TOBIN

BUILT ON KNOWLEDGE

Bord na Móna

Derryadd, Derryaroge and Lough Bannow Bogs – Application for Substitute Consent

Remedial Environmental Impact Assessment Report

Chapter 10 – Air Quality

March 2025

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10.0 AIR QUALITY

10.1 INTRODUCTION

This chapter provides an assessment of the impacts to air quality resulting from Bord na Móna's historic peat extraction activities and ancillary activities at the Application Site. The air quality impact assessment has been prepared for the Peat Extraction Phase (1988 – 2019), the Current Phase (July 2019 – present) and the Remedial Phase of the site activities. The baseline environment has been prepared with reference to published air quality data from the Environmental Protection Agency (EPA). For the purposes of this assessment, while the activities associated with the Project have occurred over the past decades, beginning in 1988 and continuing to present day, impacts have been assessed against the most recently published air quality standards which are likely more stringent than historical standards from previous years. Therefore, if it can be determined in this assessment that based on the most recent standards, no significant effects occurred as a result of the Project then it is unlikely that significant impacts occurred based on historical standards. Historical impacts associated with the Peat Extraction Phase have been assessed from 1988, with the introduction of the EU EIA Directive, until 2019 when peat extraction ceased on site. The primary concern regarding air quality is the generation of atmospheric dust from peat extraction and vehicle exhaust emissions.

A comprehensive description of the project is provided in Chapter 4 (Project Description).

10.1.1 Statement of Authority

This chapter was prepared by Ciara Nolan, a Principal Air Quality Consultant with AWN Consulting Ltd. Ciara holds a BSc(Eng) in Energy Systems Engineering from University College Dublin and has also completed an MSc in Applied Environmental Science at UCD. She is a Member of the Institute of Air Quality Management (MIAQM) and the Institute of Environmental Science (MIEnvSc). Ciara has over 8 years of experience in the field of air quality consultancy. She has prepared the air quality and climate EIAR chapters for a range of developments including wind energy, industrial, pharmaceutical, data centre, residential and commercial.

This chapter was reviewed by Dr. Jovanna Arndt. She is a Senior Environmental Consultant in the Air Quality section of AWN Consulting. She holds a BSc (Hons) in Environmental Science from University College Cork and completed a PhD in Atmospheric Chemistry at University College Cork in 2016. She is a Member of the Institute of Air Quality Management and specialises in assessing transportation impacts on air quality using dispersion modelling and source apportionment of particulate matter. Jovanna has been involved in assessing air quality impacts from major Highways England road schemes, Clean Air Zones and major rail infrastructure in the form of HS2. She has also provided Air Quality Action Plan (AQAP) and Air Quality Management Area (AQMA) support to several UK councils.

10.1.2 Limitations and Difficulties

Data pertaining to the baseline year of 1988 were not available in relation to air quality. Published air quality monitoring data from the EPA is available online as far back as 2006. Data for the period 2006 – 2023 were used in the assessment in order to estimate the background air quality in the vicinity of the Application Site.

Historical traffic figures for 1988 when the EIA Directive was required to be transposed in Irish law, are not available. Traffic figures for the years of 2017 and 2022 were used in the traffic assessment (see Chapter 14). A factor was applied to the 2017 traffic figures to estimate the potential annual daily traffic (ADT) numbers in 1988.

10.2 METHODOLOGY

10.2.1 EPA Description of Effects

The significance of effects of peat extraction and ancillary activities shall be described in accordance with the EPA guidance document *Guidelines on the information to be contained in Environmental Impact Assessment Reports (EIAR), May 2022*. Details of the methodology for describing the significance of the effects are provided in Chapter 2 – Remedial EIA Methodology.

The rating of potential environmental effects of the peat extraction works undertaken at the Application Site on air quality is based on the criteria presented in Table 3.4 of the EPA (2022) document titled *Guidelines on the Information to Be Contained in Environmental Impact Assessment Reports.* These criteria consider the quality, significance, duration and types of effect characteristics identified.

10.2.2 Assessment Criteria

10.2.2.1 IPC Licence Criteria

There are no statutory limits on dust deposition and the focus is on the prevention of nuisance and minimising air borne dust emissions where practicable. Although coarse dust is not regarded as a threat to health, it can create a nuisance by depositing on surfaces. Condition 5 of the Integrated Pollution Control Licence Reg. No. P0504-01 issued to Bord na Móna Energy Limited in May 2000 is specific to Emissions to Atmosphere, including dust emissions. The following conditions apply:

5.2 The licensee shall ensure that all operations on-site shall be carried out in a manner such that air emissions and/or dust do not result in significant impairment of, or significant interference with amenities or the environment beyond the site boundary.

5.3 Within three months of the date of grant of the licence, the licensee shall submit to the Agency for agreement, a proposal for the identification and monitoring of Dust Sensitive Locations (DSL's) on and off site for dust deposition. A report on this monitoring shall be submitted annually as part of the AER.

5.4 Activities on-site shall not give rise to dust levels off site at any Dust Sensitive Location which exceed an emission limit of 350 mg/m^2/day. [The sampling method to be in accordance with German TA Luft Emission Standards for Particle Deposition (IW1)].

The dust emission limit value of 350 mg/m^2/day is applicable to the Peat Extraction Phase, the current phase, and the remedial phase of this assessment.

10.2.2.2 Air Quality Standards

In addition to the above licenced condition in relation to dust emissions and dust deposition, emissions of nitrogen dioxide (NO_2), particulate matter less than 10 microns (PM_{10}) and particulate matter less than 2.5 microns ($PM_{2.5}$) also have the potential to impact air quality at

sensitive locations as a result of operations associated with the Peat Extraction Phase, the current phase, and the remedial phase. While air quality was a concern from the 1970s, it was not until the 1980s that directives were put in place to tackle potential risks. The first edition of the WHO Air quality guidelines for Europe was published in 1987.

In 1996, the Air Quality Framework Directive (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. 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); and,
- The fourth Daughter Directive, 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).

The Air Quality Framework Directive and the first three Daughter Directives have been replaced by the Clean Air for Europe (CAFE) Directive (Directive 2008/50/EC on ambient air quality), 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 particulate matter less than 2.5 micrometers (µm) referred to as $PM_{2.5}$ including the limit value and exposure concentration reduction target;
- The possibility to discount natural sources of pollution when assessing compliance against limit values; and,
- The possibility for time extensions of three years for particulate matter less than 10µm (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.

The CAFE Directive is transposed into Irish legislation by the Ambient Air Quality Standards Regulations 2022 (S.I. No. 739/2022). These regulations supersede the Air Quality Standards Regulations 2011 (S.I. No. 180 of 2011), which previously 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 2022, which incorporate EU Directive 2008/50/EC, set similar or more stringent limit values in relation to the air pollutants outlined in the previous directives and also set limit values in relation to $PM_{2.5}$.

