Planning and Environmental Consultants

Environmental Impact Assessment Report (EIAR)

Ballydermot Wind Farm, Co. Offaly & Co. Kildare

Chapter 10 – Air Quality



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GLOSSARY OF TERMS

Term	Definition
Ambient Air Quality	The quality of outdoor air in a given area, measured by the concentration of pollutants such as SO_2, NO_2, PM_{10}, $PM_{2.5}$, CO, and O_3.
AOT40	A metric indicating vegetation exposure to ozone, calculated as the accumulated amount of ozone above 80 µg/m³ over a set period (typically May–July).
Clean Air Strategy (Ireland, 2023)	National policy framework outlining strategic actions to improve air quality and align with WHO guidelines.
Fine Particulate Matter ($PM_{2.5}$)	Airborne particles smaller than 2.5 micrometres in diameter; can penetrate deep into the respiratory system and pose significant health risks.
IAQM 2024 Guidance	Institute of Air Quality Management's best-practice guidance for assessing dust from demolition and construction in the absence of Irish-specific guidance.
Particulate Matter (PM_{10})	Particles ≤10 micrometres in diameter. Commonly generated by construction activities, vehicle exhaust, soil disturbance, and solid-fuel burning.
WHO Air Quality Guidelines (2021)	Global recommendations by the World Health Organisation defining health-based pollutant thresholds that are stricter than EU limit values.

GLOSSARY OF ACRONYMS

Acronym	Definition
AER	Annual Environmental Report
BaP	benzo(a)pyrene
BnM	Bord na Móna
C_6H_6	Benzene
CAFE	Clean Air for Europe Directive (Directive 2008/50/EC)
CEMP	Construction and Environmental Management Plan
CO	Carbon Monoxide
CO_2	Carbon Dioxide
DEFRA	Department of Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges

EEA	European Environmental Agency
HDV	Heavy-duty vehicle
HGVs	Heavy Goods Vehicles
IAQM	Institute of Air Quality Management
Km	Kilometres
LAQM	Local Air Quality Management
LGVs	Light Good's Vehicles
m	metres
MRF	Materials Recovery Facility
NH_3	Ammonia
NIS	Natura Impact Statement
NMVOC	Non-Methane Volatile Organic Compounds
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
O_3	Ozone
OHL	Overhead Lines
PAHs	Polyaromatic Hydrocarbons
Pb	Lead
PCAS	Peatland Climate Action Scheme
PM	Particulate Matter
ppb	parts per billion
SO_2	Sulphur Dioxide
SO_x	Sulphur Oxide
UAT	Upper Assessment Threshold
UKHA	UK Highways Agency
WHO	World Health Organisation
VOC	Volatile Organic Compound

10. AIR QUALITY

10.1 Introduction

This chapter identifies, describes and assesses the potential significant direct and indirect effects on air quality arising from the construction, operation and decommissioning of the Proposed Project. The full description of the Proposed Project is detailed in Chapter 4 Description of the Proposed Project. Alternative designs initially proposed for the Proposed Project and their potential for effects on air quality are considered in Chapter 3 Site Selection and Reasonable Alternatives.

As detailed in Section 1.1.1 in Chapter 1, for the purposes of this Environmental Impact Assessment Report (EIAR), the various project components are described and assessed using the following references: 'Proposed Project', 'Proposed Enhancement Areas', 'Proposed Construction Haul Routes', 'Proposed Turbine Delivery Route', 'Project Site', 'Proposed Wind Farm', 'Proposed Turbines', 'Proposed Grid Connection', 'Proposed Onsite Substation' and 'Proposed Offsite Substation'. Refer to Section 1.1.1 of Chapter 1: Introduction of this EIAR for further details on project components. A detailed description of the Proposed Project is provided in Chapter 4: Description of the Proposed Project of this EIAR.

The assessment has been carried out according to best practice and guidelines relating to air quality.

10.1.1 Study Area

The effects of the Proposed Project on air quality are generally localised in nature and depend on the location, scale and duration of construction, operational and decommissioning activities, prevailing meteorological conditions, and the proximity of sensitive receptors. In accordance with best practice guidance issued by the Institute of Air Quality Management in the UK (IAQM) guidance document '*Guidance on the Assessment of Dust from Demolition and Construction*' (IAQM, 2024)[1], the air quality study area has been defined to capture the geographic extent over which emissions associated with the Proposed Project could reasonably give rise to measurable effects on ambient air quality and human health. The IAQM (2024) Guidance states that dust impacts to people and property can occur up to 250m from the source. In order to identify a reasonable extent for the air quality study area, a 250m buffer in line with IAQM (2024) Guidance has been placed on the Project Site, the Proposed Construction Haul Route and Proposed Turbine Delivery Route, which is shown in Figure 10-1 and hereafter referred to as '**Air Quality Study Area'**.

For the assessment pertaining to potential dust impacts in line with IAQM (2024) Guidance, a separate Dust Study Area has been defined. The Dust Study Area comprises a 250m buffer around all Proposed Project infrastructure, including the Proposed Wind Farm infrastructure, Proposed Grid Connection infrastructure, Proposed Enhancement Areas, Proposed Turbine Delivery Route and Proposed Construction Haul Routes as shown in Figure 10-2 and hereafter referred to as the '**Dust Study Area'**, which is detailed in Section 10.2.3.3.

In accordance with IAQM (2024) Guidance, including the provisions relating to ecological impacts, a separate study area was defined to identify ecological receptors that may be sensitive to dust deposition effects arising from construction activities.

In line with the IAQM (2024) guidance, buffer zones of 20m and 50m from the Proposed Project infrastructure have been applied to identify ecological receptors that may be sensitive to dust deposition and associated air quality effects. These distances reflect the recommended zones of influence for

[1] *IAQM (2024) Guidance:* Construction-Dust-Guidance-Jan-2024.pdf

ecological dust impacts and are used to identify receptors of varying sensitivity to dust deposition. Further details of the methodology and ecological receptor sensitivity classification are provided in Section 10.2.3.3.1. This study area is hereafter referred to as the '**Ecological Dust Study Area'** which is shown in Figure 10-3 and detailed in Section 10.3.2.2.

640000
660000
680000
740000
720000
N
Kinnegad
Enfield
Kilbeggan
Tullamore
Geashill
Edenderry
Clonaslee
Kildare
Newbridge
Summe
M4
M6
R391
N52
R446
R161
R401
R400
R402
R441
R420
R421
R423
R419
R445
R413
R409
R414
R403
N80
E20
225 m
135 m
144 m
227 m
485 m
Grand Canal
0
4.25
8.5
17
25.5
34
Kilometers

Legend

Project Site
Air Quality Study Area

Spatial Reference
Name: WGS 1984 Web Mercator Auxiliary Sphere
Datum: WGS 1984
Projection: Mercator Auxiliary Sphere

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SITE LOCATION - NOT TO SCALE

Drawing Title
Air Quality Study Area

Project Title
Ballydermot Wind Farm
Co. Offaly & Co. Kildare

Project No.	Drawing No.	Scale
250708	10-1	1:300,000
Drawn By	Checked By	Date
LPM	EC	11/08/2026

Email: info@mkoireland.ie/ Website: www.mkoireland.ie

640000
660000
680000
740000
720000
N
Kinnegad
Enfield
Edenderry
Kilbeggan
Tullamore
Geashill
Clonaslee
Kildare
Newbridge
Summer
M4
M6
N52
N80
R391
R446
R161
R158
R401
R409
R402
R441
R420
R400
R419
R421
R423
R445
R413
R414
R403
R448
225 m
135 m
144 m
227 m
485 m
Grand Canl
0
4.25
8.5
17
25.5
34
Kilometers

Legend

- Project Site
- Dust Study Area

Spatial Reference
Name: WGS 1984 Web Mercator Auxiliary Sphere
Datum: WGS 1984
Projection: Mercator Auxiliary Sphere

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SITE LOCATION - NOT TO SCALE

Drawing Title
Dust Study Area

Project Title
Ballydermot Wind Farm
Co. Offaly & Co. Kildare

Project No.	Drawing No.	Scale
250708	10-2	1:298,023
Drawn By	Checked By	Date
LPM	EC	11/08/2026

Email: info@mkoireland.ie/ Website: www.mkoireland.ie

670000

680000

730000

720000

N

Highfield Golf Club

Edenderry Golf Club

Carrick Road

Edenderry

R441

Dreenan

Timahoe East

Gilltown Lane

Staplestown

Ticknevin

Hodgestown (Clane By)

110 m

115 m

Coolearagh East

Killinagh Lower

Curry

Blackwood (Clane By)

Downings North

Allenwood South

R401

R415

85 m

R414

Robertstown East

Clonbullogue

Ballyteige South

R442

81 m

78 m

R401

Feighcullen

Newtown (ed Killinthomas)

80 m

River Road

79 m

R419

Rathangan

Mullantine

122 m

0 1.5 3 6 9 12

Kilometers

Legend

- Project Site
- Proposed Project Infrastructure
- Ecological Dust Study Area 20m Band
- Ecological Dust Study Area 50m Band

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Spatial Reference
Name: WGS 1984 Web Mercator Auxiliary Sphere
Datum: WGS 1984
Projection: Mercator Auxiliary Sphere

SITE LOCATION - NOT TO SCALE

Drawing Title: Ecological Dust Study Area

Project Title: Ballydermot Wind Farm
Co. Offaly & Co. Kildare

Project No.	Drawing No.	Scale
250708	10-3	1:115,000
Drawn By	Checked By	Date
LPM	EC	21/09/2026

Email: info@mkoireland.ie/ Website: www.mkoireland.ie

10.1.2 Scoping and Consultation

Section 2.8 of Chapter 2 Background to the Proposed Project of this EIAR describes the scoping and consultation exercise undertaken for the Proposed Project. General scoping was initially conducted in May 2021. Revised general scoping was conducted in December 2025 due to time elapsed from when previous scoping was carried out, updates in local and national policy and legislation, updates in relevant EIAR guidance, changes in the environmental baseline and refinement of the Proposed Project layout and design.

Copies of all scoping responses are included in Appendix 2-1; 'Scoping Responses', of this EIAR. The recommendations of the consultees have informed the EIAR preparation process and the contents of this chapter. Table 2-4 in Chapter 2 of this EIAR describes where the comments raised in the scoping responses received have been addressed in this assessment. Table 10-1 provides a list of the organisations consulted with regard to air quality during the scoping process, and notes when scoping responses were received.

Table 10-1: Scoping Responses

Consultee	Date of Response for 2021 scoping	Date of Response for 2025 scoping
Transport Infrastructure Ireland (TII)	17th February 2021	6th January 2026
Health Service Executive (HSE)	22nd March 2021	29th January 2026
Department of Transport (DoT)	21st April 2021	8th January 2026

Transport Infrastructure Ireland

Scoping responses were received from TII on 17th February 2021 and 6th January 2026. TII stated that the EIAR preparation should acknowledge official policy concerning access to national roads outlined in the DoECLG 'Spatial Planning and National Roads Guidelines for Planning Authorities' (2012). TII has provided general recommendations in their response to be considered in the preparation of EIAR.

Impacts on Air Quality are assessed in Section 10.3. An assessment of effects on air quality as a result of impacts to traffic are assessed in Section 10.3.2 and 10.3.3 and in more detail within Chapter 15 Material Assets: Traffic and Transport.

Health Service Executive

Scoping responses were received from National Environmental Health Service Executive (HSE) on 12th February 2021, with further detail being provided on the 22nd March 2021. Following revised scoping in 2025, a response was received on 29th January 2026. In both 2021 and 2026, the HSE stated that the EIAR should examine all likely significant impacts and provide the following information for each:

- Description of the receiving environment;
- The nature and scale of the impact;
- An assessment of the significance of the impact;
- Proposed mitigation measures;
- Residual impacts.

Directive 2014/52/EU has an enhanced requirement to assess likely significant impacts on Population and Human Health. It is the experience of HSE that impacts on human health are often inadequately assessed in EIAs in Ireland. It is recommended that the wider determinants of health and wellbeing are considered in a proportionate manner when considering the EIA. Guidance on wider determinants of health can be found at www.publichealth.ie

In addition to any likely significant negative effects from the Proposed Project, any positive likely significant impacts should also be assessed.

The HSE recommends that the following matters are included and assessed in the EIA:

- Public Consultation
- Population and human health
- Decommissioning phase of the Proposed Wind Farm
- Siting and location of turbines
- Noise & Vibration
- Shadow Flicker
- Air Quality
- Surface and Groundwater Quality
- Ancillary facilities
- Cumulative impacts
- Climate
- Health gain

Impacts from Air Quality are assessed in Section 10.3. An assessment of effects on air quality as a result of impacts to Climate and human health are assessed in Section 10.3.3 and 10.3.5 and in more detail within Chapter 11: Climate and Chapter 5: Population and Human Health respectively.

In both their 2021 and 2026 responses, HSE recommended that public consultation be conducted to ensure that all potentially significant impacts of the Proposed Project are addressed. It also suggested that a dedicated website be developed by Bord na Móna (BnM) (the Applicant). The Applicant created a website, which has been and will be maintained throughout the EIA process (https://www.ballydermotwindfarm.ie/). Public consultation events were also held in summer 2021, with a further event in May 2026. Full details of the public consultation are available in Chapter 2: Background to the Proposed Project and Appendix 2-2; 'Community Report'.

Department of Transport

Scoping responses were received from DOT on 21st April 2021 and 8th January 2026.

DOT stated that, Section 12.4.1.1 'Accelerate Renewable Electricity Generation' of the Climate Action Plan 2024 (CAP24) outlines the objective of reaching 80% of electricity demand from renewable sources by 2030 through a range of measures, including; 'All relevant public bodies will carry out their functions in a manner which supports the achievement of the renewable electricity targets, including, but not limited to, the use of road and rail infrastructure to provide a route for grid infrastructure where this is the optimal solution'. Having regard to the measures identified in CAP24 and the information in relation to grid routing included in the subject application, the Department recommends that there is a requirement that the Board establish that the routing proposed represents the 'optimal solution'.

Impacts on Air Quality are assessed in Section 10.3. An assessment of effects on air quality as a result of impacts to traffic are assessed in Section 10.3.2 and 10.3.3 and in more detail within Chapter 15 Material Assets: Traffic and Transport.

10.1.3 Statement of Authority

This chapter of the EIAR has been prepared by Catherine Johnson, with input from Lakshmi Priya Mohan, and reviewed by Ellen Costello and Sean Creedon, all of MKO.

Lakshmi is an Environmental Scientist at MKO with over two years of consultancy experience. Lakshmi holds a master's degree in environmental science, a master's degree in Zoology and a bachelor's degree in Zoology. Prior to taking up her position with MKO in March 2026, Lakshmi worked as an

Environmental Consultant in DNV, Ireland. Experienced Production of EIARs, Construction and Environmental Management Plans (CEMPs), EIA Screenings, SEA Screening, GIS map outputs across various large infrastructure developments and land infill projects in Ireland.

Catherine is a Project Environmental Scientist at MKO with over four years of consultancy experience in climate, renewable energy, and sustainability. Catherine possesses skills in mapping and design, which complement her experience in preparing comprehensive reports for EIAs. Catherine holds a BSc in Earth and Ocean Science and a LLM in Global Environment and Climate Change Law. Catherine has been involved in a myriad of environmental service offerings at MKO including EIA Screenings and Reports, climate and sustainability related work and renewable energy infrastructure projects, including both onshore and offshore wind energy developments.

Ellen Costello is a Senior Environmental Scientist with MKO with over six years' experience in private consultancy. Ellen holds a BSc (Hons) in Earth Science, and a MSc (Hons) in Climate Change: Integrated Environmental and Social Science Aspects where she focused her studies on renewable energy development in Europe and its implications on environment and society. Ellen's key strengths and expertise are Environmental Protection and Management, Environmental Impact Statements, Project Management, and GIS Mapping and Modelling. Since joining MKO, Ellen has been involved in a range of renewable energy infrastructure projects. In her role as a senior project manager, Ellen works with and co-ordinates large multidisciplinary teams including members from MKO's Environmental, Planning, Ecological and Ornithological departments as well as sub-contractors from various fields in the preparation and production of EIARs.

This report has been reviewed by Sean Creedon. Sean is an Associate Director in the Environment Team at MKO. Sean has over twenty-three years' experience in program and project development, holds an MSc from University of Galway and a Diploma in Project Management from Institute of Project Management Ireland.

10.2 Air Quality

10.2.1 Relevant Guidance and Legislation

The air quality chapter of this EIAR is carried out in accordance with the EIA Directive 2011/92/EU as amended by Directive 2014/52/EU and having regard, where relevant, to the best practice Irish and international guidance listed below:

- Air Quality Assessment of Specified Infrastructure Projects – Overarching Technical Document PE-ENV-01106 (Transport Infrastructure Ireland, December 2025).
- Air Quality Assessment of Proposed National Roads – Standard PE-ENV-01107 (Transport Infrastructure Ireland, December 2025).
- Guidelines on the Information to be contained in Environmental Impact Assessment Reports – June 2022 (EPA, 2022).
- Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report (EC, 2017).
- Best Practice Guidelines on the Preparation of Resource and Waste Management Plans for Construction & Demolition Projects (EPA, 2021).
- Guidance of the Assessment of Dust from Demolition and Construction (IAQM, 2024).
- Guidelines for the Treatment of Air Quality During the Planning and Construction of National Road Schemes (TII, 2011).
- Guidelines for Assessment of Ecological Impacts of National Roads Schemes (TII, 2009).

- Transport Infrastructure Ireland (TII). (2025). Air Quality Assessment of Proposed National Roads – Standard (2025)[2].
- Clean Air Strategy for Ireland (Government of Ireland, 2023).
- UK Department of Environment Food and Rural Affairs (DEFRA) Part IV of the Environment Act 1995: Local Air Quality Management, LAQM.TG (16) (DEFRA 2018).
- UK Highways Agency (UKHA) Design Manual for Roads and Bridges (DMRB) – LA 105 Air Quality (UKHA, 2019).
- World Health Organization (WHO) Air Quality Guidelines for Particulate Matter, Ozone, Nitrogen Dioxide and Sulphur Dioxide Global Update 2021 (WHO 2021).

In 1996, the Air Quality Framework Directive (on ambient air quality assessment and management) (96/62/EC) was published. This Directive was transposed into Irish law by the Environmental Protection Agency Act 1992 (Ambient Air Quality Assessment and Management) Regulations 1999 (S.I. No. 33 of 1999). The Directive was followed by four Daughter Directives, which set out limit values for specific pollutants:

- The first Daughter Directive (1999/30/EC) addresses sulphur dioxide, oxides of nitrogen, particulate matter and lead.
- The second Daughter Directive (2000/69/EC) addresses carbon monoxide and benzene. The first two Daughter Directives were transposed into Irish law by the Air Quality Standards Regulations 2002 (SI No. 271 of 2002).
- The third Daughter Directive, Council Directive (2002/3/EC) relating to ozone was published in 2002 and was transposed into Irish law by the Ozone in Ambient Air Regulations 2004 (SI No. 53 of 2004).
- The fourth Daughter Directive (2004/107/EC), published in 2004, relates to polyaromatic hydrocarbons (PAHs), arsenic, nickel, cadmium and mercury in ambient air and was transposed into Irish law by the Arsenic, Cadmium, Mercury, Nickel and Polycyclic Aromatic Hydrocarbons in Ambient Air Regulations, 2009 (S.I. No. 58 of 2009) (amended by SI 659/2016 - Air Quality Standards (Amendment) and Arsenic, Cadmium, Mercury, Nickel and Polycyclic Aromatic Hydrocarbons in Ambient Air (Amendment) Regulations 2016).

The Air Quality Framework Directive and the first three Daughter Directives were replaced by the Clean Air for Europe (CAFE) Directive (Directive 2008/50/EC on ambient air quality and cleaner air for Europe) (as amended by Directive EU 2015/1480) which encompasses the following elements:

- The merging of most of the existing legislation into a single Directive (except for the Fourth Daughter Directive) with no change to existing air quality objectives.
- New air quality objectives for PM2.5 (fine particles) including the limit value and exposure concentration reduction target.
- The possibility to discount natural sources of pollution when assessing compliance against limit values.
- The possibility for time extensions of three years (for particulate matter PM_{10}) or up to five years (nitrogen dioxide, benzene) for complying with limit values, based on conditions and the assessment by the European Commission.

