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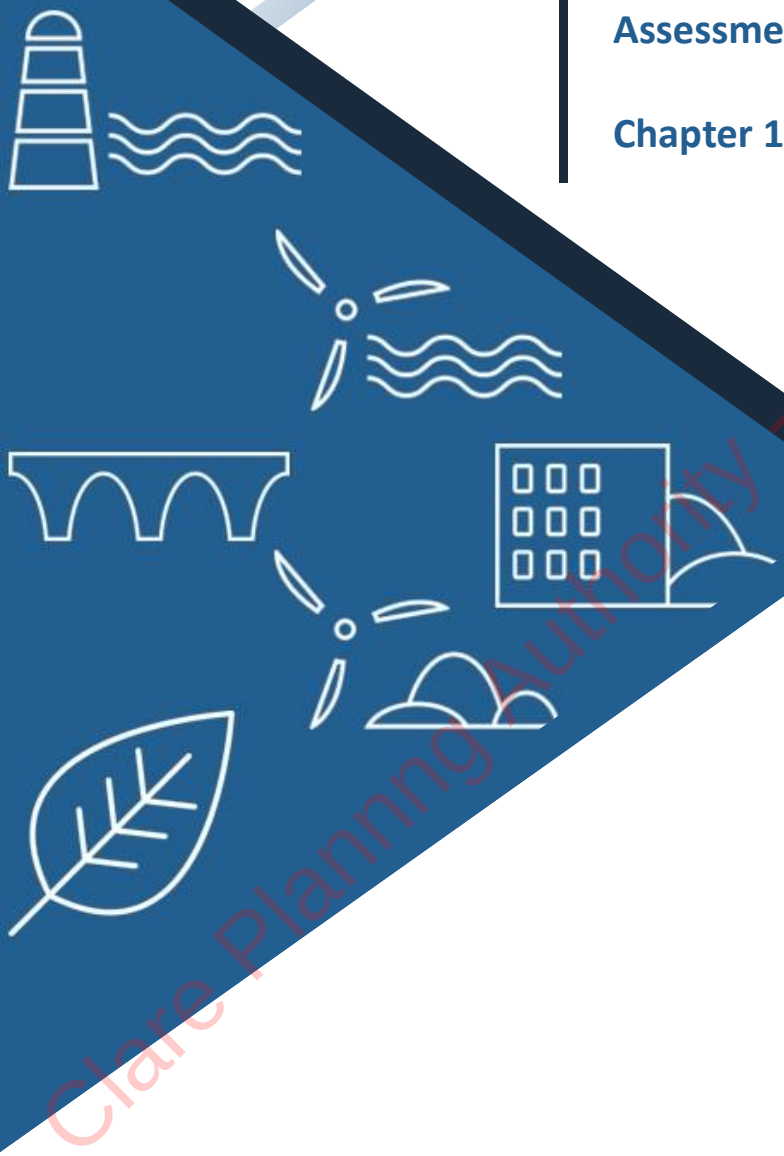
Illaunbaun Wind Farm - Environmental Impact Assessment Report

Chapter 11: Air Quality



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ACRONYMS

AADT	Annual Average Daily Traffic
ACP	An Coimisiún Pleanála
BRE	Building Research Establishment
CAFE	Clean Air For Europe
CEMP	Construction Environmental Management Plan
DCC	Dublin City Council
DMP	Dust Management Plan
EC	European Commission
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EPA	Environmental Protection Agency
EU	European Union
EU	European Union
GWh	Giga Watt Hour
HDV	Heavy Duty Vehicle
HGV	Heavy Goods Vehicle
HSE	Health Service Executive
IAQM	Institute of Air Quality Management (UK)
IENvSc	Institution of Environmental Sciences
IT	Interim Target
KPH	Kilometre per hour
Kt	Kilo tonne
$mg/m^2/day$	Milligram Per Metre square per day
Mt	Mega tonne
MW	Megawatt
NECD	National Emission Ceiling Directive
NEHS	National Environmental Health Service
NH_3	Ammonia
NMVOC	Non- Methane Volatile Organic Compounds
NO_2	Nitrogen Dioxide
NO_X	Nitrogen Oxides
NPWS	National Parks and Wildlife Services
ODPM	Office of the Deputy Prime Minister (UK)
PM_{10}	Particular matter of an aerodynamic diameter of equal or less than 10 micrometres
$PM_{2.5}$	Particular matter of an aerodynamic diameter of equal or less than 2.5 micrometres
SEAI	Sustainable Energy Authority of Ireland
SO_2	Sulphur Dioxide
TII	Transport Infrastructure Ireland
TII	Transport Infrastructure Ireland
UCD	University College Dublin
UK	United Kingdom
VOC	Volatile organic compounds
WHO	World Health Organisation
$\mu g/m^3$	Microgram per metre cube

11 AIR QUALITY

11.1 INTRODUCTION

This chapter comprises an assessment of the likely effect on air quality associated with the proposed Illaunbaun Wind Farm, Co. Clare. A full description of the Proposed Development is presented in Chapter 5: Project Description.

This chapter provides a baseline assessment of the setting of the Proposed Development in terms of air quality and discusses the likely and significant effects that the construction and operation of the proposed development will have. Where required, appropriate mitigation measures to limit any identified likely significant adverse impacts to air quality are recommended.

The assessment presented is informed by the following technical chapters/appendices:

- Chapter 17: Material Assets
- Chapter 19: Traffic & Transport
- Chapter 5: Project Description

The primary purpose of this report is to describe the air quality in the receiving environment and analyse any potential development related effects on it.

