



GALETECH
ENERGY SERVICES

Islandmore Wind Farm

Environmental Impact Assessment
Report

Chapter 8: Air Quality

Islandmore Wind Farm Limited

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8.1 INTRODUCTION

This chapter comprises an assessment of the likely significant effects on air quality associated with the project.

This chapter provides a baseline assessment of the setting of the project in terms of air quality and discusses the likely effects of the construction, operation and decommissioning of the project. Where required, appropriate mitigation measures to limit any identified likely significant adverse effects on air quality are recommended. The air quality assessment takes into consideration the construction, operation and decommissioning of all aspects of the project including the wind farm, electricity substation and underground electricity line (grid connection), and turbine component haul route.

An overview of the methodology undertaken for the air quality assessment for the proposed project is outlined below:-

- The existing ambient environment of the proposed project has been characterised by a review of available published ambient air quality monitoring data.
- A review of the most applicable best practice standards and guidelines has been undertaken in order to define the air quality significance criteria for the construction, operation and decommissioning phases of the proposed project.
- The direct, indirect and cumulative effects of construction dust resulting from construction activities, in terms of dust soiling, human health and ecology effects have been assessed.
- The potential for direct, indirect and cumulative air quality effects associated with changes in traffic volumes associated with the construction, operation and decommissioning phases of the proposed project has been considered.
- The indirect effects to air quality from savings in nitrogen oxides (NO_x) emissions arising from the production of electricity using renewable sources have been assessed.
- A schedule of mitigation measures has been incorporated, where required, to reduce, where necessary, the identified potential air quality effects associated with the proposed project; and,
- An assessment of the significance of any residual effects after mitigation has also been undertaken.

8.1.1 DESCRIPTION OF THE PROJECT

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

- 10 no. wind turbines, 3 no. with an overall height of 185m and 7 no. with an overall height of 150m;
- All associated and ancillary site development, excavation, construction, landscaping and reinstatement works, including provision of site drainage infrastructure and forestry felling;
- Works to the public road network along the turbine component haul route;

and,

- 110kV electricity substation and installation of c. 7km of underground electricity line to facilitate connection of the wind farm to the existing Tonroe 110kV electricity substation at Ballaghaderreen, County Roscommon.

The project is located in north County Roscommon; c. 2km north of Ballaghaderreen, c. 13km east of Charlestown (Co. Mayo) and c. 6km southwest of Gorteen (Co. Sligo); and is located in close proximity to the county boundaries between counties Roscommon, Sligo and Mayo.

It is envisaged that turbine components will be transported from the Port of Galway through the counties of Galway, Mayo and Roscommon to the project site utilising, predominately, motorway and national roads.

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

8.1.2 STATEMENT OF AUTHORITY

This chapter was prepared by Tanmay Gojamgunde. Tanmay is an Environmental Consultant in the Air Quality & Climate section of AWN Consulting, a Trinity Consultants Company. He is Associate Member of the Institution of Environmental Science (AMEnvSc) and Associate Member of the Institute of Air Quality Management (AMIAQM). He has more than 1 year of experience in air quality and holds both a MSc in Air Pollution Management and Control from the University of Birmingham and BTech in Environmental Engineering. Tanmay has contributed to several key environmental projects in Ireland, air quality monitoring programs, air quality and traffic planning assessments and Environmental Impact Assessment Report (EIARs). He also specialises in conducting air dispersion modelling assessments of emissions, emission inventories, R programming and knowledge extending to broader aspects of environmental engineering. He has prepared air quality and climate impact assessments as part of EIARs for several residential developments some of which include Ennis LRD (Planning Application Ref. 17495), Cherrywood M1 Phase 2A LRD (Planning Application Ref DZ22A/0017). He has also prepared air dispersion modelling assessments of emissions as part of EPA Industrial Emissions Licences.

8.2 METHODOLOGY

8.2.1 SCOPE OF ASSESSMENT

8.2.1.1 Construction Phase Dust

The Institute of Air Quality Management in the UK (IAQM) guidance document '*Guidance on the Assessment of Dust from Demolition and Construction*' (IAQM, 2024) outlines an assessment method for predicting the effect of dust emissions from construction activities based on the scale and nature of the works and the sensitivity of the area to dust effects. The IAQM methodology has been applied to the construction phase of this project in order to predict the likely risk of dust effects in the absence of mitigation measures and to determine the level of site-specific mitigation required. The use of UK guidance is recommended by Transport Infrastructure Ireland in their guidance document *Air Quality Assessment of Specified Infrastructure Projects – PE-ENV-01106* (TII, 2025).

The IAQM states that an assessment of construction dust effects is normally required where there is a human or ecological receptor within 250m of the boundary of the

construction works (this should consider offsite construction compounds), and/or within 50m of the route(s) used by construction vehicles on the public road network (on roads up to 250m from the construction site entrance). This constitutes the Zone of Influence or study area for the construction dust assessment. As sensitive receptors are present within these distances at the project site, a construction dust assessment is scoped into the assessment.

8.2.1.2 Construction Phase Traffic

Construction phase traffic can also impact air quality. The TII guidance '*Air Quality Assessment of Specified Infrastructure Projects – PE-ENV-01106*' (TII, 2025), states that road links meeting one or more of the following criteria can be defined as being "affected" by a project and should be included in the local air quality assessment. While the guidance is specific to infrastructure projects, the approach can be applied to any development that causes a change in traffic and has been applied for this assessment as follows:-

- Annual average daily traffic (AADT) changes by 1,000 or more;
- Heavy duty vehicle (HDV) AADT changes by 200 or more;
- Daily average speed change by 10kph or more;
- Peak hour speed change by 20kph or more; or,
- A change in road alignment by 5m or greater.

As per **Chapter 14** of this EIAR, it has been assessed that construction stage traffic will not increase by 1,000 AADT, or 200 HDV AADT. In addition, there are no proposed changes to the road traffic speeds or significant road realignment. As a result, a detailed air assessment of construction stage traffic emissions has been scoped out from any further assessment as the TII scoping criteria has not been met and therefore there is no potential for significant effects to air quality.

8.2.1.3 Operation Phase Traffic Assessment

Operation phase traffic has the potential to affect air quality. The TII scoping criteria (TII, 2025) were used to determine if any road links required a detailed modelling assessment.

The operation phase of the project will involve only very occasional inspection and maintenance vehicles (see **Chapter 14**). The assessment has confirmed that there are no road links with traffic changes as a result of the project exceeding the TII scoping criteria. Therefore, a detailed air assessment of operation phase traffic emissions has been scoped out from any further assessment as there is no likelihood of significant effects on air quality as a result of vehicle emissions.

8.2.1.4 Operation Phase Energy Production

The operation phase of the project will result in positive effects on air quality due to the displacement of fossil fuels as an energy source. The indirect effects to air quality from savings in NO_x emissions arising from the production of electricity using renewable sources is therefore scoped into the assessment to quantify these positive effects using EPA and SEAI reports (EPA, 2024; SEAI, 2025).

8.2.2 LEGISLATION, POLICY AND GUIDANCE

8.2.2.1 Relevant Legislation & Guidance

The principal guidance and best practice documents used to inform the assessment of potential impacts on air quality are summarised below:-

- *Guidance on the Assessment of Dust from Demolition and Construction v2.2* (Institute of Air Quality Management [IAQM] (hereafter referred to as the IAQM Guidelines) (IAQM, 2024);
- *A Guide To The Assessment Of Air Quality Impacts On Designated Nature Conservation Sites (Version 1.1)* (IAQM, 2020); and
- *PE-ENV-01106: Air Quality Assessment of Specified Infrastructure Projects* (Transport Infrastructure Ireland [TII], 2025).

In addition to specific air quality guidance documents, the following guidelines were considered and consulted in the preparation of this chapter:-

- *Guidelines on the Information to be Contained in Environmental Impact Assessment Reports* (hereafter referred to as the Environmental Protection Agency (EPA) Guidelines) (EPA, 2022);
- *Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment* (Department of Housing, Planning & Local Government, 2018); and
- *Environmental Impact Assessment (EIA) Directive Guidance on the Preparation of the Environmental Impact Assessment Report* (European Commission, 2017).

