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ENVIRONMENTAL IMPACT ASSESSMENT REPORT (EIAR) FOR THE PROPOSED LITTLETON WIND FARM, CO. TIPPERARY

Volume 2 - Main EIAR

Chapter 13 - Landscape and Visual Impact

Prepared for:
Littleton Wind Farm DAC

BnM | sse

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13. LANDSCAPE AND VISUAL IMPACT

13.1 Introduction

This chapter examines the potential effects of the proposed Littleton Wind Farm Development on the landscape and visual amenity of the receiving environment. Where significant effects are predicted, the chapter identifies appropriate mitigation strategies therein. The assessment will consider the potential effects during the construction, operational, and decommissioning phases.

A description of the Proposed Development is provided in Chapter 4: Description of the Proposed Development. Common acronyms used throughout this EIAR can be found in Appendix 1.3 of Volume 3. This chapter of the EIAR is supported by a portfolio of photomontages provided as a separate booklet in Volume 5, and the Technical Appendices will be provided in Volume 3 of this EIAR.

This Landscape and Visual Impact Assessment (LVIA) describes the landscape context of the Proposed Development and assesses the likely landscape and visual effects of the scheme on the receiving environment. Although closely linked, landscape and visual effects are assessed separately, in accordance with relevant guidance outlined in section 13.2.

With regard to potential landscape and visual impacts arising from the GC and TDR, the principal impacts are anticipated to occur predominantly during the construction phase of the Proposed Development. Any such impacts will be highly localised in nature and confined to the immediate environs of the respective corridors, with both aspects of the Proposed Development having a very limited influence beyond approximately 200–500 m from the proposed works. The construction activities associated with both the GC and the TDR will be temporary, linear and of limited spatial extent, and will largely utilise existing established corridors and transport routes. Taking account of the temporary nature of the works, neither the GC nor the TDR is considered likely to give rise to significant landscape or visual effects during the construction, operational, or decommissioning phases of the Proposed Development

On this basis, potential landscape and visual effects associated with the GC and TDR have been scoped out of the assessment presented below.

Landscape Impact Assessment (LIA) relates to changes in the physical landscape brought about by the Proposed Development, 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 Development 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 Development 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 Impact Assessment (LVIA) chapter was prepared by Cian Doughan, Bachelor of Science in Landscape Architecture and Corporate Member of the Irish Landscape Institute (MILI) with nine years of experience. The chapter was reviewed by Richard Barker (Masters in Landscape Architecture and MILI) of Macro Works Ltd, who has 20 years of experience in the appraisal of effects from a variety of energy, infrastructure and commercial developments.

Macro Works (Part of APEM Group) is a landscape consultancy firm specialising in Landscape and Visual Impact Assessment (LVIA) of development projects and one of the only companies in Ireland wholly dedicated to LVIA and associated mapping and visualisations. Established in 1999, Macro Works provide a full suite of visual assessment, analysis, GIS mapping and simulation tools for all aspects of energy (wind, solar, transmission lines, sub-stations, power generation facilities, hydro dams), civil engineering infrastructure and commercial developments.

This document uses methodology as prescribed in the previously mentioned Guidelines on Landscape and Visual Impact Assessment (GLVIA3) , which follows the European Landscape Convention (ELC) definition of landscape:

'Landscape is an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors' (Council of Europe, 2000). Thus, GLVIA-2013 covers all landscapes from "high mountains and wild countryside to urban and fringe farmland (rural landscapes), marine and coastal landscapes (seascapes) and the landscapes of villages towns and cities (townscapes)" - whether protected or degraded.

Another useful document that has also been utilised for this assessment is the more recent 'Notes and Clarifications on aspects of the 3rd Edition Guidelines on Landscape and Visual Impact Assessment (GLVIA3) – Consultation', which is currently in draft format, with the final document due to be published imminently.

13.2.1 Relevant Policy and Guidance

The LVIA uses methodology as prescribed in the following guidance documents:

- European Union (2017) Guidance on the preparation of the EIA Report (Directive 2011/92/EU as amended by 2014/52/EU);
- Environmental Protection Agency (EPA) (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]

[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.

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 GLVIA 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 Development.

'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 GLVIA 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.

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 as detailed in the preceding Statement of Authority.

This entailed the following:

13.2.2 Desktop Study

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

13.2.3 Fieldwork

- Fieldwork investigations and capturing of baseline photography took place over the Spring and Summer months during June 2021 and August 2022
- 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.

13.2.4 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, facilities and heritage features 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.
- Assessment of the significance of residual landscape impacts.
- Assessment of the significance of residual visual impacts aided by photomontages prepared at all of the selected VRP locations.
- Assessment of cumulative landscape and visual effects in combination with other surrounding developments that are either existing, permitted or proposed.

13.2.5 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[4] 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;
- 25 km radius where landscape features of national and international importance exist.

In the case of this project, the blade tips are 200m high and, thus, the minimum ZTV radius recommended is 20 km (refer to Figure 13-1 below) from the outermost turbines of the scheme. There are not considered to be any sites of national or international importance between 20 – 25km and thus, the radius of the study area will remain at 20km. 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 Development, such as the Grid Connection (GC) route 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.

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

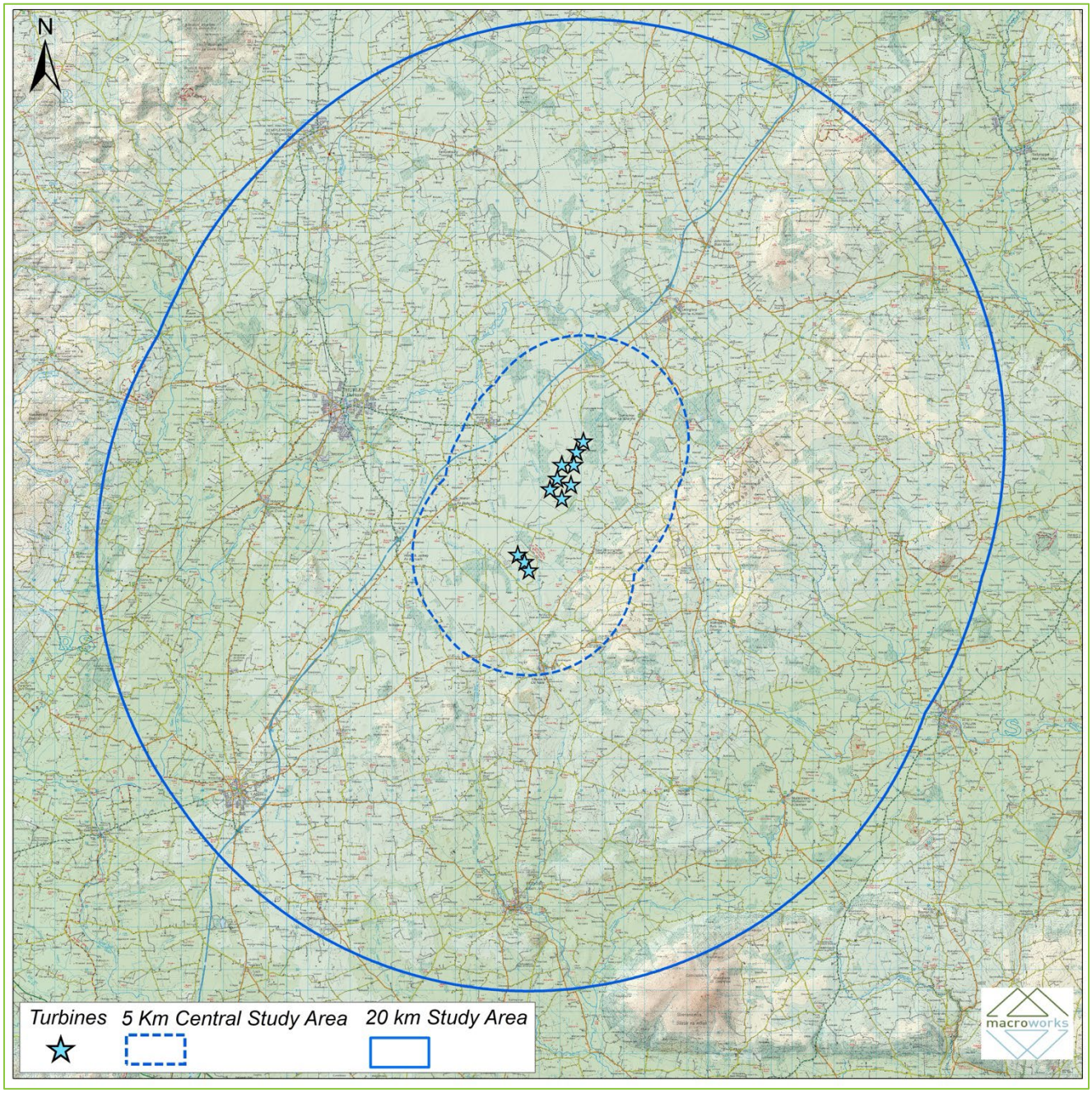

Figure 13-1: Full 20km extent of the study area

13.2.6 Assessment Criteria for Landscape Impacts

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

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

The sensitivity of the landscape to change is the degree to which a particular landscape receptor (Landscape Character Area (LCA) or feature) can accommodate changes or new features without unacceptable detrimental effects to its essential characteristics. Landscape Value and Sensitivity is classified using the following criteria outlined in Table 13.1 below;

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 impact is a product of the scale, extent or degree of change that is likely to be experienced as a result of the Proposed Development. The magnitude takes into account whether there is a direct physical impact resulting from the loss of landscape components and/or a change that extends beyond the proposal site boundary that may have an effect on the landscape character of the area. Table 13.2 refers.

Table 13-2: Magnitude of Landscape Impacts

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

The significance of a landscape effect is based on a balance between the sensitivity of the landscape receptor and the magnitude of the impact. The significance of landscape effect is arrived at using the following matrix set out in Table 13.3.

Table 13-3: Landscape Impact 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 (amber colour)' and above are considered to be 'significant effects' within this assessment. All other effects are deemed Not significant*

13.2.7 Assessment Criteria for Visual Impacts

As with the landscape impact, the visual impact of the proposed wind farm 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.

13.2.7.1 Visual Sensitivity

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

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

13.2.7.1.1 Susceptibility of receptor group to changes in view.

This is one of the most important criteria to consider in determining overall visual sensitivity because it is the single category dealing with viewer susceptibility. In accordance with the IEMA Guidelines for Landscape and Visual Assessment (3rd edition 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 focused 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 focused on their work or activity, not their surroundings and where the setting is not important to the quality of working life.

13.2.7.1.2 Value Associated with the View

- **Recognised scenic value of the view** (County Development Plan designations, guidebooks, touring maps, postcards etc). These represent a consensus in terms of which scenic views and routes within an area are strongly valued by the population because in the case of County Development Plans, at least, a public consultation process is required;
- **Views from within highly sensitive landscape areas.** Again, highly sensitive landscape designations are usually part of a county's Landscape Character Assessment, which is then incorporated with the County Development Plan and is therefore subject to the public consultation process. Viewers within such areas are likely to be highly attuned to the landscape around them;
- **Intensity of use, popularity.** Whilst not reflective of the amenity value of a view, this criterion relates to the number of viewers likely to experience a view on a regular basis and whether this is significant at county or regional scale;
- **Connection with the landscape.** This considers whether or not receptors are likely to be highly attuned to views of the landscape i.e. commuters hurriedly driving on busy national route versus hill walkers directly engaged with the landscape enjoying changing sequential views over it;
- **Provision of elevated panoramic views.** This relates to the extent of the view on offer and the tendency for receptors to become more attuned to the surrounding landscape at locations that afford broad vistas.
- **Sense of remoteness and/or tranquillity.** Remote and tranquil viewing locations are more likely to heighten the amenity value of a view and have a lower intensity of development in comparison to dynamic viewing locations such as a busy street scene, for example;
- **Degree of perceived naturalness.** Where a view is valued for the sense of naturalness of the surrounding landscape it is likely to be highly sensitive to visual intrusion by obvious human interventions;
- **Presence of striking or noteworthy features.** A view might be strongly valued because it contains a distinctive and memorable landscape feature such as a promontory headland, lough or castle;
- **Historical, cultural or spiritual value.** Such attributes may be evident or sensed at certain viewing locations that attract visitors for the purposes of contemplation or reflection heightening the sense of their surroundings;
- **Rarity or uniqueness of the view.** This might include the noteworthy representativeness of a certain landscape type and considers whether other similar views might be afforded in the local or the national context;
- **Integrity of the landscape character in view.** This criterion considers the condition and intactness of the landscape in view and whether the landscape pattern is a regular one of few strongly related components or an irregular one containing a variety of disparate components;
- **Sense of place.** This criterion considers whether there is special sense of wholeness and harmony at the viewing location; 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.

13.2.7.2 Magnitude of Visual Effects

The magnitude of visual effects is determined on the basis of two factors; the visual presence of the proposal 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 impacts is classified in the following table:

Table 13-4: Magnitude of Visual Effects

Criteria	Description
Very High	The proposal intrudes into a large proportion or critical part of the available vista and is without question the most noticeable element. A high degree of visual clutter or disharmony is also generated, strongly reducing the visual amenity of the scene
High	The proposal 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 clutter or disharmony is also likely to be generated, appreciably reducing the visual amenity of the scene
Medium	The proposal represents a moderate intrusion into the available vista, is a readily noticeable element and/or it may generate a degree of visual clutter or disharmony, thereby reducing the visual amenity of the scene. Alternatively, it may represent a balance of higher and lower order estimates in relation to visual presence and 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 detract from, and may even enhance, the visual amenity of the scene

13.2.7.3 Visual Impact Significance

As stated above, the significance of visual impacts is a function of visual receptor sensitivity and visual impact magnitude. This relationship is expressed in the same significance metric included for Landscape Effect Significance at Table 13.3.

13.2.8 Assessment Criteria for Cumulative Impacts

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 Development 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 13.5 below provides Macro Works' criteria for assessing the magnitude of cumulative impacts, which are based on the SNH Guidelines (2012).

Table 13-5: Magnitude of Cumulative Impacts

Magnitude of Impact	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.

Magnitude of Impact	Description
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.

13.2.8.1 Quality 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.

13.2.9 Consultation

All information with regard to consultation is set out in section 2.3 Scoping and Consultation in Chapter 2.

13.3 Receiving 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 13.3.2 below.

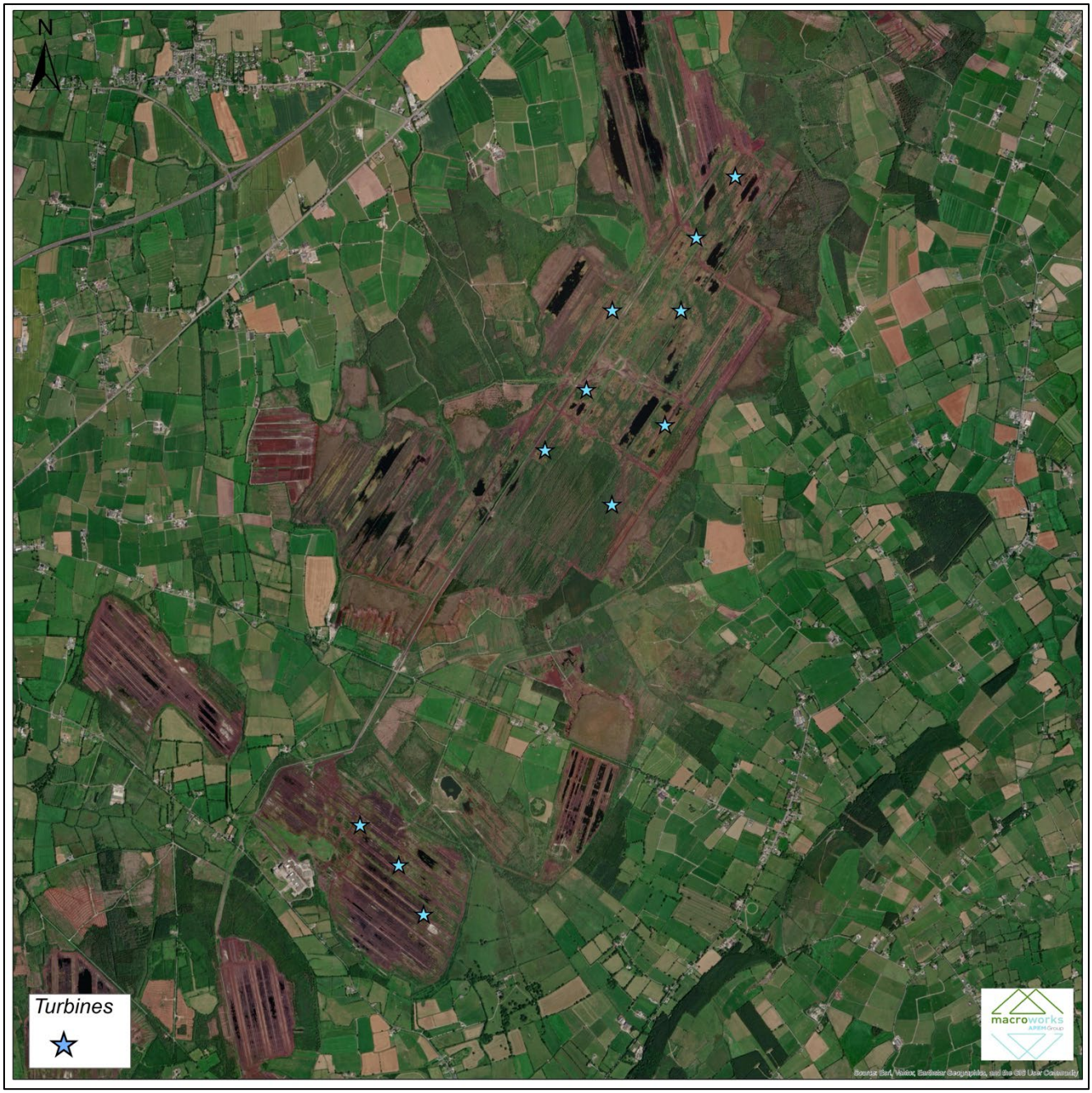

Figure 13-2: Immediate landscape context of the site

13.3.1.1 Landform and Drainage

Wind Farm Site and Central Study Area

The site and its immediate surroundings are extensively flat, highlighted by the linear array of peat bogs that contain the site and some of the surrounding central study area. Beyond the site's immediate context, the terrain is also characterised by relatively flat to gently rolling land. The landform changes swiftly in the eastern and south-eastern parts of the study area, where the terrain rises along a steep but low escarpment to an area of more rolling ground around the Slieveardagh Hills.

The nearest watercourse to the site is the Black River, which flows a short distance to the north. A small lake, known locally as Lough Doire Bhile, is also located north of the three most southern turbines in the proposed array. The Clashawley River lies within the south-eastern corner of the central study area. Otherwise, the site and the central study area comprise small streams and drainage ditches.

Wider Study Area

The wider study area has similar characteristics to the central study area, with much of its western half comprising flat to gently rolling land, while its eastern half transitions to a more undulating rural landscape intersected by meandering river valleys and streams. One of the principal landforms in the wider landscape is Slievenamon, whose foothills rise along the southern edge of the 20 km study extent. One of the most prominent watercourses in the study area is the River Suir, located approximately 7.7 km west of the site at its nearest point; it traverses the western half of the study area in a generally southerly direction

13.3.1.2 Vegetation and Land Use

Wind Farm Site and Central Study Area

The site is located within a linear array of flat, open peat bogs oriented in a generally north–south direction. The periphery of these peat bogs comprises notable areas of conifer woodland and sections of transitional woodland. Beyond the site's immediate context, the principal land use is pastoral farmland, bounded by networks of mixed hedgerow vegetation and mature trees.

Areas of peat bog also occur throughout the northern extent of the central study area, while small blocks of conifer woodland are dotted across all parts of the central study area. The M8 motorway is a notable singular land use within the area, and small pockets of industrial land use also occupy parts of the central study area. The settlements of Littleton, New Birmingham, Ballinunty and Killenaule form the most prominent areas of urban land cover within the central study area. Several small existing wind turbines are also located along the rolling hills and ridges in the eastern extent of the central study area.