This chapter comprises the following elements:

- Summary of relevant policy and guidance;
- Data sources used to characterise the Study Area;
- Summary of consultations with stakeholders;
- Methodology followed in assessing the impacts of the Proposed Development (such as information of the Study Area and the approach taken in assessing the potential impacts);
- Review of baseline conditions;
- Assessment of likely effects arising from the construction and operation of the Proposed Development;
- Identification of further mitigation measures and/or monitoring requirements (if any) in respect of any significant effects (following the 'mitigation hierarchy' of avoidance, minimisation, restoration and offsets in consecutive order); and
- Summary of residual impact assessment determinations in the case of any additional mitigation measures identified during this process.

11.2 RELEVANT LEGISLATION AND GUIDELINES

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], 2022).

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).

11.2.1 CRITERIA FOR RATING OF IMPACTS

11.2.1.1 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 (NO_2) and particulate matter (as PM_{10} and $PM_{2.5}$) are outlined in Table 11-1. The limit values set out in Directive (EU) 2024/2881 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.

Table 11-1: Ambient Air Quality Limit Values

Pollutant	Directive 2008/50/EC		Directive (EU) 2024/2881	
	Limit Type	Limit Value	Limit Type	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
NO_X	Annual limit for protection of vegetation	30 µg/m^3	Annual limit for protection of vegetation	30 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	50 µg/m^3	24-hour limit for protection of human health - not to be exceeded more than 18 times/year	45 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 $PM_{2.5}$)	n/a	n/a	24-hour limit for protection of human health - not to be exceeded more than 18 times/year	25 µg/m^3
	Annual limit for protection of human health	25 µg/m^3	Annual limit for protection of human health	10 µg/m^3

11.2.1.2 WHO AIR QUALITY GUIDELINES & CLEAN AIR STRATEGY

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 (shown in Table 11-2), the IT4 targets by 2030 and the final targets by 2040 (shown in Table 11-2). 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 5 µg/m^3. 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 NO_2".

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 11-1. 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.

Table 11-2: WHO Air Quality Guidelines

Pollutant	Regulation	Limit Type	IT3 (2026)	IT4 (2030)	Final Target (2040)
NO_2	WHO Air Quality Guidelines	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 (as PM_{10})		24-hour limit for protection of human health	75 µg/m^3	50 µg/m^3	45 µg/m^3
		Annual limit for protection of human health	30 µg/m^3	20 µg/m^3	15 µg/m^3
PM (as $PM_{2.5}$)		24-hour limit for protection of human health	37.5 µg/m^3	25 µg/m^3	15 µg/m^3
		Annual limit for protection of human health	15 µg/m^3	10 µg/m^3	5 µg/m^3

11.2.1.3 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 PM_{10} 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, 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 350 mg/m^2/day averaged over a one-year period at any receptors outside the 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 350 mg/m^2/day be applied to the site boundary of quarries. This limit value can be implemented with regard to dust impacts from construction of the proposed development.

11.2.1.4 NATIONAL AIR EMISSIONS TARGETS

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) was published in December 2016. The 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* (hereafter referred to as the National Emission Ceiling Directive) until 2020 and established new national emission reduction commitments which are applicable from 2020 and 2030 for SO_2, NO_X, non-methane volatile organic compounds (NMVOC), ammonia (NH_3), $PM_{2.5}$ and methane (CH_4). In relation to Ireland, the 2020 to 2029 emission targets are 25 kt (kilo tonnes) for SO_2 (65% reduction on 2005 levels), 65 kt for NO_X (49% reduction on 2005 levels), 43 kt for NMVOCs (25% reduction on 2005 levels), 108 kt for NH_3 (1% reduction on 2005 levels) and 10 kt for $PM_{2.5}$ (18% reduction on 2005 levels) as shown in Table 11-3. In relation to 2030, Ireland's emission targets are 85% below 2005 levels for SO_2, 69% reduction for NO_X, 32% reduction for VOCs, 5% reduction for NH_3 and 41% reduction for $PM_{2.5}$, also shown in Table 11-3.

The emissions ceilings in relation to NO_X have been used in the current assessment of operational phase renewable electricity production from the proposed development.

Table 11-3: National Air Emission Targets

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%	10.96	-85%

Pollutant	2020 – 2029 Reduction Commitments		2030 Reduction Commitments	
	kt	% Reduction Compared to 2005 Levels	kt	% Reduction Compared to 2005 Levels
NO_X	66.8	-49%	40.6	-69%
NMVOC	56.3	-25%	51.1	-32%
NH_3	112.1	-1%	107.5	-5%
$PM_{2.5}$	15.6	-18%	11.2	-41%

11.3 ASSESSMENT METHODOLOGY

11.3.1 STATEMENT OF COMPETENCE

This chapter was completed by Tanmay Gojamgunde. Tanmay is an Environmental Consultant in the Air Quality & Climate section of AWN Consulting, a Trinity Consultants Company. He holds a MSc in Air Pollution Management and Control from the University of Birmingham and has also completed BTech in Environmental Engineering. As part of the MSc, he worked on 'The Impact of bus-fleet electrification on air quality in Birmingham' utilising advanced dispersion modelling tools and emission inventory toolkit. Prior to joining AWN, Tanmay contributed to several key environmental projects in India, including Delhi's first air quality monitoring program (R ASMAN), air quality and traffic planning assessments with IIT Kanpur, and an Environmental Impact Assessment Report (EIAR) for an industrial district in Kanpur. He also specialises in conducting air dispersion modelling assessments of emissions, emission inventories, R programming and extends to broader aspects of environmental engineering.

This chapter was reviewed by Ciara Nolan, a Principal Environmental Consultant in the Air Quality & Climate section of AWN Consulting. She holds a BSc in Energy Systems Engineering from University College Dublin (UCD) and has also completed an MSc in Applied Environmental Science at UCD. She is a Member of the Institute of Air Quality Management (MIAQM) and the Institution of Environmental Sciences (MIEnvSc). She has over 8 years of experience in undertaking air quality and climate assessments. She has prepared air quality and climate impact assessments as part of EIARs for residential developments, commercial and industrial developments. She also specialises in conducting air dispersion modelling assessments of emissions from data centres, energy centres and the chemical industry as part of EPA Industrial Emissions Licences. She has undertaken air quality and climate impact assessments for transportation schemes, primarily regional and national road schemes, from constraints, through to route selection and EIAR stage.

