East Meath - North Dublin Grid Upgrade Environmental Impact Assessment Report (EIAR): Volume 2

Chapter 7 – Air Quality

EirGrid

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Contents

7. Air Quality

7.1 Introduction

This Chapter presents the assessment of the potential impacts of the East Meath - North Dublin Grid Upgrade (hereafter referred to as the Proposed Development) on air quality, at sensitive human and ecological receptors, during the Construction and Operational Phases. A full description of the Proposed Development is presented in Chapter 4 (Proposed Development Description) in Volume 2 of this Environmental Impact Assessment Report (EIAR). This Chapter describes the methodology and guidance used, identifies the potential impacts on considered sensitive receptors, discusses the effects of the potential impacts and provides details of the required mitigation measures to reduce any potential impacts.

The term 'air quality' refers to how polluted the air we breathe is, in relation to levels of air pollution that could potentially affect human health. Air quality is affected by emissions of air pollutants from a wide range of sources including the exhausts of petrol / diesel fuelled road vehicles, as a result of brake, tyre and road wear, and other sources such as fossil fuel combustion processes used for power generation (e.g. diesel generators). It also refers to dust, which could affect health or give rise to annoyance due to the soiling of surfaces through deposition. Both air pollution and dust can also affect sensitive vegetation and ecosystems (i.e. ecological receptors).

Specifically, this Chapter considers the following elements:

- Temporary dust impacts generated by construction activities;
- Temporary increases in air pollutant concentrations due to additional vehicle movements during the Construction Phase;
- Emissions of pollutants to air from construction plant and machinery; and
- Increases in air pollutant concentrations due to additional vehicle movements during the Operational Phase.

The key air pollutants considered relevant to the Proposed Development are:

- Nitrogen dioxide (NO_2);
- Dust emissions from construction activities; and
- Particulate matter (PM_{10}, particles with an aerodynamic diameter of 10 microns or less, and $PM_{2.5}$, particles with an aerodynamic diameter of 2.5 microns or less).

Any descriptions of the characteristics of the Proposed Development in this Chapter should be read in conjunction with Chapter 4 (Proposed Development Description) in Volume 2 of this EIAR.

7.2 Methodology

7.2.1 Study Area

There are several different types of potential air quality effects or emission sources that require assessment. The study areas for the different air quality effects are set out in the following sections.

7.2.1.1 Construction Dust Emissions

For dust emissions during the construction of the Proposed Development, the assessment of human receptors focused on areas extending up to 250m (metres) from the Planning Application Boundary. This distance is based on the Institute of Air Quality Management (IAQM) Guidance on the Assessment of Dust from Demolition and Construction (Version 2.1) (hereafter referred to as the IAQM Guidance) (IAQM 2023), which identifies when an assessment of dust effect is required. The effects of 'trackout' also need to be

determined up to 50m from the edge of the local road network used by construction vehicles, within 500m of the site exits associated with construction works areas and Temporary Construction Compounds (TCCs) / Horizontal Directional Drilling (HDD) Compounds. Trackout is defined as the transport of dust or mud from the construction site onto the public road network, where it may be deposited and then re-suspended by vehicles using the same road network used by construction vehicles. In line with the IAQM Guidance, the assessment also considers relevant ecological receptors up to 50m from the Planning Application Boundary.

7.2.1.2 Construction Site Plant and Machinery Emissions

Emissions from construction plant and machinery (e.g. generators and Non-Road Mobile Machinery (NRMM)) during construction of the Proposed Development are considered to have the potential to affect sensitive receptors up to 200m, from the Planning Application Boundary, depending upon the scale of the activities (based on professional judgement and consistency with guidance on assessing emissions from road traffic, as outlined in Section 7.2.1.3).

7.2.1.3 Road Traffic Emissions

The study area for the assessment of changes in emissions from road traffic for human receptors is based on identifying where the construction or operation of the Proposed Development will lead to a change in traffic flows on the road network, which exceed the relevant thresholds set out in the Transport Infrastructure Ireland (TII) Air Quality Assessment of Specified Infrastructure Projects – Overarching Technical Document PE-ENV-01106 (hereafter referred to as the TII Air Guidance) (TII 2022) and are used to identify road links where:

- Annual average daily traffic (AADT) (i.e., the total volume of vehicle traffic of a highway or road for a year is divided by 365 days) flows will change by 1,000 or more; or
- Heavy duty vehicle (HDV) (vehicles greater than 3.5 tonnes, including lorries, buses and coaches) flows will change by 200 AADT or more; or
- Road links where the change in traffic flows exceed these thresholds are considered to be 'affected' roads.

Air quality impacts from road sources are highest at locations closest to the road, as concentrations of pollutants drop off quickly as distance increases from the road. 200m is an accepted distance beyond which specific impacts are likely to be negligible. Assessments focus on receptors closest to the road generally, and a study area of 200m from the 'affected' roads is applied, as set out in the TII Air Guidance.

7.2.2 Relevant Guidelines, Policy and Legislation

7.2.2.1 Ambient Air Quality

Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe (hereafter referred to as the Ambient Air Quality Directive), sets legally binding limits for concentrations of major air pollutants in outdoor air that impact public health, such as particulate matter (i.e. PM_{10} and $PM_{2.5}$) and NO_2.

Statutory Instrument (S.I.) No. 739/2022 – Ambient Air Quality Standards Regulations 2022 (hereafter referred to as the Air Quality Standards Regulations 2022) transposed the air quality 'Limit Values' set out in the Ambient Air Quality Directive into Irish legislation.

Table 7.1 presents the air quality Limit Values for the pollutants relevant to this assessment, as prescribed by the European Union and Irish legislation. For the purposes of this Chapter, these standards are collectively referred to as 'Limit Values'.

The Limit Values set for designated ecological receptors are also presented in Table 7.1.

Table 7.1: Relevant Air Quality Limit Values

Pollutant	Averaging Period	Limit Value (µg/m^3)	Basis of Application of the Limit Value
NO_2	1-hour	200	Not to be exceeded more than 18 times in a calendar year
	1 calendar year	40	-
PM_{10}	24-hours	50	Not to be exceeded more than 35 times in a calendar year
	1 calendar year	40	-
$PM_{2.5}$	1 calendar year Stage 2	20	-
NOx	Annual mean limit value for the protection of vegetation (referred to as the "critical level")	30	-
SO2	Annual mean limit value (and winter period 1st October – 31st March) for the protection of vegetation (referred to as the "critical level")	20	-
Note: µg/m^3 – micrograms per metre cube			

The Limit Values presented in Table 7.1 are for the protection of human health and only apply at locations of relevant exposure (i.e., locations where people are likely to be directly or indirectly exposed for a period which is significant in relation to the averaging period of the Limit Value(s)). However, the Air Quality Standards Regulations 2022 refer to Annex III of the Ambient Air Quality Directive, which states that:

> *"compliance with the limit values directed at the protection of human health shall not be assessed at the following locations:*
>
> - *Any locations situated within areas where members of the public do not have access and there is no fixed habitation.*
> - *In accordance with Article 2(1), on factory premises or at industrial installations to which all relevant provisions concerning health and safety at work apply.*
> - *On the carriageway of roads; and on the central reservations of roads except where there is normally pedestrian access to the central reservation."*

7.2.2.2 Dublin Region Air Quality Plan

Due to an exceedance of the annual mean NO_2 Limit Value in Dublin in 2019, the Dublin Region Air Quality Plan (Dublin City Council, 2021) was developed to identify the cause and formulate measures to address this exceedance. Fourteen measures and actions were set as part of the plan to address the exceedance including the development of a Clean Air Strategy for Ireland (Government of Ireland, 2023), active travel programmes, push towards cleaner vehicle fleets.

7.2.2.3 Guidance

This air quality assessment has been completed in accordance with the following guidance:

- IAQM Guidance (IAQM 2023);
- TII Air Guidance (TII 2022); and
- Environmental Protection Agency (EPA) Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (hereafter referred to as the EPA Guidelines) (EPA 2022).

The IAQM Guidance was produced by air quality professionals and regulators, and although aimed at developments in the United Kingdom, the process and principles of the assessment set out in the guidance

are applicable for other geographical locations and construction projects. It is also the approach recommended in the TII Air Guidance and therefore considered best practice in Ireland.

7.2.3 Data Collection and Collation

As background ambient concentrations applied in this assessment are well below the relevant Limit Values (see Table 7.1) and sufficient data are available to determine the background concentrations of pollutants, based on professional judgement, it was not considered necessary to undertake supplementary air quality monitoring to aid this assessment. Therefore, this air quality assessment is a desk-based assessment with relevant data taken from the EPA Air Quality website (EPA 2023), as most recently checked in February 2024.

7.2.3.1 Difficulties Encountered or Limitations

There were no significant difficulties encountered when gathering the data required to complete the air quality assessment.

