCO) One & Two

The GCO One passes along third class roads and some sections of private land. The surrounding landscape is predominately comprised pastoral farmland and areas of commercial conifer forestry. Areas of forestry are more notable in the more elevated lands at either end of the GCO One.

The GCO Two route is entirely contained within the immediate study area and passes across pastoral lands and adjacent to existing areas of commercial conifer forestry within the site boundary.

Turbine Delivery Route

The landscape surrounding the TDR is predominantly characterised by pastoral farmland throughout the majority of its route within the study area. The only notable contrasting land uses occur along the southern extent, in the vicinity of Belview Port, where there is a clear presence of commercial and industrial development. Similarly, localised areas of commercial and industrial land use are evident along sections of the TDR corridor as it follows the N25 north of Waterford City. Beyond this, the sections of the TDR corridor along the M9 are largely influenced by pastoral farmland, while areas of mature vegetation along the motorway corridor help to truncate views into the surrounding landscape, creating a sense of visual containment.

13.3.2 Landscape Policy Context and Designations

13.3.2.1 The Department of Environment, Heritage and Local Government Wind Energy Development Guidelines 2006 and Draft Revised 2019 Wind Energy Development Guidelines

The Wind Energy Development Guidelines (2006) provide guidance on wind farm siting and design criteria for a number of different landscapes types. The site of the proposed project is located within a landscape most consistent with the 'Hilly and Flat Farmland' landscape type described in the 2006 Guidelines. Whilst much of the wider context is also consistent with this landscape type, there are some areas that would be more characterised by the 'Mountain Moorland' and 'Transitional Marginal' landscape types within the wider study area. Siting and design recommendations for the 'Hilly and Flat Farmland' landscape type is included below:

Transitional Marginal 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 op mum 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.*"

Evaluation of Siting and Design Recommendations in relation to the Proposed Project

It is considered that the siting and design of the proposed project respond well to, and are generally consistent with, the guidance provided for the 'Hilly and Flat Farmland' landscape type. The design approach of the proposed project is particularly aligned with the guidance on 'location', with the turbines positioned atop a crest or plateau of hills and ridges. Furthermore, in terms of the spatial extent of the proposed turbines, the design appropriately reflects the scale of the surrounding landscape. The design and layout of the development respects the proportions of the underlying coniferous forest plantations—one of the more extensive land uses in this landscape context—which helps to assimilate the scale of the proposed project into the receiving environment.

Siting in Relation to Individual Properties ('Setback')

Section 6.18 of the Draft Revised Wind Energy Development Guidelines (WEDG) (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 Specific Planning Policy Requirements (SPPR) 2 of the Draft Guidelines (2019) 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.

Evaluation of 'Setback' Recommendations in relation to the Proposed Project

The nearest residential dwelling to any of the proposed turbines is 720 m which fully complies with the setback distance outlined in both the current 2006 Guidelines (i.e. >500m) and the Draft Revised WEDG (2019), which in this instance is 720m (4 x 180 m the maximum tip height). It is worth noting that these Draft Revised WEDG are not yet adopted, although recent wind farm applications tend to apply their recommended setback from sensitive receptors.

It is important to note that the proposed project has been designed and sited to adhere to both the guidelines in the current (2006) and Draft Revised WEDG (2019).

13.3.2.2Kilkenny County Development Plan 2021-2027

Kilkenny CDP - Landscape Character Assessment

A Landscape Character Assessment was completed for County Kilkenny and is included within the current Kilkenny County Development Plan. This divides the landscape of County Kilkenny into four Landscape Character Types (LCTs) and 14 geographically specific Landscape Character Areas (LCAs). The proposed development is situated in the LCT – Uplands and straddles LCA 'C – Southwestern Hills' and 'E - Southeastern Hills' (see Figure 13.3).

The Southwestern Hills are described as "*a low-lying upland area (i.e. upland area with lower elevation to that of Brandon or Slieveardagh Hills). The terrain dramatically rises, steeply sloping from the Kilkenny basin and the south Kilkenny lowlands. The area encompasses an undulating landscape of several hills, with primary and secondary ridgelines at an average elevation of approximately 300 m above sea level. The elevated nature of this physical unit provides a defined skyline and significant and scenic views over the surrounding areas of Kilmacow, Mooncoin and Mullinavat.*"

The Southeastern Hills are described as a "*low lying upland area bordering the River Suir Valley at the southeast of the County. The terrain rises from the Kilkenny basin to the north and the lowlands to the southeast, which gives rise to several small ridgelines at an elevation of approximately 250 m above sea level. Local views include those of the River Suir and into the neighbouring County of Wexford as well as significant and scenic views over the surrounding areas of Mullinavat, Ballyhale, Knocktopher and the River Nore valley as well as Brandon Hill. Distant views include those of the South Leinster Way Mountains. This area is characterised by open undulating lands with regular (medium sized) field patterns, where some rock outcrops occur.*"

The current CDP identifies 'landscape areas of highly scenic and significant visual amenity value', however, the nearest of these designations are located outside of the central study area, some c.6.5 km east of the proposed wind farm site and is associated with the Barrow River. Other notable areas classified as 'High Scenic/Visually Pleasing' include areas surrounding the River Suir in the wider southern and western extent of the study area, whilst a broad 'highly scenic/visually pleasing' classification is situated in the northeast quadrant of the study area northeast of the River Barrow corridor.

Landscape sensitivity within County Kilkenny is dealt with by 'areas of greater sensitivity'. These are "*areas throughout the county that are highly sensitive to development and have a limited capacity for change"……"in general , areas of elevated topography, with low growing or spare vegetation are little existing development are landscape of high sensitivity and have a low potential to absorb new development"*. As per the below, there are two turbines which are located within 'transitional woodland-shrub' and less than 500 m from 'contours'. The current County Development Plan also sets out a number of 'development management requirements', some of which relate to the proposed project and are included below:

- *"To protect the landscape character, quality and local distinctiveness of County Kilkenny, and have regard to the guidance set out in the Landscape Character Assessment.*
- *Where necessary, to require that applications are accompanied by a visual impact assessment, particularly in upland areas, river valleys and areas of greater sensitivity.*
- *To facilitate appropriate development that reflects the scale, character and sensitivities of the local landscape throughout the county and require that developments minimise the loss of natural features such as trees, hedgerows and stone walls.*
- *To facilitate, where appropriate, developments that have a functional and locational natural resource requirement to be situated on steep or elevated sites (e.g. reservoir, telecommunications or wind energy structures) with reference to the appropriate County strategies currently in place, and to ensure that any residual adverse visual impacts are minimised or mitigated.*
- *To ensure that development in upland areas or on steep slopes will not have a disproportionate or dominating visual impact (due to excessive bulk, scale or inappropriate siting) and will not significantly interfere or detract from scenic upland vistas, or when viewed from public areas, scenic routes, viewpoints or settlements.*

- *To have particular regard to the potential impacts of new development on sensitive upland areas, and to materially consider the difficulty of establishing and maintaining screening vegetation when assessing development proposals in these areas.*
- *To maintain the visual integrity of areas of greater sensitivity in the county and ensure that any development in these areas is appropriately sited and designed. Applicants shall demonstrate that the proposed development can be assimilated into the landscape and will not have a disproportionate visual impact on the landscape."*

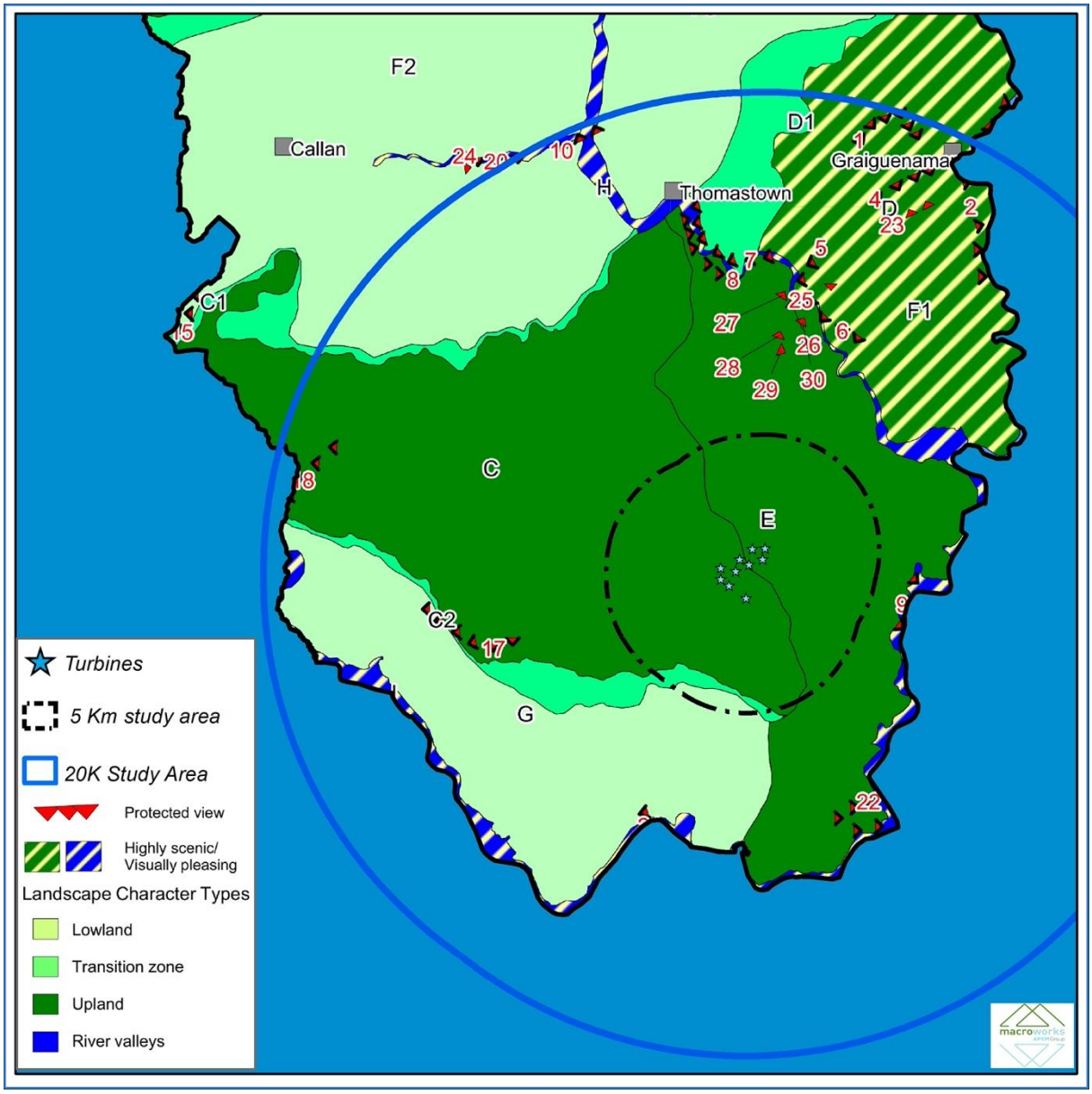

Figure 13-3: Excerpt from the current Kilkenny CDP showing the location of the proposed turbines in relation to the Kilkenny Landscape Character Assessment

Kilkenny CDP - Wind Energy Strategy

It is important to note that a Ministerial Direction was issued on 15th October 2021, with respect to the CDP. This was issued on the basis of the following reasons:

- *The Development Plan as made is inconsistent with Ministerial Guidelines issued under Section 28 of the Act, specifically item 2 of the Specific Planning Policy Requirement contained in the Interim Guidelines for Planning Authorities on Statutory Plans, Renewable Energy and Climate Change (July 2017).*
- *The Development Plan contains conflicting objectives on renewable energy sustainable development and climate action such that the adopted Plan, without providing sufficient compensatory measures, significantly reduced the extent of the areas indicated as 'acceptable in principle' that were identified in the draft Development Plan as being necessary to achieve the target of 201MW required to ensure that 100% of electricity demand for Kilkenny is met from renewable sources by 2030 and to ensure consistency with the climate action plan.*
- *The Development Plan has therefore not been made in a manner consistent with the recommendations of the Office of the Planning Regulator under Section 31 AM and fails to set out an overall strategy for the proper planning and sustainable development of the area.*

The Ministerial Direction states that:

"In accordance with Section 31(4) of the Planning and Development Act 2000, those parts of the Kilkenny City and County Development Plan 2021 – 2027 Plan referred to in the notice shall be taken not to have come into effect, been made or amended; namely;

Chapter 11, Renewable Energy:

- *Section11.4 Kilkenny Targets;*
- *Section 11.5.1 Current status and targets; and*
- *Figure 11.4 Wind Strategy areas. "*

As such, there are currently no wind energy strategy areas designated for Kilkenny. In the absence of such a strategy, each planning application will be assessed on a case-by-case basis.

However, reference to the removed wind energy strategy is provided below for context. A wind energy development strategy was included in Appendix K of the current Kilkenny County Development Plan. The wind energy strategy included Figure 8 – Wind Energy Strategy Areas, which identifies areas where wind energy development is 'acceptable in principle', 'open for consideration' and 'not normally permissible'. The proposed project was located within the 'open for consideration' designation which is "*characterised by no significant conflict with environmental designations or sensitivities*" (see Figure 13.4). The vast majority of the central study area shares this designation, with only a few small pockets of areas designated 'not normally permissible' located within 5 km of the proposed wind farm site, one of which relates to Tory Hill.

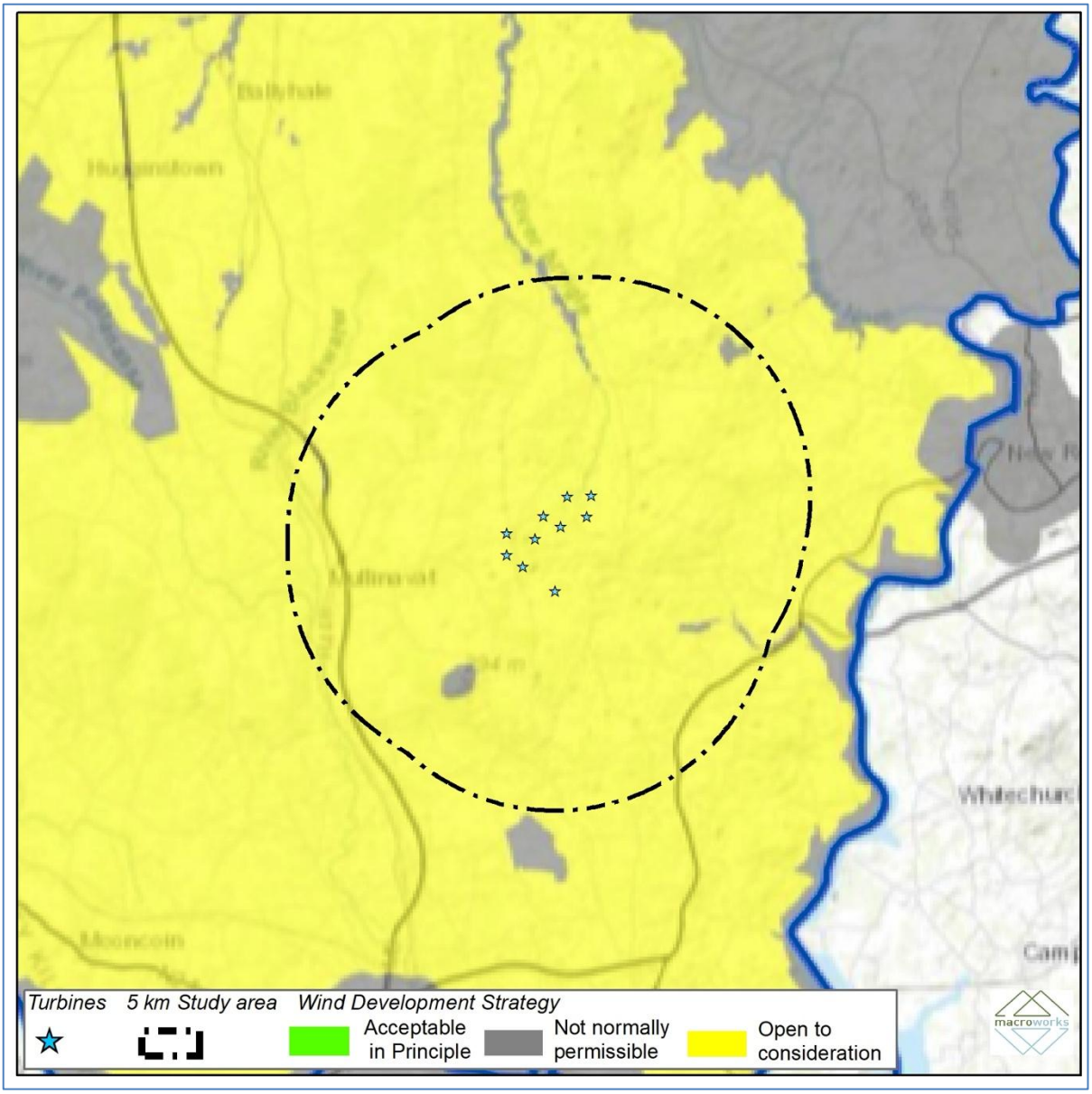

Figure 13-4: Excerpt from the current Kilkenny County Development Plan showing the location of the proposed wind farm site in relation to wind energy classifications

13.3.2.3 Kilkenny County Development Plan 2015-2020

Kilkenny Wind Energy Strategy

Whilst the current Kilkenny County Development Plan (CDP) is the most relevant document for local policy and designations, it is important to consider the previous Kilkenny CDP with regard to the wind energy strategy, as the current wind energy strategy for County Kilkenny is not in operation. Figure 10.2 of the 2015 Kilkenny CDP includes the wind energy development strategy for County Kilkenny. The most relevant area to the proposed development is Area 19 – Smithstown / Rahora. This CDP notes that this "area has three permitted wind farms. On the basis of clustering, this area is considered acceptable for wind farm development." Indeed, the 2015 CDP identifies this area as 'preferred' for wind energy development. The CDP includes a matrix highlighting that areas designated as 'preferred' with regard to wind energy development can accommodate 'individual turbines', 'auto-producer developments', 'small-scale wind farms' and 'large-scale wind farms'.

