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# 17 AIR QUALITY

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## 17.1 Introduction

This chapter assesses the potential effects on air quality as a result of The Proposed Development. The Proposed Development comprises an 11-turbine wind farm on a site located within forested and agricultural lands. It also comprises a Grid Connection Route (GCR) for connection to the national grid, and temporary accommodating works along a Turbine Delivery Route (TDR) to the wind farm, to facilitate the delivery of large components from the port of delivery. The GCR and TDR are both assessed in this EIAR and form part of the planning application.

The key components that are described throughout the EIAR are listed below:

- The wind farm which consists of 11 wind turbines (4 turbines across the Eastern Development Area (Eastern DA) and 7 turbines across the Western Development Area (Western DA));
- The grid connection route and underground cables (also referred to as GCR and UGC); and,
- The turbine delivery route (TDR).

The term 'Proposed Development' collectively describes the above three components. Further information about the Proposed Development is presented in **EIAR Chapter 5: Project Description**.

The significance of effects in this chapter has been assessed in accordance with the Environmental Protection Agency (EPA) Guidelines on the information to be contained in Environmental Impact Assessment Reports (EIAR), 2022. With regard to the quality of effects, ratings can be beneficial, negligible or adverse. The significance of an effect on the receiving environment is described in the range between not significant and significant. The duration of effects as described in the EPA Guidelines are presented on a scale between momentary and permanent.

This chapter should be read in conjunction with the following Appendices:

- **Appendix 17.1 – Air Quality Standards**
- **Appendix 17.2 – Construction Dust Assessment Methodology**
- **Appendix 17.3 – Air Quality Assessment Report**

## 17.2 Statement of Authority

This chapter has been prepared by Phoebe Chan (RSK Environment Ltd.). Phoebe Chan is a senior air quality consultant at RSK Environment Limited. She is an associate member of the Institute of Environmental Science (AMIEEnvSc) and an associate member of the Institute for Air Quality Management (AMIAQM). Phoebe has two years' experience as a project manager for air quality consultancy and modelling, pollution prevention and development planning applications. She has prepared environmental impact assessment

report for various solar farms and wind farms. The content of this chapter has been reviewed by Robert Clark, a senior air quality consultant at RSK Environment Limited. Robert is an associate member of the Institute of Environmental Science (AMIEEnvSc) and an associate member of the Institute for Air Quality Management (AMIAQM) with six years' experience of environmental projects relating to infrastructure development, pollution prevention and control, and air quality assessments.

### 17.3 Consultations

An EIAR Scoping report including proposed air quality assessment scope and methodology was prepared and submitted in September 2023 for scoping opinion. No comments have been received to date.

### 17.4 Methodology

This air quality assessment has been prepared in accordance with the relevant European, national and local legislations and policies on the subject of air quality. A full review of relevant legislation and policy is given in **Volume III Appendix 17.1**. The methodology is accepted best practice and in accordance with guidance.

The applicable guidance is summarised as follows:

- Department for Environment, food and Rural Affairs, Local Air Quality Management (LAQM) Technical Guidance (TG22), 2022;
- Environmental Protection Agency (EPA), Guidelines on the information to be contained in Environmental Impact Assessment Reports, 2022;
- Highways England, LA 105 Air Quality of the Design Manual for Roads and Bridges, 2019;
- Institute of Air Quality Management, Guidance of the Assessment of dust from demolition and construction V2.1, 2023;
- Transport Infrastructure Ireland (TII), Air Quality Assessment of Specified Infrastructure Projects – Overarching Technical Document, 2022.

The assessment addresses effects during the construction, operational and decommissioning phases of the Proposed Development. The approach taken for assessing the potential air quality effects of the Proposed Development may be summarised as follows:

- Characterisation of baseline local air quality;
- Qualitative impact assessment of construction and decommissioning phase of the development;
- Impact assessment of air quality effects of the Proposed Development whilst it is operational;
- Cumulative impact assessment of Proposed Development with other permitted projects; and
- Mitigation measures to be implemented to ensure that any adverse effects on air quality are minimised.

## 17.4.1 Construction and Decommissioning Phase

### 17.4.1.1 Construction and Decommissioning Dust and Particulate Matter

Dust and particulate matter (PM) generated during the construction and decommissioning phase may have the potential for an adverse effect on local air quality, and therefore this was assessed in accordance with the Institute of Air Quality Management (IAQM) construction dust guidance V2.1 (IAQM, 2023).

In order to assess the potential effects, construction activities are divided into three types:

- Earthworks;
- Construction; and
- Trackout (defined as the transport of dust and dirt from the construction/demolition sites onto the public road network, where it may be deposited and then re-suspended by vehicles using the network).

The first step is to screen the requirement for an assessment. An assessment is required where there are human and/or ecological receptors within certain distances of the site.

Based on the IAQM construction dust guidance (IAQM, 2023), the study area for sensitive human receptors for earthworks and general construction activities will be up to 250m from the Site boundary. The study area for sensitive ecological receptors for earthworks and general construction activities will be up to 50m from the Site boundary. For trackout activities, the study area for both sensitive human and ecological receptors will be up to 50m from trackout route.

There are human receptors within 250m of the boundary of the site, GCR and TDR, and within 50m of the trackout route; therefore, construction dust may have the potential to cause an adverse effect in the local area. **Figure 17.1 to 17.4** show maps indicating the buffers, for identifying the sensitivity of the area.

There are no designated ecological receptors within 50m of the site boundary, GCR, TDR and trackout route; therefore, construction dust impact on ecological receptors has been scoped out from this assessment.