8.2.2.2 Ambient Air Quality Standards

In order to reduce the risk to health from poor air quality, national and European statutory bodies have set limit values in ambient air for a range of air pollutants. These limit values or 'Air Quality Standards' are health or environmental-based levels for which additional factors may be considered. For example, natural background levels, environmental conditions and socio-economic factors may all play a part in the limit value which is set.

Air quality significance criteria are assessed on the basis of compliance with the appropriate standards or limit values. The applicable standards in Ireland are set out in Directive (EU) 2024/2881 of the European Parliament and of the Council of 23 October 2024 on ambient air quality and cleaner air for Europe (recast). This directive supersedes EU Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe (CAFE Directive) and it sets out new air quality standards for pollutants to be reached by 2030 which are more closely aligned with the World Health Organisation (WHO) air quality guidelines.

The Air Quality Standards Regulations 2022 (S.I. 739 of 2022) transposed EU Directive 2008/50/EC. With the adoption of Directive (EU) 2024/2881, Ireland must transpose this directive into national law (i.e. update the Air Quality Standards Regulations) before December 2026.

The ambient air quality standards applicable for nitrogen dioxide (NO₂) and particulate matter (as PM₁₀ and PM_{2.5}) are outlined in **Table 8.1**. The limit values set out

in Directive 2024/2881/EC will need to be achieved by 2030, with the limit values set out in the Air Quality Standards Regulations 2022 (and future updated regulations) applicable until 2030.

Pollutant	2008/50/EC Limit Type	2008/50/EC Limit Value (applicable until 2030)	2024/2881/EC Limit Type	2024/2881/EC Limit Value
Nitrogen Dioxide (NO ₂)	Hourly limit for protection of human health - not to be exceeded more than 18 times/year	200 µg/m ³	Hourly limit for protection of human health - not to be exceeded more than 3 times/year	200 µg/m ³
	n/a	n/a	24-hour limit for protection of human health - not to be exceeded more than 18 times/year	50 µg/m ³
	Annual limit for protection of human health	40 µg/m ³	Annual limit for protection of human health	20 µg/m ³
Particulate Matter (as PM ₁₀)	24-hour limit for protection of human health - not to be exceeded more than 35 times/year	50µg/m ³	24-hour limit for protection of human health - not to be exceeded more than 18 times/year	45µg/m ³
	Annual limit for protection of human health	40µg/m ³	Annual limit for protection of human health	20µg/m ³
Particulate Matter (as PM _{2.5})	n/a	n/a	24-hour limit for protection of human health - not to be exceeded more than 18 times/year	25µg/m ³
	Annual limit for protection of human health	25µg/m ³	Annual limit for protection of human health	10µg/m ³

Table 8.1: Ambient Air Quality Limit Values

In April 2023, the Government of Ireland published the *Clean Air Strategy for Ireland* (Government of Ireland 2023), which provides a high-level strategic policy framework needed to reduce air pollution. The strategy commits Ireland to achieving the 2021 WHO Air Quality Guidelines Interim Target 3 (IT3) by 2026, the IT4 targets by 2030 and the final targets by 2040 (shown in **Table 8.2**). The strategy notes that a significant number of EPA monitoring stations observed air pollution levels in 2021 above the WHO targets; 80% of these stations would fail to meet the final PM_{2.5} target of 5µg/m³. The strategy also acknowledges that “meeting the WHO targets will be challenging and will require legislative and societal change, especially with regard to both PM_{2.5} and NO₂”.

Annex II of Directive 2024/2881/EC gives assessment thresholds which align with the

clean air strategy final 2040 WHO targets. Directive (EU) 2024/2881 states that “Member States shall endeavour to achieve and preserve the best ambient air quality and a high level of protection of human health and the environment, with the aim of achieving a zero-pollution objective as referred to in Article 1(1), in line with WHO recommendations, and below the assessment thresholds laid down in Annex II.”

These assessment thresholds relate to monitoring of ambient air quality by Member States, where “exceedances of the assessment thresholds specified in Annex II shall be determined on the basis of concentrations during the previous 5 years where sufficient data are available. An assessment threshold shall be deemed to have been exceeded if it has been exceeded during at least 3 separate years out of those previous 5 years.”

The applicable air quality limit values for the purposes of this assessment are those set out in **Table 8.1**. The limit values stipulated under Directive 2008/50/EC and the Air Quality Standards Regulations 2022 are applicable prior to 2030. The limit values stipulated by Directive (EU) 2024/2881 are applicable for assessments after 2030.

Pollutant	Limit Type	IT3 (2026)	IT4 (2030)	Final Target (2040)
NO ₂	24-hour limit for protection of human health	-	-	25 µg/m ³
	Annual limit for protection of human health	20 µg/m ³	-	10 µg/m ³
PM ₁₀	24-hour limit for protection of human health	75µg/m ³	50µg/m ³	45µg/m ³
	Annual limit for protection of human health	30µg/m ³	20µg/m ³	15µg/m ³
PM _{2.5}	24-hour limit for protection of human health	37.5µg/m ³	25µg/m ³	15µg/m ³
	Annual limit for protection of human health	15µg/m ³	10µg/m ³	5µg/m ³

Table 8.2: WHO Air Quality Guidelines

8.2.2.3 Dust Deposition Guidelines

The concern from a health perspective is focused on particles of dust which are less than 10-microns and the EU ambient air quality standards have set ambient air quality limit values for PM₁₀ and PM_{2.5}.

With regard to larger dust particles that can give rise to nuisance dust, there are no statutory guidelines regarding the maximum dust deposition levels that may be generated during the construction phase of a development in Ireland.

However, best practice guidelines for dust deposition, the German TA-Luft standard for dust deposition (non-hazardous dust) (German VDI, 2002) sets a maximum permissible emission level for dust deposition of 350mg/m²/day averaged over a one-year period at any receptors outside the project's site boundary. The TA-Luft standard has been applied for the purpose of this assessment based on recommendations from the EPA in Ireland in the document titled *Environmental Management Guidelines* -

Environmental Management in the Extractive Industry (Non-Scheduled Minerals) (EPA, 2006). The document recommends that the Bergerhoff limit of 350mg/m²/day be applied to the site boundary of quarries. This limit value can be implemented with regard to dust effects from construction of the subject project.

8.2.2.4 National Air Emissions Targets

Regional (in a European context) air emissions associated with the project can be assessed relative to the emission ceilings given in Directive (EU) 2016/2284 of the European Parliament and of the Council of 14 December 2016 on the reduction of national emissions of certain atmospheric pollutants, amending Directive 2003/35/EC and repealing Directive 2001/81/EC (hereafter referred to as the National Emissions Reduction Directive). This National Emissions Reduction Directive applied the limits set out in Directive 2001/81/EC of the European Parliament and of the Council of 23 October 2001 on national emission ceilings for certain atmospheric pollutants until 2020 and established new national emission reduction commitments which are applicable from 2020 and 2030 for sulphur dioxide (SO₂), NO_x, non-methane volatile organic compounds (NMVOC), NH₃, PM_{2.5} and methane (CH₄).

In relation to Ireland, the 2020 to 2029 emission targets are 26 kilotonnes (kt) for SO₂ (65% reduction on 2005 levels), 68kt for NO_x (49% reduction on 2005 levels), 58kt for NMVOCs (25% reduction on 2005 levels), 123kt for NH₃ (1% reduction on 2005 levels) and 15kt for PM_{2.5} (18% reduction on 2005 levels) as shown in **Table 8.3**. In relation to 2030, Ireland's emission targets are to achieve an 85% reduction in SO₂, 69% reduction in NO_x, 32% reduction in VOCs, 5% reduction in NH₃ and 41% reduction in PM_{2.5} compared to 2005 levels, also shown in **Table 8.3**.

Pollutant	2020 – 2029 Reduction Commitments		2030 Reduction Commitments	
	kt	% Reduction Compared to 2005 Levels	kt	% Reduction Compared to 2005 Levels
SO ₂	25.6	-65%	11.1	-85%
NO _x	68.2	-49%	41.5	-69%
NMVOC	57.6	-25%	52.5	-32%
NH ₃	122.6	-1%	117.6	-5%
PM _{2.5}	15.3	-18%	11.0	-41%

Table 8.3: National Air Emission Targets (Ireland's Air Pollutant Emissions 2020 to 2030)

8.2.2.5 Construction Phase

Construction Dust Assessment Guidance

The Institute of Air Quality Management in the UK (IAQM) guidance document *Guidance on the Assessment of Dust from Demolition and Construction (2024)* outlines an assessment method for predicting the effect of dust emissions from construction activities based on the scale and nature of the works and the sensitivity of the area to dust effects. The IAQM methodology has been applied to the construction phase of this project in order to assess the likely risk of dust effects in the absence of mitigation measures and to determine the level of site-specific mitigation required. The use of UK guidance is recommended by Transport Infrastructure Ireland in their guidance document *Air Quality Assessment of Specified Infrastructure Projects – PE-ENV-01106* (TII, 2025).