Section 10.5.3 of the 2015 CDP also includes Development Management Guidance, some of which relates to the landscape and the proposed project. Consideration of this guidance has been given throughout the assessment herein.

13.3.2.4Wexford County Development Plan 2022-2028

Whilst the proposed project is entirely contained within County Kilkenny, the eastern extent of the wider study area extends into County Wexford. Therefore, landscape policies, designations, and objectives within Wexford are considered below.

The Landscape Character Assessment for County Wexford divides the county into five principal Landscape Character Units (LCUs). The wider study area relevant to this assessment includes the 'Barrow River Valley' and 'Lowlands' LCUs. In terms of landscape sensitivity, the Lowlands are classified as having Low to Moderate sensitivity, while the River Valleys LCU is classified as having Moderate to High sensitivity.

The current County Development Plan (CDP) also identifies 'Distinctive Landscape' areas across the county. The most relevant of these are located within the wider study area and include Lacken Hill, Camlin Hill, Creakan Hill, and Slieve Coiltia, all located to the east of the River Barrow corridor in the wider eastern extent of the study area (see Figure 13-5). These Distinctive Landscapes are assigned a 'High' landscape sensitivity classification under the current CDP.

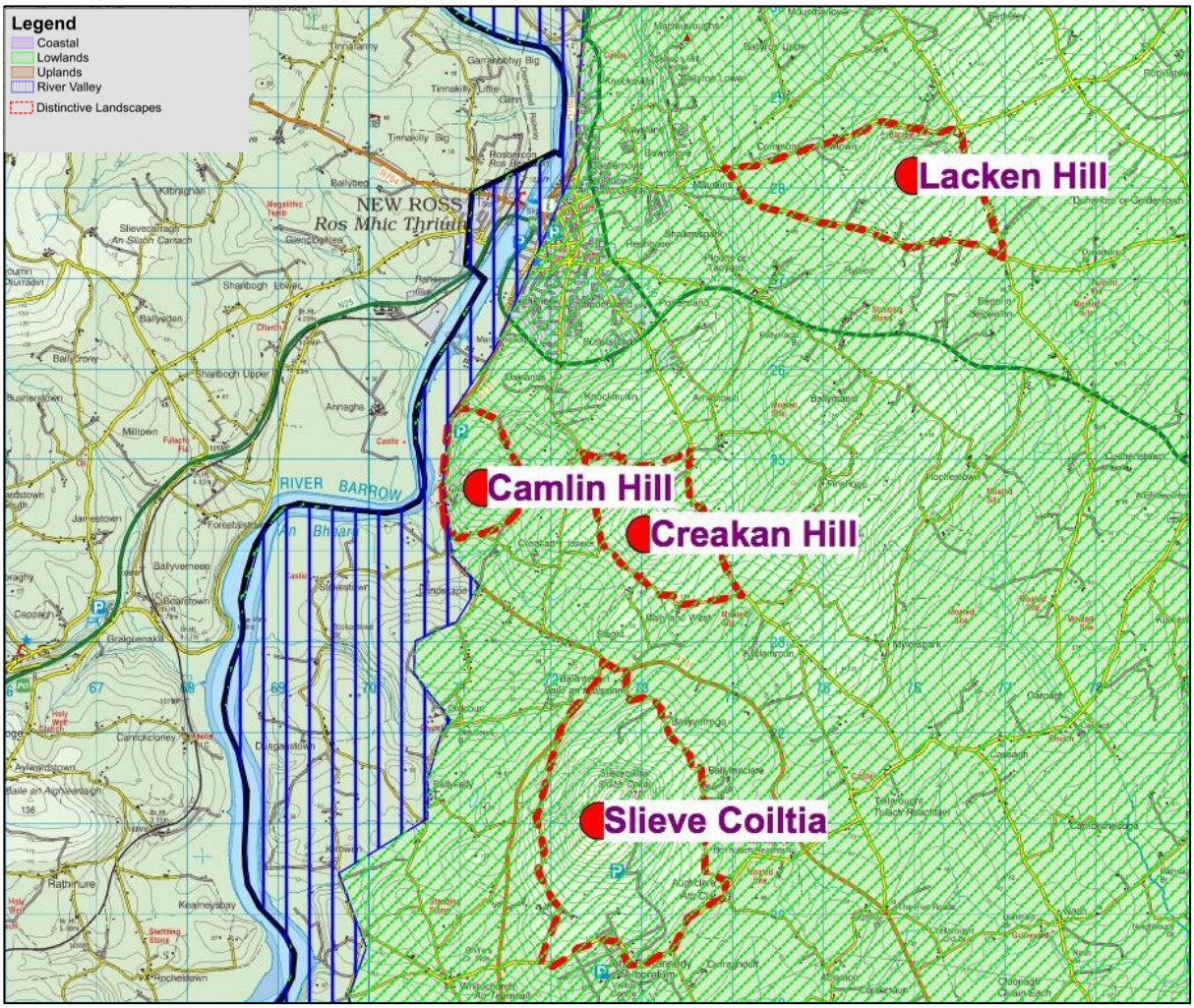

Figure 13-5: Excerpt from Volume 7 of the current Wexford CDP showing distinctive landscapes within the wider eastern extent of the wider study area.

13.3.2.5Waterford County Development Plan 2022-2028

In similar circumstances to County Wexford, County Waterford is located within the wider study area, in its southern extent. As such, landscape-related policies and objectives relevant to the proposed project are outlined below.

A Landscape and Seascape Character Assessment was prepared for County Waterford in 2020 and forms part of the current *Waterford City and County Development Plan 2022–2028*. This assessment subdivides the county's landscape into seven Landscape Types and a further twenty-eight Landscape Character Units (LCUs). The landscape types nearest to the proposed project include: Rivers, Settlement, Foothills, Farmed Lowlands, and Coastal. The most relevant LCUs within the wider study area include: 4B – Suir Estuary, 7A – Waterford City Environs, 5G – Portlaw Foothills, 2C – East Waterford Lowlands, and 2B – Kilmacthomas Lowlands.

With regard to landscape sensitivity, the landscapes of Waterford within the study area range from 'Most Sensitive' to 'Least Sensitive'. Coastal areas and land adjacent to rivers are considered 'Most Sensitive', while areas more heavily influenced by urban development—such as the Waterford City Environs—are classified as 'Least Sensitive'.

13.3.2.6Carlow County Development Plan 2022-2028

The northeastern periphery includes a section of County Carlow within the study area and therefore these landscape related policies and designations in County Carlow have been considered below.

The Landscape Character Assessment for County Carlow divides the landscape into four principal Landscape Character Areas (LCAs). The wider study area includes the 'Blackstairs and Mount Leinster Uplands' and 'Central Lowlands' LCAs. Of these, the Blackstairs and Mount Leinster Uplands is considered the most sensitive landscape area within the county. Indeed, in terms of landscape types the 'Uplands' and 'Narrow River Valley' are classified with a 'Most' sensitive classification, the highest sensitivity classification within County Carlow. It should be noted that some of the more typical lowlands within the 'Central Lowlands' character area are classified with a decreasing to moderate sensitivity classification and would be less susceptible to development. Overall, the landscape of County Carlow is located over 14 km from the proposed wind farm site and thus, the most relevant designations in the county relate to scenic designation, which are discussed in the visual baseline section below.

13.3.2.7Ecological Designations

Ecological designations such as Special Areas of Conservation (SAC's), Special Protection Areas (SPA's) and Natural Heritage Areas (NHA's) are relevant to the landscape and visual assessment as they can identify areas that are likely to exhibit naturalistic character and low levels of built development. They also highlight areas to which landscape conservation values are attached and they are often associated with outdoor amenity facilities where people go to enjoy the landscape setting.

It should be noted that only ecological designations within the central study area are identified, as those beyond the site and immediate study area have very limited potential to be materially affected by the proposed project in terms of landscape and visual effects. In this instance the following ecological designations are located within the central study area, as below (Figure 6-3 in Chapter 6 (Biodiversity) refers):

- River Barrow and River Nore SAC – located approximately 2.7 km north of the proposed wind farm site;
- Brownstown Wood pNHA – located approximately 4 km northeast of the proposed wind farm site.

For further discussions on the assessment of potential impacts on designated ecological sites, please see Chapter 6 (Biodiversity) and the Natura Impact Statement (submitted in support of the planning applications).

13.3.3 Visual Baseline

13.3.3.1Zone of Theoretic Visibility

A computer-generated ZTV map has been prepared to illustrate from where the proposed project is potentially visible. The ZTV below is based on a tip height of 180 m as a worst-case scenario for potential visibility within the study area (i.e. there will be no increase in areas of potential turbine visibility with regard to the range of potential turbine dimensions outlined in Section 13.9, and therefore, the below visibility analysis represents an assessment of the full range of turbine dimensions proposed). A large scale map of a ZTV showing the potential visibility up to the highest possible hub height of the proposed turbines is also included in

Appendix 13.2. The ZTV map is based solely on terrain data (bare ground visibility), and ignores features such as trees, hedges or buildings, which may screen views. Given the complex vegetation patterns within this landscape, the main value of this form of ZTV mapping is to determine those parts of the landscape from which the proposed project will definitely not be visible, due to terrain screening within the 20 km study area.

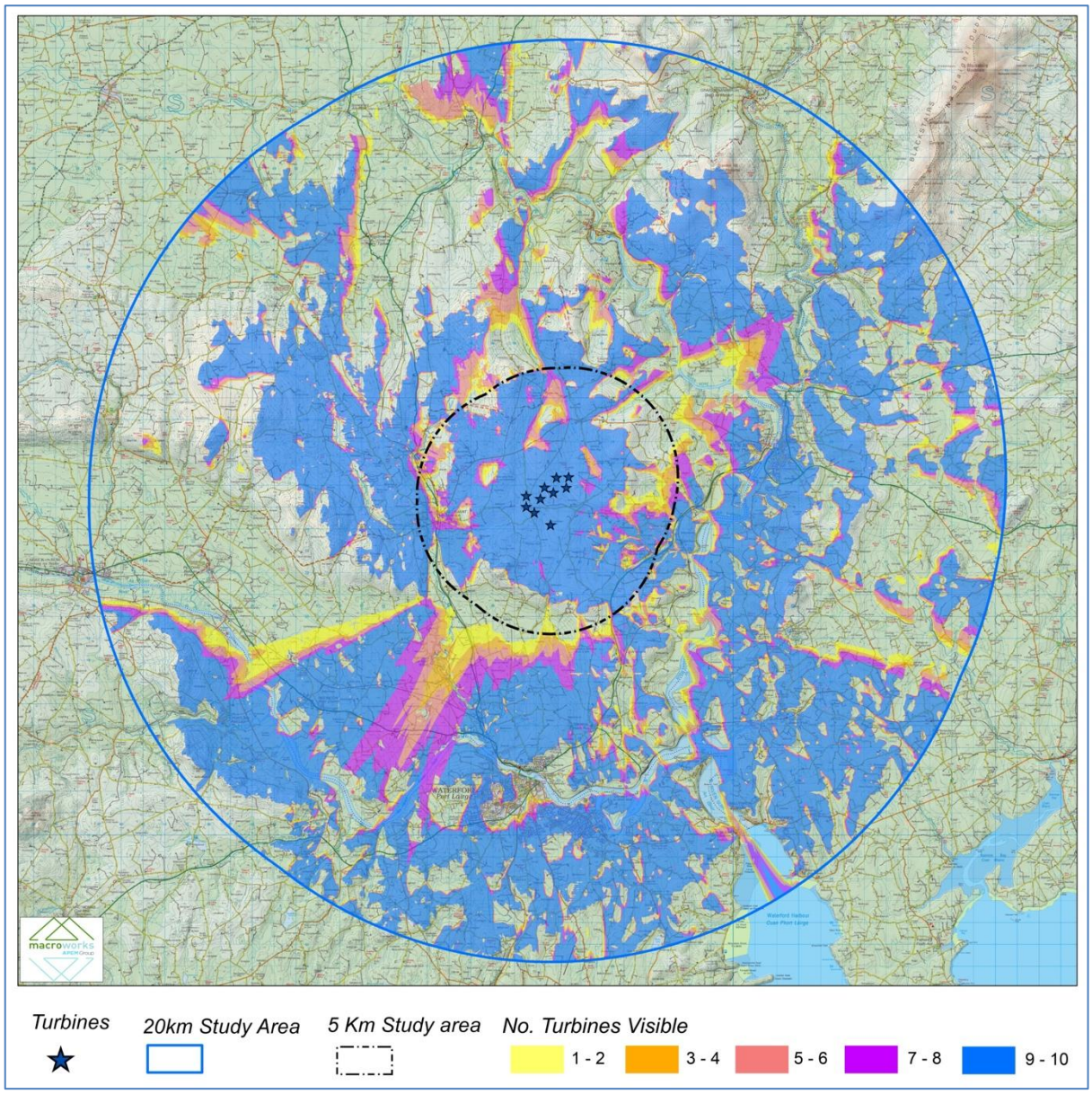

Figure 13-6: Bare-ground Zone of Theoretically Visibility (ZTV) Map based on a turbine tip height of 180 m. (see Appendix 13-2 for a larger scale map)

The following key points are illustrated by the 'bare-ground' ZTV map

- There is potential for comprehensive visibility of the proposed turbines throughout the immediate surroundings of the site and within the central study area, due to the locally rolling terrain which lies at a similar elevation to much of the site.
- The potential for visibility decreases in the southwest quadrant of the central study area, where Tory Hill and several rolling hills to its southeast partially screen the

landscape to their immediate south and southwest, also obscuring a notable section of the M9 motorway from the proposed turbines.

