11. AIR QUALITY

11.1 INTRODUCTION

This chapter comprises an assessment of the likely significant effect on air quality associated with the proposed project, which comprises of 14 wind turbines, grid connection route (GCR) and a turbine delivery route (TDR). A full description of the proposed project is presented in Chapter 2 (Description of the Proposed Project).

This chapter provides a baseline assessment of the setting of the proposed project in terms of air quality and discusses the likely and significant effects that the construction, operation and decommissioning of the proposed project will have. 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 proposed wind farm, the proposed GCR, the TDR and an estimated minimum - maximum range energy production from the turbines based on a range of turbine options, for which design flexibility is sought.

11.2 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 holds a MSc in Air Pollution Management and Control from the University of Birmingham and has also completed a 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 Dr. Jovanna Arndt, a Principal Environmental Consultant in the Air Quality & Climate section of AWN Consulting. She holds a BSc. in Environmental Science and a Ph.D. in Atmospheric Chemistry from University College Cork. She is an Associate Member of both the Institute of Air Quality Management and the Institute of Environmental Sciences. She has been specialising in the area of air quality and climate over 8 years and has prepared air quality and climate assessments for inclusion within EIARs for residential developments such as Twenties Lane (Planning Application Ref: 22713), Cherrywood T13 (Planning Application Ref: DZ23A/0028), Corballis Donabate LRD (Planning Application Ref: LRD0017/S3), commercial and industrial developments by Dublin Airport Authority, Zoetis, Ipsen, Merck Millipore, Greener Ideas Limited and Abbvie, as well as renewable energy developments such as Codling Wind Park and the Cúil Na Móna Anaerobic Digestion Facility. She also specialises in assessing air quality impacts using air dispersion modelling of transportation schemes such as BusConnects Dublin, major Highways England Road schemes and major rail infrastructure in the form of High Speed 2 (HS2 in the UK). She has prepared air dispersion modelling assessments of emissions from data centres, energy centres and the chemical industry as part of EPA Industrial Emissions Licences for Microsoft, Greener Ideas Limited, Merck Millipore, Lilly Limerick, Chemifloc, Takeda, Kingspan and Kilshane Energy. She has also provided Air Quality

Action Plan (AQAP) and Air Quality Management Area (AQMA) support to several UK councils and assessed the air quality impacts of potential Clean Air Zones in the UK.

11.3 METHODS

11.3.1 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], 2025a).

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).

11.3.2 Criteria for Rating of Impacts

11.3.2.1Ambient 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 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.

Table 11-1: Ambient Air Quality Limit Values

Pollutant	2008/50/EC Limit Type	2008/50/EC Limit Value (applicable until 2030)	2024/2881/EC Limit Type	2024/2881/EC Limit Value (to be attained by 2030)
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

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 for reducing 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 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

11.3.2.2Dust Deposition Guidelines

The concern from a health perspective is focused on particulate matter (as PM_{10} and $PM_{2.5}$) i.e. the particles of dust which are less than 10 microns. 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 (Bergerhoff limit) 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), which represents best practice in Ireland. The document recommends that the Bergerhoff limit of 350 mg/m^2/day be applied to the site boundary of

quarries. This limit value is proposed and will be implemented with regard to dust impacts from construction of the proposed project.

11.3.2.3National Air Emissions Targets

Regional air emissions associated with the proposed project have been 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 (SO_2), NO_X, non-methane volatile organic compounds (NMVOC), NH_3, $PM_{2.5}$ and methane (CH_4).

In relation to Ireland, the 2020 to 2029 emission targets are 26 kilotonnes (kt) for SO_2 (65% reduction on 2005 levels), 68kt for NO_X (49% reduction on 2005 levels), 58kt for NMVOCs (25% reduction on 2005 levels), 123kt for NH_3 (1% reduction on 2005 levels) and 15kt for $PM_{2.5}$ (18% reduction on 2005 levels) as shown in Table 11-3. Ireland's emission targets for 2030 are to achieve an 85% reduction in SO_2, 69% reduction in NO_x, 32% reduction in VOCs, 5% reduction in NH_3 and 41% reduction in $PM_{2.5}$ compared to 2005 levels, also shown in Table 11-3.

Table 11-3: National Air Emission Targets (Ireland's Air Pollutant Emissions 2020 to 2030)

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%

11.3.3 Construction Phase

11.3.3.1Construction 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 project 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, 2025).

The IAQM states that as assessment of construction dust impacts 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 50 m of the route(s) used by construction vehicles on the public road network (on roads up to 250 m from the construction site entrance). This constitutes the Zone of Influence (ZoI) for the construction dust assessment.

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

The dust emission 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, these are based on the IAQM guidance (2024). The magnitude of each activity (see Section 11.6.2.1.1) is combined with the overall sensitivity of the area (see Section 11.5.2) to determine the risk of dust impacts from site activities (see Section 11.6.2.1.2). This allows the required level of site-specific mitigation to be determined. As per the IAQM guidance (IAQM,2024), the implementation of the mitigation measures will prevent significant effect on receptors.

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	• total building volume 12,000 - 75,000 m^3 • potentially dusty construction material	• total building volume >75,000 m^3

Dust Emission Magnitude		
Small	**Medium**	**Large**
dust release (e.g. metal cladding or timber) • demolition activities <6 m above ground • demolition during wetter months	• demolition activities 6 – 12 m above ground level	• 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)		

Dust Emission Magnitude		
Small	Medium	Large
• <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

11.3.3.2Construction 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 road links meeting one or more of the following criteria can be defined as being "affected" by a proposed 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; and
- A change in road alignment by 5 m or greater.