Wider Study Area

Whilst the principal land uses in the wider study area remain medium- to large-sized pastoral farmlands bounded by networks of hedgerow vegetation, the wider study area also encompasses extensive peatlands within its northern half. As with the peatlands in the central study area, those in the wider study area are contained by dense conifer forest plantations and areas of transitional woodland.

The wider study area also includes blocks of conifer forest, much of which is situated along the rolling lands in its eastern half. Numerous existing wind farm developments are present across the wider study area, the most notable concentration of which occurs around the peatlands in the northern extent of the area. Several other wind farm developments are located along the rolling lands in the eastern and southern parts of the wider study area.

Industrial land uses are also present, principally associated with extractive industries. Other notable land uses include the urban settlements of Thurles and Cashel, while several significant heritage assets are located within the wider study area, the most prominent of which include the Rock of Cashel and Kilcooley Abbey and demesne.

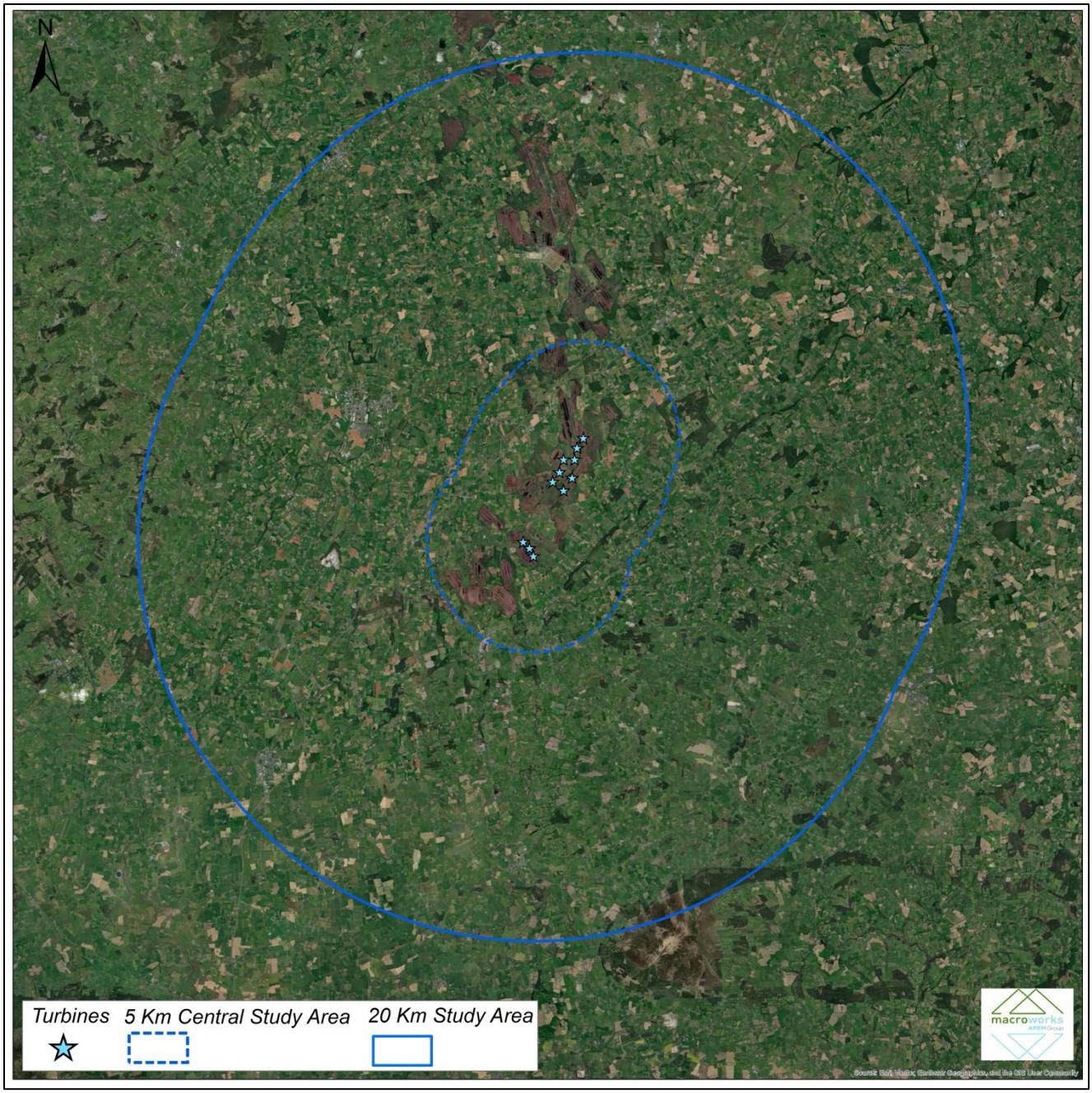

Figure 13-3: Full landscape context of the wider study

13.3.1.3 Landscape Policy Context and Designations

13.3.1.3.1 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 landscape types. The site of the Proposed Development is located within a broad area of flat peatland and is surrounding by areas of flat to low-rolling pastoral farmland. The setting of the Proposed Development is most consistent with the 'Flat Peatland' type described in the 2006 Guidelines. However, the wider context encompasses characteristics from the landscape type 'Hilly and Flat Farmland'. Siting and design recommendations for the 'Flat Peatland' landscape type are included below:

Flat Peatland:

Location – "Wind energy developments can be placed almost anywhere in these landscapes from an aesthetic point of view. They are probably best located away from roadsides allowing a reasonable sense of separation. However, the possibility of driving through a wind energy development closely straddling a road could prove an exciting experience."

Spatial extent – "The vast scale of this landscape type allows for a correspondingly large spatial extent for wind energy developments"

Spacing - "Regular spacing is generally preferred, especially in areas of mechanically harvested peat ridges."

Layout - "In open expanses, a wind energy development layout with depth, preferably comprising a grid, is more appropriate than a simple linear layout. However, where a wind energy development is located close to feature such as a river, road or escarpment, a linear or staggered linear layout would also be appropriate"

Height - "Aesthetically, tall turbines would be most appropriate. In any case, in terms of viability they are likely to be necessary given the relatively low wind speeds available. An even profile would be preferred"

Cumulative - "The openness of vista across these landscapes will result in a clear visibility of other wind energy developments in the area. Given that the wind energy developments are likely to be extensive and high, it is important that they are not perceived to crowd and dominate the flat landscape. More than one wind energy development might be acceptable in the distant background provided it was only faintly visible under normal atmospheric conditions."

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

It is considered that the proposed wind farm developments siting and design responds well and is generally consistent with the guidance note above for the 'Flat Peatland' landscape type. The design response of the Proposed Development is especially consistent with the 'location' guidance as the Proposed Development is typically well offset from some of the nearest surrounding roads by the transitional woodland and vegetation that occurs along the periphery of the peatlands that contain the Site. It is also important to note that whilst the 'height' guidance states that "tall" turbines would be most appropriate, early stage feasibility studies identified the potential for larger turbines to present with some sense of overbearing, thus, a reduction in turbine height was deemed necessary (refer to the mitigation section 13.5 and Chapter 3 - Consideration of Reasonable Alternatives for further detail).

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 Development

The nearest residential dwelling to any of the proposed turbines is >800 m which exceeds and fully complies with the setback distance outlined in the both the current 2006 Guidelines and the Draft Revised Guidelines (2019), which in this instance is 800m (4 x 200m tip height).

13.3.1.3.2 Tipperary County Development Plan 2022-2028 - Tipperary Landscape Character Assessment 2016

An integrated (North Tipperary & South Tipperary) Landscape Character Assessment has been prepared for County Tipperary and is incorporated into the County Development Plan. This provides a hierarchy of landscape units beginning with high level 'Landscape Architypes' then 'Landscape Character Types' and finally 23 geographically distinct 'Landscape Character Areas'.

The Landscape Character Assessment divides the county into four generic landscape archetypes; 'A – The Plains', 'B – The Lakelands', 'C – The Foothills' and 'D – The Uplands'. The Proposed Development is located within 'A-The Plains', which are described as "*working landscapes containing most settlements and services as well as large continuous areas used for pasture, tillage and peat harvesting. This landscape also contains major rivers and many historic sites*." It is also important to note that the landscape archetype 'C- The Foothills' is also located throughout the central and wider study area.

In terms of 'Landscape Character Types' and 'Landscape Character Areas' the 'Plains' portion of the study area is further classified as the landscape character type 'A1 – Lowland pasture & Arable' and 'A2 – Peatlands & Wet Mixed Farmland' with the proposed wind farm situated in the landscape character type A2. The proposed site itself is contained across both Landscape Character Area (LCA) '9 - Littleton Farmland Mosaic and Marginal Peatland' and LCA '8 - Littleton Raised Bog' (Figure 13-4 refers).

LCA 8 - Littleton Raised Bog is "A distinctive raised bog area, this extends eastwards from the N8 where it meets the county boundary with Kilkenny. The raised bog is set within an overall landscape not dissimilar to the undulating lowland of the Thurles hinterland."

LCA 9 - Littleton Farmland Mosaic and Marginal Peatlands is "*considered distinctive in its character as a lowland character area of the county due to its subtle differences and its sense of removal from the richer and more densely populated River Suir Central Plain. Agriculture in the area is pastoral based and productively varies greatly throughout this LCA. In the vicinity of Grange and Kilcooley the land is rich and productive, yet as one travels towards the peatlands to the North West the quality of the land is poorer.*"

Chapter 5 of the landscape character assessment relates to landscape sensitivity and designates LCA 8 - 'Littleton Raised Bog' with a 'normal/transitional/sensitive' sensitivity designation with the 'sensitive' designation being the dominant one. The dominant 'sensitive' designation for this landscape character area has a 'limited' capacity and is described as "*areas requiring significant additional care during design and assessment of alternatives to determine how established pattern of use and settlement can be accommodated*". The objective and guideline suggested for this sensitivity designation is "*Wise Use Best Choice - Facilitate development that conclusively demonstrates wise use and best choices to continue and enhance established patterns of use and settlement without significant change to, or loss of, appearance or character."*

LCA '9 – Littleton Farmland Mosaic and Marginal Peatland' is designated as having a 'normal/transitional/sensitive' sensitivity designation with the 'normal' designation being the dominant one. The dominant 'normal' sensitivity designation for this landscape character area has a 'high' capacity and is described as "*working landscapes with no sensitivities and established patterns of use and settlement*". The objective and guideline suggested for this sensitivity designation is to "*Continue - Facilitate development that continues established patterns of use and settlement."*

Section 6.2 of the Tipperary Landscape Character Assessment identifies land-use compatibility between LCAs and land-use types, which are categorised in 5 layers of compatibility from 'Most' compatible to 'Least' compatible. Both LCA 8 and LCA 9 have been classified with a 'Medium' compatibility rating in respect of wind farm developments. It should be noted only 4 of the 23 landscape character areas are identified to have a compatibility rating of 'medium' or higher. Section 6.3 of the of the landscape character assessment also incorporates a land-use compatibility between landscape sensitivity factors and land-use types. The entirety of the proposed turbine array is situated within 'Peat Bogs', which is identified as having a class 3 compatibility rating with wind farms in which development is "*likely to be compatible if sited and designed with great care".*

Chapter 11 of the current Tipperary CDP 2022-2028 relates to the landscape and identifies primary and secondary amenity areas within County Tipperary (Figure 13-5). These areas are "*particularly notable by virtue of their scenic and visual quality and offer significant opportunities for tourism development and rural recreational activities*". It is important to note that the Site is neither situated within a primary or secondary special amenity area. Nonetheless, a broad 'secondary special amenity area' is located to the south of the site and is associated with the Slieveardagh Hills and its surrounding rolling landscape.

Policies and objectives in relation to the landscape are contained within subsection 11.9 and 11.10 of the current development plan. Those deemed most relevant to the project are included below;

Policies:

11-16: Facilitate new development which integrates and respects the character, sensitivity and value of the landscape in accordance with the designations of the Landscape Character Assessment, and the schedule of Views and Scenic Routes (or any review thereof). Developments which would have a significant adverse material impact on visual amenities will not be supported.

11-17: Ensure the protection of the visual amenity, landscape quality and character of designated 'Primary' and 'Secondary' amenity areas. Developments which would have a significant adverse material impact on the visual amenities of the area will not be supported. New development shall have regard to the following;

a) *Developments should avoid visually prominent locations and be designed to use existing topography to minimise adverse visual impact on the character of primary and secondary amenity areas.*

b) *Buildings and structures shall integrate with the landscape through careful use of scale, form and finishes.*

c) *Existing landscape features, including trees, hedgerows and distinctive boundary treatment shall be protected and integrated into the design proposal.*

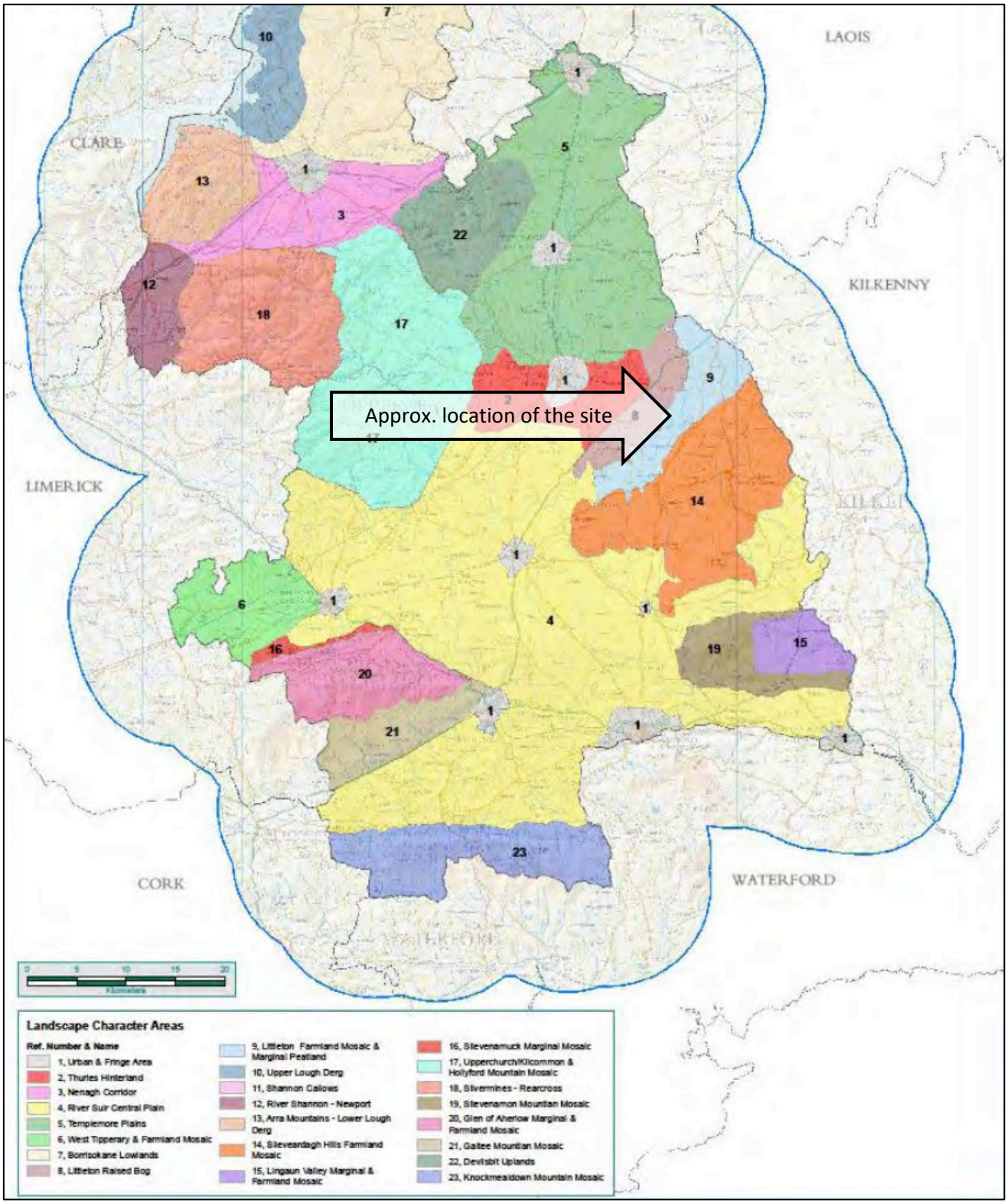

Figure 13-4: Map of Landscape Character Areas in Tipperary showing approximate location of the proposed wind farm development

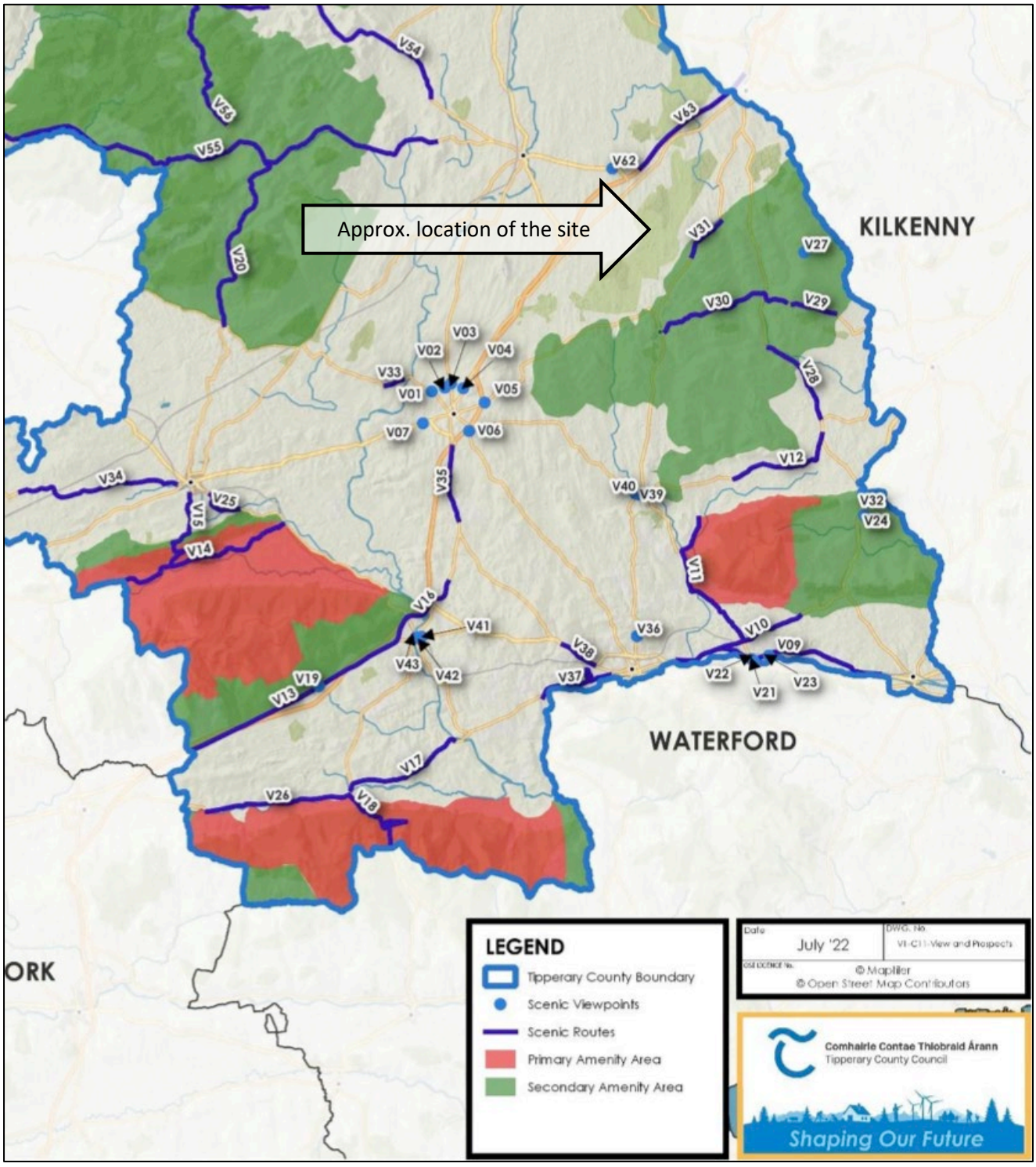

Figure 13-5: Primary and Secondary Amenity areas within County Tipperary in relation to the proposed wind farm development.