In October 2024 the EU formally adopted Directive (EU) 2024/2881 *of the European Parliament and of the Council of 23 October 2024 on ambient air quality and cleaner air for Europe*. This Directive supersedes EU Directive 2008/50/EC and sets out new air quality standards for pollutants to be reached by 2030 which are more closely aligned with the World Health Organisation (WHO) 2021 air quality guidelines.

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

The ambient air quality standards applicable for PM_{10} and $PM_{2.5}$ outlined in Directive 2008/50/EC (see Table 10.1) have been used in this assessment to determine the impact of the Peat Extraction Phase and the Current Phase on air quality, as these limits are more stringent than previous limits this ensures a conservative approach for the assessment. The ambient air quality limit values set out under Directive (EU) 2024/2881 (see Table 10.1) have been used to assess the potential impact to air quality from the Remedial Phase as these limits are applicable from 2030.

Air quality impacts are assessed at sensitive receptors off-site. Sensitive receptors for the purposes of this assessment are any occupied dwelling house, hostel, health building or place of worship and may include areas of particular scenic quality or special recreational amenity importance. Areas of ecological importance where designated species may be adversely impacted by dust soiling are also considered sensitive locations.

Table 10.1 : Ambient Air Quality Limit Values

Pollutant	2008/50/EC Limit Type	2008/50/EC Limit Value (applicable until 2030)	(EU) 2024/2881 Limit Type	(EU) 2024/2881 Limit Value (to be attained by 2030)
Nitrogen Dioxide (NO_2)	Hourly limit for protection of human health - not to be exceeded more than 18 times/year	200 µg/m^3	Hourly limit for protection of human health - not to be exceeded more than 3 times/year	200 µg/m^3
	n/a	n/a	24-hour limit for protection of human health - not to be exceeded more than 18 times/year	50 µg/m^3
	Annual limit for protection of human health	40 µg/m^3	Annual limit for protection of human health	20 µg/m^3
Particulate Matter (as PM_{10})	24-hour limit for protection of human health - not to be exceeded more than 35 times/year	50 µg/m^3	24-hour limit for protection of human health - not to be exceeded more than 18 times/year	45 µg/m^3
	Annual limit for protection of human health	40 µg/m^3	Annual limit for protection of human health	20 µg/m^3
Particulate Matter (as $PM_{2.5}$)	n/a	n/a	24-hour limit for protection of human health - not to be exceeded more than 18 times/year	25 µg/m^3
	Annual limit for protection of human health	25 µg/m^3	Annual limit for protection of human health	10 µg/m^3

10.2.3 Desktop Review

The following sources of information were consulted as part of a desktop review in order to establish the baseline environment in 1988 and to inform the air quality impact assessment:

- EPA IPC/IE Licence Register - Mountdillon Bog Group IPC Licence P0504-01 (https://www.epa.ie/our-services/licensing/licencesearch/, Accessed 22/01/2024)
- EPA annual air quality monitoring reports, 2006 – 2023 (https://eparesearch.epa.ie/safer/, Accessed 13/11/2024)
- Met Eireann Historical 30-Year Average Meteorological Data for Mullingar Station (1978 – 2008) (https://www.met.ie/climate-ireland/1981-2010/mullingar.html, Accessed 23/01/2024)
- National Parks & Wildlife Services Mapper – Protected Sites Map Viewer (https://dahg.maps.arcgis.com/apps/webappviewer/index.html?id=8f7060450de3485fa1c1085536d477ba , Accessed 22/01/2024)

As outlined in Section 10.1.2, data pertaining to the baseline year of 1988 are not available in relation to air quality.

10.2.4 Field Survey

No field studies have been conducted specifically related to air quality.

10.2.5 Consultation

As part of the assessment, consultations were conducted with various organisations, including the Department of Housing, Local Government and Heritage, the Environmental Protection Agency, Transport Infrastructure Ireland, Natural Capital Ireland, and the Sustainable Energy Authority of Ireland. Correspondence related to these consultations can be found in Table 2-1 of Chapter 2 (rEIA Methodology) in this rEIAR. No specific consultation with regard to air quality was conducted.

10.2.6 Study Area

In relation to potential dust impacts, the IAQM guidance (2024) states that dust impacts to people and property can occur up to 250m from the source. In addition, the guidance states that dust impacts to vegetation can occur up to 50m from the site and 50m from site access roads, up to 250m for the site entrance (IAQM, 2024). As a result, the study area with respect to dust impacts extends to 250m from the Application Site boundary for the purposes of this assessment (see Figure 10-1).

In relation to air quality impacts from vehicle emissions, the TII PE-ENV-01106 guidance (TII, 2022) states that a detailed air quality assessment is required where there are sensitive receptors (human or ecological) within 200m of affected road links. However, as noted in Section 10.2.7.1 a detailed assessment of traffic related air emissions has been screened out of this assessment as the changes in traffic are below the threshold requiring a detailed assessment.

For the purposes of this assessment, high sensitivity receptors to dust soiling or dust-related human health effects are regarded as residential properties where people are likely to spend the majority of their time, schools, hospitals and residential care homes. 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. In relation to potential dust related ecological impacts, high sensitivity receptors are designated areas of

conservation (either Irish or European designation) and where dust sensitive species are present. Figure 10-1 details the sensitive receptors, both human and ecological, within 250m of the Application Site boundary.

