

Environmental Impact Assessment Report

Volume 1 of 3 – Non-Technical Summary

For

LACKAN WIND FARM INISHCRONE, COUNTY SLIGO



Prepared for:

Lackan Wind Energy Ltd,
Lackan
Inishcrone
County Sligo

Prepared by:

Keohane Geological & Environmental Consultancy
Ivy House
Clash
Carrigrohane
County Cork

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1. INTRODUCTION

1.1. The Applicant

Lackan Wind Energy Ltd is a locally owned company. It developed and is operating the Lackan Wind Farm since 2007. Its directors continue to develop renewable energy projects in Counties Sligo, Mayo and Donegal. Lackan Wind Energy has a track record of supporting local community groups and projects. It will continue to do so during the extended operational period of wind farm.

1.2. The Development

This application is for permission to continue the operation of the Lackan Wind Farm for a further 12 years. The wind farm was granted planning permission in October 2003 with a condition limiting its lifespan to 20 years from the date of the permission. This is unlike most permissions for wind farms which relate the lifespan to the date of commissioning. Lackan Wind Farm was commissioned in March 2007, effectively missing out on 3¹/₂ years of operation. More recent permissions also permit a lifespan of 25 to 30 years. An additional 12 years will bring the operational lifespan in line with planning granted to similar infrastructure.

The Lackan Wind Farm consists of 3 No turbines with 99.5 metre tip height, access tracks, hardstands, control building, and underground cabling. It has an installed generating capacity of 6MW. The grid connection is to the Inishcrone 38kV substation using a combination of underground 20kV cabling and overhead 20kV powerline. The overhead sections are mounted on single wooden poles. It was installed by the ESB and is an ESB asset. While assessed in the EIAR, it is not part of the planning application.

This Environmental Impact Assessment Report (EIAR) addresses the potential impacts and mitigation measures associated with the development. As the wind farm is already constructed and operational, many of the impacts normally associated with wind farm construction are not relevant, e.g., transport and construction impacts. The impacts associated with the wind farm are well defined and measured, e.g., noise emissions from the wind farm. The EIA has therefore focused on these impacts and screened out many impacts typically addressed in wind farm EIA's

1.3. The Consultants

Keohane Geological & Environmental Consultancy prepared this EIAR. JKW Environmental prepared the biodiversity chapter of the EIAR and the Screening Report for Appropriate Assessment (AA); and AV Acoustics carried out the noise assessment.

2. DESCRIPTION OF THE PROPOSED DEVELOPMENT

2.1. The Site

The wind farm is located approximately 3.5km northeast of Inishcrone on a low-lying coastal plain in the townland of Lackan. The grid connection extends from the on-site control building to the south (generally), towards the Inishcrone 38kV ESB substation.

The site is situated within wet calcareous pasture. A man-made sea dyke extends along the western boundary of the site. This low-lying coastal zone was previously liable to flooding. The area within the 'redline' planning boundary is 2.3ha. The development footprint within the 'redline' planning boundary is 0.7ha. Elevations range from approximately 2mOD to 10mOD, with turbines located at elevations between 4mOD and 9mOD. Figure 2-1 shows the site location.

The site is accessed from the R297 (Easky – Inishcrone regional road), via country road L6502 that extends west from the R297 to the south of the site. From the local road, a private farm lane extends north into the wind farm. There are 40 dwellings within 1 kilometre of the turbines.

The location of the site and layout maps are presented in the attached figures.

2.2. Need for the Development

The following drives the need for the development:

- Government policy sets out ambitious targets for increasing renewable energy generation capacity (70% electricity generation from renewables by 2030). Extending the lifespan of the Lackan Wind Farm will maintain its contribution to those targets to 2035.
- Government policy also sets a trajectory towards net zero carbon emissions by 2050. The Lackan Wind Farm will contribute to this.
- Urgent need for increased capacity to generate electricity and strengthening the local transmission network.

To achieve the targets set by Government policies, it is estimated that the installed capacity of renewable generation will need to double. Wind energy offers one of the most cost-effective technologies for achieving these targets. Extending the lifespan of existing wind farms ensures their continued contributions and utilisation of existing infrastructure, such as the grid connection.