The major dust generating activities are divided into four types within the IAQM guidance (2024) to reflect their different potential effects. These are:-

- Demolition;
- Earthworks;
- Construction; and,
- Trackout (transport of dust and dirt from the construction site entrance onto the public road network).

The magnitude of each of the four categories is divided into large, medium or small scale depending on the nature of the activities involved. The criteria for determining the category for the works involved are outlined in **Table 8.4**, these are based on the IAQM guidance (2024). The magnitude of each activity is combined with the overall sensitivity of the area to determine the risk of dust effects from site activities (see **Section 8.4.2.1**). This allows the level of site-specific mitigation to be determined.

The works required along the turbine haul route located beyond the areas illustrated at **Figure 8.2** (temporary removal of road signage, temporary hardcoreing of roadside verges and roundabout islands, etc.) will have a negligible dust generating potential and so has not been included in the assessment.

Small	Medium	Large
Demolition		
- total building volume <12,000m³ - construction material with low potential for dust release (e.g. metal cladding or timber) - demolition activities <6m above ground - demolition during wetter months	- total building volume 12,000 - 75,000m³ - potentially dusty construction material - demolition activities 6 – 12m above ground level	- total building volume >75,000m³ - potentially dusty construction material (e.g. concrete) - on-site crushing and screening - demolition activities >12m above ground level
Earthworks		
- total site area <18,000m² - soil type with large grain size (e.g. sand) <5 heavy earth moving vehicles active at any one time - formation of bunds <3m in height - earthworks during wetter months	- total site area 18,000 - 110,000m² - moderately dusty soil type (e.g. silt) 5 – 10 heavy earth moving vehicles active at any one time - formation of bunds 3–6m in height	- total site area >110,000m² - potentially dusty soil type (e.g. clay, which will be prone to suspension when dry due to small particle size) >10 heavy earth moving vehicles active at any one time - formation of bunds >6m in height
Construction		
- total building volume <12,000m³ - construction material with low potential for dust release (e.g. metal cladding or timber)	- total building volume 12,000 - 75,000m³ - potentially dusty construction material (e.g. concrete) - on-site concrete batching	- total building volume >75,000m³ - on-site concrete batching - sandblasting
Trackout		
<20 HDV (>3.5 t) outward movements in any one day - surface material with low potential for dust release - unpaved road length <50m	20 – 50 HDV (>3.5 t) outward movements in any one day - moderately dusty surface material (e.g. high clay content) - unpaved road length 50 – 100m	>50 HDV (>3.5 t) outward movements in any one day - potentially dusty surface material (e.g. high clay content) - unpaved road length >100m

Table 8.4: IAQM Criteria to Determine Dust Emissions Magnitude

Once the dust emission magnitude has been determined the next step, according to the IAQM guidance (2024), is to establish the level of risk by combining the magnitude with the overall sensitivity of the area to dust soiling, human health and ecological effects. The level of risk associated with each activity is determined using the criteria in **Table 8.5**.

Sensitivity of Area	Dust Emission Magnitude		
	Small	Medium	Large
Demolition			
High	High risk	Medium risk	Medium risk
Medium	High risk	Medium risk	Low risk
Low	Medium risk	Low risk	Negligible
Earthworks			
High	High risk	Medium risk	Low risk
Medium	Medium risk	Medium risk	Low risk
Low	Low risk	Low risk	Negligible
Construction			
High	High risk	Medium risk	Low risk
Medium	Medium risk	Medium risk	Low risk
Low	Low risk	Low risk	Negligible
Trackout			
High	High risk	Medium risk	Low risk
Medium	Medium risk	Medium risk	Low risk
Low	Low risk	Low risk	Negligible

Table 8.5: IAQM Criteria to Determine Risk of Dust Effects

Construction Phase Traffic Assessment

Construction phase traffic can also impact air quality. The TII guidance 'Air Quality Assessment of Specified Infrastructure Projects – PE-ENV-01106' (TII, 2025), states that changes to roads meeting one or more of the following criteria can be defined as being "affected" by a project and should be included in the local air quality assessment. While the guidance is specific to infrastructure projects, the approach can be applied to any development that causes a change in traffic and has been applied for this assessment:-

- Annual average daily traffic (AADT) changes by 1,000 or more;
- Heavy duty vehicle (HDV) AADT changes by 200 or more;
- Daily average speed change by 10 kph or more;
- Peak hour speed change by 20 kph or more; or,
- A change in road alignment by 5 m or greater.

As per **Chapter 14** of this EIAR, it has been assessed that the construction phase traffic will not increase by 1,000 AADT, or 200 HDV AADT. Therefore, the project does not meet the above scoping criteria. In addition, there are no proposed changes to the traffic speeds or road alignment. As a result, a detailed air assessment of construction stage traffic emissions has been scoped out from any further assessment as there is no likelihood of significant impacts on air quality.

8.2.2.6 Operation Phase

Operation Energy Production

The operation of the turbines themselves will not give rise to any significant emissions

to air.

The operation phase of the project will result in positive effects on air quality due to the displacement of fossil fuels as an energy source. The indirect effects to air quality from savings in nitrogen oxides (NO_x) emissions arising from the production of electricity using renewable sources were calculated and compared against those produced using non-renewable sources. The calculations were carried out using SEAI published emission rates from non-renewable energy sources.

The most recent report by the SEAI entitled *Energy in Ireland 2025 Report* (SEAI, 2025) estimates that a total of 31.2 terawatt hours (TWh) of electricity was generated nationally in 2024. Renewable energy accounted for 46.2% of the electricity generated in 2024, with 11.65TWh from wind generation.

The EPA state that a total of 84.4kt NO_x was emitted in 2023 in their report entitled *Ireland's Air Pollutant Emissions 1990 – 2030* (EPA, 2025b). These are the most recently published figures for NO_x emissions. Power generation accounted for 5.1% of the total emissions produced in 2023.

The above figures from the SEAI and EPA were used in the current assessment to quantify the NO_x emissions savings from the project both annually and over the lifespan of the project and the results were compared against the 2030 national air emissions target of 40.6kt (see **Section 8.4.3**).

The wind farm will have an export capacity 53.1MW and a capacity factor of 35%, therefore the power generation from the project is expected to be 163GWh of electricity per annum.

8.2.2.7 Decommissioning Phase

The decommissioning phase of project has the potential for dust generation. This includes activities like removal of the turbines, concrete breaking for the plinth, and reinstatement of hardstands, etc.

For the decommissioning phase the same methodology set out in **Section 8.2.1.1** is applicable. The magnitude of each activity (see **Section 8.4.2**) is combined with the overall sensitivity of the area (see **Section 8.3.4.3**) to determine the risk of dust impacts from site activities (see **Section 8.4.2**). This allows the level of site-specific mitigation to be determined.

8.2.3 LIMITATIONS

No limitations were encountered during this assessment.

8.3 DESCRIPTION OF THE EXISTING ENVIRONMENT

8.3.1 METEOROLOGICAL DATA

A key factor in assessing temporal and spatial variations in air quality are the prevailing meteorological conditions. Wind frequency is important as dust can only be dispersed by winds, and deposition of dust is a simple function of particle size, wind speed and distance. The closer the source of dust is to a receptor the higher the potential risk of effect of dust blow.

The nearest weather station collating detailed weather records is Knock Airport meteorological station, which is located c. 15km west of the project site. Knock Airport meteorological station data has been examined to identify the prevailing wind

direction and average wind speeds over a five-year period (Met Éireann, 2026). The predominant wind direction is westerly to south-westerly (2021-2025), thereby predominantly dispersing any potential dust emissions to the east and north-east of the project site (see **Figure 8.1**). 30-year historical meteorological data for Knock Airport are not available. However, the mean wind speed at Belmullet meteorological station, the closest station with available data (located c. 85km northwest of the site) over the long term 30-year averaging period 1991 - 2020 is 6.4m/s (Met Éireann, 2025).