As per Chapter 16 (see Section 16.7.8) Transport and Transportation of this EIAR, it has been determined by the traffic consultant that 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.

11.3.4 Operational Phase

11.3.4.1Operational Phase Traffic Assessment

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

The operational phase of the project will involve only very occasional inspection and maintenance vehicles. By definition of the criteria (see Section 11.3.3.2), there are no road links impacted as a result of the proposed project. 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.

11.3.4.2Operational Energy Production

The assessment of baseline air quality in the region has been 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 2025 Report*" (SEAI, 2025) estimates that a total of 31.2 TWh of electricity was generated nationally in 2024. Renewable

energy accounted for 46.2% of the electricity generated in 2024, with 11.65 TWh from wind generation.

The EPA state that a total of 84.4 kt 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 windfarm project both annually and over the lifespan of the proposed project and the results were compared against the 2030 national air emissions target of 40.6 kt (see Section 11.6.3.1).

Due to the proposed flexibility regarding the range of design parameters associated with the wind turbines for the proposed project the make and manufacturer of the turbines to be installed has not yet been decided at this stage of the project and will be decided post consent should permission be granted. As a result, indicative information from the manufacturers of all of the various wind turbine models proposed under the design flexibility option has been reviewed and used to inform this assessment. The wind farm is estimated to have an export capacity of between 77 and 100.8 MW (due to the proposed design flexibility in turbine choice) and an assumed capacity factor of 33%. The power generation from the project is expected to be approximately a minimum of 223 GWh to a maximum of 291 GWh of electricity per annum and the assessment is therefore based on this range.

11.3.5 Decommissioning Phase

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

For the decommissioning phase the same methodology set out in Section 11.3.3 is applicable. The magnitude of each activity (see Section 11.6.2.1.1) is combined with the overall sensitivity of the area (see Section 11.5.2) to determine the risk of dust impacts from site activities (see Section 11.6.2.1.2). This allows the level of site-specific mitigation to be determined.

11.4 Difficulties Encountered

There were no difficulties encountered in compiling this assessment.

11.5 Existing Environment

11.5.1 Meteorological Data

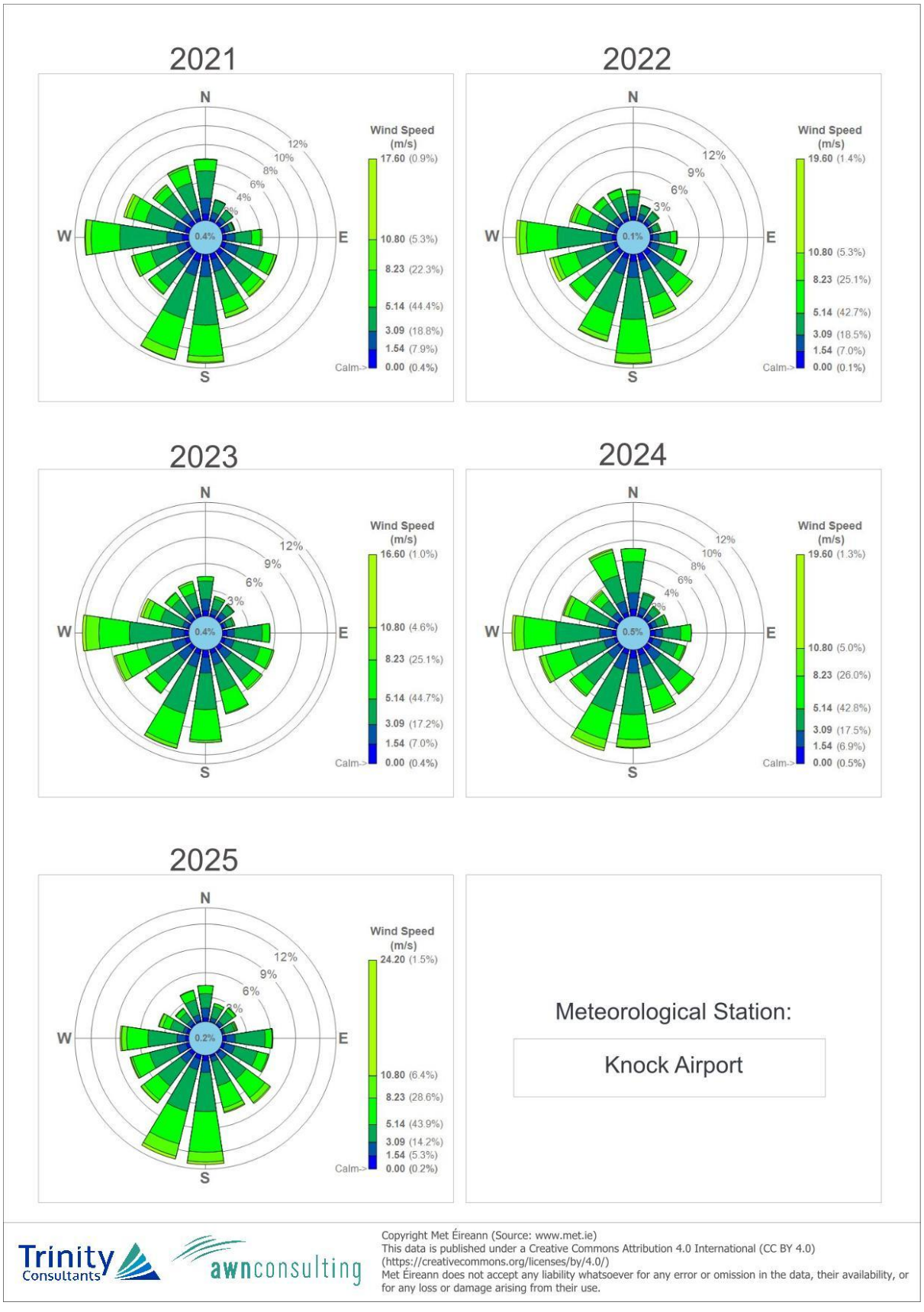
A key factor in assessing temporal and spatial variations in air quality are the prevailing meteorological conditions. Wind frequency is important as dust can only be dispersed by winds, and deposition of dust is a simple function of particle size, wind speed and distance. The closer the source of dust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