13.3.1.3.3 Tipperary County Development Plan 2022-2028 - Tipperary Wind Energy Strategy 2016

Tipperary County Council produced an updated renewable energy strategy in 2016 in which the Tipperary Wind Energy Strategy 2016 is included in Appendix 1. The wind energy strategy identifies two areas in relation to wind energy development (Figure 13-6) which are outlined below:

- Areas 'Open For Consideration' – *"wind energy development in these areas may or may not be appropriate, depending on the character of the landscape and the potential impact of the Proposed Development. Any impact on the environment must be low and subject to proper planning and sustainable development, and the guidelines set out in this policy document."*
- Areas 'Unsuitable for Further Development' – *"new wind energy development in these areas is not permitted. These areas have a special or unique landscape character where the main objective is conservation. Where there are existing wind energy developments in these areas, their repowering may be considered appropriate. Any impact on the environment must be low and subject to proper planning and sustainable development, and the guidelines set out in this strategy."*

The proposal site is located in an area designated as 'open for consideration'. The nearest 'unsuitable' area to the Proposed Development site occurs approximately c.4km east of the site in the surrounds of Kilcooley Abbey.

General wind energy policies relating to areas identified as 'open to consideration' are also outlined within the Section 7 of the wind energy strategy. Those that are deemed relevant to this assessment are included below:

"TWIND 4.1: Proposals shall demonstrate conformity with existing and approved wind farms to avoid visual clutter, In this respect, developers should consider the cumulative impact of new development in the context of the location of both existing and permitted developments."

"TWIND 4.2: Proposals in Areas 'Open for Consideration' shall be sited having consideration to the landscape sensitivity and capacity analysis set out in the Tipperary Landscape Character Assessment 2016 and the provisions of the County Development Plan (as varied) in relation to landscape (Chapter 7). All applications shall have regard to the visual impact of turbines and ancillary development (such as access roads, boundary fencing, control buildings and grid connections)."

"TWIND 4.3: Within Areas 'Open for Consideration', Proposed Development within areas which already accommodate turbines, sub-stations and powerlines shall be considered appropriate from a sequential approach to the development of infrastructure, until these areas reach capacity."

"TWIND 4.6: All proposals for wind energy development will have regard to the cumulative effect of the development on the environment when considered in conjunction with other existing and permitted wind energy developments in the area."

"TWIND 4.7: All applications will have regard to the impact on existing built environment, particularly neighbouring residential properties and other sensitive amenity areas."

"TWIND 4.8: All applications will have regard to the impact of any proposal for wind energy development on surrounding tourism and recreational related activities and the compatibility of same will be carefully considered in the assessment of any planning application."

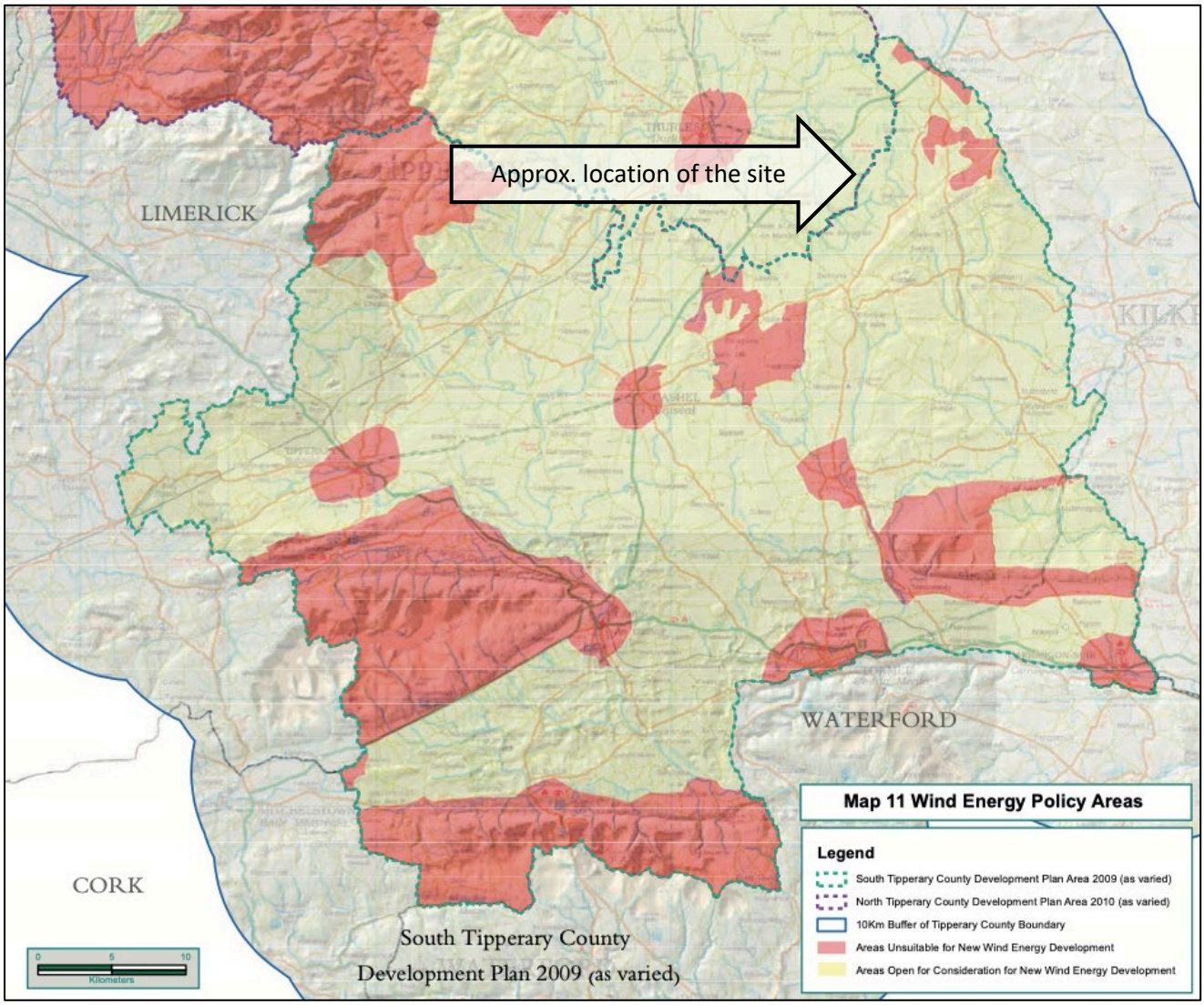

Figure 13-6: Map 11 of the current Tipperary Wind Energy Strategy identifying wind energy policy areas.

13.3.1.3.4 Kilkenny County Development Plan (CDP) 2021-2027

Whilst the Proposed Development is not located within County Kilkenny, the Kilkenny County bounds is some c. 6.5km northeast of the nearest proposed turbines, and thus, it is important to include landscape related policies and designations in County Kilkenny within the study area.

A Landscape Character Assessment was prepared for Kilkenny County in 2003, which still informs and provides a framework for landscape-related policy in the current CDP. The Landscape Character Assessment identifies four landscape character types, which are subdivided into 14 landscape character areas, with some areas identified as being of special landscape character value, or possessing features and areas of high landscape sensitivity.

The most relevant landscape character types include the 'Transition Zone' and 'Upland' LCT, both of which occur along the immediate Kilkenny County Boundary within the study area. It is important to note that the study area does not encompass the more susceptible 'Highly scenic/visually pleasing' LCT. In terms of the most relevant Landscape Character Areas (LCAs), thee include 'A - The Slieveardagh Hills (North & South)', 'A1 - Slieveardagh Western Transition Zone' and 'A2 - Slieveardagh Central Transition Zone'.

13.3.1.3.5 Laois County Development Plan (CDP) 2021-2027

Whilst the Proposed Development is not located within County Laois, a section of County Laois is located within the wider northern periphery of the study area, and thus, it is important to include landscape related policies and designations in County Laois within the study area.

A County Laois Landscape Character Assessment has been prepared as part of the current Laois County Development Plan (CDP). Section 4 of the Assessment entails "Landscape Trends of County Laois," with section 4.2 relating to "Infrastructure and Industry," which states that:

> *"…Wind energy is also a visually prominent form of development and should be located away from highly sensitive landscapes and those of exceptional value. One landscape character type in the county being considered for this form of development is harvested peatland. While substantially lower than hill and mountain locations, the potential landscape impact will still need careful appraisal."*

In Section 5 of the County Laois Landscape Character Assessment, the county is divided up into seven Landscape Character Areas (i.e., distinct types of landscape that are relatively homogenous in character). The Co. Laois Landscape Character Area that is nearest to the site, is the 'Rolling Hills Area' LCA. Notwithstanding, it is important to note that this landscape unit is located some c.13km north of the site at its nearest point. This LCA is classified with a 'Medium Sensitivity', which are described as "areas with the capacity to accommodate a range of uses without significant adverse effects on the appearance or character of the landscape having regards to localised sensitivity factors".

13.3.1.4 Ecological 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.

In this instance the following ecological designations are located within the central study area, as below:

- pNHA - Laffansbirdge proposed Natural Heritage Area, c. 5km south of the site
- pNHA - Kilcooly Abbey Lake proposed Natural Heritage Area, c. 5km northeast of the site

For further discussions on designated ecological sites, please see Chapter 6 - Biodiversity and Chapter 7 - Ornithology.

13.3.2 Visual Baseline

Only those parts of the study area that potentially afford views of the Proposed Development are of interest to this part of the assessment. Therefore, the first part of the visual baseline is establishing a 'Zone of Theoretical Visibility' (ZTV) and subsequently, identifying important visual receptors from which to base the visual impact assessment.

13.3.2.1 Zone of Theoretic Visibility

A computer-generated ZTV map has been prepared to illustrate from where the Proposed Development is potentially visible. The ZTV below is based on a tip height of 190m as a worst-case scenario for potential visibility within the study area. 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 Development will definitely not be visible, due to terrain screening within the 20km study area.

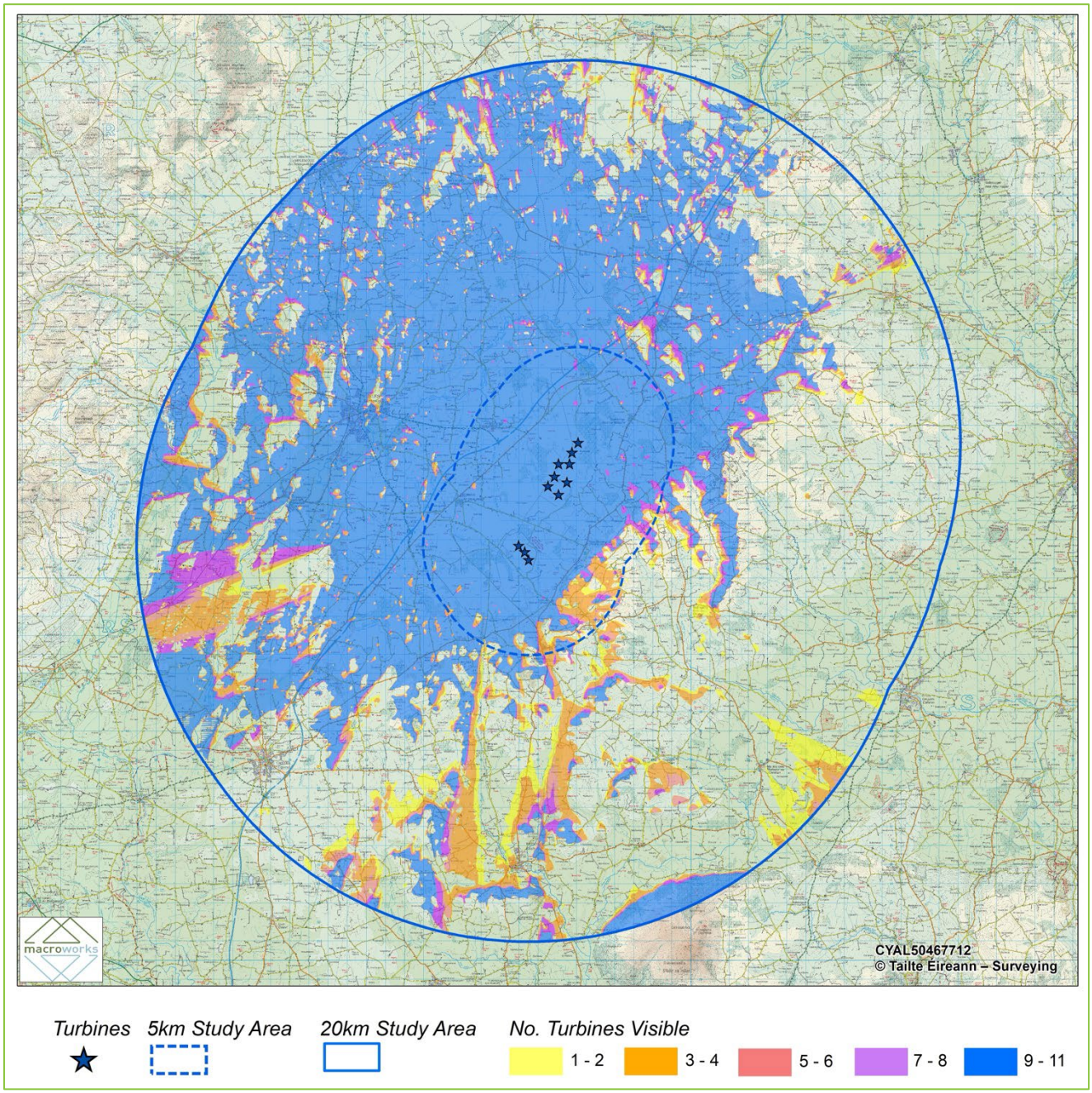

Figure 13-7: Bare-ground Zone of Theoretically Visibility (ZTV) Map based on a turbine tip height of 200m. (See Appendix 13.2 for larger scale map)

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

- The predominance of theoretical visibility is concentrated in the central parts of the study area and across the wider flat to low-rolling landscape in the northern and western extents of the wider study area.
- Due to the flat nature of the peatlands containing the site, combined with the flat to low-rolling terrain in their immediate surroundings, comprehensive visibility (blue colour pattern) will occur across much of the immediate site surroundings and the central study area.
- All settlements and population centres within the central study area, aside from Killenaule, will have comprehensive theoretical visibility of the proposed turbine array. Killenaule itself affords sporadic theoretical visibility, with the most notable areas of potential visibility located on elevated land in the western parts of the town.
- The greatest change in theoretical visibility occurs on the eastern periphery of the central study area, where a steep escarpment of hills and ridges screens much of the wider landscape in the eastern half of the study area.
- Visibility in the wider northeast quadrant of the study area also tends to diminish beyond approximately 10–15 km due to the local rolling terrain surrounding the Slieveardagh Hills.
- While much of the northwest quadrant is covered by extensive areas of comprehensive ZTV pattern, the southwest quadrant benefits from greater screening by rolling terrain. A series of rolling hills and ridges to the northeast of Cashel substantially screens much of the settlement, and there will be no potential visibility of the proposed turbines from the highly sensitive receptor of the Rock of Cashel.
- Similar to the southwest quadrant, the southeast quadrant benefits from screening provided by a crest of hills and ridges located approximately 5–8 km south of the site, with limited potential visibility of the turbines beyond roughly 8 km south. However, potential visibility re-emerges on the southeast periphery of the study area, where the terrain begins to rise toward the summit of Slievenamon.

13.3.2.2 Route Screening Analysis

Whilst the standard ZTV map outlines baseline theoretical visibility within the study area, it grossly overestimates the actual degree of visibility and does not take existing hedgerows, woodland and large areas of forestry into account, which, in this case will offer a notable degree of screening in the direction of the proposed development.

Route Screening Analysis (RSA), as its name suggests, considers actual visibility of the proposed wind farm from surrounding roads using current imagery captured in the field, then subsequently reviewed in the context of a digital model of the project. Route Screening Analysis bridges the gap for the assessor between the computer generated, theoretical visibility modelling (e.g. ZTV maps) and the actual nature of visibility in a given area. In order to get a clearer understanding of visibility within the Central Study Area, RSA was undertaken for every road within a 5km radius of the proposed turbines using a Digital Surface Model (DSM) and sample points every 25m along each road/waymarked route.

The RSA consists of three visibility scenarios: open visibility; partial visibility; and fully screened. In this instance, 'open visibility' is conservatively judged to occur if the view of a full blade rotation of any one single turbine is afforded. 'Partial visibility' occurs when there is view of less than a full blade rotation of any particular turbine/s occurs.

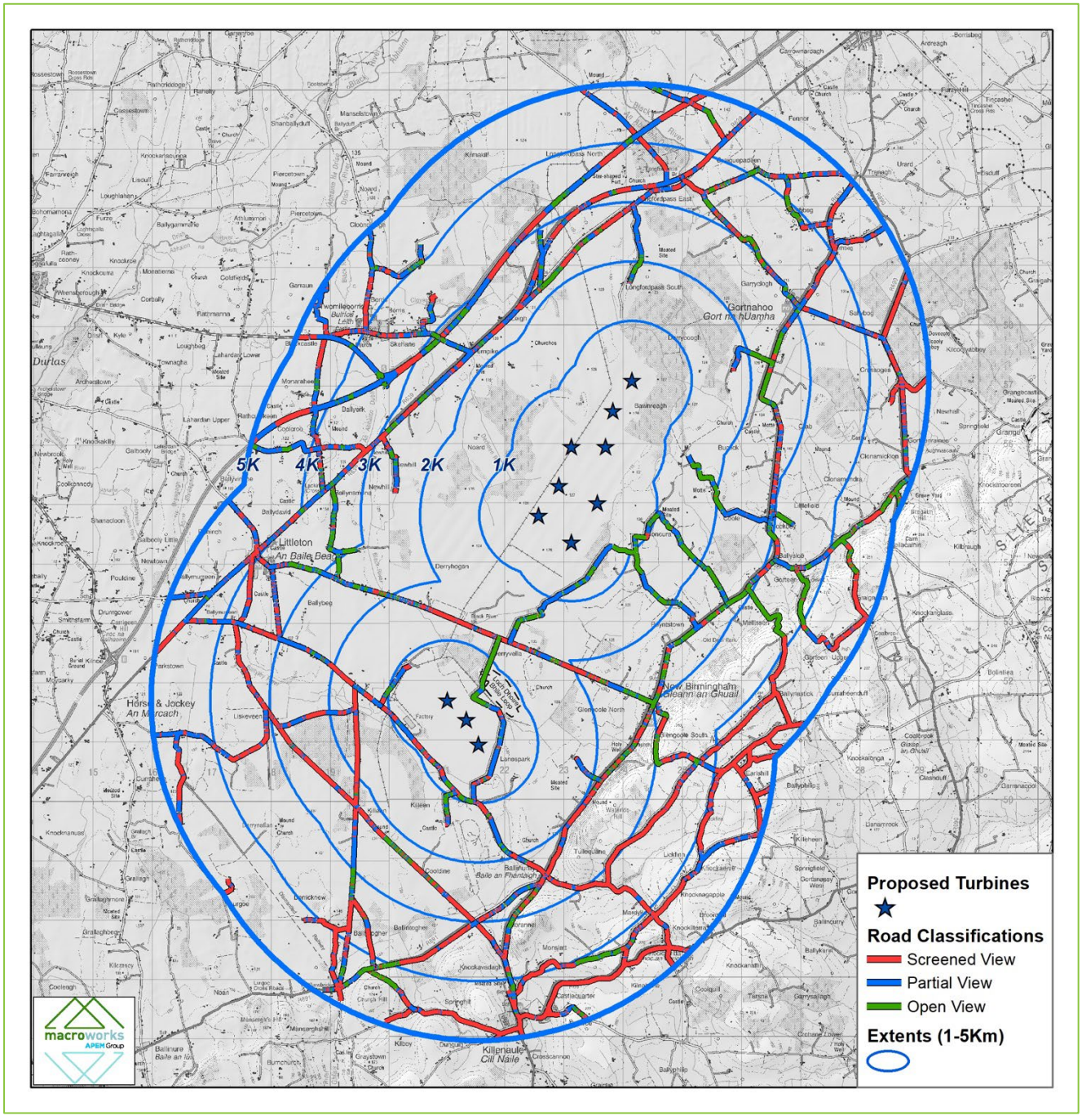

Figure 13-8: Route Screening Analysis (RSA) Map (See Appendix 13.2 for larger scale map)