- To the west, the potential for visibility extends beyond the M9 motorway, where the terrain slopes down towards a broad valley containing the Black Water River. Further to the west, a notable area of comprehensive ZTV pattern (blue) covers a crest of locally elevated hills, beyond which the proposed turbines will be fully screened within the wider western periphery of the study area.
- In the northern quadrant, the ZTV pattern does not have as much coverage as within the central study area. There is potential for visibility from the summit of Brandon Hill, as well as other elevated parts of the northern study area. However, these rises preclude views of the development across considerable sections of the undulating landscape further to the north. There is potential for visibility of the turbines from up to 20 km in this direction from the site, particularly around the Kilfane area. The settlements of Inistioge and Graiguenamanagh have no potential for visibility, while only a small section to the northeast of Thomastown is covered by the ZTV pattern. The proposed turbines will not be visible from the Mount Juliet Estate.
- The ZTV shows a high level of coverage in the southern quadrant. There is potential for visibility of all 10 turbines in Waterford City. Notably, however, there is no potential for visibility in the historic/cultural centre, or along the banks of the River Suir within the city. The ZTV indicates that the proposed turbines could potentially be visible from up to 20 km away at several points in the southern half of the study area, such as at Portlaw and Waterford Airport. The proposed turbines will also be potentially visible from the heritage site of Dunbrody Abbey. There is potential for visibility along the M9 and N25 routes in this area. The ZTV demonstrates that none of the three designated protected views in Waterford will have visibility of the proposed turbines. However, there will be potential for visibility along considerable stretches of designated scenic routes 14 and 15.
- There is marginally less ZTV coverage in the eastern quadrant of the study area. While there is potential for visibility from up to 20 km in some areas, such as at Newbawn and Courthoyle, there are large areas with no ZTV coverage from as close as 11 km from the proposed wind farm site, due to relative rises in the undulating landscape obscuring views of the proposed turbines. Much of the eastern side of the Barrow at New Ross will have the potential to afford comprehensive views of the turbines, while the western side has limited ZTV coverage. There is potential for visibility at amenities such as the Kennedy Homestead and the summit of Slievecoillte; however, there is very limited ZTV coverage within the John F. Kennedy Arboretum. The proposed turbines will potentially be visible along some sections of the N25 and N30 routes.

The most important point to reiterate with respect to this 'bare-ground' ZTV map is that it is theoretical. Any development, including wind energy developments, has the potential to be screened by intervening or surrounding vegetation (e.g., roadside hedgerows), as well as buildings, walls, and embankments in proximity to the viewer, resulting in a much lesser degree of actual visibility. For these reasons, the ZTV represents a worst-case scenario of what is already an entirely theoretical projection.

13.3.3.2Views of Recognised Scenic Value

Views of recognised scenic value are primarily indicated within Kilkenny, Waterford, Wexford and Carlow County Development Plans in the context of scenic views/routes designations, and these same views might also be indicated on touring maps, guidebooks, road side rest stops or on post cards that represent the area.

All of the scenic routes and views in both Kilkenny, Wexford, Waterford and Carlow that fall inside the ZTV pattern (see Table 13.5) were investigated during fieldwork to determine whether actual views of the proposed project might be afforded. Where visibility may occur, a Viewpoint (VP) has been selected for use in the visual impact appraisal later in this chapter. In some instances, a single viewpoint is selected to represent a stretch of designated scenic route or a cluster of designated scenic views, particularly distant ones.

Table 13-5: Rationale for selection of scenic designations within relevant County Development Plans

Scenic View reference and distance from the proposed wind farm site:	Relevance to visual impact appraisal?	Viewpoint (VP) reference no. herein (refer to Figure 13-7 and Table 13-6)
Kilkenny County Development Plan		
V1 - 18.2km North	Not Relevant – Oriented in the opposite direction to the proposed turbines	-
V2 - 14.9km Northeast	Not Relevant – Oriented in the opposite direction to the proposed turbines	-
V3 - 19.7km Northeast	Not Relevant – Oriented in the opposite direction to the proposed turbines	-
V4 - 15.9km North	Not Relevant – Protected view located outside of ZTV pattern	-
V5 - 11.6km North	Not Relevant – Protected view located outside of ZTV pattern	-
V6 - 9.8km Northeast	Not Relevant – Protected view primarily located outside of ZTV and are oriented towards the nearby Nore Valley	-
V7 - 12.5km North	Not Relevant – Protected views oriented over the nearby Nore Valley and will have a very limited potential to afford any visibility of the development due to considerable viewing distances and high degree of intervening vegetation	-
V8 - 11.6km North	Not Relevant – Oriented in the opposite direction to the proposed turbines	-

Scenic View reference and distance from the proposed wind farm site:	Relevance to visual impact appraisal?	Viewpoint (VP) reference no. herein (refer to Figure 13-7 and Table 13-6)
V9 - 6.7km East	Not Relevant – Oriented in the opposite direction to the proposed turbines	-
V10 - 19.3km North	Not Relevant – Oriented in the opposite direction to the proposed turbines	-
V17 - 6km West	Not Relevant – Oriented in the opposite direction to the proposed turbines	-
V18 - 18.8km West	Not Relevant – Oriented in the opposite direction to the proposed turbines	-
V20 - 19.7km Northwest	Not Relevant – Protected view located outside of ZTV pattern	-
V21 - 10.1km South	Not Relevant – Oriented in the opposite direction to the proposed turbines	-
V22 - 10km Southeast	Not Relevant – Oriented in the opposite direction to the proposed turbines	-
V23 - 15km Northeast	Not Relevant – Oriented in the opposite direction to the proposed turbines	-
V25 - 10.8km North	Not Relevant – Protected view located outside of ZTV pattern	-
V26 - 10.7km North	Not Relevant – Protected view located outside of ZTV pattern	-
V28 - 9.1km North	Not Relevant – Oriented in the opposite direction to the proposed turbines	-
V29 - 9km North	Not Relevant – Oriented in the opposite direction to the proposed turbines	-
V30 - 9.8km North	Not Relevant – Protected view located outside of ZTV pattern	-
Waterford County Development Plan 2022-2028		
Scenic Route 14 – 12km south	Yes Relevant – Potential for views of the proposed turbines	VP30
Scenic Route 15 – 12km south	Yes Relevant – Potential for views of the proposed turbines	VP30

Scenic View reference and distance from the proposed wind farm site:	Relevance to visual impact appraisal?	Viewpoint (VP) reference no. herein (refer to Figure 13-7 and Table 13-6)
Wexford County Development Plan		
There are no scenic specific scenic designations outlined in the current Wexford CDP.		
Carlow County Development Plan		
Scenic route 14 – 17km northeast	Not Relevant – Scenic route located outside of ZTV pattern	-
Scenic route 15 – 18km northeast	Not Relevant – Scenic route located outside of ZTV pattern	-
Scenic route 19 – 19km northeast	Not Relevant – Scenic route primarily located outside of ZTV pattern	-
Scenic route 20 – 16km north	Not Relevant – Scenic route located outside of ZTV pattern	-
Scenic route 21 – 15km north	Not Relevant – Scenic route located outside of ZTV pattern	-
Scenic views 47-49 and 52-56 (between 15-19km northeast)	Not Relevant – Scenic views located outside of ZTV pattern	

Policy and objectives relating to scenic designations the Kilkenny, Wexford, Waterford and Carlow County Development Plans is included below.

Kilkenny CDP

Whilst no specific policies or objectives are outlined in relation to protected views, the current CDP states "The Council will preserve and support the improvement of places or areas from which views or prospects of special amenity value exist, as identified in Appendix H and on Figure 9.2".

Waterford CDP

Policy Objective L 04: "We will protect the scenic routes and specified protected views identified in our Landscape Character Assessment (Appendix 8), including views to and from the sea, rivers, landscape features, mountains, landmark structures and urban settlements from inappropriate development that by virtue of design, scale, character or cumulative impact would block or detract from such views."

Wexford CDP

Policy Objective L05*: "To ensure that developments are not unduly visually obtrusive in the landscape, in particular, in or adjacent to the Upland, River Valley, Coastal or Distinctive Landscape Character Units"*

Policy Objective L09: *"To protect views worthy of protection, including views to and from sea, river, landscape feature, mountains, tourism sites, landmark structures such a bridges and urban settlements from inappropriate development that by virtue of design, scale, character or cumulative impact would block or detract from such views."*

Policy Objective L10: *"To protect planned views and vistas, such as those that might be associated with planned settlements, heritage properties and monuments and ensure that that new development does not detract from such views as may be identified within towns, formal settings and designated landscapes. In evaluating planning applications for development in the foreground of such views and vistas, consideration shall be given to the effect such development may have on the view or prospect."*

Carlow CDP

Planning Policy LA P2: "*Ensure that development will not have a disproportionate landscape or visual impact in sensitive upland areas of the County (due to siting, layout, design or excessive scale, height and bulk) and will not significantly interfere with or detract from scenic upland vistas, when viewed from the surrounding environment, including nearby areas, scenic views and routes, and from settlements."*

Planning Policy LA P5: "*Protect and maintain the landscape quality and visual integrity of river valleys and river corridors, and to ensure development in these sensitive landscape areas does not adversely affect or detract from scenic views, including views from bridges, or from distinct linear sections such as open floodplains."*

13.3.3.3Centres of Population

The settlement of Ballyfasy is the nearest centre of population to the proposed wind farm site, lying approximately 950 metres southeast of the nearest turbine. Ballyfasy is a relatively small, dispersed rural settlement comprising a national school and a scattering of rural dwellings. Much of the central study area is rural in nature, with several similarly sized settlements to Ballyfasy throughout, such as Ballyhomuck (3.7 km southwest), Ballynooney (2.9 km northwest), and Glenmore (4.7 km southeast). Mullinavat is the largest settlement within the 5 km central study area, located approximately 3.9 km west of the closest turbine.

In the wider study area, Waterford City, located approximately 12 km south of the proposed development, is the most notable centre of population. New Ross is located approximately 9.5 km northeast of the site along the River Barrow corridor, while Inistioge (11.5 km), St. Mullins (15 km), Thomastown (16 km), and Graiguenamanagh (19.5 km) lie to the north of the development, all situated along the banks of the River Nore and River Barrow. There are numerous small town and village settlements within the wider north-western and western extent of the study area, including Ballyhale, Knocktopher, Hugginstown, Castlehale, Kilmoganny, Templeorum, and Owning. Mooncoin and Piltown are notable centres of population situated north of the River Suir, some 13 km and 14 km southwest of the proposed wind farm site respectively, while Carrick-on-Suir lies on the 20 km study area boundary, also situated along the Suir corridor.

Aside from Waterford City, the southern extent of the wider study area also includes a notable number of settlements, including Grannagh (10 km southwest), Portlaw (16 km southwest), and Kilmeadan (17 km southwest). To the southeast are the settlements of Cheekpoint (12 km southeast), Passage East (16 km southeast), and Duncannon (20 km southeast).

13.3.3.4Transport Routes

The immediate surroundings of the proposed wind farm site comprise a network of local roads, the nearest of which include the L-3417, L-3424, and L-7499. The R704 runs east–west approximately 2 km to the north of the nearest turbine and is the closest major route to the proposed wind farm site. The M9 motorway, the primary major route within the study area, traverses the western extent of the study area and lies approximately 3.5 km west of the turbine array at its nearest point. In addition to the N25, the N24, N29, and N30 national roads are located within the study area. The N25 is the only national road that crosses the central study area, situated just over 4 km southeast of the site at its closest point.

In terms of aviation, Waterford Airport is located approximately 19.2 km south of the nearest turbine. It has a single runway and is operated by Waterford Regional Airport plc.

There are sections of Iarnród Éireann (Irish Rail) railway lines running from Waterford towards Dublin and Limerick. The nearest section of the railway corridor passes approximately 4 km west of the site, in the vicinity of Mullinavat.

With regard to the proposed TDR, the route commences at Belview Port in the southern extent of the study area and follows the N29 northwards as far as its junction with the N25. It then traverses west along the N25 towards its intersection with the N9/M9, before continuing north towards the settlement of Mullinavat. North of Mullinavat, the TDR follows the R704 eastwards before turning south along a third-class road leading to the site.

13.3.3.5Tourism, Recreation and Heritage Features

There is a wide range of tourism and heritage sites, as well as public amenities, spread across the central and wider study area. A number of popular walking trails of local and regional importance are present in the area. Several routes lead to the summit of Brandon Hill, the highest point in County Kilkenny, offering walkers expansive views over the surrounding landscape. Phase 1 of the South East Greenway, which runs from New Ross to Glenmore, is open to the public and is located approximately 5 km southeast of the turbines at its nearest point.

The South Leinster Way, which runs from Kildavin to Carrick-on-Suir, traverses much of the northern and western portions of the wider study area. This National Waymarked Trail passes through both the central and wider study areas, located just over 3 km northwest of the turbine array at its nearest point.

Tory Hill, which stands as the highest point in South Kilkenny at approximately 300 m AOD, is located within the central study area, around 3 km southwest of the turbine array at its nearest point. The hill includes two main walking loops: the Sliabh Gréine Loop and the Fraughan Loop, both of which culminate at the summit, marked by a memorial cross.

The study area boasts a relatively rich array of heritage assets. Waterford City highlights its historic character through attractions such as the Viking Triangle, Reginald's Tower, and the Waterford Treasures series of museums. In New Ross, there is the Dunbrody Famine Ship Experience. South of New Ross are the Kennedy Homestead and the John F. Kennedy Arboretum, as well as Dunbrody Abbey.

In terms of local sporting amenities, Glenmore GAA and Mullinavat GAA are located within the central study area. Further afield, there are numerous GAA clubs, including Thomastown GAA, The Rower-Inistioge GAA, Tullogher-Rosbercon GAA, Ballygunner GAA, Carrickshock GAA, Horeswood GAA, and Ballyhale Shamrocks GAA. Outside of GAA, New Ross is home to New

Ross Rugby Club and New Ross AFC. There are also golf courses at Mount Juliet, Waterford Castle, and Williamstown, as well as an equestrian centre at Ballinamona.

13.3.4 Identification of Viewpoints as a Basis for Assessment

The results of the ZTV analysis provide a basis for the selection of Viewpoints (VP'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 project 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 provide representative views of the proposed wind farm from different distances, different angles and different contexts.

The visual impact of a proposed project is assessed using up to 6 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 VP 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.

Key Views (KV)

These VPs 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.

Designated Scenic Routes and Views (SV)

Due to their identification in the County Development Plan this type of VP 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.

Local Community Views (LCV)

This type of VP represents those people who live and/or work in the locality of the proposed project, usually within a 5 km radius of the site. Although the VPs are generally located on local level roads, they also represent similar views that may be available from adjacent houses. The precise location of this VP 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 VPs is necessary in order to sample the spectrum of views that would be available from surrounding dwellings.

Centres of Population (CP)

VPs 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 VP 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.

Major Routes (MR)

These include national and regional level roads and are relevant VP locations due to the number of viewers potentially impacted by the proposed project. The precise location of this category of VP is not critical and might be chosen anywhere along the route that provides clear views towards the proposed wind farm 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.

Tourism, Recreational and Heritage Features (AH)

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.

It should be noted that the initial selection of representative viewpoints was presented to Kilkenny County Council in November 2024. These were reviewed by council members and additional representative viewpoint locations were requested by the local authority, which have been included in the final viewpoint selection.

The Viewpoints selected in this instance are set out in the Table 13-6 and Figure 13-7.