The nearest representative weather station collating detailed weather records is Knock Airport, which is located approximately 63 km south-west of the proposed wind farm site. Knock Airport meteorological station data has been examined to identify the prevailing wind direction and average wind speeds over a five-year period. The mean wind speed is 4.6 m/s over the period of

2021 – 2025 (Met Eireann, 2026a). 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 proposed wind farm site (see 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 (BRE, 2003). Information collected from Shannon Airport meteorological station (the closest station with 30-year averages), identified that typically 223 days per annum are "wet" (Met Eireann, 2026b). Thus, over 61% of the time no significant dust generation will be likely due to anticipated meteorological conditions.

Figure 11-1: Wind Roses for Knock Airport



11.5.1.1Baseline 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 2024* (EPA, 2025a). 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 project 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 proposed 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 are rural background monitoring locations which are not heavily influenced by traffic or other major air emission sources and can provide an indicative estimate of the background NO_2 concentrations in the vicinity of the proposed project.

11.5.1.2Particulate Matter (PM_{10})

Continuous PM_{10} monitoring was carried out at three representative Zone D rural background locations from 2020 – 2024; Kilkitt, Claremorris and Asketon (EPA, 2025a). Annual average PM_{10} concentrations across the sites ranged from 7 – 10 µg/m^3 over the 2020 – 2024 period (see Table 11-6). There were no exceedances of the daily limit of 50 µg/m^3 in 2024 (35 exceedances are permitted per year) (EPA, 2025a). The overall average PM_{10} concentration at the rural background Zone D sites over the 2020 – 2024 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 project is 10 µg/m^3.

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

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 > 50 µg/m^3 (days)	0	0	0	0	0
Claremorris	Annual Mean PM_{10} (µg/m^3)	10	10	8	8	8
	24-hr Mean > 50 µg/m^3 (days)	0	0	0	0	0
Asketon	Annual Mean PM_{10} (µg/m^3)	7	9	9	-	8
	24-hr Mean > 50 µg/m^3 (days)	0	0	0	-	0

11.5.1.3Particulate Matter ($PM_{2.5}$)

The results of $PM_{2.5}$ monitoring at Claremorris over the period 2020 – 2024 ranged from 5 – 8 µg/m^3 (EPA, 2025a). Long-term average $PM_{2.5}$ concentrations measured at this location were significantly lower than the annual average limit value of 25 µg/m^3. Based on this information, a background $PM_{2.5}$ concentration of 8 µg/m^3 has been used in the assessment.

11.5.1.4Dust 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 of proposed project and therefore background levels for the immediate vicinity of the proposed wind farm 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 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 has been used as the background dust deposition level for the region of the proposed project due to its rural location.

11.5.2 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 project, the sensitivity of the area must first be assessed as outlined below. Both receptor sensitivity and proximity to proposed construction works areas are taken into consideration (within 250 m of the boundary of all works as part of the proposed project, as per Section 11.3.3.1). The type of construction works areas required are detailed further in Section 11.6.2.1.1.

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 (IAQM, 2024).

Table 11-7 outlines the criteria for determining the sensitivity of the area to dust soiling and dust-related human health effects as per the IAQM guidelines.

Table 11-7: 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

Sensitivity of the Area to Ecological Impacts			
Receptor Sensitivity	**Distance from Source (m)**		
	20	50	
High	High	Medium	
Medium	Medium	Low	
Low	Low	Low	

In terms of receptor sensitivity to dust soiling, the area directly surrounding the proposed project (within 250 m of the boundary of all works as part of the proposed project) is predominantly rural in nature.

The following range of receptors within 250 m of the proposed project construction works has been identified (see Figure 11-2):

- There are between 1 and 10 highly sensitive residential properties within 20 m of the proposed wind farm site boundary;

- There are more than 100 highly sensitive residential properties within 20 m of the grid connection route; and
- There are more than 100 highly sensitive residential properties within 50 m of the areas of turbine delivery route which require accommodations (for example hedge trimming and local strengthening of road edges).