7.2.4 Appraisal Method for the Assessment of Impacts

With regard to the determination of the significance of air quality impacts, the assessment methodology differs from that described in Chapter 1 (Introduction and the Environmental Impact Assessment Report) in Volume 2 of the EIAR, as defining a level of significance beyond either 'significant' or 'not significant' is not appropriate for air quality impacts. The full details of how the significance of the air quality impacts has been determined are set out later in Section 7.2.4.

The process for defining significance is prescribed in accepted practice guidance documents developed by regulatory authorities and working groups comprising experienced air quality professionals, local authority officers and public healthcare bodies (IAQM 2023; TII 2022). The relevant guidance on this subject relates to defining whether an air quality impact would be significant or not across the study areas as a whole, rather than at individual human receptors, such as residential properties.

The value of a receptor is incorporated into the specific methods prescribed in the IAQM Guidance (IAQM 2023). The approach described does not directly align with the overall approach to the categorisation of the value of receptors, magnitude of change and determination of the significance level set out in the EPA Guidelines significance matrix (EPA 2022). This is because the IAQM Guidance on this subject relates to defining whether an air quality impact is significant or not across the study area as a whole, rather than at individual properties, or at specific sensitive ecological receptors.

7.2.4.1 Construction Dust Emissions

The assessment of dust during construction has been carried out using a qualitative risk-based appraisal with reference to the location of the Proposed Development in relation to sensitive receptors, the planned process and site characteristics, as described in the IAQM Guidance (IAQM 2023) and recommended in the TII Air Guidance (TII 2022).

The methodology for the assessment of construction dust emissions is based on a five-step approach (IAQM 2023), as set out in Image 7.1. Details of this methodology are provided in Appendix A7.1 in Volume 3 of this EIAR.

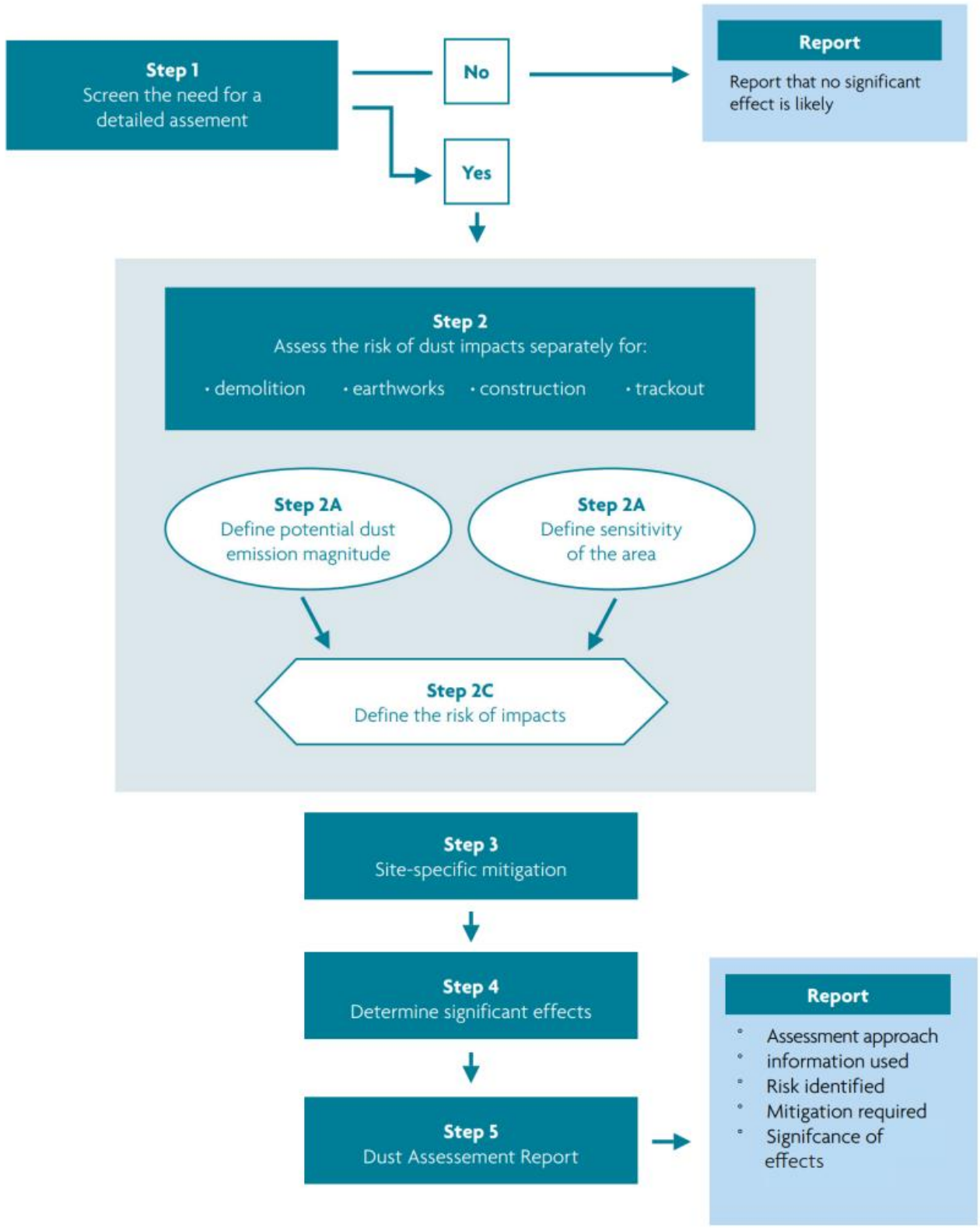

Image 7.1: Structure of the Dust Risk Assessment (IAQM 2023)

Based on the IAQM Guidance, the assessment aims to estimate the impacts of both PM_{10} and dust together, through a combined risk-based assessment procedure. The IAQM Guidance provides a methodological framework but notes that professional judgement is required throughout the assessment to determine the risk of impacts and mitigation requirements. Based on the calculated risk level, the IAQM Guidance sets out

clear requirements for the recommended mitigation measures, which can be used to reduce the impact of dust during the Construction Phase of the Proposed Development. These mitigation measures to control dust emissions are included in Section 7.5 and are also set out in the Construction Environmental Management Plan (CEMP), which is included as a standalone document in this planning application pack. It should be noted that the IAQM Guidance does not advocate determination of significance pre-mitigation, and recommends that significance is only assigned to the impact after considering the construction activity with the appropriate level of good practice mitigation in place.

This assessment does not consider the air quality impacts of exposure to contaminated dust that could arise from the excavation of any contaminated material, which is covered in Chapter 11 (Soils, Geology and Hydrology) in Volume 2 of the EIAR. Although $PM_{2.5}$ is not specifically included as a parameter within the assessment, the risk levels associated with PM_{10} and any subsequent mitigation measures will apply to $PM_{2.5}$, as $PM_{2.5}$ is included within the PM_{10} fraction.

Larger dust particles (greater than 30µm (micrometres)) make up the greatest proportion of dust emissions from mineral workings or earthworks and will largely deposit within 100m of sources (Scottish Office 1998). Intermediate sized particles (1µm to 30µm) are likely to travel between 250m to 500m. PM_{10}, including the smaller $PM_{2.5}$ particulates are reported to make up a smaller proportion (approximately 10%) of dust emitted from most workings and the emissions become diluted as they disperse downwind (Ove Arup and Partners 1995).

In accordance with the IAQM Guidance, a 'human receptor' refers to any location where a person spends time, or a property which may experience the adverse effects of airborne dust or dust soiling, or exposure to PM_{10}. An 'ecological receptor' refers to any sensitive habitat that could be affected by dust soiling. This includes the direct impacts on vegetation or aquatic ecosystems of dust deposition, and the indirect impacts on fauna (e.g. on foraging habitats).

The study area to define where an assessment is normally required is set out in Section 7.2.1.

The key potential construction dust emission sources have been categorised, according to the IAQM Guidance, as demolition, earthworks, construction and trackout. These have been defined as follows:

- Demolition: any activity involved with the removal of an existing structure (or structures). This may also be referred to as de-construction, specifically when a building is to be removed a small part at a time;
- Earthworks: covers the processes of soil-stripping, ground-levelling, excavation and landscaping;
- Construction activities: any activity involved with the provision of a new structure (or structures), its modification or refurbishment. Structures include residential dwellings, office buildings, retail outlets, roads, etc.; and
- Trackout: the transport of dust and dirt from the construction/demolition site onto the public road network, where it may be deposited and then re-suspended by vehicles using the network. This arises when heavy duty vehicles (HDVs) leave the construction/demolition site with dusty materials, which may then spill onto the road, and/or when HDVs transfer dust and dirt onto the road having travelled over muddy ground on-site.

The IAQM Guidance construction dust methodology provides techniques for three separate dust effects:

- Annoyance due to dust soiling;
- Harm to ecological receptors; and
- The risk of human effects due to increased exposure to PM_{10}.