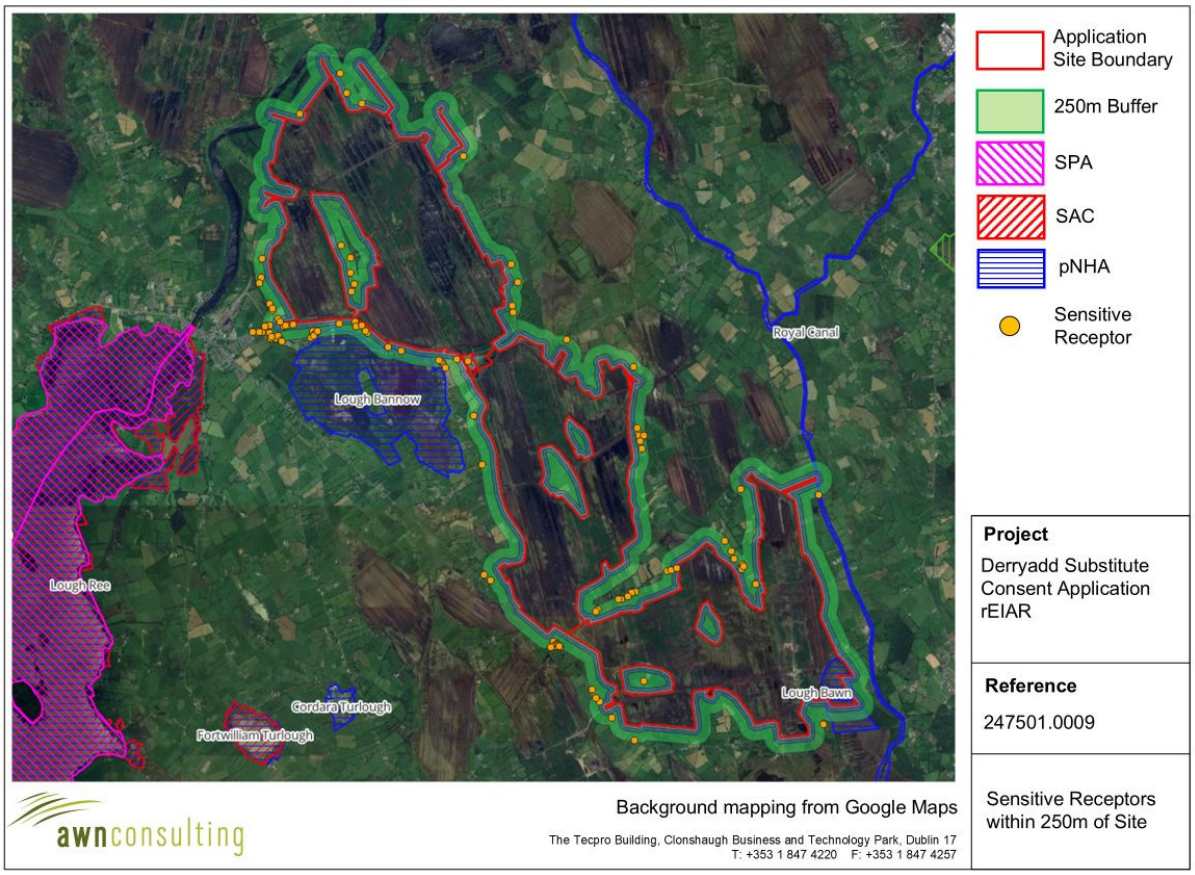

Figure 10-1: Air Quality Sensitive Receptors Within 250m of the Application Site Boundary

10.2.7 Impact Assessment Methodology

10.2.7.1 Vehicle Emissions

Emissions from cars, heavy good vehicles (HGVs) (including tractors and excavators) and railway movements associated with the operational activities have the potential to impact local air quality. The Transport Infrastructure Ireland (TII) scoping criteria outlined in their guidance document *Air Quality Assessment of Specified Infrastructure Projects – PE-ENV-01106* (TII, 2022) can be used to determine the need or otherwise for a detailed air quality assessment. The TII guidance is specific to TII road and infrastructure projects, however the criteria can be applied to any development that causes a change in traffic and is considered best practice guidance.

The TII guidance (2022) states that a detailed air quality assessment is required where there are sensitive receptors within 200m of impacted road links. The guidance states that road links at a distance of greater than 200m from a sensitive receptor will not influence pollutant concentrations at the receptor. The TII *PE-ENV-01106* guidance (2022), states that road links meeting one or more of the following criteria can be defined as being 'affected' by a proposed development and should be included in the local air quality assessment:

- Annual average daily traffic (AADT) changes by 1,000 or more;
- Heavy good vehicle (HGV) AADT changes by 200 or more;

- Daily average speed change by 10 kph or more;
- Peak hour speed change by 20 kph or more;
- A change in road alignment by 5 m or greater.

Chapter 14 Traffic & Transportation has been reviewed in order to inform this assessment.

During the Peat Extraction Phase, from July 1988 to 2019 it is noted that all peat removed from the bogs within the Application Site was transported via dedicated, private, internal rail lines to the nearby power station (Lanesboro and subsequently Lough Ree Power Station). Therefore, Chapter 14 states that an assessment of the impact of HGV movements from the Peat Extraction Phase was not required as there was no impact on the local road network from the transport of peat.

The impact of staff vehicles on the local road network was reviewed within Chapter 14 of this rEIAR. It was assumed that staff accessed the site via the Mountdillion Works, which is outside of the Application Site boundary. Chapter 14 notes that "*as exact routes taken for the staff travelling to the facility by road are not available, a direct route was chosen to their destination on the N63 to the Mountdillon Works. The assumed route minimised the usage of smaller local roads where possible*." Historical traffic figures for 1988, when the EIA Directive was required to be transposed into Irish law, are not available. Traffic figures for the years of 2017 and 2022 were used in the traffic assessment (see Chapter 14). A factor was applied to the 2017 traffic figures to estimate the potential annual daily traffic (ADT) numbers in 1988. Staff numbers were estimated based on information from Bord na Móna and are detailed in Table 14.3 of Chapter 14.

During the Peat Extraction Phase, it has been estimated that average daily staff trips to and from the site would have accounted for less than 5% of the total ADT on the local road network, as outlined in Section 14.1.6. Therefore, it is predicted that the increase in traffic on the local road network due to staff accessing the site is less than the above TII screening criteria for an air quality assessment.

The Current Phase and Remedial Phase traffic movements will be significantly less than those during the Peat Extraction Phase and are predicted to have an imperceptible impact on local traffic volumes. Traffic numbers during and after the Remedial Phase will be insignificant as this phase will have minimal numbers of permanent staff as well as intermittent visits from specialists. Therefore, in accordance with the screening criteria set out above it is not likely that any road would be classified as "affected". An assessment of the annual average traffic movements on traffic and transportation during the Peat Extraction Phase, Current Phase and Remedial Phase can be found in Chapter 14 Traffic & Transportation.

No detailed air quality assessment of traffic emissions is required for the Application Site as the change in traffic during the Peat Extraction Phase, Current Phase and Remedial Phase is below the TII PE-ENV-01106 screening criteria (TII, 2022) and no significant impacts are predicted.

10.2.7.2 Dust Emissions

The greatest potential impact on air quality associated with the Peat Extraction Phase, Current Phase and Remedial Phase of the Project at the Application Site is as a result of dust emissions. Large particle sizes (greater than 75µm) fall rapidly out of atmospheric suspension and are subsequently deposited in close proximity to the source. Particle sizes of less than 75µm are of interest as they can remain airborne for greater distances and can give rise to the potential dust nuisance at the sensitive receptors. This size range can broadly be described as silt.

The Institute of Air Quality Management in the UK (IAQM) guidance document '*Guidance on the Assessment of Dust from Demolition and Construction*' (2024) outlines an assessment method for predicting the impact of dust emissions from construction activities based on the scale and nature of the works and the sensitivity of the area to dust impacts. The IAQM methodology has been applied to the Peat Extraction Phase, the Current Phase and Remedial Phase at the Application Site. This methodology has been used to predict the likely risk of dust impacts as a result of the works, since 1988. The use of this UK guidance is recommended by TII in their air quality guidance PE-ENV-01106 (TII, 2022) and is considered best practice.

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

- Demolition.
- Earthworks.
- Construction.
- Trackout (movement of heavy vehicles).

The magnitude of each of the four categories is divided into Large, Medium or Small scale depending on the nature of the activities involved. The magnitude of each activity is combined with the overall sensitivity of the area to determine the risk of dust impacts from site activities. The categories of demolition, construction and trackout are not applicable to the Application Site. The category of earthworks can be applied to the historic peat extraction activities as the activities involved would be similar to those required for excavation and earth moving works on construction projects.