Based on these receptor numbers and using the IAQM criteria in Table 11-7, the worst-case sensitivity of the area to dust soiling impacts from the proposed 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 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 project is 10 µg/m^3. The following range of receptors within 250 m of the proposed project construction works has been identified works (see Figure 11-2 and Figure 11-3):

- There are between 1 and 10 highly sensitive residential properties within 20 m of the proposed wind farm site boundary;
- There are more than 100 highly sensitive residential properties within 20 m of the grid connection route; and
- There are between 1 and 10 highly sensitive residential properties within 20 m of the area of turbine delivery route which accommodations (for example hedge trimming and local strengthening of road edges).
- Based on the IAQM criteria outlined in Table 11-7 the worst-case sensitivity of the area to dust-related human health effects is medium.

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 the proposed wind farm site access roads, up to 250 m from the proposed 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. The Dough/Thur Mountains NHA is within 20 m of the wind farm site boundary and Lough Gill SAC is within 20 m of the grid connection route, therefore the sensitivity of the area to ecological impacts from construction dust is considered high.

Figure 11-2: Construction Dust Assessment - Sensitive Receptors within 250m of Wind Farm Site Boundary, Grid Connection and Turbine Delivery Route Works Areas (1 of 2)

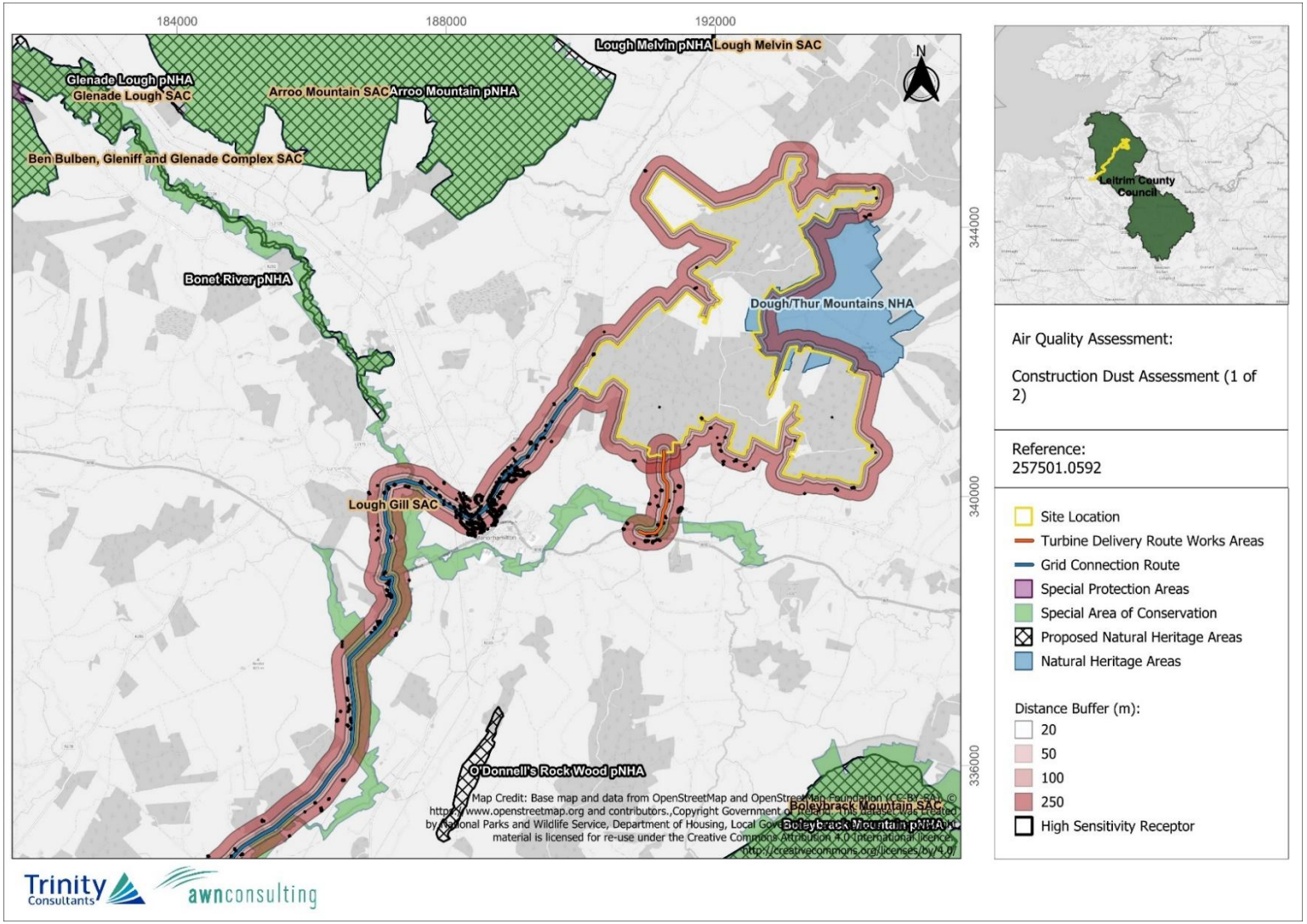
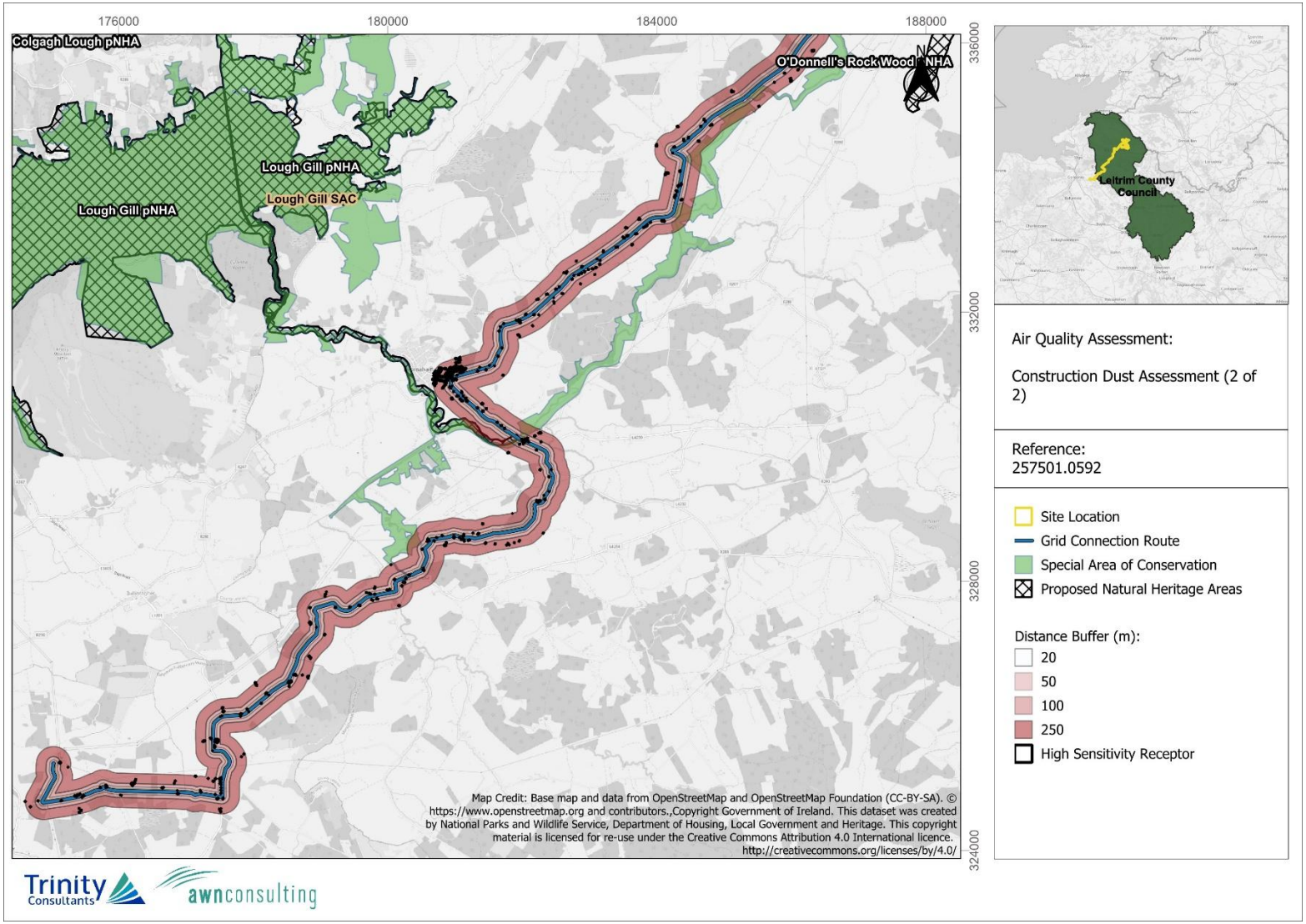