In addition to the primary framework established under the CAFE Directive, a number of associated EU Directives and amendments are relevant to the assessment and management of ambient air quality. These include:

[2] *Transport Infrastructure Ireland (TII). (2025).* https://cdn.tii.ie/publications/PE-ENV-01107-02.pdf

- Commission Directive (EU) 2015/1480[3], which amends several technical annexes to Directives 2004/107/EC and 2008/50/EC, including provisions relating to reference methods, data quality objectives and sampling requirements;
- Directive 2011/850/EU, which establishes requirements for the reciprocal exchange of information and reporting on ambient air quality within Member States.

These Directives, together with CAFE Directive and Directive 2004/107/EC (the Fourth Daughter Directive), form the basis of the European Union air quality legislative framework governing the assessment and management of air quality.

Table 10-2 below sets out the limit values of the CAFE Directive, as derived from the Air Quality Framework Daughter Directives. Limit values are presented in micrograms per cubic metre (µg/m^3) and parts per billion (ppb). The notation PM_{10} is used to describe particulate matter or particles of ten micrometres or less in aerodynamic diameter. $PM_{2.5}$ represents particles measuring less than 2.5 micrometres in aerodynamic diameter.

The CAFE Directive was transposed into Irish legislation by the Air Quality Standards Regulations 2011 (S.I. No. 180 of 2011) as amended by the Air Quality Standards (Amendments) and Arsenic, Cadmium, Mercury, Nickel and Polycyclic Aromatic Hydrocarbons in Ambient Air Regulations, 2016 (S.I. 659 2016). The 2011 Regulations superseded the Air Quality Standards Regulations 2002 (S.I. No. 271 of 2002), the Ozone in Ambient Air Regulations 2004 (S.I. No. 53 of 2004) and the Ambient Air Quality Assessment and Management Regulations 1999 (S.I. No. 33 of 1999). The Air Quality Standards Regulations 2011 (S.I. No. 180 of 2011) was revoked on 31 December 2022 and has been replaced by the Ambient Air Quality Standards Regulations 2022 (S.I. No. 739/2022)[4].

On the 26th of October 2022 the EU Commission announced a proposed review of Air Quality Standards.[5] The proposed revision will set interim 2030 EU air quality standards, seeking to align more closely with WHO recommendations, while putting the EU on a trajectory to achieve zero pollution for air at the latest by 2050, in synergy with climate-neutrality efforts. The first review is proposed to take place by the end of 2028, with the objective of ensuring full alignment with WHO recommendations.

The Ambient Air Quality Standards Regulation (2022) made the provisions necessary for the implementation of CAFE Directive of the European Parliament and of the Council on ambient air quality and cleaner air for Europe (as amended), establishes the limit values and alert thresholds for concentrations of certain pollutants in ambient air, provides for the assessment of concentrations of certain pollutants in ambient air, provides for the maintenance of ambient air quality, and ensures that adequate information on concentrations of pollutants are made available to the public.

On 10 December 2024, Directive (EU) 2024/2881 on ambient air quality and cleaner air for Europe came into force. This directive recasts the CAFE Directive and the fourth Daughter Directive (Directive 2004/107/EC relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air) and incorporates them into a single directive. This recast directive sets out limit values, target values, average exposure reduction obligations, average exposure concentration objectives, critical levels, alert thresholds, information thresholds and long-term objectives. It sets out air quality provisions with the aim of achieving the objectives of the European Commission's Zero Pollution Action Plan, so that air pollution within the EU is progressively reduced to levels no longer considered harmful to health and natural ecosystems at the latest by 2050. At the time of writing Directive (EU) 2024/2881 has not yet been transposed into Irish law.

[3] *Commission Directive (EU) 2015/1480 of 28 August 2015 amending several annexes to Directives 2004/1...*
[4] *Ambient Air Quality Standards Regulations 2022: https://www.irishstatutebook.ie/eli/2022/si/739/made/en/print*
[5] *European Commission, Revision of the Ambient Air Quality Directives. <https://environment.ec.europa.eu/topics/air/air-quality/revision-ambient-air-quality-directives_en>*

The Proposed Project offers an important opportunity to further utilise Ireland's abundant renewable energy resources, delivering valuable improvements to air quality and delivering associated benefits for human health, climate and biodiversity.

10.2.2 Air Quality Standards

The Ambient Air Quality Standards Regulations 2022 (S.I. No. 739/2022) remains aligned to the CAFE Directive and diverts to the CAFE Directive for the Limit values outlined in Table 10-2, the Assessment Thresholds in Table 10-3, the Ozone (O_3) limits and Assessment Thresholds in Table 10-4 and Table 10-5 respectively.

Table 10-2: Limit values of the CAFE Directive 2008/50.EC, (Source: https://airquality.ie/information/air-quality-standards)

Pollutant	Limit Value Objective	Averaging Period	Limit Value (ug/m3)	Limit Value (ppb)	Basis of Application of Limit Value	Attainment Date
Sulphur dioxide (SO_2)	Protection of human health	1 hour	350	132	Not to be exceeded more than 24 times in a calendar year	1st Jan 2005
SO_2	Protection of human health	24 hours	125	47	Not to be exceeded more than 3 times in a calendar year	1st Jan 2005
SO_2	Protection of vegetation	Calendar year	20	7.5	Annual mean	19th Jul 2001
SO_2	Protection of vegetation	1st Oct to 31st Mar	20	7.5	Winter mean	19th Jul 2001
Nitrogen dioxide (NO_2)	Protection of human health	Calendar year	40	21	Annual mean	1st Jan 2010
NO_2	Protection of human health	1 hour	200	105	Not to be exceeded more than 18 times in a calendar year	1st Jan 2010
Nitrogen monoxide (NO) and NO_2	Protection of ecosystems	Calendar year	30	16	Annual mean	19th Jul 2001
Particulate matter 10 (PM_{10})	Protection of human health	24 hours	50	-	Not to be exceeded more than 35 times in a calendar year	1st Jan 2005

PM_{10}	Protection of human health	Calendar year	40	-	Annual mean	1st Jan 2005
Particulate matter 2.5 ($PM_{2.5}$) Stage 1	Protection of human health	Calendar year	25	-	Annual mean	1st Jan 2015
$PM_{2.5}$ Stage 2	Protection of human health	Calendar year	20	-	Annual mean	1st Jan 2020
Lead (Pb)	Protection of human health	Calendar year	0.5	-	Annual mean	1st Jan 2005
Carbon Monoxide (CO)	Protection of human health	8 hours	10,000	8620	Not to be exceeded	1st Jan 2005
Benzene (C_6H_6)	Protection of human health	Calendar year	5	1.5	Annual mean	1st Jan 2010

Table 10-3: Assessment Thresholds from CAFE Directive 2008/50/EC

Pollutant	Limit Value Objective	Averaging Period	Limit Value ($\mu g/m^3$)	Basis of Application of Limit Value
SO_2	Upper assessment threshold for the protection of Human Health	24 hours	75	Not to be exceeded more than 3 times in a calendar year
SO_2	Lower assessment threshold for the protection of human health	24 hours	50	Not to be exceeded more than 3 times in a calendar year
NO_2	Upper assessment threshold for the protection of human health	1 hour	140	Not to be exceeded more than 18 times in a calendar year
NO_2	Lower assessment threshold for the protection of human health	1 hour	100	Not to be exceeded more than 18 times in a calendar year
PM_{10}	Upper assessment threshold	24 hours	35	Not to be exceeded more than 35 times in a calendar year

Pollutant	Limit Value Objective	Averaging Period	Limit Value ($\mu g/m^3$)	Basis of Application of Limit Value
PM_{10}	Lower assessment threshold	24 hours	25	Not to be exceeded more than 35 times in a calendar year
Pb	Upper assessment threshold	Calendar Year	0.35	-
Pb	Lower assessment threshold	Calendar Year	0.25	-
CO	Upper assessment threshold	8 hours	7000	-
CO	Lower assessment threshold	8 hours	5000	-
C_6H_6	Upper assessment threshold	Calendar Year	3.5	-
C_6H_6	Lower assessment threshold	Calendar Year	2	-

$O_3$is set out differently in the CAFE Directive in that it sets target values and long-term objectives for O_3 rather than limit values. Table 10-4 presents the target values and long-term target value for $O_3$and Table 10-5 details the threshold values for O_3.

Table 10-4: Target values for O_3defined in CAFE Directive

Objective	Parameter	Target Value for 2010	Long- term Objective
Protection of human health	Maximum daily 8-hour mean	120 $\mu g/m^3$ not to be exceeded more than 25 days per calendar year averaged over 3 years	120 $\mu g/m^3$
Protection of vegetation	AOT40* calculated from 1-hour values from May to July	18,000 $\mu g/m^3.h$ averaged over 5 years	6,000 $\mu g/m^3.h$

* AOT40 is a measure of the overall exposure of plants *to O3.* It is the sum of the excess hourly concentrations greater than 80 µg/m3 and is expressed as µg/m3 hours.

Table 10-5: Threshold for O_3Defined in CAFE Directive (source: https://airquality.ie/information/air-quality-standards and Directive 2008/50/EC)

Pollutant	Averaging Period	Threshold
Information Threshold	1-hour average	180 $\mu g/m^3$
Alert Threshold	1-hour average	240 $\mu g/m^3$

10.2.2.1 Air Quality and Health

In October 2026 the Environmental Protection Agency (EPA) published '*Air Quality in Ireland 2025*'[6] which reports that air quality in Ireland is generally good and met the EU's 2025 legal air quality limits. Air quality has improved, with pollutants decreasing over the last 20 years. Continued progress will allow Ireland to achieve stricter 2030 limits under the EU Ambient Air Quality Directive. Air pollution remains Europe's greatest environmental health risk (EEA, 2026[7]). In Ireland, despite meeting the air quality limits there are around 1,500 premature deaths a year linked to air pollution. Fine $PM_{2.5}$ and PM_{10} from solid fuel combustion and NO_2 from vehicle emissions are the main pollutants of concern. People's health and the health of our environment is impacted by these pollutants. Ireland's most recent air quality measures in 2025 show that Ireland is meeting the legal limits set by the EU, however Ireland is not meeting the stricter health guidelines from the WHO.

The European Environmental Agency (EEA) Report, '*Air Quality in Europe 2022*'[8] report highlights the negative effects of air pollution on human health. The report assessed that poor air quality in Europe accounted for premature deaths of approximately 238,000 people in the 27 EU Member States in 2020. In 2020 in the European Union, 96% of the urban population was exposed to levels of fine particulate matter above the health-based guideline level set by the World Health organisation. Furthermore, in 2020 damaging levels of nitrogen deposition to ecosystems were exceeding in 75% of the total ecosystems that are in the EU-27. This represents a fall of 12% since 2005. The estimated effects on the population in Europe of exposure to NO_2 and O_3 concentrations in 2020 were around 49,000 and 24,000 premature deaths, respectively. From this, 490 Irish deaths were attributable to $PM_{2.5}$, 50 Irish deaths were attributable to NO_2, and 70 Irish deaths were attributable to O_3. These figures are further informed by the EEA publication of 'Ireland – air pollution country fact sheet 2024' on 10th December 2024[9]. This states that 530 Irish deaths were attributable to $PM_{2.5}$, 100 Irish deaths were attributable to NO_2 and 240 Irish deaths were attributable to O_3.

The EEA published a briefing on '*Europe's Air Quality Status*' in April 2026[10]. This briefing presented the status of concentrations of pollution in ambient air in 2024 and 2025 for regulated pollutants in relation to both EU air quality standards and the 2021 WHO guideline levels. The assessment shows that, despite continuous improvements, exceedances of air quality standards are common across the EU, with concentrations well above the latest WHO recommendations. These emissions, along with others including SO_x are produced during fossil fuel-based electricity generation in various amounts, depending on the fuel and technology used, emissions from industry and power plants, vehicles emissions and transport fuels.

Key messages outlined in the '*Air Quality Status in Europe 2026*' are detailed below:

- Air quality continues to improve, but in up to 20% of monitoring stations in Europe air pollution is still above the current EU air quality standards, especially for PM_{10}, ground-level O_3 and benzo(a)pyrene (BaP).
- While some regions are already meeting the 2030 EU standards, further reductions are still needed across Europe to protect health.
- For most pollutants, concentrations remain well above the levels established by the WHO air quality guideline levels, with more than 9 out of 10 Europeans exposed to air pollution concentrations above those levels.

[6] *Environmental Protection Agency (2026) Air Quality in Ireland 2025.* <https://www.epa.ie/publications/monitoring--assessment/air/Air-Quality-in-Ireland-2025-int.pdf>
[7] *EEA (2026) Air Quality Status in Europe 2026* < https://www.eea.europa.eu/en/analysis/publications/air-quality-status-report-2026>
[8] *European Environment Agency. (2022). Air quality in Europe – 2022 report* <https://www.eea.europa.eu/publications/air-quality-in-europe-2022>
[9] *European Environment Agency (EEA). (2024). Ireland – Air Pollution Country Fact Sheet 2024.* <https://www.eea.europa.eu/en/topics/in-depth/air-pollution/air-pollution-country-fact-sheets-2024/ireland-air-pollution-country-fact-sheet-2024>
[10] *EEA (2026) Air Quality Status in Europe* <https://www.eea.europa.eu/en/analysis/publications/air-quality-status-report-2026>

- Reducing air pollution reduces impacts on health and associated economic costs such as healthcare and absenteeism caused by pollution-related illnesses.

The Office of Energy Efficiency and Renewable Energy in the United States published an article on August 21, 2024, entitled '*How Wind Can help Us Breathe Easier*.'[10] This article details the carbon dioxide (CO_2) emissions from different energy sources over the entire lifespan of the technology. It was found that wind energy produces around 11 grams of CO_2 per kilowatt-hour (g CO_2/kWh) of electricity generated, compared with about 980 g CO_2/kWh for coal and roughly 465 g CO_2/kWh for natural gas. That makes coal's carbon footprint almost 90 times larger than that of wind energy, and the footprint of natural gas more than 40 times larger than wind. During combustion of high-emitting energy sources, other air pollutants, i.e., NO_x and SO_2, are also released into the atmosphere. This results in the emission of pollutants that can cause adverse health effects, including asthma, bronchitis, lower and upper respiratory symptoms, and heart attacks. According to the WHO, ambient (outdoor) air pollution (2024)[11] is estimated to have caused approximately 4.2 million premature deaths worldwide in 2019, primarily as a result of cardiovascular and respiratory diseases, including ischaemic heart disease, stroke, chronic obstructive pulmonary disease, lung cancer and acute respiratory infections.

A 2024 EPA report *'Ireland's State of the Environment Report'* [12] states that the pollutants of most concern are $PM_{2.5}$., NO_2 and Ammonia (NH_3). The EPA 2024 report goes on to state that:

> *"The planned transition to more renewable energy sources, and away from combustion-sourced heating systems to electrification, is a shift that could see greenhouse gas emissions from industry significantly decrease.*
>
> *As a consequence of meeting these growing demands primarily with oil, natural gas, coal and peat, our energy system is highly dependent on fossil fuels. Ireland has made some progress in transforming the electricity system through the deployment of wind farms, with renewable energy currently providing more than 40% of electricity used. However, electricity represents only one-fifth of Ireland's energy use, and our transport and heating systems remain heavily reliant on fossil fuel systems, with lock-ins that need to be addressed.*
>
> *While Ireland's renewable energy share has increased from 10.7% in 2018 (reported in the last State of the Environment Report) to 13.1% in 2022, this is the lowest level in the EU (well below the EU average of 23.0%), and Ireland is not on track to meet the EU-wide binding target of 42.5% renewable energy share by 2030. Reaching the target of 80% renewable electricity by 2030, while ensuring a stable energy supply, will require new capacity, a more flexible grid and increased interconnectivity (EC, 2024)*
>
> *Established technologies, such as wind energy, solar photovoltaics and bioenergy, will be key in meeting short-term emission reduction targets (i.e., 2030), whereas significant growth in offshore wind infrastructure is expected to be the key essential element of future energy systems."*

The EPA published a report, entitled '*Ireland's Air Pollutant Emissions Trends and Outlook 2026*'[13] providing details of emissions of air pollutants in Ireland in the period 1990 to 2024, and projected emissions of these pollutants from 2025 to 2030. The key findings of the report with respect to assessment of targets are:

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[10] *Office of Energy Efficiency and Renewable Energy (2023) How Wind Can Help Us Breathe Easier <https://www.energy.gov/eere/wind/articles/how-wind-can-help-us-breathe-easier>*
[11] *Ambient (outdoor) air pollution (WHO, 2024): Ambient (outdoor) air pollution*
[12] *Ireland's State of the Environment Report, EOA (2024): https://www.epa.ie/publications/monitoring--assessment/assessment/state-of-the-environment/EPA-SOE-Report-2024-BOOK-LOWRES.pdf*
[13] *EPA (2026) Ireland's Air Pollutant Emissions Trends and Outlook 2026 <https://www.epa.ie/publications/monitoring--assessment/climate-change/air-emissions/irelands-air-pollutant-emissions-trends-and-outlook-2026.php>*

- Ireland is compliant with current and future emission reduction commitments for four out of five key air pollutants: SO_2, NO_x, NH_3, and PM2.5, which are projected to meet the 2030 commitments under all scenarios. However, emissions of non-methane volatile organic compounds (NMVOCs) remain above the applicable reduction commitment and are projected to continue exceeding the 2030 target under certain scenarios. Consistent implementation of existing and planned national policies and measures will be required to achieve and maintain compliance with emission reduction commitments.
- Since 1990, key pollutants associated with acid rain have reduced dramatically, with SO_2 levels down 96%, and NO_x down by 67%. Pollutants that negatively impact human health such as particulate matter and non-methane volatile organic compounds, are also down by 67% and 32%, respectively.
- For the third year in succession (2022-2024) emissions of NH_3 remain in compliance with the 2020-2029 emission reduction commitments, being 5% below the 2005 baseline compared to the 1% reduction target

The Proposed Project therefore represents an opportunity to further harness Ireland's significant renewable energy resources, with valuable benefits to air quality and in turn to human health. The consumption of fossil fuels for energy results in the release of particulates, SO_2 and NO_2 to the air. The use of wind energy, by providing an alternative to energy derived from coal, oil or gas-fired power stations, results in emission savings of CO_2, oxides of nitrogen (NO_x), and SO_2, thereby resulting in cleaner air and associated positive health effects.

Whilst there is the potential for minor emissions to be generated from the construction, operational and decommissioning phases of the Proposed Project, mitigation measures will be implemented at this site to reduce the impact from dust and vehicle emissions, which are discussed in Section 10.3 below.

10.2.2.1.1 *Clean Air Strategy Ireland 2023*

Ireland's Clean Air Strategy 2023[14] sets out the detail of seven strategic frameworks that will be used to ensure that air quality continues to improve (Figure 10-4). The aims of these key strategic frameworks are:

- To set the appropriate targets and limits to ensure continuous improvements in air quality across the country and to deliver health benefits for all.
- To ensure the integration of clean air considerations into policy development across Government.
- To increase the evidence base that will help Ireland to continue to evolve its understanding of the sources of pollution and their impacts on health, in order to address them more effectively.
- To enhance regulation required to deliver improvements across all pollutants.
- To improve the effectiveness of our enforcement systems.
- To promote and increase awareness of the importance of clean air, and the links between cleaner air and better health.
- To develop the additional targeted/specific policy measures as required to deal with national or local air quality issues.

Since the publication of the Clean Air Strategy 2023, the Clean Air Strategy for Ireland '*First Progress Report 2024*'[15] was released. This report detailed the significant progress that has been made on the actions in the strategy since its publication in April 2023. The key takeaways that have been implemented since the publication of the strategy include the operational use of the Air Pollution Act

[14] *Rialtas na hÉireann Clean Air Strategy April 2023.* <https://www.gov.ie/en/publication/927e0-clean-air-strategy/#:~:text=The%20Clean%20Air%20Strategy%20provides,delivering%20on%20wider%20national%20objectives.>
[15] *Clean Air Strategy For Ireland First Progress Report 2024.* < https://assets.gov.ie/static/documents/clean-air-strategy-for-ireland-first-progress-report.pdf >

1987 (Solid Fuels), while it is too early to say the exact impact that these regulations have had on air quality, initial indications from the EPA are that there have been significant air quality improvements made in areas prone to burning solid fuels. The Clean Air Strategy 2023 saw a push for the submission of Ireland's second National Air Pollution Control Programme, which was completed in May 2024, and the development of new public awareness campaigns. The Clean Air Strategy 2023 has furthermore increased the frequency and financial supports given to local authorities to conduct sulphur testing.