Dust emissions are dramatically reduced where rainfall has occurred due to the cohesion created between dust particles and water and the removal of suspended dust from the air. It is typical to assume no dust is generated under 'wet day' conditions where rainfall greater than 0.2mm has fallen (*IAQM Guidance on the Assessment of Mineral Dust Impacts for Planning, 2016*). Information collected from Belmullet meteorological station (the closest station with 30-year averages), identified that, typically, 257.5 days per annum are 'wet' (Met Éireann, 2025). Thus, over 70.5% of the time, no significant dust generation will be likely due to natural meteorological conditions.

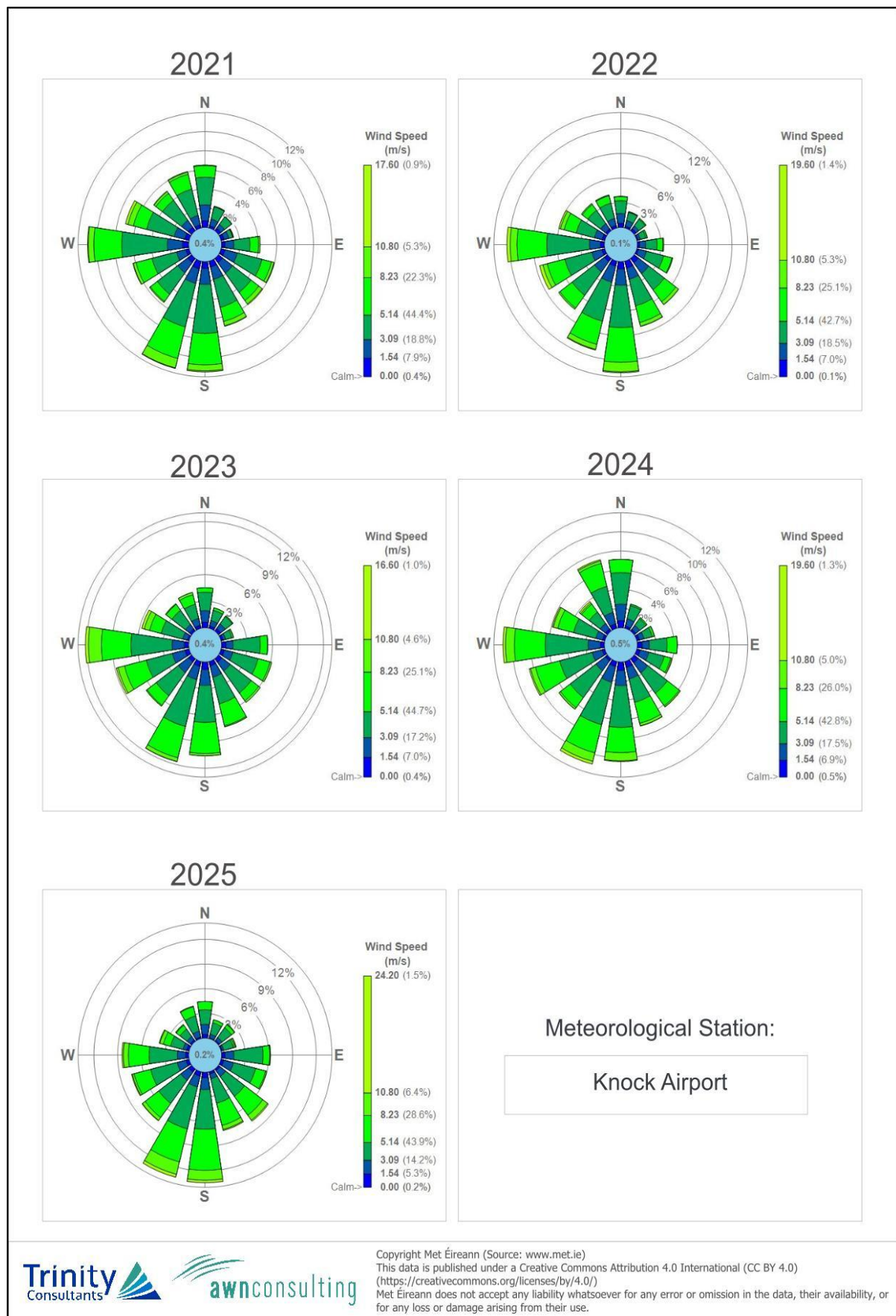


Figure 8.1: Wind Roses for Knock Airport Meteorological Station

8.3.2 BASELINE AIR QUALITY

As part of the implementation of the *Framework Directive on Air Quality (1996/62/EC)*, 4 no. air quality zones have been defined in Ireland for air quality management and assessment purposes as outlined within the EPA document titled *Air Quality in Ireland 2024* (EPA, 2025a). Dublin is defined as Zone A and Cork as Zone B. Zone C is composed of 23 no. towns with a population of greater than 15,000. The remainder of the country, which represents rural Ireland but also includes all towns with a population of less than 15,000 is defined as Zone D. In terms of air monitoring, the project site is categorised as Zone D.

Continuous monitoring by the EPA is carried out at a number of monitoring stations within Zone D (EPA, 2025a); these include rural background sites, roadside (traffic) sites and suburban background sites.

It is necessary to select monitoring stations that are representative of the project location. Not all monitoring stations are considered suitable for determining background pollutant concentrations and must be reviewed on a case-by-case basis to determine the most appropriate EPA monitoring sites for the assessment. The selected monitoring sites (Kilkitt, Claremorris and Askeaton) are rural background monitoring locations which are not heavily influenced by traffic or other major air emission sources (similar to the location of the project) and can provide an indicative estimate of the background concentrations in the vicinity of the project.

8.3.2.1 Particulate Matter (PM₁₀)

Continuous PM₁₀ monitoring was carried out at 3 no. representative Zone D rural background locations from 2020 – 2024; Kilkitt, Claremorris and Askeaton (EPA, 2025a). Annual average PM₁₀ concentrations across the sites ranged from 7–10µg/m³ over the 2020 – 2024 period (see **Table 8.6**).

There were no exceedances of the daily limit of 50µg/m³ (35 no. exceedances are permitted per year) (EPA, 2025a). The overall average PM₁₀ concentration at the rural background Zone D sites over the 2020–2024 period is 8µg/m³. Based on the EPA data, a conservative estimate of the current background PM₁₀ concentration in the region of the project is 8µg/m³.

Station	Averaging Period	Year				
		2020	2021	2022	2023	2024
Kilkitt	Annual Mean PM ₁₀ (µg/m ³)	8	8	9	7	7
	24-hr Mean > 50µg/m ³ (days)	0	0	0	0	0
Claremorris	Annual Mean PM ₁₀ (µg/m ³)	10	10	8	8	8
	24-hr Mean > 50µg/m ³ (days)	0	0	0	0	0
Askeaton	Annual Mean PM ₁₀ (µg/m ³)	7	9	9	-	8
	24-hr Mean > 50µg/m ³ (days)	0	0	0	-	0

Table 8.6: Baseline Zone D Air Quality – PM₁₀

8.3.2.2 Particulate Matter (PM_{2.5})

The results of PM_{2.5} monitoring at Claremorris and Shannon Estuary/Askeaton over the period 2020 – 2024 ranged from 4 –8µg/m³ (EPA, 2025a) (see **Table 8.7**).

Long-term average PM_{2.5} concentrations measured at this location were significantly lower than the annual average limit value of 25µg/m³. Based on this information, a

conservative background PM_{2.5} concentration of 6µg/m³ can be assumed.

Station	Averaging Period	Year				
		2020	2021	2022	2023	2024
Claremorris	Annual Mean PM _{2.5} (µg/m ³)	5	8	6	5	5
Shannon Estuary/Askeaton	Annual Mean PM _{2.5} (µg/m ³)	4	6	5	5	5

Table 8.7: Baseline Zone D Air Quality – PM_{2.5}

8.3.3 DUST DEPOSITION

Dust is present naturally in the air from a number of sources including weathering of minerals, pick-up across open land and dust generated from fires. Monitoring of dust deposition is not undertaken in the area and therefore background levels for the immediate vicinity of the project site are not available.