Figure 11-3: Construction Dust Assessment - Sensitive Receptors within 250m of Wind Farm Site Boundary, Grid Connection and Turbine Delivery Route Works Areas (2 of 2)



11.6 Assessment of Effects

11.6.1 Do Nothing Scenario

Under the Do-Nothing Scenario no construction works will take place and the impacts identified in Section 11.6.2 and Section 11.6.3 for fugitive dust and particulate matter emissions and emissions from equipment and machinery will not occur. In the absence of the proposed project, the likely evolution of the baseline will be that the ambient air quality at the site will remain as per the current air quality 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 (i.e. renewable energy production capacity reduced).

11.6.2 Construction Phase

11.6.2.1 Construction Dust Assessment

The greatest potential impact on air quality during the construction phase of the proposed project 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. A review of Knock Airport meteorological station data indicates 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 proposed wind farm (see Section 11.5.1). In addition, dust generation is considered negligible on days where rainfall is greater than 0.2 mm. Shannon Airport meteorological station (the closest station with 30-year averages), identified that typically 223 days per annum are “wet” (Met Eireann 2024, 30-year averages). Thus, over 61% of the time dust generation will be negligible 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 11.5.2). 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 trackout (movement of heavy vehicles).

11.6.2.1.1 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 potential for dust generating activities is considered for the wind farm site, the grid connection area and the turbine delivery route which requires accommodations (for example hedge trimming and local strengthening of road edges).; However, these will have a negligible dust generating potential and have therefore 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 11-4.

- Demolition: There is no demolition required as part of the proposed project.
- 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 **large** as the total volume of structures with dust generating potential during their construction will be greater than 75,000 m^3.
- 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 construction phase of the proposed project.

11.6.2.1.2 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, dust-related human health and ecological effects (see Section 11.5.2). The level of risk associated with each activity is determined using the criteria in Table 11-5. The overall risk of dust impacts from the construction works is shown in Table 11-8 for each category.