10.3 ESTABLISHMENT OF BASELINE (JULY 1988)

The baseline environment has been established as July 1988 for the purpose of this assessment. Historical data for air quality from this time period were investigated in order to establish the relevant baseline. However, published data for the entirety of this exact time period was not available for every source and therefore, data from as far back as possible have been used in establishing the baseline.

10.3.1 Review of EPA Air Quality Monitoring Data

Air quality monitoring programs have been undertaken in the past by the EPA and Local Authorities. The EPA website details the range and scope of monitoring undertaken throughout Ireland and provides both monitoring data and the results of previous air quality assessments (EPA, 2024). Monitoring data for the period 2006 – 2023 are available on the EPA website. Data prior to this is not published. Therefore data from 2006 – 2023 have been reviewed for the purposes of assessing the air quality in the region of the Application Site. The results of previous air quality monitoring are published in annual reports by the EPA (EPA, 2024). Data for the monitoring period of January 2020 to December 2020 inclusive has not been used to determine the baseline environment in this assessment as monitored background concentrations are not representative due to the Covid-19 restrictions in place at the time.

As part of the implementation of the Framework Directive on Air Quality (1996/62/EC), four air quality zones have been defined in Ireland for air quality management and assessment purposes. Dublin is defined as Zone A and Cork as Zone B. Zone C is composed of 23 towns with a population of greater than 15,000. The remainder of the country, which represents rural Ireland but also includes all towns with a population of less than 15,000 is defined as Zone D. In terms of air monitoring the Application Site is within the area categorised as Zone D (EPA, 2024). The long-term air monitoring data from representative rural Zone D locations has been reviewed

and used to determine background concentrations for the key pollutants of NO_2, PM_{10} and $PM_{2.5}$ in the region of the Application Site. The background concentrations account for all non-traffic derived emissions (e.g. natural sources, industry, home heating etc.). Representative rural Zone D sites have been reviewed as these are deemed the most appropriate in relation to the location of the Application Site which is in a predominantly rural area. There are monitoring stations in closer proximity to the site however, these were not considered representative.

Long-term NO_2 monitoring has been carried out at the rural Zone D locations of Kilkitt Co. Monaghan and Emo, Co. Laois with data available for the period 2006 – 2023. Data from 2006 – 2023 has been reviewed in the absence of older historic data. Over the period 2006 – 2023 annual mean concentrations of NO_2 at the rural background stations of Kilkitt and Emo ranged from a maximum of 5 µg/m^3 to a low of 2 µg/m^3(see Table 10.2) (EPA, 2024). The average annual mean concentration for the 2006 – 2023 period is 3.3 µg/m^3 which is significantly below the annual limit value of 40 µg/m^3. In addition, there were no exceedances of the 1-hour limit value of 200 µg/m^3 (18 exceedances are allowed per year). Based on the above information a conservative annual mean baseline concentration of 5 µg/m^3 has been used in this assessment.

Long-term PM_{10} monitoring has been carried out at the rural Zone D location of Kilkitt Co. Monaghan with data available for the period 2006 – 2023. Over the period 2006 – 2023 annual mean concentrations of PM_{10} ranged from a maximum of 11 µg/m^3 in 2013 to a low of 7 µg/m^3 in 2019 and 2023 (see Table 10.3) (EPA, 2024). The average annual mean concentration for 2019 – 2023 period is 8.7 µg/m^3 which is significantly below the annual limit value of 40 µg/m^3. In addition, there were few exceedances of the daily limit value of 50 µg/m^3 (35 exceedances are allowed per year). Based on the above information a conservative annual mean baseline concentration of 11 µg/m^3 has been used in this assessment.

Monitoring of $PM_{2.5}$ is undertaken at the rural Zone D location of Claremorris Co. Mayo. Data is available for the period 2011 – 2023 on the EPA website (EPA, 2024). Annual mean concentrations of $PM_{2.5}$ ranged from 4 - 8 µg/m^3 over the period 2011 – 2023 which are significantly below the annual mean limit value of 25 µg/m^3 (see Table 10.4). Based on this information, a conservative annual mean baseline $PM_{2.5}$ concentration of 8 µg/m^3 was used in this assessment.

While specific pollutant concentrations prior to 2006 are not available it can generally be assumed that historical air quality dating back to 1988 was of a lesser quality than in more recent years. The EPA state that air quality is improving over time (EPA, 2024) as a result of the introduction of various policies and measures particularly in relation to road transport emissions and the use of cleaner fuels and the gradual introduction of hybrid and electric vehicles.

Table 10.2: Trends in Zone D Air Quality – NO_2 ($\mu g/m^3$)

Station	Averaging Period	Year																	
		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Kilkitt, Co. Monaghan	Annual Mean NO_2 ($\mu g/m^3$)	6	2	4	3	3	3	4	4	3	2	3	2	3	5	2	2	2	2
	Max 1-hr NO_2 ($\mu g/m^3$)	110	83	108	50	32	65	42	72	38	97	80	25	37	59	18	15	19	17
	99.8 1-hr NO_2 ($\mu g/m^3$)	54	63	47	23	25	51	29	46	27	-	26	17	22	42	13	11	15	-
Emo, Co. Laois	Annual Mean NO_2 ($\mu g/m^3$)	-	-	-	-	-	-	-	4	3	3	4	3	3	4	3	4	3	2
	Max 1-hr NO_2 ($\mu g/m^3$)	-	-	-	-	-	-	-	38	31	34	194	33	91	56	179	64	179	55
	99.8 1-hr NO_2 ($\mu g/m^3$)	-	-	-	-	-	-	-	27	25	-	36	28	42	28	38	47	38	-

Table 10.3: Trends in Zone D Air Quality – PM_{10} ($\mu g/m^3$)

Station	Averaging Period	Year																	
		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Kilkitt, Co. Monaghan	Annual Mean PM_{10} ($\mu g/m^3$)	10	10	10	8	10	9	9	11	9	9	8	8	9	7	8	8	9	7
	24-hr Mean > 50 $\mu g/m^3$	0	2	1	1	0	1	1	3	2	1	0	0	0	1	0	0	0	0
	90th%ile of 24-hr Means ($\mu g/m^3$)	22	21	21	14	19	18	16	19	15	18	15	14	15	13	14	13	14	-

Table 10.4: Trends in Zone D Air Quality – $PM_{2.5}$ ($\mu g/m^3$)

Station	Averaging Period	Year												
		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Claremorris, Co. Mayo	Annual Mean $PM_{2.5}$ ($\mu g/m^3$)	6	6	8	5	6	6	6	6	4	5	8	6	5

10.3.2 Dust Deposition Monitoring

Monitoring for dust deposition has been undertaken on site in the past as a requirement of the IPC Licence (EPA Ref. P0504-01) for the site, (Appendix 4.1). The monitoring results are reported in the Annual Environmental Report (AER) each year (Appendix 4.4). Monitoring typically takes place between May to September of each year to correspond to the main extent of the peat extraction season, which generally runs from March to October. Monitoring is conducted at 2 no. locations within the Mountdillon Bog Group: DM-01 at Edera, Co. Longford and DM-02 at Cloonshanagh, Roosky Co. Roscommon. Both of these dust monitoring locations are outside the area of the Application Site which is the focus of this rEIAR. However, the dust monitoring results give an indication as to the historic dust levels in the area of the Mountdillon Bog Group during extraction activities.