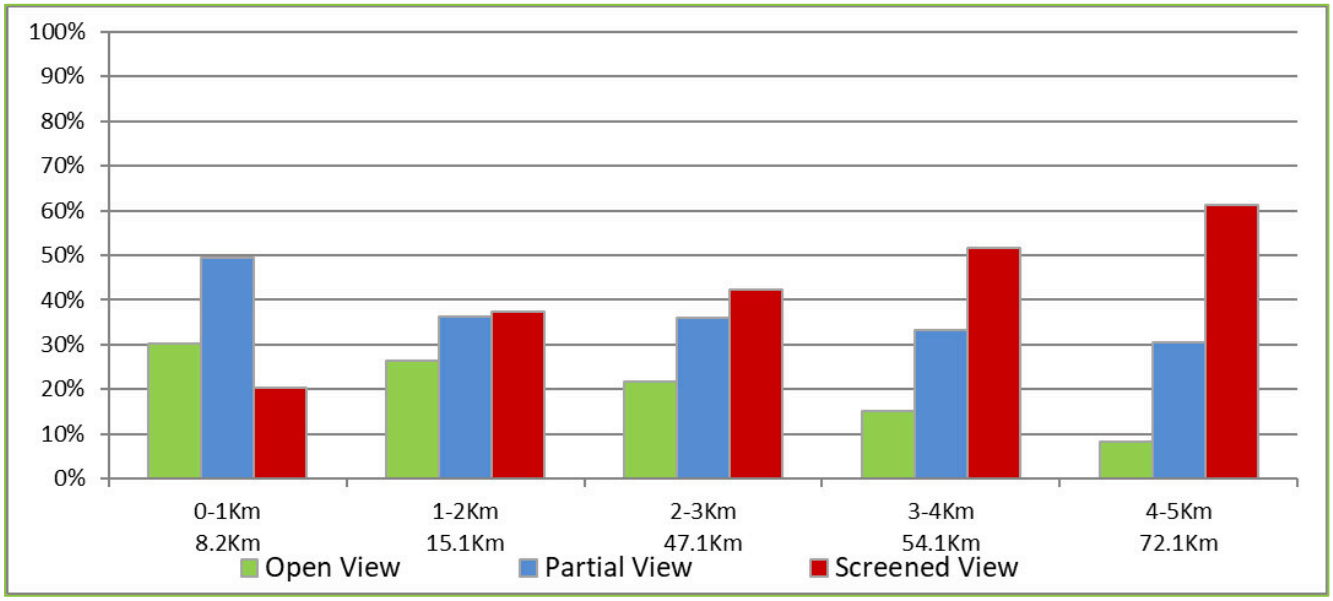

Figure 13-9: Graph illustrating results of Route Screening Analysis

The RSA map (Figure 13-8) and associated graph (Figure 13-9) illustrate a notable degree of wind farm screening from the surrounding regional and local road networks. Of particular note are the routes within the south-eastern and southern extents of the 5 km study area, which show a high degree of screening. This results from the notable intervening terrain to the east of the site, as well as the more substantial areas of established conifer woodland and intervening vegetation located to the south of the Lanespark turbines.

Partial views tend to be the dominant category within the 0–1 km range, highlighting the degree of screening in the immediate surroundings of the site, along with the dispersed nature of the development, which comprises two distinct turbine arrays. Beyond 2 km from the site, the dominant category is screened views, reflecting the generally flat nature of much of the study area, where layers of existing intervening vegetation tend to notably restrict views of the proposed turbines. Outside of the 1km band, the 'open view' category is by far the least prominent road classification and never forms more than 22% of the extent of the routes assessed.

Screened Views

Fully screened views fluctuate from just over 20% to more than 60% across the distance bands, with steady increases in screening corresponding to greater distance. The most notable increase occurs between the 0–1 km and 1–2 km bands, where screened views rise by just under 20%. Beyond this, there is a steady increase across the remaining three bands.

Although screened views are present throughout the full extent of the 5 km RSA area, the greatest concentration of this category occurs to the south and southeast. To the southeast, the proposed development will benefit from a notable degree of screening by intervening landform and vegetation, resulting in limited potential for any visibility beyond 3 km. To the south, beyond the 2 km distance band, there is also a marked concentration of screened views due to the large expanses of mature conifer woodland located to the south of the Lanespark turbine array. This mature vegetation, combined with the flat nature of the surrounding terrain, significantly restricts turbine visibility in this area.

Partial Views

The partial views category is the dominant category in the 0–1 km distance band, accounting for around 50% of the assessed routes. This reflects the dispersed nature of the proposed development, combined with the notable layers of screening both between the two distinct turbine arrays and within the landscape immediately surrounding the site. Beyond the 0–1 km distance band, the partial views category remains the second most prominent category and decreases only marginally across the four remaining bands, from just over 35% in the 1–2 km band to just over 30% in the 4–5 km band.

There is no distinct spatial pattern associated with the partial views category, which is typical of a relatively flat landscape such as this. Indeed, it is often reflective of areas that benefit from slightly reduced vegetative screening along the immediate route corridor, allowing views towards the site, while further layers of vegetation partially and intermittently screen the proposed turbines.

Open Views

As noted in Figure 13-9 the open views category is the least prominent of the three across all distance bands, decreasing from a maximum of approximately 30% of the assessed roads to less than 10% in the 4–5 km band. Indeed, open views steadily decrease across the five distance bands.

The principal concentration of open-view routes occurs to the east of the proposed development, where the terrain gradually ascends towards low ridges located just over 3 km east of the proposed turbine array. To the west, there is a less notable concentration of open views, reflecting the flat nature of the terrain in this part of the study area. Open views here tend to be obtained from the nearest surrounding local and regional roads to the proposed development.

At the settlement of Littleton, there is a small concentration of open views along the surrounding local roads to the east and northeast of the settlement. With regard to the M8 motorway, there is a relatively limited extent of open-view potential, with open views occurring principally along a section of its route to the northwest of the Littleton Bog turbine array.

As the methodology used for the RSA requires only a view of the full blade set of one turbine to record an ‘open view’ of the project, it is useful to analyse the ‘open view’ set in more detail to establish how many turbines are actually visible in each instance (see Figure 13-10 and accompanying graph at Figure 13-11)

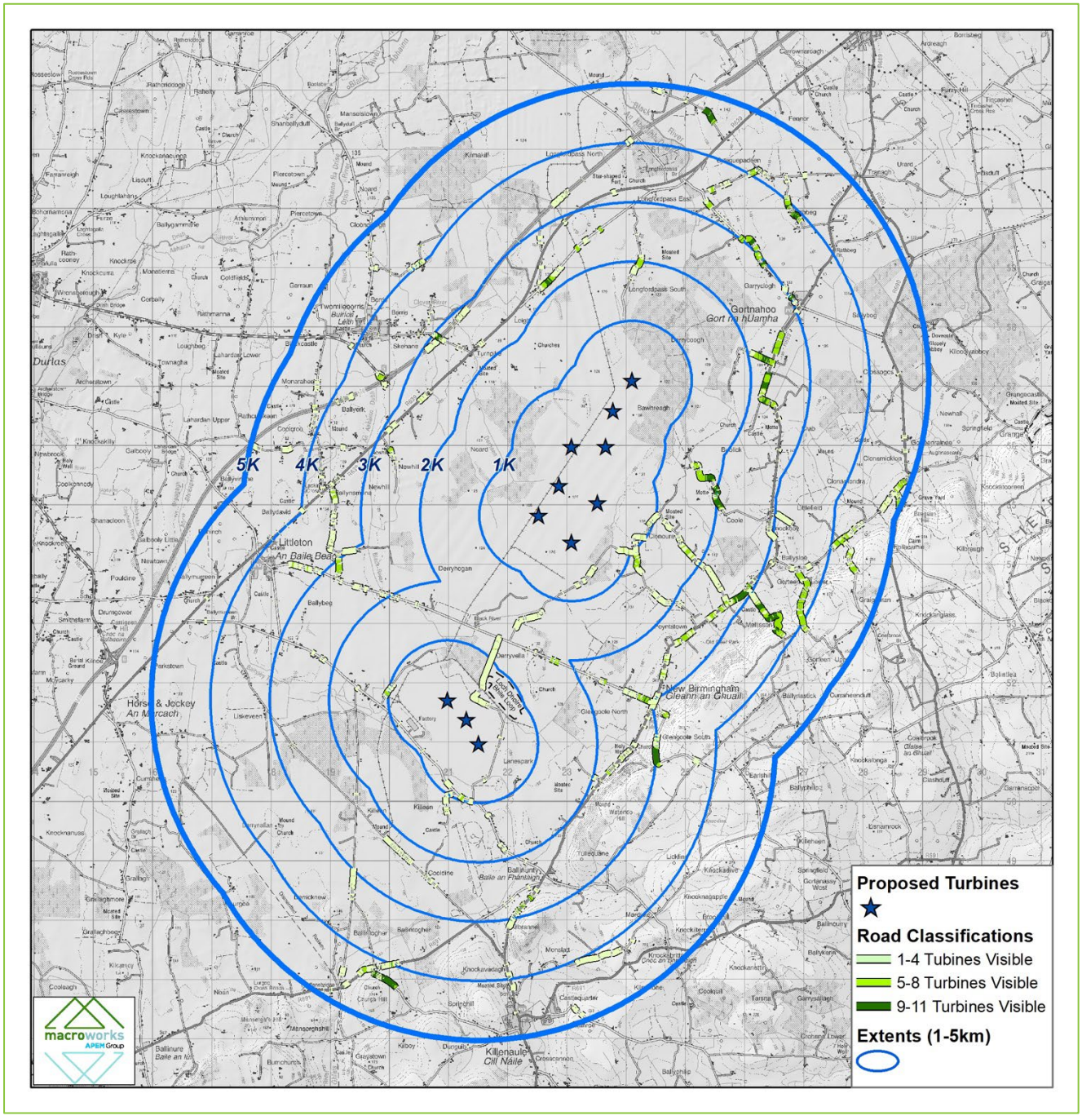

Figure 13-10: Map of Route Screening Analysis for 'Open Views' (See Appendix 13.2 for larger scale map)

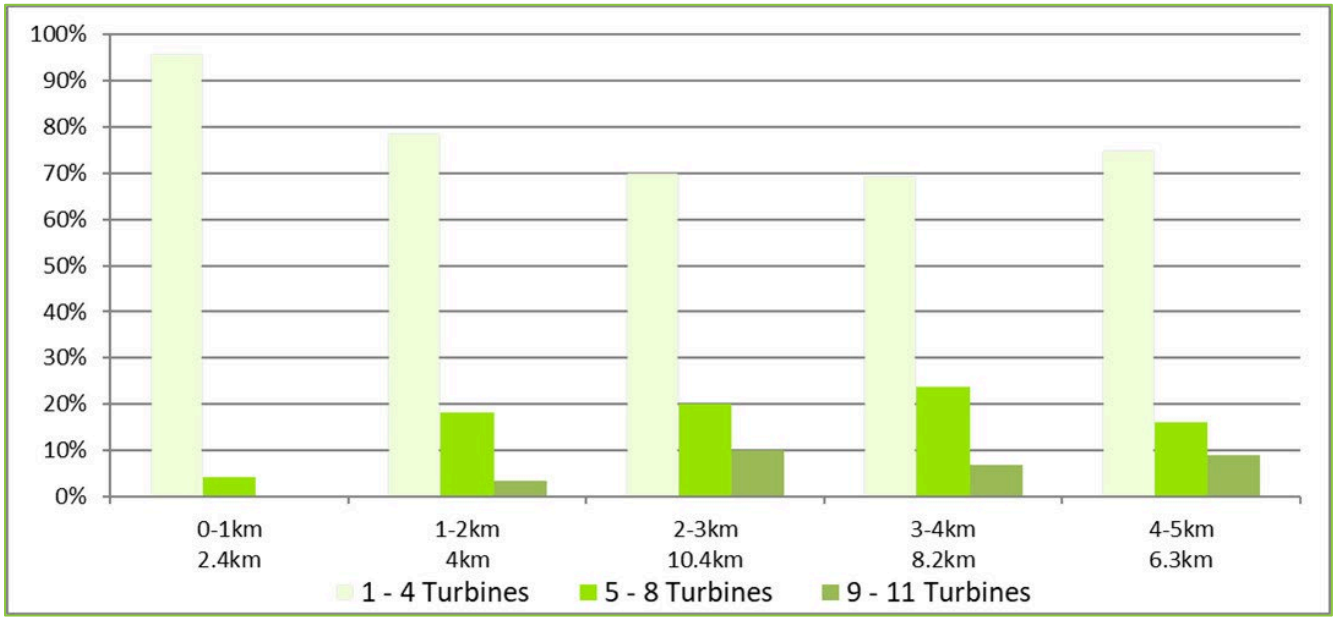

Figure 13-11: Graph illustrating RSA results for 'Open Views'

As per Figure 13-10 and Figure 13-11 above, within the open views category the dominant views comprise four or fewer turbines across all distance bands. Indeed, views of four or fewer turbines represent between just under 60% and just over 90% of all assessed open views across the distance bands. Notably, views of between nine and eleven turbines are the least prominent category across all assessed open views, with only limited potential for views of more than nine turbines within 2 km of the proposed turbine array. This is relatively typical of a flat landscape context such as this, and results from the extensive nature of the proposed array, which comprises two distinct turbine clusters. The most notable potential for views of between nine and eleven turbines occurs within the 4–5 km band. This is principally associated with locally elevated areas to the east of the site.

Overall, the RSA analysis indicates that there will be limited potential for clear views of all proposed turbines, with the exception of some intermittent elevated local and regional roads located to the east of the site, between the settlements of New Birmingham and Gortnahoo. Beyond this area, open views are generally limited to four or fewer turbines across all distance bands. The RSA also reflects the predominantly flat nature of much of the study area, where, despite the turbines rising to a height of 200 m, they benefit from a notable degree of vegetative screening and screening from surrounding built development from receptors, even within the near vicinity of the proposed turbine array.

13.3.2.3 Views of Recognised Scenic Value

Views of recognised scenic value are primarily indicated within Tipperary, Kilkenny and Laois 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 Tipperary, Kilkenny and Laois that fall inside the ZTV pattern (see Table 13.6 below) were investigated during fieldwork to determine whether actual views of the proposed wind farm might be afforded. Where visibility may occur, a viewpoint has been selected for use in the visual impact appraisal later in this chapter. 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 13-6: Rationale for selection of scenic designations within relevant County Development Plans

Scenic View ref:	Relevance to visual impact appraisal?	VP ref no. herein
Tipperary County Development Plan 2022-2028 – Scenic Views		
V1-V7	**Not Relevant** – Views located outside of ZTV pattern or oriented in the opposite direction to the Proposed Development	-
V27	**Yes Relevant** - Views potentially afforded in the direction of the site	VP25
V39	**Not Relevant** – Views oriented in the opposite direction to the Proposed Development	-
V40	**Not Relevant** - ZTV identifies very limited potential for visibility of the proposed turbines	-
V62	**Yes Relevant** - Views potentially afforded in the direction of the Proposed Development	VP14
Tipperary County Development Plan 2022-2028 - Scenic Routes		
V12	**Not relevant** - scenic route located outside of ZTV pattern	-
V28	**Not relevant** - scenic route located outside of ZTV pattern	-
V29	**Not relevant** - scenic route located outside of ZTV pattern	-
V30	**Yes relevant** - intermittently visibility potential afforded in the direction of the Proposed Development	VP32
V31	**Yes relevant** - views afforded in the direction of the Proposed Development	VP24
V33	**Not relevant** - scenic route located outside of ZTV pattern	-
V35	**Not relevant** - scenic route located outside of ZTV pattern	-
V54	**Not relevant** - Whilst the ZTV identifies the potential for visibility from sections of this scenic route within the study area, it is located a considerable distance from the site in a relatively flat part of the landscape. Thus, it is not considered that any clear visibility of the turbines will be afforded from this distance	-
V55	**Not relevant** - The proposed turbines have the potential to be viewed from here but from distances of over c.19km. Furthermore, the will not be viewed in the main aspect of the scenic designations, which is to the north and south.	-
V63	**Yes relevant** - views afforded in the direction of the Proposed Development	VP7
Kilkenny County Development Plan 2021-2017 - Scenic Views		
V14	**Not relevant** - scenic designation oriented in the opposite direction to the Proposed Development	-
VP16	**Not relevant** - scenic designation oriented in the opposite direction to the Proposed Development	-

Scenic View ref:	Relevance to visual impact appraisal?	VP ref no. herein
Laois County Development Plan 2021-2027 - Scenic Views		
004	**Not relevant** - scenic designation oriented in the opposite direction to the Proposed Development	-
014	**Not relevant** - scenic designation oriented in the opposite direction to the Proposed Development	-
021	**Not relevant** - scenic designation located outside of ZTV pattern	-

Policy relating to scenic designations in the Tipperary County Development Plans is included below. Policy and objectives relating to scenic designations in Kilkenny and Offaly have not been included as no relevant scenic designations have been identified.

Tipperary CDP - Policy

Planning Policy 11-17: *"Ensure the protection of the visual amenity, landscape quality and character of designated 'Primary' and 'Secondary' amenity areas. Developments which would have a significant adverse material impact on the visual amenities of the area will not be supported. New development shall have regard to the following:*

Developments should avoid visually prominent locations and be designed to use existing topography to minimise adverse visual impact on the character of primary and secondary amenity areas.

Buildings and structures shall integrate with the landscape through careful use of scale, form and finishes.

Existing landscape features, including trees, hedgerows and distinctive boundary treatment shall be protected and integrated into the design proposal."

13.3.2.4 Centre of Population

Wind Farm Site and Central Study Area

The central study area encompasses several small settlements, the majority of which are situated to the west of the site. Ballinunty is the nearest, located just over 2 km southeast of the proposed turbine array. The village of Gortnahoe lies approximately 2.5 km northeast of the site at its closest point, while New Birmingham is situated just under 2 km to the east. The small centre of population of Ballysloe is also located to the east, at just over 3 km from the nearest turbine. Littleton and Twomileborris are the only settlements within the central study area situated to the west of the site, located 2.6 km and 2 km from the proposed turbine array, respectively. Finally, the village of Killenaule lies around 4 km southeast of the site. The central study area also comprises a modest but notable rural population, primarily made up of small linear clusters of dwellings, isolated rural homes, and farmsteads. The nearest of these are located along local roads and laneways, where the peat bogs transition into pastoral fields.

Wider Study Area

The wider study area comprises numerous settlements of varying sizes. The most notable settlements within the area are Thurles and Cashel. Thurles is located approximately 9 km west of the site, while Cashel lies over 17 km to the southwest.

Urlingford and Johnstown are situated in the northern part of the wider study area along the R639 regional road, with Urlingford approximately 6.8 km north of the site and Johnstown around 10.5 km to the north. The western half of the wider study area also includes the smaller settlements of Templetuoy, Templemore, Borrisoleigh, Holycross, and Clonoulty.

The southern and eastern parts of the wider study area contain several small towns and villages, including Fethard, Drangan, Mullinahone, Ballingarry, Kilmanagh, Tullaroan, and Freshford.

13.3.2.5 Transport Routes

The principal transport route in relation to the Proposed Development is the M8 motorway, which traverses the study area in a general northeast–southwest direction. The M8 passes east of the Proposed Development and is approximately 2.8 km northeast of the proposed turbine array at its nearest point.