However, a study by the UK Office of Deputy Prime Minister (UK ODPM, 2002) gives estimates of likely dust deposition levels in specific types of environments. In open country a level of 39mg/m²/day is typical, rising to 59mg/m²/day on the outskirts of towns, and peaking at 127mg/m²/day for a purely industrial area. A level of 39mg/m²/day can be estimated as the background dust deposition level for the region of the project due to its rural location.

8.3.4 SENSITIVITY OF THE RECEIVING ENVIRONMENT

In line with the UK Institute of Air Quality Management (IAQM) guidance document *Guidance on the Assessment of Dust from Demolition and Construction (2024)* prior to assessing the effect of dust from a project, the sensitivity of the area must first be assessed as outlined below. Both receptor sensitivity and proximity to construction works areas are taken into consideration.

For the purposes of this assessment, in line with the IAQM guidance, high sensitivity receptors are regarded as residential properties (where people are likely to spend the majority of their time), schools or hospitals. Commercial properties and places of work are regarded as medium sensitivity while low sensitivity receptors are places where people are present for short periods or do not expect a high level of amenity.

Table 8.8 outlines the criteria for determining the sensitivity of the area to dust soiling and dust-related human health effects as per the IAQM guidelines.

Sensitivity of the Area to Dust Soiling Effects on People and Property					
Receptor Sensitivity	Number of Receptors	Distance From Source (m)			
		<20	<50	<100	<250
High	>100	High	High	Medium	Low
	10 - 100	High	Medium	Low	Low
	1 - 10	Medium	Low	Low	Low
Medium	>1	Medium	Low	Low	Low
Low	>1	Low	Low	Low	Low
Sensitivity of the Area to Human Health Effects (<24µg/m ³ Annual Mean PM ₁₀ Concentration)					
Receptor Sensitivity	Number of Receptors	Distance From Source (m)			
		<20	<50	<100	<250
High	>100	Medium	Low	Low	Low
	10 - 100	Low	Low	Low	Low
	1 - 10	Low	Low	Low	Low
Medium	>10	Low	Low	Low	Low
Low	1 - 10	Low	Low	Low	Low
Sensitivity of the Area to Dust Related Ecology Effects					
Receptor Sensitivity		Distance From Source			
		<20	<50		
High		High	Medium		
Medium		Medium	Low		
Low		Low	Low		

Table 8.8: Criteria for Determining the Sensitivity of the Area to Construction Dust

8.3.4.1 Sensitive Receptors: Project Boundary

In terms of receptor sensitivity to dust soiling, the area directly surrounding the project (within 250m of the boundary of the wind farm and haul route works as part of the project) is predominantly rural in nature. The following range of receptors within 250m of the proposed project construction works has been identified (see **Figure 8.2**): -

- There are c. no. 11 highly sensitive residential properties within 20m of the (wind farm, electricity substation and haul route upgrade works [proximate to the wind farm site]) site boundary; and,
- There are c. no. 39 highly sensitive residential properties within 250m of the (wind farm, electricity substation and haul route upgrade works [proximate to the wind farm site]) site boundary.

Based on these receptor numbers and using the IAQM criteria in **Table 8.8**, the sensitivity of the area to dust soiling effects from the project is high.

In addition to sensitivity to dust soiling, the IAQM guidelines also outline the assessment criteria for determining the sensitivity of the area to human health effects. The criteria take into consideration the current annual mean PM₁₀ concentration, receptor sensitivity based on type (residential receptors are classified as high sensitivity) and the number of receptors affected within various distance bands from the construction works. A conservative estimate of the current annual mean PM₁₀ concentration in the vicinity of the project is 8µg/m³.

Based on the IAQM criteria outlined in **Table 8.8**, the sensitivity of the area to dust-related human health effects is low.

8.3.4.2 Sensitive Receptors: Electricity Line Route

In terms of receptor sensitivity to dust soiling, the area directly surrounding the route of the underground electricity line (within 250m of the route) is predominantly rural in nature. The following range of receptors within 250m of the route has been identified (see **Figure 8.3**): -

- There are c. 7 no. highly sensitive residential properties within 20m of the route; and,
- There are c. 94 no. highly sensitive residential properties within 250m of the (route).

Based on these receptor numbers and using the IAQM criteria in **Table 8.8**, the sensitivity of the area to dust soiling effects from the underground electricity line is medium.

In addition to sensitivity to dust soiling, based on the IAQM criteria outlined in **Table 8.8**, the sensitivity of the area to dust-related human health effects is low.

8.3.4.3 Sensitive Receptors: Summary

The IAQM guidelines also outline the assessment criteria for determining the sensitivity of the area to dust-related ecological effects. Dust emissions can coat vegetation leading to a reduction in the photosynthesising ability of the plant, as well as other effects. The guidance states that dust effects on vegetation can occur up to 50m from the site, 50m from wind farm site access tracks and up to 250m from the wind farm site entrance. The sensitivity of the area is determined based on the distance to the source, the designation of the site, (European, National or local designation) and the potential dust sensitivity of the ecologically important species present.

There are no designated ecology sites within 250m of the wind farm, electricity substation and haul route works site boundary or the underground electricity line. Therefore, ecological effects from construction dust are not considered further in this assessment.

Based on these receptor numbers and using the IAQM criteria in **Table 8.8**, the sensitivity of the area to dust soiling effects from the project is outlined in **Table 8.9**.

Receptor	Receptor Sensitivity
Project site boundary	
Dust Soiling	High
Human Health	Low
Ecology	n/a
Grid Connection Route	
Dust Soiling	Medium
Human Health	Low
Ecology	n/a