Monitoring results for the 2 no. locations are available in the AERs for 2002 – 2019. Peat extraction ceased in 2019. Table 10.5 details the maximum annual result recorded at the monitoring locations as reported in the previous AERs for the Mountdillon Bog Group. There were a small number of exceedances of the 350 mg/m^2/day limit value for dust deposition, there was 1 no. exceedance at DM-01 and 3 no. exceedances at DM-02 over the 2002 – 2019 time period.

There have been a number of dust-related complaints reported in the AERs for the Mountdillon Bog Group over the 2002 – 2019 period which indicates that at times there have been issues with dust emissions from the Application Site impacting local residences. The AERs do not note the specific locations of these complaints but it is noted that they were associated with dust emissions from site activities, particularly peat extraction. Remedial measures were put in place to rectify any dust nuisance issues. The AERs note that extensive training programmes with staff were implemented to raise awareness regarding dust emissions from site activities and that particularly dusty activities were ceased if weather conditions were favourable to dust, i.e. dry and windy weather.

Based on the average monitoring results at the Application Site, a baseline concentration of 180 mg/m^2/day for dust deposition has been established.

Table 10.5: Maximum Annual Dust Deposition Monitoring Results

Year	DM-01 Edera (mg/m^2/day)	DM-02 Cloonshanagh (mg/m^2/day)	No. of dust complaints
2002	300	17	0
2003	111	109	1
2004	412	371	4
2005	59	177	4
2006	139	278	2
2007	189	511	0
2008	212	50	0
2009	83	67	0
2010	130	52	4
2011	177	267	5
2012	91	86	0
2013	160	107	6
2014	208	151	1
2015	97	151	2

Year	DM-01 Edera (mg/m^2/day)	DM-02 Cloonshanagh (mg/m^2/day)	No. of dust complaints
2016	244	189	2
2017	120	367	4
2018	117	122	9
2019	178	122	2
Average	**168**	**177**	-
No. of exceedances	1	3	-

Source: Bord na Móna Annual Environmental Reports 2002 – 2019

10.3.3 Sensitive Receptors

In addition to determining the baseline air quality in the vicinity of the Application Site it is also necessary to determine the sensitivity of the Study Area (see Section 10.2.6) to dust impacts as per the IAQM guidance (2024). The IAQM guidance and the below text refer to 'area' when considering sensitivities. In this context, when 'area' is referred to below it is in reference to the study area. Both receptor sensitivity and proximity to works areas are taken into consideration. As per Section 10.2.6, for the purposes of this assessment, high sensitivity receptors are regarded as residential properties where people are likely to spend the majority of their time. Commercial properties and places of work are regarded as medium sensitivity while low sensitivity receptors are places where people are present for short periods or do not expect a high level of amenity. Dust deposition impacts can occur for a distance of 250m from works areas (i.e. areas when potential dust generating activities are taking place) but the majority of deposition occurs within the first 50m (IAQM, 2024). The number of receptors with 250m of the Application Site was established using aerial mapping. It is possible that in the 1988 baseline there were fewer properties present than there currently are, however, by basing the assessment on the current property numbers this provides a conservative assessment.

In terms of sensitive receptors there are 6 no. residential properties within 20m of the Application Site boundary. There are a total of 118 no. high sensitivity residential properties within 250m of the Application Site boundary. As per the criteria in Table 10.6 the worst-case sensitivity of the Study Area to dust soiling impacts is **Medium.**

Table 10.6: Sensitivity of the Area to Dust Soiling Effects on People and Property

Receptor Sensitivity	Number Of Receptors	Distance from source (m)			
		<20	<50	<100	<250
High	>100	High	High	Medium	Low
	10-100	High	Medium	Low	Low
	1-10	**Medium**	Low	Low	Low
Medium	>1	Medium	Low	Low	Low
Low	>1	Low	Low	Low	Low

Source: Guidance on the Assessment of Dust from Demolition and Construction (IAQM, 2024)

In addition to sensitivity to dust soiling, the IAQM guidelines also outline the assessment criteria for determining the sensitivity of the study area to human health impacts. The criteria take into consideration the current annual mean PM_{10} concentration, receptor sensitivity and the

number of receptors affected within various distance bands from the works. A conservative estimate of the historical annual mean PM_{10} concentration is estimated to be significantly lower than the 24 µg/m^3 threshold for annual mean concentrations (Table 10.4). There are 6 no. high sensitivity residential properties within 20m of the Application Site boundary. Therefore, the worst-case sensitivity of the Study Area to dust-related human health impacts is considered **Low** as per Table 10.7.

Table 10.7:Sensitivity of the Area to Dust Related Human Health Effects

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

Source: Guidance on the Assessment of Dust from Demolition and Construction (IAQM, 2024)

Sensitive Ecological Receptors

The IAQM guidelines (2024) also outline the assessment criteria for determining the sensitivity of the area to ecological impacts from dust. The criteria take into consideration whether the receiving environment is classified as a Special Area of Conservation (SAC), a Special Protected Area (SPA), a Natural Heritage Area (NHA) or a proposed Natural Heritage Area (pNHA) or whether the site is a local nature reserve or home to a sensitive plant or animal species. A section of the Lough Bannow pNHA, Lough Bawn pNHA and Royal Canal pNHA are located within 250m of the Application Site boundary (see Figure 10.1). Only some small areas of the Lough Bawn pNHA and Royal Canal pNHA are within 20m of the Application Site boundary.

It should be noted that the EU Directives and domestic legislation which designated SACs, SPAs, NHAs, and pNHAs came into force after 1988 and after much of the drainage works, construction works and a large amount of the peat extraction activities had taken place on site. Therefore, at the time of the historic peat extraction activities many of the ecological areas were not officially designated sensitive habitats. Nevertheless, a conservative approach has been taken in this assessment and as sections of the Lough Bawn pNHA and Royal Canal pNHA contain sensitive habitats that may be sensitive to dust deposition they are therefore conservatively considered a high sensitivity receptor. As per Table 10.8 the worst-case sensitivity of the Study Area to dust-related ecological impacts is **High**.

Table 10.8: Sensitivity of the Area to Dust Related Ecological Effects

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

Source: Guidance on the Assessment of Dust from Demolition and Construction (IAQM, 2024)

10.4 ASSESSMENT OF SIGNIFICANT AIR QUALITY EFFECTS

10.4.1 Do-Nothing Scenario

For further information on the 'Do-Nothing Scenario' see Section 2.11.

Overall, considering the 'Do-Nothing Scenario' as it relates to air quality, the cessation of peat extraction activities at the Application Site in 1988 and allowing natural revegetation would have reduced air quality impacts, specifically in the form of dust emissions from peat extraction activities and transport related vehicle exhaust emissions.