The N75 and N62 national secondary routes are also located along the periphery of the central study area, extending west from the M8 motorway. The R639 regional road is the closest major route to the Proposed Development, situated roughly 2 km east of the site at its nearest point and traversing the study area in a northeast–southwest direction. The R689 regional road also lies within the central study area, connecting the settlements of New Birmingham and Ballinunty, and is approximately 2.4 km southeast of the site. The R690 and R691 regional roads are the only other major routes within the central study area, located along its easternmost periphery.

The central study area additionally contains a network of interconnecting local roads and laneways. These local routes occur in all directions around the site and may afford some of the nearest visibility of the proposed turbines. Many of the major routes outlined above also extend throughout the wider study area, along with numerous other regional roads, including the R433, R435, R498, R501, R502, R659, R660, R661, R695, R689, R692, R706, and R688.

A section of the Dublin–Cork National Railway Line also passes through the wider study area, traversing the settlement of Thurles approximately 11 km west of the site.

13.3.2.6 Tourism, Recreational and Heritage Features

The central and wider study area encompasses numerous heritage, recreation and tourism receptors that possess a variety of values and sensitivities. The nearest of these to the Proposed Development is the Lough Doire Bhile Loop Walk which is contained around a small Lough located immediately adjacent to the southern turbine array. The small lake is also popular among local anglers.

Derrynaflan Church is located at the summit of one of the only low-rolling hills located in the near vicinity of the site and is encircled by broad areas of peat bog. The Church ruins are located some 3.6km southwest of the nearest turbine and are accessed via the new Horse and Jockey Derrynalflan walking trail.

Kilcooley Estate is located some 4km northwest of the site and dates back to 1182. The estate now includes the remains of Kilcooley Abbey and is accessible to the public.

Grange Loop walking trails are located some c. 7km east of the site, comprising minor roads, forestry tracks and woodland trails, which gently ascend through the mixed forest to the Wellington Monument folly at the summit of the Crag Hill.

The Famine War House 1848, traditionally known as the Ballingarry Warhouse or The Widow McCormack's House, is an Irish farmhouse famous as the site of a skirmish in the Young Irelander Rebellion of 1848 (Ireland's contribution to the Springtime of the Peoples), at which the Irish tricolour was flown for the first time. It is located along a locally elevated hill some c. 9km east of the site and is accessible to the public.

Holy Cross Abbey is situated in the small village of Holycross, some c. 12km west of the nearest proposed turbine. Dating back to 1168, the Cistercian abbey is situated along the banks of the River Suir and is one of Ireland's national Monuments.

The Rock of Cashel is nationally and internationally renowned and is a popular tourist attraction in this part of the Country. Set on a dramatic outcrop of limestone in the Golden Vale, the Rock of Cashel, iconic in its historical significance, possesses the most impressive cluster of medieval buildings in Ireland. It is situated in the town of Cashel and is located some c. 17km southwest of the proposed turbine array. The settlement of Cashel also encompasses a section of the Tipperary Heritage Way, which extends south from the Rock of Cashel.

The wider western half of the study area also comprises sections of the North Kilkenny On-road cycle route, whilst a National Loop Walk known as the Gathabawn Loop is located in the northeast periphery of the wider study area.

13.3.3 Identification of Viewshed Reference Points as a Basis for Assessment

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

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

Key Views (KV)

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

Designated Scenic Routes and Views (SR/SV)

Due to their identification in the County Development Plan this type of VRP location represents a general policy consensus on locations of high scenic value within the Study Area. These are commonly elevated, long distance, panoramic views and may or may not be mapped from precise locations. They are more likely to be experienced by static viewers who seek out or stop to take in such vistas.

Local Community Views (LCV)

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

Centres of Population (CP)

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

Major Routes (MR)

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

The Viewshed Reference Points selected in this instance are set out in the Table 13.7 and Figure 13-12 below.

Table 13-7: Outline description of selected Viewshed Reference Points (VRPs)

VRP No.	Location	Distance to nearest turbine	Representative of	Direction of view
VP1	Graveyard at Templemore	19.1km (T1)	CP, AH	SE
VP2	Templetuohy Cemetery	14.6km (T1)	CP, AH	SE
VP3	Johnstown Cemetery	10.3km (T1)	CP, AH, MR	S
VP4	Local cemetery at Cooleeny	8.1km (T1)	AH	SE
VP5	R689 at Urlingford	6.9km(T1)	CP, MR	SW
VP6	Local road at Castletown	5.9km (T1)	LCV	SE
VP7	M8 at Lonfordpass North	3.3km (T1)	MR, LCV, SR	S
VP8	Local road at Leigh	2.2km (T1)	LCV	S
VP9	Good Shepherd Cemetery Gortnahoe	2.9km (T1)	CP, AH, LCV	SW
VP10	Kilcooley Abbey	5.1km (T1)	AH	SW
VP11	L4202 at Twomileborris	3.2km (T4)	CP, LCV	E
VP12	Local road at Grangecastle	6.7km (T1)	AH, CP	SW
VP13	N75 east of Thurles	8.9km (T7)	CP, MR	E
VP14	N75 at Borris	3.7km (T4)	SV, LCV, MR	E
VP15	Buolick Graveyard	2.0km (T1)	AH, LCV	W, SW
VP16	R690 at Clonamicklon	4.8km (T1)	LCV	W, SW
VP17	Local road at Poyntstown (1)	1.8km (T3)	LCV	W, SW
VP18	Local road adjacent to Two-mile Borris GAA club at Newhill	2.5km (T7)	LCV	E, SE
VP19	R639 north of Littleton Town Centre	4.0km (T9)	CP, LCV, MR	NE, E, SE
VP20	Local road at Poyntstown (2)	1.3km (T8)	LCV	NW, W, SW
VP21	Local road at Derryhogan	1.7km (T9)	LCV	N, S
VP22	Holycross Cemetery	12.3km (T9)	AH, CP	E, NE
VP23	R639 at Ballymoreen Graveyard	4.4km (T9)	MR, AH, LCV	NE

VRP No.	Location	Distance to nearest turbine	Representative of	Direction of view
VP24	R689 at Poyntstown	2.5km (T8)	MR, LCV, SR	NE, E, SE
VP25	Famine Warhouse 1848	9.4km (T6)	SV, AH	W
VP26	Local road at Littleton	2.3km (T9)	LCV	E, NE
VP27	Lough Doire Bhile Loop	0.7km (T10)	AH, LCV	N, S
VP28	R689 at New Birmingham	3.0km (T11)	CP, MR, LCV	W, NW
VP29	Local road at Killeen	1.0km (T11)	LCV	N
VP30	Derrynaflan Chruch	3.6km (T9)	AH	NE
VP31	R689 at Ballinunty	2.5km (T11)	CP, LCV, MR	NE
VP32	Local road at Killenaule	4.6km (T11)	CP, LCV	N
VP33	Rock of Cashel	17.2km (T11)	AH, CP	NE

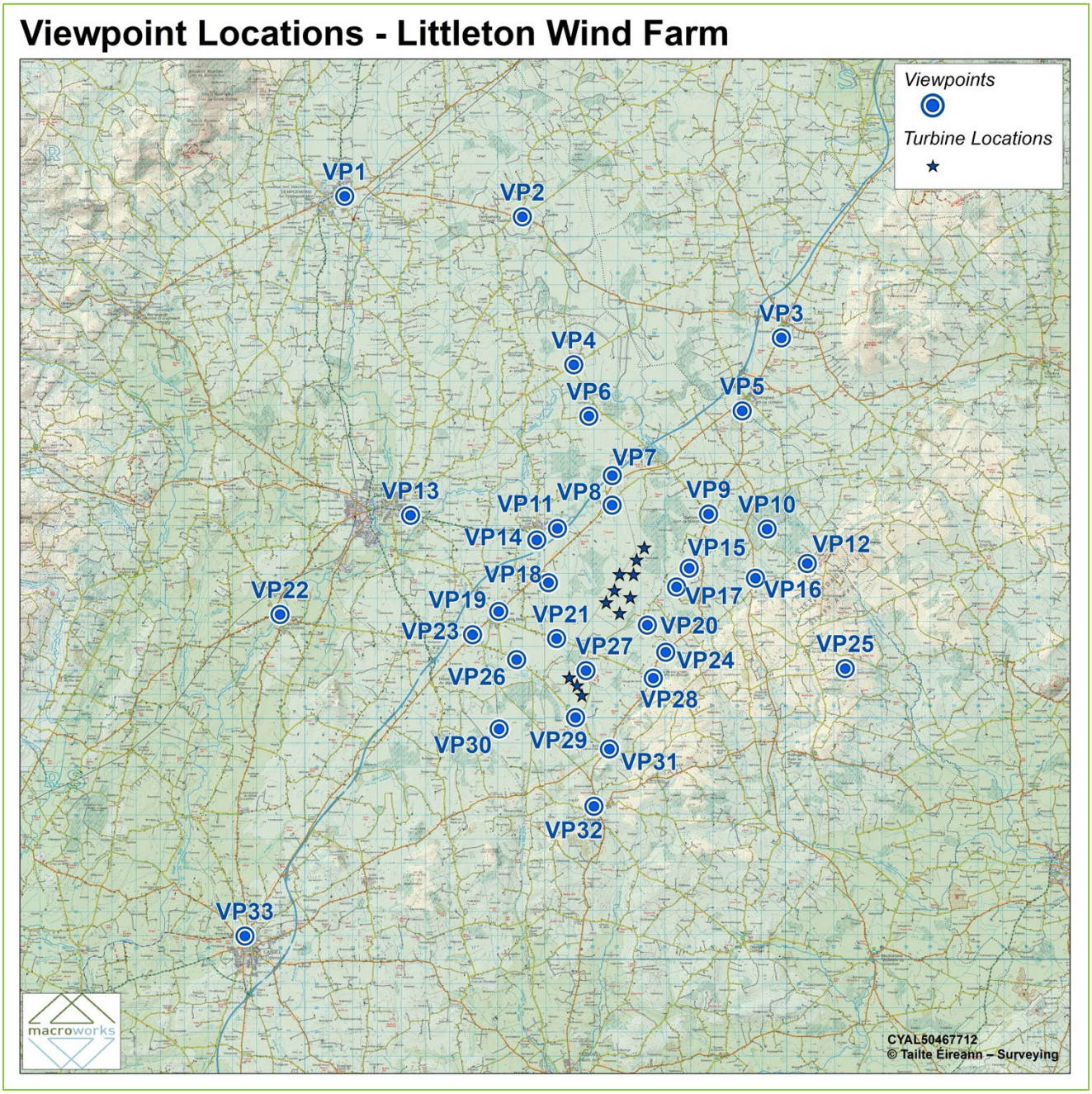

Figure 13-12: Map of Viewpoint Locations (refer to Appendix 13.2 for larger scale mapping)

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 13.3). From previous extensive experience of this type of project in a flat peatland landscape surrounded by a flat to low-rolling rural landscape context, it is considered that potentially significant landscape and visual effects have the potential to occur in the following ways:

Landscape Effects

- Irreversible physical effects on sensitive landscape features
- Disruption of sensitive land cover and/or land use patterns
- Substantial and incongruous change to areas of sensitive landscape character

Visual Effects

- A sense of spatial dominance as seen from highly sensitive receptor locations. This is most likely to occur within 3km of the Proposed Development.
- 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.
- A combination of both of the above effects.

From baseline studies and early-stage assessments specific to the Proposed Development, some of the most susceptible landscape units/receptors are considered to be the more elevated lands in the surrounds of the Slieveardagh Hills in the north-eastern aspects of the study area.

In this instance, the most sensitive visual receptors are the local residential receptors located along the local road network in the immediate vicinity of the site; the scenic views and route designations within the central study area, which afford broad views towards the site; and the local amenity and heritage receptors situated throughout the central and wider study area, such as Lough Doire Bhile, Kilcooley Abbey, Derrynaflan Church, Holy Cross Abbey, and the Rock of Cashel. The central study area also contains several locally sensitive heritage receptors, including churches and graveyards.

13.5 Mitigation Measures

13.5.1 Construction

Aside from construction-stage mitigation measures aimed at minimising land and vegetation disturbance (refer to the Construction and Environmental Management Plan (CEMP) in Appendix 4.1, Volume 3), as well as reducing dust emissions (which may otherwise negatively impact visual amenity), no additional specific mitigation measures are proposed at this stage. These measures, however, will be carefully implemented to reduce any potential visual effects that may arise during construction. The appropriate management of excavations and their timely reinstatement will ensure that any adverse effects, such as those potentially occurring at site entrances or access track/road upgrade locations, are minimised in so far as possible. This process will involve restoring affected areas as soon as is feasible, with the aim of reducing the visibility of temporary disturbances. Furthermore, the protection of existing mature vegetation within and surrounding the Proposed Development Site will play a crucial role in mitigating short-term construction stage visual impacts on the local landscape. A full suite of mitigation measures associated with the construction stage effects of the Proposed Development are described in further detail in the CEMP in Appendix 4.1, Volume 3.

13.5.2 Operation

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 main forms of landscape and visual mitigation employed were:

- Mitigation by avoidance and design
- Buffering of Residential Receptors

13.5.2.1 Mitigation by Avoidance and Design

Landscape and visual mitigation measures have been integrated into the siting and design of the Proposed Development 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 Development complies with the recommendations set out in the 2006 Guidelines. Of particular importance is the location of the Proposed Development within a robust and modified landscape that is considered capable of accommodating wind energy infrastructure, reflected by the 'Open to Consideration' wind energy classification that contains the site and surrounding landscape. 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 Development.

Macro Works has been engaged with this project from an early stage and has provided comments and feedback on initial layout options for the proposed development. Landscape and visual constraints were identified at an early stage and incorporated into initial constraints mapping, which informed the design of the proposed turbine array.

Early-stage wind farm layout analyses were undertaken from key viewpoints within the study area, using wireframe photomontages, to understand the potential visual effects on the nearest surrounding visual receptors. An initial series of layouts, comprising 14–15 turbines with tip heights ranging from 200 m to 220 m, were assessed using wireframe photomontages. The principal comments highlighted by the LVIA consultants from this initial layout analysis related to the height of the proposed turbines. It was considered that this landscape context could only accommodate turbines with a maximum tip height of 200 m without generating potentially significant visual effects at surrounding local receptors.

Although it was recognised that a flat peatland landscape, such as this one, could accommodate taller turbines, the proposed 220 m tip height turbines were identified as presenting with a notable degree of scale conflict and a sense of overbearing at the nearest residential receptors. Consequently, at the initial stage of the assessment, a preference was noted for a 15-turbine array with a maximum tip height of 200 m.

Further iterations of the design were presented with a reduced number of turbines due to various local constraints. The final layout for assessment within the EIAR comprised 11 turbines, all rising to a height of 200 m.

13.5.2.2 Buffering of Residential Receptors

For the Proposed Development, the minimum distance of any turbine from the nearest residential receptor is >800 m, which is in excess of the draft revised Wind Energy Development Guidelines (2019) minimum set back of 500m and greater than the setback distance of 4 times the tip height of the proposed turbines. In this instance and based on the Draft revised WEGS 2019, the setback distance for visual amenity purposes is 200m from residential receptors on the basis of the 200m 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 13-13 below.

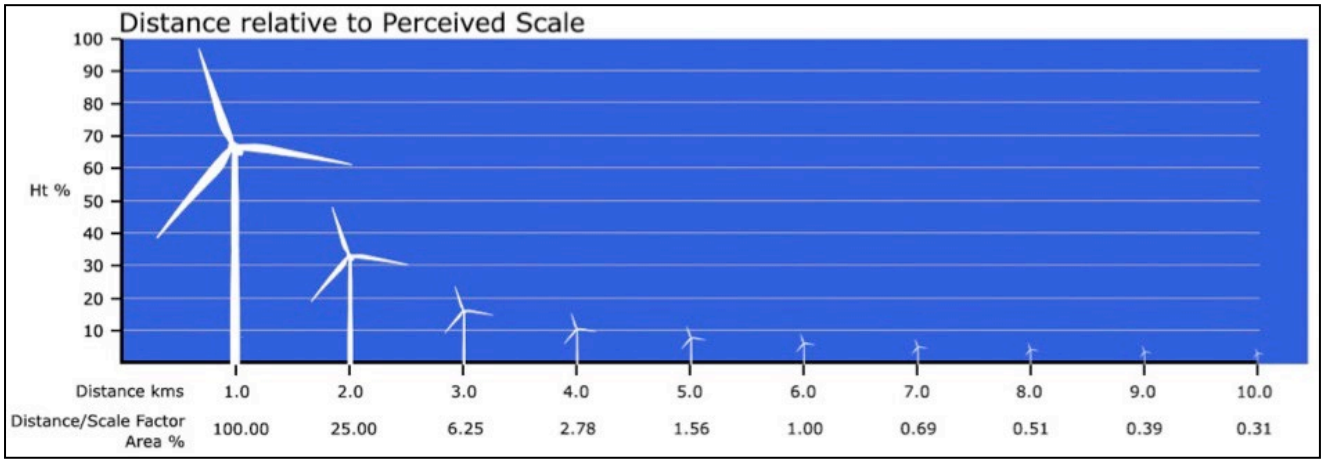

Figure 13-13: Turbine 'scale in relation to distance' relationship

13.6 Monitoring

There are no monitoring measures relevant to landscape and visual.

13.7 Residual Effects - Landscape Effects

13.7.1 Landscape Character, Value and Sensitivity

Effects on landscape character will be considered at both the localised scale of the site and its immediately surrounding landscape as well as the broader scale of the Study Area.

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

Much of the central study area is heavily influenced by extensive areas of peat bog that were historically used for fuel harvesting. Although large-scale peat extraction has now largely ceased, the peat industry remains a notable presence within the central study area. Old railway tracks, formerly used to transport material across the peatlands, are still evident throughout the area, and the large Bord na Móna factory is located along the southern boundary of the site. Nonetheless, the surroundings of these peat bogs are undergoing natural regeneration and/or are bounded by areas of conifer forest, which reduces the overall perceived scale of the peatlands from surrounding local receptors. These peatlands are also interspersed with typical areas of working agricultural farmland, bounded by networks of hedgerows and mature trees. The terrain within the central study area is generally flat to low rolling, and the layers of intervening hedgerow vegetation and small blocks of conifer forest tend to inhibit any strong sense of openness. Exceptions occur on some locally elevated hills, which afford broad views across both the peatlands and the surrounding rural farmland.

Due to its location along one of the main transport routes between Dublin and Cork, the central study area encompasses a modest rural population, with several notable towns and villages situated within it. While the site itself, which is almost entirely contained within peat bog, is unpopulated, the central study area comprises a mix of isolated rural dwellings, farmsteads, and linear clusters of dwellings, in addition to several settlements. The nearest settlement is Ballinunty, located approximately 2.4 km southeast of the nearest turbine. As noted previously, the central study area is heavily influenced by the existing M8 motorway corridor, which runs along its northwest periphery. Several other major interconnecting routes, including the N75, R639, R689, R690, and R691, also traverse the central study area.

In terms of scenic amenity value, the central study area includes some designated scenic areas, principally associated with the more elevated rolling lands in its western extent. A scenic route traverses a section of the R689, offering broad views across the central study area and the wider western extent of the study area. A section of a scenic route designation also occurs along the R691, which extends east from Killenaule. However, much of the scenic amenity along this route relates to more contained views, in addition to distant views southwards towards Slievenamon. The M8 in the northeast quadrant of the central study area also has a scenic route designation, described as "views from M8 near Longford's Pass." A scenic view designation is located along the N75 on the western periphery of the study area, described as "views from the N75 in Borris, east of Thurles." Notwithstanding these scenic route and view designations, large parts of the central study area convey a notable sense of enclosure due to the flat terrain, combined with the significant presence of intervening hedgerow vegetation, which limits a strong sense of openness.