Table 13-6: Outline description of selected Viewpoints (VPs)

VP No.	Location	Distance to nearest turbine	Representative of	Direction of view
VP1	Brandon Hill	15.6km (T5)	SV, AH	SW
VP2	Local road at Tullagher	5.2km (T5)	LCV, CP	SW
VP3	Kilkeasy Graveyard west of the R448	6.7km (T10)	MR, AH	SE
VP4	Local road at Glenpipe	3.3km (T4)	LCV, AH	S
VP5	R794 at Listerlin	2.6km (T5)	LCV, MR, CP	SW
VP6	New Ross Marina	9.0km (T5)	AH, CP, MR	SW
VP7	R704 west of Three Friars Cross	2.0km (T10)	LCV, MR	SE
VP8	L7499 at Ballymartin	780m (T4)	LCV	S
VP9	Local road at Ballywairy	893m (T5)	LCV	W
VP10	Local road at Ballintlea	1.6km (T10)	LCV	E
VP11	L7498 local road at Ballymartin	463m (T10)	LCV	S & E
VP12	L3424 at Ballyfasy Upper (1)	1.0km (T6)	LCV, CP	W
VP13	L3424 at Ballyfasy Upper (2)	771m (T7)	LCV	N, S & W
VP14	L3424 at Kilandrew	1.9km (T1)	LCV	E
VP15	L3424 at Ballyquin	1.0km (T1)	LCV	E
VP16	L3424 at Farnoge West	886m (T2)	LCV	NE
VP17	L3423 north of Mullinavat GAA Club	4.5km (T1)	CP, LCV, AH	E
VP18	Poulanassy Waterfall	5.9km (T1)	AH	E
VP19	Local road at Farnoge East	823m (T8)	LCV	N
VP20	N25 at Rose Fitzgerald Kennedy Bridge	7.5km (T6)	MR	W
VP21	L7522 at Kilmakevoge	1.3km (T8)	LCV	NW

VP22	Tory Hill	2.7km (T2)	AH	NE
VP23	Slieve Coilte	11.3km (T6)	AH	NW
VP24	Local Road at Ballinclare	3.9km (T8)	LCV	NW
VP25	L3438 at Kilmacow	8.0km (T2)	CP	NE
VP26	M9 Motorway at Miltown	7.0km (T8)	MR	NE
VP27	Chapel Street, Mooncoin	13.0km (T1)	CP	NE
VP28	Dunbrody Abbey	13.2km (T8)	AH	NW
VP29	L3408 Newrath Road	10.2km (T8)	CP	N
VP30	Faithleg Demesne	13.2km (T8)	CP, AH, SR	NW

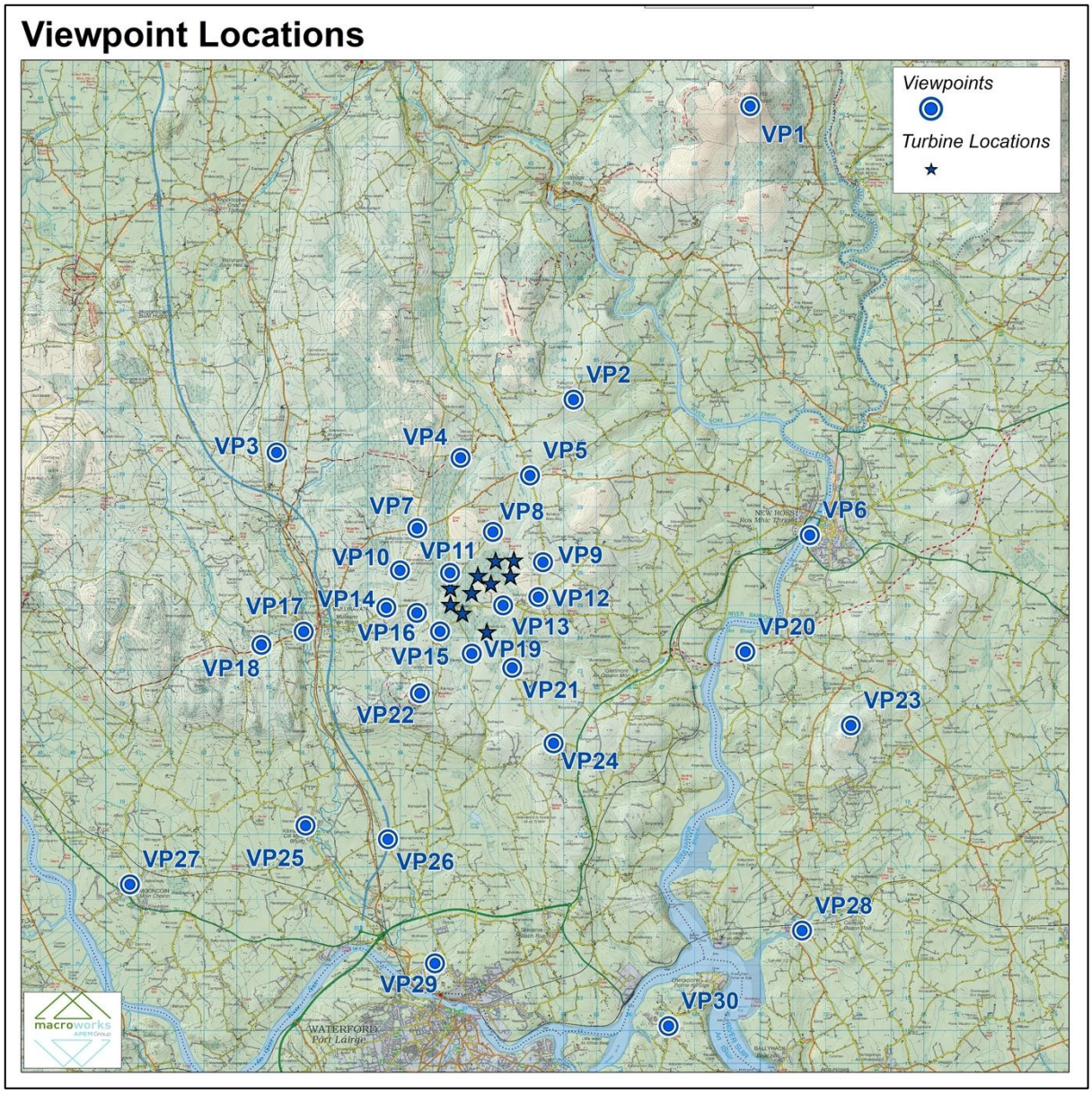

Figure 13-7: Map of Viewpoint Locations

13.4 Potential Effects

Based on the assessment criteria employed herein, potential significant effects are considered most likely to occur in instances where highly sensitive landscape and visual receptors coincide with high order landscape and visual effects (see descriptions Table 13-1, Table 13-2 and Table 13-4). From previous extensive experience of this type of project in a modified rural setting influenced by other landscape types such as upland, transitional foothills and river valley landscape contexts, it is considered that potentially significant landscape and visual effects have the potential to occur in the following ways:

Landscape Effects

a) Irreversible physical effects on sensitive landscape features,

b) Disruption of sensitive land cover and/or land use patterns,

c) Substantial and incongruous change to areas of sensitive landscape character,

Visual Effects

a) A sense of spatial dominance as seen from highly sensitive receptor locations. This is most likely to occur within 3 km of the proposed wind farm site.

b) Visual clutter and ambiguity as seen from highly sensitive receptor locations. This can occur at any distance but tends to occur beyond 2-3km as turbines become stacked in perspective and a more two-dimensional layout is perceived.

c) A combination of both of the above effects.

Baseline studies and early-stage assessments specific to the proposed project indicate that some of the most susceptible landscape receptors are located within the wider study area. Nonetheless, Tory Hill, situated within the central study area, is considered one of the more sensitive landscape features in central study area due to its elevation.

Outside the central study area, there is a varied mix of sensitive landscape areas. Notably, several prominent river corridors—including the River Nore and River Barrow—traverse the study area and are considered highly sensitive due to their natural character, scenic amenity, and recreational value.

Furthermore, the wider study area includes some elevated landforms, the most prominent being Brandon Hill and the southern extent of the Blackstairs Mountains, located at the northern periphery of the study area. These landscapes exhibit typical upland characteristics, often cloaked in extensive moorland and naturalised vegetation.

In this instance, the most sensitive visual receptors are the local residents situated along the surrounding local and regional road network, as they are the closest to the proposed wind farm site, and thus, have the clearest potential to experience notable visual effects. Other susceptible receptors within the study area include numerous amenity and heritage features, such as the local loop walks at Tory Hill, the South Leinster Way National Waymarked Walking Trail, and various other recreational and heritage assets dispersed throughout the study area.

The wider study area also includes a broad range of scenic designations, the majority of which are associated with the river valleys in the eastern and northern portions of the area. Notably, a concentration of scenic designations can be found along the River Nore corridor in the northeast quadrant of the wider study area, where pleasant views are afforded across densely vegetated valleys and towards distinctive riverside settlements such as Inistioge and Graiguenamanagh.

13.5 DO NOTHING SCENARIO

In a Do-Nothing scenario the existing conifer plantation at the proposed wind farm site would continue to be managed through rotations of commercial conifer planting and harvesting, whilst the areas of pastoral farmland would be managed for typical agricultural practices. Due to the favourable wind speeds and precedent set by existing and consented wind farm developments, the intensification of wind farm development would also likely continue.

13.6 LIKELY EVOLUTION OF THE BASELINE

In the absence of the proposed project, the surrounding landscape context, character, and visual qualities of the landscape are not expected to change significantly. At the site scale, rotations of commercial conifer forestry are likely to continue, while the surrounding pastoral fields are expected to remain in use for traditional rural pastoral practices. There is potential for the

nearest adjacent wind farm to be repowered with slightly larger and more efficient turbines, which may result in a marginal intensification of built development within the local landscape context.

In terms of vegetation, there is potential for increased areas of planting across both the central and wider study area as a result of local, regional, and national policies relating to the enhancement of biodiversity and biodiversity net gain.

Within the wider surrounding study area, more notable changes in the existing baseline context may occur due to the more varied mix of landscape typologies. Indeed, there is likely to be growth and expansion of urban areas due to an increase in the local population. There is also likely to be an increase in the intensity of renewable energy projects within the study area, with the current Kilkenny County Development Plan including policy to *"support and facilitate the provision of energy in accordance with Ireland's transition to a low carbon energy future by means of the maintenance and upgrading of electricity and gas network grid infrastructure, and by integrating renewable energy sources and ensuring our national and regional energy system remains safe, secure, and ready to meet increased demand as the regional economy grows over the period of the plan."*

Nonetheless, any evolution of the baseline context would be undertaken with regard to national, regional, and local planning policy, most notably the Kilkenny County Development Plan, which promotes the conservation and enhancement of the surrounding rural character while supporting sustainable rural development.

On balance, it is considered that there will be a gradual evolution of the existing baseline context, with some of the more notable changes to the immediate landscape context likely relating to the potential repowering of existing wind farm developments.

13.7 Mitigation Measures

Given the highly visible nature of commercial wind energy developments it is not generally feasible to screen them from view using on-site measures as would be the primary form of mitigation for many other types of development. Instead, landscape and visual mitigation for wind farms must be incorporated into the early-stage site selection and design phases.

In this instance, the two main forms of landscape and visual mitigation employed were:

- Embedded Mitigation; and
- Buffering of Residential Receptors.

13.7.1 Embedded Mitigation

Landscape and visual mitigation measures have been integrated into the siting and design of the proposed project from an early stage in the planning process (refer to Chapter 3 (Consideration of Reasonable Alternatives) for further details). The layout and positioning of the turbines have been carefully considered to minimise potential impacts on sensitive receptors and key landscape features. In the case of this wind farm, particular attention was given to the guidance set out in the Wind Energy Development Guidelines for Planning Authorities (2006) and the Draft Revised WEDG (2019), which served as the principal framework for siting and design decisions.

The relevant guidance for the landscape types that constitute the landscape and visual setting of the wind farm are discussed in detail in Section 13.2 above. It is considered that the proposed project is complies with the recommendations set out in the 2006 Guidelines. Of particular

importance is the location of the project within a robust and modified landscape that is considered capable of accommodating wind energy infrastructure. This is further supported by the presence of existing wind energy developments in the surrounding area, which reinforce the landscape's capacity for such use. Additionally, the site is not located within any highly susceptible landscape designations or immediately adjacent to any visual designations, further indicating the suitability of the site in landscape and visual terms for the proposed project.

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

Principal mitigation measures that will be implemented to make the proposed project 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 (aside from the pylon structures constructed to loop in to the overhead line for GCO two);
- Special care will be taken to preserve any features, in so far as possible, which contribute to the landscape character of the study area - such as the retention of existing hedgerows and vegetation, insofar as possible, to maintain existing levels of screening within the immediate study area. While some vegetation clearance is required to facilitate certain aspects of the proposed project, this has been limited insofar as possible and generally occurs within the internal parts of the site, where it will have a limited impact on the receiving landscape character; and
- Counter rotation of blade sets will be avoided.

13.7.2 Buffering of Residential Receptors

For the proposed project, the minimum distance of any turbine from the nearest residential receptor is 720 m, which is in excess of the Draft Revised WEDG (2019) minimum set back of 500 m and equivalent to the setback distance of 4 times the maximum tip height (180 m) of the proposed turbines. In this instance and based on the Draft Revised WEDG 2019, the setback distance for visual amenity purposes is 720 m from residential receptors on the basis of the 180 m high turbines (this represents the greatest potential setback distance with regard to all potential turbines ranges).

Variation in residential buffer distances within the nearest kilometre has a much more noticeable effect on perceived turbine scale than when it occurs in the context of more distant views. This is due to the law of perspective – that doubling the distance to an object halves its perceived height. The reduction factor is even more pronounced when considered in the context of the 'swept area' of turbine blades and not just their tip height. This exponential 'scale in relation to distance' scenario is illustrated in Figure 13.9.

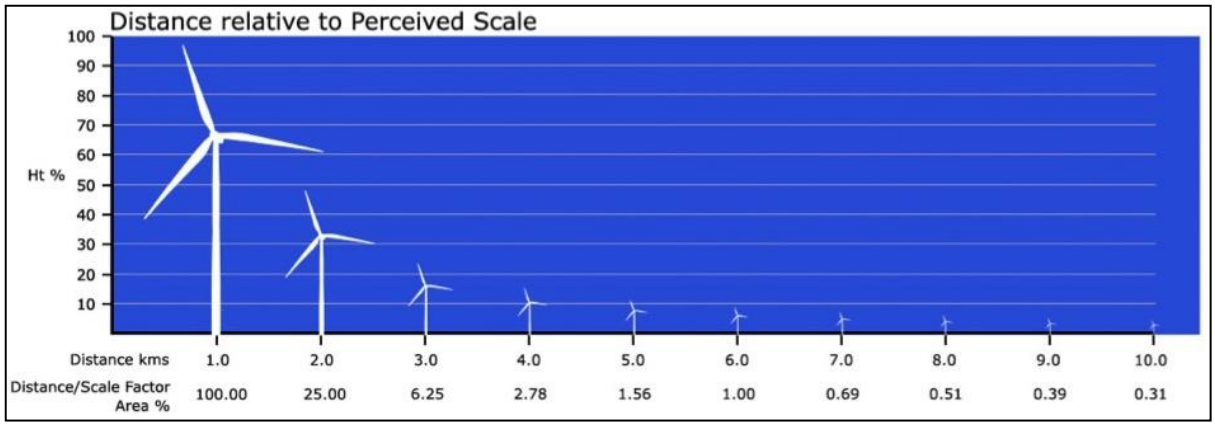

Figure 13-8: Turbine 'scale in relation to distance' relationship

13.8 Potential Effects – Landscape Effects

13.8.1 Landscape Character, Value and Sensitivity

Effects on landscape character will be considered at both the site and central study area as well as the broader scale of the wider study area.

Site and Central Study Area (<c. 5 km from the nearest turbine)

The central study area is characterised by a locally elevated rural landscape, comprising a mosaic of pastoral agricultural land interspersed with areas of commercial coniferous forestry. This landscape typology is broadly representative of the surrounding rural environment and is not considered to be particularly rare or distinctive at the local, regional or national level. Landscape value within the area is primarily associated with rural productivity and the continued use of the land for agricultural and forestry-related activities, which support the subsistence and identity of the local rural community. Settlement patterns within the study area typically consist of dispersed rural dwellings and small-scale clusters, reflecting a low-density rural settlement structure. The settlement of Mullinavat, located to the west of the M9 motorway corridor, represents the most prominent settlement within the central study area. The M9 motorway constitutes a prominent linear infrastructure element, exerting a notable influence on both the central and wider study area. It traverses the landscape in a broadly north–south direction, introducing movement, noise, and visual contrast that contribute to a modified character within its immediate setting.

Within the central study area, natural landscape features include several minor watercourses; however, the most prominent hydrological features in relation to the proposed project are located within the wider study area. The central study area does not exhibit a strong sense of naturalness. Vegetation is predominantly comprised of hedgerows associated with field boundaries and areas of commercial coniferous forestry. Riparian vegetation is present along the banks of streams and river corridors but is generally limited in extent and influence, with effects largely confined to their immediate environs. Tory Hill represents the most prominent landform within the central study area, acting as a key visual and topographical focal point in the local landscape. The hill is extensively wooded, bordered by conifer plantations, and serves as one of the main recreational amenities in the area, offering looped walking trails.

Additional recreational features include the South Leinster Way, a National Waymarked Trail, which traverses the northern portion of the central study area, primarily following a network of local roads. Beyond these elements, there is limited evidence of outdoor recreation or tourism activity within the central study area.

The central study area contains a low density of built heritage features and does not include any notable demesne landscapes. There are very few designated sites under the National Parks and Wildlife Service (NPWS) within the area, with all such designations located at least 2.7 km or more from the nearest proposed turbine location.

There are no designated protected views or highly scenic landscape areas within the central study area. While some limited visual amenity is present—particularly in relation to elevated landforms and occasional views across the rural landscape—such values are secondary to the area's prevailing character of productive, intensively managed land use.

The landscape is strongly shaped by its long history of rural settlement, particularly along the fringes of the broader areas of conifer forestry. As a result, the central study area conveys a distinctly anthropocentric sense of place, with human influence evident in land use patterns, vegetation structure, and the spatial organisation of the landscape.