There is a high risk of dust soiling impacts, a medium risk of dust-related human health impacts and a high risk of ecological impacts 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 significant impacts at nearby sensitive receptors. In the absence of mitigation, dust impacts are predicted to be ***direct, short-term, negative*** and ***slight,*** which is overall ***not significant*** in EIA terms.

Table 11-8: Risk of Construction Dust Impacts

Receptor	Receptor Sensitivity	Dust Emission Magnitude	Risk of Dust-Related Impacts
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	High Risk
Human Health	Medium		Medium Risk
Ecology	High		High Risk
Construction			
Dust Soiling	High	Large	High Risk
Human Health	Medium		Medium Risk
Ecology	High		High Risk
Trackout			
Dust Soiling	High	Medium	High Risk
Human Health	Medium		Medium Risk
Ecology	High		High Risk

11.6.3 Operational Phase

11.6.3.1 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 is estimated to have an export capacity of between approximately 77 to 100.8 MW and an assumed capacity factor of 33%, therefore the power generation from the project is expected to be approximately a minimum of 223 GWh to a maximum of 291 GWh per annum.

The supply of 223 GWh – 291 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 11-9, 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 project is annual NO_X emission savings of 0.14% - 0.18% of the 2030 ceiling of 40.6kt and savings of 1.33% - 1.73% relative to the NO_X emissions associated with

power generation in Ireland in 2023 (EPA, 2025b)). This is considered an ***indirect, long-term, slight, positive*** effect on air quality.

Table 11-9: Predicted Impact of Proposed Project 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 (%)
57 - 75	National Emission Ceiling 2020 – 2029 Note 1	40,600	0.14% - 0.18%
	NO_X Emissions from Power Generation in 2023 Note 2	4,304	1.33% - 1.73%

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)

11.6.4 Decommissioning Phase

Dust impacts during the construction phase as assessed in Section 11.3.3 have a high risk of dust soiling impacts, a medium risk of dust-related human health and a high risk of ecological impacts. As the decommissioning phase activities will have a lesser impact than construction phase activities, the risk of impacts can be assumed as a worst-case to be high. 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 11.7). It can therefore be determined that the decommissioning phase will have a ***direct, short-term, negative*** and ***slight***, which is overall ***not significant*** in EIA terms .

11.6.5 Transboundary Effects

There are no emissions during the construction, operational and decommissioning phases of the proposed project which have the potential for transboundary effects. The effects identified during the construction and decommissioning phases (Section 11.6.2 and Section 11.1.1) are predicted to be localised (within 250 m of the proposed project).The indirect effects identified during the operational phase (Section 11.6.3.1) relate to Ireland's national NO_X emission target through renewable energy production instead of fossil fuel power generation and are not applicable outside Ireland.

11.7 Mitigation Measures

11.7.1 Embedded Mitigation

No measures embedded into the design of the proposed project affected the assessment of air quality impacts. Additional mitigation measures will be employed during the construction and decommissioning phases and are discussed further in the following sections.

11.7.2 Construction Phase

The proposed development has been assessed as having a high risk of dust soiling impacts and a medium risk of dust related human health impacts during the construction phase as a result of

earthworks, construction and trackout activities (see Section 11.6.2.1). 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 high risk of dust impacts and will ensure that no significant nuisance occurs at nearby sensitive receptors. These measures will be incorporated into the overall Construction Environmental Management Plan (CEMP - Appendix 2-4) prepared for the site. The measures are divided into different categories for different activities. Mitigation measures for high-risk sites as recommended by IAQM construction dust guidance are detailed in Table 11-10.

Table 11-10: Standard Construction Dust Management Measures

Mitigation Type	Location	Description of Mitigation or Monitoring Measures
Communications	Construction Compound/Site Boundary and throughout (as required)	1. An Environmental Manager (EM) will be in assigned by the appointed contractor. The EM will be responsible for co-ordinating the day-to-day management of environmental impacts during the Construction Phase. The EM will be responsible for performing inspections as deemed necessary and manage responses to environmental incidents. The name and contact details of the EM will be responsible for construction dust management and air quality issues will be displayed at the construction compound/site boundary hoarding, as well as head/regional office contact details. 2. A complaints register will be kept by the appointed contractor detailing all telephone calls and letters of complaint received in connection with dust nuisance or air quality concerns, together with details of any remedial actions carried out. Previously established community engagement with neighbouring business will continue for the remainder of the construction works.
Construction Works Area Management	Construction Compound/Site Boundary and throughout (as required)	3. The construction compound will be laid out so that machinery and dust causing activities such as stockpiles are located away from receptors, as far as is practicable. 4. The appointed contractor will provide site hoarding at a minimum, at the construction compound, which will assist in minimising the potential for dust impacts off-site. Construction works area fencing, barriers and scaffolding will be kept clean using wet methods.