Figure 10-4: Seven Strategic Frameworks for Air Quality, with associated chapters in brackets. Reproduced as Figure 1 from Clean Air Strategy 2023

Chapter 11 of the Clean Air Strategy 2023 discusses Air Quality Policy Development. The chapter discusses energy policy and acknowledges how the State's accelerated transition to renewable electricity will be critical to successfully meeting the ambitious renewable energy and greenhouse gas emission reduction targets outlined in the European Green Deal and Ireland's Climate Action Plan 2025, as well as to protecting against security of supply risks and removal of fossil fuels from power generation. Wind (offshore and onshore) and solar energy will be the leading cost-effective technologies to achieve Ireland's energy and emissions targets, as well as displacing emissions in other sectors, including household heating and vehicle transport. In the Clean Air Strategy 2023, the Climate Action Plan 2023 is referenced, while Climate Action Plan 2025 is currently the latest revision. The targets of the Climate Action Plan 2025 and the Green Deal are to deliver net-zero greenhouse gas emissions by 2050 and reduce greenhouse gas emissions to at least 55% by 2030, compared to 1990 levels.

The Proposed Project supports Ireland's Clean Air Strategy generating clean wind energy and facilitating the connection of this clean energy to the national grid, thus helping to cut air pollution, improve public health, and meet national air and climate goals.

Kildare County Development Plan 2023–2029

The Kildare County Development Plan 2023–2029[16] (KCDP) sets out policies and objectives to support improvements in air quality and the transition to a low-carbon economy. The KCDP promotes renewable energy development, including wind energy, as part of its climate action strategy to reduce greenhouse gas emissions and improve ambient air quality.

[16] *Kildare County Development Plan 2023 - 2029 - Kildare County Council*

The KCDP includes objectives to:

- Support the development of renewable energy infrastructure, including wind energy, in appropriate locations;
- Promote a reduction in emissions from energy generation and transport sources;
- Support national climate policy and the Clean Air Strategy for Ireland; and
- Protect and improve air quality in accordance with EU Directives and national legislation.

The Proposed Project will assist in the achievement of these objectives through the provision of renewable energy, supporting improved air quality at a regional and national level. Refer to Section 2.6 of Chapter 2 of this EIAR for more details.

Kildare County Council Local Authority Climate Action Plan 2024- 2029

The Kildare County Council (KCC) Local Authority Climate Action Plan 2024–2029[17] (Kildare LACAP) was published in January 2024 and outlines the county's pathway towards a low-carbon, climate-resilient future. The plan sets out the actions to be delivered by KCC, businesses, communities and citizens in response to climate challenges, consistent with the national climate objective of achieving a climate-neutral economy by 2050 with the 2023 Strategic Environmental Assessment (SEA) statement identifying that the KCDP '*comprises a range of climate change adaptation objectives relating to the promotion of renewable energies, sustainable transport, energy reduction etc. These objectives will likely result in a positive impact on air quality and climate change mitigation*'.[18]

The Kildare LACAP aims to create a low-carbon and climate-resilient County Kildare, with due consideration given to air quality objectives, by embedding climate action across all council functions and by strengthening the county's capacity to adapt to climate change. Refer to Section 11.2.3.2 of Chapter 11 for further detail on the Kildare LACAP.

Once operational, the Proposed Project will contribute to the objectives of the Kildare LACAP by enabling additional renewable electricity to be supplied to the national grid, thereby lowering the carbon intensity of Ireland's power generation mix and associated emission of air pollutants. This supports emissions reductions and air quality improvements not only within Kildare's own operational estate but also across broader sectors such as transport, industry and residential energy use. Further detail on the carbon savings associated with the Proposed Project is provided in Section 11.4.3.2 of Chapter 11 Climate of this EIAR.

Offaly County Development Plan 2021–2027

The Offaly County Development Plan 2021–2027[19] (OCDP) includes a range of policies and objectives relating to climate action, renewable energy and air quality management. The OCDP recognises the need to reduce emissions associated with energy production and supports the transition to cleaner energy sources with the SEA statement identifying that '*it is an objective of the Council to reduce harmful emissions and achieve and maintain good air quality for the county.*'[20]

Key objectives of the OCDP include:

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[17] *Kildare Local Authority Climate Action Plan 2024-2029 (2024). Available at: https://kildarecoco.ie/AllServices/ClimateAction/KildareCountyCouncilClimateActionPlan2024-2029/LocalAuthorityClimateActionPlan20242029.pdf*

[18] *Kildare County Development Plan SEA Statement (2023) https://kildarecoco.ie/AllServices/Planning/DevelopmentPlans/KildareCountyDevelopmentPlan2023-2029/EnvironmentalReports/SEA%20Statement%20%20final20230123.pdf*

[19] *Stage 4 Final Plan - Offaly County Council*

[20] *Offaly County Development Plan SEA Statement (2021) https://www.offaly.ie/app/uploads/Council/Council_Services_A-Z/Planning_Building/SEA-Statement.pdf*

- Supporting the development of renewable energy projects, including wind energy, to reduce reliance on fossil fuels;
- Promoting climate mitigation measures that contribute to improved air quality;
- Supporting compliance with national and EU ambient air quality standards; and
- Encouraging sustainable land use and energy practices that minimise emissions.

The Proposed Project is consistent with these objectives, as it represents a low-emission energy source that contributes to reduced air pollutant emissions and supports national and regional climate and air quality targets. Refer to Section 2.3 of Chapter 2 of this EIAR for more details.

Offaly County Council Local Authority Climate Action Plan 2024-2029

The Offaly County Council Local Authority Climate Action Plan 2024-2029[21] (Offaly LACAP) was adopted in February 2024 and published in April of the same year.

The Offaly LACAP highlights the current state of climate action in Ireland, and how OCC intends to deliver, with due consideration to air quality objectives, and enable climate action for a just transition to a low carbon and climate resilient future within the county. The Offaly LACAP will help address the mitigation of greenhouse gases, the implementation of climate change adaption measures, and will strengthen the alignment between national climate policy and the delivery of effective local climate action. Refer to Section 11.2.3.1 of Chapter 11 for further detail on the Offaly LACAP.

Once operational, the Proposed Project will assist in reducing greenhouse gas emissions by enabling renewable energy to be fed into the national grid, thereby reducing the overall carbon intensity of Ireland's electricity supply. This will, in turn, support the decarbonisation of other energy intensive sectors, i.e., transport and agriculture. Further detail on the carbon savings associated with the Proposed Project is provided in Section 11.4.3.2 of Chapter 11 Climate of this EIAR.

10.2.3 Methodology

The methodology adopted for the air quality assessment has been informed by relevant national and international guidance, including the EPA Draft Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA, 2022), the IAQM Guidance on the Assessment of Dust from Demolition and Construction (2024), and the TII Air Quality Assessment Guidance (2022).

The Air Quality Study Area represents the primary study area for this assessment and has been used to characterise the baseline environment and assess potential air quality effects arising from all components of the Proposed Project.

In addition, the Dust Study Area and Ecological Dust Study Area are nested within, and form part of, the broader Air Quality Study Area. These secondary study areas have been defined for specific assessment purposes only, namely the assessment of dust-related effects on human receptors and ecological receptors, respectively, in accordance with IAQM (2024) guidance.

The assessment has been undertaken using a combination of desk-based review and qualitative assessment techniques and comprises the following key elements:

- **Baseline Assessment:** Review of existing ambient air quality in the Air Quality Study Area using available data sources, including EPA monitoring data, published reports, baseline air quality information for the relevant air quality zone and available air quality and dust monitoring data associated with IPC Licence P0503-01. This includes consideration of key pollutants such as NO_2, PM_{10}, $PM_{2.5}$, SO_2, CO and O_3.

[21] *Offaly County Council Climate Action Plan 2024-2029 (2024). Available at: <https://www.offaly.ie/app/uploads/Offaly-CoCo-Climate-Action-Phase-Two-English-Digital-.pdf>*

- **Future Baseline:** Review of air quality projections within the Air Quality Study Area using available data sources, including EPA projection reports. This includes consideration of key pollutants such as NO_2, PM_{10},$PM_{2.5}$, SO_2, CO and O_3.
- **Identification of Sensitive Receptors:** Identification of nearby sensitive receptors within the Air Quality Study Area that may be affected by changes in air quality arising from the Proposed Project.
- **Traffic:** Review of construction and operational traffic associated with the Proposed Project to determine the potential for traffic-related air quality effects. Traffic data has been assessed against the relevant screening criteria set out in the TII Air Quality Assessment Guidance (2022) to determine whether a detailed traffic-related air quality assessment is required.
- **Construction Phase Assessment:** Assessment of potential air quality effects during construction, with particular regard to dust emissions and exhaust emissions from construction plant and construction-related traffic within the Air Quality Study Area. This assessment has been carried out in accordance with the IAQM (2024) guidance.
    - The traffic assessment on dust and exhaust emissions has been informed by the traffic and transportation movements identified in Section 15.1.14 of Chapter 15 Material Assets with consideration given to the Air Quality Assessment of Proposed National Roads – Standard PE-ENV-01107' (Transport Infrastructure Ireland, December 2022 (2022)).
- **Operational Phase Assessment:** Consideration of potential air quality impacts during the operational phase of the Proposed Project, including emissions associated with operational traffic, within the Air Quality Study Area. The assessment has been informed by the TII (2022) guidance, where applicable.
- **Decommissioning Phase:** Consideration of potential air quality impacts arising during the decommissioning phase, including dust generation from site clearance and excavation works, and exhaust emissions from plant, machinery and decommissioning-related traffic within the Air Quality Study Area. The assessment assumes that decommissioning activities will be broadly similar in nature to construction activities but of shorter duration and reduced scale and has therefore been informed by IAQM (2024) guidance, where applicable.
- **Mitigation and Residual Effects:** Identification of appropriate mitigation measures, where required, and evaluation of residual effects in accordance with EPA significance criteria.

The assessment is proportionate to the nature and scale of the Proposed Project, recognising that wind energy developments are not typically associated with significant air pollutant emissions during operation.

10.2.3.1 Air Quality Zones

As part of the baseline characterisation, the Proposed Project has been considered within the context of the applicable air quality zone, as defined under the Air Quality Standards Regulations 2022 (S.I. No. 739 of 2022). For the purposes of air quality assessment and management, Ireland is divided into a number of zones and agglomerations, which are used to facilitate the monitoring, assessment and reporting of ambient air quality in accordance with EU requirements.

The air quality zone encompassing the Proposed Project was determined following a desktop assessment and site visit which confirmed the rural setting to the area within which the Proposed Project is located. This work was supplemented by a review of EPA collated baseline air quality data namely SO_2, PM_{10}, $PM_{2.5}$, NO_2, (CO and O_3 for the determined air quality zone to determine the representative levels of such emissions for the Project Site.

The EPA has designated four Air Quality Zones for Ireland:

- Zone A: Dublin City and environs

- Zone B: Cork City and environs
- Zone C: 16 urban areas with population greater than 15,000
- Zone D: Remainder of the country.

These zones were defined to meet the criteria for air quality monitoring, assessment and management described in the CAFE Directive. The EPA publishes Air Monitoring Station Reports for monitoring locations in all four Air Quality Zones. The most recent report on air quality in Ireland, 'Air Quality in Ireland 2024' was published by the EPA in 2025. The EPA reports provide SO_2, PM_{10}, NO_2 and O_3 concentrations for areas in Zone D. These are detailed in the Baseline Air Quality Section 10.2.4 below.

630000
660000
690000
750000
720000
690000

N

Bunbrosna
Delvin
Balreask Old
Ballymahon
Trim
Mullingar
Westmeath
Ballivor
Dunshaughlin
Ballymore
Summerhill
Kinnegad
Enfield
Kilbeggan
Eudeuerry
Clane
Ferbane
Tullamore
Geashill
Kill
Naas
Kildare
Newbridge
Offaly
Clonaslee
Portlaoise
Athy
Stratford
Laois
Ballylinan
Sliabh Bloom Mountains
Silver River
Tang River
Grand Canal

R392 R394 R3 M3 N55 R392 R154 R161 R159 M4 R125 N52 R446 R391 200 m M6 N62 R400 R402 225 m R401 R436 R420 R422 R421 R419 N52 N62 N80 R423 R411 R413 E20 N81 R440 485 m R448 263 m 640 m N80 N78 R445 654 m 298 m R445

0 5 10 20 30 40 Kilometers

Legend

- Project Site
- Air Quality Study Area

AIR Zones

- ZoneA
- ZoneB
- ZoneC
- ZoneD

Spatial Reference
Name: WGS 1984 Web Mercator Auxiliary Sphere
Datum: WGS 1984
Projection: Mercator Auxiliary Sphere

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N

SITE LOCATION - NOT TO SCALE

Drawing Title
Air Quality Zones surrounding the Air Quality Study Area

Project Title
Ballydermot Wind Farm
Co. Offaly & Co. Kildare

Project No.	Drawing No.	Scale
250708	10-5	1:465,661
Drawn By	Checked By	Date
LPM	EC	14/10/2026

MKO
Email: info@mkoireland.ie/ Website: www.mkoireland.ie

10.2.3.2 Air Quality Data Review

10.2.3.3 Dust

The Institute of Air Quality Management in the UK (IAQM) guidance document '*Guidance on the Assessment of Dust from Demolition and Construction*'[22](2024) (hereafter referred to as 'IAQM 2024 Guidance') was considered in the dust impact assessment. The guidance document 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. This methodology has been used to predict the likely risk of dust as a result of the construction phase works, operational phase activities and decommissioning phase. The use of IAQM 2024 Guidance is considered best practice in the absence of applicable Irish guidance. The major dust generating activities are divided into four types within the IAQM 2024 Guidance to reflect their different potential impacts. These are:

- Demolition (demolition of 2 no. existing clear-span bridges)
- Earthworks;
- Construction;
- Trackout[23]

The magnitude of dust generating activities is divided into 'Large', 'Medium' or 'Small' scale depending on the nature of the activities involved. IAQM 2024 Guidance provides example definitions for the scale of the activities, and these are applied for this Proposed Project as outlined in Table 10-6. Refer to Table 10-7 below for the IAQM 2024 Guidance as applied to the Proposed Project infrastructure located within the Dust Study Area.

Table 10-6: Description of magnitude for nature of activities (IAQM, 2024)

	Large	Medium	Small
Demolition	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	Total building volume 12,000 m^3 – 75,000 m^3, potentially dusty construction material, demolition activities 6-12m above ground level	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
Earthworks	Large: 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	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 3m - 6m in height	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

[22] *IAQM (2024) Guidance on the Assessment of Dust from Demolition and Construction. Available at: https://iaqm.co.uk/wp-content/uploads/2013/02/Construction-Dust-Guidance-Jan-2024.pdf*

[23] *The transport of dust and dirt from the Project Site onto the public road network, where it may be deposited and then re-suspended by vehicles using the network. This arises when Heavy Goods Vehicles (HGVs) and/or Heavy-Duty Vehicles (HDV) leave the construction / demolition site with dusty materials, which may then spill onto the road, and/or when HGVs/HDVs transfer dust and dirt onto the road having travelled over muddy ground on site.*

	Large	Medium	Small
Construction	Total building volume >75,000 m^3, on site concrete batching, sandblasting	Total building volume 12,000 m^3 – 75,000 m^3, potentially dusty construction material (e.g., concrete), on site concrete batching	Total building volume <12,000 m^3, construction material with low potential for dust release (e.g., metal cladding or timber)
Trackout	>50 HDV* (>3.5t) outward movements in any one day, potentially dusty surface material (e.g. high clay content), unpaved road length >100 m	20-50 HDV (>3.5t) outward movements in any one day, moderately dusty surface material (e.g., high clay content), unpaved road length 50 m – 100 m	<20 HDV (>3.5t) outward movements in any one day, surface material with low potential for dust release, unpaved road length <50 m
	Note: A vehicle movement is a one-way journey, i.e., from A to B and excludes the return journey. HDV movements during a construction project vary over its lifetime, and the number of movements is the maximum not the average. ** A HDV is a heavy-duty vehicle with a gross weight greater than 3.5 tonnes.*		

Construction details to inform the classification of the demolition, earthworks, construction and trackout for Proposed Project infrastructure as either 'Large', 'Medium', or 'Small' were sourced from Chapter 4: Description of the Proposed Project, Chapter 15: Material Assets (Traffic and Transport), and the Peat and Spoil Management Plan (PSMP) (Appendix 4-3). Table 10-7 below shows the various dust generating activities within the Dust Study Area.

Table 10-7: IAQM 2024 Guidance applied to the Proposed Project infrastructure located within the Dust Study Area

Proposed Project		Demolition	Earthworks	Construction	Trackout	Relevant EIAR Section
Proposed Wind Farm	Large		✓	✓	✓	Section 10.3.2.2 below Traffic movements detailed in Section 15.1.8
	Medium	✓				
	Small					
Proposed Onsite Substation, Proposed Offsite Substation, and overhead line (OHL) cabling	Large	N/A	✓	✓	✓	Section 10.3.2.2 below Traffic movements detailed in Section 15.1.8
	Medium					
	Small					
Proposed Grid Connection	Large	N/A		✓		Section 10.3.2.2 below
	Medium		✓		✓	

(underground 220kV cabling)	Small					Traffic movements detailed in Section 15.1.8
Proposed Enhancement Area	Large	N/A	✓	N/A		Section 10.3.2.2 below Biodiversity Management Plan in Appendix 6-5
	Medium					
	Small				✓	
Proposed Construction Haul Routes	Large	N/A	N/A	N/A	✓	Section 10.3.2.2 below Traffic movements detailed in Section 15.1.10
	Medium					
	Small					
Proposed Turbine Delivery Route	Large	N/A				Section 10.3.2.2 below Traffic movements detailed in Section 15.1.8
	Medium				✓	
	Small		✓	✓		

The magnitude of each activity is combined with the overall sensitivity of the area to determine the risk of dust impacts from site activities.

10.2.3.3.1 *Defining the Sensitivity of the Area*

For the purposes of this assessment, high-sensitivity receptors are residential properties and dust sensitive ecological habitats. 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[24].

The IAQM 2024 Guidance has outlined three types of effects to be considered:

- Sensitivities of People to Dust Soiling Effects
- Sensitivities of People to the Health Effects of PM_{10}

[24] *Refer to Section 7.3 (pg. 18) of the 2024 IAQM Guidance on the assessment of dust from demolition and construction (https://iaqm.co.uk/wp-content/uploads/2013/02/Construction-Dust-Guidance-Jan-2024.pdf) for full definitions of high, medium, and sensitive receptors for each of the three types of effects being considered*

› Sensitivities of Receptors to Ecological Effects

Sensitivities of People to Dust Soiling Effects

Dust soiling effects can occur for a distance of 250m from works areas, but the majority of deposition occurs within the first 50m (IAQM, 2024). Table 10-8 below identifies the sensitivity of an area to dust soiling effects on people and their properties, relative to different receptor sensitivities as per the IAQM (2024).

Table 10-8: Sensitivity of the Area to Dust Soiling Effects on People and Property. Guidance on the Assessment of Dust from Demolition and Construction (IAQM, 2024)

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

Sensitivities of People to the Health Effects of PM_{10}

When assessing sensitivity of people to the health effects of PM_{10}, the IAQM 2024 Guidance recommends the use of sensitivities bands based on whether or not the receptor is likely to be exposed to elevated concentrations of PM_{10} over a 24-hour period. Table 10-9 below identifies the sensitivity of an area to human health effects of PM_{10}, relative to different receptor sensitivities.