A qualitative impact assessment has been conducted to assess the risk of dust impacts and determine appropriate mitigation to adequately control the risk. The level of mitigation that will be implemented for each activity is then determined, being commensurate with the identified risk (high, medium or low risk). Mitigation is recommended for all these three risk categories as per the IAQM construction dust guidance V2.1 (IAQM, 2023). 'Negligible' is also a defined risk category, but mitigation is not required for the 'negligible' risk category. The IAQM construction dust guidance (IAQM, 2023) does not recommend assigning the significance of construction activities without mitigation. However, in EIAR terms (and for consistency in wording and terminology for the assessment of impact significance), high, medium, low and negligible (risk) will result in significant, moderate and slight significance levels, as shown in **Table 17.1**.

**Table 17.1: Classification of Significant Air Quality Effects (Construction and Decommissioning)**

Risk (IAQM)	Significance (EPA)
High	Significant
Medium	Moderate
Low	Slight
Negligible	Not significant

The full construction dust assessment methodology is presented in **Appendix 17.2**.

#### 17.4.1.2 Emission to Air from Construction and Decommissioning Traffic and Plant

Exhaust emissions from construction and decommissioning phase vehicles and plant may have an impact on local air quality adjacent to the routes used by these vehicles to access the Proposed Development site. A qualitative impact assessment has been undertaken using the approach as detailed in **Section 17.4.3.2** below, based on professional judgement and considering the following factors:

- The likely duration of the construction / decommissioning phase;
- The potential number and type of construction / decommissioning traffic and plant that could be required; and
- The number and proximity of sensitive receptors to the proposed development site and along the likely construction/decommissioning vehicle routes.

#### 17.4.2 Operational Phase

LA 105 of the Design Manual for Roads and Bridges (DMRB) was published by Highways England in November 2019 and sets out the requirements for assessing and reporting the effects of highway projects on air quality. The DMRB, on which the Transport Infrastructure Ireland (TII) guidance (TII, 2022) is based, 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 air quality assessment:

- Road alignment change of 5m or more;
- Daily traffic flow changes of 1,000 Annual Average Daily Traffic (AADT) or more;
- Heavy Duty Vehicle (HDV) flow changes of 200 AADT or more;
- Daily average speed change by 10 kph or more; and
- Peak hour speed change by 20 kph or more.

The TII guidance (TII, 2022) also states that a detailed modelling assessment will be required if:

- Existing air quality exceeds 90% of the air quality standard; or

- Sensitive receptors exist within 50m of a complex road layout (e.g., grade separated junction or hills with gradients > 2.5%).

For routes which pass within 2km of a designated area of conservation (Irish or European), TII requires consultation with an Ecologist. However, in practice, the potential for impact to an ecological site is highest within 200m of the proposed scheme.

A qualitative screening level assessment against the screening criteria above has been undertaken to assess the impacts on air quality due to operational phase traffic.

## 17.5 Receiving Environment

### 17.5.1 Baseline Environment

Existing or baseline air quality refers to the concentrations of relevant substances that are already present in ambient air. These substances are emitted by various sources, including road traffic, industrial, domestic, agricultural and natural sources.

The principal air quality pollutants relevant to this assessment are considered to be NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub>, generally regarded as the three most significant air pollutants released by vehicular combustion processes, or subsequently generated by vehicle emissions in the atmosphere through chemical reactions (IAQM, 2023). These pollutants are generally considered to have the greatest potential to result in human health impacts and are the substances of most concern in terms of existing levels in the area, as discussed below.

A desk-based study has been undertaken using data obtained from the EPA website. The Ennis, Co. Clare monitoring site (Station 25) is the nearest air quality monitoring station to the development site, which is located approximately 22km to the northwest (this site monitors SO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> only). The next nearest one is Ennistymon, Co. Clare monitoring site (TNO3947), which is approximately 45km to the northwest of the development site (this site monitors PM<sub>10</sub> and PM<sub>2.5</sub> only). The PM<sub>10</sub> and PM<sub>2.5</sub> monitoring data recorded at these two stations are presented in **Table 17.2**.

**Table 17.2: Annual Mean Measured Pollutant Concentrations**

Monitoring site	2022 Annual mean concentrations (µg/m <sup>3</sup> )		
	NO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
Ennis, Co. Clare (Station 25)	-	20.3	16.0
Ennistymon, Co. Clare monitoring site (TNO3947)	-	10.3	7.7
<b>Air Quality Standard (AQS)</b>	<b>40</b>	<b>40</b>	<b>20</b>

Source: <http://airquality.ie>

No exceedances of the relevant air quality standards (AQSs) were recorded at these sites. Therefore, exceedances of the relevant AQSs at the site is not expected.

The National Parks and Wildlife Services website (<https://www.npws.ie/>) indicates that there are no designated ecologically sensitive designated sites within 50m of the site

boundary, grid connection route (GCR), turbine delivery route (TDR) or potential routes along which trackout could arise. Therefore, impacts of ecological receptors are not considered applicable and have not been considered further.

## 17.6 Potential Effects of the Proposed Development

### 17.6.1 Do-nothing Scenario

According to the EPA's Air Quality in Ireland Report 2022, air quality in Ireland is generally good. Ireland met all the EU legal limit values for selected pollutants, including NO<sub>2</sub>, PM<sub>10</sub>, PM<sub>2.5</sub> and ozone, measured in 2022.