Table 8.9: Sensitivity of the Receiving Environment

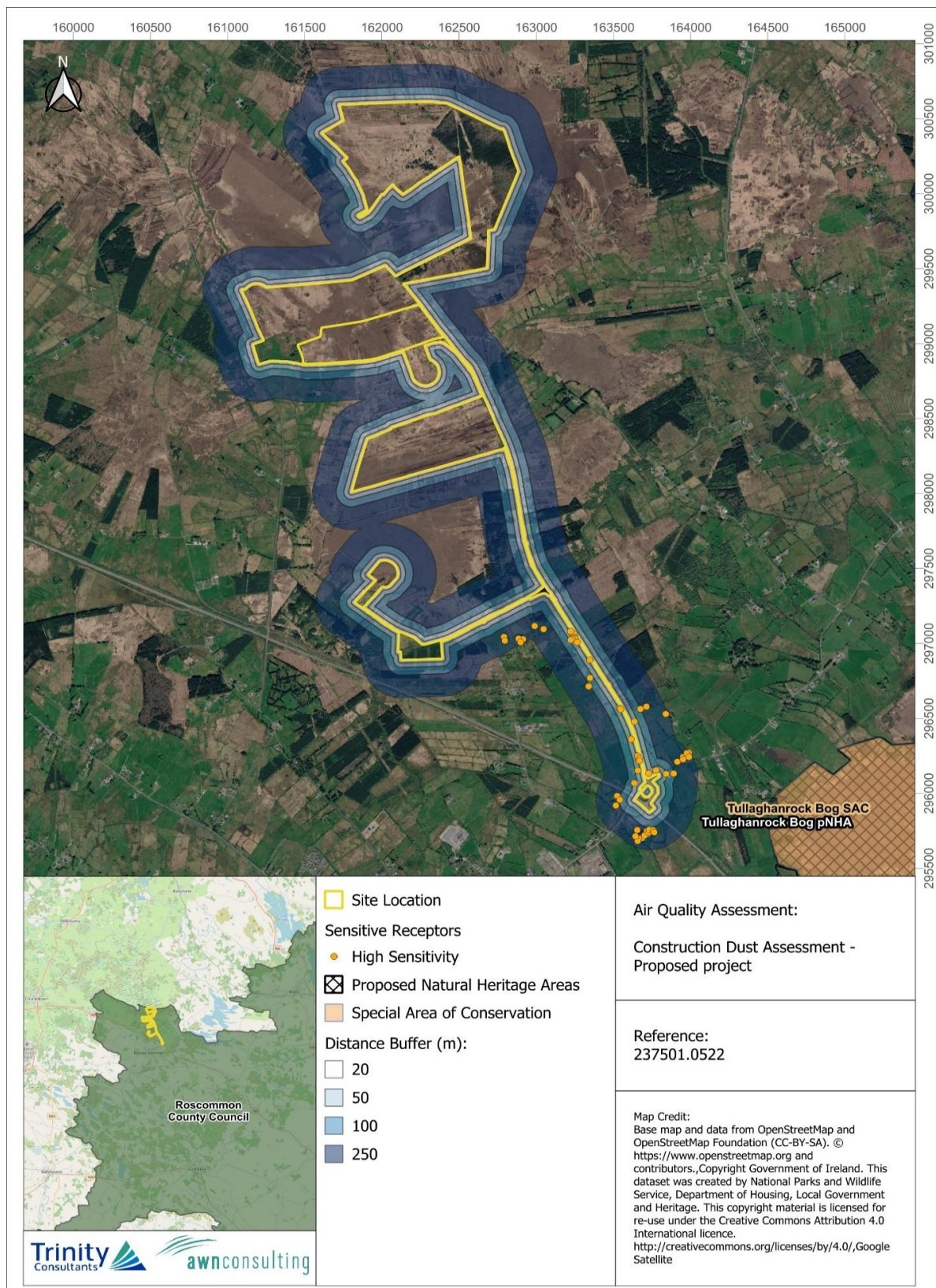


Figure 8.2: Construction Dust Assessment - Sensitive Receptors within 250m of Wind Farm, Electricity Substation and Haul Route Works Site Boundary

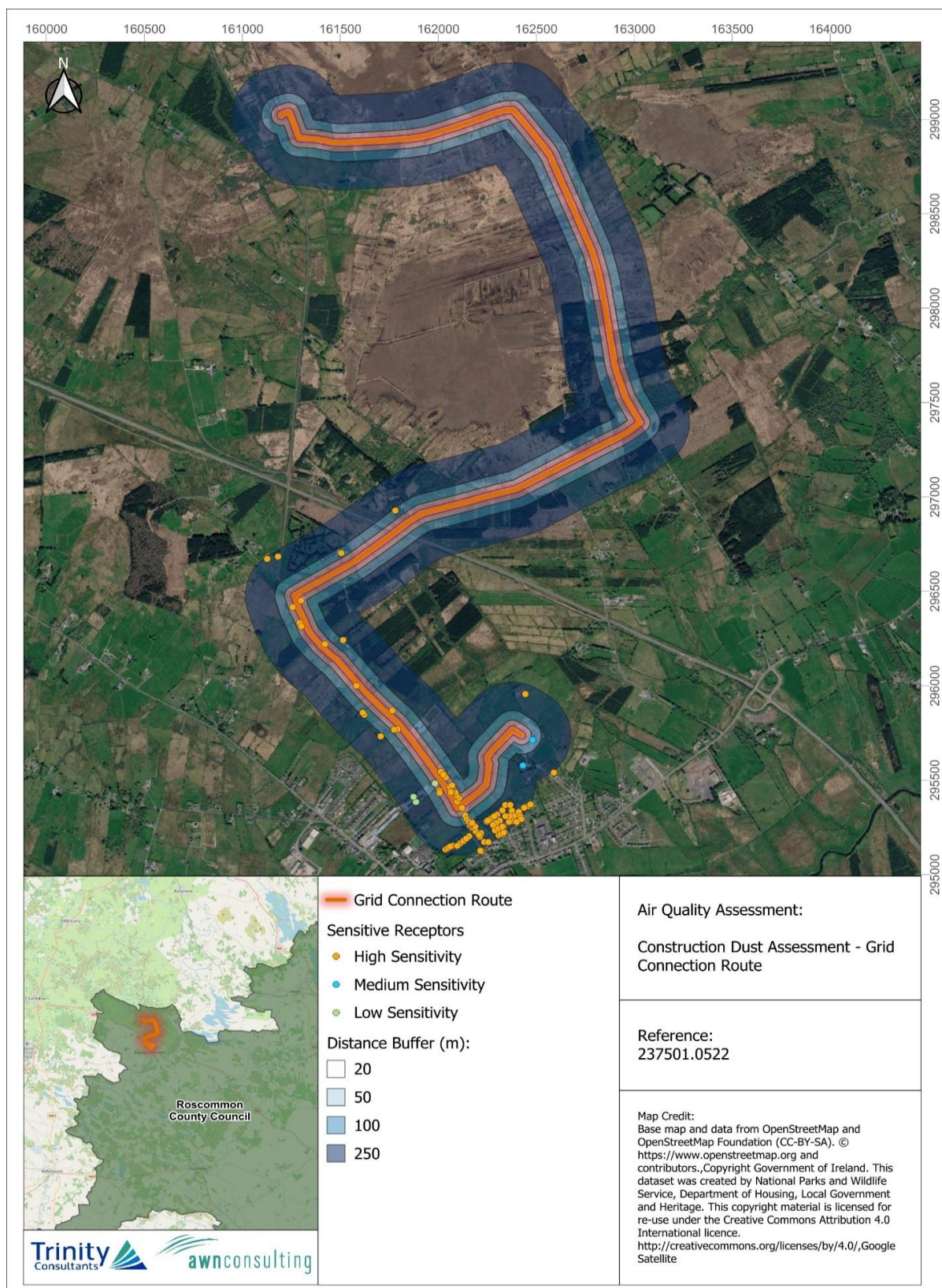


Figure 8.3: Construction Dust Assessment - Sensitive Receptors within 250m of the Underground Electricity Line

8.4 DESCRIPTION OF LIKELY SIGNIFICANT EFFECTS

8.4.1 'DO-NOTHING' SCENARIO

Under the 'Do-Nothing' Scenario, no construction works will take place and the previously identified potential effects of fugitive dust and particulate matter emissions and emissions from equipment and machinery will not occur. The ambient air quality at the project site will remain as per the baseline and will change in accordance with trends within the wider area (including influences from other new developments in the surrounding area, changes in road traffic, etc.).

In the 'Do-Nothing' scenario, the clean renewable power associated with wind farms, which replaces power generated from fossil fuels, would be delayed or prevented (i.e. renewable energy production capacity reduced).

8.4.2 CONSTRUCTION PHASE

8.4.2.1 Construction Dust Assessment

The most likely effect on air quality during the construction phase of the project is from construction dust emissions and nuisance dust. While construction dust tends to be deposited within 250m of a construction site, the majority of the deposition occurs within the first 50m (IAQM, 2024). The extent of any dust generation depends on the nature of the dust (soils, peat, sands, gravels, silts etc.) and the nature of the construction activity. In addition, the likelihood of dust dispersion and deposition depends on local meteorological factors such as rainfall, wind speed and wind direction. A review of Knock Airport meteorological data and Belmullet meteorological data indicates that the prevailing wind direction is westerly to south-westerly and wind speeds are generally moderate in nature (see **Section 8.3.1**). In addition, dust generation is considered negligible on days where rainfall is greater than 0.2mm. A review of historical 30-year average data for Belmullet meteorological station (the nearest station with 30-year data) indicates that on average 257.5 days per year have rainfall over 0.2mm (Met Eireann, 2025) and therefore it can be determined that 70.5% of the time dust generation will be reduced due to natural meteorological conditions.

In order to determine the level of dust mitigation required during the proposed works, the likely dust emission magnitude for each dust generating activity needs to be taken into account, in conjunction with the previously established sensitivity of the area (see **Section 8.3.4**). The major dust generating activities are divided into four types within the IAQM (2024) guidance to reflect their different potential effects. These are: demolition, earthworks, construction and trackout (movement of heavy vehicles).

8.4.2.2 Construction Dust Assessment: Wind Farm, Electricity Substation & Haul Route Works

Determining the Likely Dust Emission Magnitude

The magnitude of the works under each category can be classified as either small, medium or large depending on the scale of the works involved. The potential for dust generating activities is considered for the wind farm, electricity substation and haul route works area. The turbine component haul route located beyond the immediate environs of the wind farm site for this project will have a negligible dust generating likelihood and has been scoped out from further assessment.

The magnitude of each activity has been determined and summarised below for the proposed project using the criteria in **Table 8.4**:-

- Demolition: There is no demolition required as part of the project;
- Earthworks: The dust emission magnitude for the earthwork activities can be classified as large as the total site area is greater than 110,000m²;
- Construction: The dust emission magnitude for the construction activities can be classified as small as the total volume of structures with dust generating potential during their construction will be less than 12,000m³ and there will be no on-site concrete batching; and,
- Trackout: The dust emission magnitude for the likely trackout can be classified as medium, as there will be >50 outward HGV movements per day during the peak of the construction phase of the proposed project.