The central study area also includes notable landscape values relating to amenity and heritage, much of which is associated with several prominent heritage features in the vicinity of the site. In the immediate context, Lough Doire Bhile is a small lake located immediately north of the three southernmost turbines and features a looped walking trail that follows old bog roadways and footpaths. Derrynaflan Island is one of the more distinctive landscape features within the central study area and comprises Derrynaflan Church, perched atop an elevated rocky outcrop. While not an island in the conventional sense of being surrounded by water, the small rock outcrop, covered in soil, is contained within an expanse of peatland. The island is accessible via a new walking trail that connects it to the nearby small settlement of Horse and Jockey. Another heritage asset of note is Kilcooley Abbey, the grounds of which extend into the central study area. The Abbey is well contained, being encircled by dense conifer woodland. The central study area also includes numerous other heritage assets; however, many of these have more local landscape significance, such as old churches and graveyards. The nearest of these to the site is Buolick Church and Cemetery, located approximately 2 km east of the nearest turbine.

In terms of landscape designations, the entirety of the site and central study area is located within County Tipperary. The site itself falls across LCA 8 – Littleton Raised Bog, and LCA 9 – Littleton Farmland Mosaic and Marginal Peatland'. While both LCAs are classified with a normal/transitional/sensitive sensitivity designation, the dominant sensitivity classification for LCA 8 is 'sensitive', whereas the dominant classification for LCA 9 is 'normal'. Both LCAs have been assigned a 'medium' compatibility rating for wind energy development, reflecting the robustness of these landscape units. Importantly, the site and immediate study area do not include any areas designated as 'primary amenity area' or 'secondary amenity area', further highlighting the more typical and modified character of this landscape context.

In summary, the site and central study area are considered to have strong working landscape values, reflected in both the historical associations with the peat industry and the current traditional agricultural land uses in the surrounding area. Some landscape sensitivities do exist, primarily relating to local areas of amenity and heritage assets. Overall, the site and central study area form a highly modified rural setting, comprising a modest rural settlement pattern of small towns and villages. The M8 motorway is also a notable anthropogenic feature influencing the surrounding landscape. On balance, and for the reasons outlined above, the landscape sensitivity of the site and central study area is considered Medium–Low, although some localised areas of higher sensitivity exist, typically associated with heritage and amenity assets.

Wider Study Area (c.5-20km)

The wider study area encompasses many of the same landscape values and sensitivities as the central study area, although some areas of localised heightened sensitivity are present throughout its extent. In terms of landform, much of the western half of the wider study area reflects the flat to low-rolling characteristics of the central study area. The main variation in terrain occurs in the northeast and eastern sections. The Slieveardagh Hills rise in the northeast quadrant along the Tipperary–Kilkenny county boundary, representing some of the most elevated parts of the wider study area. The terrain throughout the eastern half of the study area follows a similar pattern to the Slieveardagh Hills, comprising rolling hills and meandering river valleys. Locally elevated areas provide a sense of openness, offering views across the wider landscape, particularly to the south, where distant views of Slievenamon, backed by the more distant Comeragh Mountains, are visible. Much of the scenic amenity within the wider study area is concentrated in its eastern and south-eastern extents, often relating to views southwards towards Slievenamon.

The western and south-western extents of the study area comprise a more homogenous, typical flat to low-rolling landscape, primarily consisting of agricultural farmland bounded by hedgerow vegetation. However, some areas of heightened sensitivity are present, typically associated with vulnerable heritage features. The most prominent of these is the Rock of Cashel, located along the south-western periphery of the study area.

The Rock of Cashel is nationally and internationally renowned and is listed by Discover Ireland as one of the top ten tourist attractions in the country. Situated on a dramatic limestone outcrop in the Golden Vale, the Rock of Cashel is iconic for its historical significance and contains one of the most impressive clusters of medieval buildings in Ireland. Its prominent location also contributes significantly to the scenic amenity of this part of the study area. Several scenic routes and designated views in the vicinity of Cashel are associated with the Rock of Cashel. Other heritage assets of note within the wider study area include the Famine Ware House (1848) and Holycross Abbey.

While some localised areas of heightened sensitivity exist, the wider study area is heavily influenced by anthropogenic features. There is a considerable presence of wind energy development throughout the area. A cluster of over 40 wind turbines is located across a series of peat bogs and their surrounding pastoral lands in the northern part of the study area, while additional wind farm developments occur along the rolling lands of the western and southern extents. The wider study area also contains numerous urban centres, the largest of which are Cashel and Thurles. Several local quarries are distributed throughout the area, and industrial and commercial land uses are prominent on the outskirts of many urban centres.

In summary, the wider study area is somewhat more varied than the central study area and includes some highly sensitive receptors, many of which are of considerable heritage and tourism value. Nonetheless, the majority of the wider study area comprises a robust, settled rural landscape. Consequently, as with the central study area, the landscape sensitivity of the wider study area is considered Medium–Low.

13.7.2 Do-Nothing Scenario

Please note that irrespective of the consenting of the Proposed Wind Farm the remaining measures outlined in the Rehabilitation Plans, i.e. monitoring of the Littleton, Longfordpass and Lanespark Phase 1 measures and enhanced Phase 2 measures at nearby Ballybeg and Derryvella bogs, will continue to be implemented by BnM in agreement with the EPA. Please see Appendix 2.1 (Volume 3 of the EIAR) and Section 2.2.1 of Chapter 2 of the EIAR for further detail.

The conifer plantations surrounding the site would continue to be managed through rotations of commercial planting and harvesting, while areas of transitional woodland and scrub would continue to develop naturally. The expansion of wind energy development would also likely continue, with consented projects being constructed and additional applications for wind farm developments arising throughout the study area.

13.7.3 Magnitude of Landscape Effects - Construction Stage

The physical landscape as well as the character of the Proposed Development and its central study area (<5km) is affected by the proposed wind turbines as well the GC, TDR and all ancillary development. By contrast, for the wider landscape of the study area, landscape impacts relate exclusively to the influence of the Proposed Development only on landscape character. A full detailed description of each of these physical components that form part of the Proposed Development that are likely have an impact on the physical landscape and landscape character are described in Chapter 4 (Description of the Proposed Development) with construction processes described in the Construction and Environmental Management Plan (CEMP) in Appendix 4.1 Volume 3.

13.7.3.1 Wind Farm Site

It is considered that the Proposed Development will have a modest physical impact on the landscape within the site as none of the Proposed Development features have a large 'footprint' and land disturbance/vegetation clearing will be relatively limited. The topography and land cover of the Proposed Development site will remain largely unaltered with construction being limited to tracks, areas of hard standing for the turbines, the on-site substation compound, temporary site construction compound, proposed met mast and proposed borrow pit. Excavations will tie into existing ground levels and will be the minimum required for efficient working. Any temporary excavations or stockpiles of material will be re-graded to marry into existing site levels and reseeded appropriately in conjunction with advice from the project ecologist.

The finalised internal access track layout has been designed to avoid environmental constraints, and every effort has been made to minimise the length of necessary access tracks by utilising and upgrading existing tracks where feasible. Overall, a total of 15.44 km of new access track is proposed, whilst a further 2.95 km of existing track will be upgraded. Furthermore, the access track 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 construction-stage surface activities will be minor.

There will be one 110kV on-site substation constructed to collect the power generated from the Proposed Development. The 110kV on-site substation will be located in an area of peat bog in the northern extent of the site and is offset from the boundary of the Proposed Development to limit its potential presence at the nearest surrounding receptors. The proposed substation will have a total area of 9,375m^2 and will consist of 3 no. sub-compounds as follows:

- TSO compound measuring 25 m x 18 m;
- IPP compound measuring 29.2 m x 9.3 m; and
- Ancillary services equipment compound measuring 36.7 m x 12.2 m.

The tallest building is 9.8 m in height.

The substation compound will include 2 no. substation control buildings and electrical components necessary to export the electricity generated from the wind farm to the national grid. The substation compound will be surrounded by a 2.7 m high steel palisade fence and internal fences will also be provided to segregate different areas within the main substation compound. The most notable construction stage landscape impacts resulting from the proposed on-site substation relate to the stripping of soils and localised excavations, along with the construction of concrete foundations to facilitate that substation buildings. 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 will be run in cable ducts up to 1.2 metres below the ground surface 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 site are considered to be modest in the context of this broad landscape setting, which has already been highly modified through years of extraction of peat for fuel.

One permanent meteorological (Met) mast will be erected on site and will comprise of a 120 m high lattice steel mast with a shallow concrete foundation. The proposed mast will be a slender, free-standing structure and will be constructed on a hardstanding area of 12 m x 12 m. The most notable construction stage effects here relate to the minor amount of ground excavation required to facilitate the shallow foundations for the steel mast structures.

Site activity will be at its greatest during the construction phase due to the operation of machinery on site and movement of heavy vehicles to and from site. This phase will have a more significant impact on the character of the site than the operational phase, but it is a 'short-term' impact that will cease as soon as the Proposed Development 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 the on-site substation and grid connection will remain in perpetuity as part of the national grid network. It is likely that with the exception of some residually useful access tracks, all other development features will be removed from the project site, and it will be reinstated upon decommissioning (refer to Section 4.7 of Chapter 4 for description of decommissioning). Thus, the construction stage landscape effects of the Proposed Development 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 5km from the 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 Development becomes a proportionately smaller component of the overall landscape fabric.

13.7.3.2 Grid Connection and Turbine Delivery Route

During the construction stage, there will be some disturbance to land and vegetation along the grid connection route (GC) and turbine delivery route (TDR). This will result in the loss of small, localised areas of vegetation and temporary ground disturbance to facilitate excavation works for the laying of the grid connection cabling. It is important to note that both the grid connection and TDR will result in very minor and localised landscape effects. Furthermore, any areas of disturbed ground or removed vegetation will be fully reinstated following the completion of construction.

Overall, the magnitude of construction stage landscape effects in relation to the grid connection and turbine delivery route is deemed to be **Medium-low** and of a **Negative** quality, but of a **Short-term** duration. Beyond the immediate context of these linear features the magnitude of landscape impact is deemed to reduce to **Low-Negligible** and **Negligible** at increasing distances as the construction activities relating to these aspects of the Proposed Development becomes a proportionately smaller component of the overall landscape fabric.

13.7.4 Magnitude of Landscape Effects - Operational Stage

13.7.4.1 Wind Farm Site

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. Wind turbines, which may not have been a characteristic feature of the area, thus become a new defining element of the landscape. In this instance, there is a limited physical presence of wind turbines within the central study area. Nevertheless, numerous medium- to large-scale wind farm developments exist just beyond the central study area and will be partially and intermittently visible, particularly from locally elevated vantage points across the wider landscape. Indeed, over 100 wind turbines are located throughout the wider study area, meaning that the proposed development represents the continuation of a well-established land use in this part of County Tipperary and the surrounding area.

In terms of scale and function, the proposed wind farm development is well accommodated within this landscape setting due to the broad-scale nature of the underlying peatland land use patterns. These characteristics prevent the proposed turbine height and overall wind farm extent from causing the type of scale conflict that can arise in more intricate landscapes. The study area also has a strong historical association with the harvesting of peat for fuel and energy. The proposed development represents a continuation of this tradition, albeit in a far more environmentally friendly and less invasive form of energy generation than the previous exploitation of the surrounding peatlands. Overall, the central and wider study areas possess strong working landscape values, which the Proposed Development does not conflict with. Although the development introduces a greater human presence and a higher level of built form than currently exists on the site, it is not anticipated to significantly detract from the productive rural setting.

The Proposed Development also includes for Biodiversity Enhancement Measures and the inclusion of recreational amenity trails within the site. These have the potential to result in some positive and permanent landscape effects within the site. The measures set out in the Biodiversity Enhancement and Management Plan (BEMP - refer to Appendix 6.1, Volume 3) include those designed to protect and enhance existing habitats. Higher value habitats will be actively managed to maintain and improve their value and lower value habitats will see specific interventions designed to improve their attractiveness for a range of species. Appropriate planting will increase the available feeding, roosting and nesting cover for wildlife.

It is important to note that in terms of duration, this development proposal represents a long term, but not permanent impact on the landscape and 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 2-3 years of decommissioning there will be little evidence that a wind farm ever existed on the site, albeit the proposed on-site substation and underground grid connection will remain in perpetuity as part of the national grid infrastructure, in addition to residually useful access tracks.

In summary, whilst the proposed wind farm development will result in some physical impacts on the land cover of the site and the proposed wind farm development will result in a distinct increase in the intensity of development in this landscape context, the scale of the Proposed Development will be well assimilated within its landscape context without undue conflicts of scale with underlying land form and land use patterns. Indeed, the extensive and broad scale of the underlying peatlands can well accommodate larger turbines as set out in the current WEDGs. For these reasons the magnitude of the landscape impact is deemed to be **High-medium** within the Central Study Area. Beyond 5km from the site, the magnitude of landscape impact is deemed to reduce to **Low** and **Negligible** at increasing distances as the wind farm becomes a proportionately smaller component of the overall landscape fabric.

13.7.4.2 Grid Connection and Turbine Delivery Route

There will be limited landscape effects during the operational stage associated with the grid connection and turbine delivery route. Landscape effects relating to the turbine delivery route will be confined to the construction stage of the project, while much of the grid connection route will be installed underground, with trenches fully reinstated during construction. There is potential for a slight intensification of development where the proposed grid connection links to the existing Ballyragget 110/220 kV substation. Nevertheless, any landscape impacts associated with the grid connection during construction are expected to be minor, highly localised, and are assessed as Not Significant.

13.7.5 Decommissioning

13.7.5.1 Wind Farm Site

A description of decommissioning activities is included in Section 4.7 of Chapter 4. The decommissioning phase will have similar temporary impacts as the construction phase with the movement of large turbine components away from the site. There may be a minor loss of roadside and trackside vegetation that has grown during the operation phase of the project, but this can be reinstated upon completion of decommissioning.

Works in this phase will primarily involve disassembling the turbines and removing off-site. It is not envisioned that site roads or turbine foundations will be removed. Instead, the all the internal site access tracks and the turbine foundations and hardstands will be left in place, covered in topsoil and revegetated. The substation infrastructure will form part of the permanent national grid network and will remain in-situ. The decommissioning works will take no longer than 6 months to complete. A decommissioning plan is contained within the CEMP (Appendix 4.1, Volume 3).

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 **Temporary** duration. Beyond 5km from the 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.

13.7.5.2 Grid Connection and Turbine Delivery Route

There will be no decommissioning works associated with the grid connection or turbine delivery route. The grid connection will remain in situ as part of the national grid infrastructure. Regarding the turbine delivery route, any accommodation works required during construction will not be needed at decommissioning, as the turbine components can be dismantled on-site and removed using standard HGVs. Consequently, the Proposed Development will not generate any landscape effects during the decommissioning stage.

13.7.6 Significance 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 (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 deemed to be **Substantial-moderate / Negative / Short-term** within and immediately around the site during construction and decommissioning, but reducing quickly with distance and within the broader context. Thus, landscape effects at the construction and decommissioning stage are deemed Not Significant.

Based on a **Medium-low** sensitivity judgement and a **High-medium** magnitude of operational stage landscape impact, the significance of effect is considered to be **Substantial-moderate / Negative / Long-term** within and immediately around the site. Thereafter, significance will reduce to **Moderate, Slight** and **Imperceptible** at increasing distances as the development becomes a progressively smaller component of the wider landscape fabric even in the context of higher sensitivity landscape units / features. Thus, landscape effects during the operational phase of the Proposed Development are deemed Not Significant.

13.8 Residual Effects - Visual Effects

13.8.1 Construction Stage Visual Effects

During construction, the main visual impacts will arise from frequent movements of heavy and worker vehicles travelling to and from the site and using the site entrance. Construction machinery on site 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 and construction materials awaiting use.

However, much of this short-term activity will remain screened from view by the hedgerows and mature conifer plantations surrounding the site and its immediate landscape context. Furthermore, construction-related activity is temporary and will cease once the development becomes fully operational.

For these reasons, the magnitude of visual impact during construction is considered no greater than High–High/Medium at the nearest receptors. This magnitude decreases rapidly with distance, particularly within the wider study area, where it is considered no greater than Low–Low/Nil. Combined with High–Medium/Medium sensitivity for receptors within the immediate study area (approximately 1–2 km from the site), the significance of visual effect is assessed as Substantial–Moderate/Moderate and of Negative quality. Beyond this, the significance of effect reduces to Moderate/Moderate–Slight throughout the central study area and to Slight or Imperceptible at greater distances within the wider study area, as the development becomes a progressively smaller element in the view.

Overall, construction stage visual effects are assessed as Not Significant.

13.8.2 Operational Stage Visual Effects

Table 13.8 below summarises the full textual assessment of visual effects for each Viewshed Reference Point (VRP) contained in Appendix 13.1 and Volume 3 (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 statistical data associated with the view of turbines, 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. These aspects are only combined within Table 13.8 in order to identify patterns of effect to better inform the conclusions of this assessment.

Table 13-8: 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	Statement of Significance
VP1	19.1km (T1)	Medium	Negligible	**Imperceptible / Neutral / Long Term**	Not Significant
VP2	14.6km (T1)	Medium	Negligible	**Imperceptible / Neutral / Long Term**	Not Significant
VP3	10.3km (T1)	Medium	Low-negligible	**Slight-Imperceptible / Negative / Long Term**	Not Significant
VP4	8.1km (T1)	Medium	Low-negligible	**Slight-imperceptible / Neutral / Long Term**	Not Significant
VP5	6.9km(T1)	Medium-low	Negligible	**Imperceptible / Neutral / Long Term**	Not Significant
VP6	5.9km (T1)	Medium-low	Medium-Low	**Slight / Negative / Long Term**	Not Significant
VP7	3.3km (T1)	Medium	Medium	**Moderate / Negative / Long Term**	Not Significant
VP8	2.2km (T1)	Medium	Medium	**Moderate / Negative / Long Term**	Not Significant
VP9	2.9km (T1)	Medium	Medium	**Moderate / Negative / Long Term**	Not Significant
VP10	5.1km (T1)	High-medium	Negligible	**Imperceptible / Neutral / Long Term**	Not Significant
VP11	3.2km (T4)	Medium-low	Medium-low	**Moderate-slight / Negative / Long Term**	Not Significant
VP12	6.7km (T1)	Medium	Low-negligible	**Slight-Imperceptible / Negative / Long Term**	Not Significant
VP13	8.9km (T7)	Medium-low	Low	**Slight / Negative / Long Term**	Not Significant
VP14	3.7km (T4)	Medium	Medium	**Moderate / Negative / Long Term**	Not Significant

VRP No.	Distance to nearest turbine km	Visual receptor Sensitivity (see appendix 13.1)	Visual Impact Magnitude	Significance of Visual effect	Statement of Significance
VP15	2.0km (T1)	Medium-low	Medium	**Moderate / Negative / Long Term**	Not Significant
VP16	4.8km (T1)	Medium	Medium-low	**Moderate-slight / Negative / Long Term**	Not Significant
VP17	1.8km (T3)	Medium	High-medium	**Substantial-moderate/ Negative / Long Term**	Not Significant
VP18	2.5km (T7)	Medium-low	Medium	**Moderate / Negative / Long Term**	Not Significant
VP19	4.0km (T9)	Medium-low	Medium-low	**Moderate-slight / Negative / Long Term**	Not Significant
VP20	1.3km (T8)	Medium-low	High-medium	**Substantial-moderate/ Negative / Long Term**	Not Significant
VP21	1.7km (T9)	Medium-low	Medium	**Moderate / Negative / Long Term**	Not Significant
VP22	12.3km (T9)	Medium	Negligible	**Imperceptible / Neutral / Long Term**	Not Significant
VP23	4.4km (T9)	Medium-low	Medium-low	**Moderate-slight / Negative / Long Term**	Not Significant
VP24	2.5km (T8)	High-medium	Medium	**Moderate / Negative / Long Term**	Not Significant
VP25	9.4km (T6)	High-medium	Negligible	**Imperceptible / Neutral / Long Term**	Not Significant
VP26	2.3km (T9)	Medium-low	Medium	**Moderate / Negative / Long Term**	Not Significant
VP27	0.7km (T10)	High-medium	High-medium	**Substantial-moderate / Negative / Long Term**	Not Significant
VP28	3.0km (T11)	Medium	Medium	**Moderate / Negative / Long Term**	Not Significant
VP29	1.0km (T11)	Medium-low	High-medium	**Substantial-moderate / Negative / Long Term**	Not Significant
VP30	3.6km (T9)	High-medium	Medium-low	**Moderate / Negative / Long Term**	Not Significant
VP31	2.5km (T11)	Medium-low	Medium	**Moderate-slight / Negative / Long Term**	Not Significant
VP32	4.6km (T11)	Medium	Low	**Slight / Negative / Long Term**	Not Significant
VP33	17.2km (T11)	Very High	Negligible	**Imperceptible / Neutral / Long Term**	Not Significant

13.8.2.1 Impacts on Local Community Views

Local community views are considered to be those experienced by people who live, work, or move around within approximately 5 km of the site. These individuals are generally the most likely to have their visual amenity affected by a wind energy development, due to their proximity to the turbines, the greater potential to view turbines from multiple directions, or the presence of turbines as a familiar feature within their daily views.