2.3. Selection and Alternatives Considered

An alternative site and alternative layout are not relevant in this instance. The alternatives open to the applicant is to repower the wind farm, decommission the wind farm or extend its permitted lifespan. Replacing the turbines with one or two newer, generally larger turbines was considered. This option would use much of the existing infrastructure. This would however incur significant capital costs for removing the existing turbines and installing new turbines. As the existing turbines have a significant lifespan remaining, it was decided to seek permission to extend their permitted lifespan. This is considered the most environmentally friendly approach, avoiding manufacturing and construction impacts.

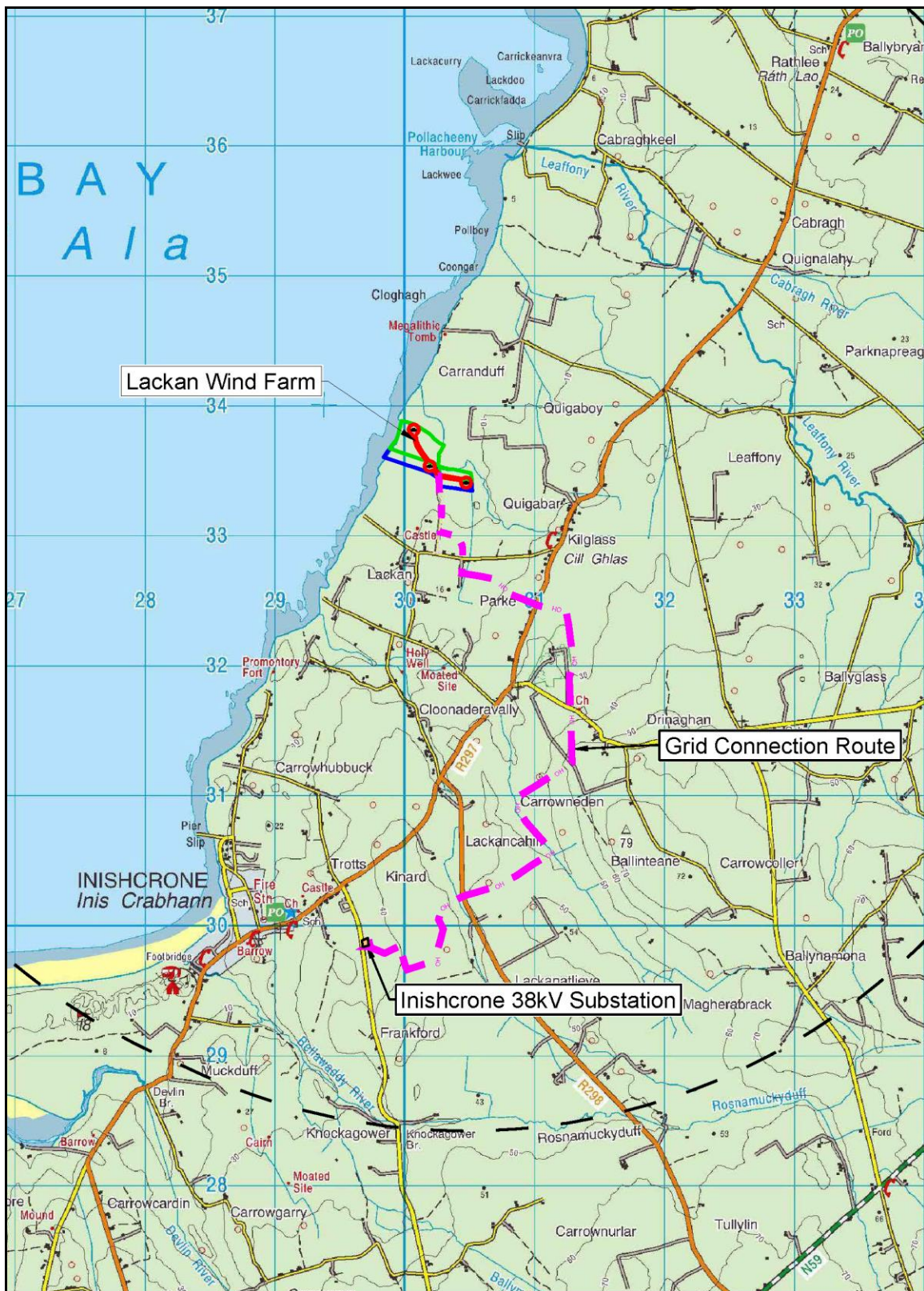


Figure 2-1: Site Location Map

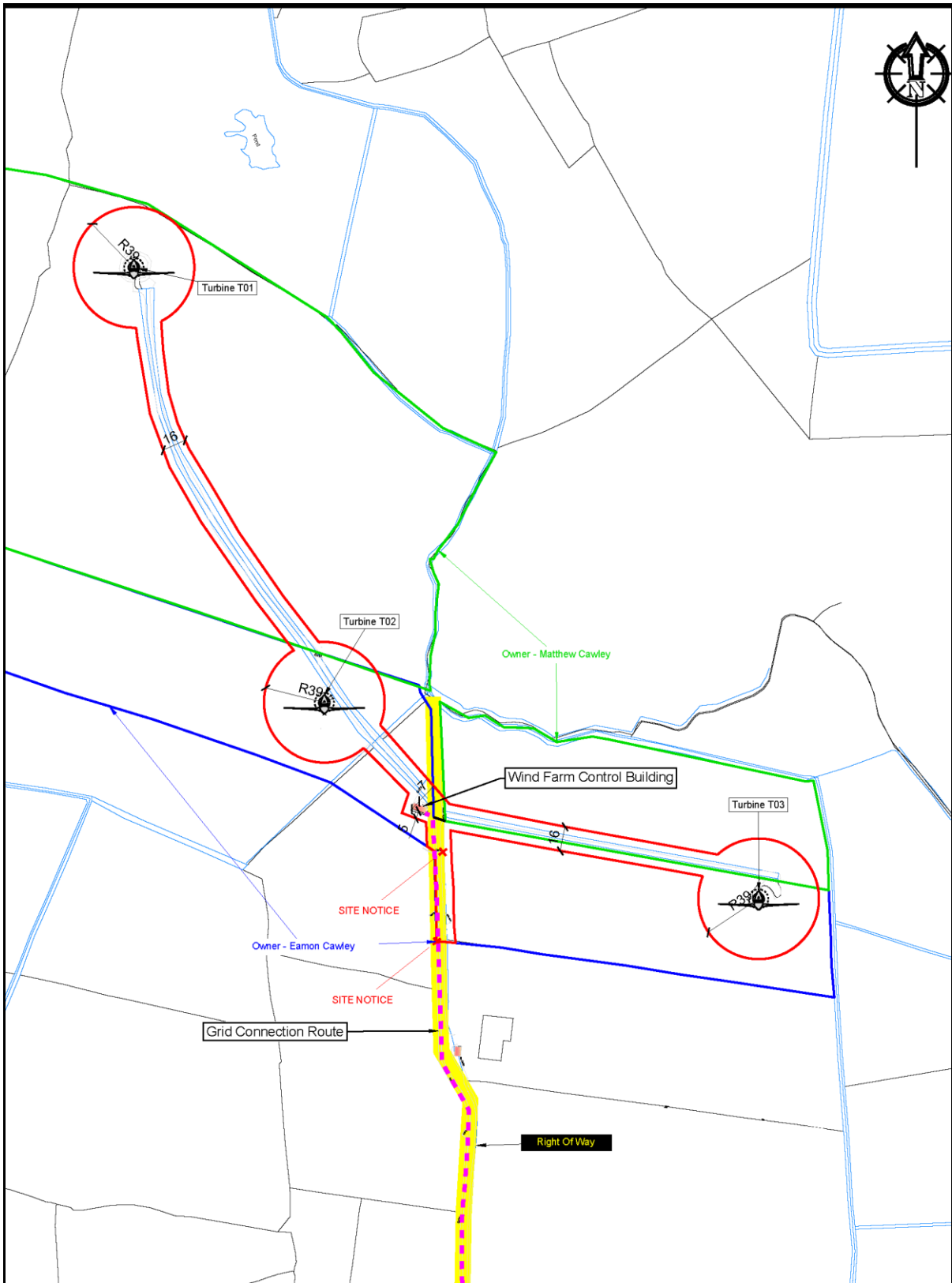


Figure 2-2: Site Layout Plan