The IAQM Guidance uses a consistent approach to define the risks associated with the construction activities (i.e. demolition, earthworks, construction and trackout), in order to specify the required level of mitigation required to reduce those risks. The risk is defined from the dust emission magnitude (i.e., the scale of the

activities being undertaken) (see Table 1 of Appendix A7.1 in Volume 3 of this EIAR) and the sensitivity of the study area (i.e., the number and proximity of sensitive receptors to the Proposed Development, their sensitivity to dust deposition and PM_{10} concentrations, and existing PM_{10} concentrations) (see Table A7-3 and Table 4 of Appendix A7.1 in Volume 3 of this EIAR). Risks are described in terms of there being a low, medium or high risk of dust impacts for each of the four potentially dust emitting activities (i.e., demolition, earthworks, construction and trackout) (see Table 6 of Appendix A7.1 in Volume 3 of this EIAR).

This risk classification is then used to define the recommended site-specific mitigation measures to reduce the potential residual impacts of construction dust emissions to a 'Not Significant' impact. It is not necessarily the case that a low risk of dust impact, in the absence of mitigation, would lead to a significant impact. However, without any good practice mitigation in place there could be occasions where short-term impacts could affect sensitive receptors, leading to a potentially significant impact. The assessment is used to provide a commensurate level of good-practice mitigation regardless of the identified level of risk. Higher risks would require more comprehensive good-practice mitigation to ensure that there would not be a significant impact, compared to than lower risks. The mitigation measures to control dust emissions are included in Section 7.5 and are also set out in the CEMP (included as a standalone document in this planning application pack).

A full description of the methodology, including further explanation on how the dust emission magnitudes and area sensitivity are defined, is provided in Section 7.2 and Section 7.3 of the IAQM Guidance.

7.2.4.2 Construction Site Plant and Machinery Emissions

As per the TII Air Guidance (TII 2022), the assessment of emissions from construction plant and machinery takes into account the number of anticipated construction plant and machinery and their operating hours, in order to assess whether a significant impact is likely to occur.

7.2.4.3 Road Traffic Emissions

Criteria based on changes in road traffic flows are set out in Section 7.2.1. Should changes in road traffic flows exceed these thresholds, an assessment is required to determine the potential air quality impacts at receptors within 200m of these affected roads. Conversely, roads that experience a change in traffic flows below these thresholds do not require further assessment, as the change in concentrations of pollutants at receptors close to these roads will be imperceptible. If that was the case for all roads, no specific study is required to assess changes in road traffic emissions and the impact would be negligible, and therefore represent a Not Significant impact.

7.3 Baseline Environment

7.3.1 Overview

Information on existing air quality in Ireland was available from the EPA who undertake monitoring at a number of locations across the country (EPA 2023). For the purpose of monitoring and assessing air quality, Ireland is split into four main regions:

- Zone A: Dublin conurbation;
- Zone B: Cork conurbation;
- Zone C: 23 cities and large towns comprising Limerick, Galway, Waterford, Drogheda, Dundalk, Bray, Navan, Ennis, Tralee, Kilkenny, Carlow, Naas, Sligo, Newbridge, Mullingar, Wexford, Letterkenny, Athlone, Celbridge, Clonmel, Balbriggan, Greystones, Leixlip and Portlaoise; and
- Zone D: Rural Ireland (i.e. the remainder of the state excluding Zones A, B and C).

7.3.2 Background Air Pollutant Concentrations

The eastern half of the Proposed Development will be located within the Dublin Conurbation air quality zone (Zone A) with the western half of the Proposed Development will be located in the Rural Ireland air quality zone (Zone D).

Dublin Airport (Station 55) is the only monitoring site within the study area and is located approximately 2.4km north-west of Proposed Development. The monitoring data from Station 55, as presented in Table 7.2, show that the existing air pollutant concentrations are well within the relevant Limit Values. These background concentrations are considered representative of the conditions experienced at the assessed locations associated with the Proposed Development (see Section 7.4).

Table 7.2: Dublin Airport (Station 55) Monitoring Results

Pollutant	Latitude (N)	Longitude (E)	Limit Values (µg/m^3)	2022 Annual Mean Concentration (µg/m^3)
NO_2	53.4261°	-6.2391°	40	19.8
PM_{10}			40	11.7
$PM_{2.5}$			20	6.7

7.4 Potential Impacts

This Section presents the potential impacts that may occur due to the Proposed Development. This informs the need for mitigation or monitoring to be proposed (refer to Section 7.5). In the context of the Proposed Development, the potential air quality impact on the surrounding environment must be considered for two distinct phases:

- Construction Phase; and
- Operational Phase.

7.4.1 'Do Nothing' Scenario

There will be no significant change in air quality impacts if the Proposed Development does not proceed. Therefore, there would be a Neutral impact on air quality in the Do Nothing scenario.

7.4.2 Construction Phase

7.4.2.1 Construction Dust Emissions

Activities carried out on construction sites have the potential to give rise to emissions of dust that could cause annoyance or damage to vegetation due to the soiling of surfaces. These activities can also lead to increased short-term and long-term concentrations of fine particulate matter (e.g., PM_{10} and $PM_{2.5}$) at off-site locations, which may affect human health, unless appropriate mitigation measures are implemented. The risk of impacts resulting from dust emissions from works associated with the construction of the Proposed Development need to be assessed in order to identify the required mitigation measures.

The IAQM Guidance (IAQM 2023) outlines that, where appropriate, a site can be divided into 'zones' for the purposes of the dust risk assessment, to allow different mitigation levels to be applied to each zone based on the activities being undertaken. As the Proposed Development will consist of several different construction activities, which will be undertaken sequentially at different locations (spanning approximately 37.5km), four separate construction dust risk assessments have been undertaken for the following:

- The excavation of the proposed cable trench and laying of a section of underground cable;
- The formation of a Temporary Construction Compound (TCC);
- Belcamp Substation upgrades; and

- Woodland Substation upgrades.

These represent those construction activities, which have the greatest potential for dust generation at source.

The construction of the Proposed Development will be over a length of approximately 37.5km where there will be a range of dust risks due to variations in the proposed construction activities and sensitivity of the areas (i.e., the number and proximity of sensitive receptors to the activities) close to the construction activities. A precautionary approach was applied to identify the highest dust risks by assessing the location(s) with the greatest number, and proximity of, sensitive receptors to the Planning Application Boundary. This precautionary approach was adopted to determine the highest possible dust risks and identify the appropriate level of mitigation for application across the Proposed Development construction work areas. This approach ensures that the highest dust impact risk is assessed.

As dust emissions from the Proposed Development will only occur during the Construction Phase, all effects from the construction dust emissions are described as either temporary or short-term.

The dust emission magnitude and sensitivity descriptors for the construction dust assessments are provided in Appendix A7.1 in Volume 3 of this EIAR.

7.4.2.1.1 Excavation of the Cable Trench and Laying of a Section of Underground Cable

As described in Chapter 4 (Proposed Development Description) in Volume 2 of the EIAR, the proposed underground cable is estimated to be approximately 37.5km in length and will be installed primarily within the existing public road network.

The cable trench is expected to be approximately 1.5m in width and approximately 1.3m in depth in the public road, and approximately 1.8m in depth in private lands, relative to existing ground level (the dimensions may vary depending on utility crossings). The proposed cable will be delivered in lengths and then connected at the Joint Bays, which are underground chambers located at various points on the proposed cable route. The trenches will then be filled before moving on to the next section of the proposed cable route.

A 100m section of the proposed cable route was considered for the assessment. The 100m section assessed is located between Chainage 21,300 and 21,400, approximately 160m north-east of Hollystown Golf Club in Fingal in County Dublin. This assessment also considers the permanent access track (which will be approximately 4m wide), that will allow access to Joint Bay 28 which will be off-road. This section of the proposed cable route was selected for assessment based on the sensitivity of the area being categorised as the highest of all assessment locations along the proposed cable route.

It should be noted that other construction activities associated with the proposed cable trench and route include the creation of temporary laydown areas, Passing Bays (at 14 Joint Bay locations) and 49 Joint Bays. The Joint Bays will be 10m long and 2.5m wide the activities are likely to generate similar dust emission magnitudes to the proposed cable trench and route, as the works will involve similar excavation works to the proposed cable trench and the installation of a chamber. Therefore, separate construction dust assessments have not been undertaken for these activities as the level of risk determined, and the mitigation measures that will be implemented, are also considered to apply to these other activities.

The dust emission magnitudes derived for demolition, earthworks, construction and trackout during the works associated with excavation of the proposed cable trench and laying of a section of underground cable are presented in Table 7.3.

Table 7.3: Dust Emission Magnitude - Excavation and Construction of the Assessed Section of Cable Trench and Route

Activity	Dust Emission Magnitude	Justification
Demolition	N/A	No demolition activities are anticipated.
Earthworks	Small	For the considered 100m section of the cable route, the total site area will be <18,000m^2. There are likely to be <5 heavy earth moving equipment active at any one time.
Construction	Small	For the considered 100m section of the cable route, including the permanent access route, the total building volume will be <12,000m^3.
Trackout	Medium	For the considered 100m section of the cable route, the maximum number of outward HDV movements is predicted to be between 20 and 50 in any one day.