Within the Kilkenny County Development Plan (CDP), no specific landscape sensitivity is assigned to the Landscape Character Areas (LCAs) that encompass the Site and the central study area. While the Site is located adjacent to certain mapped features identified in the CDP, such as 'Transitional Woodland-Shrub' and 'Contours', these are understood to function as component elements within broader landscape character assessments. Individually, these features are not designated as sensitive in their own right and do not carry statutory protection or prescribed sensitivity levels. Accordingly, while these elements contribute to the overall landscape fabric, their proximity does not in itself elevate the sensitivity of the central study area. The planning context, therefore, supports the interpretation that the local landscape is not recognised as being of heightened sensitivity within adopted policy frameworks.

Overall, the landscape of the site and the central study area is not considered to be rare or distinctive at the local, regional, or national level. The landscape is predominantly productive and exhibits a high degree of modification, characterised by a range of anthropogenic features, including existing wind energy infrastructure, electrical transmission lines, and major transport corridors. These elements contribute to a landscape character that is functional and utilitarian, with limited naturalistic or scenic qualities.

Given the degree of existing development, the absence of specific landscape designations, and the area's established land use patterns, the receiving landscape within the central study area is assessed as having medium–low landscape sensitivity, albeit with some localised areas of Medium and High-medium sensitivity, such as Tory Hill to the south.

Wider Study Area (c.5-20km)

The wider study area presents a more diverse and varied landscape than the central study area, comprising a broader range of landforms, landscape character areas, and landscape types. Predominant land uses remain pastoral farmland, with fields typically bounded by hedgerows or tree lines, alongside extensive areas of commercial coniferous forestry.

The northern extent of the wider study area is notably more elevated and includes prominent upland features, such as the Blackstairs Mountains along the northern periphery and Brandon Hill (515 m AOD), the highest point within the study area. These upland areas are characterised

by mountain moorland, a land cover type not found in the central study area. The elevation and openness of these landscapes contribute to a pronounced sense of scenic amenity.

The scenic quality of the northern part of the wider study area is further enhanced by the presence of meandering river valleys—many of which are densely wooded—contributing to both visual interest and landscape diversity. Key watercourses traversing the wider study area include the River Suir, River Nore, and River Barrow, each of which plays a notable role in shaping the area's topography and overall landscape character.

Although the wider study area contains a variety of natural landscape features, it cannot be characterised as a predominantly naturalistic landscape. While certain localised areas, particularly uplands and wooded river valleys, exhibit a more natural or semi-natural character, the broader landscape context is largely shaped by anthropogenic influences.

Large urban settlements, most notably Waterford City and New Ross, exert a significant visual and functional influence on the wider study area. These settlements contribute to a more developed and human-modified landscape context. Additionally, the wider study area is traversed by several major transport corridors, including the M9 Motorway, the national railway line, the N25, and the N30. These infrastructural features introduce movement, noise, and visual contrast, diminishing any sense of remoteness or naturalness. As a result, the character of the wider study area is best described as varied and dynamic, but not pristine.

However, the wider study area also contains some nationally renowned cultural/historical sites (e.g. Jerpoint Abbey) and amenity landscapes (e.g. Mount Juliet), as well as multiple highly scenic locales along some picturesque river valleys (e.g. Inistioge, Graiguenamanagh, St. Mullins) and some national waymarked trails (e.g. South Leinster Way). At a broad brushstroke, the sensitivities of these landscape character areas and types vary from the lower order to the higher order.

On balance, the wider study area is more diverse than the central study area, incorporating a broader range of landforms and landscape types. However, the prevailing landscape character remains similar to that of the central study area, defined primarily by its productive and robust rural land use. Given the factors outlined above, the overall sensitivity of the receiving landscape within the wider study area is assessed as medium-low.

It is important to note, however, that certain localised areas within the wider study area exhibit higher landscape sensitivity, with some parts displaying a sensitivity level ranging from medium to high. These areas tend to correspond with elevated or more scenic landforms, such as the upland areas and river valleys.

13.8.2 Magnitude of Landscape Effects

The physical landscape as well as the character of the site, its immediate and central study area (<5 km) is affected by the proposed wind turbines as well as ancillary development such as access roads, areas of hard standing for the turbines, GCOs One and Two, work areas along the TDR and the substation compound. By contrast, for the wider landscape of the study area, landscape impacts relate exclusively to the influence of the proposed project only on landscape character. A full detailed description of each of these physical components that form part of the Proposed Project that are likely have an impact on the physical landscape and landscape character are described in Chapter 2 (Description of the Proposed Project) with construction processes described in the Construction and Environmental Management Plan (CEMP) in Appendix 2-6.

13.8.2.1Construction Stage Effects on the Physical Landscape

It is considered that the proposed project will have a modest physical impact on the landscape within the proposed wind farm site as none of the proposed project features have a large 'footprint' and land disturbance/vegetation clearing will be relatively limited. The topography and land cover of the proposed wind farm site will remain largely unaltered with construction being limited to tracks, areas of hard standing for the turbines, the on-site substation compound, a telecoms mast, two temporary site construction compounds, two borrow pits, three onsite clear-span bridges, a met mast, works along the TDR and GCOs One and Two. 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 road layout has been designed to avoid environmental constraints, and every effort has been made to minimise the length of necessary roadway by utilising and upgrading existing forestry tracks. Furthermore, the road layout has been designed to follow the natural contours of the land wherever possible reducing potential for areas of excessive 'cut and fill'. There will be an intensity of construction stage activity associated with the 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. There will also be construction stage landscape effects along the surrounding road networks, which relate to the temporary modifications to surrounding local and national roads and localised removal of roadside vegetation to facilitate turbine deliveries. The construction stage effects on landscape character from these familiar and dispersed surface activities will be limited.

There will be one 110 kV on-site substation compound constructed to collect the generated power from the proposed project. The 110 kV on-site substation will be located in an area of existing forestry offset from the surrounding road network to the north of turbine T3 and to the west of turbine T4. The most notable construction stage landscape impacts resulting from the proposed on-site substation relate to the felling of some conifer forestry and construction of concrete foundations to facilitate that substation building. Overall, these construction stage effects are relatively minor and compare to the construction of an industrial farm shed.

All internal site cabling will be underground and within the proposed internal roads and/or their verges. 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 proposed wind farm site are considered to be modest in the context of this broad landscape setting which is cloaked in extensive areas of conifer forest. As part of the proposed project, there will be a requirement to fell some of this forestry in the areas immediately around the footprint of the wind farm infrastructure. The total area of forestry to be felled is estimated to be approximately 18 ha. It is proposed to include ecological mitigation replanting and enhancement measures as part of the proposed development which are outlined in Chapter 6 (Biodiversity). As a commercial crop, this conifer forestry is scheduled to be felled and replanted in the future regardless of the proposed project being constructed or not. Whilst the removal of small areas of forestry will generate some landscape effects, these are deemed not significant. All forestry that is removed will be subject to forest replanting provisions to be obtained post-consent. Thus, replanting of forestry does not form part of this assessment.

A new permanent meteorological mast is included within this planning application for permission in the townland of Bishopsmountain, Co Kilkenny. This meteorological mast will be

100 m in height and include associated instruments to measure local meteorological conditions. The most notable landscape effects associated with the construction of a met mast relate to the localised clearance of top soil and excavation works to facilitate the met mast foundations.

During the construction stage, there will also be some areas of land and vegetation disturbance along the GCOs One and Two and at the TDR works areas. This will result in the loss of some localised areas of vegetation and localised areas of ground disturbance to facilitate the excavation works related to the laying of the GCO One and Two cabling. It is important to note that both GCOs One and Two and TDR works areas will result in very minor and localised landscape effects. It is also important to note, with regard to both GCOs One and Two and TDR works areas, that any areas of disturbed ground or removed vegetation will be fully reinstated post-construction completion.

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 the proposed wind farm site. This phase will have a more significant impact on the character of the proposed wind farm site than the operational phase, but it is a 'short-term' impact that will cease as soon as the proposed project is constructed and becomes operational (24 months from starting onsite to completion of commissioning of the turbines).

There will be some long term/permanent construction stage effects on the physical landscape in the form of turbine foundations and hardstands, access tracks and borrow pits, whilst the on-site substation and GCO will remain in perpetuity as part of the national grid network. With the exception of some residually useful access tracks, it is proposed that all other development features will be removed from the proposed wind farm site, and it will be reinstated to forestry and agriculture use upon decommissioning. Thus, the construction stage landscape effects of the proposed project are largely reversible.

Overall, the magnitude of construction stage landscape effects within the site and its immediately surrounding context is deemed to be High-medium and of a Negative quality, but of a Short-term duration. Beyond 5 km from the proposed wind farm site, the magnitude of landscape impact is deemed to reduce to Low and Negligible at increasing distances as the construction activities relating to the proposed project becomes a proportionately smaller component of the overall landscape fabric. It is important to note that this impact assessment applies to the agreed project design flexibility including across all turbine ranges highlighted in Section 13.10 and in relation to both GCO.

13.8.2.2Operational Stage Effects on Landscape Character

For most commercial wind energy developments, the greatest potential for landscape impacts arises from 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 a familiar feature of the local landscape, with the existing Ballymartin Wind Farm located immediately north of the proposed turbines. As this existing seven-turbine wind farm is well established within the landscape context, it forms part of the local landscape character, which is also influenced by a range of other typical, robust rural working land uses, such as commercial-scale forestry and pastoral farmland.

Therefore, while the proposed project represents a notable intensification of wind energy development within the central study area, it continues an established land use in County

Kilkenny, one that is not in conflict with local landscape and visual policies and objectives. This is further reinforced by the presence of the existing wind energy development.

In terms of scale and function, the proposed wind farm is well assimilated within the context of the central study area. While the proposed wind farm site is not considered a comparably broad landscape, it does comprise broad-scale land uses, such as the extensive areas of commercial-scale forestry that traverse the study area in a general north–south direction, commencing at its northern periphery and continuing through the central and wider southern half of the study area. In fact, the broad nature of this extensive tract of commercial forestry, in addition to the widespread networks of farmland, prevents the proposed turbine height and overall wind farm extent from causing the type of scale conflict that can occur in more intricate landscape areas.

While there is some sense of the more susceptible landscape values associated with naturalistic character, scenic amenity, and recreational amenity in the wider surrounding study area, the central study area, and larger sections of the wider study area, presents as a robust rural landscape, with which the proposed development will not appear at odds in terms of character. Although the proposed project represents a stronger human presence and a greater degree of built development than currently exists on the site, it will not significantly detract from the productive, working rural landscape, in which wind farm developments are already a familiar feature.

It is important to note that, in terms of duration, the proposed project represents a long-term but not permanent impact on the landscape, and it is reversible. The lifespan of the project is 35 years, after which time it will be substantially dismantled and the landscape reinstated to prevailing conditions. Within two to three years of decommissioning, there will be little evidence that a wind farm ever existed on the proposed wind farm site, although the proposed on-site substation and underground grid connection will remain in perpetuity as part of the national grid infrastructure, along with any residual access tracks that continue to serve a practical function.

In summary, there will be physical impacts on the land cover of the proposed wind farm site as a result of the proposed project during the operational phase; however, these will be relatively limited within the context of this modified rural landscape, which comprises extensive areas of commercial conifer forestry and productive agricultural land. While the proposed project will lead to a noticeable increase in the intensity of development within this landscape context, the scale of the project will be well assimilated and will not result in undue conflicts of scale with the underlying land use patterns. For these reasons the magnitude of the landscape effect is deemed to be High-Medium within the proposed wind farm site and immediate Study Area, reducing to Medium in the surrounding Central Study Area. Beyond 5km from the proposed wind farm site, the magnitude of landscape effect is deemed to reduce to Low and Negligible at increasing distances as the wind farm becomes a proportionately smaller component of the overall landscape fabric. It is important to note that this impact assessment applies across all turbine ranges highlighted in section 13.10 below.

13.8.2.3Decommissioning and Restoration Stage Effects on Landscape Character

The decommissioning phase will have similar temporary impacts as the construction phase with the movement of large turbine components away from the proposed wind farm 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.

Works in this phase will primarily involve disassembling the turbines and removing off-site. The proposed site roads, turbine foundations or the grid connection infrastructure will not be removed. The site roads will remain for forestry/agricultural access while the hardstand material and turbine foundations will be left to revegetate naturally. The substation and grid connection infrastructure will form part of the permanent national grid network.

Overall, the magnitude of decommissioning stage landscape effects within the site and its immediately surrounding context is deemed to be High-medium and of a Negative quality, but of a Short-term duration. Beyond 5 km from the proposed wind farm site, the magnitude of landscape impact is deemed to reduce to Low and Negligible at increasing distances as the decommissioning related activities become a proportionately smaller component of the overall landscape fabric. It is important to note that this impact assessment applies across all turbine ranges highlighted in Section 13.10.

13.8.2.4Significance of Potential Landscape Effects (Construction, Operation and Decommissioning Phases)

The significance of landscape effects is a function of landscape sensitivity weighed against the magnitude of landscape impact. This is derived from the significance matrix (see Table 13-3) used in combination with professional judgement.

Based on a Medium-Low sensitivity judgement and a High-medium magnitude of construction and decommissioning stage landscape effect, the significance of effect is considered to be Substantial-moderate / Negative / Short-term within and immediately around the proposed wind farm site during construction and decommissioning, but reducing quickly with distance and broader context. Thus, the construction and decommissioning stage landscape effect is deemed **Not Significant**.

Based on a Medium-low sensitivity judgement and a High-medium magnitude of operational stage landscape effect at the proposed wind farm site and its immediate context (<1km from the turbines), the significance of effect is considered to be Substantial-moderate / Negative / Long-term within and immediately around the proposed wind farm site, reducing to Moderate / Negative / Long-term within the central study area (c. 1-5km from the proposed turbines). Thereafter within the wider study area (c. 5-20km from the proposed turbines), significance will reduce to Slight and Imperceptible at increasing distances as the proposed project becomes a progressively smaller component of the wider landscape fabric even in the context of higher sensitivity landscape units / features. It is important to note that the residual significance of visual effects apply across all turbine ranges highlighted in section 13.10.

Thus, whilst there will be some mid to high order landscape effects generated by the proposed project, the operational phase effects are deemed **Not Significant**.

13.9 Potential Effects – Visual Effects

13.9.1 Sensitivity of Visual Receptors

The study area encompasses a mix of landscape types and visual receptors, some of which are more robust in nature, while others exhibit a higher degree of visual amenity and a more localised sense of naturalistic character. Notably, some of the most sensitive landscape areas and receptors are identified through the presence of scenic designations, several of which are located throughout the study area. The river corridors within the study area are frequently associated with such designations, reflecting their visual quality and more prominent sense of

natural beauty. These areas are also valued for their recreational amenity, with walking routes and small harbours often located in their immediate surroundings. Overall, scenic designations associated with river corridors typically correspond to visual receptor sensitivities ranging from High–Medium to Medium, with areas of Medium sensitivity generally influenced to some extent by nearby settlement or built development.

Scenic designations also occur throughout the wider parts of the study area that are not specifically associated with watercourses or waterbodies. Many of these areas have been designated due to their locally elevated topography, which affords open views across the surrounding landscape. However, these views often present with a longstanding sense of human influence, primarily associated with traditional pastoral land use and other built forms of rural development.

In addition to these locally elevated areas, several more prominent hills and ridges within the wider study area exhibit a high degree of visual and recreational amenity. The nearest of these is Tory Hill, located to the south of the proposed project, which affords panoramic views across the surrounding working rural landscape. Slieve Coillte is situated within the wider south-eastern quadrant of the study area, while Bandon Hill lies within its northern half. Bandon Hill demonstrates the most notable degree of visual amenity within the study area, being one of the most elevated locations within the 20 km study extent and a popular area of outdoor pursuits. It also possesses some sense of naturalness, characterised along its upper slopes by mountain moorland. As a result, Bandon Hill has been classified as a receptor of High sensitivity, while other prominent hills and ridges within the surrounding study area have been assigned a High–Medium receptor sensitivity as they tend to have a more notable influence by working land uses such commercial conifer forestry and pastoral farmland.

There are numerous heritage and amenity features distributed throughout the 20 km study area, the majority of which are located within the wider surrounding landscape. Recreational receptors tend to occur in parts of the study area that exhibit a high degree of visual amenity, such as Bandon Hill and other prominent hills and elevated lands, as well as along river corridors including the River Blackwater and River Suir. The South Leinster Way is a notable amenity feature within the study area, traversing several elevated areas and intersecting with both river corridors and settlements.