Determining the Risk of Dust Effects

Once the dust emission magnitude has been determined, the next step, according to the IAQM guidance (2024), is to establish the level of risk by combining the magnitude with the overall sensitivity of the area to dust soiling, dust-related human health and ecological effects (see **Section 8.3.4**). The level of risk associated with each activity is determined using the criteria in **Table 8.4**. The overall risk of dust effects from the construction works is shown in **Table 8.10**.

Receptor	Receptor Sensitivity	Dust Emission Magnitude	Risk of Dust-Related Effects
Demolition			
Dust Soiling	n/a	n/a	n/a
Human Health	n/a		n/a
Ecology	n/a		n/a
Earthworks			
Dust Soiling	High	Large	Low Risk
Human Health	Low		Negligible Risk
Ecology	n/a		n/a
Construction			
Dust Soiling	High	Small	High Risk
Human Health	Low		Low Risk
Ecology	n/a		n/a
Trackout			
Dust Soiling	High	Medium	Medium Risk
Human Health	Low		Low Risk
Ecology	n/a		n/a

Table 8.10: Risk of Construction Dust Effects (Wind Farm, Electricity Substation & Haul Route Works)

There is, at most, a likely high risk of dust soiling effects and a likely low risk of dust-related human health effects associated with the project. As a result, dust mitigation for high-risk sites will be implemented to ensure there are no likely significant effects at nearby sensitive receptors. In the absence of mitigation, dust effects are assessed as likely to be direct, localised, short-term, moderate and negative, which is potentially significant.

8.4.2.3 Construction Dust Assessment: Underground Electricity Line

Determining the Potential Dust Emission Magnitude

The magnitude of the works under each category can be classified as either small, medium or large depending on the scale of the works involved. The likelihood of dust generating activities is considered along the route of the electricity line.

The magnitude of each activity has been determined and summarised below for the proposed project using the criteria in **Table 8.4**:-

- Demolition: There is no demolition required as part of the project;
- Earthworks: The dust emission magnitude for the earthwork activities can be classified as medium as the total grid connection works area is between 18,000m² and 110,000m² (assuming a 5m wide public road and works corridor);
- Construction: The dust emission magnitude for the construction activities can be classified as small as the total volume of structures with dust generating potential during their construction will be less than 12,000m³ and there will be no on-site concrete batching; and,
- Trackout: The dust emission magnitude for the proposed trackout can be classified as medium, as there will be between 20-50 outward HGV movements per day during the peak of the construction phase of the project.

Determining the Risk of Dust Effects

Once the dust emission magnitude has been determined, the next step, according to the IAQM guidance (2024), is to establish the level of risk by combining the magnitude with the overall sensitivity of the area to dust soiling, dust-related human health and ecological effects (see **Section 8.3.4**). The level of risk associated with each activity is determined using the criteria in **Table 8.4**. The overall risk of dust effects from the construction works is shown in **Table 8.11**.

Receptor	Receptor Sensitivity	Dust Emission Magnitude	Risk of Dust-Related Effects
Demolition			
Dust Soiling	n/a	n/a	n/a
Human Health	n/a		n/a
Ecology	n/a		n/a
Earthworks			
Dust Soiling	Medium	Medium	Medium Risk
Human Health	Low		Low Risk
Ecology	n/a		n/a
Construction			
Dust Soiling	Medium	Small	Medium Risk
Human Health	Low		Low Risk
Ecology	n/a		n/a
Trackout			
Dust Soiling	Medium	Medium	Medium Risk
Human Health	Low		Low Risk
Ecology	n/a		n/a

Table 8.11: Risk of Construction Dust Effects Used to Define Site-Specific Mitigation (Underground Electricity Line)

There is, at most, a likely medium risk of dust soiling effects and a likely low risk of dust-related human health effects associated with the proposed works along the grid connection route. As a result, dust mitigation measures will be implemented to ensure there are no significant effects at nearby sensitive receptors. In the absence of mitigation, dust effects are predicted to be direct, localised, short-term, moderate and negative, which is potentially significant.

8.4.2.4 Summary of Construction Dust Assessment

Based on the above sections (**Section 8.4.2.2** and **Section 8.4.2.3**) there is, at most, a likely high risk of dust soiling effects and a likely low risk of dust-related human health effects associated with the proposed works. As a result, best practice dust mitigation measures associated with high-risk works will be implemented to ensure there are no likely significant effects at nearby sensitive receptors. In the absence of mitigation, dust effects are assessed as likely to be direct, localised, short-term, moderate and negative, which is potentially significant.

8.4.3 OPERATION PHASE

8.4.3.1 Effects from Renewable Electricity Production

The generation of electricity due to the operation of the project will lead to indirect net savings in terms of NO_x emissions. The project is estimated to have an export capacity of 53.1MW and a capacity factor of 35%, therefore the power generation from the project is expected to be 163GWh of electricity per annum.

The supply of 163GWh of renewable electricity to the national grid will lead to a net saving in terms of NO_x emissions which may have been emitted from fossil fuels to produce electricity. Results, outlined in **Table 8.12**, indicate that the effect of the

project on Ireland's obligations under the National Emissions Reduction Directive is positive.

The annual effect of the project is annual NO_x emission savings of 0.10% of the 2030 ceiling of 40.6kt and savings of 0.97% relative to the NO_x emissions associated with power generation in Ireland in 2023 (EPA, 2025b). This is an indirect, long-term, slight and positive effect on air quality.

NO _x Emissions Saved Due to Wind farm (tonnes/annum)	Comparison Scenario	NO _x (tonnes/annum)	Annual NO _x Saving (%)
42	National Emission Ceiling 2020 – 2029 ^{Note 1}	40,600	0.10%
	NO _x Emissions from Power Generation in 2023 ^{Note 2}	4,304	0.97%
^{Note 1} National Emission Ceiling (EU Directive 2016/2284) ^{Note 2} For NO _x emissions associated with power generation in Ireland (taken from EPA (2025) Ireland's Air Pollutant Emissions 1990 – 2030)			

Table 8.12: Predicted Effect of the Proposed Project on Ireland's National Emissions Ceiling Obligations

8.4.4 DECOMMISSIONING PHASE

Dust impacts during the construction phase as assessed in **Section 8.4.2** have a medium risk of dust soiling impacts and a low risk of dust-related human health. As the decommissioning phase activities will have a lesser impact than construction phase activities, the risk of impacts can be assumed (assessed), as a worst case, to be medium. Many of the mitigation measures associated with the construction phase activities will not be applicable to the decommissioning phase activities. However, where applicable, the same mitigation measures implemented during the construction phase will be applied during the decommissioning works and are also considered appropriate for the decommissioning works (see **Section 8.5**). It can therefore be determined that the decommissioning phase will have a direct, short-term, negative and not significant effect in EIA terms.

8.5 MITIGATION MEASURES

8.5.1 CONSTRUCTION PHASE

Based on the assessment in **Section 8.4.2**, mitigation associated with a high risk of construction dust effects is required. The relevant mitigation measures for high-risk sites as recommended by IAQM construction dust guidance (2024) are outlined below. These measures have been incorporated into the Planning-Stage Construction Environmental Management Plan (CEMP) (see **Annex 3.4, Volume II**) and shall be incorporated into the detailed CEMP to be prepared prior to the commencement of development.

8.5.1.1 Communications

- Develop and implement a stakeholder communications plan that includes community engagement before work commences on site;
- Display the name and contact details of person(s) accountable for air quality and dust issues at the site entrances. This may be the environment manager/engineer or the site manager; and,

- Display the head or regional office contact information.

8.5.1.2 Site Management

- Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken;
- Make the complaints log available to the local authority when asked; and,
- Record any exceptional incidents that cause dust and/or air emissions, either on- or offsite, and the action taken to resolve the situation in the logbook.

8.5.1.3 Preparing and Maintaining the Site

- Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible;
- Erect solid screens or barriers around dusty activities that are at least as high as any stockpiles on site;
- Fully enclose site or specific operations where there is a high likelihood of dust production and the site is active for an extensive period;
- Avoid site runoff of water or mud;
- Keep site fencing, barriers and scaffolding clean using wet methods;
- Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below; and,
- Cover, seed or fence stockpiles to prevent wind whipping.