The next step is to determine the sensitivity of the area. The assessed section of the proposed cable route will be located on the periphery of the village of Hollystown, County Dublin. The area surrounding the assessed section of the proposed cable route is a mixture of agricultural and residential land use with residential properties within 20m of the Planning Application Boundary.

Image 7.2 presents the construction dust assessment buffers used for determining the sensitivity of the area to dust soiling effects and human health impacts, as per the IAQM Guidance (IAQM 2023).

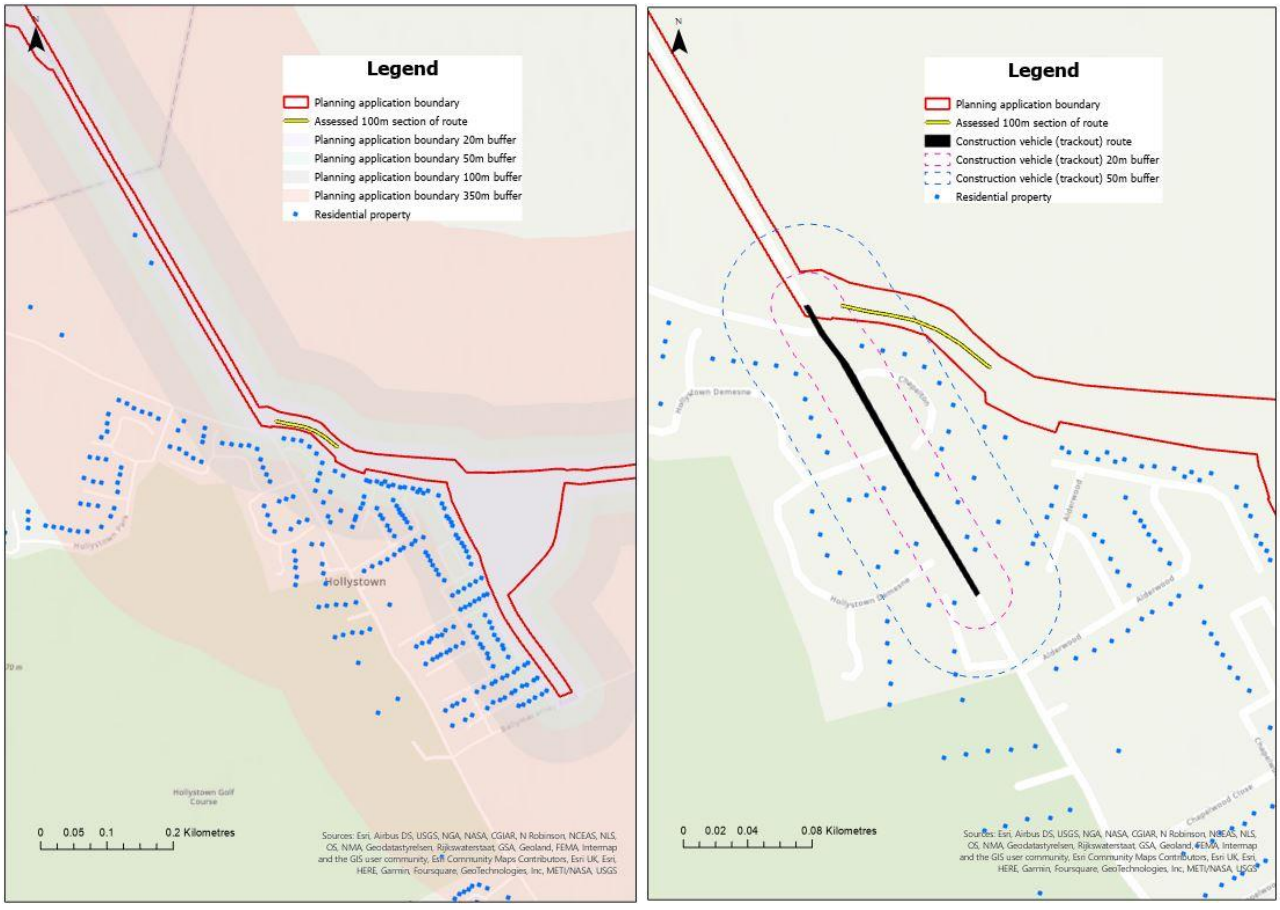

Image 7.2: The Assessed Section of Cable Trench and Route Study Areas (Earthworks and Construction Activities Study Area on the Left Trackout Study Area on the Right)

Table 7.4 presents the sensitivity of the area to effects caused by construction activities associated with the excavation of the proposed cable trench and construction of the proposed cable route.

Table 7.4: Sensitivity of the Area Associated with the Assessed Section of Cable Trench and Route

Activity	Dust Soiling Impacts		Health Effects of PM_{10}	
	Sensitivity Assigned	Justification	Sensitivity Assigned	Justification
Demolition	n/a	No demolition activities.	n/a	No demolition activities.
Earthworks	Medium	For the considered 100m section of the proposed cable route, there are seven residential properties within 20m of the Planning Application Boundary.	Low	Based on the number of receptors in proximity of the assessed section of the proposed cable route and the background PM_{10} concentration applied (see Table 7.2) the sensitivity of the area for human health impacts is categorised as low.
Construction	Medium		Low	
Trackout	Medium	There are eight residential properties within 20m of the proposed construction access route used by construction vehicles on the public highway, up to 200m from the likely work site exit(s).	Low	

At the considered section of proposed cable route (and indeed the entire cable route length), there are no designated ecological receptors within 50m of the Planning Application Boundary, nor within 50m of the carriageway, up to 200m from the likely works site exit(s). Therefore, as per the IAQM Guidance, an assessment of ecological impacts is not required.

Using the dust emission magnitudes for the various activities outlined in Table 7.3, and the sensitivity of the area provided in Table 7.4, the risks associated with the excavation of the proposed cable trench and construction of the proposed cable route are provided in Table 7.5 for dust soiling and human health impacts. Full details of the methodology are provided in Appendix A7.1 in Volume 3 of this EIAR.

Table 7.5: Summary of the Dust Risk from the Assessed Section of Cable Trench and Route

Risk	Demolition	Earthworks	Construction	Trackout
Dust soiling	n/a	Low risk	Low risk	Medium risk
Health effects	n/a	Negligible risk	Negligible risk	Low risk

The results presented in Table 7.5 indicate that, for potential dust soiling impacts, a *low risk* from demolition, earthworks and construction activities is anticipated, and a *medium risk* from trackout activities associated with the construction of the assessed section of the proposed cable route is anticipated. For potential human health impacts, there is a *negligible* to *low* risk for all activities is anticipated.

It will therefore be necessary to adopt an appropriate level of good practice mitigation measures for all of the dust risks identified (see Section 7.5 of this Chapter and the CEMP (included as a standalone document in this planning application pack)) to reduce the risks of causing impacts to amenity or human health. This will also prevent or reduce potential dust or PM_{10} (and $PM_{2.5}$) emissions, which are associated with health impacts, such as exacerbating existing health conditions, including asthma and other lung conditions.

7.4.2.1.2 Formation of a Temporary Construction Compound

Seven TCCs providing offices, welfare facilities and storage for construction materials, will be utilised at different locations along the Proposed Development. The maximum area of individual TCCs will be approximately 1.6ha. The TCC selected for assessment (i.e., TCC3) will be located at Chainage 21,600, which is approximately 0.3km north-east of Hollystown Golf Club. It is one of the two largest compounds (1.6ha) and has the highest number of human receptors within the study area, and so the sensitivity of the area is categorised as the highest of all TCCs. Therefore, TCC3 was selected as the TCC for assessment based on a precautionary approach (details of this selection process are provided in Section 7.4.2.1). Compounds required for HDD have not been assessed separately as these are less than half the size of the TCC assessed

and will not be used for the storage of material for the wider route. Therefore, the risk of dust impacts associated with HDD Compounds would be less than those associated with TCCs.

Table 7.6 presents a summary of the dust emission magnitude assigned to each construction activity associated with TCC3.

Table 7.6: Dust Emission Magnitudes for the Construction of TCC3

Activity	Dust emission magnitude	Justification
Demolition	n/a	No demolition activities are anticipated.
Earthworks	Small	For the considered TCC, the total site area is less than 18,000m^2 (i.e. 15,600m^2) and there are likely to be <5 heavy earth moving vehicles active at any one time.
Construction	Small	For the considered TCC, the total volume of construction is anticipated to be <12,000m^3.
Trackout	Medium	For the considered TCC, the maximum number of outward HDV movements is expected to be between 20 and 50 in any one day.

The assessed TCC will be located on the periphery of the village of Hollywood, County Dublin. The majority of remaining TCCs will be located in more rural settings, adjacent to small settlements.