There are also numerous heritage features within the wider study area, including the Dunbrody Famine Ship Experience, Dunbrody Abbey, and the John F. Kennedy Arboretum. Similar to the amenity features, heritage assets within the study area also tend to be located in areas that display a higher degree of visual amenity.

Overall, amenity and heritage receptors within the study area range between High and Medium receptor sensitivity, with those of higher sensitivity typically associated with a more distinctive sense of scenic amenity.

Views of the inland working agricultural landscape are generally pleasant in terms of its rolling pastoral aesthetic and ‘green’, settled working character. The network of hedgerows and vegetation that occur throughout it contributes to some sense of naturalness and, in combination with its undulating topography, generates a high degree of containment in many locations. However, whilst a pleasant pastoral aesthetic is noted throughout some parts of the study area, the wider landscape is also influenced by an array of anthropogenic features such as existing wind farm development, urban settlements, commercial and industrial development and major route receptors. Overall, the sensitivity of visual receptors within the more inland

working landscape context tends to range between Medium and Medium-low, with those of a Medium sensitivity representing more open expansive views across the wider landscape. It is also worth noting that some local amenity and heritage features also occur throughout the study area, which heightens the degree of receptor sensitivity at a local level.

Key differentials in terms of visual receptor sensitivity relate to the occupation of the visual receptor and whether views of the surrounding landscape are an inherent part of the experience. Static residential receptors are considered generally more susceptible to changes in views over those where views are experienced transiently by those travelling through the landscape, particularly on major transport routes where road infrastructure and traffic volume draw from visual amenity. Likewise, receptors located in closer proximity to the proposed Project are considered more susceptible to changes in views over those where views are experienced at a distance.

On the basis of the site-specific factors outlined above and in accordance with the general visual receptor sensitivity considerations contained in the methodology **Section 13.3**, visual receptor sensitivity judgements are provided for each representative viewpoint in the Table 13-7 below and within the visual impact appraisal in Appendix 13.1.

13.9.2 Magnitude and Significance of Visual Effects

13.9.2.1Construction Stage Visual Effects

During construction, the main visual impacts will arise from frequent heavy vehicle movements and worker vehicles travelling to and from the proposed wind farm site and using the site entrance. There will be construction machinery on site, which may rise above intervening vegetation and buildings. Some of the most notable construction stage visual impacts will result from the erection of the proposed turbines using tower cranes. There will also be stockpiles of stripped topsoil as well as construction materials awaiting use. However, a large part of this short-term activity within the proposed wind farm site will remain screened from view by the hedgerows and mature conifer plantations that surround the site and its immediate landscape context. Furthermore, construction-related activity is short-term in nature and will cease once the proposed project becomes fully operational.

For these reasons, the magnitude of visual impact at the construction stage is deemed to be no greater than High/High-medium at the nearest surrounding receptors, however, this reduces swiftly at greater distances from the proposed wind farm site, especially within the wider study area, where the magnitude of visual impact is considered to be no greater than Low/Low-negligible. Combined with a Medium/Medium-low sensitivity for receptors within the immediate study area (<1 km from the proposed wind farm site), the significance of visual effect will be not greater than Substantial-moderate/Moderate and of a Negative quality. Thereafter, the significance of effect will reduce to Moderate/Moderate-Slight throughout the Central Study Area and Slight and Imperceptible at increasing distances within the wider study area as the proposed project becomes a progressively smaller component in the afforded view.

Thus, visual effects at the construction stage are deemed **Not Significant**.

13.9.2.2Operational Stage Visual Effects

Table 13-7 below summarises the full textual assessment of visual effects for each Viewshed Reference Point (VRP) contained in Appendix 13.1 and Volume IV (Photomontage Booklet). Whilst the 'receptor sensitivity analysis table' and full textual assessment for each VRP is

normally contained within the landscape and visual chapter, in this instance, given the considerable number of VRPs, it is considered more prudent to place this material in a separate appendix and focus herein on the significance of the findings. The left hand side of the table incorporates data associated with the viewing distance to the nearest turbine, whilst the right hand side contains professional judgements in respect of the view. It is important to note that the professional judgements are based on the effects experienced in relation to the view and are not directly influenced by the statistical data (i.e. the distance to the nearest turbine). These aspects are only combined within Table 13-7 in order to identify patterns of effect to better inform the conclusions of this assessment.

Table 13-7: Summary of Operational Stage Visual Effects at Viewshed Reference Points (VRP's)

VRP No.	Distance to nearest turbine km	Visual receptor Sensitivity (see Appendix 13.1)	Visual Impact Magnitude	Significance of Visual effect
VP1	15.6km (T5)	High	Low-negligible	**Slight/ Negative / Long-term**
VP2	5.2km (T5)	Medium-low	Low	**Slight/ Negative / Long-term**
VP3	6.7km (T10)	Medium	Low	**Slight/ Negative / Long-term**
VP4	3.3km (T4)	Medium	Low	**Slight/ Negative / Long-term**
VP5	2.6km (T5)	Medium	Medium-low	**Moderate-slight/ Negative / Long-term**
VP6	9.0km (T5)	High-medium	Negligible	**Imperceptible/ Neutral/ Long-term**
VP7	2.0km (T10)	Medium-low	Medium	**Moderate/ Negative / Long-term**
VP8	780m (T4)	Medium-low	High-medium	**Substantial-moderate / Negative / Long-term**
VP9	893m (T5)	Medium-low	Medium	**Moderate / Negative / Long-term**
VP10	1.6km (T10)	Medium-low	Medium	**Moderate / Negative / Long-term**
VP11	463m (T10)	Medium-low	High	**Substantial-Moderate / Negative / Long-term**
VP12	1.0km (T6)	Medium-low	High-medium	**Moderate / Negative / Long-term**
VP13	771m (T7)	Medium-low	High-medium	**Substantial-moderate / Negative / Long-term**
VP14	1.9km (T1)	Medium-low	Medium	**Moderate / Negative / Long-term**
VP15	1.0km (T1)	Medium-low	High-medium	**Substantial-moderate / Negative / Long-term**

VRP No.	Distance to nearest turbine km	Visual receptor Sensitivity (see Appendix 13.1)	Visual Impact Magnitude	Significance of Visual effect
VP16	886m (T2)	Medium-low	High-medium	**Substantial-moderate / Negative / Long-term**
VP17	4.5km (T1)	Medium	Low	**Moderate-slight / Negative / Long-term**
VP18	5.9km (T1)	High-medium	Negligible	**Imperceptible Neutral / Long-term**
VP19	823m (T8)	Medium-low	Medium	**Moderate / Negative / Long-term**
VP20	7.5km (T6)	Medium	Low	**Slight / Negative / Long-term**
VP21	1.3km (T8)	Medium-low	Medium	**Moderate / Negative / Long-term**
VP22	2.7km (T2)	High-medium	Medium	**Moderate / Negative / Long-term**
VP23	11.3km (T6)	High-medium	Low-negligible	**Slight / Negative / Long-term**
VP24	3.9km (T8)	Medium	Medium-low	**Moderate-slight / Negative / Long-term**
VP25	8.0km (T2)	Medium-low	Low-negligible	**Slight-imperceptible / Negative / Long-term**
VP26	7.0km (T8)	Medium-low	Low	**Slight / Negative / Long-term**
VP27	13.0km (T1)	Medium-low	Negligible	**Imperceptible / Neutral / Long-term**
VP28	13.2km (T8)	High-medium	Negligible	**Imperceptible / Neutral / Long-term**
VP29	10.2km (T8)	Medium-low	Low	**Slight / Negative / Long-term**
VP30	13.2km (T8)	High-medium	Low-negligible	**Slight-imperceptible / Negative / Long-term**

Note: *It is important to note that the residual significance of visual effects apply across all turbine ranges highlighted in Section 13.10.*

13.9.2.2.1 Effects at Local Community Receptors

Local Community views are considered to be those experienced by people who live, work and move around the area within approximately 5 km of the proposed wind farm site. These are generally the people that are most likely to have their visual amenity affected by a wind energy

proposal due to proximity to the turbines, a greater potential to view turbines in various directions, or having turbines as a familiar feature of their daily views.

Up to 17 Viewpoints were selected to represent local community receptors within the central study area, VP2, VP4, VP5, VP7, VP8, VP9, VP10, VP11, VP12, VP13, VP14, VP15, VP16, VP17, VP19, VP21, and VP24. These receptors were located in all directions from the proposed project, with some situated in the immediate vicinity of the proposed turbines. The sensitivity of local community receptors was classified as Medium-low to Medium, with the majority classified as Medium-low, reflecting the fairly typical nature of this modified rural context.

In contrast to receptor sensitivity, the significance of effect varied considerably, ranging from Slight to Substantial-moderate, with those receptors closest to the proposed turbines generally experiencing the most notable visual effects.

Five representative viewpoints associated with local community receptors (VP8, VP11, VP13, VP15, and VP16) were assessed as experiencing a residual significance of visual effect of Substantial-moderate. These viewpoints provide some of the closest available views of the proposed turbines from the surrounding local road network. Viewpoint VP11, in particular, represents one of the nearest potential visual receptors, with Turbine T10 located at a distance of slightly over 100 m from the adjacent road corridor represented by this view. At this proximity, the turbines will be perceived at a considerable visual scale and will constitute some of the most prominent anthropogenic features within the localised landscape context. However, due to the slender form of the turbine structures, they will not obstruct or occlude key views to the west and south, including towards Tory Hill. Additionally, views towards the eastern array are heavily screened along extensive sections of the route by mature coniferous plantation woodland which encloses the eastern verge of the local road corridor. Overall, VP11 is assessed as affording one of the most prominent and proximate views of the proposed turbines within the localised landscape context. As such, this viewpoint has been attributed the highest magnitude of visual effect– a magnitude of High.

Viewpoints VP13, VP15 and VP16 all represent the local road L3424, which passes through the central study area and site in an east–west direction. While the nearest sections of this road corridor to the site are heavily enclosed by dense coniferous forest to both the south and north, other sections of the route offer a lesser degree of screening, in the form of existing vegetation, where the turbines will appear prominent but not overbearing. It is also important to note that, aside from typical pastoral views across nearby farmland, views from this local context are not highly valued for any particular visual amenity. This is reflected in the medium–low visual receptor sensitivity classification assigned to each of these viewpoints. Nonetheless, the turbines will result in a marked increase in the intensity of built development at these local receptors; therefore, the magnitude of visual effect was deemed High–medium at all three viewpoints.

Viewpoint VP8 is located along a relatively remote local road (L7499) to the north of the proposed turbine array. For a large extent to the northwest of the array, this road is bounded to the southeast by mature coniferous woodland and to the northwest by existing wind energy development (Ballymartin Wind Farm), where views of turbines at a near distance are available. While some degree of containment is provided along the section of local road represented by VP8, there are filtered open views to the south and southeast from this road, extending towards the site and the surrounding rolling farmland. Although the proposed turbines will be visible from this local landscape context, they are viewed well contained and anchored within the

surrounding areas of dense coniferous forest, which marginally reduces their visual prominence. Nonetheless, the turbines will be among the principal built features visible from this context, although they do not appear incongruous, particularly when viewed sequentially with the existing Ballymartin turbines located to the west of the proposed wind farm site. As such, the magnitude of visual effect was classified as High–medium.

Viewpoints VP7, VP9, VP10, VP12 VP14, VP19, and VP21 were all classified with a residual significance of visual effect of Moderate. These seven viewpoints, selected to represent local community receptors, will afford prominent views of the turbines but either benefit from a higher degree of screening by terrain and intervening vegetation compared to the aforementioned viewpoints assessed as Substantial–moderate, or are located at a greater distance from the proposed wind farm site, meaning the proposed turbines will have a marginally less visual presence. For example, viewpoint VP9 is located approximately 0.9 km from the nearest proposed turbine. However, due to a combination of screening from intervening terrain and nearby mature vegetation, only partial visibility of the proposed turbines will be afforded. The nacelles and blade sets of two turbines will be visible, while a partial view of the blade tips of another turbine is also discernible. Similar views of the proposed wind farm are afforded at viewpoints VP7, VP10, VP12, VP19, and VP21, where the full extent and scale of the proposed wind farm are notably diminished, although clear views of several turbines are still visible at a prominent scale. Viewpoint VP14, located at a local road intersection to the east of the proposed wind farm, affords a view of almost the entirety of the proposed wind farm, except for a nearby stand of trees that screens two turbines. The turbines in the northern extent of the proposed wind farm appear in a more condensed cluster than those visible to the south, while the existing Ballymartin turbines are visible to the north at a much smaller scale. Indeed, there is some sense of scale conflict between the proposed and existing turbines, which are both viewed at a similar distance. Nevertheless, in the context of this robust elevated setting, influenced by an array of working land uses, the proposed turbines will not appear out of place or inappropriate.

The residual visual effect at all other viewpoints representing local community receptors was classified as Moderate–slight or Slight due to their increasing distances from the turbines and the higher degree of screening.

Overall, local community receptors will afford some clear views of the turbines, where they will present as defining built features in this landscape. However, it is considered that the scale and nature of the proposed project can be well accommodated within this robust landscape context, which is influenced by existing wind energy development and other typical rural and working land uses. Indeed, it is not considered that the proposed turbines will significantly detract from the productive rural values of this landscape context. Therefore, visual effects at local community receptors during the operational phase of the development are assessed as **Not Significant**.

13.9.2.2.2 Effects at Tourism Amenity and Heritage Receptors

Tourism, amenity and heritage receptors within the study area are represented by ten viewpoints, including VP1, VP3, VP4, VP6, VP17, VP18, VP22, VP23, VP28, and VP30. Whilst the central study area is not highly synonymous with tourism, recreation, or heritage, the wider study area encompasses an array of such features, with the northern extent of the wider study area most associated with outdoor recreation due to the varied landforms here, which include uplands and winding river valleys.

Whilst not synonymous with outdoor recreation, there are some local amenity features within the central study area. Of most note is Tory Hill, which rises to the south-west of the proposed turbine array and includes popular looped walking trails through areas of woodland, concluding at the summit of the hill where broad panoramic views are afforded across the surrounding working landscape, predominantly comprised of pastoral farmland. Viewpoint VP22 was selected to represent the potential impacts of the development from this locally elevated receptor. The proposed turbine array will be viewed as a prominent built feature from this elevated vantage point, where all of the turbines will be visible. Whilst the proposed turbines will be a distinctive built feature from here, they do not appear overscaled or out of place across the underlying working landscape, which is influenced by broad land uses such as the extensive areas of underlying forestry from which many of the turbines rise. Furthermore, the turbines are viewed in only one aspect of the full 360-degree panorama here and present with loose spacing characteristics, allowing for a degree of visual permeability towards the more distant uplands to the north-east. Overall, the significance of visual effect was deemed Moderate at this receptor.

The South Leinster Way also traverses the northern and western extents of the study area, with its nearest section passing approximately 2 km north of the proposed turbine array. This linear receptor is represented by three viewpoints, VP1, VP4, and VP17. Viewpoint VP4 is the nearest of these and also represents surrounding local community receptors. Whilst the proposed turbines are screened in the depicted view, there is potential for intermittent views of the turbines at the scale identified on the wireframe view from some sections of this route in the surrounding landscape. Nonetheless, the turbines will be viewed in the context of the surrounding working rural lands and, as such, will not appear incongruous.

Indeed, it should be noted that many of the nearest sections of this linear amenity route to the proposed turbines follow third-class local roads, where the main aspect of visual amenity relates to fairly typical rural views across pastoral fields. Some of the more scenic and susceptible parts of the route pertain to its northern extent within the study area, where it traverses elevated uplands and affords views across the wider surrounding landscape, as depicted in VP1. Viewpoint VP1 represents Bandon Hill and the South Leinster Way, which traverses the northern and western extents of the hill. From these elevated lands, broad panoramic views across the surrounding landscape are afforded. The high degree of scenic amenity is reflected in the high sensitivity classification assigned to this viewpoint. Nevertheless, the turbines are viewed from a distance of over 15 km here and will appear as modest-scale features within the broad, sweeping panorama of the distant southern landscape. Thus, the significance of visual effect was deemed no greater than Slight, influenced more by the sensitivity of the receptor than by the magnitude of the visual effect.