11.3.2 CONSULTATION

The Scoping Report for the proposed Illaunbaun Wind Farm was circulated in February 2025 to a range of statutory stakeholders and relevant organisations. The purpose of this consultation was to inform stakeholders about the Proposed Development and to seek feedback to support the preparation of the EIA. The consultees were selected based on their statutory responsibilities, the

location and environmental sensitivities of the project area, and the potential for interactions with environmental receptors.

The Health Service Executive – National Environmental Health Service (HSE NEHS) noted that the proposed construction works associated with the Illaunbaun Wind Farm have the potential to generate significant levels of airborne dust emissions which may adversely affect sensitive receptors in the surrounding area. The HSE emphasised that the EIAR should include a Construction Environmental Management Plan (CEMP) to address air quality impacts in detail. The CEMP should define appropriate dust suppression and mitigation measures to ensure that dust generation during site preparation, excavation and construction activities is adequately controlled.

In particular, the HSE specified that the following measures should be implemented to manage dust emissions and minimise the potential for atmospheric pollution:

- Sweeping of hard road surfaces.
- Provision of a water bowser on site, with regular spraying of haul roads.
- Installation of wheel washing facilities at site exits.
- Restriction of vehicle speeds within the site.
- Provision of covers to all delivery trucks to minimise dust generation.
- Regular inspection and cleaning of public roads in the vicinity if necessary.
- Material stockpiling provided with adequate protection from the wind.
- Implementation of dust monitoring at the site boundary.
- Preparation of a truck inspection and maintenance plan.
- Establishment of a road maintenance agreement with the Local Roads Authority to clarify responsibility for the upkeep and repair of access roads during the construction phase.

No further submissions received as part of the consultation on the EIA Scoping Report addressed air quality or atmospheric pollution issues.

Furthermore, no specific consultation with relevant bodies was undertaken as part of the air quality assessment within the EIAR.

11.3.3 DATA SOURCES

The following data sources were utilized as part of the air quality assessment, primarily in relation to mapping and baseline data capture:

- Google satellite mapping (Google, 2025)
- National Parks and Wildlife Services (NPWS) Mapping of designated habitats (NPWS, 2025)
- Environmental Protection Agency (EPA) Maps of Air Quality Assessment Zones (EPA, 2025)
- Environmental Protection Agency (EPA) Ireland's Air Pollutant Emissions 1990 – 2030 (EPA, 2023)

- Environmental Protection Agency (EPA) annual air quality monitoring reports – Air Quality in Ireland 2023 (EPA, 2024) and previous reports 2019 – 2022.
- Met Éireann historical 30-year average (1991 – 2020) meteorological data for Shannon Airport (Met Éireann, 2025)

11.3.4 CONSTRUCTION PHASE METHODOLODY

11.3.4.1 CONSTRUCTION DUST ASSESSMENT

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 impact of dust emissions from construction activities based on the scale and nature of the works and the sensitivity of the area to dust impacts. The IAQM methodology has been applied to the construction phase of this development in order to predict the likely risk of dust impacts 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, 2022).

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

- Demolition
- Earthworks
- Construction
- Track out (transport of dust and dirt from the construction site 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 11-4: IAQM Criteria to Determine Dust Emissions Magnitude, 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 impacts from site activities. This allows the level of site-specific mitigation to be determined.

Table 11-4: IAQM Criteria to Determine Dust Emissions Magnitude

Dust Emission Magnitude		
Small	Medium	Large
Demolition		
total building volume <12,000 m^3 construction material with low potential for dust release (e.g. metal cladding or timber) demolition activities <6 m above ground demolition during wetter months	total building volume 12,000 - 75,000 m^3 potentially dusty construction material demolition activities 6 – 12 m above ground level	total building volume >75,000 m^3 potentially dusty construction material (e.g. concrete) on-site crushing and screening demolition activities >12 m above ground level
Earthworks		
total site area <18,000 m^2 soil type with large grain size (e.g. sand) <5 heavy earth moving vehicles active at any one time formation of bunds <3 m in height earthworks during wetter months	total site area 18,000 m^2 - 110,000 m^2 moderately dusty soil type (e.g. silt) 5 – 10 heavy earth moving vehicles active at any one time formation of bunds 3 – 6 m in height	total site area >110,000 m^2 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 >6 m in height
Construction		
total building volume <12,000 m^3 construction material with low potential for dust release (e.g. metal cladding or timber)	total building volume 12,000 - 75,000 m^3 potentially dusty construction material (e.g. concrete) on-site concrete batching	total building volume >75,000 m^3 on-site concrete batching sandblasting
Trackout (heavy duty vehicle movements)		
<20 HDV (>3.5 t) outward movements in any one day surface material with low potential for dust release unpaved road length <50 m	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 – 100 m	>50 HDV (>3.5 t) outward movements in any one day potentially dusty surface material (e.g. high clay content) unpaved road length >100 m

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 11-5.

Table 11-5: IAQM Criteria to Determine Risk of Dust Impacts

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
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

11.3.4.2 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, 2022), states that road links meeting one or more of the following criteria can be defined as being "affected" by a proposed development 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:

- 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
- A change in road alignment by 5 m or greater

The construction stage traffic will not increase by 1,000 AADT or 200 HDV AADT. Therefore, it 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 potential for significant impacts to air quality.

11.3.5 OPERATIONAL PHASE METHODOLOGY

11.3.5.1 OPERATIONAL PHASE TRAFFIC ASSESSMENT

Operational phase traffic has the potential to impact air quality. The TII scoping criteria (TII, 2022) were used to determine if any road links required a detailed modelling assessment.