Image 7.3 presents the construction dust assessment buffers used for determining the sensitivity of the area to dust soiling effects and human health impacts, as per the IAQM Guidance (IAQM 2023).

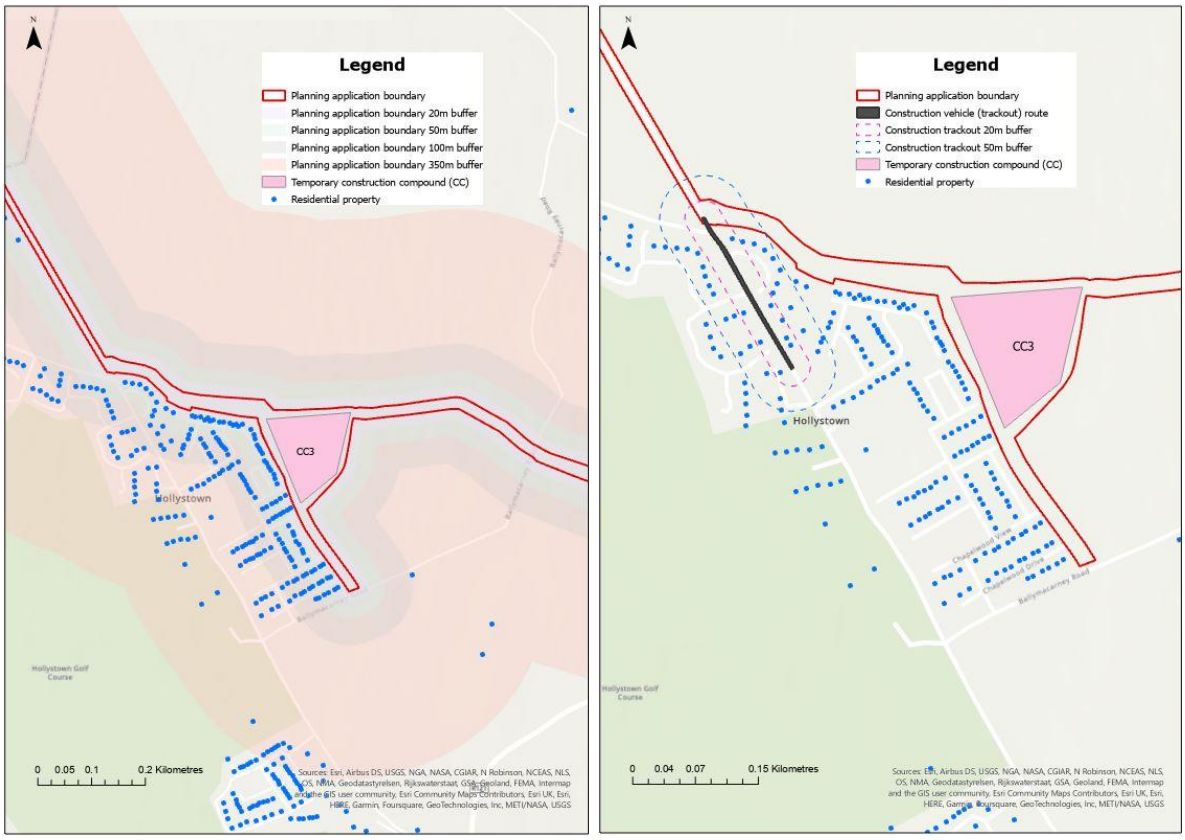

Image 7.3: TCC3 Study Areas (Earthworks and Construction Activities Study Area on the Left; Trackout Study Area on the Right)

Table 7.7 presents the sensitivity of the area to effects caused by construction activities associated with TCC3.

Table 7.7: Sensitivity of the Area for the Construction of TCC3

Activity	Dust Soiling Impacts		Health Effects of PM_{10}	
	Sensitivity Assigned	Justification	Sensitivity Assigned	Justification
Demolition	n/a	Minimal demolition activities are anticipated.	n/a	Minimal demolition activities are anticipated.
Earthworks	High	Based on the assessed TCC, there are approximately 18 residential properties within 20m of the Planning Application Boundary.	Low	Based on the number of receptors in proximity of the assessed TCC and the background PM_{10} concentration applied (see Table 7.2) the sensitivity of the area for human health impacts is categorised as low.
Construction	High		Low	
Trackout	Medium	There are approximately eight residential properties within 20m of the proposed construction access route used by construction vehicles on the public highway, up to 200m from the likely works site exit(s).	Low	

At the assessed TCC3, there are no ecological receptors within 50m of the Planning Application Boundary nor within 50m of the carriageway up to 200m from the likely works site exit(s). Therefore, as per IAQM Guidance, an assessment of ecological impacts is not required.

Using the dust emission magnitudes for the various activities outlined in Table 7.6, and the sensitivity of the area provided in Table 7.7, the risks associated with the formation of the assessed TCC3 are provided in Table 7.8 for dust soiling and human health impacts. Full details of the methodology are provided in Appendix A7.1 in Volume 3 of this EIAR.

Table 7.8: Summary of the Dust Risk from the Construction of TCC3

Risk	Demolition	Earthworks	Construction	Trackout
Dust soiling	n/a[1]	Low risk	Low risk	Medium risk
Health effects		Negligible risk	Negligible risk	Low risk

Note 1: Minimal demolition activities are anticipated

The results presented in Table 7.8 indicate that, for potential dust soiling impacts, a *low risk* from earthworks and construction activities and a *medium risk* from trackout activities are anticipated. For potential human health impacts, a *negligible* to *low risk* for all relevant stages is anticipated.

It will therefore be necessary to adopt an appropriate level of good practice mitigation measures for all of the dust risks identified (refer to Section 7.5 of this Chapter and the CEMP (included as a standalone document in this planning application pack)) to reduce the risk of causing impacts to amenity and human health. This will also prevent or reduce potential dust or PM_{10} (and $PM_{2.5}$) emissions which are associated with health impacts, such as exacerbating existing health conditions, including asthma and other lung conditions.

7.4.2.1.3 Belcamp Substation Upgrade

It is proposed to upgrade the existing Belcamp Substation to include a new 400 kilovolt (kV) Gas Insulated Switchgear (GIS) building, power transformer and additional electrical equipment and apparatus, similar to the existing Air Insulated Switchgear (AIS) equipment and apparatus.

The development will include all ancillary site development works including site preparation works, site clearance, hardstanding, internal access tracks and a TCC (TCC6); underground cabling and earthgrid, surface water drainage connections to the substation network, foul water drainage connection to the substation foul system and lightning protection.

The dust emission magnitudes derived for demolition, earthworks, construction and trackout during the works associated with the Belcamp Substation upgrades, are presented in Table 7.9.

Table 7.9: Dust Emission Magnitude – Belcamp Substation Upgrades

Activity	Dust emission magnitude	Justification
Demolition	Small	For Belcamp Substation, the only demolition will be associated with site clearance and deconstruction of the existing equipment at the substation.
Earthworks	Medium	For Belcamp Substation, the total site area will be between 18,000m^2 and 110,000m^2. Earthworks activities will include site preparation and excavation for required foundations.
Construction	Small	For Belcamp Substation, the total building volume is proposed to be <12,000m^3.
Trackout	Medium	For Belcamp Substation, the maximum number of outward HDV movements is predicted to be between 20 and 50 in any one day.

Belcamp Substation is located on the periphery of the townland of Belcamp in Fingal, County Dublin. The existing substation is bordered by agricultural fields with the Craobh Chiaráin GAA Club sports complex approximately 60m to the east of the Planning Application Boundary at its closest point. The R139 Regional Road runs adjacent to the southern boundary of the existing Belcamp Substation with residential properties beyond.

Image 7.4 presents the construction dust assessment buffers used for determining the sensitivity of the area to dust soiling effects and human health impacts, as per the IAQM Guidance (IAQM 2023).