Due to the broad scale and nature of the proposed development, which spans a distance of just under 7 km from north to south, 21 representative viewpoints (VP6, VP7, VP8, VP9, VP11, VP14, VP15, VP16, VP17, VP18, VP19, VP20, VP21, VP23, VP24, VP26, VP27, VP28, VP29, VP31, and VP32) were selected to represent local community receptors within the study area. It is important to note that some of these viewpoints were also selected as they represent amenity and heritage features, population centres, or scenic view designations. Those specifically selected to represent local community receptors are summarised below, while those representing a variety of other receptor types are summarised in their relevant sections. The sensitivity of local community receptors ranged from Medium–Low to High–Medium. Receptors classified as High–Medium sensitivity typically relate to more vulnerable scenic views or sensitive heritage features. Typical rural views were assigned Medium–Low sensitivity, while rural views exhibiting a strong sense of openness and a high degree of scenic amenity were assigned Medium receptor sensitivity.

The significance of effect at local community receptors varied widely, ranging from Substantial–Moderate to Slight. The majority of effects at local community receptors were assessed as falling between Moderate and Moderate–Slight. Four receptors were classified as experiencing a Substantial–Moderate significance of visual effect: Viewpoints VP17, VP20, VP27, and VP29.

All four viewpoints classified as having a **Substantial–Moderate** significance of effect are located within approximately 1.4 km of the Proposed Development, where the turbines will be prominent but not overbearing built features.

Viewpoint VP17 is situated around 1.4 km from the Littleton Bog array and affords a clear view of the proposed development in its entirety from a locally elevated section of road. The view encompasses the extensive flat landscape in which the turbines rise at a prominent scale in the near distance. While the rotating turbines will be one of the most noticeable features within this landscape context, they are highly legible, with clear and evenly spaced characteristics. The scale of the turbines is well assimilated with the broad nature of this landscape, and although they represent a marked increase in built development locally, they do not obstruct more distant views of rolling uplands due to their loose spacing.

Viewpoint VP20 also provides a prominent view of the turbines in the Littleton Bog array. However, the scale of the landscape is partially truncated by a low ridge in the foreground, which limits the sense of openness. The turbines beyond this ridge, at a distance of approximately 1.2 km, remain prominent but not overbearing. It should be noted that the Lanespark turbines are heavily screened from this viewpoint by intervening hedgerow vegetation. While some negative aesthetic effects are present, the variation in perceived turbine scale highlights the depth and dispersion of the proposed turbines across the wider landscape.

Viewpoint VP27 was primarily selected to represent an amenity feature but is also indicative of local dwellings situated north of Lough Doire Bhile. The nearest dwelling to this viewpoint lies approximately 600 m further north, with the nearest cluster of dwellings along the local road corridor to the northwest situated an additional 200 m away. Consequently, although the turbines will be prominent moving features, their visual presence for these dwellings will be slightly less than that depicted in VP27.

Viewpoint VP29 provides one of the closest southern views of the Lanespark turbines. Three turbines are clearly visible and legible within this flat landscape, while the more distant turbines in the Littleton Bog array are also visible, rotating along the vegetated skyline. This creates a slight degree of visual tension between the three nearer, more prominent turbines and the distant array.

All other local community receptors were classified with a residual significance of visual effect of **Moderate** or less. In addition to those previously described, viewpoints VP8, VP15, VP18, VP21, and VP26 represent some of the nearest local community receptors to the Proposed Development and have all been assessed with a residual significance of visual impact of **Moderate**. These views typically occur between 1–3 km from the nearest turbines and are set within a robust working landscape heavily influenced by established rural land uses, such as pastoral farmland.

While clear views of the turbines will be available at these distances, there is a strong potential for the proposed development to be partially and intermittently screened by surrounding layers of dense, stacked vegetation in this generally flat landscape, slightly reducing the visual presence of the turbines. In some instances, locally elevated views are afforded, such as at VP8, located along a raised section of a local road northwest of the proposed Littleton array. VP8 provides a view in the direction of the site, although a nearby block of conifer forestry and peripheral vegetation around Littleton Bog provide a notable sense of separation from the turbines. Despite this, the turbines remain clearly visible, with the rotating components likely to draw the eye. The turbines are highly legible here, and the variation in perceived scale reinforces the depth and linear nature of the proposed wind farm across Littleton Bog and Lanespark.

Viewpoints VP15 and VP18 also afford veiled views of the proposed development. However, as both locations are within a flatter landscape context, intervening vegetation provides a more effective screen, with fully screened views of some turbines in certain instances. The proposed Lanespark turbines are more visually prominent at VP21 and VP26, while the Littleton Bog array is afforded a greater degree of screening by intervening vegetation, particularly at VP26.

At all of the viewpoints described above, the proposed turbines represent a marked increase in the intensity of built development within the local landscape. Nevertheless, they do not appear over-scaled or incongruous in this modified landscape context, which is heavily influenced by a variety of working land uses.

Overall, the Proposed Development will result in a noticeable degree of visual change within the central study area for local community receptors. While the turbines are prominent from some of the nearest receptors, they are well accommodated within this extensive landscape, which comprises broad underlying land uses such as the expansive areas of peat bog. The proposed turbines are also well offset from nearby receptors and comply with the draft Wind Energy Development Guidelines' visual amenity offsets. Even in the context of more distant views, the turbines do not block or heavily obscure views, due to their slender form and loose arrangement, which allows for a strong degree of visual permeability through the array. As a result, residual visual effects at local community receptors are assessed as Not Significant.

13.8.2.2 Impacts on Heritage and Amenity Features

The central and wider study areas contain numerous tourism, heritage, and amenity features. Some of these are of local significance, such as churches and graveyards, while others are of national or international importance, including War House Hill and the Rock of Cashel. Fourteen representative viewpoints were selected to represent tourism, amenity, and heritage features within the study area: VP1, VP2, VP3, VP4, VP9, VP10, VP12, VP15, VP22, VP23, VP25, VP27, VP30, and VP33. The sensitivity of these receptors ranged from Very High to Medium. Receptors of higher sensitivity generally relate to highly susceptible heritage and amenity assets, whereas those with Medium sensitivity represent more typical, non-remarkable features found throughout the county. The residual significance of visual impact for these receptor types ranged from **Substantial–Mode**rate to **Imperceptible**. Receptors with Imperceptible significance are typically more distant or heavily screened.

Only one tourism, amenity, and heritage receptor was classified with a residual significance of visual effect of **Substantial–Moderate**. Viewpoint VP27 is located along the scenic Lough Doire Bhile, immediately north of the proposed Lanespark turbines. The lake, with its associated looped walking trail, is a notable amenity asset in the locality, comprising picnic areas and being popular with anglers. The lake affords clear near- to mid-distance views of the proposed Lanespark turbines, which are approximately 700 m from the lakeside edge. While the proposed Littleton turbines are also visible, they appear as more modest features in the distance, although some visual clutter is created by the overlapping of the rotating turbine blades. The near view of the moving Lanespark turbines will become one of the most visually prominent features in the immediate landscape, marginally reducing the sense of remoteness of the small lake. Nonetheless, the turbines do not appear over-scaled and are highly legible from this near distance.

Derrynaflan Church and Cemetery is represented by Viewpoint VP30 and is classified with a residual significance of visual effect of **Moderate**. The heritage asset possesses a notable sense of distinctiveness, being situated on a locally elevated rocky outcrop entirely surrounded by extensive areas of peat bog. Although the heritage asset is approximately 3.6 km from the three Lanespark turbines and a further 3 km from the Littleton Bog turbine array, its elevated position affords relatively clear views across the surrounding landscape and the proposed turbines. The Lanespark turbines are highly legible from this context, while a slight sense of visual tension is created between the two arrays, with the Littleton Bog array appearing as a distinctly separate development. Some visual clutter may also arise from the overlapping of turbine blades in the Littleton Bog array; however, this is mitigated by the clearer views of the nearer, more prominent turbines.

Viewpoints VP9 and VP15 were also classified with a residual significance of **Moderate**. Both viewpoints represent local heritage receptors within the central study area, situated northeast of the Littleton Bog array. While the rotating turbine components are notable features within the local landscape, they do not significantly detract from the visual setting of these heritage assets and are well accommodated within the broad, flat landscape.

Several of the most notable heritage and amenity features are located within the wider study area. War House Hill and Kilcooley Abbey, to the east and northeast of the proposed wind farm respectively, are entirely screened from the turbines by dense intervening vegetation. Similarly, Holycross Abbey, located to the west, is well contained from the proposed turbines by dense mature intervening vegetation. The Rock of Cashel, one of the most visually and historically sensitive heritage assets within the study area, lies approximately 17 km southwest of the proposed turbines and is entirely screened by intervening terrain.

Overall, the study area contains a variety of sensitive and visually susceptible tourism, heritage, and amenity assets with the potential to afford views of the proposed wind farm. While some notable visual effects will occur at the nearest of these receptors, the turbines do not appear overbearing and will not significantly detract from their visual setting. Consequently, it is assessed that residual visual effects at surrounding heritage and amenity features within the study are Not Significant.

It should be noted that several other heritage features, which are not publicly accessible, are located within the immediate surroundings of the proposed turbine array. Whilst these features may afford clear views of the proposed turbines, they do not fall within the scope of the LVIA due to their location on private lands. Nonetheless, these receptors are assessed within the Cultural Heritage Chapter (Chapter 14).

13.8.2.3 Impacts on Designated Views

Whilst much of the study area presents as a relatively typical rural landscape, there are some localised areas with higher degrees of scenic amenity, as reflected by the various scenic amenity designations throughout the study area. Five representative viewpoints (VP7, VP14, VP24, VP25, and VP32) were selected to represent scenic views and route designations, some of which also correspond to major route receptors and heritage or amenity receptors. The sensitivity of visual receptors for these scenic designations ranged from Medium to High–Medium. Views classified as Medium sensitivity were considered to have a reduced sense of openness and/or to be notably influenced by highly anthropogenic features such as major route corridors. Receptors with High–Medium sensitivity afforded broader views across the wider landscape and exhibited a strong sense of openness. The residual significance of visual impact for these receptors ranged from **Moderate** to **Imperceptible**.

The two nearest scenic views and routes to the west of the site are associated with major route receptors. Viewpoint VP7 is located along a section of the M8 motorway, while VP14 is situated along the N75 Cashel link road. VP7, the closer of the two, affords a clear view of the turbines, road users affording views of turbine blades rotating above the vegetated skyline ridge. The turbines are approximately 3 km from this viewpoint and are likely to draw the attention of road users at this distance. However, it is not uncommon to view wind turbines at this scale along major routes; for example, the existing Monaincha turbines are visible from a section of the M7 in County Tipperary at a distance of just over 400 m from the corridor. Although VP7 represents a scenic route, this section of the motorway does not possess a particularly strong sense of scenic amenity. Therefore, the significance of visual effect at VP7 is assessed as **Moderate**.

The proposed turbines present a similar visual presence to VP7 at VP14, where they are viewed slightly obliquely from the N75 at Borris. As at VP7, the degree of scenic amenity is not fully apparent, and while some intermittent views of the wider landscape are available, the immediate context is strongly influenced by the major route corridor. The Littleton Bog turbines are visible at a distance of just over 3.5 km, although a low ridge and intervening vegetation partially screen the lower parts of the turbine towers. The Lanespark turbines are largely obscured by intervening vegetation. Nevertheless, the proposed wind farm represents a further intensification of development along this section of the major route, and the residual significance of effect is therefore assessed as **Moderate**.

To the east of the site, a scenic route designation extends along the R689 regional road and affords intermittent but broad views across the landscape to the west. Viewpoint VP24 was included to represent this scenic route designation and affords a view of the turbines from a distance of approximately 2.5 km. The Lanespark turbines will only be intermittently visible to the south at just under 3.8 km, while the Littleton Bog turbines will be visible at a prominent but not overbearing scale in the main aspect of amenity to the west. The visible turbines are legible, although several instances of turbine overlap occur. While the turbines will intrude upon the main aspect of visual amenity here, they do not block or obstruct views, nor do they create a strong sense of enclosure, due to their slender structures and loose spacing within this part of the array. Overall, the significance of visual effect at VP24 is assessed as **Moderate**, owing to the relatively near distance and presence of the proposed turbines.

All other scenic designation viewpoints within the study area were classified with a residual significance of visual impact of **Slight** or less, due to their distance from the proposed development and the degree of screening present. Overall, residual visual effects at scenic designations within the study area are assessed as Not Signficant.

13.8.2.4 Impacts on Centres of Population

Due to the relatively broad expanse of the central study area, it encompasses several small towns and village settlements, some of which are located on locally elevated terrain and afford broad views across the wider landscape. Thirteen viewpoints (VP1, VP2, VP3, VP5, VP9, VP11, VP13, VP19, VP22, VP28, VP31, VP32, and VP33) were selected to represent centres of population. Many of these viewpoints were also selected to represent other receptor types, such as heritage features, major routes, and scenic routes.

The visual receptor sensitivity of these centres of population ranged from Medium to Medium–Low, with Medium sensitivity typically associated with receptors that also correspond to other visual receptor types. The residual significance of visual effect at these centres of population ranged from **Moderate** to **Imperceptible**. Viewpoints assessed as Imperceptible are generally located well outside the central study area and are heavily screened by a combination of terrain and vegetation.

One of the nearest settlements to the Proposed Development is the locally elevated village of New Birmingham, situated to the east along the R689 regional road. Owing to its position on west-facing elevated lands, the settlement has the potential to afford clear views of the full extent of the proposed wind farm. Viewpoint VP28 was selected to represent this settlement and provides a broad view across both the near and distant landscape. While the Littleton Bog array is heavily screened in the depicted view, clear views of this array will be available from parts of the settlement, as indicated in the wireframe views. Where visible, the proposed development is highly legible across the expansive peat bogs and areas of stacked vegetation. Although the tall, rotating turbines will result in a marked increase in the intensity of wind farm development visible from this settlement, in the context of the extensive westward views, the Proposed Development does not appear inappropriate in terms of scale or function. Overall, the residual significance of visual effect was classified as **Moderate**.

Several other settlements are located throughout the central study area, including Gortnahoe, Twomileborris, Littleton, and Ballinunty. Gortnahoe is the only other settlement classified with a residual significance of **Moderate**, with clear views of the proposed turbines afforded from a distance of just under 3 km. All other settlements were classified with a residual significance of **Moderate–Slight**, as the turbines are partially and intermittently screened by intervening vegetation.

For the reasons outlined above, it is assessed that residual visual effects at Centres of Population within the study area are Not Significant.

13.8.2.5 Impacts on Major Routes

Whilst major route receptors are not typically highly sensitive, these routes provide the primary experience of the proposed wind farm for many users passing through the study area. Furthermore, several major route corridors also coincide with scenic routes, linear amenity features, and centres of population. Ten representative viewpoints within the central and wider study area represent major route receptors: VP3, VP5, VP7, VP13, VP14, VP19, VP23, VP24, VP28, and VP31. The sensitivity of these receptors generally ranges from Medium–Low to Medium. One section of the R689 regional road is classified as High–Medium due to its inclusion in a more susceptible scenic route designation and its broad westward views across the landscape. The residual significance of visual effect at major route receptors ranges from **Moderate** to **Slight–Imperceptible**, with higher impacts associated with the network of major routes throughout the central study area.

The most prominent major route receptor within the study area is the M8 motorway, which traverses the western half of the study area in a northeast–southwest direction, passing just under 3 km west of the proposed turbine array at its nearest point (represented by VP7). As noted in the assessment of scenic designations, clear views of the rotating turbine blades will be available from the nearest sections of this motorway. While the turbines are likely to draw attention, they do not appear over-scaled and are generally well separated from the route by dense intervening vegetation that often partially screens the turbine towers. Similar views will be experienced from sections of the N75 extending west from the M9 in the central study area (represented by VP14). Consequently, both viewpoints representing these major route receptors were assigned a residual significance of **Moderate**.

VP24 similarly represents a major route receptor and scenic view designation located along the R689 regional road to the east of the site and will afford views of the turbines from sections of this major route corridor. Here, the turbines present at a notable scale and increase the quantum of built development in the local landscape. Nevertheless, the turbines are viewed in a legible manner and do not block or heavily obstruct distant views from the road corridors. As such, the residual significance of effect at VP24 is assessed as **Moderate**.

Viewpoint VP28, although principally representing the settlement of New Birmingham, also represents the R689 regional road corridor. It affords a locally elevated view of the Proposed Development from just under 3 km and was similarly classified with a **Moderate** residual significance of visual effect. All other major route receptor viewpoints within the study area were assessed with a residual significance of **Moderate–Slight** or less.

For the reasons outlined above, residual visual effects at major route receptors are classified as Not Significant.

13.8.2.6 Summary of Operational Stage Visual Effects

Based on the visual impact assessments outlined in sections 13.8.2.1 to 13.8.2.5 above and in Table 13.8, the most notable visual impacts will occur at local community receptors, which account for three of the four **Substantial–Moderate** visual effect significance judgements. It should be noted that while the proposed turbines will be prominent built features viewed from the nearest surrounding local receptors, they present with little or no sense of overbearing as they are well setback into the site and well exceeds the visual amenity offsets outlined in the draft WEDGs. The only other receptor classified with a significance of visual effect of **Substantial–Moderate** is Lough Doire Bhile, which affords one of the nearest views of the proposed turbines. In all cases, the turbines will present a prominent visual presence; however, the staggered linear layout results in a highly legible visual arrangement, particularly when viewing the array from the east or west. The staggered linear layout also allows for a strong degree of visual permeability, preventing obstruction of any sensitive viewing aspects.

Beyond the immediate study area, the Proposed Development has a notably reduced visual presence, as layers of intervening vegetation within this primarily flat landscape provide a high degree of screening of the turbine array. It should also be noted that the development is further screened by locally elevated terrain situated a short distance to the east of the site. As indicated in the ZTV mapping (refer to Figure 13-7), the turbines will be largely obscured from extensive parts of the wider eastern extent of the 20 km study area.

Overall, the Proposed Development is well accommodated within this broad landscape context and does not appear incongruous in terms of scale or function, particularly given the extensive areas of underlying peat bog. The development also aligns and complies with the guidance set out for ‘Flat Peatland’ landscapes in the current Wind Energy Development Guidelines (WEDGs), particularly with respect to its broad linear spatial extent and larger turbines, which are considered “most appropriate” for this landscape type.

On the basis of the above, it is assessed the visual effects at receptors within the central and wider study area are Not Significant.

13.8.3 Decommissioning 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 site, removing built features that formed part of the Proposed Development. 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 grid 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 site roads and turbine foundations and hardstands will remain and be covered over with topsoil and revegetated.

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 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 **High-medium/Medium** sensitivity for receptors within the immediate study area (<1-2km from the 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 development becomes a progressively smaller component in the afforded view.

Thus, residual visual effects during the decommissioning stage are assessed as Not Significant.

13.9 Assessment of Cumulative Effects

Developments considered for potential cumulative effects considered in this EIAR are set out in Appendix 1.2, Volume 3. All developments have been screened and shortlisted to the wind farm developments listed in Table 13-9 below.