8.5.1.4 Operating Vehicle/Machinery and Sustainable Travel

- Ensure all vehicles switch off engines when stationary – no idling vehicles;
- Avoid the use of diesel- or petrol-powered generators and use mains electricity or battery powered equipment where practicable;
- Impose and signpost a maximum-speed-limit of 25kph on surfaced and 15kph on unsurfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate);
- Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing); and,
- Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials.

8.5.1.5 Operations

- Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems;
- Ensure an adequate water supply on the site for effective dust/particulate

matter suppression/mitigation, using non-potable water where possible and appropriate;

- Use enclosed chutes and conveyors and covered skips;
- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate; and,
- Ensure equipment is readily available on site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.

8.5.1.6 Waste Management

- Bonfires and burning of waste materials are legally prohibited.

8.5.1.7 Measures Specific to Earthworks

- Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable;
- Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as is practicable; and,
- Only remove the cover in small areas during work and not all at once.

8.5.1.8 Measures Specific to Construction

- Avoid scabbling (roughening of concrete surfaces) if possible;
- Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place;
- Ensure fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery; and,
- For smaller supplies of fine powder materials, ensure bags are sealed after use and stored appropriately to prevent dust.

8.5.1.9 Measures Specific to Trackout

- Use water-assisted dust sweeper(s) on the access tracks and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use;
- Avoid dry sweeping of large areas;
- Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport;
- Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable;
- Record all inspections of haul routes and any subsequent action in a site logbook;
- Install hard surfaced haul routes, which are regularly damped down with fixed

or mobile sprinkler systems, or mobile water bowzers and regularly cleaned;

- Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable); and,
- Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits.

8.5.2 OPERATION PHASE

The effect of the operation traffic associated with the project on air quality is predicted to be not significant with respect to the operation phase in the long term. Therefore, no site-specific mitigation measures are required.

8.5.3 DECOMMISSIONING PHASE

No site-specific mitigation measures are required during the decommissioning phase; however, as above, measures from the construction phase will be employed as appropriate and required.

8.6 MONITORING MEASURES

8.6.1 CONSTRUCTION PHASE

The following monitoring measures are proposed to ensure the dust mitigation measures are working satisfactorily:-

- Undertake daily on-site and off-site visual inspections, where receptors (including roads) are nearby, to monitor dust, record inspection results in the site inspection log. This should include regular dust soiling checks of surfaces such as street furniture, cars and windowsills within 100m of project boundary, with cleaning to be provided if necessary; and,
- Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high likelihood of producing dust are being carried out and during prolonged dry or windy conditions.

8.6.2 OPERATION PHASE

There is no monitoring recommended for the operation phase of the project as effects to air quality are assessed as not likely to be not significant.

8.6.3 DECOMMISSIONING PHASE

There is no monitoring recommended for the decommissioning phase of the project as effects to air quality are assessed as not likely to be not significant.

8.7 RESIDUAL EFFECTS

8.7.1 CONSTRUCTION PHASE

Once the dust mitigation measures outlined in **Section 8.5.1** are implemented, the air quality effect of the project in terms of dust soiling are assessed as likely to be short-term, direct, localised, negative and not significant at nearby receptors.

Best practice mitigation measures are proposed for the construction phase which will

focus on the proactive control of dust and other air pollutants to minimise generation of emissions at source. The mitigation measures that will be put in place during construction will ensure that the effect of the development complies with all EU ambient air quality legislative limit values which are based on the protection of human health. Therefore, the air quality effect of construction of the project are assessed as likely to be short-term, direct, localised, negative and not significant with respect to human health.

8.7.2 OPERATION PHASE

There are no likely direct effects to air quality during the operation phase. Emissions from infrequent maintenance vehicles have been assessed as likely to have a long-term, direct, localised, negative and imperceptible effect on air quality.

There will be indirect beneficial effects to air quality from the generation of renewable electricity from the project. There will be NO_x emission savings which may otherwise have been generated from fossil fuels. The generation of 163GWh of renewable electricity will result in a decrease in annual NO_x emission levels by 0.10% of the 2030 National Air Emissions Target of 40.6kt. This is assessed to be an indirect, long-term, slight and positive effect on air quality. Accordingly, the operational phase residual effect is assessed to be not significant.

8.7.3 DECOMMISSIONING PHASE

Dust effects during the decommissioning phase are expected to be of a similar type and similar or lesser in magnitude to those anticipated during the construction phase, but generally of a shorter duration. The same mitigation measures implemented during the construction phase will be applied during the decommissioning works and are also considered appropriate for the decommissioning works. It is assessed that the residual effect of the decommissioning phase on air quality will be short-term, direct, localised, negative and not significant. Accordingly, there will be no significant adverse residual effects arising from the decommissioning phase.

8.7.4 CUMULATIVE EFFECTS

The geographic extent of the cumulative assessment is considered on a case-by-case basis, in line with the *Guidance on the preparation of the Environmental Impact Assessment Report* (European Union, 2017). As per the IAQM guidance (IAQM, 2024) cumulative construction dust effects may occur if large-scale developments within 500m of the site are under construction simultaneously.

A review of existing, permitted and proposed projects within 500m of the site (see **Chapter 1**) was undertaken to identify developments with the potential for cumulative construction phase effects. Similarly, cumulative dust effects may occur where developments within 500m of the project are under construction or decommissioning (i.e. dust generating phases) simultaneously with the construction or decommissioning phases of the project. The following developments were assessed to be of sufficient scale to potentially generative cumulative dust effects with the project: -

- Battery energy storage system (Roscommon County Council Planning Register Reference 26/60302); and,
- North Connacht 110kV Project (An Coimisiún Pleanála Reference ABP-313724-22).

However, the dust mitigation measures outlined in **Section 8.5** will be applied during the construction phase which will avoid effects on air quality beyond the project site such that significant effects could arise.

With appropriate mitigation measures in place, the predicted cumulative effect on air quality associated with the construction and decommissioning phases of the project is assessed to be short-term, direct, negative and not significant.

During the operation phase, slight increases in road traffic emissions may arise. However, given the emissions of oxides of nitrogen (NO_x), sulphur dioxide (SO_2) or dust emissions during the operation phase of the project will be minimal, relating to the use of operation and maintenance vehicles onsite, there will be no significant adverse cumulative effect with other developments on air quality.

The project will also contribute, cumulatively with other renewable energy developments including the Largan Hill Wind Farm, to positive effects on air quality through renewable energy generation.

No likely significant cumulative effects on air quality are, therefore, assessed as likely for the construction, operation or decommissioning phases of the project.

8.8 SUMMARY

This chapter of the EIAR has assessed the likely effects on air quality, focusing particularly on the anticipated construction and decommissioning dust emissions and impacts to nearby sensitive receptors such as ecology, residential properties, schools, hospitals, etc.

Baseline data and data available from similar environments indicates that levels of particulate matter less than 10 microns (PM_{10}) and particulate matter less than 2.5 microns ($\text{PM}_{2.5}$) are generally well below the national and European Union (EU) ambient air quality standards.

An assessment of the likely dust effects as a result of the construction phase of the project was carried out based on the UK Institute for Air Quality Management 2024 guidance document '*Guidance on the Assessment of Dust from Demolition and Construction*'. This determined that there is a high risk of dust related effects associated with the project. In the absence of mitigation there is for a likelihood of direct, short-term, negative and significant effects on air quality.

There will be indirect beneficial impacts to air quality from the generation of renewable electricity from the proposed project. There will be NO_x emission savings which may otherwise have been generated from fossil fuels. The generation of 163GWh of renewable electricity will result in a decrease in annual NO_x emission levels by 0.10% of the 2030 National Air Emissions Target of 40.6kt. This is assessed to be an indirect, long-term, slight, positive and not significant effect on air quality.

In summary, there are no likely significant effects on air quality as a result of the construction, operation and decommissioning phases of the project. There are also no likely significant effects on air quality as a result of cumulative impacts during the construction, operational and decommissioning phases of the proposed project.

REFERENCES

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- Environmental Protection Agency (2022) Guidelines on the Information to be Contained in Environmental Impact Assessment Reports
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