Mitigation Type	Location	Description of Mitigation or Monitoring Measures
		5. Stockpiles will be covered to prevent wind whipping. 6. Any chutes and conveyors will be enclosed and skips will be covered. 7. Drop heights from any conveyors, loading shovels, hoppers and other loading or handling equipment will be minimised. Fine water sprays will be used on such equipment where visible dust plumes are generated. 8. Cutting, grinding or sawing equipment will be fitted with or used in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems. 9. Equipment will be readily available in the construction works areas site to clean any dry spillages. Spillages will be cleaned up as soon as reasonably practicable after the event using wet cleaning methods. An adequate water supply for effective dust or particulate matter suppression and mitigation will be ensured, and non-potable water will be used where possible and appropriate.
Operating Vehicles / Machinery	Construction Compound/Site Boundary and throughout (as required)	10. Engines of all vehicles will be switched off when stationary - idling vehicles are not permitted. 11. The use of diesel- or petrol-powered generators will be limited and mains electricity or battery powered equipment will be used where practicable. 12. A Construction Traffic Management Plan (CTMP) has been developed as part of the CEMP to minimise use of the Local Road Network. The CTMP will be adhered to be the appointed contractor. The appointed contractor will promote the use of public transport, cycling and walking by personnel. Vehicle-sharing will be encouraged, subject to public health guidelines, where travel by private vehicle is a necessity (e.g. for transporting heavy equipment).
Earthworks Activities	Areas where earthworks are required	13. Materials with the potential to produce dust, such as excavated material, will be removed from the construction works area as soon as possible, unless being re-used within the construction works area.

Mitigation Type	Location	Description of Mitigation or Monitoring Measures
		Management of extracted material is detailed in the Construction Environmental Management Plan (CEMP - Appendix 2-4). 14. Areas exposed by earthworks will be re-vegetated to stabilise surfaces as soon as practicable. Hessian, mulches or trackifiers will be used where it is not possible to re-vegetate or cover with topsoil, as soon as practicable. Cover will only be removed in small areas during work and not all at once. During dry and windy periods and when there is a likelihood of dust nuisance (defined under "Monitoring" measures below), water-based dust suppression (e.g. bowser) will operate to ensure soil moisture content is high enough to increase the stability of the soil and thus suppress dust.
Construction Activities	Areas where construction is required	15. Sand and other aggregates will be stored in bunded areas and will not be allowed to dry out, unless this is required for a particular process. Smaller supplies of fine power materials bags will be sealed after use and stored appropriately to prevent dust escaping.
Measures specific to trackout (transport of dust and dirt from the construction works areas onto the public road network)	Construction Compound/Site Boundary and throughout (as required)	16. A speed restriction of 24 kph will be applied as an effective control measure for dust for on-site vehicles. 17. Vehicles transporting loose materials (e.g. spoil or sand) entering and leaving the proposed project works areas and construction compounds will be covered with tarpaulin to prevent escape of materials during transport. Before entrance onto public roads, trucks will be checked to ensure the tarpaulins are properly in place. 18. Where construction work area or construction compound conditions result in large amounts of mud building up on truck wheels, wheel washing will be carried out for trucks before they use the public road network. 19. Water-assisted dust sweeper(s) will be used at the access points to a construction compound and the immediate adjoining local road, to remove, as necessary, any material tracked out of the compound.

Mitigation Type	Location	Description of Mitigation or Monitoring Measures
		Any on-site haul routes will be inspected for integrity and necessary repairs to the surface will be carried out as soon as reasonably practicable.
Monitoring	Construction Compound/Site Boundary and throughout (as required)	20. To determine if any short-term dust impacts will occur, a minimum of daily visual inspections for dust soiling of receptors (including roads, and surfaces such as street furniture, cars and windowsills) adjoining the construction works areas will be undertaken. Inspection results will be recorded in the site inspection log. Cleaning will be provided, if necessary, such as in the event of a dust complaint resulting from the Proposed Scheme construction works. 21. The potential for dust generation increases when rainfall is less than 0.2 mm/day and at wind speeds of greater than 10 m/s. To determine if these conditions are likely to affect the site, the weather forecast will be consulted daily, specifically the hourly forecasts for wind speeds as well as 12-hour rainfall radar showing anticipated amounts of precipitation in mm. The frequency of site inspections by the Environmental Manager responsible for dust management will be increased to a minimum of twice daily during the above conditions. The effectiveness of dust control methods will be monitored via visual inspections and work that would generate dust (e.g. moving materials from stockpiles or transferring loose dry materials from trucks) will be limited in so far as is practicable during these weather conditions.
Communications	Construction Compound/Site Boundary and throughout (as required)	22. An Environmental Manager (EM) will be in assigned by the appointed contractor. The EM will be responsible for co-ordinating the day-to-day management of environmental impacts during the Construction Phase. The EM will be responsible for performing inspections as deemed necessary and manage responses to environmental incidents. The name and contact details of the EM will be responsible for construction dust management and air quality issues will be displayed at the construction

Mitigation Type	Location	Description of Mitigation or Monitoring Measures
		compound/site boundary hoarding, as well as head/regional office contact details. 23. A complaints register will be kept by the appointed contractor detailing all telephone calls and letters of complaint received in connection with dust nuisance or air quality concerns, together with details of any remedial actions carried out. Previously established community engagement with neighbouring business will continue for the remainder of the construction works.

11.7.3 Operational Phase

During the operational phase of the proposed project, 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.

11.7.4 Decommissioning Phase

As the dust emissions during the decommissioning phase are expected to be of a similar or lesser magnitude to those identified during the construction phase, the mitigation measures applicable to construction phase dust emissions are also applicable during the decommissioning phase.