Other locally elevated amenity receptors within the study area include Viewpoint VP23, which is representative of Slieve Coiltte, an elevated hill located in the south-eastern quadrant of the wider study area. Whilst Slieve Coiltte includes walking trails, it is also accessible by car to its summit, making it a popular elevated viewpoint that affords broad panoramas across Wexford, Kilkenny, and Waterford. The proposed turbines are viewed in the distance to the north-west, where they present within a notable visual envelope and are seen adjacent to the existing Ballymartin turbines, which appear at a comparably smaller scale.

Although the rotating turbines will be a discernible feature in this aspect of the view, in the context of the full 360-degree panorama, they are deemed to have a visual presence in the order of subdominant and will not present as an incongruous feature in this highly modified scene. Thus, the residual visual effect was classified as Slight.

The study area also encompasses a variety of heritage assets, some of which have more local value, such as the churches and graveyards represented at VP3, which is classified with a residual significance of effect of Slight. Others are representative of more notable tourism and heritage features, such as viewpoint VP28, which represents Dunbrody Abbey, a 13th-century abbey ruin and visitor centre. Whilst the wireframe identifies the potential for theoretical visibility of the turbines from here, the surrounding intervening vegetation that encloses the Abbey grounds to the north will fully screen the proposed turbines, resulting in a significance of effect of Imperceptible. Viewpoint VP6 was also selected as a representative view from the Dunbrody Famine Ship experience located at New Ross Marina. Again, whilst the wireframe identified the potential for brief visibility of the proposed turbine blade tips, these will be screened by intervening vegetation resulting in an Imperceptible residual significance of effect.

Overall, the residual significance of visual effect at tourism, amenity, and heritage features ranges from Moderate to Imperceptible and, thus, visual effects are deemed **Not Significant**.

13.9.2.2.3 Effects at Centres of Population

Centres of population within the study area are represented by eight viewpoints, VP2, VP5, VP6, VP12, VP17, VP25, VP29, and VP30. Whilst Mullinavat is the principal centre of population within the central study area, the dispersed rural settlement of Ballyfasy is the nearest, situated immediately east of the proposed array. The settlement of Ballyfasy is represented by viewpoints VP12 and VP13, which were also selected to represent local community receptors.

The turbines present most prominently at VP13, which represents the westernmost extents of this dispersed settlement. The turbines here appear at a prominent scale and with a broad lateral extent, viewed rising beyond nearby pastoral fields. Viewpoint VP12 affords a different view of the turbines, where the turbine towers are heavily screened by intervening terrain, making them appear stunted. Indeed, the partial views of blade sets at such a notable scale generate a degree of visual ambiguity, whilst the turbine blades rotating against various skyline features generate a degree of clutter. Overall, viewpoint VP12 is classified with a Moderate significance of visual effect, whilst VP13 is classified as Substantial-moderate.

Viewpoint VP5 represents the small rural crossroads settlement of Listerlin, which is situated some 2.6 km from the nearest turbine. A pleasant view across rolling terrain cloaked in pastoral farmland is afforded from here, where the turbines will appear in a slightly condensed cluster, generating some negative aesthetic visual effects. Indeed, whilst the turbines will be a prominent feature from this distance and will draw the eye, they will likely be viewed as an extension to the existing Ballymartin turbines visible along the same rolling ridge in the background, which present at a comparably smaller scale. Overall, the significance of visual effect was classified as Moderate-slight.

Mullinavat is the most notable settlement within the central study area, albeit situated along the western periphery of the 5 km extent and contextually separated from the proposed development by the M6 corridor and intervening terrain to the west of the site. The turbines will only be partially visible from this settlement, with increased visibility in its wider western extent. Viewpoint VP17 is representative of the settlement, where partial visibility of the proposed turbines is afforded, rotating along the distant ridge. There is only potential for visibility of up to three nacelles, with remaining turbine views limited to partial blade sets rotating along the vegetated skyline. Although the turbines generate a degree of visual ambiguity here as to their actual location, they do not present in a highly prominent manner and

will not appear as incongruous features in this working landscape context and are classified with a Moderate-slight residual significance of effect.

Beyond the central study area are the larger settlements of Waterford City, New Ross, and Carrick-on-Suir, as well as numerous other smaller rural settlements. There is no potential for visibility at the settlement of Carrick-on-Suir, and thus no representative viewpoint was selected from here. Whilst there is very limited potential for visibility of the development from the centre of Waterford City, viewpoint VP29 was selected to represent its northern outskirts. The turbines will be visible from this locally elevated context and will appear at a modest scale to the east of Tory Hill. It is important to note that the turbines do not present against the main ridge of Tory Hill and are offset to its east. Indeed, the turbines will not heavily detract from this modified setting and will only marginally increase the intensity of built development in this open view. Thus, the residual significance of visual effect is classified as Slight.

The settlement of New Ross is represented by viewpoint VP6, which is located in the centre of the settlement adjacent to New Ross Marina. The proposed turbines will be barely discernible from here, primarily screened by a combination of intervening terrain and vegetation. Thus, the significance of visual effect was deemed Imperceptible.

Overall, residual visual effects at centres of population within the central study area are classified with a residual significance of visual effect ranging between Substantial-moderate and Imperceptible, and are deemed **Not significant**.

13.9.2.2.4 Effects at Designated Views

Whilst the study area, most notably its northern extents, includes a considerable number of scenic designations, many of these have been screened out as they are located either outside of the ZTV pattern and will afford no visibility of the proposed development, or they are oriented in the opposite direction to the proposed development, and thus are not relevant to the assessment (refer to Table 13-4:) As a result, only one viewpoint within the study area was selected to represent scenic designations.

Viewpoint VP30, located in the wider southern extent of the study area, was selected to represent the Waterford County Development Plan scenic routes SR14 and SR15. The depicted view is afforded from locally elevated lands at Faithlegg, south of the River Suir, and was also selected to represent the amenity and heritage feature of Faithlegg House and Golf Course. The proposed turbines will be partially visible in the distance, rotating along the vegetated skyline. Although the turbines will add to the built skyline in this view, they do not present any notable visual presence and will not appear incongruous within the context of this modified landscape. Indeed, whilst they will marginally increase the intensity of built development in this scene, they do not appear out of place, nor will they notably detract from the scenic amenity afforded from this location. Thus, the significance of visual effect was deemed Slight–Imperceptible.

Overall, whilst a considerable degree of designated scenic amenity exists within the study area, these views are most often well offset from the site and are either heavily screened from the turbines or oriented away from the proposed development, towards more scenic and visually susceptible landscape areas and features. As a result, visual effects at scenic designations within the study area are classified as **Not Significant**.

13.9.2.2.5 Effects at Major Routes

The study area encompasses numerous major route corridors, many of which fall within the wider study area. These include the M9 Motorway, the N25 National Primary Route, and the N24 National Primary Route. The central and wider study areas also contain a network of regional roads, the nearest of which is the R704 regional road, passing through the northern half of the central study area. Major route receptors are represented by six viewpoints within the study area: VP3, VP5, VP6, VP7, VP20, and VP26.

The M9 Motorway is the principal major route receptor within the study area, running north–south through its western extent, with the closest point passing just under 4 km west of the nearest proposed turbines. Although a short section of this route traverses the western periphery of the central study area, the majority of its corridor lies within the wider extent. While there will be some potential for visibility of the proposed turbines, there are several notable areas where the development will be fully screened by terrain, as shown in the ZTV mapping (refer to Figure 13-6). It should be noted that this major route is not considered a highly sensitive receptor type. Although some pleasant views are available from its corridor, it represents a highly anthropogenic development form, predominantly influenced by surrounding areas of pastoral land, with intermittent visibility of some susceptible landscape features and areas. Viewpoint VP26 was included as a representative view from the motorway corridor and corresponds to one of the locations where views of more sensitive landscape features are afforded. In this instance, views of Tory Hill are available to road users travelling northbound on the M9 from Grannagh towards Mullinavat. The proposed turbines will be heavily screened by intervening terrain from this vantage point, appearing only as partial blade sets rotating along an elongated, flat, farmed ridge to the east of Tory Hill. Although some visual ambiguity may arise regarding the precise location of the turbines from this view, they are well offset from Tory Hill, which remains the principal landscape feature in the view.

Overall, it is not considered that the proposed turbines will notably detract from the view of Tory Hill from this section of the motorway corridor. As such, the significance of visual effect is deemed Slight.

Viewpoint VP7 represents the nearest major route to the proposed project, the R704, west of Three Friars Cross. From this location, the proposed turbines will be visible at a distance of just over 2 km, where they appear at a notable scale, albeit slightly reduced in terms of their visual prominence due to near terrain and roadside vegetation screening many of the turbine towers. The proposed turbines are seen directly adjacent to several of the existing Ballymartin turbines. While the existing turbines are of a comparatively smaller scale than their proposed counterparts, in this view, both the existing and proposed turbines appear at a very similar scale, forming one perceived cohesive wind energy development. Nonetheless, the proposed turbines will result in a marked increase in the intensity of built development in this area. However, they do not block or obstruct any sensitive viewing aspects, nor do they appear incongruous in the context of the existing turbines. As a result, the residual significance of visual effect has been classified as Moderate.

All other viewpoints selected to represent major route receptors were classified as having a significance of visual effect ranging from Moderate–Slight to Imperceptible. Therefore, the overall visual effect at major route receptors is assessed as **Not Significant**.

13.9.2.2.6 Summary of Operational Stage Visual Effects

As outlined in the above sections and in Table 13-7, the residual significance of visual effects as a result of the proposed project ranges from Substantial–Moderate to Imperceptible. The most notable effects tend to occur within the immediate surroundings of the proposed wind farm site, particularly at local community receptors, major route receptors, and centres of population (such as Ballyfasy). From these nearby receptors, the proposed turbines will become one of the defining built features, resulting in a notable degree of visual change and a marked increase in the intensity of built development within the local landscape context. Nevertheless, the turbines are generally well accommodated within this locally elevated landscape, which is characterised by existing wind energy development and typical working land uses, such as extensive areas of conifer forestry and a patchwork of pastoral farmland. It is, in fact, the broad underlying land uses, notably the extensive forestry plantations, that assist in assimilating the scale of the turbines into the receiving landscape. Furthermore, the proposed turbine array has been designed in accordance with the visual amenity offset guidance outlined in the Draft Revised WEDGs (2019), which refer to a setback of four times the proposed maximum tip height (720 metres in this instance) from the nearest residential dwellings. Also within the central study area, Tory Hill, located to the southwest of the proposed wind farm site, was identified at an early stage of the development as a sensitive visual receptor. While the proposed turbines will be clearly visible from the summit of this elevated location, they present in a clear and legible manner across the broader landscape patterns. Owing to their loose spacing, the turbine array does not significantly block or obstruct views of the uplands to the northeast from this vantage point.

Overall, while there will be some higher-ranging residual visual effects within the immediate and central study area, it is assessed that the proposed project will generate residual visual effects that are deemed **Not Significant** (i.e. no greater than Substantial–Moderate) at the nearest surrounding visual receptors.

Beyond the study area, the landscape is more diverse, and, accordingly, the receptor types are also more varied. A range of scenic designations, amenity and heritage features, centres of population, and major routes occur within the wider extents of the study area, further reinforcing both the varied sensitivity of the surrounding landscape and the settled nature of the broader existing environment. While some susceptible receptors, such as river valleys and elevated uplands, are present throughout the wider landscape, these tend to be either well offset from the proposed project or well contained relative to the proposed turbine array. As an example and as highlighted in the sections above regarding scenic designations, over 30 scenic routes and views occur within the study area across Counties Kilkenny, Carlow, Wexford, and Waterford. However, it was determined that only two of these routes were relevant to the proposed wind farm, as the remaining scenic designations were either screened from view (as illustrated in the ZTV mapping) or oriented in the opposite direction to the proposed turbines. Thus, while sensitive receptors do exist within the study area, they are generally well offset from the proposed wind farm and have limited potential to be notably affected by the proposed turbines.

On balance, and for the reasons outlined above, the proposed project will result in a notable increase in the scale and intensity of built development within the central study area, with its perceived visual presence and residual visual effects diminishing with distance. While it will be a defining feature of its immediate surroundings and certain parts of the central study area, it is

considered to be well accommodated within this robust, elevated setting, a landscape heavily influenced by working land uses and existing wind energy development.

Therefore, it is assessed that the proposed project will give rise to visual effects that are classified as **Not Significant**.

13.9.2.3Decommissioning Stage Visual Effects

Visual impacts at the decommissioning stage will be very similar to the construction stage and will arise from frequent heavy vehicle movements and worker vehicles travelling to and from the site and using the site entrance. As with the construction stage, there will be HGVs travelling to and from the proposed wind farm site, removing built features that formed part of the proposed project. Whilst the most notable visual impacts will still arise from the erection of large tower cranes to remove the turbine structures, there will be a slightly less intensity in construction related activities as the substation will not be removed at the end of the useful life of the wind farm project as it will form part of the national electricity network. Therefore, the substation will be retained as a permanent structure and will not be decommissioned. There will also be no requirement for large excavation works as the turbine foundations and hardstands will be let revegetate naturally and site roads will remain for forestry/agricultural access.

For these reasons, the magnitude of visual impact at the decommissioning stage is deemed to be no greater than High/High-medium at the nearest surrounding receptors, however, this reduces swiftly at greater distances from the proposed wind farm site, especially within the wider study area, where the magnitude of visual impact is considered to be no greater than Low/Low-negligible. Combined with a Medium/Medium-low sensitivity for receptors within the immediate study area (<1-2km from the proposed wind farm site), the significance of visual effect will be not greater than Substantial-moderate/Moderate and of a Negative quality. Thereafter, the significance of effect will reduce to Moderate/Moderate-Slight throughout the central study area and Slight and Imperceptible at increasing distances within the wider study area as the proposed wind farm becomes a progressively smaller component in the afforded view.

Thus, residual visual effects at the decommissioning stage are deemed **Not Significant**.

13.10Turbine Range Assessment

As noted in the methodology section (refer to section 13.2.6.3) the principal approach taken in the full assessment uses the highest possible tip height. In this instance, the highest possible tip height and the largest rotor diameter have been used for the main assessment of visual effects. This is on the basis that the largest possible rotor diameter will have the greatest degree of visual exposure due to its broader expanse than all other turbine options. In this regard, it has the potential to have a marginally greater visual presence that turbines with the same tip height but smaller rotor diameter.

In this instance, the photomontages were prepared using a turbine envelope of 163 m rotor diameter, 98.5 m hub height and 180 m tip height which represents the most potential for visibility of the hub and tip height combination.

An alternative range of turbine dimensions is also being proposed by the applicant, as detailed below.

- Total tip height range of 170 m – 180 m

- Rotor diameter range of 149 m – 163 m
- Hub height range of 95 m – 105.5 m

To provide assessment of the full range of potential turbine options, comparative photomontages have been generated from a selection of some of the nearest viewpoints to the proposed project (Representative Viewpoints VP9, VP11, VP13, VP15 and VP22) – refer to Volume IV – Photomontages Booklet. These viewpoints have been selected as they have the most potential discern the difference in the potential turbine scenarios. A total of four potential turbine scenarios are included within the comparative photomontages to present the full array of potential turbine options. These are outlined below:

- Base Case Scenario: Rotor Diameter 166 m – Hub Height 98.5 m – Tip height 180 m (maximum) – Base-case Scenario used and assessed in the LVIA
- Option 1 Scenario: Rotor Diameter 150 m – Hub Height 95 m – Tip height 170 m
- Option 2 Scenario: Rotor Diameter 155 m – Hub Height 102.5 m – Tip height 180 m
- Option 3 Scenario: Rotor Diameter 150 m – Hub Height 105 m – Tip height 180 m

As can be seen from the comparative photomontages (included in Volume IV– Photomontage Booklet) there is a relatively subtle difference in the perceived scale of the proposed turbines in all four scenarios, which will be difficult to discern from even the nearest visual receptors. Indeed, the visual presence of the turbines in all instances will be the same due to subtle variations in the turbine dimensions, and it is not considered that any of the turbine combinations proposed in the entire range will result in any contrasting landscape or visual effects than those already stated in the assessment above. Furthermore, the subtle variations in the turbine dimensions will be indiscernible beyond c. 2-3 km from the proposed project

Regardless of whether the difference between the alternative turbine dimensions can be discerned or not, there will be no material difference in the level of visual effect between them, and certainly not a higher impact than the base-case outlined in the visual impact appraisal highlighted above. Thus, the submitted LVIA is deemed to completely assess the full range of potential turbine dimension options proposed and it is not considered necessary to prepare separate photomontages / assessments at all viewpoints for all possible turbine dimensions highlighted above.