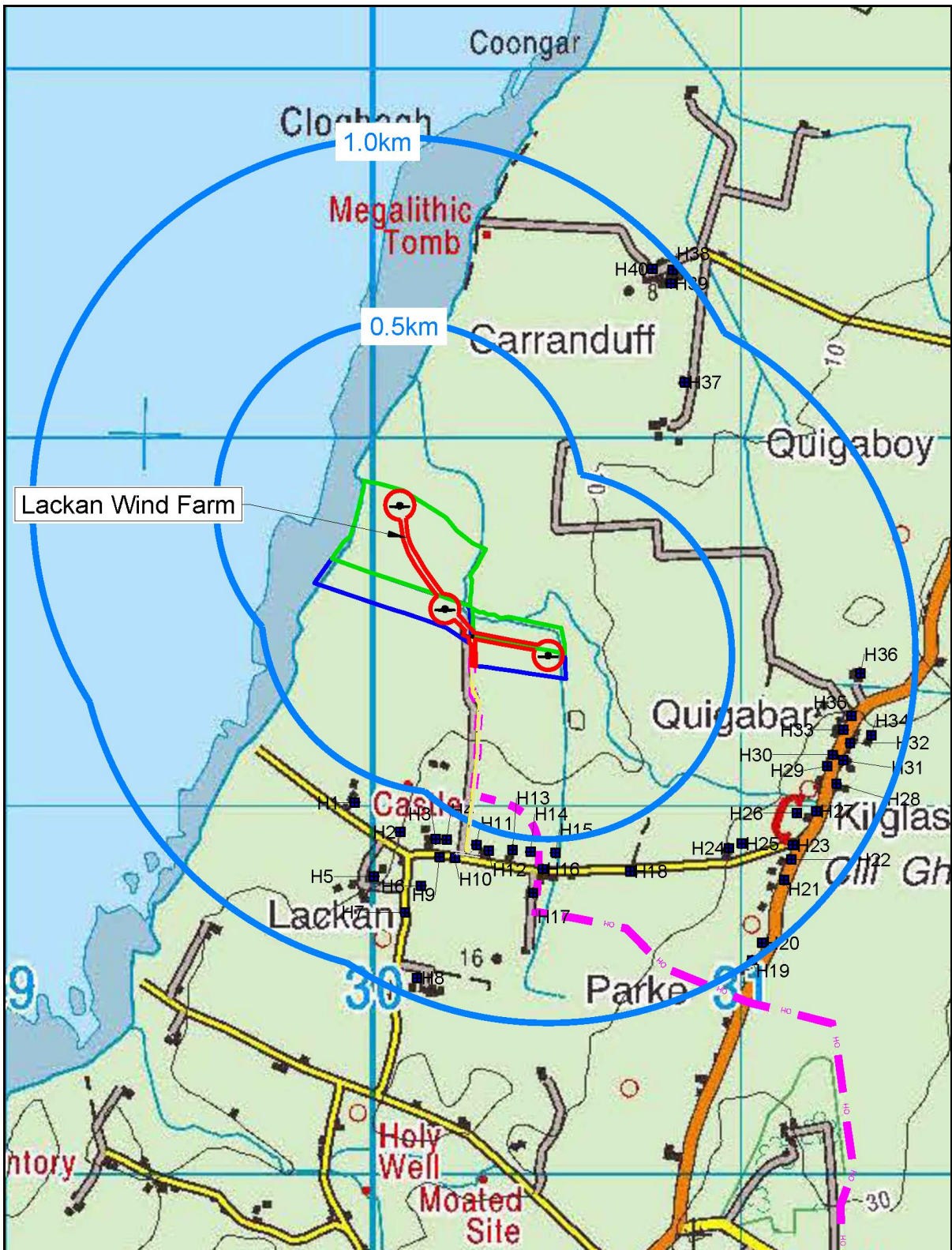


Figure 2-3: House Location Map

3. LANDSCAPE – IMPACTS AND MITIGATION

3.1. Introduction

Two zone of visual theoretical visibility maps were constructed as part of the assessment, which demonstrate:

- Areas from which only the Lackan Wind Farm is theoretically visible.
- Areas from which the Lackan Wind Farm in combination with the operational wind farms in the study area are theoretically visible.