Air quality across the study area in the absence of the Proposed Development is anticipated to remain largely unchanged from the levels in the current baseline conditions.

### 17.6.2 Construction Phase

#### 17.6.2.1 Potential Dust Emissions Magnitude

With reference to the IAQM construction dust guidance (IAQM, 2023) outlined in EIAR **Volume III, Appendix 17.2**, the estimation of dust emissions magnitudes (before mitigation) for earthworks, construction and Trackout activities are presented in **Table 17.3**. No demolition work will be undertaken as part of this application, therefore, potential air quality impacts from demolition work has been scoped out from this assessment.

**Table 17.3: Summary of Dust Emissions Magnitudes (before Mitigation)**

Activity	IAQM Criteria	Dust Emission Magnitude
Demolition	No demolition will take place.	N/A
Earthworks	Total site area where earthworks may occur is >110,000m <sup>2</sup> . The site is located on top of Sandstone. The number of heavy earth-moving vehicles active at any one time will be 5-10. The height of stockpiles on site will be 4-6m.	Medium-Large
Construction	Total building volume is estimated to be 0 m <sup>3</sup> . On-site concrete batching and sandblasting are not proposed. Construction materials are expected to be potentially dusty.	Small-Medium
Trackout	Number of heavy vehicles per day out of the site is estimated to be <20. The sites surface will consist of gravel roads. Estimated that vehicles may travel on unpaved roads >100m in length.	Medium

### 17.6.2.2 Sensitivity of Area

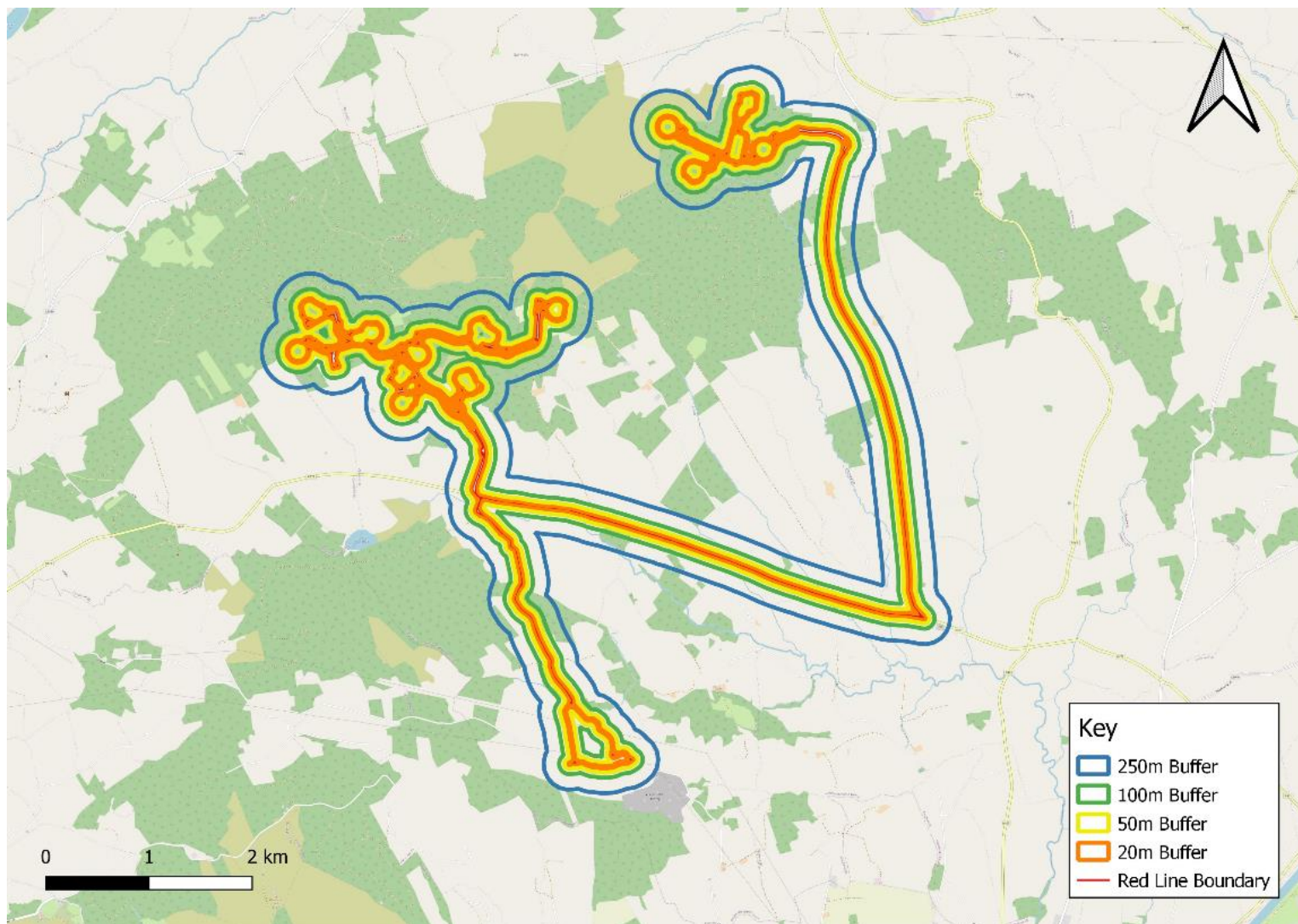
As per the IAQM construction dust guidance (IAQM, 2023), the sensitivity of the area takes into account a number of factors, including:

- The specific sensitivity of receptors in the area;
- The proximity and number of those receptors;
- For the human health assessment, the local background annual mean PM<sub>10</sub> concentration; and
- Site specific factors, such as whether there are natural shelters, such as trees, to reduce the risk of wind-blown dust.