11.8 Residual Effects

11.8.1 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 human receptors and sensitive designated habitats. This is in line with the IAQM guidance (IAQM,2024) which states that significant effects on receptors will be prevented by the use of effective mitigation and hence, the residual effect will be ***not significant***.

Best practice mitigation measures are proposed for the construction phase of the proposed project which will focus on the pro-active 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 of the proposed project will ensure that the impact of the project 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 project will be ***short-term, direct, negative*** and ***not significant*** with respect to human health and ecology.

11.8.2 Operational Phase

There are no predicted direct impacts to air quality during the operational phase of the proposed project.

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 a minimum of 223 GWh – 291 GWh of renewable electricity will result in a decrease in annual NO_X emission levels by 0.14% - 0.18% of the 2030 National Air Emissions Target of 40.6kt. This is an ***indirect, long-term, slight, positive*** effect on air quality.

11.8.3 Decommissioning Phase

Dust impacts during the decommissioning phase are expected to be of 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 demolition works. It can therefore be determined that the residual effect of the decommissioning phase on air quality will be ***short-term, direct, localised, negative*** and ***not significant***.

11.8.4 Summary Of Post-Mitigation Effects

The following table summarises the identified likely residual significant effects during the construction phase of the proposed development following the application of mitigation measures.

Table 11-11: Summary of Air Quality Effects Post Mitigation

Likely Significant Effect in accordance with EPA Terminology	Quality	Significance	Extent	Probability	Duration	Type
Impact of construction dust from construction and trackout in terms of dust soiling, and human health	Negative	Not significant	Study area as per Section 11.5.2	Likely	Short-term	Direct
Impact of operational phase emissions from proposed project on air quality	Positive	Slight - Not significant	National	Likely	Long-term	Indirect

11.9 CUMULATIVE EFFECTS

Cumulative construction dust impacts may occur if large-scale developments within 500 m of the site are under construction simultaneously, as per the IAQM guidance (IAQM, 2024).

A review of the existing, planned and permitted projects within the vicinity of the site (see Section 2.6.1.1 of Chapter 2) was undertaken to identify developments with the potential for cumulative construction phase impacts. Similarly, cumulative dust impacts may occur where developments within 500 m of the proposed wind farm site are under construction or decommissioning (i.e. dust generating phases) simultaneously with the decommissioning phases

of the proposed project. The following developments were identified with the potential to generate cumulative dust impacts with the proposed development.

Table 11-12: Summary of Developments with Potential for Cumulative Effects

Planning Reference No.	Description
2460135 (Leitrim County Council)	Development of two storey primary school building on a greenfield site, comprising of 5 classrooms, a GP Hall, a 1 classroom special education needs base, support teaching spaces, a staff room, and all ancillary accommodation at Creamery Road , Manorhamilton , Co. Leitrim
2360147 (Leitrim County Council)	Construction of 34 no. residential units, new site entrance off the existing estate road and other services at Stonebridge Estate, Drumahaire/Drumlease, Dromahair Co. Leitrim.
22351 (Sligo County Council)	Construction and operation of a synchronous condenser facility at Ballysumaghan, Co. Sligo. The application is accompanied by a Natura Impact Statement (NIS).
2090 (Sligo County Council)	Development and operation of a 250 to 300 MVA (electrical rating) synchronous condenser at Ballysumaghan, Srananagh, Co. Sligo.
2560036 (Sligo County Council)	Development of an enclosed battery energy storage system at Townland of Ballysumaghan, Srananagh, Co. Sligo.
2360214 (Sligo County Council)	A 10-year planning permission for the construction of 1. enclosed battery energy storage system compound on a total of up to 5.05-hectare site at Townland of Ballysumaghan Fannybrook , Quarry Lane Co. Sligo.

The dust mitigation measures outlined in Section will be applied during the construction phase which will avoid significant cumulative impacts on air quality. Similar dust mitigation measures are required for other permitted developments as per their respective impact assessments and planning conditions.

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

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

11.10 Conclusion

This chapter of the EIAR has assessed the potential impacts on air quality, focusing 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 ($PM_{2.5}$) are generally well below the National and European Union (EU) ambient air quality standards.

An assessment of the potential dust impacts as a result of the construction phase of the proposed 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 impacts associated with the proposed project. In the absence of mitigation there is the potential for ***direct, short-term, negative, slight*** and ***not significant*** impacts to 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 a minimum of 223 GWh – 291 GWh of renewable electricity will result in a decrease in annual NO_X emission levels by 0.14% - 0.18% of the 2030 National Air Emissions Target of 40.6kt. This is an ***indirect, long-term, slight positive*** and ***not significant*** effect on air quality.

Detailed dust mitigation measures are outlined within Section 11.7.2 and are also included in the CEMP (Appendix 2-4) to ensure that no significant effects as a result of construction dust emissions from earthworks, construction and trackout (movement of vehicles) occurs at nearby sensitive receptors. Once these best practice mitigation measures, derived from the Institute for Air Quality Management 2024 guidance '*Guidance on the Assessment of Dust from Demolition and Construction'* as well as other relevant dust management guidance, are implemented, the effects on air quality during the construction of the proposed project are considered ***direct, short-term, negative*** and ***not significant***, and also avoiding significant cumulative effects on air quality.

In summary there are no likely significant effects on air quality as a result of the construction, operational and decommissioning phases of the proposed 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.

11.11 REFERENCES

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