Using the zone of visual theoretical visibility maps, wireframe images were prepared from selected viewpoint locations in the landscape. The viewpoint locations were selected to represent sensitive viewing locations, such as scenic routes, tourist routes, and visually vulnerable features. Locations along these routes and features were selected from where the Lackan Wind Farm was theoretical visible, and a wireframe view was generated with the modelling software. Photographs were then taken from these locations which show the Lackan Wind Farm turbines. For some locations, local vegetation and topography screened the turbines in whole or in part. These were not used in the assessment; only locations from where turbines could be seen were used to present the greatest visibility of the wind farm from a particular area. The wireframe image and the photograph are shown on the same figure. A second figure showing the existing photograph along with that photograph but with the turbines photoshopped out. This facilitates ease of comparison for the seven viewpoints selected in the assessment.

The overall conclusion from the visual theoretical visibility maps is that the Lackan Wind Farm will theoretical be visible from most areas within 10km, approximately half of which is from the sea. The Ox Mountains to the southeast and rolling glaciated topography to the east and south contains visibility of the turbines. Beyond 10 kilometres, theoretical visibility becomes patchy, apart from the most distant visibility from the sea.

3.2. Landscape & Visual Impact Assessment

Approximately 5% of the total landbank is used for wind farm infrastructure, taking this land area out of agricultural use. This is the most significant impact on the land use of the site.

The Lackan Wind Farm is in the coastal zone as defined in the Sligo County Development Plan, being located between the coast and coastal road (R297 Easky – Inishcrone regional road). It is an objective of Sligo County Council to prepare a wind energy strategy for the county. This has not yet been completed. The Lackan Wind Farm was therefore assessed on its own merits.

The extent of visibility of the wind farm by itself and in-combination with the operational wind farms in the study area are shown on the zone of theoretical visibility maps in the main EIAR. These illustrate that the Lackan Wind Farm doesn't increase the areas from where wind farms are visible. The maps do not however address intervening features such as land cover, low topographical features or buildings that may provide screening. With increasing distance from the site, visibility of turbine blades decreases. Hence, the zone of theoretical visibility maps show the worst-case scenario.

The actual visual effects were assessed using several photographs, which were taken from key locations at varying distances around the site. These included scenic routes (which in some instances coincide with the main commuter routes), local roads around the wind farm and coastal locations. Landscape effects were based on field surveys and assessment of the ability of the landscape to accommodate the wind farm. The in-combination effects with other wind farms were found to be at worst imperceptible due to the intervening distances. On balance, it was found that the landscape can accommodate the wind farm. While the turbine layout will appear to change as one moves through the landscape, the layout of the Lackan Wind Farm is broadly in accordance with the Wind Farm Guidelines and appears ordered from many perspectives, which reduces visual impact. The overall assessment concludes that landscape and visual effects are acceptable in this coastal zone and the continued operation of the wind farm for a further 12 years is not a significant impact on the landscape and visual receptors.

3.3. Mitigation Measures

No matter where wind turbines are sited, they will generally be visible from some locations. However, the visual impact between the wind farm and skyline varies as a viewer moves and weather conditions change.

Deliberate screening will not be effective in general and attempts to hide or camouflage the turbines are not possible. Although the Lackan Wind Farm was granted planning permission before the original Wind Farm Guidelines were published, it is largely in accordance with its recommendations in this landscape type.

General mitigation measures include:

- Semi-matt non-reflective finishes have been used on the turbines.
- Blades rotate in the same direction.
- Transformers are concealed within the base of the towers.
- Electrical cabling has laid underground on site.
- The control building is setback from the public roads and is not visible from most public locations.
- The grid route is underground for the northern 1km extending from the control building. The overhead powerline is not perceived to be associated with the wind farm. With all cables underground near the wind farm, visual confusion is avoided between turbines and overhead powerlines.
- There is no wind farm within 10km of the Lackan Wind Farm, so cumulative visual impacts are largely avoided.