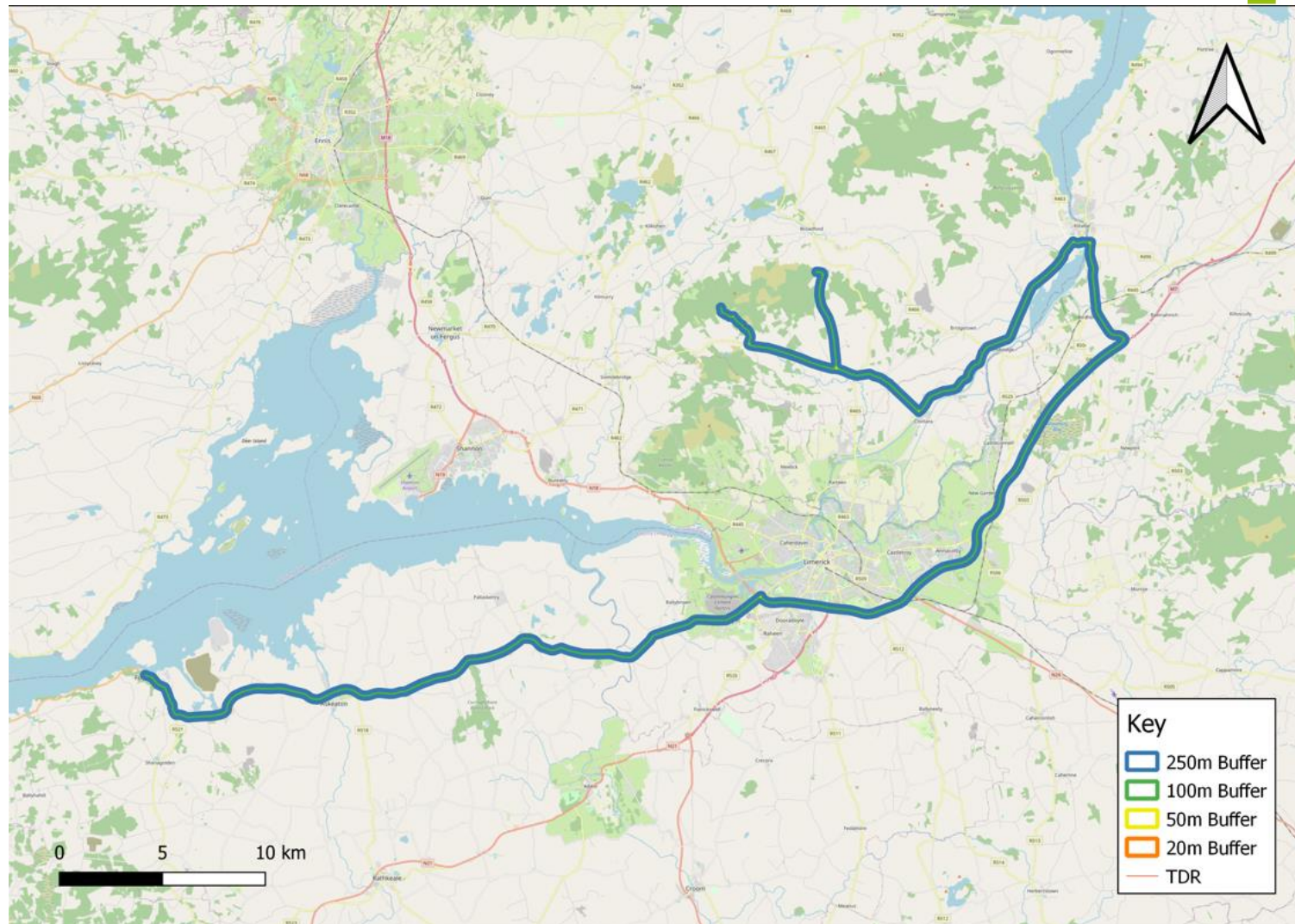
Consideration is given to humans from the impact of the construction site boundary and routes along which heavy good vehicles (HGVs) may facilitate trackout.

**Figure 17.1** to **Figure 17.4** show maps indicating the buffers, for identifying the sensitivity of the area. **Table 17.4** presents the determined sensitivity of the area with the factors itemised which have helped to define this.