Table 10-9: Sensitivity of the Area to Human Health Impacts. Guidance on the Assessment of Dust from Demolition and Construction (IAQM, 2024)

Receptor Sensitivity	Annual Mean PM_{10} concentration	Number Of Receptors	Distance from source (m)			
			<20	<50	<100	<250
High	>32 µg/m^3	>100	High	High	High	Medium
		10-100	High	High	Medium	Low
		1-10	High	Medium	Low	Low
	28-32 µg/m^3	>100	High	High	Medium	Low
		10-100	High	Medium	Low	Low
		1-10	High	Medium	Low	Low
	24-28 µg/m^3	>100	High	Medium	Low	Low
		10-100	High	Medium	Low	Low
		1-10	Medium	Low	Low	Low
	<24 µg/m^3	>100	Medium	Low	Low	Low
		10-100	Low	Low	Low	Low

Receptor Sensitivity	Annual Mean PM_{10} concentration	Number Of Receptors	Distance from source (m)			
			<20	<50	<100	<250
		1-10	Low	Low	Low	Low
Medium	>32 µg/m^3	>10	High	Medium	Low	Low
		1-10	Medium	Low	Low	Low
	28-32 µg/m^3	>10	Medium	Low	Low	Low
		1-10	Low	Low	Low	Low
	24-28 µg/m^3	>10	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
	<24 µg/m^3	>10	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
Low	-	≥1	Low	Low	Low	Low

Sensitivities of Receptors to Ecological Effects

Dust deposition due to demolition, earthworks, construction and trackout has the potential to physically and chemically affect sensitive habitats and plant communities. Table 10-10 below identifies the sensitivity of an area to ecological impacts.

Table 10-10: Sensitivity of the Area to Ecological Impacts. Guidance on the Assessment of Dust from Demolition and Construction (IAQM, 2024)

Receptor Sensitivity	Distance from source (m)	
	<20	<50
High	High	Medium
Medium	Medium	Low
Low	Low	Low

- There are nine ecological receptors/habitats within the Ecological Dust Study Area, which as described by the IAQM 2024 Guidance, may be sensitive to dust. This ecologically sensitive habitat and its designation is listed below:
    - Raised bog - High Sensitivity
    - Red-Listed Plant Species – High Sensitivity
    - Marsh fritillary suitable habitat – High Sensitivity
    - Cutover bog – High Sensitivity.
    - The Long Derries, Edenderry Special Areas of Conservation (SAC) located adjacent to the Proposed Wind Farm – High sensitivity.
    - Portion of the Grand Canal Proposed Natural Heritage Area (pNHA) (site code 002104) is located along the Proposed Grid Connection underground electrical cabling route – High Sensitivity.

- Crabtree River, Glashabaun River, Duke's River and Figile River Flows within the Project Site – High Sensitivity.
- Killinthomas Wood is located adjacent to the southern boundary of the Project Site – Medium Sensitivity;
- Ballynafagh Lake SAC is located along the Proposed Grid Connection Route underground electrical cabling route – High Sensitivity.

The Proposed Grid Connection involves 11 no. watercourse crossings, including the crossing of the Grand Canal (high sensitivity).

Approximately 140m of the Proposed Grid Connection underground electrical cabling route crosses the Grand Canal pNHA via Horizontal Directional Drilling (HDD) beneath the canal along the R414 and R403. Approximately 27m of the Proposed Grid Connection underground electrical cabling route crosses through the Ballynafagh Lake SAC along the R403 which is considered to have a high sensitivity' the entirety of the interaction with the Ballynafagh SAC is contained within the public road corridor.

It is identified that Ballynafagh Lake SAC, Charleville Woods pNHA and Charleville Woods SAC are located adjacent to the Proposed Construction Haul Routes along the R403 and N52 respectively. The Daingean Bog National Heritage Areas (NHA) is located adjacent to the Proposed Turbine Delivery Route along the R402. The above-mentioned ecological receptors are along national and regional roads, and with the exception of Ballynafagh Lake SAC, all aforementioned sites will not be subject to any works and therefore have been screened out of the Ecological Dust Study Area.

The above identified sensitive ecological receptors have been assessed within Chapter 6 Biodiversity, Chapter 9: Water, and the Natura Impact Statement (NIS). These receptors sensitivity to dust are assessed below in Section 10.3.2.2.

10.2.3.3.2 Defining the Risk of Impacts

The dust emission magnitude is combined with the sensitivity of the area to determine the risk of impacts with no mitigation applied. The matrix in Table 10-11 and Table 10-12 provides a method of assigning the level of risk for each activity.

Table 10-11: Risk of Dust Impacts for Earthworks, Construction, Trackout (IAQM, 2024)

Sensitivity of Area	Dust Emission Magnitude		
	Large	**Medium**	**Small**
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible

Table 10-12: Risk of Dust Impacts for Demolition (IAQM, 2024)

Sensitivity of Area	Dust Emission Magnitude		
	Large	**Medium**	**Small**
High	High Risk	Medium Risk	Medium Risk
Medium	High Risk	Medium Risk	Low Risk
Low	Medium Risk	Low Risk	Negligible

The risk of dust impacts for the Demolition, Earthworks, Construction and Trackout activities arising from the Proposed Project is set out in Section 10.3 below.

EPA classification terminology as presented in Table 1-2 of Chapter 1 of this EIAR (and in Table 10-13 below) have been correlated with the equivalent risk rating from Table 10-11 and Table 10-12 above. The correlation between the two guidance documentations has been determined based on professional judgement and detailed review of both the EPA classification terminology and IAQM risk ratings.

Table 10-13: Correlation of Impact Classification Terminology (EPA, 2022) to Risk Rating (IAQM, 2024)

EPA Term (EPA, 2022)	EPA Description (EPA, 2022)	Risk Rating (IAQM, 2024)
Imperceptible	An effect capable of measurement but without significant consequences	Negligible
Not Significant	An effect which causes noticeable changes in the character of the environment but without significant consequences	Low
Slight	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities	
Moderate	An effect that alters the character of the environment in a manner consistent with existing and emerging baseline trends	Medium
Significant	An effect, which by its character, magnitude, duration or intensity alters a sensitive aspect of the environment	High
Very Significant	An effect which, by its character, magnitude, duration or intensity, significantly alters most of a sensitive aspect of the environment	
Profound	An effect which obliterates sensitive characteristics	

10.2.4 Baseline Air Quality

The air quality in the vicinity of the Proposed Project within the Air Quality Study Area is typical of rural areas in the midlands of Ireland, i.e., Zone D as detailed in Section 10.2.3.1 above. Refer to Figure 10-5 above which shows the Air Quality Study Zone in the context of Irelands air quality zones. Prevailing south-westerly winds carry clean, unpolluted air from the Atlantic Ocean onto the Irish mainland. The EPA publishes Air Monitoring Station Reports for monitoring locations in all four Air Quality Zones. The most recent report on air quality in Ireland, *'Air Quality in Ireland 2024'* was published by the EPA in September 2025. The EPA reports provide SO_2, PM_{10}, NO_2 and O_3 concentrations for areas in Zone D. These are detailed in the following tables.

10.2.4.1 Sulphur Dioxide (SO_2)

SO_2 data for Cork Harbour, Kilkitt, Askeaton and Edenderry in 2024 is presented in Table 10-14. Monitoring data for SO_2 from the EPA monitoring station at Edenderry, located approximately 2.5 km to the northeast of the Proposed Wind Farm, has been used to inform the baseline assessment, as this station represents the nearest suitable and most representative monitoring location for the Air Quality Study Area.

Table 10-14: SO_2 Data for Zone D Sites in 2024

Parameter	Measurement Across All Zone D Sites	Measurement of Edenderry
Annual Mean	2.8 µg/m^3	3.0 µg/m^3
Hourly values > 350	0	0
Hourly max (Average)	36.2 µg/m^3	33.8 µg/m^3
Daily values > 125	0	0
Daily max (Average)	14.7	12.6

During the EPA monitoring period there were no exceedances of the daily limit values for the protection of human health. As can be observed from Table 10-14 the average maximum hourly value recorded during the assessment period was 36.2 µg/m^3. In addition, there were no exceedances of the annual mean limit for the protection of ecosystems. It is expected, based on professional judgement and the rural setting within which the Air Quality Study Area is located, that SO_2 values at the Proposed Project are similar or lower than those recorded at Edenderry and other Zone D sites above.

10.2.4.2 Particulate Matter (PM_{10})

Sources of particulate matter include vehicle exhaust emissions, dust from soil and road surfaces, construction works and industrial emissions. The '*Air Quality in Ireland 2024'* report provides annual mean PM_{10} concentration for nineteen Zone D towns: Askeaton, Birr, Carnsore, Carrick-on-Shannon, Castlebar, Cavan, Claremorris, Cobh Carrignafoy, Cork Mallow, Edenderry, Enniscorthy, Galway Ballinasloe, Killarney, Kilkitt, Longford, Macroom, Malin Head, Roscommon Town and Tipperary Town. PM_{10} data for 2024 is presented in Table 10-15.

Monitoring data for PM_{10} from the EPA monitoring stations[25] from Zone D sites and Edenderry specifically as this station represents the nearest suitable and most representative monitoring location for the Air Quality Study Area, located approximately 2.5 km to the northeast of the Proposed Wind Farm, has been used to characterise baseline PM_{10} concentrations.

Table 10-15: PM_{10} Data for Zone D Sites in 2024

Parameter	Measurement Across All Zone D Sites	Measurement of Edenderry
Annual Mean	11.5 µg/m^3	15.6 µg/m^3
% Data Capture (Average)	94.0%	98.9 %
Values > 50 ug/m^3	Max 7 (Longford)	Max 5
Daily Max (Average)	49.5 µg/m^3	137.5 µg/m^3

Notes: [1-] PM_{10} daily limit for the protection of human health: No more than 35 days >50 µg/m^3

The Air Quality Standards Regulations 2022 (S.I. No. 739 of 2022) set limit values for PM_{10} for the protection of human health and the daily limit of 50 µg/m^3 was exceeded on a total of 16 days across all monitoring locations, which is lesser than the PM_{10} daily limit for the protection of human health of a max 35 days >50 µg/m^3 applicable from 2005. The greatest number of exceedances occurred at

[25] https://www.epa.ie/publications/monitoring--assessment/air/Summary-Tables-2024-for-Zones-A--D-for-upload-with-report-final.xlsx

Longford where the PM_{10} daily limit was exceeded on 7 no. occasions, with a total of 5 no. exceedances occurring in Edenderry. In the EPA 2025 report, it notes that there were breaches in the levels of PM_{10}, which in Ireland, mainly comes from the burning of solid fuel, such as coal, peat, and wood to heat homes. It is expected, based on professional judgement and the rural setting within which the Air Quality Study Area is located, that PM_{10} values at the Proposed Project are similar or lower than those recorded at Edenderry and other Zone D sites above.

10.2.4.3 Particulate Matter ($PM_{2.5}$)

$PM_{2.5}$ monitoring is undertaken by the EPA at a number of monitoring stations throughout Ireland, including Askeaton, Birr, Carnsore, Carrick-on-Shannon, Cavan, Claremorris, Cobh Carrignafoy, Cork Mallow, Edenderry, Enniscorthy, Galway Ballinasloe, Killarney, Longford, Macroom, Malin Head, Roscommon Town and Tipperary Town. $PM_{2.5}$ data for 2024 is presented in Table 10-16.

The Edenderry monitoring station is the closest EPA $PM_{2.5}$ monitoring station to the Project Site and is therefore considered representative of local background $PM_{2.5}$ concentrations. Monitoring data from the Edenderry station has been reviewed to establish the baseline $PM_{2.5}$ environment within the Air Quality Study Area, located approximately 2.5 km to the northeast of the Proposed Wind Farm and to assess compliance with the applicable air quality standards.

Table 10-16: $PM_{2.5}$ Data for Zone D Sites in 2024

Parameter	Measurement Across All Zone D Sites	Measurement of Edenderry
Annual Mean	7.6 µg/m^3	12.0 µg/m^3
Median (Average)	6.1	9.2
% Data Capture	94.1%	98.9%
Daily Max (Average)	43.4 µg/m^3	135.7 µg/m^3

The Air Quality Standards Regulations 2022 (S.I. No. 739 of 2022) set limit values for $PM_{2.5}$ for the protection of human health and the annual mean limit of 25 µg/m^3 per station. Monitoring data indicate an annual mean $PM_{2.5}$ concentration of 12.0 µg/m^3 at Edenderry, with a data capture rate of 98.9%. This annual mean concentration is below the current EU annual limit value of 25 µg/m^3, indicating good ambient air quality within the study area with respect to $PM_{2.5}$.

Across the monitoring stations within Air Quality Zone D, annual mean $PM_{2.5}$ concentrations ranged from 4.9 µg/m^3 at Askeaton to 12.0 µg/m^3 at Edenderry, with all monitored locations recording concentrations below the applicable air quality limit value. This indicates that $PM_{2.5}$ concentrations within the Air Quality Study Area are representative of the generally good air quality conditions observed throughout Zone D.

10.2.4.4 Nitrogen Dioxide (NO_2)

NO_2 data for Emo Court, Birr, Castlebar, Carrick-on-Shannon, Kilkitt, Cork Mallow and Edenderry in 2024 is presented in Table 10-17.

Monitoring data for NO_2 from the EPA monitoring station at Edenderry, located approximately 2.5 km to the northeast of the Proposed Wind Farm, has been used to characterise baseline NO_2 concentrations, as this station represents the nearest suitable and most representative monitoring location for the Air Quality Study Area.

Table 10-17: NO_2 Data for Zone D Sites in 2024

Parameter	Measurement	Measurement of Edenderry
Annual Mean (Average)	8.3 µg/m^3	9.7
NO_2 Values >200	0	0
Values > 140 (UAT)	0	0
Values >100 (LAT)	1	1
Hourly Max. (Average)	68.6 µg/m^3	110.4

The Air Quality Standards Regulations 2022 (S.I. No. 739 of 2022)[26], which transpose Directive 2008/50/EC, set limit values and assessment thresholds for NO_2 for the protection of human health of 40 µg/m^3. The lower assessment threshold of 100 µg/m^3 was exceeded once during the monitoring period in Edenderry, Co. Offaly while the upper assessment threshold of 140 µg/m3 was not exceeded during the monitoring period. The 18-hour limit was not exceeded during the monitoring period. In 2024, no other monitoring locations in Zone D had exceedances in the lower and upper assessment thresholds of 100 and 140 µg/m3. The average hourly max. NO_2 value of 68.6 µg/m^3 measured during the monitoring period was below the hourly max threshold of 200 µg/m^3. It is expected, based on professional judgement and the rural setting within which the Air Quality Study Area is located, that NO_2 values at the Proposed Project are similar or lower than those recorded at Edenderry and the other Zone D sites above.

10.2.4.5 Carbon Monoxide (CO)

Monitoring data for CO is not available for all EPA monitoring stations within Zone D, as CO is not routinely measured at all locations. Accordingly, data from the EPA monitoring station at Birr, which represents the closest location located approximately 59.3km southwest of the nearest Proposed Turbine (i.e., T19) where CO is monitored, has been used to characterise baseline concentrations.

Given the rural nature of the Proposed Project and the absence of significant local sources of CO emissions, the data recorded at Birr is considered to be representative of baseline conditions at the Air Quality Study Area.

Due to operational issues at the Birr station, there is no 2024 data. The baseline air quality will therefore utilise the '*Air Quality in Ireland 2023*'[27] data. The Air Quality in Ireland 2023 report provides rolling 8-hour CO concentrations for Birr, a Zone D site. CO data for 2023 is presented in Table 10-18.

Table 10-18: CO Data for Birr - Zone D Site in 2023

Parameter	Measurement of Birr
Annual Mean	0.6 mg/m^3
Median	0.6 mg/m^3
% Data Capture	99.8%

[26] Ambient Air Quality Standards Regulations 2022 (S.I. No. 739/2022): https://www.irishstatutebook.ie/eli/2022/si/739/made/en/print

[27] *Air Quality in Ireland Report 2023. Available at: https://www.epa.ie/publications/monitoring--assessment/air/air-quality-in-ireland-2023.php*

Parameter	Measurement of Birr
Values > 10	0
Max	2.2 mg/m^3

The average concentration of CO was 0.6 mg/m^3. The Air Quality Standards Regulations 2022 (S.I. No. 739 of 2022), which transpose Directive 2008/50/EC, set a limit value for the protection of human health of 10,000 µg/m^3 (or 10 mg/m^3). No exceedances of this limit value were recorded during the monitoring period.

It is expected, based on professional judgement and the rural setting within which the Air Quality Study Area is located, that CO values at the Proposed Project are similar or lower than those recorded at Birr, as outlined in Table 10-18 above.

10.2.4.6 Ozone (O_3)

The '*Air Quality in Ireland 2024'* report provides rolling 8-hour O_3 concentrations for eight Zone D sites: Emo Court, Kilkitt, Carnsore Point, Mace Head, Castlebar, Cork Mallow, Valentia and Malin Head. O_3 data for 2024 is presented in Table 10-19. The Air Quality Standards Regulations 2022 (S.I. No. 739 of 2022), which transpose Directive 2008/50/EC, set a target value for O_3 for the protection of human health of 120 µg/m^3 as a maximum daily 8-hour mean, not to be exceeded on more than 25 days per calendar year (averaged over three years).

Monitoring data for O_3 from the EPA monitoring station at Emo Court, Co. Laois, located approximately 18.3 km to the southwest of the Proposed Wind Farm, has been used to characterise baseline O_3 concentrations, as this station represents the nearest suitable and most representative monitoring location for the Proposed Project.

As can be observed from Table 10-19 there were no exceedances of the maximum daily 8-hour mean limit of 120 µg/m^3. The CAFE Directive stipulates that this limit must not be exceeded on more than 25 days per calendar year averaged over 3 years. It is expected, based on professional judgement and the rural setting within which the Air Quality Study Area is located, that O_3 values at the Proposed Project are similar or lower than those recorded at Emo Court and the other Zone D sites below.

Table 10-19: O_3 Data for Zone D Sites in 2024

Parameter	Measurement	Measurement of Emo Court, Co. Laois
Annual Mean	58.9 µg/m^3	47.3 µg/m^3
Median	59.9 µg/m^3	48.0 µg/m^3
% Data Capture	84.1%	89.7%
No. of days > 120 µg/m^3	0 days	0 days

10.2.4.7 Dust

There are no statutory limits for dust deposition in Ireland. However, EPA guidance suggests that a deposition of 10 mg/m^2/hour can generally be considered as posing a soiling nuisance. This equates to 240 mg/m^2/day. The EPA recommends a maximum daily deposition level of 350 mg/m^2/day when

measured according to the German TA Luft Standard 2002. This limit value can also be implemented with regard to dust impacts from construction activities associated with the Proposed Project.

The extent of dust generation at any site depends on the type of activity undertaken, the location, the nature of the dust, i.e., soil, sand, etc., and the weather. In addition, dust dispersion is influenced by external factors such as wind speed and direction and/or, periods of dry weather. Construction dust has the potential to be generated from on-site activities such as excavation and backfilling. Construction traffic movements also have the potential to generate dust as they travel along the Proposed Construction Haul Routes and Proposed Turbine Delivery Route.

As a requirement of Condition 5: Emissions to Atmosphere of the Integrated Pollution Control (IPC) Licence (Reg. P0503-01), monitoring for dust deposition was undertaken in the Allen Bog Group (in which the Proposed Wind Farm is located). The monitoring results are reported in the Annual Environmental Report (AER) each year, which are publicly available on the EPA portal[28]. Monitoring was conducted at 5 no. locations in the Allen Bog Group during historical industrial peat excavation. While monitoring was not specifically conducted within the Air Quality Study Area, the five monitoring locations within the Allen Bog Group (within which part of the Proposed Project is located) can be considered representative of the Air Quality Study Area at this time. Monitoring results for these 5 no. of locations are available in the AERs for 2001 – 2020 inclusive. Dust monitoring was carried out during historical peat extraction activities and, while it is likely that dust emissions were similar at the Project Site due to the similar nature of activities at the time, these activities had ceased across the Allen Bog Group by 2020 and therefore the air quality data is not representative of the current air quality at the Project Site. No dust monitoring was carried out from 2021 – 2024 due to the cessation of peat extraction in June 2020, and resultingly it was deemed unnecessary to continue monitoring for dust within the Allen Bog Group.

The potential dust-related effects on local air quality and the relevant associated mitigation measures are presented in Sections 10.3 below.

10.2.5 Likely Future Receiving Environment

This section identifies the future receiving environment relating to air quality likely to exist within the Air Quality Study Area at the commencement of the construction phase. In accordance with the approach set out in Section 1.8.4 of Chapter 1, the likely future receiving environment has been established having regard to the existing air quality baseline presented in Section 10.2.4 and uses observed change over the survey period (i.e., 2020 to 2026) to inform the likely future receiving environment.