The operational phase of the development will involve only very occasional inspection and maintenance of vehicles. By definition of the TII scoping criteria the criteria in Section 11.3.4.2, there are no road links impacted as a result of the proposed development. Therefore, a detailed air assessment of operational stage traffic emissions has been scoped out from any further assessment as there is no potential for significant impacts to air quality as a result of vehicle emissions.

11.3.5.2 OPERATIONAL ENERGY PRODUCTION

The assessment of baseline air quality in the region is conducted to review and ensure that the current levels of key pollutants are in compliance with their limit values. The indirect impacts 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 2024 Report” (SEAI, 2024) estimates that a total of 34.6 TWh of electricity was generated nationally in 2023. Renewable energy accounted for 40.7% of the electricity generated in 2023, with 11.7 TWh from wind generation.

The EPA state that a total of 98.2 kt NO_X was emitted in 2021 in their report entitled “Ireland’s Air Pollutant Emissions 1990 – 2030” (EPA, 2023). These are the most recently published figures for NO_X emissions. Power generation accounted for 8.7% of the total emissions produced in 2021.

The above figures from the SEAI and EPA were used in the current assessment to quantify the NO_X emissions savings from the windfarm development both annually and over the lifespan of the proposed development and the results were compared against the 2030 national air emissions target of 40.6 kt (Table 11-3).

11.3.6 LIMITATIONS OF ASSESSMENT

There were no difficulties encountered when compiling this assessment.

11.4 RECEIVING ENVIRONMENT

11.4.1 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 impact of dust blow.

The nearest representative weather station collating detailed weather records is Shannon Airport meteorological station, which is located approximately 32 km southeast of the site. Shannon Airport

met data has been examined to identify the prevailing wind direction and average wind speeds over a five-year period (Figure 11-1). For data collated during five representative years (2020 - 2024), the predominant wind direction is westerly to south-westerly; the mean wind speed over the long term 30-year averaging period 1991 - 2020 is 4.6 m/s (Met Éireann, 2025).The prevailing winds in the area are westerly to south-westerly in direction, thereby predominantly dispersing any potential dust emissions to the east and north-east of the site (Figure 11-1).

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 0.2 mm has fallen. A review of historical 30-year average data for Shannon Airport meteorological station indicates that on average, 223 days per year have rainfall over 0.2 mm (Met Éireann, 2025). Therefore, it can be determined that 61% of the time, dust generation will be reduced due to natural meteorological conditions.

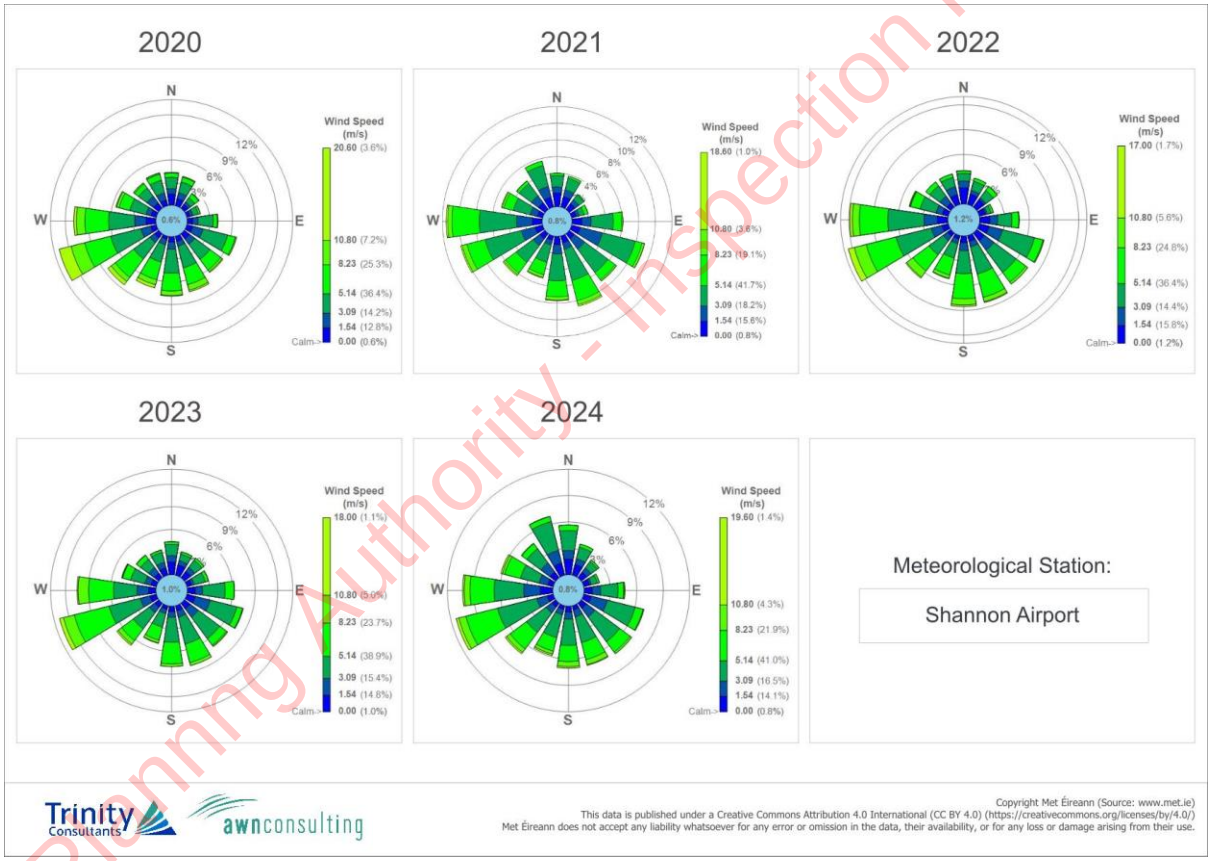

Figure 11-1: Wind Rose for Shannon Airport

11.4.2 BASELINE AIR QUALITY

As part of the implementation of the Framework Directive on Air Quality (1996/62/EC), four 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 2023* (EPA, 2024). Dublin is defined as Zone A and Cork as Zone B. Zone C is composed of 23 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 area of the proposed development is categorised as Zone D.