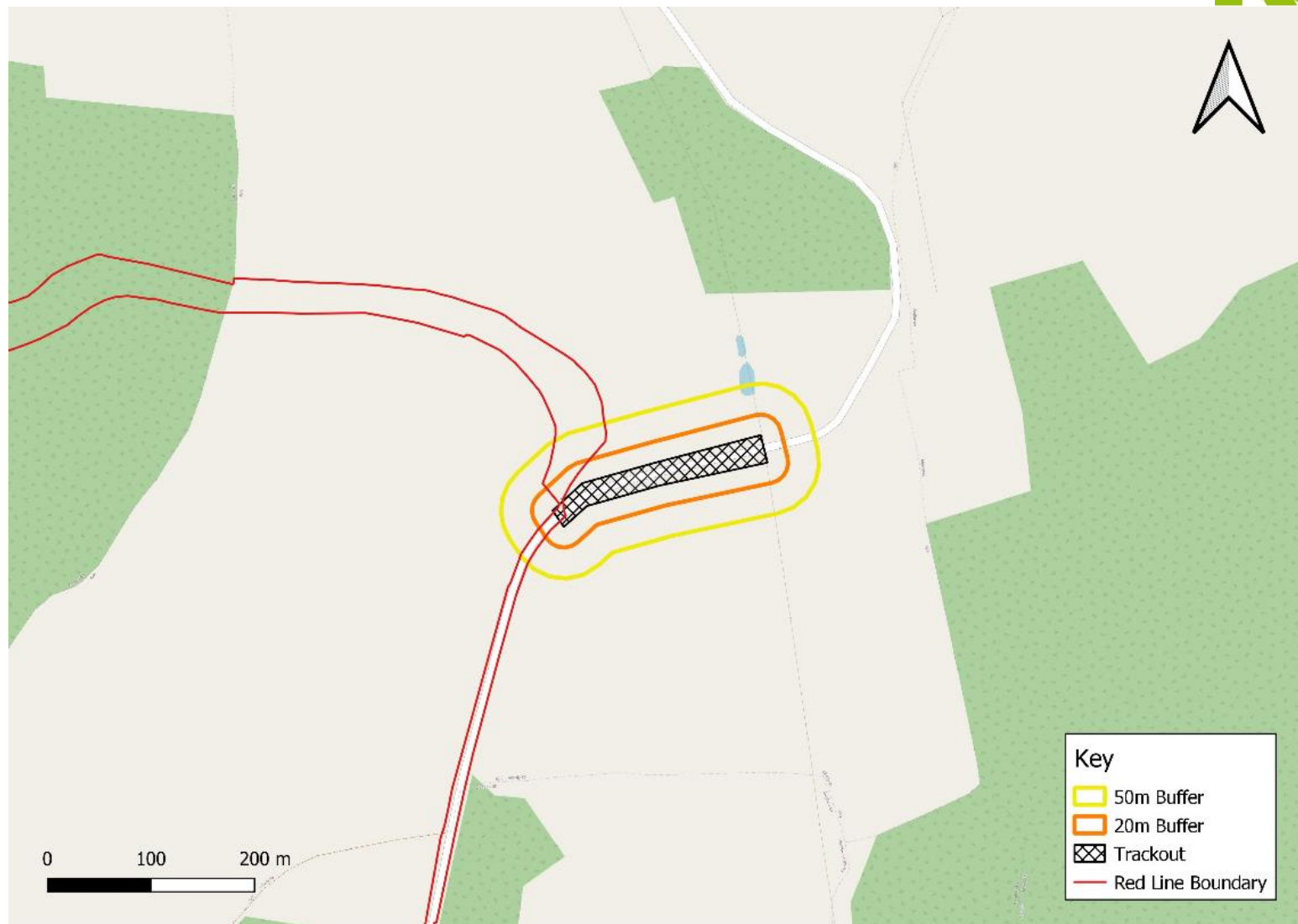




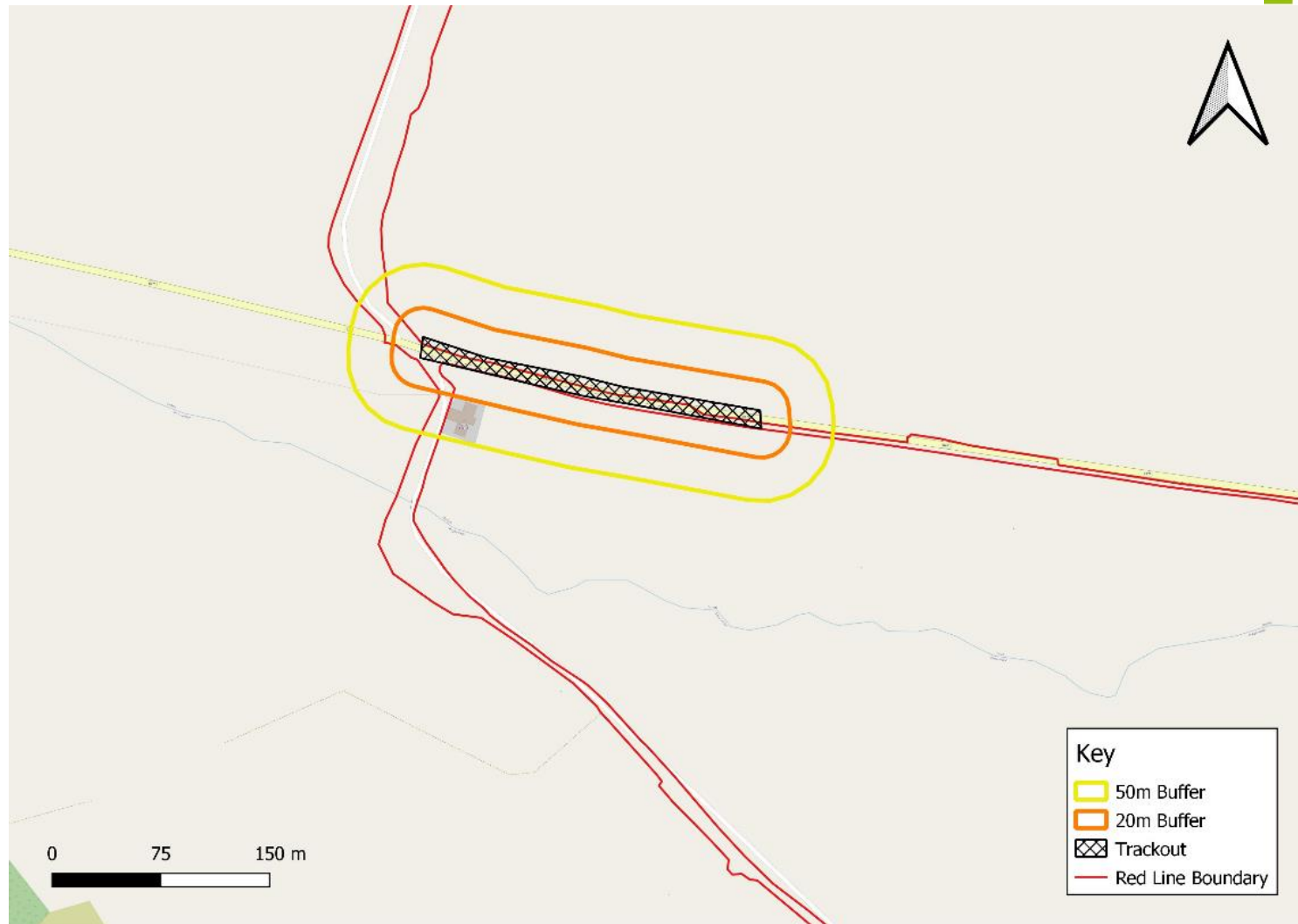
**Figure 17.1: Red Line Boundary Buffer Map**