The likely future receiving environment has been established having regard to:

- The existing air quality baseline described in Section 10.2.4;
- The relevant findings of Chapter 6 (Biodiversity), Chapter 8 (Land, Soils and Geology), Chapter 9 (Water), Chapter 11 (Climate) and Chapter 15 (Other Material Assets – Traffic);
- Observed environmental change during site specific surveys from 2020 -2026, including the distribution and development of natural revegetation;
- Available BnM site records and environmental data, including management and monitoring undertaken under IPC Licence Reg. No. P0503-01 included within the Annual Environment Reports (AERS) for the Allen Bog Group;
- Relevant guidance and legislations as outlined in Section 10.2.1 above.

[28] *AERs for the period 2008-2018 when peat extraction was underway at the Proposed Wind Farm can be found on the EPA licence portal at the following link: https://leap.epa.ie/. and for the period 2019 to 2026 can be found at the following link: https://leap.epa.ie/licence-profile/P0503/compliance*

The Project Site is located predominantly on former industrial peat extraction lands within the Allen Bog Group. Industrial peat extraction ceased in June 2020. Since then, environmental conditions across these lands have continued to develop through natural revegetation, alongside ongoing site management, environmental monitoring and decommissioning works undertaken in accordance with IPC Licence P0503-01.

At the commencement of the construction phase the likely future receiving environment will reflect the continued establishment and maturation of natural revegetation in suitable areas, in combination with the continuation of site management, decommissioning works, and environmental monitoring under IPC Licence P0503-01. The anticipated vegetation communities and their spatial distribution are described in Chapter 6 Biodiversity with further detail provided in Chapter 8 Land Soils and Geology and Chapter 9 Water. Natural vegetation is expected to be spatially variable and is not assumed to follow a uniform trajectory across the Proposed Wind Farm site.

Natural revegetation may reduce the extent of exposed bare peat across the Proposed Wind Farm site. In addition to influencing site greenhouse gas dynamics and air pollutants, increased vegetation cover is likely to stabilise peat surfaces and reduce the potential for wind-blown peat and localised dust emissions.

On this basis, the likely future receiving environment of the Proposed Wind Farm site at the commencement of the construction phase will be a former industrial peat-extraction landscape with a developing but spatially variable cover of natural revegetation, managed and monitored under IPC Licence Reg. No. P0503-01. From an air quality perspective, the Proposed Wind Farm site is anticipated to be materially comparable to the existing baseline as established in Section 10.2.4.

The assessment of likely significant effects presented in Section 10.3.2 below has therefore been undertaken against this likely future receiving environment. As the air quality conditions predicted at commencement of construction are materially comparable to those described in the existing baseline environment, the information presented in Section 10.2.4 remains representative of the likely future receiving environment for air quality against which the Proposed Project is assessed.

10.2.5.1 Future Environmental Trends

This section identifies the future environment trends relating to air quality likely to exist within the Air Quality Study Area following implementation of targeted rehabilitation measures within the Draft Rehabilitation Plans throughout the operational phase.

Continued natural revegetation, ongoing site management, environmental monitoring, and decommissioning works and implementation of the Draft Rehabilitation Plans are anticipated to facilitate the progressive rehabilitation of peatland across the Proposed Wind Farm site and result in an overall improvement to air quality due to the further stabilisation of peat surfaces and associated reduction in wind-blown peat and dust emission. While the individual environmental factors influencing air quality may evolve over time, on balance, these changes are not expected to materially alter the overall air quality baseline within the Air Quality Study Area.

Accordingly, notwithstanding the continued natural revegetation, and implementation of the Draft Rehabilitation Plans, the future environmental trends of the receiving environment for air quality are anticipated to show an overall improvement in the air quality baseline described above and have been brought through the impact assessment contained in Section 10.3.3 and Section 10.3.4 below; the future environmental trends of individual environmental factors influencing air quality including traffic, water, land soils and geology, and climate, have been considered through the relevant discipline-specific assessments.

The continuation of the aforementioned activities in the absence of the Proposed Project is considered in the Do-Nothing Scenario in Section 10.3.1 and in the cumulative assessment in Section 10.3.5.

10.3 Likely Significant Effects and Associated Mitigation Measures

10.3.1 'Do-Nothing' Scenario

If the Proposed Project were not to proceed, the Proposed Wind Farm site would continue to be managed under the requirements of the IPC licence (P0503-01) and therefore the ongoing decommissioning works, site management and environmental monitoring would continue. The lands required for the Proposed Project not located within lands under IPC License or under PCAS, would continue to function as it does at present, with no changes to the current land-use.

In the absence of the Proposed Project, natural revegetation processes would continue across the Proposed Wind Farm site. Areas of bare peat would progressively revegetate and transition through successional stages, potentially developing into heath communities, scrub or bog woodland over time, depending on local hydrological conditions. Therefore, the existing baseline of the landscape will transition from a predominantly industrial cutover peatland landscape, with open exposed peat surfaces and drainage features, to a more natural mosaic landscape of cutaway peatland, wetland and regenerating bog habitats, resulting in increased carbon storage capacity within the existing landbank. Prior to the submission of Cutaway Bog Decommissioning and Rehabilitation Plans to the EPA for agreement, baseline ecological surveys will be undertaken to establish the extent of natural revegetation, the potential for targeted revegetation and/or rewetting, and the future development of the cutaway areas to ensure their long-term stabilisation.

As the requirements of IPC Licence P0503-01 do not form part of this planning application, the ongoing site management, environmental monitoring and decommissioning activities required under the licence would continue under the 'Do-Nothing' scenario. Therefore, under a 'Do-Nothing' scenario, the Proposed Wind Farm site would continue to be managed as per the requirements of the IPC licence as detailed in Chapter 4, Section 4.6.7.

If the Proposed Project were not to proceed, there would be no construction-related exhaust or dust emissions. This includes emissions associated with construction plant and vehicles, earthworks, excavation activities, Proposed Turbine and hardstand construction, and transport of materials within the Project Site. Exhaust and dust emissions from onsite activities, i.e., the decommissioning and monitoring works associated with the IPC Licence, will continue irrespective of the Proposed Project.

If the Proposed Project were not to proceed, the opportunity to capture a significant part of County Offaly's, County Kildare's and Ireland's valuable renewable energy resources would be lost. This would reduce the contribution of the Proposed Project towards national and EU renewable energy and climate objectives, as well as the renewable energy, climate action and decarbonisation objectives of the OCDP and the KCDP. Consequently, the associated benefits arising from the displacement of fossil fuel-based electricity generation, including reductions in greenhouse gas emissions and air pollutant emissions, would not be realised.

Furthermore, as this application includes a Biodiversity Management Plan (Appendix 6-5) to be implemented during the operation phase, the opportunity to enhance the Proposed Wind Farm for biodiversity, separate to the requirements of the IPC License, at a local scale, would also be lost. This would be a long-term slight negative effect and is Not Significant.

10.3.2 Construction Phase

10.3.2.1 Exhaust Emissions

Proposed Project

As outlined in Section 10.2.5 above, at the commencement of the construction phase, the likely future receiving environment for the Proposed Wind Farm site relating to air quality is anticipated to be materially comparable to the existing baseline as established in Section 10.2.4.

The construction of turbines and associated foundations and hard-standing areas, meteorological masts, relay mast, access roads, amenity track, temporary construction compounds, peat and spoil areas, site drainage, vegetation removal and tree felling, and all ancillary works and apparatus, as well as the establishment of the Proposed Enhancement Areas (as outlined in Chapter 4 of this EIAR) will require the operation of construction vehicles and plant on and off-site, and the transport of workers to and from the Project Site. Exhaust emissions associated with plant and machinery, such as NO_2, C_6H_6 and PM_{10}, will arise as a result of construction activities. This potential effect will not be significant and will be restricted to the duration of the construction phase and localised to works areas. Therefore, this is considered a short-term, moderate, negative effect, which is Not Significant. Mitigation measures to reduce this impact are presented below.

The construction of the Proposed Grid Connection, i.e., Proposed Onsite Substation, underground 220kV connection to the Proposed Offsite Substation, and associated OHL connection into the Existing Maynooth-Dunstown 220kV OHL, will require the use of construction machinery, thereby giving rise to exhaust emissions. This is a short-term, slight, negative effect, which is Not Significant and will be reduced through use of the best practice mitigation measures as presented below.

Works such as road widening are sometimes required along turbine delivery routes to accommodate the large vehicles used to transport turbine components to wind farm sites. The Proposed Turbine Delivery Route for the Proposed Project has been the subject of a route assessment and accommodation works have been identified in Section 4.5.2.3 of Chapter 4 and in Section 15.1.4 of Chapter 15. The accommodation works necessary to facilitate abnormal load delivery to the Proposed Wind Farm will require the use of construction machinery, thereby giving rise to exhaust emissions. This is a short-term, slight, negative effect, which is Not Significant and will be reduced through use of the best practice mitigation measures as presented below.

The Proposed Enhancement Areas will require the use of construction machinery, thereby giving rise to exhaust emissions. This is a short-term, slight, negative effect, which is Not Significant and will be reduced through use of the best practice mitigation measures as presented below.

Transportation to and from the Project Site

The transport of turbines and construction materials to the Project Site, which will occur via the Proposed Turbine Delivery Route and Proposed Construction Haul Routes only (see Section 4.5.2 in Chapter 4 of this EIAR), will give rise to exhaust emissions associated with transport vehicles.

The transport of waste materials and construction workers to and from the Project Site, which will utilise the wider local and regional road network (see Section 15.1.6 of this EIAR), will also generate exhaust emissions. This constitutes a short-term, slight, negative effect, which is Not Significant in terms of air quality. Mitigation measures in relation to exhaust emissions are presented below.

Mitigation Measures

- All construction vehicles and plant used during construction will be maintained in good operational order while onsite. If any vehicle requires repair, this work will be carried out, thereby minimising any emissions that arise.
- Turbines components and construction materials will be transported to the Project Site on specified routes only, unless otherwise agreed with the Planning Authority.
- All machinery will be switched off when not in use.
- Construction staff will be trained how to inspect and maintain construction vehicles and plant to ensure good operational order while onsite, thereby minimising any emissions that arise. The Site Supervisor/Construction Manager produce and follow a site inspection and machinery checklist which will be followed and updated if/when required.
- The expected waste volumes generated onsite are unlikely to be large enough to warrant source segregation at the Project Site. Therefore, all waste streams generated onsite will be deposited into a single waste skip which will be covered. This waste material will be transferred to a licensed /permitted Materials Recovery Facility (MRF) by a fully licensed waste contractor where the waste will be sorted into individual waste streams for recycling, recovery or disposal. The MRF will be local to the Project Site to reduce the amount of exhaust emissions associated with vehicle movements.
    - Edenderry Recycling Centre is the closest waste facility to the Project Site and is approximately 3.5km north of the nearest Proposed Turbine (T32).
    - Drehid Landfill located approximately 6.5km northeast of the nearest Proposed Turbine (T30).
    - Chem Regen located approximately 25.5km southwest of the nearest Proposed Turbine (T14).
    - Cleary Compost & Shredding Ltd. located approximately 24.9km south of the nearest Proposed Turbine (T14).
    - Soltec (Ireland) Ltd, located approximately 31.5km northwest of the nearest Proposed Turbine (T32).
    - Allied Recycling located approximately 9.2km south of the Proposed Offsite Substation.
- A Construction and Environmental Management Plan (CEMP) will be in place throughout the construction phase (see Appendix 4-4). The CEMP includes measures to reduce exhaust emissions.
- Temporary Construction Compounds are spread out throughout the Project Site thus minimising the potential for traffic delays due to congestion building up at site entrance points and consequently further exhaust emissions.

Residual Effect

Following implementation of the mitigation measures above, residual effects from exhaust emissions arising during the construction phase of the Proposed Project will have a short-term, slight, negative effect on air quality.

Significance of Effects

The effects on air quality from exhaust emissions arising from the construction of Proposed Project infrastructure and transportation activities during the construction phase of the Proposed Project are considered to be Not Significant.

10.3.2.2 Dust Emissions

Proposed Project

As outlined in Section 10.2.5 above, at the commencement of the construction phase, the likely future receiving environment for the Proposed Wind Farm site relating to air quality is anticipated to be materially comparable to the existing baseline as established in Section 10.2.4.

The construction of the Proposed Wind Farm (i.e., turbines and associated foundations and hard-standing areas, meteorological masts, relay masts, access roads, amenity track, temporary construction compounds, site drainage, vegetation removal and tree felling and all ancillary works and apparatus (as outlined in Chapter 4 of this EIAR)), Proposed Enhancement Areas, the Proposed Turbine Delivery Route accommodation works, the Proposed Grid Connection will give rise to dust emissions during the construction phase. The removal of the topsoil followed by its transportation and deposition at the peat and spoil areas during the construction phase will also give rise to dust emissions.

The detailed dust assessment for the Proposed Project (excluding the Proposed Grid Connection underground electrical cabling route, Proposed Construction Haul Routes, and Proposed Turbine Delivery Route) is provided below under the following header: '*Proposed Project Footprint.*

The detailed dust assessment for the Proposed Grid Connection underground electrical cabling is provided below under the following header: *'Proposed Grid Connection underground electrical cabling route'.*

The majority of the construction materials for the Proposed Project will be sourced from local, appropriately authorised quarries and delivered to the Project Site via the Proposed Construction Haul Routes, refer to Section 4.5.2.1 of Chapter 4. For the purposes of assessment within the EIAR, 9 no. existing, authorised quarries, located within 20km of the Proposed Wind Farm have been selected. The detailed dust assessment for the Proposed Construction Haul Routes and Proposed Turbine Delivery Route are assessed below under the following header: '*Transportation to and from the Project Site*'

Proposed Project Footprint

The IAQM 2024 Guidance methodology for the *'Assessment of Dust from Demolition and Construction*', as discussed in Section 10.2.3.3 above, is used to assess the potential risk to sensitive receptors from dust deposition. Dust deposition impacts can occur for a distance of 250m from works areas, but the majority of deposition occurs within the first 50m (IAQM, 2024). The sensitive receptors were identified using a constraints mapping process, and detailed and updated planning searches which informed the project sensitive receptor dataset. The sensitive properties located within the appropriate distance from potential dust emission sources, provided by the IAQM 2024 Guidance, are detailed below and presented in Figure 10-6 below.

- There is 1 no. sensitive receptor located within 20m of the Proposed Project footprint. There is 1 no. commercial property within in the 20m of the Proposed Project footprint;
- There are 8 no. sensitive receptors and 2 no. commercial properties located within 50m of the Proposed Project footprint;
- There are 22 no. sensitive receptors and 2 no. commercial properties located within 100m of the Proposed Project footprint;
- There are 127 no. sensitive receptors and 3 no. commercial properties located within 250m of the Proposed Project footprint.

Figure 10-6 to 10-10 below displays the above IAQM 2024 Guidance Dust Deposition Bands and the sensitive receptors within each band.

660000
666000
672000
726000

N

Killane
R441
Drumcooly
Ticknevin
R414
R403
Killinagh Lower
R401
Church Road
Clonbullogue
R442
R414
Kilometers
0 1 2 4 6 8

Legend

- Dust Study Area
- Proposed Project Infrastructure Footprint
- 20m IAQM Dust Deposition Band
- 50m IAQM Dust Deposition Band
- 100m IAQM Dust Deposition Band
- 250m IAQM Dust Deposition Band
- Sensitive Receptors

Spatial Reference
Name: WGS 1984 Web Mercator Auxiliary Sphere
Datum: WGS 1984
Projection: Mercator Auxiliary Sphere

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SITE LOCATION - NOT TO SCALE

Drawing Title
IAQM Dust Sensitive Receptors for the Proposed Wind Farm

Project Title
Proposed Ballydermot Wind Farm
Co. Offaly & Co. Kildare

Project No.	Drawing No.	Scale
250708	10-6	1:8,156,631
Drawn By	Checked By	Date
LPM	EC	13/10/2026

Email: info@mkoireland.ie/ Website: www.mkoireland.ie

672000

674000

726000

724000

N

South Canal Bank

Level Crossing

Station Road

Allenwood North

Allenwood South

Grand Canal Wood

R414

River Road

0 0.35 0.7 1.4 2.1 2.8 Kilometers

Legend

- Dust Study Area
- Proposed Onsite Substation
- 20m IAQM Dust Deposition Band
- 50m IAQM Dust Deposition Band
- 100m IAQM Dust Deposition Band
- 250m IAQM Dust Deposition Band
- Sensitive Receptors

Spatial Reference
Name: WGS 1984 Web Mercator Auxiliary Sphere
Datum: WGS 1984
Projection: Mercator Auxiliary Sphere

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N

SITE LOCATION - NOT TO SCALE

Drawing Title

IAQM Dust Sensitive Receptors for the Proposed Onsite Substation

Project Title

Proposed Ballydermot Wind Farm
Co. Offaly & Co. Kildare

Project No.	Drawing No.	Scale
250708	10-7	1:24,000
Drawn By	Checked By	Date
LPM	EC	13/10/2026

Email: info@mkoireland.ie/ Website: www.mkoireland.ie

682000

684000

726000

N

Donaghers

Anne Street

Prosperous

Farnan Wood

R403

Downings North

Hatters Cross Road

Prosperous Road

R403

R409

R409

R409

0 0.25 0.5 1 1.5 2 Kilometers

682000

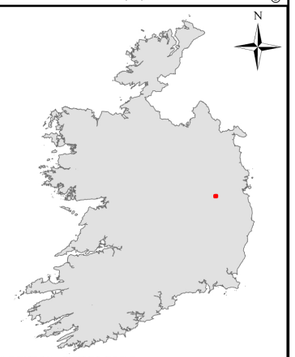
684000

Legend

- Dust Study Area
- Proposed Offsite Substation
- 20m IAQM Dust Deposition Band
- 50m IAQM Dust Deposition Band
- 100m IAQM Dust Deposition Band
- 250m IAQM Dust Deposition Band
- Sensitive Receptors

Spatial Reference
Name: WGS 1984 Web Mercator Auxiliary Sphere
Datum: WGS 1984
Projection: Mercator Auxiliary Sphere

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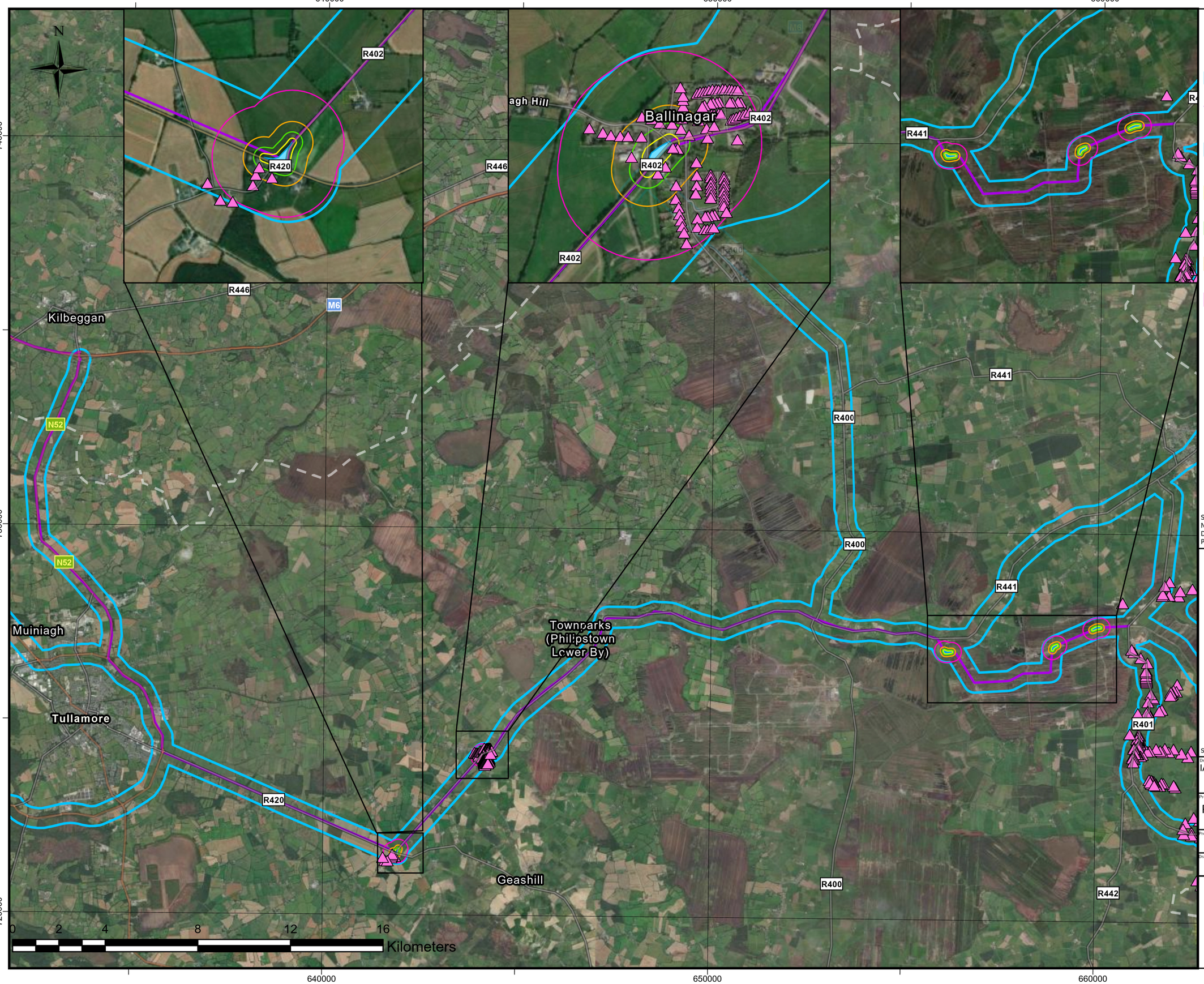
SITE LOCATION - NOT TO SCALE