11.4.2.1 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 site are not available.

However, a study by the UK ODPM (UK ODPM, 2002) gives estimates of likely dust deposition levels in specific types of environments. In open country a level of 39 mg/m^2/day is typical, rising to 59 mg/m^2/day on the outskirts of towns, and peaking at 127 mg/m^2/day for a purely industrial area. A level of 39 mg/m^2/day can be estimated as the background dust deposition level for the region of the Proposed Development due to its rural location.

11.4.2.2 PARTICULATE MATTER (PM_{10})

Continuous PM_{10} monitoring was carried out at two representative Zone D rural background locations from 2019 – 2023; Kilkitt, Co. Monaghan and Claremorris, Co. Mayo. Annual average PM_{10} concentrations across the sites ranged from 7 – 11 µg/m^3 over the 2019 – 2023 period (see Table 11-6). There was at most 1 exceedance of the daily limit of 50 µg/m^3 in 2019 (35 exceedances are permitted per year) (EPA, 2024). The overall 5-year average PM_{10} concentration at the rural background Zone D sites over the 2019 – 2023 period is 8 µg/m^3. Based on the EPA data, a conservative estimate of the current background PM_{10} concentration in the region of the proposed development is 8 µg/m^3 as derived from these long-term trends.

Table 11-6: Baseline Zone D Air Quality – PM_{10}

Station	Averaging Period	Year				
		2019	2020	2021	2022	2023
Kilkitt	Annual Mean PM_{10} (µg/m^3)	7	8	8	9	7
	24-hr Mean > 50 µg/m^3 (days)	1	0	0	0	0
Claremorris	Annual Mean PM_{10} (µg/m^3)	11	10	10	8	8
	24-hr Mean > 50 µg/m^3 (days)	0	0	0	0	0

11.4.2.3 PARTICULATE MATTER ($PM_{2.5}$)

The results of $PM_{2.5}$ monitoring at Shannon Estuary, Co. Limerick and Claremorris, Co. Mayo over the period 2019 – 2023 ranged from 4 – 8 µg/m^3 (EPA, 2024) (Table 11-7). Long-term average $PM_{2.5}$ concentrations measured at these locations were significantly lower than the annual average limit value of 25 µg/m^3. The overall 5-year average PM_{10} concentration at the rural background Zone D sites over the 2019 – 2023 period is 5 µg/m^3. Based on this information, a background $PM_{2.5}$ concentration of 5 µg/m^3 has been used in the assessment as derived from these long-term trends.

Table 11-7: Baseline Zone D Air Quality – $PM_{2.5}$

Station	Averaging Period	Year				
		2019	2020	2021	2022	2023
Shannon Estuary	Annual Mean $PM_{2.5}$ (µg/m^3)	-	4	6	5	5
	24-hr Mean > 25 µg/m^3 (days)	-	0	2	1	-
Claremorris	Annual Mean $PM_{2.5}$ (µg/m^3)	4	5	8	6	5
	24-hr Mean > 25 µg/m^3 (days)	-	1	0	2	-

11.4.2.4 SUMMARY

Based on the above information the air quality in the area of the proposed development is generally good, with concentrations of the key pollutants generally well below the relevant limit values. However, the limit values will be reducing in 2030 due to Directive (EU) 2024/2881.

The EPA have indicated that road transport emissions are contributing to increased levels of NO_2. There is the potential for breaches in the annual NO_2 limit value in future years at locations within urban centres and roadside locations. In addition, burning of solid fuels for home heating is contributing to increased levels of particulate matter (PM_{10} and $PM_{2.5}$). The EPA predict that exceedances in the particulate matter limit values are likely in future years if burning of solid fuels for residential heating continues (EPA, 2024).

11.4.3 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 impact of dust from a proposed development, the sensitivity of the area must first be assessed as outlined below. Both receptor sensitivity and proximity to proposed works areas are taken into consideration. For the purposes of this assessment, high sensitivity receptors are regarded as residential properties where people are likely to spend the majority of their time. 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 11-8 outlines the criteria for determining the sensitivity of the area to dust soiling and dust-related human health effects as per the IAQM guidance (2024).

Table 11-8: Criteria for Determining the Sensitivity of the Area to Construction Dust

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 Impacts						
Receptor Sensitivity	Annual Mean PM_{10} Concentration	Number of Receptors	Distance from Source (m)			
			<20	<50	<100	<250
High	< 24 µg/m^3	>100	Medium	Low	Low	Low
		10 - 100	Low	Low	Low	Low
		1 - 10	Low	Low	Low	Low
Medium	< 24 µg/m^3	>10	Low	Low	Low	Low
		1 - 10	Low	Low	Low	Low
Low	< 24 µg/m^3	>1	Low	Low	Low	Low

In terms of receptor sensitivity to dust soiling, the area directly surrounding the proposed development (within 250 m of the boundary) is predominantly rural in nature. There are between 1 and 10 highly sensitive residential properties within 20 m of the proposed development boundary (see Figure 11-2). Based on these receptor numbers and using the IAQM criteria in Table 11-8, the sensitivity of the area to dust soiling impacts from the proposed development is medium.

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 impacts. The criteria take into consideration the current annual mean PM_{10} 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 PM_{10} concentration in the vicinity of the proposed development is 8 µg/m^3. There are between 1 and 10 highly sensitive residential properties within 20 m of the proposed development boundary (see Figure 11-2). Based on the IAQM criteria outlined in Table 11-8 the worst-case sensitivity of the area to dust-related human health effects is low.