**Figure 17.2: Turbine Delivery Route Buffer Map**



**Figure 17.3: Trackout Activities Buffer Map (Access to Eastern DA)**



**Figure 17.4: Trackout Activities Buffer Map (Access to Western DA)**

**Table 17.4: Sensitivity of Area**

Potential Impact		Demolition	Earthworks	Construction	Trackout	
Dust Soiling	Receptor sensitivity	N/A	High	High	High	
	Number of receptors		10-100	10-100	1-10	
	Distance from the source		<20m	<20m	<20m	
	Overall Sensitivity of the Area		<b>High</b>	<b>High</b>	<b>Medium</b>	
Human health	Receptor sensitivity		N/A	High	High	High
	Annual mean PM <sub>10</sub> concentration			<24 µg/m <sup>3</sup>	<24 µg/m <sup>3</sup>	<24 µg/m <sup>3</sup>
	Number of receptors			10-100	10-100	1-10
	Distance from the source			<20m	<20m	<20m
	Overall Sensitivity of the Area			<b>Low</b>	<b>Low</b>	<b>Low</b>
Ecological	N/A					

Construction activities are considered relevant up to 250m from the Proposed Development site boundary, GCR and TDR whereas trackout activities are only considered relevant up to 50m of the trackout route, as per the IAQM construction dust guidance (IAQM, 2023).

The National Parks and Wildlife Services website (<https://www.npws.ie/protected-sites>) was referenced to identify sensitive ecological receptors near the Proposed Development site. There are no ecologically designated sites (Special Protection Areas, Special Areas of Conservation or Natural Heritage Areas) within 50m of the site boundary, GCR, TDR or potential routes along which trackout could arise.

Human receptors were identified within 250m of the Proposed Development site boundary, GCR and TDR and within 50m of the trackout route by making reference to online publicly available satellite imagery.

### 17.6.2.3 Risk of Impacts

The dust emission magnitude summarised in **Table 17.3** has been combined with the sensitivity of the area in **Table 17.4** to determine the risk of impacts of construction

activities before mitigation. These have been evaluated based on risk categories of each activity as outlined in EIAR **Volume III, Appendix 17.2**.

The risk of dust impacts from construction activities (before mitigation) is identified as ranging between low and high risk (equivalent to slight to significant effect), as is shown in **Table 17.5**. Mitigation measures to reduce construction phase effects are defined based on this assessment.

**Table 17.5: Summary of Dust Risk from Construction Activities**

Potential effects	Demolition	Earthworks	Construction	Trackout
Dust soiling	N/A	Medium-High risk	Low-Medium risk	Low risk
Human health	N/A	Low risk	Negligible-Low risk	Low risk
Ecological	N/A			

#### 17.6.2.4 Exhaust Emission from Plant and Vehicles

During Construction phase, the Proposed Development has been estimated to generate an average of 44 construction vehicle movements per day and a maximum of 76 construction vehicle movements per day, with 62% of HGV (as per Chapter 16 Traffic and Transport). The predicted heavy good vehicle (HGV) and light good vehicle (LGV) generation do not exceed the DMRB screening criteria and therefore it is considered that further assessment of the construction phase traffic emissions is not required. The short-term increase in vehicle emissions during construction phase is considered to be not significant.

The operation of construction site equipment and machinery will result in emissions to atmosphere of exhaust gases, but with suitable controls and site management such emissions are considered short-term and not significant (as per Defra's Local Air Quality Management Technical Guidance, 2022).

### 17.6.3 Operational Phase

The assessment of baseline air quality in the region of the Proposed Development has shown that current levels of key pollutants are significantly lower than their limit values. Due to the nature of the Proposed Development, the principal operational phase air quality impact is likely to be associated with traffic emissions as a result of any changes in traffic flows or flow composition that the Proposed Development may bring. The vehicle trip generation for the Proposed Development once operational is anticipated to be minimal as both the wind farm and substation will be operated remotely.

The Proposed Development is not expected to generate traffic exceeding the DMRB screening criteria once operational and therefore it is considered that further assessment of the operational phase traffic emissions is not required. The increased road traffic emissions resulting from the Proposed Development are not expected to have a significant effect on air quality during the operational phase.