Drawing Title
IAQM Dust Sensitive Receptors for the Proposed Offsite Substation

Project Title
Proposed Ballydermot Wind Farm
Co. Offaly & Co. Kildare

Project No.	Drawing No.	Scale
250708	10-8	1:17,476
Drawn By	Checked By	Date
LPM	EC	13/10/2026

MKO
Email: info@mkoireland.ie/ Website: www.mkoireland.ie

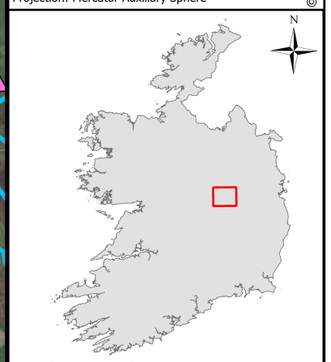


Legend

- Dust Study Area
- Proposed Turbine Delivery Route
- Proposed Turbine Delivery Route Accomodation Area
- 20m IAQM Dust Deposition Band
- 50m IAQM Dust Deposition Band
- 100m IAQM Dust Deposition Band
- 250m IAQM Dust Deposition Band
- Sensitive Receptors

Spatial Reference
Name: WGS 1984 Web Mercator Auxiliary Sphere
Datum: WGS 1984
Projection: Mercator Auxiliary Sphere

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SITE LOCATION - NOT TO SCALE

Drawing Title
IAQM Dust Sensitive Receptors for the Proposed Turbine Delivery Route Accommodation Area

Project Title
Proposed Ballydermot Wind Farm
Co. Offaly & Co. Kildare

Project No.	Drawing No.	Scale
250708	10-9	1:150,000
Drawn By	Checked By	Date
LPM	EC	13/10/2026

MKO
Email: info@mkoireland.ie/ Website: www.mkoireland.ie

660000 664000 668000 672000

732000

728000

724000

N

Killane

Dreenan

R441

Drumcooly

Ticknevin

R403

Killinagh Lower

R401

Allenwood South

R414

Church Road

Clonbullogue

R442

Feighcullen

0 1 2 4 6 8 Kilometers

660000 664000 668000 672000

Legend

- Dust Study Area
- Proposed Enhancement Areas
- 20m IAQM Dust Deposition Band
- 50m IAQM Dust Deposition Band
- 100m IAQM Dust Deposition Band
- 250m IAQM Dust Deposition Band
- Sensitive Receptors

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Spatial Reference
Name: WGS 1984 Web Mercator Auxiliary Sphere
Datum: WGS 1984
Projection: Mercator Auxiliary Sphere

SITE LOCATION - NOT TO SCALE

Drawing Title
IAQM Dust Deposition Bands around Proposed Enhancement Areas and Relevant Sensitive Receptors

Project Title
Proposed Ballydermot Wind Farm
Co. Offaly & Co. Kildare

Project No.	Drawing No.	Scale
250708	10-10	1:71,111
Drawn By	Checked By	Date
LPM	EC	30/09/2026

Email: info@mkoireland.ie/ Website: www.mkoireland.ie

The demolition of 2 no. existing clear-span bridges is proposed within the Proposed Wind Farm. The demolition is considered to be 'Medium' as per the criteria outlined in Table 10-6 above. The sensitivity of the area is classified as 'High' as the demolition is occurring on the existing clear-span bridges in Figile River. Based upon Table 10-12, the risk of dust impacts for the demolition is considered to be 'Medium'.

Table 10-20 below identifies the sensitivity of the area surrounding the Proposed Project footprint to dust soiling effects, as described in Section 10.2.3.3 above. As per the criteria in Table 10-20, the overall sensitivity of the Proposed Project to dust soiling impacts is **'Medium'.** For the construction phase of the Proposed Project, the potential impact from dust emissions is considered to be a short term, moderate, negative effect, which is Not Significant.

Table 10-20: Sensitivity of the Area to Dust Soiling Effects on People and property from Proposed Project construction works. Guidance on the Assessment of Dust from Demolition and Construction (IAQM, 2024)

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

Table 10-21 below identifies the high sensitivity receptors in the area surrounding the Proposed Project footprint within the Dust Study Area to the health effects of PM_{10}, as described in Section 10.2.4.2 above. The overall sensitivity of the area to human health effects of PM_{10} is considered to be **'Low'.**

As indicated in Section 10.2.3.1 above, the Proposed Project is situated in Zone D. According to the 2024 EPA baseline air quality data[29]; the average PM_{10} for Zone D is 11.5µg/m^3. Therefore, the only annual PM_{10} concentration categorised in the IAQM 2024 Guidance relevant to the Proposed Project is the minimum concentration of <24µg/m^3 (<14 µg/m^3 in Scotland).

Table 10-21: Sensitivity of the Area to Human Health Impacts from the Proposed Project construction works. Guidance on the Assessment of Dust from Demolition and Construction (IAQM, 2024)

Receptor Sensitivity	Annual Mean PM_{10} Concentration	Number Of Receptors	Distance from source (m)			
			<20	<50	<100	<250
High	<24 µg/m^3 (<14 µg/m^3 in Scotland)	>100	Medium	Low	Low	Low
		10-100	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
Medium	<24 µg/m^3 (<14 µg/m3 in Scotland)	>10	Low	Low	Low	Low
		1-10				
Low	-	≥1	Low	Low	Low	Low

[29] https://www.epa.ie/publications/monitoring--assessment/air/Summary-Tables-2024-for-Zones-A--D-for-upload-with-report-final.xlsx

Table 10-22 below identifies the sensitivity of the receptors to ecological effects in the area surrounding the development footprint of the Project Site. Figure 10-11 shows the ecological sensitive receptors within Ecological Dust Study Area in both 20m and 50m bands. As noted above in Section 10.2.3.3,

- Raised bog - High Sensitivity
- Red-Listed Plant Species – High Sensitivity
- Marsh fritillary suitable habitat – High Sensitivity
- Cutover bog habitat – High Sensitivity.
- The Long Derries, Edenderry Special Areas of Conservation (SAC)located adjacent to the Project Site – High Sensitivity.
- Portion of the Grand Canal pNHA (site code 002104) which is located along the Proposed Grid Connection underground electrical cabling route – High Sensitivity.
- Crabtree River, Glashabaun River, Duke's River and Figile River Flows within the Proposed Wind Farm site – High Sensitivity.
- Killinthomas Wood is located adjacent to the southern boundary of the Project Site – Medium Sensitivity;
- Ballynafagh Lake SAC located along the Proposed Grid Connection underground electrical cabling route – High Sensitivity.

It is identified that Ballynafagh Lake SAC, Charleville Woods pNHA and Charleville Woods SAC are located adjacent to the Proposed Construction Haul Route along the R403 and N52 and Daingean Bog NHA is located adjacent to the Proposed Turbine Delivery Route along the R402. Although these ecological receptors are along the national and regional road that will be used during the construction phase, no construction works, excavation works, earthworks, stockpiling activities, material handling activities or construction compounds are proposed at these locations. As there are no works proposed at these locations, these designated sites except Ballynafagh Lake SAC have been screened out of the Ecological Dust Study Area.

The overall sensitivity of the areas surrounding the Proposed Project footprint of the Project Site is '**High'**.

Table 10-22: Sensitivity of the Project Site to Ecological Impacts. Guidance on the Assessment of Dust from Demolition and Construction (IAQM, 2024)

Receptor Sensitivity	Distance from source (m)	
	<20	<50
High	High	Medium
Medium	Medium	Low
Low	Low	Low

657000
666000
675000
684000
738000
729000
720000
N
0 2 4 8 12 16
Kilometers

Legend

- Ecological Dust Study Area 20m Band
- Ecological Dust Study Area 50m Band
- Special Areas of Conservation
- Proposed Natural Heritage Areas
- Red Listed Plant Species
- Rivers
- Marsh Fritillary Suitable Habitat
- Coillte Sites
- Cutover and Raised Bog

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Spatial Reference
Name: WGS 1984 Web Mercator Auxiliary Sphere
Datum: WGS 1984
Projection: Mercator Auxiliary Sphere

SITE LOCATION - NOT TO SCALE

Drawing Title
IAQM Dust Deposition Bands and Ecological Sensitive Receptors

Project Title
Proposed Ballydermot Wind Farm
Co. Offaly & Co. Kildare

Project No.	Drawing No.	Scale
250708	10-11	1:150,000
Drawn By	Checked By	Date
LPM	EC	23/09/2026

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The Proposed Project has been classified as 'Small', 'Medium', or 'Large' in accordance with the IAQM (2024) Guidance provided within Table 10-6 above. These classifications are based on the nature and scale of the proposed activities, based on a set criteria for demolition, earthworks, construction and trackout activities. The resulting classifications for the Proposed Project are presented in Table 10-7 in Section 10.2.3.3.

Therefore, when combined with the sensitivity of the area, using Tables 10-20, 10-21, and 10-22 above as guidance, the pre-mitigation risk of impacts from the Proposed Project are summarised in Table 10-23 below.

Table 10-23: Summary Dust Risk Table for Proposed Wind Farm Activities

Potential Impact	Risk			
	Demolition	**Earthworks**	**Construction**	**Trackout**
Dust Soiling	Medium Risk	Medium Risk	Medium Risk	Medium Risk
Human Health	N/A	Low Risk	Low Risk	Low Risk
Ecological	N/A	High Risk	High Risk	N/A

The overall risk of dust emissions impacts with no mitigation applied for the major dust generating activities during the construction phase of the Proposed Project is **'Medium'** based on the dust risk summary for dust soiling, human health and ecology as provided in Table 10-23 above**.** Therefore, the potential effects of dust from the construction phase of the Proposed Project are considered to be equivalent to a short-term, moderate, negative effect, which is Not Significant.

Proposed Grid Connection underground electrical cabling route

As outlined in Section 10.2.3.3, the Proposed Grid Connection underground electrical cabling route is classified as 'Medium' in relation to Earthworks and Trackout, and 'Large' for Construction as per the classifications outlined in Table 10-6, there is no demolition required for the construction of this infrastructure.

The construction of the Proposed Grid Connection underground electrical cabling route will give rise to dust emissions associated with open-cut trench construction method, and the movement of construction plant and vehicles. In addition, dust emissions may arise from the construction of the HDD to facilitate the crossing beneath the Grand Canal approximately 0.2 km west of Shee Bridge, County Kildare. Aggregate materials for the construction of the Proposed Grid Connection underground electrical cabling route will be sourced from local quarries, where possible. Refer to Section 4.5.2.1 in Chapter 4 for further information.

The number of high sensitivity receptors within 250m from the Proposed Grid Connection underground electrical cabling route works areas and their likely risk of dust impacts during the construction works, as highlighted in the IAQM 2024 Guidance discussed above are detailed below and presented in Figure 10-12 below.

- There are 44 no. high sensitivity receptors located within 20m from the Proposed Grid Connection underground electrical cabling route footprint;
- There are 367 no. high sensitivity receptors located within 50m of the Proposed Grid Connection underground electrical cabling route footprint;
- There are 571 no. high sensitivity receptors located within 100m of the Proposed Grid Connection underground electrical cabling route footprint;
- There are 983 no. high sensitivity receptors located within 250m of the Proposed Grid Connection underground electrical cabling route footprint.

672000

679000

728000

N

Allenwood North

Allenwood South

Aller Mi

R414

New Road

R415

Prosperous

Coolearagh East

linagh Lower

Blackwood (Clane By)

Curryhills

Allenwood North

Allenwood Middle

Allenwood South

R403

Downings North

Prosperous

R414

R415

R409

Derrymullen

Lowtown (Connell By)

Robertstown East

Grangeclare West

Newtown Donore

Mylerstown (Connell By)

Ballyteige South

Kilmeage

0 0.75 1.5 3 4.5 6

Kilometers

672000

679000

Legend

- Dust Study Area
- Proposed Grid Connection Underground Electrical Cabling Route
- 20m IAQM Dust Deposition Band
- 50m IAQM Dust Deposition Band
- 100m IAQM Dust Deposition Band
- 250m IAQM Dust Deposition Band
- Sensitive Receptors

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Spatial Reference
Name: WGS 1984 Web Mercator Auxiliary Sphere
Datum: WGS 1984
Projection: Mercator Auxiliary Sphere

N

SITE LOCATION - NOT TO SCALE

Drawing Title
IAQM Dust Sensitive Receptors for the Proposed Grid Connection Underground Electrical Cabling Route

Project Title
Proposed Ballydermot Wind Farm
Co. Offaly & Co. Kildare

Project No.	Drawing No.	Scale
250708	10-12	1:60,000
Drawn By	Checked By	Date
LPM	EC	13/10/2026

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Table 10-24 below identifies the sensitivity of the area surrounding the Proposed Grid Connection underground electrical cabling route to dust soiling effects, as described in Section 10.2.3.3 above. The overall sensitivity of the area to dust soiling effects is '**High**'. For the construction phase of the Proposed Grid Connection underground electrical cabling route, the impact from dust emissions is considered to be a short term, moderate, negative effect, which is Not Significant.

Table 10-24: Sensitivity of the Area to Dust Soiling Effects from the Proposed Grid Connection underground electrical cabling route construction works on People and Property. Guidance on the Assessment of Dust from Demolition and Construction (IAQM, 2024)

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

Table 10-25 below identifies the high sensitivity receptors in the area surrounding the Proposed Grid Connection underground electrical cabling route to the health effects of PM_{10}, as described in Section 10.2.3.3 above. The overall sensitivity of the area to human health effects of PM_{10} is '**Low**'. As indicated in Section 10.2.3.3 above, the Proposed Project is situated in Zone D. According to the 2024 EPA baseline air quality data[30]; the average PM_{10} for Zone D is 11.5µg/m^3. Therefore, the only annual PM_{10} concentration categorised in the IAQM 2024 Guidance relevant to the Proposed Project is the minimum concentration of <24µg/m^3 (<14 µg/m^3 in Scotland).

Table 10-25: Sensitivity of the Area to Human Health Impacts from Proposed Grid Connection underground electrical cabling route construction works. Guidance on the Assessment of Dust from Demolition and Construction (IAQM, 2024).

Receptor Sensitivity	Annual Mean PM_{10} Concentration	Number Of Receptors	Distance from source (m)			
			<20	<50	<100	<250
High	<24 µg/m^3 (<14 µg/m^3 in Scotland)	>100	Medium	Low	Low	Low
		10-100	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
Medium	<24 µg/m^3 (<14 µg/m^3 in Scotland)	>10	Low	Low	Low	Low
		1-10				
Low	-	≥1	Low	Low	Low	Low

[30] https://www.epa.ie/publications/monitoring--assessment/air/Summary-Tables-2024-for-Zones-A--D-for-upload-with-report-final.xlsx

Table 10-26 below identifies the sensitivity of the receptors to ecological effects in the area surrounding the Proposed Grid Connection underground electrical cabling route. As noted above in Section 10.2.3.3, approximately 140m of the Proposed Grid Connection underground electrical cabling route crosses the Grand Canal pNHA via HDD beneath the canal along the R414 and R403 and approximately 27m through the Ballynafagh Lake SAC along the R403. The Proposed Grid Connection underground electrical cabling route involves 11 no. watercourse crossings, including the crossing of the Grand Canal (high sensitivity). The overall sensitivity of the ecological receptors surrounding the Proposed Grid Connection underground electrical cabling route is '**High**'. For the construction phase of the Proposed Grid Connection underground electrical cabling route, the impact from dust emissions is considered to be a short term, slight, negative effect, which is Not Significant. A detailed ecological impact assessment assessing impacts on these ecological receptors during the construction phase (including effects from dust) is contained in Chapter 6 of this EIAR and the NIS. The assessment considered the potential for construction-related dust deposition and associated habitat degradation, together with other construction-phase impact pathways. Appropriate mitigation measures have been incorporated into the Proposed Project and no significant residual dust-related effects on ecological receptors are predicted in Chapter 6: Biodiversity.

Table 10-26: Sensitivity of the Proposed Grid Connection underground electrical cabling route to Ecological Impacts. Guidance on the Assessment of Dust from Demolition and Construction (IAQM, 2024)

Receptor Sensitivity	Distance from source (m)	
	<20	<50
High	High	Medium
Medium	Medium	Low
Low	Low	Low

As identified in Section 10.2.3.3 above, the Proposed Grid Connection underground electrical cabling route is classified as 'Medium' for Earthworks, Construction, and Trackout activities. Therefore, when combined with the sensitivity of the area, using Tables 10-24 to 10-26 above as guidance, the pre-mitigation risk of impacts from the Proposed Grid Connection underground electrical cabling route are summarised in Table 10-27.

Table 10-27: Summary Dust Risk Table for Proposed Grid Connection underground electrical cabling route activities

Potential Impact	Dust Emission Magnitude			
	Demolition	Earthworks	Construction	Trackout
Dust Soiling	N/A	High Risk	High Risk	Medium Risk
Human Health	N/A	Low Risk	Low Risk	Negligible
Ecological	N/A	High Risk	High Risk	Negligible

The overall risk of dust emissions impacts with no mitigation applied for the major dust generating activities during the construction phase of the Proposed Grid Connection underground electrical cabling route is '**High**'. Therefore, the potential effects of dust from the construction phase of the Proposed Grid Connection, prior to mitigation being put in place, are considered to be equivalent to a short-term, moderate, negative effect, which is Not Significant

Transportation to and from the Project Site

The transportation of turbine components, supporting infrastructure materials, construction materials and staff, and waste to and from the Project Site will give rise to some localised dust emissions during periods of dry weather.

The IAQM 2024 Guidance states that the routes of construction traffic should also be included in an assessment of dust arising from trackout, and that related construction dust impact increases with respect to the number of movements of HGVs per day, length of unpaved road, distance to receptors and the sensitivity of local receptors.

For the purposes of this assessment of the dust emissions arising from trackout related to the construction of the Proposed Project, the whole Proposed Construction Haul Route and Proposed Turbine Delivery Route are considered including the N52 national road, the R401 regional road, the R414 regional road, the R415 regional road, the R441 regional road, the R402 regional road, the R400 regional road, the R403 regional road, the R443 regional road, the R409, regional road, the R420 regional road, the L1001 local road, the L1006 local road, the L1005 local road, the L3001 local road, the L3002 local road, and the L6002 local road, along which the proposed site entrances are located (Section 4.5.1 of Chapter 4), was scoped in for assessment. In order to facilitate the construction of the Proposed Project, all crushed stone, hardcore materials and ready-mix concrete that will be required during the construction phase will be sourced from local, appropriately authorised quarries.

For the purposes of this assessment, nine existing authorised quarries located within 20 km of the Project Site have been identified as potential aggregate sources. The corresponding Proposed Construction Haul Routes associated with these authorised quarries are presented in Table 10-28, with further details provided in Section 4.5.2.1 of Chapter 4.