The IAQM guidelines also outline the assessment criteria for determining the sensitivity of the area to dust-related ecological impacts. 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 impacts to vegetation can occur up to 50 m from the site, and 50 m from site access roads, up to 250 m for the 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 sensitive ecological receptors that meet these criteria within the study area and therefore there is no potential for impacts to sensitive ecology from construction dust emissions and no further assessment is required.

Figure 11-2: Construction Dust Assessment - Sensitive Receptors within 20 m, 50 m, 100 m and 250 m of Site Boundary

11.5 ASSESSMENT OF EFFECTS

11.5.1 "DO-NOTHING" SCENARIO

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

In the Do-Nothing scenario the clean renewable power associated with windfarms, which replaces power generated from fossil fuels, would be delayed or prevented.

Therefore, this scenario can be considered *direct, negative, long-term* and *slight* in terms of effect on air quality.

11.5.2 CONSTRUCTION PHASE IMPACTS

11.5.2.1 CONSTRUCTION DUST ASSESSMENT

The greatest potential impact on air quality during the construction phase of the proposed development is from construction dust emissions and the potential for nuisance dust. While construction dust tends to be deposited within 250 m of a construction site, the majority of the deposition occurs within the first 50 m (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 potential for dust dispersion and deposition depends on local meteorological factors such as rainfall, wind speed and wind direction. As per Section 11.4.1the meteorological conditions are generally favourable to dust suppression with approximately 61% of the year having rainfall over 0.2 mm. Therefore, the majority 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 potential 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 11.4.3). The major dust generating activities are divided into four types within the IAQM (2024) guidance to reflect their different potential impacts. These are: demolition, earthworks, construction and track out (movement of heavy vehicles).

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 magnitude of each activity has been determined below for the Proposed Development using the criteria in Table 11-4.

- Demolition: There is no demolition required as part of the proposed development.
- Earthworks: The dust emission magnitude for the proposed earthwork activities can be classified as large as the total site area is greater than 110,000 m^2.

- Construction: The dust emission magnitude for the proposed construction activities can be classified as medium as a worst-case as the total volume of buildings to be constructed will be between 12,000 m^3 - 75,000 m^3.
- Trackout: The dust emission magnitude for the proposed trackout can be classified as medium, as there will be greater than 20 but less than 50 outward HGV movements per day during the construction phase of the proposed development.

Determining the Risk of Dust Impacts

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 and dust-related human health effects (see Section 11.4.3). The level of risk associated with each activity is determined using the criteria Table 11-5. The overall risk of dust impacts from the construction works is shown in Table 11-9 for each category.

- Demolition: There is no demolition required as part of the proposed development.
- Earthworks: As the overall sensitivity of the area to dust soiling is medium, when combined with a medium dust emission magnitude, this produces an overall medium risk of dust soiling impacts. As the overall sensitivity of the area to dust-related human health effects is low, this results in a low risk of dust-related human health effects.
- Construction: Combining the large dust emissions magnitude for the construction activities with the medium sensitivity to dust soiling results in a medium risk of dust soiling impacts. There is an overall low risk of dust-related human health impacts as a result of the proposed construction activities.
- Trackout: Combining the medium dust emission magnitude for the trackout activities with the medium sensitivity to dust soiling results in a medium risk of dust impacts. There is an overall low risk of dust-related human health impacts as a result of the proposed trackout activities.

There is at most a medium risk of dust soiling impacts and a low risk of dust-related human health impacts associated with the proposed works. As a result, best practice dust mitigation measures associated with medium risk works will be implemented to ensure there are no significant impacts at nearby sensitive receptors. In the absence of mitigation, dust impacts are predicted to be *direct, short-term, negative and slight.*

Table 11-9: Risk of Construction Dust Impacts Used to Define Site-Specific Mitigation

Receptor	Receptor Sensitivity	Dust Emission Magnitude – Trackout	Risk of Dust-Related Impacts
Demolition			
Dust Soiling	Medium	n/a	n/a
Human Health	Low		n/a
Earthworks			
Dust Soiling	Medium	Large	Medium Risk

Receptor	Receptor Sensitivity	Dust Emission Magnitude – Trackout	Risk of Dust-Related Impacts
Human Health	Low		Low Risk
Construction			
Dust Soiling	Medium	Small	Low risk
Human Health	Low		Negligible
Trackout			
Dust Soiling	Medium	Medium	Medium risk
Human Health	Low		Low Risk

11.5.2.2 CONSTRUCTION PHASE TRAFFIC ASSESSMENT

There is also the potential for traffic emissions to impact air quality in the short-term over the construction phase, particularly due to the increase in HGVs accessing the site. The construction stage traffic has been reviewed, and a detailed air quality assessment has been scoped out. None of the road links impacted by the proposed development satisfy the TII scoping assessment criteria in Section 11.3.4.2. It can, therefore, be determined that the construction stage traffic will have a *short-term, direct, neutral* and *imperceptible* effect on air quality.

11.5.3 OPERATIONAL PHASE IMPACTS

11.5.3.1 OPERATIONAL STAGE TRAFFIC

Vehicles accessing the site for maintenance works have the potential to impact on air quality. However, the volume of vehicles accessing the site will be significantly below the 1,000 AADT stipulated in the TII guidance in Section 11.3.4.2 and thus, a modelling assessment is not required, and effects are considered *long-term, direct, neutral* and *imperceptible*.

11.5.3.2 OPERATIONAL PHASE INDIRECT AIR QUALITY IMPACTS FROM RENEWABLE ELECTRICITY PRODUCTION

The generation of electricity due to the installation of the wind farm will lead to indirect net savings in terms of NO_X emissions. The wind farm will have an export capacity of approximately 25.2 MW and an assumed capacity factor of 36%, therefore the power generation from the development is expected to be approximately 80 GWh per annum.

The supply of 80 GWh 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 11-10, indicate that the impact of the wind farm on Ireland's obligations under the National Emissions Reduction Directive are positive.