The "Do-Nothing scenario" would have led to a decrease in emissions of dust and PM_{10} / $PM_{2.5}$ as peat extraction activities ceased and there would be a decrease in transport related emissions (NO_2, PM_{10} and $PM_{2.5}$), as there would be no active peat extraction machinery at the site and no transportation of peat by rail to the power station, except for the short-term removal of existing stockpiles of milled peat. This reduction is not considered to be significant.

Sensitive receptors within 250m of the Application Site boundary would have experienced improved air quality impacts with the cessation of activities on site. This impact is considered not significant but positive in relation to air quality.

As part of Bord na Móna's statutory obligations under IPC licence requirements, Cutaway Bog Decommissioning and Rehabilitation Plans will be implemented at the Application Site separate and independent of the Substitute Consent application. The implementation of the plans is included in the impact assessment below.

10.4.2 Peat Extraction Phase (1988 – 2019)

In order to align with the temporal scope (Section 2.5, Chapter 2 Methodology), the project description distinguishes between the activities that took place prior to the required transposition of the EIA Directive in 1988 and those activities that took place post-1988. The project scope baseline assessment starts from 1988, however a description of activities pre 1988 is included in Appendix 4.1.

Vehicle Emissions

No historical records are available regarding volumes of vehicle movements during the Peat Extraction Phase. As per Chapter 14 during the Peat Extraction Phase, it is noted that all peat removed from the bogs within the Application Site was transported via dedicated, private, internal rail lines to the nearby power station (Lough Ree). Therefore, Chapter 14 states that an assessment of the impact of HGV movements from the Peat Extraction Phase was not required as there was no impact on the local road network from the transport of peat.

However, the impact of staff vehicles on the local road network was reviewed within Chapter 14 of this rEIAR. As precise historical traffic figures were not available for the Peat Extraction Phase, traffic figures for the years of 2017 and 2022 were used in the traffic assessment (see Chapter 14). A factor was applied to the 2017 traffic figures to estimate the potential annual daily traffic (ADT) numbers in 1988. Staff numbers were estimated based on information from Bord na Móna and are detailed in Table 14.3 of Chapter 14. As per Chapter 14 and noted in Section 10.2.7.1 of this Chapter, during the Peat Extraction Phase, it has been estimated that average daily staff trips to and from the site would have accounted for less than 5% of the total ADT on the local road network. Therefore, it is predicted that the increase in traffic on the local road network due to staff accessing the site is less than the TII screening criteria for an air quality assessment (2022) (see Section 10.2.7.1 for details of TII screening criteria).

According to the TII significance criteria for assessing air quality impacts from traffic emissions, neutral effects are those where there is a change in concentration at a receptor of 5% or less and the background annual mean concentration is 75% or less of the ambient air quality standard. Negative effects are those where there is an increase in annual mean concentration at a receptor that does not constitute a neutral effect.

Therefore, should the TII screening criteria have been exceeded and some roads were deemed "affected", in order for an impact to occur an increase of more than 5% for annual mean NO_2, PM_{10} or $PM_{2.5}$ concentrations would need to occur at a sensitive receptor. In addition, the background pollutant concentrations would need to be over 75% of the standard; this would mean a concentration greater than 30 µg/m^3 for NO_2 and PM_{10} and a concentration greater than 18.75 µg/m^3 for $PM_{2.5}$ based on the current air quality standards (Table 10.1). As per Section 10.3.1 historical background pollutant concentrations for representative locations are significantly below these levels and as the predicted change in traffic is less than 5% of the total ADT on the local road network it is unlikely that traffic associated with the Application Site resulted in air quality impacts that were anything greater than neutral.

In addition, given there is a low density of receptors within the 200m study area of the roads which would have been utilised for workers and rail lines which transported peat from the bog there are few receptors with a potential for impact (less than 20 properties).

Using the assessment significance criteria for affected road links as set out in the TII PE-ENV-01106 guidance (TII, 2022) in combination with the historical records of background air quality available for Zone D (Section 10.3.1) the worst-case impact with respect to vehicle emissions is considered neutral. This is equivalent to a direct, negative, long-term and imperceptible impact from traffic emissions associated with the peat extraction activities using the EIA terminology for impact descriptions.

Dust Emissions

Historic peat extraction activities would have generated dust impacts at nearby properties. The milling, harrowing, ridging and harvesting processes would have generated some dust emissions. Dust impacts typically occur within 250m of the works area with the majority of deposition occurring within the first 50m according to the IAQM guidance (2024). However, it is noted that the stockpiled peat was covered once extracted in order to minimise milled peat being dispersed by the wind, as well as to keep the peat dry until required for use, and as such the covering of the peat would have greatly reduced the potential for dust emissions from stockpiled peat (see Chapter 3 for further detail). Dust deposition monitoring carried out within the Mountdillon Bog Group in areas representative of the Application Site and reported in the AERs (see Section 10.3.2) indicated that there have been 4 exceedances of the dust deposition limit value of 350 mg/m^2/day. Dust emissions reported within the AER are likely somewhat

lower than emissions would have been during the initial site preparation works and peat extraction works prior to 1988 but give a good indication as to general dust deposition trends over the past number of years (2002 – 2019).

The peat extraction activities can be considered under the heading of 'Earthworks' within the IAQM guidance (2024) as the activities involved would be similar to those required for excavation and earth moving works on construction projects. The peat extraction works can be classified as large under the IAQM guidance (2024) due to the site area involved. By combining the dust emission magnitude with the sensitivity of the area (see Section 10.3.3) the overall risk of dust impacts can be predicted. As per Section 10.3.3 the surrounding area is considered medium sensitivity to dust soiling impacts, low sensitivity to dust-related human health impacts and high sensitivity to dust-related ecological impacts. When combined with the large dust emission magnitude this results in a medium risk of dust soiling impacts, a low risk of dust-related human health impacts and a high risk of dust-related ecological impacts as per the criteria in Table 10.9.

Considering the predicted level of dust emission risk and the historic dust complaints (Section 10.3.2) it has been assessed that dust emissions from peat extraction works were direct, long-term, localised, negative and slight.

Table 10.9: Risk of Dust Impacts - Earthworks

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

10.4.3 Current Phase (July 2019 – Present Day)

During the Current Phase (2019 to present day), the activity at the Application Site is much reduced due to the cessation of the Peat Extraction Phase. The activity on site is limited to decommissioning and rehabilitation works (see Section 4.9 of Chapter 4). There is the potential for dust emissions associated with the removal of stockpiled peat (which was completed in 2022). The dust control measures stipulated within the IPC licence for the site are required to be in place to avoid potential dust issues. As mentioned, dust emissions typically occur within 250m of works areas with the majority of deposition occurring within the first 50m. There are a total of 116 no. sensitive residential receptors within 250m of the Application Site, of which 9 no. are within 50m. Due to the low number of sensitive receptors (i.e. 9 no. within 50m) and the minimal works involved in removing the stockpiled peat from the site, dust emissions are predicted to be direct, long-term, localised, negative, and imperceptible.