Table 10-28: Proposed Construction Haul Routes taken by authorized quarries

Authorised Quarries	Proposed Construction Haul Route
Roadstone Quarry, Derrygreenagh Co. Offaly	R400, R401, R402
Kilsaran Quarry, Derryarkin/Derrycoffey Co. Offaly	R400, R401, R402
Walshes Sandpit, Carbury, Co. Kildare	L1006, L1005, R402, R403
Hanlon Concrete, Robertstown, Co. Kildare	R415, R403
Roadstone Quarry, Allen, Co. Kildare	L3002, R415, R403
Arkil Sand and Gravel, Rathangan, Co. Kildare	L3002, R401, L3001
Sheridans Quarry, Shean, Co. Offaly	R401
Kilsaran concrete, Bunaterin, Tullamore, Co. Offaly	N52, R420, R401, R402
Roadstone concrete, Ballykilmurry, Tullamore, Co. Offaly	R420, R443, N52, R402, R401

The IAQM 2024 Guidance as discussed in Section 10.2.3.3 above is used to assess the potential risk to high sensitivity receptors from dust deposition. Dust deposition impacts can occur for a distance of 250m from source, but the majority of deposition occurs within the first 50m (IAQM, 2024). The high sensitivity receptors were identified using a constraints mapping process, and detailed and updated

planning searches which informed the project sensitive receptor dataset. The sensitive receptors located within the appropriate distance from potential dust emission sources, provided by the IAQM 2024 Guidance, are detailed below and presented in Figure 10-13 to Figure 10-17 below.

- There are 865 no. Highly Sensitive Receptors located within 20m of the roads identified.
- There are 2,475 no. Highly Sensitive Receptors within 50m of the roads identified.
- There are 4,030 no. Highly Sensitive Receptors within 100m of the roads identified.
- There are 7,465 no. Highly Sensitive Receptors within 250m of the roads identified.

675000

680000

730000

725000

N

R403

R414

R415

R409

Allenwood North

Allenwood Middle

Allenwood South

Derrymullen

Lowtown (Connell By)

Grangeclare West

Ballyteige South

Coolearagh East

Hodgestown (Clane By)

Blackwood (Clane By)

Robertstown East

Mylerstown (Connell By)

Downings North

Prosperous

Curryhill

Kilmeage

The Willows

New Road

Tower View

Allen Manor

0 0.75 1.5 3 4.5 6

Kilometers

Legend

- Dust Study Area
- Proposed Construction Haul Routes
- 20m IAQM Dust Deposition Band
- 50m IAQM Dust Deposition Band
- 100m IAQM Dust Deposition Band
- 250m IAQM Dust Deposition Band
- Sensitive Receptors

Spatial Reference
Name: WGS 1984 Web Mercator Auxiliary Sphere
Datum: WGS 1984
Projection: Mercator Auxiliary Sphere

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SITE LOCATION - NOT TO SCALE

Drawing Title
IAQM Dust Sensitive Receptors for R403, R414 and R415

Project Title
Proposed Ballydermot Wind Farm
Co. Offaly & Co. Kildare

Project No.	Drawing No.	Scale
250708	10-13	1:54,688
Drawn By	Checked By	Date
LPM	EC	13/10/2026

Email: info@mkoireland.ie/ Website: www.mkoireland.ie

666000

675000

729000

720000

N

Newtown (ed Killinthomas)

Rathangan

Kildare Road

Dreenan

Ticknevin

R403

Killinagh Lower

R401

L3001

R414

Allenwood South

R415

Clonbullogue

R401

R442

Ballyteige South

Kilmea

Feighcullen

Newtown (ed Killinthomas)

Rathangan

R419

Mullantine

0 1 2 4 6 8 Kilometers

Legend

- Dust Study Area
- Proposed Construction Haul Routes
- Proposed Turbine Delivery Route
- 20m IAQM Dust Deposition Band
- 50m IAQM Dust Deposition Band
- 100m IAQM Dust Deposition Band
- 250m IAQM Dust Deposition Band
- Sensitive Receptors

Spatial Reference
Name: WGS 1984 Web Mercator Auxiliary Sphere
Datum: WGS 1984
Projection: Mercator Auxiliary Sphere

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SITE LOCATION - NOT TO SCALE

Drawing Title
IAQM Dust Sensitive Receptors for R403, R401, L3002 and L3001

Project Title
Proposed Ballydermot Wind Farm
Co. Offaly & Co. Kildare

Project No.	Drawing No.	Scale
250708	10-14	1:85,449
Drawn By	Checked By	Date
LPM	EC	13/10/2026

Email: info@mkoireland.ie/ Website: www.mkoireland.ie

666000

675000

738000

729000

N

Gilroy Avenue

Park View

Edenderr

Clogh

ka

R441

R402

R401

Highfield Golf Club

Edenderry Golf Club

R402

Carbury

R402

Coonagh

Ashgrove

Techneven Wood

Derrinturn

R403

Hill Grove

Parsonstown (Carbury By)

Timahoe East

Edenderry

R441

Ballyhagan

Derrinturn

Dreenan

R403

R441

R401

Ticknevin

R401

Killinagh Lower

R414

Allenwood South

R415

0 1 2 4 6 8 Kilometers

Legend

- Dust Study Area
- Proposed Construction Haul Routes
- Proposed Turbine Delivery Route
- 20m IAQM Dust Deposition Band
- 50m IAQM Dust Deposition Band
- 100m IAQM Dust Deposition Band
- 250m IAQM Dust Deposition Band
- Sensitive Receptors

Spatial Reference
Name: WGS 1984 Web Mercator Auxiliary Sphere
Datum: WGS 1984
Projection: Mercator Auxiliary Sphere

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N

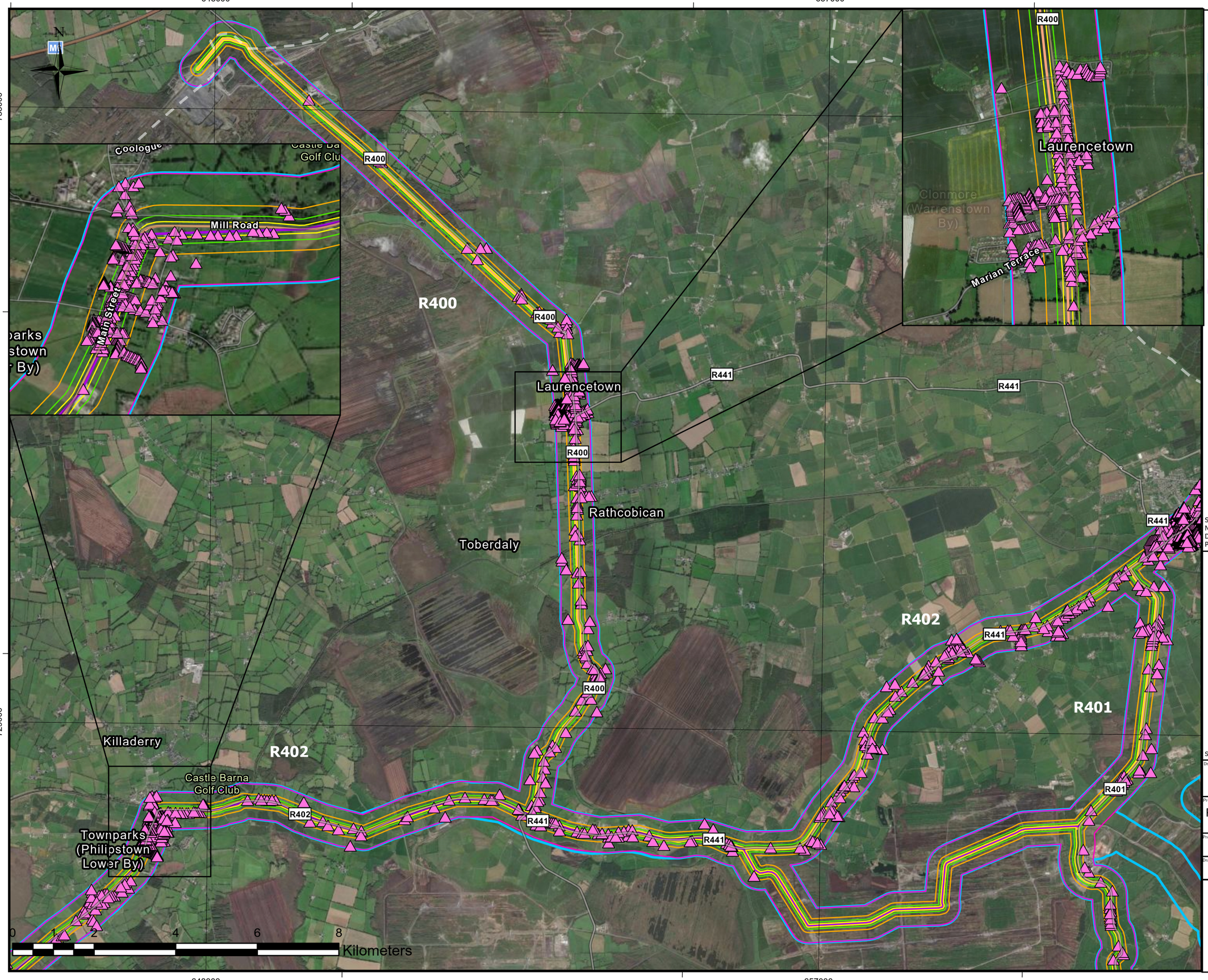
SITE LOCATION - NOT TO SCALE

Drawing Title
IAQM Dust Sensitive Receptors for R402, R403 and R401

Project Title
Proposed Ballydermot Wind Farm
Co. Offaly & Co. Kildare

Project No.	Drawing No.	Scale
250708	10-15	1:85,449
Drawn By	Checked By	Date
LPM	EC	13/10/2026

MKO
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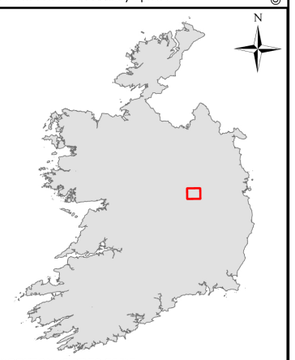


Legend

- Dust Study Area
- Proposed Construction Haul Routes
- Proposed Turbine Delivery Route
- 20m IAQM Dust Deposition Band
- 50m IAQM Dust Deposition Band
- 100m IAQM Dust Deposition Band
- 250m IAQM Dust Deposition Band
- Sensitive Receptors

Spatial Reference
Name: WGS 1984 Web Mercator Auxiliary Sphere
Datum: WGS 1984
Projection: Mercator Auxiliary Sphere

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SITE LOCATION - NOT TO SCALE

Drawing Title
IAQM Dust Sensitive Receptors for R400, R401 and R402

Project Title
Proposed Ballydermot Wind Farm
Co. Offaly & Co. Kildare

Project No.	Drawing No.	Scale
250708	10-16	1:85,449
Drawn By	Checked By	Date
LPM	EC	14/10/2026

MKO
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630000
639000
648000
738000
729000
720000

N

R391
M6
Kilbeggan
Kilcoursey
Erry
Maryborough)
N52
R420
Muiniagh
Derrynagall
Tullamore
Spollanstown
Springfield
Clonminch
Screggan
R421
N80
Killaderry
Toberdaly
Townparks
(Philipstown
Lower By)
R402
R441
Ballinagar
Geashill
Collins Lane
Clara Road
Arden Road
collog

0 1.75 3.5 7 10.5 14
Kilometers

Legend

- Dust Study Area
- Proposed Construction Haul Routes
- Proposed Turbine Delivery Route
- 20m IAQM Dust Deposition Band
- 50m IAQM Dust Deposition Band
- 100m IAQM Dust Deposition Band
- 250m IAQM Dust Deposition Band
- Sensitive Receptors

Spatial Reference
Name: WGS 1984 Web Mercator Auxiliary Sphere
Datum: WGS 1984
Projection: Mercator Auxiliary Sphere

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SITE LOCATION - NOT TO SCALE

Drawing Title
IAQM Dust Sensitive Receptors for R420 and N52

Project Title
Proposed Ballydermot Wind Farm
Co. Offaly & Co. Kildare

Project No.	Drawing No.	Scale
250708	10-17	1:133,514
Drawn By	Checked By	Date
LPM	EC	14/10/2026

MKO
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Table 10-29 below identifies the sensitivity of the area surrounding the roads identified above to dust soiling effects from trackout, as described in Section 10.2.3.3 above.

As per the criteria in Table 10-29 below, there are 865 no. High Sensitive Receptors within 20m of the roads identified, and 2,475 no. High Sensitive Receptors within 50m of the roads identified. The overall sensitivity of the area to dust soiling impacts is considered to be '**High**'.

Table 10-29: Sensitivity of the Area to Dust Soiling Effects on People and Property. Guidance on the Assessment of Dust from Demolition and Construction (IAQM, 2024)

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

Table 10-30 below identifies the high sensitivity receptors in the area surrounding the identified roads to the health effects of PM_{10}, as described in Section 10.2.2.3 above. The overall sensitivity of the area to human health effects of PM_{10} is considered to be '**High**'. As indicated in Section 10.2.3.3 above, the Proposed Project is situated in Zone D. According to the 2024 EPA baseline air quality data[31]; the average PM_{10} for Zone D is 11.5µg/m^3. Therefore, the only annual PM_{10} concentration categorised in the IAQM 2024 Guidance relevant to the Proposed Project is the minimum concentration of <24µg/m^3 (<14 µg/m^3 in Scotland).

Table 10-30: Sensitivity of the Area to Human Health Impacts from the transportation of construction plant and vehicles. Guidance on the Assessment of Dust from Demolition and Construction (IAQM, 2024)

Receptor Sensitivity	Annual Mean PM_{10} Concentration	Number Of Receptors	Distance from source (m)			
			<20	<50	<100	<250
High	<24 µg/m^3 (<14 µg/m^3 in Scotland)	>100	Medium	Low	Low	Low
		10-100	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
Medium	<24 µg/m^3 (<14 µg/m^3 in Scotland)	>10	Low	Low	Low	Low
		1-10				
Low	-	≥1	Low	Low	Low	Low

[31] *https://www.epa.ie/publications/monitoring--assessment/air/Summary-Tables-2024-for-Zones-A--D-for-upload-with-report-final.xlsx*

As identified in Section 10.2.3.3 above, the Proposed Wind Farm is classified as 'Large' for trackout activities, and the Proposed Grid Connection is classified as 'Medium' for trackout activities. Therefore, when combined with the sensitivity of the area, using Table 10-30 above as guidance, the pre-mitigation risk of impacts from the Proposed Wind Farm and Proposed Grid Connection on the roads identified is summarised in Table 10-31 below.

Table 10-31: Summary Dust Risk Table for the Proposed Construction Haul Routes

Potential Impact	Trackout for Proposed Construction Haul Routes
Dust Soiling	High Risk
Human Health	Low Risk
Ecological	High Risk

The overall risk of dust emissions impacts on the roads identified, with no mitigation applied for the major dust generating activities, during the construction phase of the Proposed Wind Farm along the Proposed Construction Haul Routes within the Dust Study Area is '**High**'. Therefore, the potential effects of dust from the construction phase of the Proposed Construction Haul Routes are considered to be equivalent to short-term, moderate, negative effect, which is Not Significant.

Mitigation Measures

- A wheel wash facility will be installed at all proposed construction site entrances and will be used by vehicles before leaving the Project Site.
- Dust suppression measures, including water spraying of exposed surfaces and trafficked areas, will be implemented as required during dry weather conditions. In periods of extended dry weather, dust suppression will be necessary along Proposed Construction Haul Routes, site roads, grid route, road widening sections, substation, and construction compounds to ensure dust does not cause a nuisance.
    - If necessary, such as during periods of dry weather, de-silted water will be taken from stilling ponds via the existing drainage system within the Proposed Wind Farm site and will be pumped into a bowser or water spreader to dampen down internal access roads, turbine bases and site compounds to prevent the generation of dust where required.
    - Water bowser movements will be carefully monitored to avoid, insofar as reasonably possible, increased runoff as outlined in the CEMP.
- Turbines components, construction materials and grid connection infrastructure will be transported to the Project Site via Proposed Construction Haul Routes, as agreed with the local authority.
    - The Proposed Construction Haul Routes adjacent to the Project Site will be regularly inspected for cleanliness and cleaned as deemed necessary by the construction Site Supervisor/Site Manager.
- Waste material will be transferred to a licensed /permitted MRF by a fully licensed waste contractor where the waste will be sorted into individual waste streams for recycling, recovery or disposal.
    - The MRF facility will be local to the Project Site to reduce dust emissions associated with vehicle movements. The nearest licensed waste facility located are:
        - Edenderry Recycling Centre is the closest waste facility to the Project Site and is approximately 3.5km north of the nearest Proposed Turbine (T32).

- Drehid Landfill, located approximately 6.5 km northeast of the nearest Proposed Turbine (T30).
- Chem Regen, located approximately 25.5 km southwest of the nearest Proposed Turbine (T14).
- Cleary Compost & Shredding Ltd. located approximately 24.9 km south of the nearest Proposed Turbine (T14).
- Soltec (Ireland) Ltd, located approximately 31.5 km northwest of the nearest Proposed Turbine (T32).
- Allied Recycling, located approximately 9.2km south of the Proposed Offsite Substation.

- A CEMP will be in place throughout the construction phase (see Appendix 4-4). The CEMP includes dust suppression measures.
- Temporary Construction Compounds are spread out throughout the Project Site thus minimising the potential for traffic delays due to congestion building up at site entrance points and consequently further dust emissions.
- All HGVs transporting construction materials to and from the Project Site will be covered with suitably secured tarpaulin sheeting to prevent dust emission during transit along Proposed Construction Haul Routes.
- Vehicle speeds will be controlled when passing over access tracks and hardstanding areas within the Project Site, particularly during extended dry periods
- If necessary, excavated material will be dampened prior to transport to the peat and spoil areas.
- The Ecological Clerk of Works (ECoW) will perform daily visual site inspections of dust occurrence within the Project Site during construction, particularly during periods of dry weather and windy conditions. This will be noted as part of site environmental audits. The appointed construction manager for the contractor will be notified if dusty conditions are prevalent on site.
    - The ECoW will have power to halt construction works if required.
- The construction contractor will be required to monitor monthly dust deposition levels each month for the duration of construction phase for comparison with the guideline of 350mg/m2/day (for non-hazardous dusts). This monitoring will be carried out at a series of suitable locations within the Project Site. Where dust levels are measured to be above this, mitigation measures will be reviewed.

Residual Effect

With the implementation of the above, residual effects on air quality from dust emissions and from traffic movements to and from the Project Site during the construction phase will have a short-term, slight, negative effect on air quality.

Significance of Effects

The effects on air quality from dust emissions arising from transportation activities during the construction phase of the Proposed Project are considered to be Not Significant.

10.3.3 Operational Phase

As outlined in Section 10.2.5.1 above, continued natural revegetation, ongoing site management, decommissioning works, and environmental monitoring, and implementation of the Draft Rehabilitation Plans are anticipated to facilitate the progressive rehabilitation of peatland across the Proposed Wind Farm site and result in an overall improvement to air quality within the Air Quality Study Area during the 35-year operational life of the Proposed Project. The future air quality trends within the Air Quality Study Area have been considered in the operational phase impact assessment below.

10.3.3.1 Exhaust Emissions

Proposed Project

During the operational phase, traffic associated with the Proposed Project will primarily comprise Light Goods Vehicles (LGVs) accessing the Proposed Wind Farm for amenity purposes. There will be no permanent staff onsite.

Amenity visitors will arrive to the Proposed Wind Farm site and park at identified amenity carparks near proposed amenity site entrances (see Table 4-7 in Chapter 4 for further detail). The anticipated number of LGVs visiting the Proposed Wind Farm during the operational phase (up to a maximum of 50 trips per day,), across 4 no. new permanent amenity carparks will give rise to a long-term, imperceptible, negative impact, which is Not Significant. See Section 15.1.1.4.3 in Chapter 15 for further details on traffic movements during the operational phase.