In relation to the Base-case Scenario, Option 1, Option 2 and Option 3, the residual landscape and visual effects are assessed as **Not Significant**.

13.11 Cumulative Effects

The NatureScot Guidance relating to 'Assessing the Cumulative Landscape and Visual Impact of Onshore Wind Energy Developments (2021)' identify that cumulative effects on visual amenity consist of combined visibility and sequential effects. The same categories have also been subsequently adopted in the Landscape Institute's (IEMA) 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 effects with other forms of notable development (existing, permitted or pending a decision from a planning authority), 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 effects of wind farms tend to be adverse as they relate to the addition of moving manmade structures into a landscape and viewing context that already contains such development, and thus, result in an intensification of development. Based on guidance contained within the NatureScot Guidelines relating to the Cumulative Effects of Wind Farms (2012) and the DoEHLG Wind Energy Guidelines (2006/2019 Draft), cumulative effects 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 project 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 13-8 provides the criteria for assessing the magnitude of cumulative effects, which are based on the NatureScot Guidelines (2012).

Table 13-8: Magnitude of Cumulative Effect

Magnitude of Effect	Description
Very High	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	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	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	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	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.

13.11.1 Assessment of Cumulative Effects

There are 3 operational wind farms and 1 consented wind farms contained within the study area. These are set out below:

Table 13-9: Cumulative Wind Farms within the study area

Wind Farm Name	Number of turbines	Distance and Direction from proposed turbine array to nearest cumulative turbine	Status
Ballymartin Wind Farm	7	0.5 km	Operational
Rahore Wind Farm	5	2.25 km	Operational
Castlebanny Wind Farm	21	3.89 km	Consented
Beallough Wind Farm	2	19.29 km	Operational

13.11.1.1 Nature of Cumulative Visibility

The appraisal of cumulative effects with other wind energy developments is based on the cumulative ZTV maps and wireframes provided in Appendix 13.2 and the Photomontage booklets in Volume IV.

Although the photomontages and Cumulative ZTV map in Appendix 13.2 relates principally to cumulative visual effects (i.e. utilising the selected VP set), it also informs the closely related assessment of cumulative landscape effects, particularly those relating to cumulative effects on the overall landscape character of the study area. The assessment below, therefore, relates to both cumulative visual effects and cumulative landscape effects.

In terms of cumulative construction and decommissioning stage effects, it is unlikely that the construction or decommissioning of two wind farm developments within the study area will occur in tandem. Should the construction or decommissioning of the proposed project and another consented development (Castlebanny Wind Farm) occur at the same time, there is the potential for an increase in the intensity of construction/decommissioning activity within the study area. This includes the movement of HGVs along the surrounding road networks, storage of working vehicles and machinery, and the erection of tower cranes to construct/remove the turbine components. However, as the majority of consented and existing developments are well offset from the proposed project, it is not considered that these will generate any notable cumulative effects in the immediate surroundings of the proposed project. Overall, it is not considered that the cumulative construction or decommissioning effects with other wind farm developments will generate significant cumulative effects.

In this instance, the study area comprises existing relatively small scale wind farms and one consented large scale wind farm development, all of which are indicated on the cumulative ZTV map below (Figure 13-9 refers).

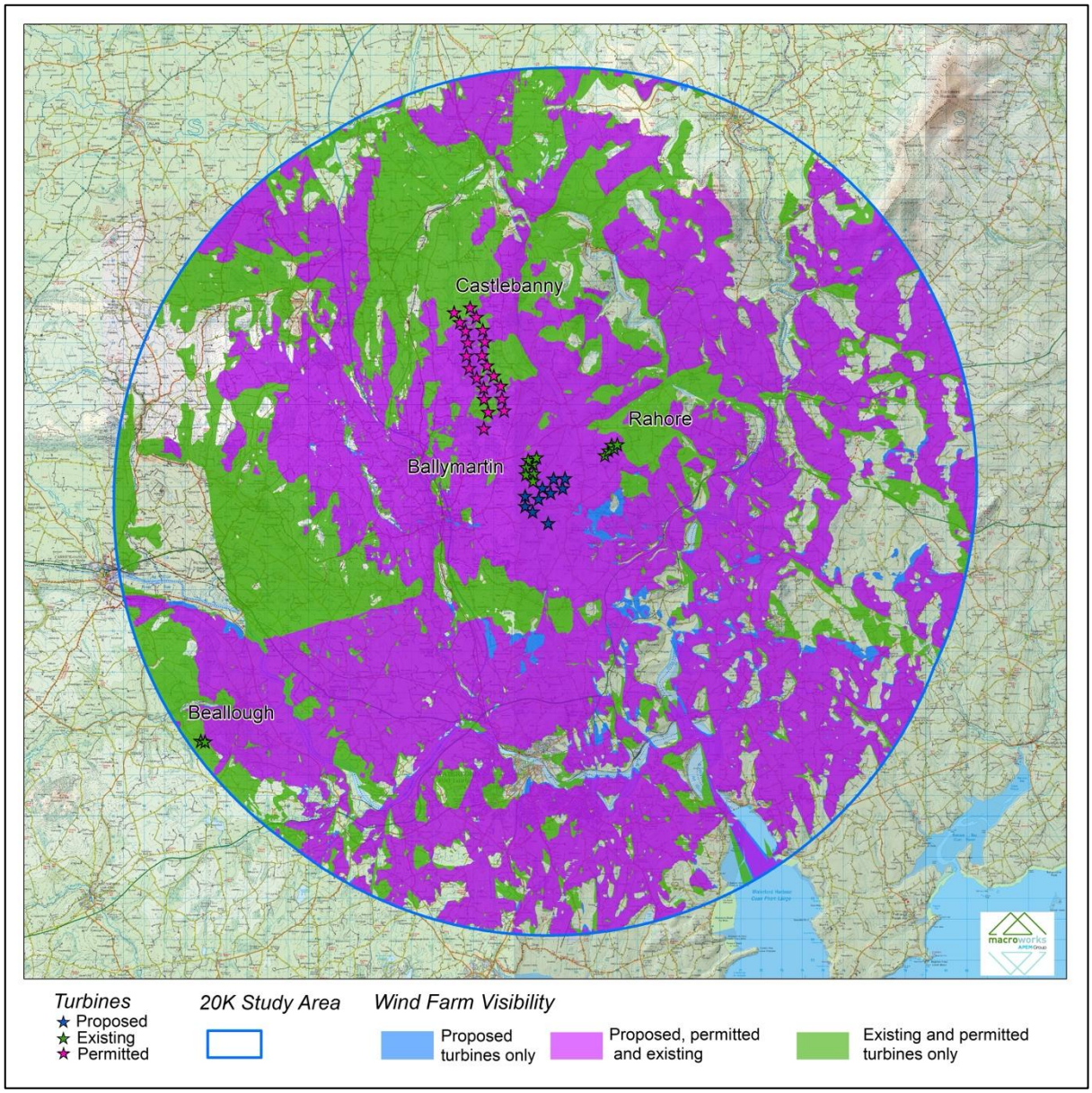

Figure 13-9: Cumulative ZTV Map (Tip Height (180 m) – represents a worst case scenario in terms of potential turbine visibility with regard to the variation in turbine dimensions) for Ballyfasy Wind Farm identifying the potential intervisibility of the proposed Wind Farm and all other existing and consented wind farms within the study area (See Appendix 13.2 for larger version)

The cumulative ZTV map illustrates the potential for cumulative visibility between the proposed turbines and all other existing and consented wind farm developments within the 20 km study area. At present, there are three operational wind farms and one consented wind farm development within this area. It is important to note that the nearest existing turbines to the proposed project include the seven-turbine Ballymartin development, located immediately north of the site within an area of pastoral farmland. The existing Ballymartin turbines are comparatively smaller in scale than the proposed turbines, reaching a maximum height of approximately 120 m. Approximately 2.25 km to the north-east lies the operational Rahore turbine array, comprising five turbines up to 80 m in height. The consented Castlebanny Wind Farm is the largest array within the study area, consisting of 21 turbines reaching a maximum height of 185 m. This consented development occupies a linear ridge oriented in a generally north–south direction, located some 3.89 km north-west of the proposed turbine array at its nearest point. The only other development within the study area is Beallough Wind Farm,

comprising two turbines with a maximum tip height of 70 m, located on the south-western periphery of the 20 km study extents.

The cumulative ZTV map (Figure 13-9 refers) indicates that the proposed Ballyfasy turbines have the potential to be viewed in isolation from all other wind energy developments across only 1.4% of the study area. This is principally due to the close proximity of the proposed turbines to the existing Ballymartin turbines, with which they will most often be visible in combination. Areas within the study area that have the potential for views of the proposed turbines in isolation tend to be localised within the south-eastern quadrant, where there are no other existing or permitted wind farm developments. The principal area of visibility of the turbines in isolation is contained to the south of the dispersed settlement of Ballyfasy, where the terrain begins to descend towards the wider River Blackwater valley.

It should also be noted that 21.4% of the overall study area has no potential to afford views of the proposed, existing, or consented developments within the study area. The most notable areas that will remain fully screened from turbines are located in the wider western extent of the study area, where a series of hills and ridges provide screening of all development to the east. To the north-east and east, there are also notable areas with no cumulative visibility. Large portions of these areas are associated with the River Blackwater corridor, where the surrounding sloping lands provide a notable degree of visual containment. Further east again, the rolling lands beyond the Blackwater valley also provide screening of the proposed, existing, and consented developments within the study area. To the south, several localised areas have no turbine visibility, with the central parts of Waterford City being entirely screened from all of the aforementioned turbines.

Approximately 52.7% of the study area has the potential to afford visibility of the proposed project in combination with all other existing and consented developments, while a further 24.5% of the study area has the potential to afford views of only the consented and existing developments. A large proportion of the immediate and central parts of the study area will therefore afford combined visibility of the proposed development alongside the existing and consented wind energy schemes. This is principally a consequence of the close proximity of the Ballymartin turbines to the proposed turbine array, but is also influenced by the locally elevated siting of both the existing Rahore turbines and the consented Castlebanny turbines. The consented Castlebanny turbines represent the largest wind farm development within the study area and comprise the tallest turbines within it. As one of the more prominent forms of built development in the surrounding landscape, and given its locally elevated position along a broad ridgeline, the Castlebanny scheme has the potential to be viewed in combination with the proposed development from numerous surrounding locations. Nonetheless, the consented Castlebanny turbines are afforded a notable degree of separation from the proposed turbines, with the nearest Castlebanny turbine situated approximately 4 km north-west of the proposed array. It should also be noted that, due to the extensive linear nature of the Castlebanny development, the furthest consented turbine lies just under 10 km from the nearest proposed Ballyfasy turbine.

When reviewing the cumulative wireframe views and photomontages, a clearer understanding of the potential cumulative visual effects generated by the proposed development can be obtained. As expected, the principal in-combination effects are associated with the Ballymartin turbines due to their close proximity to the site. However, it should be noted that, owing to the high degree of existing screening provided by coniferous woodland within the central parts of the study area, the existing Ballymartin turbines are often not prominently visible in

combination with the proposed turbines, except when viewed from their immediate surrounding landscape.

As the Ballymartin, Rahore, and Beallough turbines are all operational developments that form part of the baseline landscape context, their cumulative visual effects have already been considered in the visual impact appraisal. Consequently, the principal focus of the cumulative wireframe review relates to the consented Castlebanny turbines.

For visual receptors classified as experiencing higher-ranging residual visual effects (refer to VP8, VP11, VP13, VP15, and VP16), the consented Castlebanny turbines will generally not be visible in combination with the proposed turbines due to screening provided by terrain and vegetation. Where visibility does occur, it is typically partial and in the opposite direction to the proposed development. In such instances, the cumulative visual effect between the proposed and consented developments tends to be negligible or low.

At some of the more elevated visual receptors with a higher degree of sensitivity—such as Brandon Hill and Tory Hill—the potential for combined views of the proposed and consented developments is more pronounced. Viewpoint VP1 represents Brandon Hill, where both turbine arrays may be visible in combination; however, they will appear as distinctly separate and distant small-scale background features. At Tory Hill, represented by Viewpoint VP22, combined visibility of both developments is also afforded. Nonetheless, while visible in combination, the two developments present clearly as distinct and separate arrays. Although the combined visibility of the proposed and consented developments will result in an increased intensity of wind farm presence within the wider landscape, there remains limited potential for any notable adverse cumulative visual effects arising from the interaction of the consented and proposed schemes.

In terms of sequential cumulative visual effects, the proposed, consented, and operational developments have the potential to be viewed from numerous linear receptors within the study area, including scenic routes, national waymarked walking trails throughout the central and wider study area, and major transport routes within the wider landscape. Sequential views are likely to be afforded from sections of the South Leinster Way as it traverses elevated and locally elevated lands, the nearest sections of which pass just over approximately 3 km from the nearest proposed turbines. However, as noted in the Inspector's Report for the consented Castlebanny Wind Farm (Planning Ref: ABP-309306-21), *"there is no empirical evidence to confirm that wind farms have negative impacts on recreation and tourism, whilst some studies indicate a net positive impact."* With regard to scenic routes, the majority of those with potential visibility of the proposed development are located in the wider parts of the study area. From these distances, sequential cumulative visual effects are considered to be very limited and are not expected to give rise to any notable adverse visual effects.

On balance of the reasons above, it is considered that the proposed Ballyfasy Wind Farm development will contribute to a cumulative landscape and visual impact in the order of **Medium-Low** in respect of the cumulative scenario. Thus, cumulative effects generated by the proposed development are deemed to be Not Significant. It is important to note that this impact assessment applies across all turbine ranges highlighted in Section 13.10.

In respect of cumulative effects with other forms of development, there are no other large scale developments within the vicinity of the site.

The only other notable land use in relation to the proposed wind farm is forestry, a key component of which is harvesting and replanting, which has the potential to result in localised clearer views of the proposed turbines and the surrounding site access tracks. Nonetheless, the underlying lands are not expected to ever be harvested entirely. Instead, they will be harvested in sections, which will subsequently be replanted once harvesting activities have concluded. It is not considered that the more exposed views of turbines as a result of potential harvesting activities will result in significant cumulative landscape or visual effects.

13.12 Conclusion

The proposed Ballyfasy Wind Farm has been carefully designed and assessed within the context of a locally elevated, robust working rural landscape already influenced by existing and consented wind energy developments. The receiving landscape is characterised by a robust landscape pattern comprising a mix of pastoral farmland and extensive areas of commercial coniferous forestry, both of which reinforce the area's typical robust rural character.

The assessment confirms that the introduction of the proposed turbines will be consistent with the established landscape context and will not give rise to significant adverse effects on recognised landscape values or designations. Indeed, the nearest area classified as 'Highly Scenic / Visually Pleasing' within the Kilkenny Landscape Character Assessment is located over 6.5 km from the proposed turbine array, well outside of both the immediate and central study area. Whilst the wider study area contains areas of recognised scenic amenity, most notably associated with the Blackwater and Suir River corridors, these are well offset from the site and immediate study area and have a limited potential to be influenced by the proposed development due to their contained nature.

Overall, the proposed project can be well accommodated within the receiving landscape without giving rise to significant landscape or visual impacts. It will likely be viewed and perceived as and proportionate extension to the established pattern of wind energy development in this part of County Kilkenny and will not incongruous in this working landscape setting with associated values.

In relation to landscape effects, the proposed project will result in considerable increase in the intensity of built development in the local landscape and will become one of the principal built features in the immediate surrounds of the site. The proposed project will also result in some physical landscape impacts, however these will be contained to localised areas within the site. Overall, the **significance of landscape effect** during the **operational phase** is considered to be **Substantial-moderate / Negative / Long-term** within and immediately around the site, reducing to **Moderate / Negative / Long-term** within the central study area and reducing swiftly and further distances from the proposed project. Overall, residual landscape effects are deemed **Not Significant.**

In terms of the residual **visual effect**, the **operational phase visual effects** generated by the proposed project will result in some localised high-ranging residual visual effects. Indeed the residual significance of visual effect ranges between **Substantial-moderate** to **Imperceptible.** Whilst the proposed project will present with a dominant visual presence from some of the nearest receptors, residual visual effects are deemed to be **Not Significant**.