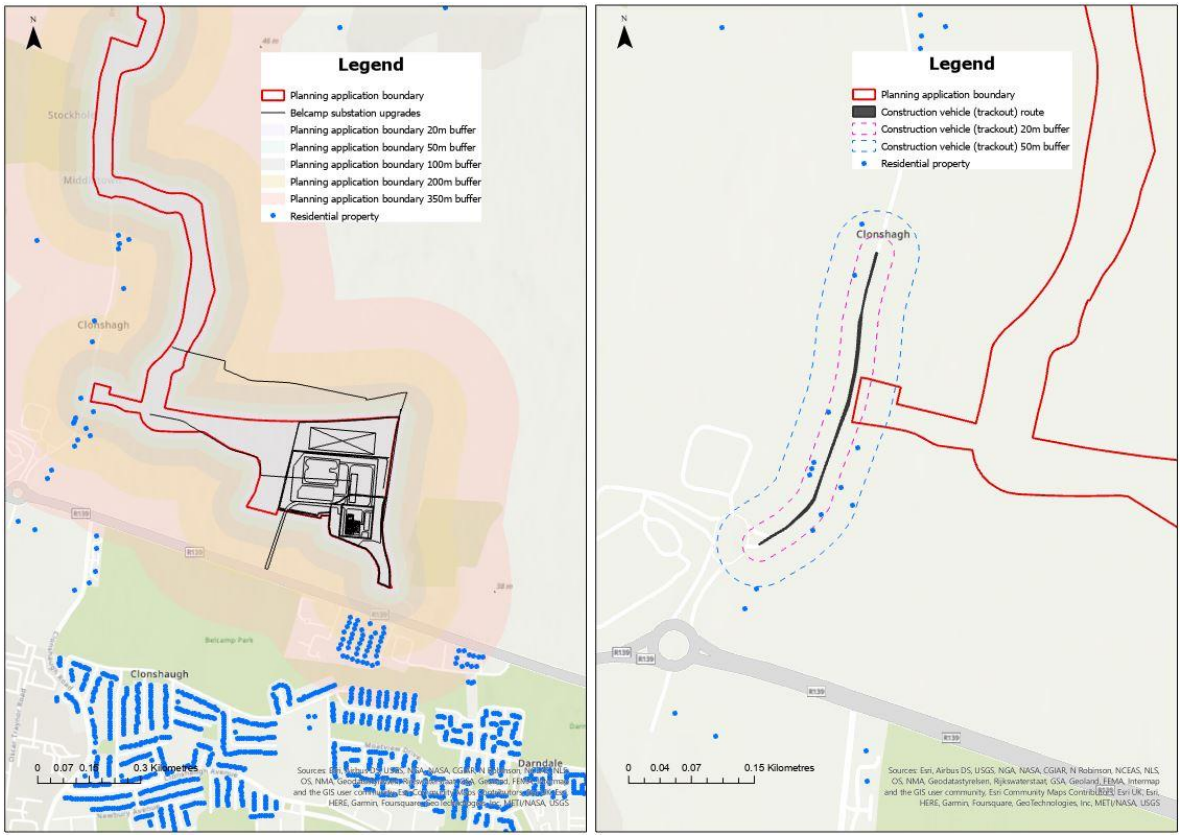

Image 7.4: Belcamp Substation Upgrade Study Areas (Demolition, Earthworks and Construction Activities Study Area on the Left; Trackout Study Area on the Right)

Table 7.10 presents the sensitivity of the area to effects caused by construction activities associated with the Belcamp Substation upgrades.

Table 7.10: Sensitivity of the Area Associated with the Belcamp Substation Upgrades

Activity	Dust Soiling Impacts		Health Effects of PM_{10}	
	Sensitivity Assigned	Justification	Sensitivity Assigned	Justification
Demolition	Low	For Belcamp Substation, there are two residential properties between 20m and 50m of the Planning Application Boundary. Craobh Chiaráin GAA Club sports complex is within 100m of the Planning Application Boundary.	Low	Based on the number of receptors in proximity of the Belcamp Substation and the background PM_{10} concentration applied (see Table 7.2) the sensitivity of the area for human health impacts is categorised as low.
Earthworks	Low		Low	
Construction	Low		Low	
Trackout	Medium	For the Belcamp Substation, there are six residential properties within 20m of the proposed construction access routes used by construction vehicles on the public road, up to 200m from the site exit(s).	Low	

At the existing Belcamp Substation, there are no ecological receptors within 50m of the Planning Application Boundary, nor within 50m of the carriageway up to 200m from the likely works site exit(s). Therefore, as per IAQM Guidance, an assessment of ecological impacts is not required.

Using the dust emission magnitudes for the various activities outlined in Table 7.9, and the sensitivity of the area provided in Table 7.10, the risks associated with the Belcamp Substation upgrades are provided in Table 7.11 for dust soiling and human health impacts. Full details of the methodology are provided in Appendix A7.1 in Volume 3 of this EIAR.

Table 7.11: Summary of the Dust Risk from the Belcamp Substation Upgrades

Risk	Demolition	Earthworks	Construction	Trackout
Dust soiling	Negligible risk	Low risk	Negligible risk	Medium risk
Health effects	Negligible risk	Low risk	Negligible risk	Low risk

The results presented in Table 7.11 indicate that, for potential dust soiling impacts, a *negligible risk* from demolition and construction activities, a *low risk* from earthworks, and a *medium risk* from trackout activities are anticipated. For potential human health impacts, a *negligible risk* from demolition and construction activities and a *low risk* from earthworks and trackout activities are anticipated.

It will therefore be necessary to adopt an appropriate level of good practice mitigation measures for all of the dust risks identified (refer to Section 7.5 in this Chapter and the CEMP (included as a standalone document in this planning application pack)) to reduce the risks of causing impacts to amenity or human health. This will also prevent or reduce potential dust or PM_{10} (and $PM_{2.5}$) emissions which are associated with health impacts, such as exacerbating existing health conditions, including asthma and other lung conditions.

7.4.2.1.4 Woodland Substation Upgrade

The Woodland Substation upgrades will consist of the provision of new electricity transmission infrastructure, comprising additional electrical equipment and apparatus, which is similar to the existing infrastructure. The Proposed Development will take place within the existing substation. Proposed construction activities include installation of a 400kV feeder bay and associated electrical shunt reactor, insulators, instrument transformers, overhead conductors, disconnectors, circuit breakers, surge arrestors (12.6m in height) in order to connect the bay to the busbar. All ancillary site development works including site preparation works, TCC, underground cabling, and earthgrid, are required to facilitate the Proposed Development.

The dust emission magnitudes derived for demolition, earthworks, construction and trackout during the works associated with the Woodland Substation upgrade, are presented in Table 7.12.

Table 7.12 : Dust Emission Magnitude – Woodland Substation Upgrade

Activity	Dust Emission Magnitude	Justification
Demolition	n/a	No demolition works are anticipated.
Earthworks	Large	As the total site area is >110,000m^2, a large magnitude has been assigned.
Construction	Medium	The total volume of construction is expected to be between 12,000m^3 and 75,000m^3.
Trackout	Medium	The total number of outward HDV movements is expected to be between 20 and 50 per day.

The area surrounding the proposed Woodland Substation upgrade is primarily agricultural in nature with the existing Portan converter station adjacent to the southern planning application boundary.

Image 7.5 presents the construction dust assessment buffers used for determining the sensitivity of the area to dust soiling effects and human health impacts, as per the IAQM Guidance (IAQM 2023). Image 7.5 indicates that there are no residential properties within the study area but the Portan Converter Station and Substation carpark is within the trackout buffer and has been included accordingly.

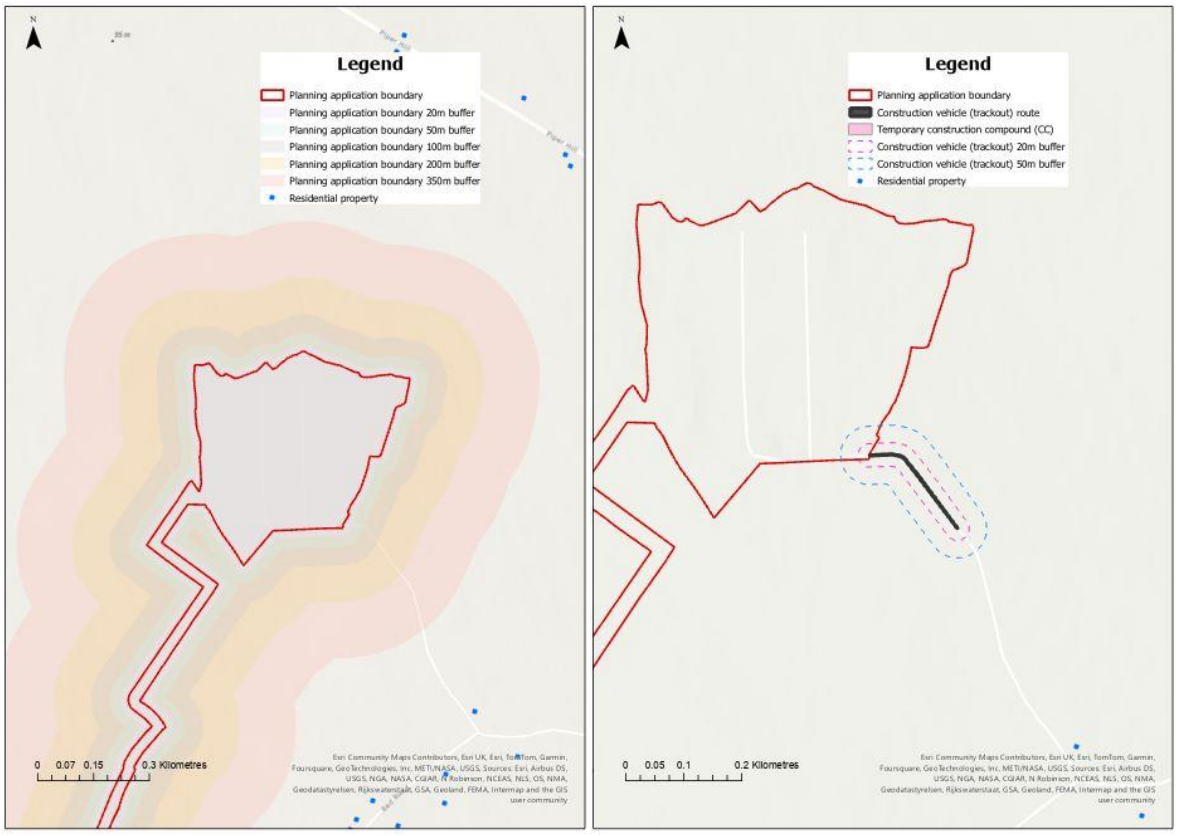

Image 7.5: Woodland Substation Upgrade Study Areas (Earthworks and Construction Activities Study Area on the Left; Trackout Study Area on the Right)

Table 7.13 presents the sensitivity of the area to effects caused by construction activities associated with the Woodland Substation upgrade.