The Proposed Onsite Substation and Proposed Offsite Substation will be operated and maintained by ESB/EirGrid. It is anticipated that substation operators will visit the Project Site 1-2 times per day in LGVs but on occasion, HGVs may be required to visit the Project Site for maintenance/substation component replacement. On occasion, transformer insulating oil associated with the Proposed Onsite Substation and Proposed Offsite Substation may require removal as part of routine maintenance activities. Wastewater and general waste generated from welfare facilities will also be periodically removed from the Project Site by authorised waste contractors. These activities will give rise to occasional vehicle movements and associated exhaust emissions; however, due to the infrequent nature of these activities, any exhaust emission effects are expected to be negligible. Traffic movements, and associated exhaust emissions, associated with the Proposed Grid Connection underground electrical cable route will be negligible given that no works are proposed along this element of the Proposed Project during the operational phase.

The addition of a LGV to the area, approximately 50 car trips during the operational phase will give rise to a long-term, imperceptible, negative impact on air quality, which is Not Significant. The addition of several HGVs on occasion for maintenance requirements over the 35-year lifetime of the Proposed Project will give rise to a long-term, slight, negative effect on air quality, which is Not Significant.

Mitigation Measures

- Any vehicles or plant brought onsite during the operational phase will be maintained in good operational order that comply with the Road Traffic Acts 1961 as amended, thereby minimising any emissions that arise.
- When stationary, delivery and on-site vehicles will be required to turn off engines.
- Waste material will be transferred to a licensed /permitted MRF by a fully licensed waste contractor where the waste will be sorted into individual waste streams for recycling, recovery or disposal. Details of nearest licensed waste facilities are given in mitigation section of Section 10.3.2.2.
- Amenity carparks are spread out throughout the Proposed Wind Farm thus minimising the potential for traffic delays due to congestion building up at site entrance points and consequently further exhaust emissions.

Residual Effects

Following implementation of the mitigation measures above, residual effects of exhaust emissions for the operational phase of the Proposed Project will have a long-term, imperceptible, negative effect on air quality.

Significance of Effects

The effects on air quality from exhaust emissions arising during the operational phase of the Proposed Project are considered to be Not Significant.

10.3.3.2 Dust Emissions

As discussed in Section 10.3.3.1, the operational phase of the Proposed Project will generate additional traffic to the area in the form of LGVs for the purpose of accessing the amenity facilities which is expected to be approximately 50 car trips per day. This additional traffic may give rise to dust emissions. This will be a long-term, imperceptible, negative impact on air quality due to dust emissions, which is Not Significant.

As discussed above in Section 10.3.3.1 the Proposed Onsite Substation and Proposed Offsite Substation will be operated and maintained by ESB/EirGrid. It is anticipated that substation operators will visit the Project Site 1-2 times per day in LGVs but on occasion, HGVs may be required to visit the Project Site for maintenance/substation component replacement. On occasion, transformer insulating oil associated with the Proposed Onsite Substation and Proposed Offsite Substation may require removal as part of routine maintenance activities. Wastewater and general waste generated from the substation welfare facilities will also be periodically removed from the Project Site by authorised waste contractors. These activities will give rise to occasional vehicle movements and associated dust emissions; however, due to their infrequent nature, any resulting air quality effects are expected to be negligible, this additional traffic may give rise to dust emissions. This will be a long-term, imperceptible, negative impact on air quality due to dust emissions, which is Not Significant. Traffic movements, and any resultant dust emissions, associated with the Proposed Grid Connection underground electrical cable route will be negligible given that no works are proposed along this element of the Proposed Project during the operational phase. Occasional inspection, maintenance or repair works may be required over the operational lifetime of the Proposed Project, such activities will be infrequent and limited in scale and are therefore not expected to result in significant dust emissions or air quality effects.

Mitigation Measures

- Any vehicles or plant brought onsite during the operational phase will be maintained in good operational order that comply with the Road Traffic Acts 1961 as amended, thereby minimising any dust emissions that arise.

Residual Effect

Based on the above, the residual effect on air quality from dust emissions during the operational phase is a long-term, imperceptible, negative effect on air quality.

Significance of Effects

The effects on air quality from dust emissions arising during the operational phase of the Proposed Project are considered to be Not Significant.

10.3.3.3 Air Quality

Although a long-term, imperceptible, negative effect on air quality is expected during the operational phase due to exhaust and dust emissions from maintenance vehicles, there will be a net reduction in CO_2 emissions resulting from the operation of the Proposed Project. The identified imperceptible, long-term negative effect on exhaust emissions and dust emissions in Section 10.3.3.1 and 10.3.3.2 will be offset by the long-term, significant, positive effect of the Proposed Project through the provision of renewable electricity provided to the national grid. By providing an alternative to electricity derived

from coal, oil or gas-fired power stations, the Proposed Project will result in emission savings of approximately 146,857 tonnes of CO_2 per annum, as detailed in Section 11.4.3.2 of Chapter 11: Climate.

The production of renewable energy from the Proposed Project will have a long-term, significant, positive effect on air quality. Further details on the CO_2 savings associated with the Proposed Project are presented in Section 11.4.3.2 of Chapter 11 – Climate.

Mitigation Measures

No mitigation required.

Residual Effect

There will be a long-term, significant, positive effect on air quality due to the offsetting of approximately 146,857 tCO_2eq per annum (see Chapter 11 for details).

Significance of Effects

The long-term, significant, positive effects on overall improved air quality during the operational phase of the Proposed Project are considered to be Significant.

10.3.3.4 Human Health

Whilst the operational phases of the Proposed Project will give rise to minor increases in dust and vehicle emissions, the implementation of the mitigation measures discussed above (refer to Section 10.3.2 and Section 10.3.3 above for detailed mitigation measures) and good management practices can prevent or minimise potential effects off-site. Good management practice consists of adopting appropriate working methods, choosing the right equipment and ensuring that the workforce understands the company's responsibilities and is familiar with good working practice and dust suppression techniques. The potential for health effects is considered negligible as the potential for both exhaust and dust emissions will be limited and controlled through mitigation measures.

Exposure to chemicals such as SO_2 and NO_x, Pb, C_6H_6 and O_3 can cause harm human health. The production of renewable energy from the Proposed Project will offset the emission of these harmful chemicals produced by fossil fuel powered sources of electricity and, therefore, will have a long term, moderate, positive impact on human health.

Further information on the impact of the Proposed Project on Human Health is contained in Chapter 5: Population and Human Health.

Mitigation Measures

No mitigation required.

Residual Effect

No residual effects.

Significance of Effects

The long-term, moderate, positive effects on human health arising from improved air quality during the operational phase of the Proposed Project are considered to be Not Significant.

10.3.4 Decommissioning Phase

The Proposed Turbines are expected to have a lifespan of approximately 35-years. Following the end of their useful life, the equipment may be replaced with a new technology, subject to planning permission being obtained, or the Proposed Project will be decommissioned fully.

Upon decommissioning of the Proposed Wind Farm, the Proposed Turbines would be disassembled. All above-ground turbine and mast components would be separated and removed from the Project Site for recycling. Turbine foundations would remain underground and would be covered with peat and reseeded as appropriate. Leaving the turbine foundations in-situ is considered a more environmentally prudent option, as to remove that volume of reinforced concrete from the ground could result in significant temporary environmental nuisances such as noise, dust and vibration. Project Site roads could be in use for purposes other than the operation of the Proposed Project by the time the decommissioning of the Proposed Wind Farm is to be considered, and therefore it may be more appropriate to leave the Project Site roads in situ for future use. It is envisaged that the site roads will be retained post decommissioning to continue to facilitate amenity use.

The underground electrical cabling connecting the Proposed Turbines to the Proposed Onsite Substation will be removed from the cable ducts and any direct buried cables will be cut and left in situ. The cabling will be pulled from the cable ducts using a mechanical winch which will extract the cable and re-roll it on to a cable drum. This will be undertaken at the original cable jointing pits which will be excavated using a mechanical excavator and will be fully re-instated once the cables are removed. The ground above original pulling pits will be excavated using a mechanical excavator and will be fully re-instated once the cables are removed.

The cable ducting will be left in situ as it is considered the most environmentally prudent option, avoiding unnecessary excavation and soil disturbance. The cable materials will be transferred to a suitable recycling or recovery facility.

The Proposed Grid Connection infrastructure, including the Proposed Onsite Substation and Proposed Offsite Substation, will remain in place as it will be part of the National Electricity Grid network under the ownership and control of the ESB Networks and/or EirGrid.

Upon decommissioning of the Proposed Wind Farm, the Proposed Onsite Substation, Proposed Offsite Substation and Proposed Grid Connection and all the associated transmission infrastructure i.e. underground cables, overhead line cabling, steel masts, etc will form part of the national grid infrastructure and operate in perpetuity as part of Transmission System and TAO assets and will remain in-situ. The assets transferred to the TAO will not form part of the decommissioning works.

Any impact and consequential effect that occurs during the decommissioning phase are similar to that which occur during the construction phase, albeit of lesser impact. The mitigation measures prescribed for the construction phase of the Proposed Project will be implemented during the decommissioning phase thereby minimising any potential impacts on air quality.

At the commencement of the decommissioning phase, it is anticipated that the rehabilitation of the Proposed Wind Farm site as required by IPC Licence Condition 10 will be complete with peat surfaces stabilised through rewetting and continued natural revegetation. These activities are anticipated to result in an overall reduction of dust emissions as compared to the baseline established in Section 10.2.4 above. Therefore, at the commencement of decommissioning of the Proposed Wind Farm it is anticipated that there will be an overall improvement to air quality within the Air Quality Study Area.

A Decommissioning Plan has been prepared and serves as Appendix 4-7 to this EIAR. The Decommissioning Plan will be updated prior to the end of the operational period in line with best-practice decommissioning methodologies that may exist at the time and will agree with the competent authority at that time. The potential for effects during the decommissioning phase of the Proposed Project has been fully assessed in the EIAR.

10.3.5 Cumulative Assessment

Potential cumulative effects on Air Quality between the Proposed Project and other permitted or proposed plans in the area (wind energy or otherwise), as set out in Section 2.10 in Chapter 2 of this EIAR, were also considered as part of this assessment. Relevant developments within 1 km of the Project Site are listed in Appendix 2-3, while the cumulative assessment study area and associated justification are set out in Table 2-6 of Chapter 2.

10.3.5.1 Construction Phase

During the construction phase of the Proposed Project, and other permitted or proposed projects and plans in the area, there will be minor emissions from construction plant and machinery and potential dust emissions associated with the construction activities.

Eastern and Midlands Region Water Supply Project

The proposed Uisce Éireann Eastern and Midlands Region Water Supply Project (Case Ref: PA92.323980) includes a proposed water pipeline from a new water treatment plant near Birdhill, Co. Tipperary to a termination point reservoir at Peamount, Co. Dublin, traverses the Project Site in an east-west direction across Codd Bogs 1 and 2, Glashabaun North and South Bogs, and Derrybrennan Bog detailed in Section 2.17.2.1 of Chapter 2. The Water Supply Project has been considered in the design of the Proposed Project and is considered in the cumulative impact assessments of this EIAR chapter. Given the nature of the Water Supply Project as linear utility infrastructure, and subject to its own design, consenting, construction management and operational controls, no credible pathway has been identified whereby the Water Supply Project would interact with the Proposed Project to give rise to significant cumulative effects in terms of air quality. The dust emission for this proposed development is expected to have imperceptible, negative, Not Significant effect, which cumulatively with the Proposed Project will not give rise to any significant cumulative effect on air quality after implementing necessary mitigation measures.

However, once the mitigation proposals, as outlined in Section 10.3.2, are implemented during the construction phase of the Proposed Project, there will be no cumulative negative effect on air quality.

Edenderry Gas Pipeline project

The proposed Edenderry Gas Pipeline, located within the Proposed Wind Farm site, lies within the Air Quality Study Area and intersects with upgrades to existing roads and proposed dedicated amenity board walk. The proposed gas pipeline project is currently anticipated to be constructed over a 22-month period commencing in Q1 2028, whereas the Proposed Project assumes an indicative construction start date of Q1 2030. As such, there is no anticipated overlap in the main construction programmes of the two developments and therefore limited potential for cumulative construction-phase effects associated with air quality. Prior to construction, the Applicant will engage with GNI via the 'Dial Before You Dig' procedure online. GNI will be contacted on 1800 42 77 47 before excavating near the proposed pipeline. Furthermore, the '*Safety advice for working in the vicinity of natural gas pipelines'* guidance document and the GNI '*Code of Practice*' standards will be adhered to during all proposed upgrades to existing roads along the east of the Proposed Wind Farm.

Eirgrid Project

A planning application (Ref. 2560087) has been submitted for the proposed uprating of the existing 110 kV OHL between the existing Cushaling 110 kV Substation in the townland of Ballykilleen, Co. Offaly, and the existing Portlaoise 110 kV Substation in the townlands of Clonminam and Kylekiproe, Co. Laois. The proposed development has been considered as part of the cumulative assessment for the Proposed Project. Based on discussions held during the EirGrid scoping meeting on 16th December 2025, there is currently no anticipated overlap between the construction programme of the Proposed

Project and that of the proposed OHL uprating project, with the final phase of the EirGrid project currently expected to extend to 2029. Given the nature of the proposed OHL upgrading works and the absence of a significant temporal overlap in construction activities, no significant cumulative effects in relation to air quality are anticipated. Should material changes occur to the EirGrid project programme or design during the planning process, EirGrid has indicated that such changes can be communicated to BnM and MKO and considered, where relevant, in any updates to the EIAR.

Substitute Consent

As identified in Section 2.10.2.1 in Chapter 2, an application for substitute consent was submitted to An Coimisiún Pleanála (Case Ref: SU09.324604) on 20th August 2026 for peat extraction and ancillary works undertaken within part of the Project Site from July 1988 to the present day. An rNIS and rEIAR were submitted in support of this application. The remedial phase works identified within the substitute consent application are limited in scale and would result in a low volume of vehicle movements. Any associated impacts on air quality would therefore be short-term, neutral, imperceptible and Not Significant.

EPA Licensed Activities

The cumulative assessment has also considered the Draft Rehabilitation Plans for the Allen Bog Group together with the Proposed Project and the other proposed, permitted and operational developments identified in Chapter 2 of this EIAR. The rehabilitation measures identified within the Draft Rehabilitation Plans are not anticipated to be implemented concurrently with the construction phase of the Proposed Project. Some rehabilitation has commenced on the Proposed Wind Farm site already in the form of natural revegetation (as described in the Draft Rehabilitation Plan (Appendix 2-4). Currently, the cutaway peatlands are undergoing natural revegetation and ecological succession. Accordingly, the Draft Rehabilitation Plans have been considered as part of the future baseline and cumulative assessment rather than as activities occurring simultaneously with the construction of the Proposed Project. Overall, no significant negative cumulative effects on air quality are predicted in relation to the Draft Rehabilitation Plans and the Proposed Project.

Peatland Climate Action Scheme

In 2022, PCAS selected Lodge Bog where the Proposed Onsite Substation is located. The PCAS works are completed within Lodge Bog. The works included hydrological management, extensive re-wetting and drain blocking, modifying outfalls, creation of berms etc. These works will optimise hydrological conditions and will have benefits for water quality and storage attenuation as well as increased carbon storage and reduced emissions.

When considered cumulatively, the Proposed Wind Farm and the completed PCAS works within Lodge Bog will not result in any negative effects on air quality. As the PCAS works have already been completed, there will be no temporal overlap with the construction phase of the Proposed Project with the monitoring works of PCAS and there is no overlap between PCAS monitoring works with the Proposed Project permanent infrastructure footprint. Therefore, no potential for cumulative dust emissions arising from concurrent construction activities.

Cumulative Summary

As established above in Section 10.3.2, there are temporary to short-term, slight negative effects on air quality during the construction phase from:

- Exhaust emissions during the construction of Proposed Turbines, peat and spoil areas, Proposed Onsite Substation, Proposed Offsite Substation and all other supporting infrastructure;
- Exhaust emissions through vehicle transit to and from the Project Site using the Proposed Construction Haul Routes and Proposed Turbine Delivery Route;

- Dust emissions during the construction of Proposed Turbines, peat and spoil areas, Proposed Onsite Substation, Proposed Offsite Substation and all other supporting infrastructure;
- Dust emissions through vehicle transit to and from the Project Site.

Therefore, it is considered there will be no measurable cumulative effects on air quality, should other proposed or consented projects within the surrounding landscape be constructed in parallel with the Proposed Project.

10.3.5.2 Operational Phase

Exhaust emissions of CO_2, NO_x, SO_2 or dust emissions during the operational phase of the Proposed Project will be minimal, relating to the use of operation and maintenance vehicles onsite, and therefore there will be no measurable negative cumulative effect with other developments on air quality.

As established above in Section 10.3.3, there will be a long-term, imperceptible, negative effect on air quality due to exhaust and dust emissions from LGV vehicles visiting the Proposed Project for the purpose of amenity access can generate approximately 50 trips per day.

As established above in section 10.3.3, post-mitigation, there will be an overall long-term, significant, positive effect on Air Quality from the provision of an alternative to electricity derived from coal, oil or gas-fired power stations. The Proposed Project will result in emission savings of CO_2, NO_x, and SO_2. The production of renewable energy from the Proposed Project will have a long-term significant positive impact on air quality due to the offsetting of approximately 146,857 tCO_2e per annum. Refer to Chapter 11 Climate for further details on carbon displacement calculations.

The Proposed Project will operate within an established wind energy landscape that includes existing Cloncreen Wind Farm and existing Cushaling Wind Farm, both of which are currently operational. The combined operation of these renewable energy developments will result in the generation of electricity from non-fossil fuel sources, contributing cumulatively to the displacement of greenhouse gas emissions associated with conventional fossil fuel-based generation. This displacement effect represents a positive cumulative effect on air quality.

Substitute Consent

The substitute consent application for peat extraction and ancillary works from July 1988 to the present day that have been carried out within parts of the Project Site identified that activities to be carried out within the Allen Bog Group in the future would result in a long-term, neutral, imperceptible and not significant effect due to the provisions outlined in the Draft Rehabilitation Plans submitted as part of the substitute consent application.

EPA Licensed Activities

The Draft Rehabilitation Plans for the Allen Bog Group (Appendix 2-4), prepared in accordance with Condition 10 of IPC Licence Ref. P0503-01, recognises that the surface topography of the Project Site is heterogeneous.

From an air quality perspective, these rehabilitation measures will result in a progressive stabilisation of peat surfaces, reducing the extent of exposed bare peat and thereby decreasing the potential for dust emissions over time. In addition, re-wetting measures will increase soil moisture content, further limiting the potential for wind-blown particulate matter (PM_{10} and $PM_{2.5}$) generation.

The Proposed Project footprint represents approximately 2.9% of the Allen Bog Group and therefore does not impact or change the overall goals and outcomes of the proposed rehabilitation plans for the Allen Bog Group.

As identified in Section 10.3.3.1 and 10.3.3.2 above, there will be a long-term imperceptible negative impact on air quality as a result of exhaust and dust emissions from maintenance vehicles, however it is anticipated that the implementation of measures in the Draft Rehabilitation Plans and the operation of the Proposed Project will result in an overall positive cumulative effect on air quality.

Peatland Climate Action Scheme

As identified in Section 10.3.5.1 above, PCAS works are completed within Lodge Bog, which is located within the Project Site where the Proposed Onsite Substation is proposed.

PCAS represents enhanced peatland rehabilitation measures that go beyond the requirements of the IPC licence. These measures are designed to stabilise former industrial peat production areas and restore peatland hydrology. Enhanced rehabilitation will facilitate the transition of these bogs from degraded cutover peat toward functioning carbon sinks, thereby reducing ongoing carbon emissions and promoting long-term carbon sequestration.

Therefore, it is considered there will be no measurable negative cumulative effects on air quality if other proposed or consented plans within the surrounding landscape are operational in parallel with the Proposed Project. However, once the Proposed Project is operational, there will be a long-term, significant, positive impact on air quality.

In addition to the above, the Project Site will continue to be used for minimal turbary peat cutting activities from private landowners and therefore, vehicles required for access to these areas will continue to utilise the Project Site as required. During the operational phase, there will be a long term, imperceptible, negative cumulative effect on air quality due to vehicle exhaust emissions.

10.3.5.3 Decommissioning Phase

The works required during the decommissioning phase are described in Section 4.13 in Chapter 4: Description of the Proposed Project. Any cumulative impact and consequential effect that occurs during the decommissioning phase will be similar to that which occur during the construction phase, albeit of lesser impact. The mitigation measures prescribed for the construction phase of the Proposed Project will be implemented during the decommissioning phase thereby minimising any potential cumulative effects.