Table 13-9: Wind Farms Assessed for Potential Cumulative Effects

Wind Farm Name	Number of turbines	Distance and Direction from proposed turbine array to nearest cumulative turbine	Status
Gurteen Wind Farm	1	4.2km east (T6)	Operational
Ballincurry Wind Farm	2	4.9km southeast (T11)	Operational
Lisheen Wind Farm II	12	7.5km north (T1)	Operational
Knocknamuck/Cnoc Wind Farm	5	7.9km east (T1)	Operational
Ballybay Wind Farm	5	9.3km east (T1)	Operational
Kill Hills Wind Farm	16	9.9km southwest (T11)	Operational
Farranrory Wind Farm	9	10.1km east	Consented
Lisheen Wind Farm I	18	11.3km north (T1)	Operational
Brittas Wind Farm	12	12.1km northwest (T4)	Consented
Foyle/Foyleature Wind Farm	4	12.5km east (T1)	Operational
Lisheen Wind Farm III	8	13.1km north (T1)	Operational
Bruckana Wind Farm	14	13.9km north	Operational
Kyleballyoughter Wind Farm	2	13km east	Operational
Knockroe Wind Farm	7	14.0km south (T11)	Consented
Brisklagh Wind Farm	7	15.4km east (T1)	In planning
Lisdowney Wind Farm	4	19.4km northeast (T1)	Operational
Borrisbeg Wind Farm	10	21.25km northwest (T1)	Consented

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 5.

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, based on the lifespan of surrounding projects and timelines of the Proposed Development in relation to other existing or in-planning projects, it is unlikely that the construction or decommissioning of the Proposed Development would occur in tandem with one or more other wind farm developments. Should the construction or decommissioning of the Proposed Development and another consented development 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 the in planning consented and existing developments are well offset from the Proposed Development, it is not considered that these will generate any notable cumulative effects in the immediate surroundings of the Proposed Development. Overall, it is assessed that the cumulative construction or decommissioning effects with other wind farm developments are Not Significant.

In this instance, the study area comprises existing wind farms, consented wind farms and proposed (in planning) wind farm developments. As a result, the cumulative assessment of wind farm developments within the study area will be broken into two categories; the current cumulative scenario and the potential future cumulative scenario. The current cumulative scenario will assess the cumulative effect of the Proposed Development in respect of existing wind farm developments and consented wind farm developments. The potential future cumulative scenario will assess the Proposed Development in respect of existing wind farms, consented wind farms and proposed (in planning) wind farms.

13.9.1 Current Cumulative Scenario

With regard to the current cumulative scenario, the 20km study area includes 12 operational and 4 consented wind farms totalling some 128 no. turbines. The current cumulative scenario is depicted in Figure 13-14. It should be noted that the nearest turbines to the proposed development are over 4 km to the east of the site and include a one turbine development (Gurteen Wind Farm) and a two turbine development (Ballincurry Wind Farm). Aside from these 3 turbines, all other existing and consented turbines are contained well over 7 km from the proposed development. Indeed, it should be noted that 87 of the 128 no. existing and consented turbines within the study area are located between 10-20 km from the Proposed Development. In general, cumulative wind farm development within the study area can generally be broken down into three categories; those to the northwest, those to the east and those to the south.

The cumulative ZTV map (refer Figure 13-14 and Appendix 13.2), which is based on a bare-ground scenario, identifies that the proposed Littleton Wind Farm would have very limited potential to be viewed in isolation. Indeed, only 0.1% of the study area has the potential to afford views of the proposed turbines in isolation, and these areas are typically located to the south of the site, just outside the central study area (blue colour pattern). This is reflective of the notable number of existing and consented turbines located within the surrounding landscape. Over half of the study area (56.6%) has the potential to afford combined views of the proposed development and other existing or consented developments. These areas tend to be located within the central study area and across the northern and western extents of the wider study area. Whilst combined visibility of the Proposed Development and other permitted developments has the potential to occur in the southern half of the study area, the cumulative ZTV pattern (purple colour) is much more sporadic here. It is also important to reiterate that the Proposed Development would be screened from over 40% of the study area, with much of these lands located within the wider eastern and south-eastern extents, where the rolling landform to the east of the site acts as a visual screen.

It should be noted that the visibility pattern indicated on the ZTV mapping is highly theoretical. In the context of the Proposed Development and the wider study area, which is largely characterised by flat rural landscapes interspersed with layers of intervening hedgerow vegetation and other forms of screening, the potential for combined visibility of the Proposed Development and other existing and consented developments would be considerably diminished. In flat areas where layers of treelines and hedgerows are prevalent, the perceived presence of forms of built development, even tall wind turbines, tends to be substantially diminished. Nevertheless, visual receptors may experience combined views of multiple wind farms, particularly from elevated or open vantage points within the eastern extent of the Study Area. In such views, the proposed turbines would appear as part of a wider arrangement of vertical elements distributed across the surrounding landscape. The effect would represent an incremental increase in turbine numbers within the field of view, rather than a material change in visual character, which is currently noticeable influenced by existing wind farm development in all directions. Indeed, wind farm development forms a characteristic feature of this landscape and, whilst the addition of the Proposed Development would increase the intensity of development locally, the addition of 11 turbines represents just over a 8.5% increase in the total number of turbines within the 20 km Study Area.

With regard to the location of existing and consented turbines within the study area, the most notable cluster relates to those to the northwest of the Proposed Development, including Lisheen Phases 1–3, Bruckana and the consented Brittas turbines, which account for approximately 65 turbines within the study area. The nearest of these turbines are located approximately 7.5 km from the site, with the majority of this cluster situated well beyond 10 km from the Proposed Development. In this respect, the substantial separation distances from the proposed Littleton turbines heavily diminishes the potential for notable cumulative landscape or visual effects. Furthermore, due to the flat nature of the terrain combined with a high degree of intervening vegetation, visual receptors in this part of the Study Area would experience limited visual effects in relation to the Proposed Development. Representative viewpoints (VP1, VP2, VP4 and VP6) in this part of the study area, which account for combined views of surrounding existing wind farm developments as identified within the baseline views, were assessed as experiencing residual visual effects ranging from 'Imperceptible' to 'Slight', further reflecting the limited visual presence of the proposed turbines in this area.

In terms of sequential visual impacts, the M8 motorway passes to the west of the proposed Littleton Wind Farm and runs in a general north–south direction through the 20 km study area. As a strategic transport corridor, receptors are transient and views are typically experienced at speed. The motorway generally traverses flat agricultural land and broader areas of peatbog, with visibility frequently filtered or restricted by roadside hedgerows and areas of scrubby vegetation. Motorists currently experience intermittent views of existing wind farm clusters within the wider study area, particularly within the northwest quadrant of the study area. The Proposed Development would contribute incrementally to this established pattern, giving rise to sequential cumulative visual effects where the proposed turbines are experienced in succession with other wind farms along the route. The proposed turbines would be perceived as part of the wider wind energy landscape of the Midlands rather than as a defining new feature. Indeed, whilst some pleasant views are afforded from sections of the motorway corridor within the study area, the motorway corridor is not deemed to be highly susceptible to visual change.

On balance, and having regard to the reasons set out above, it is considered that the proposed Littleton Wind Farm would contribute to a cumulative impact of Medium magnitude in the context of the current cumulative scenario. The Proposed Development is well offset from those parts of the study area with the highest concentrations of existing turbines and, as such, would not materially intensify established wind farm clusters. Whilst the development would increase the prominence, scale and extent of wind energy development within the study area, it would do so within a robust, working rural landscape and would, in most instances, be perceived as a distinct grouping in relation to other existing and consented wind farms. As a result, cumulative landscape and visual effects arising under the current cumulative scenario are assessed as Not Significant.

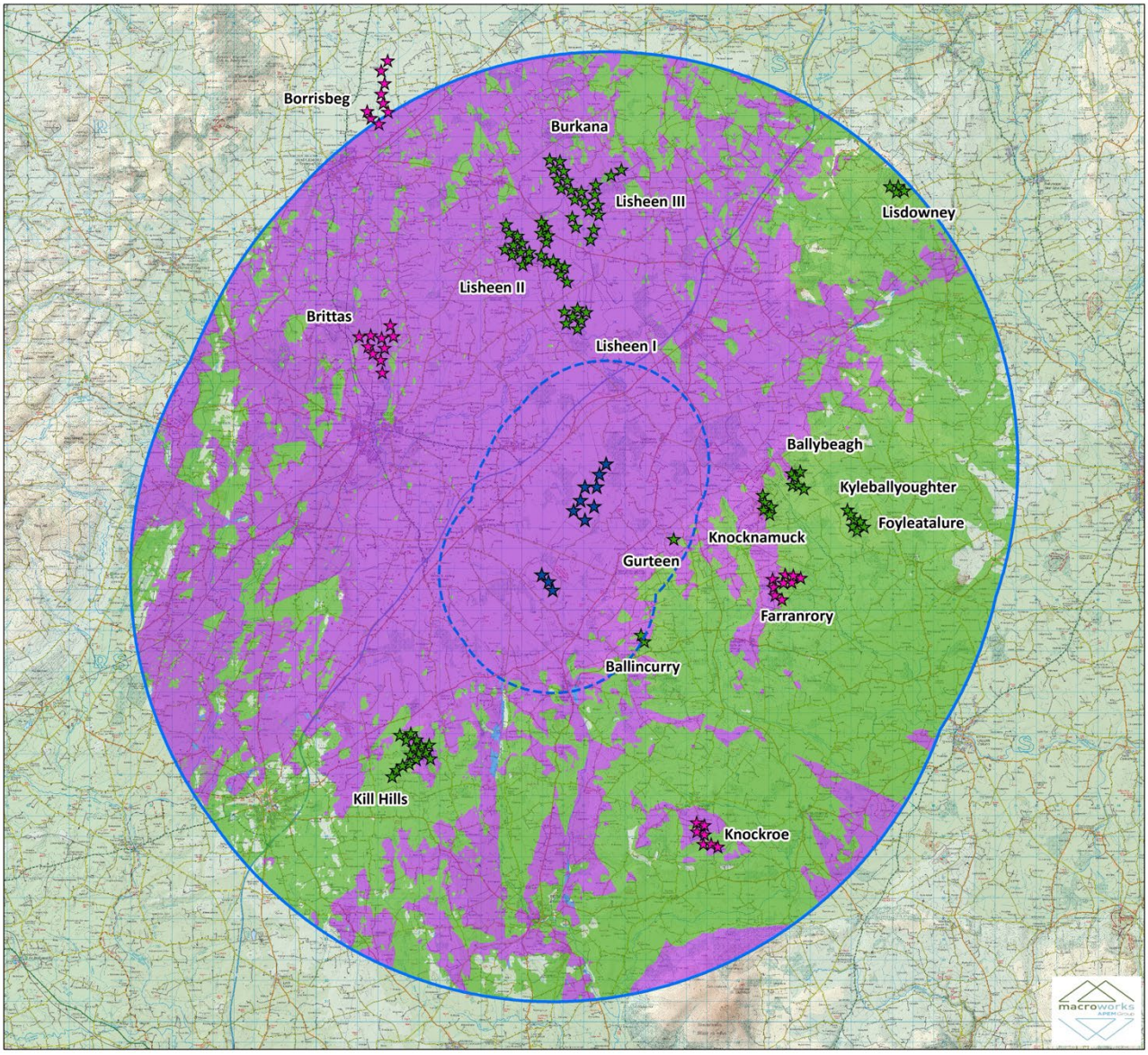

Figure 13-14: Current Cumulative ZTV Map (Tip Height (200m) – for Littleton Wind Farm identifying the potential intervisibility of the Proposed Development and all other existing and consented wind farms within the study area (See Appendix 13.2 for larger version)

13.9.2 Potential Future Cumulative Scenario

With regard to the potential future cumulative scenario, this principally relates to the addition of one in-planning wind farm development to the current cumulative scenario, located within the wider eastern extents of the study area: Brisklagh Wind Farm, approximately 15.4 km to the east. A potential future cumulative ZTV was prepared to assess the additional theoretical visibility associated with the proposed development in combination with existing, consented and in-planning schemes (refer to Figure 13-15). Overall, the inclusion of these two in-planning developments results in limited change to the cumulative visibility pattern. The proportion of the study area with potential isolated visibility of the Proposed Development remains at 0.1%, while the extent of combined visibility with existing, consented and in-planning developments remains consistent with the current cumulative scenario at 56.6% of the study area.

Of particular note is the fact that the Brisklagh development is well offset from the Proposed Development, which substantially reduces the potential for notable cumulative landscape or visual effects. The Brisklagh scheme, located within the wider eastern extent of the study area, would be largely screened from the Proposed Development by locally elevated terrain to the east of the site. While the addition of this wind farm development would increase the overall quantum of wind energy development within the study area, it would present as distinctly separate cluster of turbines to the Proposed development. The magnitude of cumulative impact under the potential future scenario is therefore considered to be largely consistent with the current cumulative scenario and is assessed as Medium. Accordingly, cumulative landscape and visual effects arising under the potential future cumulative scenario are assessed as Not Significant.

It should also be noted that a wind farm development at pre-planning stage is located to the north of the Proposed Development in neighbouring lands (refer to Figure 13-15 below). While no detailed public information is currently available regarding the precise layout or turbine locations, the Longford Pass Wind Farm project website identifies a proposed study area immediately north of the proposed Littleton Wind Farm site. At present, there is no confirmed information regarding the scale of the proposed Longford Pass development, the number of turbines, or their height. However, a wind farm development in such close proximity to the proposed Littleton Wind Farm has the potential to notably intensify the overall scale and spatial extent of wind energy infrastructure within the central study area. Given the limited separation distance between the two sites, there is potential for the Longford Pass Wind Farm to read visually as a direct extension of the proposed Littleton Wind Farm, particularly in views from locally elevated locations to the east of the site.

Overall, while detailed assessment is constrained by the absence of confirmed design parameters, the proximity of the Longford Pass Wind Farm study area to the proposed Littleton Wind Farm indicates clear potential for cumulative landscape and visual effects.

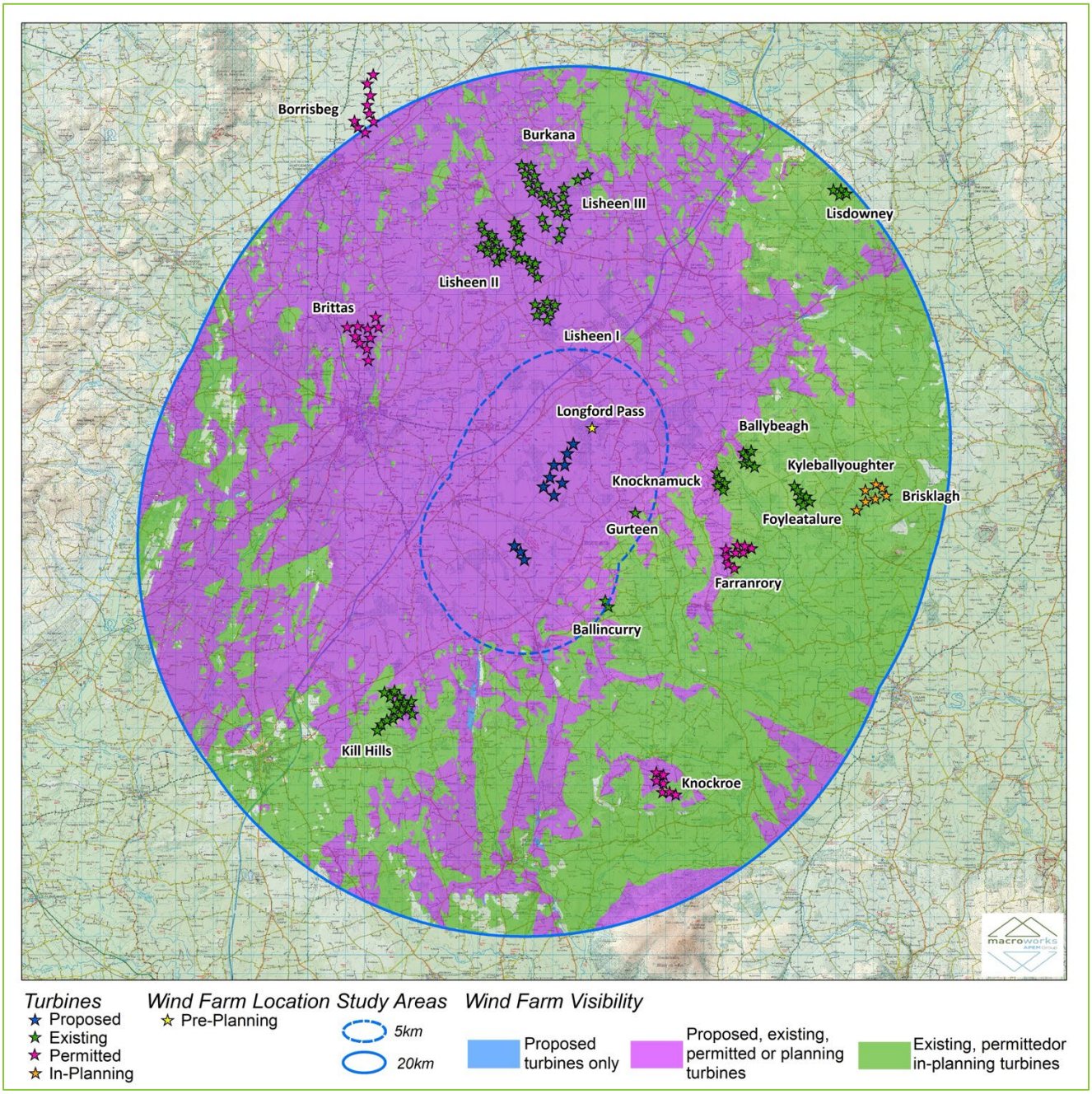

Figure 13-15: Potential Future Cumulative ZTV Map (Tip Height (200m) – for Littleton Wind Farm identifying the potential intervisibility of the Proposed Development and all other existing, consented and proposed (in-planning) wind farms within the study area (See Appendix 13.2 for larger version)

13.10 Major Accidents

Having regard to the peatland context of the site with the rural Midlands landscape, potential scenarios including peat instability, turbine structural failure, blade failure, and extreme weather events have been considered. In the unlikely event of a major accident or disaster, any landscape and visual effects would be localised and temporary in nature.

13.11 References

- Landscape Institute/IEMA (2013). Guidelines for Landscape and Visual Impact Assessment, Third Edition (GLVIA3). London: Routledge.
- Tipperary County Council (2022) Tipperary County Development Plan 2022–2028. Volume I–V. Tipperary: Tipperary County Council. Available at: https://www.tipperarycoco.ie/planning-and-building/development-plan-consultation/tipperary-county-development-plan-2022-2028
- Laois County Council (2022) Laois County Development Plan 2021–2027. Laois County Council. Available at: https://consult.laois.ie/en/system/files/materials/1198/Volume-1-Written-Statement-of-Adopted-LCDP-2021-2027-including-Ministerial-Direction-amendments_0.pdf
- Kilkenny County Council (2021) Kilkenny City and County Development Plan 2021-2027. Vol. 1-2. Kilkenny: Kilkenny County Council. Available at: https://kilkennycoco.ie/eng/services/planning/development-plans/city-and-county-development-plan/adopted-city-and-county-development-plan.html
- Department of Housing, Local Government and Heritage (2006). Wind Energy Development Guidelines for Planning Authorities. [online] Available at: https://www.gov.ie/en/publication/7a318-wind-energy-development-guidelines-2006/
- Department of Housing, Local Government and Heritage (2019). Draft Revised Wind Energy Development Guidelines (December 2019). [online] Available at: https://www.housing.gov.ie/sites/default/files/publicconsultation/files/draft_revised_wind_energy_development_guidelines_december_2019.pdf
- Environmental Protection Agency (EPA) publication ‘Guidelines on the Information to be contained in Environmental Impact Statements (2022); and
- 'Photography and Photomontage in Landscape and Visual Impact Assessment', Landscape Institute Technical Guidance Note 06/2019.

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