Furthermore, considering the electricity to be generated by the wind farm, which is a clean, sustainable source of energy, the Proposed Development will help reduce the energy requirements from fossil fuels, which emit harmful air emissions, such as carbon dioxide, nitrogen dioxide, sulphur dioxide and particulate matters. The emissions payback period was calculated and presented in **Chapter 18 Climate Change**.

#### **17.6.4 Decommissioning Phase**

The decommissioning phase will involve the removal of the proposed wind turbines and associated infrastructure from the site. Vehicles and generators associated with the removal of the turbines have the potential to cause a temporary adverse impact on local air quality in the short term. The traffic impact associated with the decommissioning phase will be significantly less than the construction phase. The Proposed Development is not expected to generate traffic exceeding the DMRB screening criteria during the decommissioning phase and therefore it is considered that further assessment of the decommissioning phase traffic is not required.

Based on the temporary nature of the decommissioning activities and low background pollutant concentrations in the vicinity of the site, it is considered unlikely that the effect of dust and particulate matter emissions and exhaust emissions from plants and vehicles during decommissioning phase will result in a significant effect on local air quality. It should be noted that measures implemented during the construction phase are also relevant for the decommissioning phase. Therefore, the Proposed Development is not expected to have a significant effect on local air quality during the decommissioning phase.

### **17.7 Mitigation Measures**

#### **17.7.1 Construction Phase**

##### *17.7.1.1 Fugitive Dust Emissions*

The dust emitting activities outlined above can be effectively controlled by appropriate dust control measures (described below) and any adverse effects can be greatly reduced or eliminated.

Prior to commencement of construction activities, a Construction Environmental Management Plan (CEMP)) (**Appendix 5.1 to EIAR Chapter 5 Project Description**) for the construction phase will be agreed with the local authority to ensure that the potential for adverse environmental effects on local receptors is minimised. The CEMP will include measures for controlling dust and general pollution from site construction operations. Controls will be applied throughout the construction period to ensure that emissions are mitigated.

The dust risk categories identified have been used to define appropriate, site-specific mitigation methods. Site-specific mitigation measures are divided into general measures, applicable to all sites and measures specific to earthworks, construction and trackout. Depending on the level of risk assigned to each site, different mitigation is assigned. The method of assigning mitigation measures as detailed in the IAQM construction dust guidance (IAQM, 2023) has been used.

In this case, the 'low risk', 'medium risk' and 'high risk' site mitigation measures have been applied, as determined by the dust risk assessment. For those mitigation measures that are general, the highest risk assessed has been applied. Two categories of mitigation measure are described in the IAQM construction dust guidance (IAQM, 2023) – 'highly recommended' and 'desirable', which are indicated according to the dust risk level identified in **Table 17.5** under Section **17.6.2.3**.

The mitigation measures described below will be used to control potential fugitive emissions from the construction project. Therefore, the measures listed below, whether cited as 'highly recommended' or 'desirable' (in italics below) in the IAQM construction dust guidance (IAQM, 2023), will be applied.

### **Communications**

- Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.
- Display the name and contact details of people accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager.
- Display the head or regional office contact information.

### **Dust Management**

- Further develop and implement a Construction Environmental Management Plan (**Appendix 5.1 to EIAR Chapter 5 Project Description**), which include measures to control other emissions, approved by the local authority.

### **Site Management**

- Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken.
- Make the complaints log available to the local authority if requested.
- Record any exceptional incidents that cause dust and/or air emissions, either on- or off-site and the action taken to resolve the situation in the logbook.
- Hold regular liaison meetings with other high risk construction sites within 500m of the site boundary, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised.

### **Monitoring**

- Undertake regular on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and windowsills within 100m of site boundary, with cleaning to be provided if necessary.
- Carry out regular site inspections to monitor compliance with the dust management plan, record inspection results, and make an inspection log available to the local authority if requested.
- Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.



- Agree dust deposition, dust flux, or real-time PM<sub>10</sub> continuous monitoring locations with the local authority.

### **Preparing and maintaining the site**

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

### **Operating Vehicles/Machinery and Sustainable Travel**

- Ensure all vehicles switch off engines when stationary - no idling vehicles.
- Impose and signpost a maximum-speed-limit of 15mph on surfaced and 10mph on unsurfaced site access tracks and work areas.
- Avoid the use of diesel- or petrol-powered generators and use mains electricity or battery powered equipment where practicable.
- Impose and signpost a maximum-speed-limit of 24kmph on surfaced and 16kmph on unsurfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate).
- Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials.
- Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing).

### **Construction Operations**

- Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g., suitable local exhaust ventilation systems.
- Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.
- Use enclosed chutes and conveyors and covered skips.
- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.

- Ensure equipment is readily available on site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.

#### **Specific to Earthworks**

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

#### **Specific to Construction**

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

#### **Specific to Trackout**

- *Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site.*
- *Avoid any dry sweeping of large areas.*
- *Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.*
- *Record all inspections of haul routes and any subsequent action in a site logbook.*
- *Implement a wheel washing system.*

#### **17.7.1.2 Exhaust Emissions from Plant and Vehicles**

The traffic effects of the Proposed Development during the construction phase will be limited to a relatively short period and will be along traffic routes employed by haulage/construction vehicles and workers. Any effects on air quality will be temporary i.e., during the construction period only and can be suitably controlled by the employment of mitigation measures (described above) and appropriate to the development project, including a construction logistics plan, and are therefore unlikely to materially impact on local air quality.