10.4.4 Remedial Phase

There are minimal works involved in the Remedial Phase that have the potential to impact air quality. The primary activities will involve re-vegetation of the site, drain blocking, re-wetting of the bogs where possible. Monitoring of the site will be undertaken to ensure stabilisation of the site and complete re-vegetation.

As per Section 10.3.3 the area is of medium sensitivity to dust soiling and low sensitivity to dust-related human health impacts and high sensitivity to dust soiling of vegetation within a small section of the Lough Bawn pNHA and Royal Canal pNHA. These sensitivities are also applicable to the Remedial Phase. There is a worst-case low risk of dust impacts as a result of dust emissions during the Remedial Phase due to the level of works involved and the overall sensitivity of the

area. The impact to air quality from dust emissions will be direct, long-term, localised, negative, and imperceptible.

There will also be a low number of vehicles and machinery required for drain blocking activities and for ongoing monitoring of the site. Emissions from site machinery and vehicles accessing the site during the Remedial Phase will result in a neutral impact to air quality due to the low volume of vehicles involved (see Chapter 14).

10.4.5 Risk of Major Accidents and Natural Disaster

Due to the nature of the Application Site and the activities undertaken as part of the Project, a significant risk of major accidents and natural disasters in relation to air quality is not envisaged for any phase of the Application Site. No major accidents or disasters have been reported for the site in the past.

10.4.6 Cumulative and Indirect Impacts

According to the IAQM guidance (2024), cumulative dust impacts can occur within 500m of the site. The following developments, from 1988 to present, have been included within the cumulative assessment as they are within 500m of the Application Site and have relevant air emissions which may have led to cumulative impacts.

- Lanesborough Power Station
- Lough Ree Power Station
- Derraghan Ash Disposal Site
- Other commercially harvested bogs operated by Bord na Móna and private operators
- Future use of lands at the Application Site for section of Harmony Solar grid connection which passes through Derryaroge bog
- Future use of lands at the Application Site for renewable energy development
- Future use of lands at the Application Site for enhanced rehabilitation works

The potential cumulative impacts with the identified developments and the Application Site are assessed below. A full description of the cumulative developments is included within Chapter 2, Section 2.9.

Lanesborough Power Station

Lanesborough Power Station was constructed prior to 1988 therefore, only operational emissions are considered relevant in the context of this cumulative assessment. Peat extracted from the bogs at the Application Site was transferred to the power station exclusively by dedicated rail line. The power station was operational from 1958 until 2004. In relation to cumulative impacts with the Application Site, emissions of nitrogen oxides and particulate matter are relevant. Emissions of these pollutants would have occurred as a result of the burning of peat at the station. The site was granted an IPC licence from the EPA in 2003 (Licence Reg. No. 629) which controlled emissions of air pollutants, including nitrogen oxides, particulate matter and dust. The conditions within the IPC licence for the power station were set to ensure that emissions were minimised and that no significant impacts to the local air quality environment occurred.

There is the potential that emissions of nitrogen oxides and particulate matter from the power station and particulate matter emissions from the peat harvesting activities and nitrogen oxides and particulate matter emissions from vehicles and machinery at the Application Site had a cumulative impact on the local air quality. Emissions from vehicles at the Application Site are

predicted to have been insignificant, therefore, cumulative impacts are not predicted to have been significant.

Peat extraction activities were limited to daylight hours during the peat extraction season, while emissions from the power station occurred 24 hours per day, thus, cumulative impacts were likely significantly less out of the peat extraction season. The peat extraction activities were predicted to have had a direct, long-term, localised, negative and slight impact on local air quality and nearby sensitive receptors (see Section 10.4.2). Dust control measures were in place at the Application Site as part of the IPC licence which aimed to reduce dust emissions and to ensure no significant impacts to the air quality environment occurred. Considering the above, in addition to the emissions from the power station, cumulative impacts are predicted to have been long-term, localised, negative and slight.

Lough Ree Power Station

Lough Ree Power Station was constructed between 2002 – 2004 and was in operation up until 2020. There was the potential for cumulative impacts between the Lough Ree Power Station and the peat extraction activities at the Application Site during the construction of the power station as a result of particulate matter and dust emissions impacting nearby sensitive receptors. The dust emission magnitude for the peat extraction activities has been assessed as large due to the site area involved (see Section 10.4.2). Dust control measures were in place at the Application Site as part of the IPC licence which aimed to reduce dust emissions and to ensure no significant impacts to the air quality environment occurred. The cumulative impact of dust emissions from the peat extraction activities and dust emissions from the construction of the Lough Ree Power Station are considered short-term, localised, negative and slight.

Once the station was in operation the cumulative effects of the Lough Ree Power Station with the peat extraction activities would have been similar to those set out above for the Lanesborough Power Station. Lough Ree Power Station holds an IPC licence from the EPA (Licence Reg. No. P0610-03) which has conditions to control emissions of air pollutants, including nitrogen oxides, particulate matter and dust. The conditions within the IPC licence for the power station were set to ensure that emissions are minimised and that no significant impacts to the local air quality environment occur. As with the Lanesborough Power Station the cumulative impact is predicted to have been long-term, localised, negative and slight.

The potential for cumulative impacts between the Lough Ree Power Station and the activities at the Application Site during the Current and Remedial phases has also been considered. Given the minimal works involved with the Current and Remedial phases and also considering the dust control measures that are in place at the Application Site and the emission control measures in place at the power station, significant cumulative impacts are not predicted to have occurred. The impact has been assessed as direct, long-term, localised, negative, and imperceptible.

Derraghan Ash Disposal Site

The Derraghan Ash Disposal Facility (ADF) is located just over 500 m to the west of the Application Site boundary and was constructed in 2004 to dispose of ash produced from the Lough Ree Power Station. The ADF was operated in accordance with an Industrial Emissions (IE) Licence (Reg. No. P0610-02) issued by the EPA. This Licence covered both generation at the Lough Ree Power Station and ash disposal facility activities. Dust emissions from the ash disposal activities are relevant in the context of this cumulative assessment. However, as the ADF is over 500m from the Application Site the potential for cumulative impacts is significantly lessened. In addition, there are very few sensitive receptors within the area of the ADF, most are over c. 380m from the ADF along the R392. Dust control measures were stipulated within

the IE Licence for the ADF which would have reduced the potential for cumulative impacts further. It is considered that cumulative impacts between the ADF and the peat extraction activities were long-term, localised, neutral and imperceptible.

Sliabh Bawn Wind Farm

The Sliabh Bawn Wind Farm is located to the north-west of Lanesborough at a distance of approximately 6 km from the Application Site boundary. Given the distance from the Application Site and the nature of the wind farm, constructed in 2015/2016, as a facility with no air emissions, cumulative impacts are not predicted.