Table 7.13: Sensitivity of the Area Associated with the Woodland Substation Upgrade

Activity	Dust Soiling Impacts		Health Effects of PM_{10}	
	Sensitivity Assigned	Justification	Sensitivity Assigned	Justification
Demolition	n/a	No demolition activities are anticipated.	n/a	No demolition activities are anticipated.
Earthworks	Low	There is one human receptor (representing Portan converter station and substation) between 100m and 200m of the planning application boundary.	Low	Based on the number of receptors in proximity of the Woodland Substation and the background PM_{10} concentration applied (see Table 7.2) the sensitivity of the area for human health impacts is categorised as low.
Construction	Low		Low	
Trackout	Low	There is one human receptor (representing Portan converter station and substation car park) between 20 and 50m of the construction access routes used by construction vehicles on the public highway, up to 200m from the site exit(s).	Low	

At Woodland Substation, there are no ecological receptors within 50m of the Planning Application Boundary, nor within 50m of the carriageway up to 200m from the site exit(s). Therefore, as per the IAQM Guidance, an assessment of ecological impacts is not required.

Using the dust emission magnitudes for the various activities outlined in Table 7.12, and the sensitivity of the area provided in Table 7.13, the risks associated with the Woodland Substation upgrade are provided in Table 7.14 for dust soiling and human health impacts. Full details of the methodology are provided in Appendix A7.1 in Volume 3 of the EIAR.

Table 7.14: Summary of the Dust Risk from the Woodland Substation Upgrade

Risk	Demolition	Earthworks	Construction	Trackout
Dust soiling	n/a	Low risk	Low risk	Low risk
Health effects		Low risk	Low risk	Low risk

The results presented in Table 7.14 indicate that, for potential dust soiling impacts and human health impacts, a *low risk* from earthworks, construction and trackout activities is anticipated.

It will therefore be necessary to adopt an appropriate level of good practice mitigation measures for all of the dust risks identified (refer to Section 7.5 and the CEMP (included as a standalone document in this planning application pack)) to reduce the risks of causing impacts to amenity or human health. This will also prevent or reduce potential dust or PM_{10} (and $PM_{2.5}$) emissions which are associated with health impacts, such as exacerbating existing health conditions, including asthma and other lung conditions.

7.4.2.1.5 Summary

As discussed previously, the IAQM Guidance (IAQM 2023) does not advocate for the determination of significance pre-mitigation and recommends that significance is only assigned to the impact after considering the construction activity with mitigation. The IAQM Guidance states that:

> "*It is, therefore, important that the mitigation measures are defined in a form suitable for implementation by way of a planning condition or legal obligation within a section 106 agreement, and are included in a DMP [Dust Mitigation Plan] or a more general Code of Construction Practice or Construction Environmental Management Plan*."

This is the case for the Proposed Development, where a CEMP (included as standalone document in the planning application pack) is proposed as mitigation (refer to Section 7.5).

To simplify, and for ease of management and control, a single risk level for each construction activity (i.e., demolition, earthworks, construction and trackout) has been used as a basis for the selection of the required mitigation measures. A summary of the overall dust risk to be used for the selection of mitigation measures is provided in Table 7.15.

Table 7.15: Summary of the Highest Dust Risk from Assessment[1]

Risk	Demolition	Earthworks	Construction	Trackout	General [2]
Excavation of the proposed cable trench and laying of a section of underground cable	n/a	Low risk	Low risk	Medium risk	Medium risk
Formation of a TCC (TCC3)	n/a	Low risk	Low risk	Medium risk	Medium risk
Belcamp Substation Upgrade	Negligible risk	Low risk	Negligible risk	Medium risk	Medium risk
Woodland Substation Upgrade	n/a	Low risk	Low risk	Low risk	Low risk
Dust risk for identifying mitigation measure	Negligible risk	Low risk	Low risk	Medium risk	Medium risk

Note 1: Dust risk listed in the table is the highest risk from each assessment for dust soiling and health effects.
Note 2: The general column represents the highest risk level for each assessed construction activity, to be used to determine the selection of general dust management mitigation measures which are not specific to demolition, earthworks, construction or trackout activities.

As shown in Table 7.15, the dust risk used for the selection of the required level of good practice mitigation measures is negligible for demolition activities, low risk for earthwork and construction activities, and medium risk for trackout and the general mitigation measures.

As described in Section 7.2.4.1, it is not possible to define significance without the application of good practice mitigation as no scheme would proceed without the application of a minimum level of dust mitigation. The level of good practice mitigation identified in Section 7.5, is considered to be effective in controlling dust emissions from the construction to prevent any significant impacts occurring.

7.4.2.2 Construction Site Plant and Machinery Emissions

The IAQM Guidance (IAQM 2023) specifies the following in relation to the assessment of emissions to air from construction plant and machinery (i.e., non-road vehicles):

> *"Experience of assessing the exhaust emissions from on-site plant (e.g. excavators) and generators (also known as non-road Mobile Machinery or NRMM) suggests that they are unlikely to make a significant impact on local air quality, and in the vast majority of cases they will not need to be quantitatively assessed."*

The primary construction activities associated with the Proposed Development will require the use of plant and machinery including tracked excavators, dumper trucks, asphalt pavers, road planers, hydraulic vibratory compacters, dozers and on-site generators. A detailed construction plant list is provided in Table 9.3 of Chapter 9 (Noise and Vibration) in Volume 2 of this EIAR.

The outline construction schedule is set out in Chapter 4 (Proposed Development Description) in Volume 2 of the EIAR. The rate of progress of works along the proposed cable route for vegetation clearance is expected to be 200m per day and the excavation and installation of the cable is anticipated at a rate of 50m per day. This means there will be a relatively short duration of construction activities at any one location along the proposed cable route (typically less than one week). A maximum of eight diesel-powered plant and machinery items are likely to be required to operate simultaneously at the same location along the proposed cable route. The works proposed at Woodland Substation are expected to last approximately seven months, while the proposed works at Belcamp Substation are expected to last approximately 17 months with a

maximum of four diesel-powered plant and machinery items that are likely to be required to operate. Therefore, given the low number of plant, short duration of activities or the low number of receptors (set out in Section 7.4.2.1), the potential impact on local air quality at sensitive human and ecological receptors in the vicinity of the Proposed Development is considered to be negligible, and therefore assessed as a Not Significant impact. As a result, emissions from construction plant and machinery are not considered further from an air quality perspective.

7.4.2.3 Road Traffic Emissions

During the Construction Phase, the maximum daily change in HDV flows at any location is estimated to be 191. At this location, the maximum number of vehicles would only last for two days (refer to Table 14.20 in Chapter 14 (Traffic and Transport) in Volume 2 of the EIAR). Therefore, as an AADT, the increase in HDVs, would be less than the threshold defined in the TII Air Guidance (i.e., 200 AADT) (TII 2022) for requiring an air quality assessment, as set out in Section 7.2.1.3. The total estimated number of workers across the Proposed Development at any one time is unlikely to exceed 215 (refer to Table 14.17 in Chapter 14 (Traffic and Transport)) and the maximum daily total change in vehicle numbers at any one location is 369 (refer to Table 14.20 in Chapter 14 (Traffic and Transport)). Represented as an AADT, this would be less than the peak of 369 and below the threshold of 1,000. Therefore, as per the methodology set out in Section 7.2.4.3, the associated change in the concentrations of pollutants at sensitive human and ecological receptors will be Negligible, and therefore, assessed as a Not Significant impact, and no further assessment is required.

7.4.3 Operational Phase

7.4.3.1 Road Traffic Emissions

Apart from occasional maintenance visits, typically for the monitoring of the cable at the link boxes next to the Joint Bays, which is expected to generate (on average) less than two light duty vehicles (LDV) movements a day, there will be very few road traffic movements associated with the Operational Phase of the Proposed Development. The increase of less than two additional traffic movements per day associated with the Operational Phase is therefore less than the threshold defined in the TII Air Guidance (TII 2022) for requiring an air quality assessment, as set out in Section 7.2.1.3. Therefore, the change in the concentrations of pollutants at sensitive human and ecological receptors will be Negligible and therefore, is assessed as a Not Significant impact.