The annual impact of the development is annual NO_X emission savings of 0.1% of the 2030 ceiling of 40.6kt and savings of 0.4% relative to the NO_X emissions associated with power generation in Ireland in 2021 (EPA, 2023)). This is considered an *indirect, long-term, imperceptible, positive* effect on air quality.

Table 11-10: Predicted Impact of the Proposed Development on Ireland's National Emissions Ceiling Obligations

NO_X Emissions Saved Due to Wind farm (tonnes/annum)	Comparison Scenario	NO_X (tonnes/annum)	Annual NO_X Saving (%)
33	National Emission Ceiling 2020 – 2029 Note 1	40,600	0.1%
	NO_X Emissions from Power Generation in 2021 Note 2	8,543	0.4%

Note 1 National Emission Ceiling (EU Directive 2016/2284)

Note 2 For NO_X emissions associated with power generation in Ireland (taken from EPA (2023) Ireland's Air Pollutant Emissions 1990 – 2030)

11.5.4 CUMULATIVE EFFECTS AND OTHER INTERACTIONS

The most significant potential cumulative impact relates to dust during the construction phase of the proposed development. According to the IAQM guidance (2024), if the construction phase of the proposed development coincides with the construction phase of any other permitted large-scale projects within 500 m of the site, there is a possibility of cumulative dust impacts occurring at any nearby sensitive receptors. Should simultaneous construction phases occur, it would lead to cumulative dust soiling and dust-related impacts on human health, specifically localised to the works area associated with the proposed works.

However, should the construction phases of the development and any localised permitted developments coincide, it is predicted that once the mitigation measures outlined in Section 11.6 are put in place impacts will not be significant. Effects will be *short-term, direct, localised, negative* and *not significant*.

No significant cumulative effects on air quality are predicted for the construction or operational phases.

11.6 MITIGATION MEASURES FOR AIR QUALITY

11.6.1 CONSTRUCTION PHASE MITIGATION MEASURES

In terms of mitigation, only potential impacts associated with dust emissions on site require mitigation measures to be implemented. The proposed development has been assessed as having a medium risk of dust soiling impacts and a low risk of dust related human health impacts during the construction phase as a result of earthworks, construction and trackout activities (see Section 11.5.2.1). Therefore, the following dust mitigation measures shall be implemented during the construction phase of the proposed development. These measures are appropriate for sites with a medium risk of dust impacts and aim to ensure that no significant nuisance occurs at nearby sensitive receptors. The mitigation measures draw on best practice guidance from Ireland (DCC, 2018), the UK (IAQM (2024), BRE (2003), The Scottish Office (1996), UK ODPM (2002)) and the USA (USEPA, 1997). These measures will be incorporated into the overall Construction Environmental

Management Plan (CEMP) prepared for the site. The measures are divided into different categories for different activities.

11.6.1.1 COMMUNICATIONS

- Develop and implement a stakeholder communications plan that includes community engagement before works commence on site. Community engagement involves explaining the nature and duration of the works to local residents and businesses.
- Develop and implement a Dust Management Plan (DMP), which may include measures to control other emissions, approved by the Local Authority. The level of detail will depend on the risk and should include as a minimum the highly recommended measures in this document.

11.6.1.2 SITE MANAGEMENT

- Record any exceptional incidents that cause dust and/or air emissions, either on- or off-site, and the action taken to resolve the situation in the logbook.
- 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.

11.6.1.3 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.
- Avoid site runoff of water or mud.
- 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 use dust suppression/mitigation measures will be utilised.

11.6.1.4 OPERATING VEHICLES / 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 30 kph 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.

11.6.1.5 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.
- 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.

11.6.1.6 WASTE MANAGEMENT

- Avoid bonfires and burning of waste materials.

11.6.1.7 MEASURES SPECIFIC TO EARTHWORKS

- The following measures must be implemented in areas in close proximity to the ecologically sensitive areas that have been assessed as having a high risk of impacts. These measures are also recommended for other areas of the site earthworks.
- Re-vegetate earthworks and exposed areas/soil to stabilise surfaces as soon as practicable.
- Use Hessian, mulches or tackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable.
- During dry and windy periods, and when there is a likelihood of dust nuisance, a bowser will operate. This is to ensure moisture content is high enough to increase the stability of the soil and, therefore, suppress dust.

11.6.1.8 MEASURES SPECIFIC TO CONSTRUCTION

- Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out. If this is required for a particular process, then ensure that appropriate additional control measures are in place.

11.6.1.9 MEASURES SPECIFIC TO TRACKOUT

- A speed restriction of 20 kph will be applied as an effective dust control measure for on-site vehicles.
- Avoid dry sweeping of large areas.
- Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.
- Install hard surfaced haul routes which are regularly damped down, with fixed or mobile sprinkler systems, or mobile water bowsers, and regularly cleaned.

11.6.1.10 MONITORING

- Undertake daily on-site and off-site inspections, where receptors (including roads) are nearby, to monitor dust. This should include regular visual dust soiling checks within 100 m of site boundary. Cleaning is to be provided if necessary.

- Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.
- Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the local authority when asked.

11.6.2 OPERATIONAL PHASE MITIGATION MEASURES

During the operational phase of the proposed development, the works onsite will be limited to maintenance associated with the wind farm components. Although the intensity of activity will be only a small fraction of the construction phase, all employees and contractors that are on site will ensure that machinery used is properly maintained and is switched off when not in use to avoid unnecessary exhaust emissions from maintenance traffic.

11.7 ASSESSMENT OF RESIDUAL EFFECTS

11.7.1.1 CONSTRUCTION PHASE

When the dust mitigation measures detailed in the mitigation section of this report are implemented, the residual effect of fugitive emissions of dust and particulate matter from the site will be *short-term, direct, localised, negative* and *not significant* in nature and will pose no nuisance at nearby receptors.