Any emissions from Non-Road Mobile Machinery (NRMM) can be reduced by ensuring that any plant used on-site comply with the NO<sub>x</sub>, particulate matter and carbon monoxide emissions standards specified in the Regulation (EU) 2016/1628 (as amended) of the European Parliament and of the Council of 14 September 2016 on requirements relating to gaseous and particulate pollutant emission limits and type-approval for internal combustion engines for non-road mobile machinery, amending Regulations (EU) No 1024/2012 and (EU) No 167/2013, and amending and repealing Directive 97/68/EC as a

minimum, where they have net power of between 37kW and 560kW. The emissions standards vary depending on the net power that the engine produces. The Construction Environmental Management Plan will include these emissions controls.

### **17.7.2 Operational Phase**

The Proposed Development is not anticipated to have a significant impact on local air quality during the operational phase and the effect is considered to be not significant. Therefore, no specific operational phase mitigation measure is considered to be required.

### **17.7.3 Decommissioning Phase**

Any effects on air quality will be temporary during the decommissioning phase. Mitigation measures suggested as above for construction phase are also relevant for the decommissioning phase to control potential fugitive emissions from the decommissioning works and exhaust emissions from plant and vehicles.

## **17.8 Residual Effects**

### **17.8.1 Construction Phase**

All construction effects were assessed to be not significant provided that appropriate dust control and construction phase mitigation measures are applied as listed in the mitigation measures section. Residual effects are therefore also not significant with suitable mitigation measures in place.

### **17.8.2 Operational Phase**

The Proposed Development is not anticipated to have a significant impact on local air quality, and the residual impacts of the development on air quality whilst it is in operation are considered to be not significant.

### **17.8.3 Decommissioning Phase**

Any effects on air quality will be temporary during the decommissioning phase. The measures implemented during the construction phase are also relevant for the decommissioning phase. With the implementation of the proposed mitigation measures listed in the mitigation measures section, the residual effects are considered to be temporary and not significant.

**Table 17.6** contains a summary of the likely significant effects of the Proposed Development.

## **17.9 Cumulative Effects**

Twelve sites have been included within the cumulative assessment, which are Carrownagowan Wind Farm, Castlewaller Wind Farm, Fahybeg Onshore Wind Farm, Knockshanvo Wind Farm, Ballyclar Wind Farm, Boolynagleragh Lissycasey Wind Farm, Boolynagleragh-Boolybrien, Knockatunna and Rathcrone Wind Farm, Parteen Turbine, Vision Care Turbine, Lackareagh Wind Farm and two name unknown wind farms owned by Tipperary CC.

### **17.9.1 Construction Phase**

The phasing/commencement of any other permitted developments in the locality could potentially result in the scenario where a number of other construction sites are in operation at the same time as the Proposed Development. The IAQM construction phase methodology states that beyond 250m from a site boundary, the risk of impact from activities carried out on-site during the construction phase can be considered to be negligible. There are no committed developments and planned, permitted or operational wind farms within 250m of the proposed wind farm apart from the Knockshanvo Wind Farm. It is understood that a small section of the Carrownagowan Wind Farm GCR will intersect with the IPP cabling for the Proposed Development. All permitted developments are expected to agree and follow site specific Construction Environmental Management Plans or Dust Management Plans and Construction Traffic Management Plans that will adequately control emissions from construction. Therefore, with appropriate mitigation measures in place, the construction phase cumulative effect is considered to be not significant.

### **17.9.2 Operational Phase**

As stated in **Section 17.6.3**, traffic volumes to the site during the operational phase will be low. As per construction phase impacts, any other permitted developments are expected to follow best practice mitigation measures to minimise emissions to air. Therefore, exceedance of the relevant AQSs is considered unlikely and cumulative operational phase effects are considered not significant.

### **17.9.3 Decommissioning Phase**

As per construction phase impacts, all permitted developments are expected to agree and follow site specific decommissioning plans, to be agreed with the local authority, that will adequately control emissions from decommissioning. Therefore, with appropriate mitigation measures in place, the decommissioning phase cumulative effect is considered to be not significant.

**Table 17.6: Summary of Assessment of Effects – Air Quality**

Potential Effect	Beneficial / Adverse / Neutral	Extent (Site / Local / National / Transboundary)	Short term/ Long term	Direct / Indirect	Permanent / Temporary	Reversible / Irreversible	Significance of Effects (according to defined criteria)	Proposed Mitigation	Residual Effects (according to defined criteria)
<b>Construction Phase</b>									
Fugitive dust emissions	Adverse	Local	Short term	Direct	Temporary	Irreversible	Slight to significant effect	Mitigation as outlined in <b>Section 17.7.1</b> .	Not significant
Exhaust emissions from plant and vehicles	Adverse	Local	Short term	Direct	Temporary	Irreversible	Not significant	Mitigation as outlined in <b>Section 17.7.1</b> .	Not significant
<b>Operational Phase</b>									
Exhaust emissions from vehicles	Adverse	Local	Long term	Direct	Permanent	Irreversible	Not significant	No specific operational phase mitigation measure is required.	Not significant
<b>Decommissioning Phase</b>									
Fugitive dust emissions	Adverse	Local	Short term	Direct	Temporary	Irreversible	Not significant	Mitigation measures suggested for construction phase are also relevant for decommissioning phase.	Not significant
Exhaust emissions from plant and vehicles	Adverse	Local	Short term	Direct	Temporary	Irreversible	Not significant	Mitigation measures suggested for construction phase are also relevant for decommissioning phase.	Not significant

## 17.10 References

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