7.5 Mitigation and Monitoring Measures

7.5.1 Construction Phase

Good practice dust mitigation measures to manage the generation of dust at source will be implemented. The proposed mitigation measures, as per the IAQM Guidance (IAQM 2023), are presented below. These mitigation measures, which, as shown in Table 7.15, are based on low risk for earthwork and construction activities, and medium risk for trackout and general mitigation measures, are 'highly recommended'.

As discussed previously, the mitigation measures will be included in the CEMP (included as a standalone document in the planning application pack). If there are any further measures attached to conditions in any grant of planning permission, these will be included in an updated CEMP with the agreement of the local authority by the appointed contractor.

It should be noted that the measures taken forward from this assessment will be reviewed on a regular basis during construction to ensure that they are appropriate for the works taking place, and any complaints received.

- **Communication:**
  - A stakeholder communication plan will be developed and implemented and will include community engagement before work commences on-site;
  - The name and contact details of the person(s) accountable for air quality and dust issues on the TCC and HDD Compound site boundary will be displayed. This may be the environment manager / engineer or the site manager; and
  - The head or regional office contact information for the developer and appointed contractor will be displayed.
- **Site Management:**
  - All dust and air quality complaints will be recorded, cause(s) will be identified, appropriate measures to reduce emissions in a timely manner will be undertaken, and the measures taken will be recorded;
  - The complaints log will be made available to the local authority when asked; and
  - Any exceptional incidents that cause dust and / or air emissions, either on-site or off site, will be recorded in a log book, along with the action taken to resolve the situation.
- **Monitoring:**
  - Regular site inspections to monitor compliance with the CEMP or equivalent management plan will be carried out, with inspection results recorded. The inspection log will be made available to the local authority when asked; and
  - The frequency of site inspections by the person accountable for air quality and dust issues on-site will be increased, when activities with a high potential to produce dust are being carried out, and during prolonged dry or windy conditions. Regular site inspections to monitor compliance with the CEMP will be carried out and inspection results will be recorded.
- **Preparing and maintaining the site**
  - The site layout will be planned so that machinery and dust causing activities are located away from receptors, as far as is possible;
  - Solid screens or barriers will be erected around dusty activities that are at least as high as any stockpiles on-site;
  - Specific operations will be fully enclosed where there is a high potential for dust production and impacts on nearby receptors;
  - Site runoff of water or mud will be avoided;
  - Materials that have a potential to produce dust will be removed from site as soon as possible, unless being reused on-site. If they are being reused on-site, they will be covered as described below; and
  - Stockpiles will be covered or fenced to prevent wind whipping.
- **Operating vehicles / machinery and sustainable travel:**
  - All vehicle operators will be required to switch off engines when vehicles are stationary (i.e. no idling vehicles); and
  - The use of diesel, or petrol-powered generators will be avoided. Mains electricity or battery powered equipment will be used, where practicable.
- **Operations:**
  - Site personnel will 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);

  - An adequate water supply will be made available for dust / particulate matter suppression, where required;
  - Covered skips will be used;
  - Drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment will be minimised, and fine water sprays will be used on such equipment, wherever appropriate; and
  - The appointed contractor will ensure that equipment is readily available on-site to clean any dry spillages. Spillages will be cleaned up as soon as reasonably practicable after the event using wet cleaning methods.
- **Waste management:**
  - Bonfires and burning of waste materials will be avoided.
- **Measures specific to trackout:**
  - Water-assisted dust sweeper(s) will be used on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use;
  - Dry sweeping of large areas will be avoided;
  - It will be required to ensure that vehicles entering and leaving sites containing friable materials are covered to prevent escape of materials during transport;
  - On-site haul routes will be inspected for integrity and instigate necessary repairs to the surface as soon as reasonably practicable;
  - All inspections of haul routes and any subsequent action will be recorded in a site log book;
  - A surfaced haul route to the TCCs and HDD Compounds will be installed, which will be regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and will be regularly cleaned, if required;
  - A wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable) will be implemented;
  - It will be required to ensure that there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits; and
  - Access gates will be located at least 10m from receptors, where possible.

7.5.2 Operational Phase

Based on the findings of the assessment, as outlined in Section 7.4.3, it is not considered necessary to implement additional mitigation measures for the Operational Phase, as impacts are assessed to be Negligible and therefore a Not Significant impact.

7.6 Residual Impacts

A precautionary approach has been adopted throughout this assessment, such as assessing that the activities take place at the site boundary, reducing the distance between construction activities and receptors. Therefore, this allows flexibility of where construction activities take place within the Planning Application Boundary. In addition, the suite of mitigation measures set out in Section 7.5 and in the CEMP would remain appropriate for any flexibility being applied for.

7.6.1 Construction Phase

Following the implementation of the dust mitigation measures outlined in Section 7.5, the dust impact associated with the Construction Phase of the Proposed Development are assessed as Not Significant at

nearby receptors. It should be noted that the measures taken forward from this assessment will be reviewed on a regular basis during construction to ensure that they are appropriate for the works taking place, and any complaints received.

Based on the findings of the assessment for emissions from construction plant and machinery and associated road traffic movements, there will be no significant residual air quality impacts associated with the Construction Phase of the Proposed Development.

Table 7.16 summarises the residual impacts of the Proposed Development during the Construction Phase.

Table 7.16: Summary of Residual Impacts Before and Following Mitigation

Assessment Topic	Impacts / Effects	Significance	Mitigation Measures	Significance of Residual Impact
Construction dust emissions	Construction dust emissions affecting human health and or causing annoyance through deposition.	Negligible to Medium risk of dust impacts [1]	Implementation of the measures outlined in Section 7.5 through the implementation of the CEMP (included as standalone documents in the planning application pack).	Not Significant
Construction site plant and machinery emissions	Emissions affecting human health and sensitive habitats.	Not Significant	None required	Not Significant
Road traffic emissions	Emissions affecting human health and sensitive habitats.	Not Significant	None required	Not Significant

Note 1: As described in Section 7.2.4.1, the IAQM Guidance (IAQM 2023) does not advocate determination of significance pre-mitigation, and recommends that significance is only assigned to the impact after considering the construction activity with the appropriate level of good practice mitigation in place.

7.6.2 Operational Phase

Based on the findings of the assessment, there will be no significant residual air quality impacts associated with the operation of the Proposed Development, without the need for additional mitigation measures.

7.7 Conclusion

This Chapter provides an assessment of the potential impacts on air quality arising from the construction and operation of the Proposed Development.

The potential impact on local air quality, at sensitive human and ecological locations in the vicinity of the Proposed Development, associated with emissions from plant and machinery and construction and operational-related road traffic, is anticipated to be Negligible, and therefore, Not Significant.

A qualitative assessment of construction dust effects has been undertaken for the different construction activities associated with the Proposed Development. These construction activities were selected to represent those activities which have the greatest potential for dust generation at source. Likewise, the locations chosen for assessment purposes represent those locations with the highest number of sensitive receptors in close proximity to the Planning Application Boundary. There are no designated ecological receptors within the study area for construction dust effects.

Based on the matrix of relationships between the sensitivity of the area and the dust emission magnitudes for various activities set out in the IAQM Guidance (IAQM 2023), it is considered that in the absence of appropriate mitigation, there is a low risk of dust impacts for earthwork and construction activities, and a medium risk for trackout at human receptors. There is therefore the potential for infrequent, short-term episodes when baseline dust deposition rates could be increased by an amount that residents could perceive. With regard to human health, there is a negligible to low risk as there is limited potential for emissions of

PM_{10} and $PM_{2.5}$ to increase baseline concentrations to a value that is above the Limit Values set for the protection for human health.

The IAQM Guidance notes, that with the application of good practice mitigation measures of the type available for use on the Proposed Development, construction dust emissions should not lead to significant impacts at any off site receptor. The IAQM Guidance also notes that, even with a rigorous package of mitigation measures in place, such as those taken forward from this assessment and included in the air quality management strategies set out in the CEMP (included as a standalone document in the planning application pack), occasional impacts may occur. The CEMP will provide a framework by which the level of mitigation is adapted to respond proactively to the changing risk of dust emissions, so that significant effects are prevented. Beyond the good practice mitigation measures set out in Section 7.5 and the CEMP, no additional mitigation measures are required.

As discussed previously, the changes in the concentrations of pollutants at sensitive receptors from emissions from plant and machinery and associated road traffic is considered to be Negligible. Therefore, this would represent a Not Significant impact on air quality.

As the air quality impacts associated with the Proposed Development are Not Significant and ambient pollutant concentrations will be well below the relevant Limit Value, and no exceedances of relevant Limit Values are anticipated.

7.8 References

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