Best practice mitigation measures are proposed for the construction phase of the proposed development which will focus on the pro-active control of dust and other air pollutants to minimise generation of emissions at source. The proposed development has been assessed as having a low risk of dust-related human health effects. The mitigation measures that will be put in place during construction of the proposed development will further ensure that the impact of the development complies with all EU ambient air quality legislative limit values which are based on the protection of human health. Therefore, the residual effect of construction of the proposed development will be *short-term, direct, negative* and *not significant* with respect to human health.

11.7.1.2 OPERATIONAL PHASE

There are no predicted direct impacts to air quality during the operational phase of the proposed development. Emissions from infrequent maintenance vehicles have been assessed as having a *long-term, direct, localised, neutral* and *imperceptible* effect on air quality.

There will be indirect beneficial impacts to air quality from the generation of renewable electricity from the proposed development. There will be NO_X emission savings which may otherwise have been generated from fossil fuels. The generation of a minimum of 80 GWh of renewable electricity will result in a decrease in annual NO_X emission levels by 0.1% of the 2030 National Air Emissions Target of 40.6kt. This is an *indirect, long-term, imperceptible, positive* effect on air quality.

11.8 MONITORING

11.8.1 CONSTRUCTION PHASE

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

- Undertake regular (at minimum weekly) on-site and off-site 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 100 m of site boundary, with cleaning to be provided if necessary.
- Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.

11.8.2 OPERATIONAL PHASE

There is no monitoring recommended for the operational phase of the proposed development as impacts to air quality are predicted to be imperceptible.

11.9 SUMMARY

Table 11-11: Summary table

Potential Effect	Construction/ Operation	Beneficial/ Adverse/ Neutral	Extent (Site/Local/ National / Transboundary)	Short term/ Long term	Direct/ Indirect	Permanent / Temporary	Reversible / Irreversible	Significance of Effect (according to defined criteria)	Proposed mitigation	Residual Effects (according to defined criteria)
Construction Dust Emissions impacting people and property	Construction	Adverse	Local	Short Term	Direct	Temporary	Reversible	Not significant	Dust control measures as per Section 11.6	Short-term, direct, negative, not significant
Construction Traffic emissions	Construction	Neutral	Local	Short-term	Direct	Temporary	Reversible	Imperceptible	None	Imperceptible
Operational Traffic emissions	Operation	Neutral	Local	Long-term	Direct	Permanent	Irreversible	Imperceptible	None	Imperceptible
Indirect air quality impacts from renewable electricity production	Operation	Beneficial	National	Long-term	Indirect	Permanent	Irreversible	Imperceptible	None	Imperceptible

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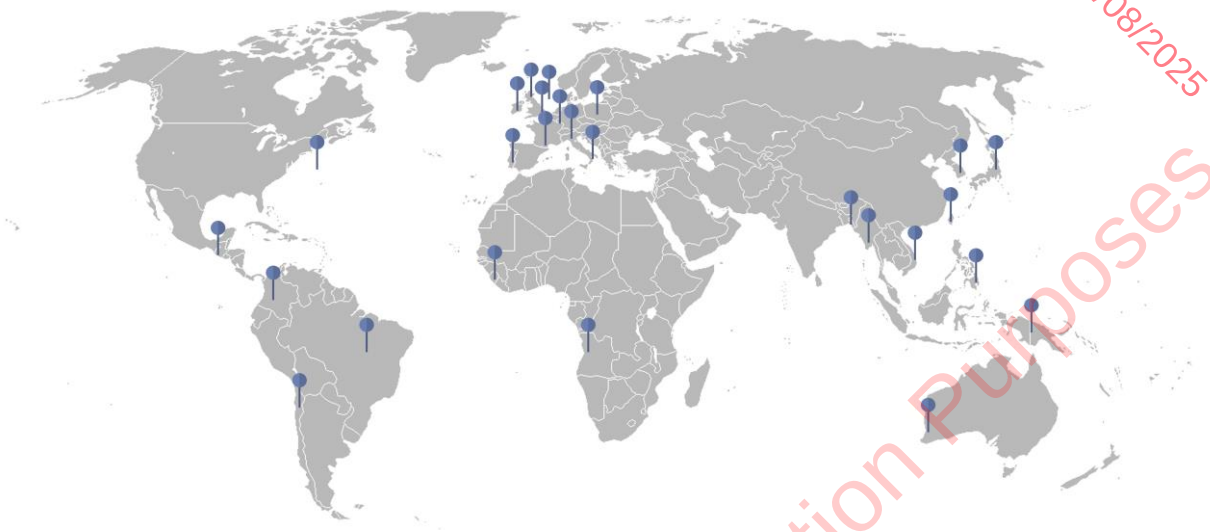

Offices

Dublin (Head Office)
Gavin & Doherty Geosolutions
Unit A2, Nutgrove Office Park
Rathfarnham
Dublin 14, D14 X627
Phone: +353 1 207 1000

Cork
Gavin & Doherty Geosolutions
First Floor, 12 South Mall
Cork
T12 RD43

London
Gavin & Doherty Geosolutions (UK) Limited
85 Great Portland Street, First Floor
London
W1W 7LT

Utrecht
Gavin & Doherty Geosolutions
WTC Utrecht, Stadsplateau 7
3521 AZ Utrecht
The Netherlands

Belfast
Gavin & Doherty Geosolutions (UK) Limited
Scottish Provident Building
7 Donegall Square West
Belfast
BT1 6JH

Edinburgh
Gavin & Doherty Geosolutions (UK) Limited
22 Northumberland Street SW Lane
Edinburgh
EH3 6JD

Rhode Island
Gavin & Doherty Geosolutions Inc.
225 Dyer St, 2nd Floor
Providence, RI 02903
USA

GDG
GAVIN & DOHERTY
GEOSOLUTIONS

Website: www.gdgeo.com
Email: info@gdgeo.com

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