Other Nearby Commercially Harvested Bogs

Consideration has been given to the potential for cumulative effects from other commercially harvested bogs located in close proximity to the Application Site. These primarily consist of other bogs owned and operated by Bord na Móna which are also part of the Mountdillon Bog Group, however it also includes privately owned and operated commercially harvested bogs.

The activities carried out on the other bogs would have been similar to those carried out at the Application Site. Cumulative dust emissions are likely to have occurred during the peat extraction activities. The dust control measures stipulated within the IPC licence for the Mountdillon Bog Group were applied at all operational bogs covered under the licence, thereby reducing dust emissions from peat harvesting works. Cumulative dust emissions from the peat extraction works at the Application Site and other nearby bogs were direct, long-term, localised, negative and slight to moderate.

Future Uses of the Application Site

In line with the Applicant's vision to assist in achieving a climate neutral Ireland by 2050, it is intended to utilise the Application Site for both peatland remediation and wind energy infrastructure and to facilitate environmental stabilisation of the Application Site and the optimisation of climate action benefits.

There is the potential for cumulative dust emissions to occur due to the solar farm grid connection, the future wind farm development and the remedial works on site. As discussed in Section 10.4.4, there are minimal works involved in the Remedial Phase and impacts from dust emissions and vehicle exhaust emissions are predicted to be imperceptible in relation to air quality. The cumulative impact is predicted to be short-term, localised, direct, negative and imperceptible.

10.5 MITIGATION AND MONITORING MEASURES

10.5.1 Peat Extraction Phase (1988–2019)

10.5.1.1 Vehicle Emissions

Chapter 4 outlines general control measures that were in place on site prior to 2000 with the implementation of the IPC licence and the measures imposed with the granting of the IPC licence for the site. In relation to vehicles and machinery, the below measures were enacted on site:

- All machinery was regularly inspected and serviced. All machinery was regularly cleaned via power steam wash system at a wash bay which drained into a fuel/oil interceptor unit and associated gravel soak pit. The interceptor unit facilitated the

removal of any oil/grease components. This was done to minimise dust and particle release; and
- A self-contained machine parts washer was located in the workshop at the Mountdillon Works.

10.5.1.2 Dust Emissions

Dust emissions are dramatically reduced where rainfall has occurred due to the cohesion created between dust particles and water and the removal of suspended dust from the air. High levels of moisture either retained in soil or as a result of rainfall help suppress the generation of dust due to the cohesive nature of water between dust particles. Rain also assists in removing dust from the atmosphere through washout. It is typical to assume no dust is generated under 'wet day' conditions where rainfall greater than 0.2mm has fallen (USEPA, 2006). Mullingar meteorological station, located 34km south-east of the Application Site, had 209 days (57% of the year) with greater than 0.2mm rainfall annually over a 30-year averaging period (1979 – 2008). Therefore, the majority of the time dust emissions were reduced naturally due to meteorological conditions.

Dust emissions were likely higher from the milled peat extraction process than the sod peat extraction process based on a review of the activities involved. The following control measures were undertaken as part of general site management and daily operation procedures at the Application Site from the onset of extraction in the 1940s to the cessation in 2019:

- Stockpiles were compacted on either side by large rollers drawn by tractors;
- Stockpiles were covered with polythene film gauge sheets and secured in position by spreading an even layer of high moisture content milled peat;
- Peat extraction during windy weather was to be avoided;
- The headlands were to be kept clean and loose peat removed;
- Drivers were required to drive slow along dusty headlands; and
- All road crossing points were to be maintained clean.

From 1988 to July 2019, it is considered that the majority of the time, dust emissions were reduced naturally due to meteorological conditions. Condition 5.5 of the IPC licence which came into effect in May 2000 for the site specifies the following dust control measures were to be implemented on site within 6 months of granting of the licence.

Condition 5 Emissions to Air:

5.5 In relation to Dust Control the licensee shall, within six months of date of grant of this licence, develop and implement procedures to ensure that:

- *shelter belts are planted in sensitive areas,*
- *harvesting in sensitive areas is avoided during windy weather,*
- *where possible machinery use grassed pathways,*
- *headlands are kept clean and free of excessive loose peat,*
- *stockpiles are sheeted where possible,*
- *moving machinery maintains slow speeds when travelling along dusty headlands,*
- *when harvesting, the jib is maintained low to the stockpile,*
- *shelter belts are planted around outloading facilities,*
- *road transported peat is adequately covered (sheeted or similar),*
- *wind breaks are planted where-ever possible.*

In relation to monitoring, as per Section 10.3.2, dust monitoring was required as part of the IPC licence for the site and was conducted during May – September with the results reported within the AER for the site.

10.5.2 Current Phase (July 2019 – Present Day)

The dust control measures outlined under condition 5.5 of the IPC licence for the site (see Section 10.5.1.2) are required to be implemented throughout the Application Site until the licence is surrendered.

10.5.3 Remedial Phase

The dust control measures outlined under condition 5.5 of the IPC licence for the site (see Section 10.5.1.2) should be implemented throughout the Remedial Phase of the Application Site to ensure dust emissions are minimised until the licence is surrendered.

10.6 RESIDUAL IMPACTS

10.6.1 Peat Extraction Phase (1988–2019)

Emissions from vehicles during the Peat Extraction Phase would have impacted air quality. The impact of additional vehicles on the local road network was considered with reference to the TII screening criteria (2022). It was concluded that the worst-case impact of traffic emissions associated with peat extraction activities was direct, negative, long-term and imperceptible.

The peat extraction activities would have led to some dust emissions with the potential to cause soiling and human health impacts at nearby sensitive receptors. It has been established that the peat extraction works had a medium risk of dust soiling impacts, a low risk of dust-related human health impacts and a high risk of dust soiling impacts on vegetation within a section of the Lough Bawn and royal canal pNHAs. As part of the IPC licence for the site a number of dust control measures were required to be implemented. In addition, dust monitoring was required to ensure dust emissions were not causing issue at nearby sensitive receptors. As per Section 10.3.2 dust monitoring results available for the period 2002 - 2019 indicated there were very few exceedances of the emission limit value of 350 mg/m^2/day at the representative monitoring locations at the Mountdillon Bog Group site. There have been some historic dust complaint issues from nearby sensitive properties in the area indicating that at times there have been dust issues from site activities. It can be concluded that the activities on site had a long-term, localised, direct, negative and slight impact on air quality.

10.6.2 Current Phase (July 2019 – Present Day)

There are a low number of sensitive receptors within close proximity to the Application Site. With the implementation of the dust control measures stipulated withing the IPC licence for the Application Site dust emissions associated with the Current Phase will be imperceptible.

Due to the low volume of vehicles and machinery involved in the Current Phase, exhaust emissions are predicted to have an imperceptible impact on air quality.

10.6.3 Remedial Phase

The impact to air quality from dust emissions during the Remedial Phase will be direct, long-term, localised, negative, and imperceptible. Impacts from vehicle emissions will be neutral and imperceptible due to the low number of vehicles required for the works.

10.7 REFERENCES

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