4. POPULATION – IMPACTS AND MITIGATION

4.1. Impacts & Mitigation - Dwellings

There are 40 dwellings within 1 kilometre of the turbines. Turbines are a minimum of 500 metres from the closest dwelling. This is in accordance with the draft Wind Farm Guidelines (2019), which recommends a separation distance of 4 times the tip height (i.e., 400 metres) or 500 metres (whichever is greater).

4.2. Impacts & Mitigation - Community

Lackan Wind Energy Ltd supports the local community through sponsorship of events, schools, clubs and local initiatives. These include Inishcrone National School, Inishcrone Secondary Schools, Kilglass Community Council, Inishcrone-Kilglass GAA, Inishcrone Golf Classic, Bunnyconnellan Agricultural Show etc. The Directors of Lackan Wind Energy Ltd have made contributions since the commissioning of the wind farm and will continue to do so during the extended operational period.

4.3. Impacts & Mitigation - Noise

AV Acoustics carried out an assessment of noise impacts associated with the Lackan Wind Farm. Noise measurements were carried out at three locations over extended time periods with wind farm operating and for shorter periods with the turbines turned off. The noise levels were compared to the emission limit values as set out in the planning conditions. The measurements confirm that the wind farm is operating within the set limits, and with maintenance of the turbines will continue to do so during the extended operational period.

4.4. Impacts & Mitigation – Electromagnetic Interference

Sometimes wind farms cause interference by the rotor blades reflecting communication signals, effecting items such as mobile phones or TV reception. In a small number of instances, the blades may also physically block signals.

Telecommunication operators have been contacted and none report any issues arising from the operation of Lackan Wind Farm.

4.5. Impacts & Mitigation – Shadow Casting

Wind turbines can produce a shadow casting effect on residents living in close proximity. This is caused by the rotor blades intercepting sunlight at certain times of the day or year causing the blades to cast moving shadows on affected residences living in close proximity to the turbines. It is noted in the 2006 Planning Guidelines that at distances of 10 rotor diameters (710 metres), shadow flicker will not be an issue. Computer modelling indicates that shadow casting will not affect any dwellings for more than 30 hours per year.

It is noted that the model makes certain worst-case assumptions, such as 100% sunshine in daylight hours and orientation of blades and sunlight in line with the affected houses, which in practice do not occur as often as used in the model. For example, there is sunshine in Ireland for one third of daylight hours, not all daylight hours as modelled. There have been no complaints from neighbours on the operation of the wind farm, including in relation to shadow casting.

4.6. Impacts & Mitigation - Land use

The landbank covers an area of approximately 15.5ha of marginal wet grassland. The surrounding land use is mostly agricultural land, improving slightly in quality with elevation and / or distance from the coast. There are several small plots of commercial forestry in the wider area. As a coastal and tourist location, there are several amenity land uses in the wider area, including golf courses.

Approximately 5% of the landbank area is used for wind farm infrastructure, including access tracks, hardstands, turbines and control building. The lands adjoining the infrastructure continue to be used for agriculture – grazing and silage cutting. The wind farm has diversified the land use and provides additional income for the owners and will continue to do during its extended operational period.

4.7. Impacts & Mitigation -Tourism

The coast of Sligo is an important tourist attraction. The main tourist attractions in the area are associated with water-based activities. The regional road passing to the east of the site forms part of the Wild Atlantic Way. There are clear views of the wind farm from sections of this route. There is no evidence to suggest that wind farms detract tourists from an area. Surveys carried out by Failte Ireland indicate that visitors are well disposed towards wind farms. Since Lackan Wind Farm was commissioned, several investments have been made in the tourist industry locally confirming that it hasn't displaced tourism. Some of these include the Diamond Coast Hotel & Leisure Centre, Ocean Sands Hotel, and a 100-bay glamping site.

4.8. Impacts & Mitigation - Reflected Light

In some daylight conditions, bright sunlight falling on the turbines will reflect, and at a distance may cause the turbines to appear to be shining. This is a minor effect but could draw attention to the turbines highlighting their visual effect. The use of semi-matt paint significantly reduces potential for light reflecting from the turbines. Additional mitigation measures are not required.

4.9. Impacts & Mitigation – Traffic

The traffic associated with the operation of the wind farm is minor, consisting of a few visits, on average per week for service and maintenance. Traffic volumes during decommissioning of the wind farm will be minor and of short duration.

4.10. Impacts & Mitigation – Cultural Heritage

The site is already operational, so no impacts on archaeology or cultural heritage will occur. Pre-construction archaeological testing and construction earthworks monitoring were carried out. No archaeology was discovered. The extended operational period will not affect archaeology. Decommissioning earthworks would be limited to the development footprint, so no impact is predicted during these works.

5. ENVIRONMENTAL ASPECTS – IMPACTS AND MITIGATION

5.1. Impacts and Mitigation – Biodiversity (Flora, Fauna and Mammals)

Extensive and detailed baseline surveys were carried out by specialist ecologists for birds, bats, and habitats.

The wind farm is located on pasture fields whose perimeters are divided by high grass bank ditches. The nearest European Sites to the wind farm are the Killala Bay/Moy Estuary SAC and the Killala Bay/Moy Estuary SPA, located approximately 3.6km and 3.2km to the south, respectively.

An Appropriate Assessment was carried out to assess the potential impact of the operating wind farm on the birds which make up the qualifying interests of the SPA. The conclusion of the assessment is that the wind farm is not having a significant impact on the bird populations in the area.

The area is not important for bats, with low to moderate numbers recorded. The extended operation of the wind farm will not have a significant impact on bats, mammals, aquatic ecology or habitats.

5.2. Impacts and Mitigation – Surface Water

The site is in the catchment of two small streams and a number of field boundary drains. The water quality of these streams is not monitored by the Environmental Protection Agency. Observation and field measurements taken in 2022 indicate that the surface water is unpolluted.

The site is protected by a sea dyke, but this has been breached occasionally resulting in coastal flooding of the site. The flooding hasn't interfered with the operation of the wind farm.

The extended operational period of the wind farm does not present any significant risk to the surface water environment.

5.3. Impacts and Mitigation – Climate and Air

Extending the operational period of the wind farm will have a positive impact on the climate. The continued generation of 'green' electricity will result in an avoidance of greenhouse gas emissions that would otherwise occur from fossil fuel power generating plants.

No mitigation measures are required.

6. CONCLUSION – INTERACTIVE IMPACTS AND CONCLUSION

Extending the operational period of the Lackan Wind Farm will have positive and negative effects on the receiving environment. The cumulative effects of the impacts will be both positive and negative. These are listed below.

6.1. Positive Interactive Impacts

Wind energy has the following attributes:

- It is a clean, renewable, secure and sustainable means of electricity generation. It will continue to make a contribution towards Government targets for electricity generation from renewable sources and the net zero carbon emission target.
- It is one of the most cost-effective energy options for Irish conditions.
- It does not result in the creation of any harmful waste products.
- It is not subject to the price fluctuations that continually affect fossil fuels.
- It will continue to provide income for local landowners. Diversification of land use improves their income source.
- Lackan Wind Energy Ltd will continue to provide financial support for local projects.

6.2. Negative Interactive Impacts

Wind energy has the following drawbacks:

- Visual and landscape impact of the development. The Lackan Wind Farm is in a coastal zone, which is sensitive to most developments. The landscape has demonstrated its capacity to absorb the wind farm and indeed, the wind farm is now considered part of the landscape.
- Audible noise from the turbines during weather conditions of relatively low wind speed. However, measurement across a range of wind speeds confirms that the noise levels comply with limits set in the planning conditions.
- Shadow flicker may occur in times of bright sunshine in early morning and late evening hours, but to date it hasn't given rise to complaints.

6.3. Conclusions on the Interaction of the Foregoing

The interactions of all environmental factors indicate an overall positive development capable of providing a clean, renewable and sustainable energy source for the region. The main impacts on human beings such as noise, shadow casting and visual impact has been assessed and found not to give rise to significant impacts. The Lackan Wind Farm is now part of this coastal landscape.

The overall conclusion of this EIA is that the Lackan Wind Farm can continue operating with minimal impacts on the surrounding environment.