AENC-ARC-ENV-REP-0034

Norwich to Tilbury

Volume 6: Environmental Statement

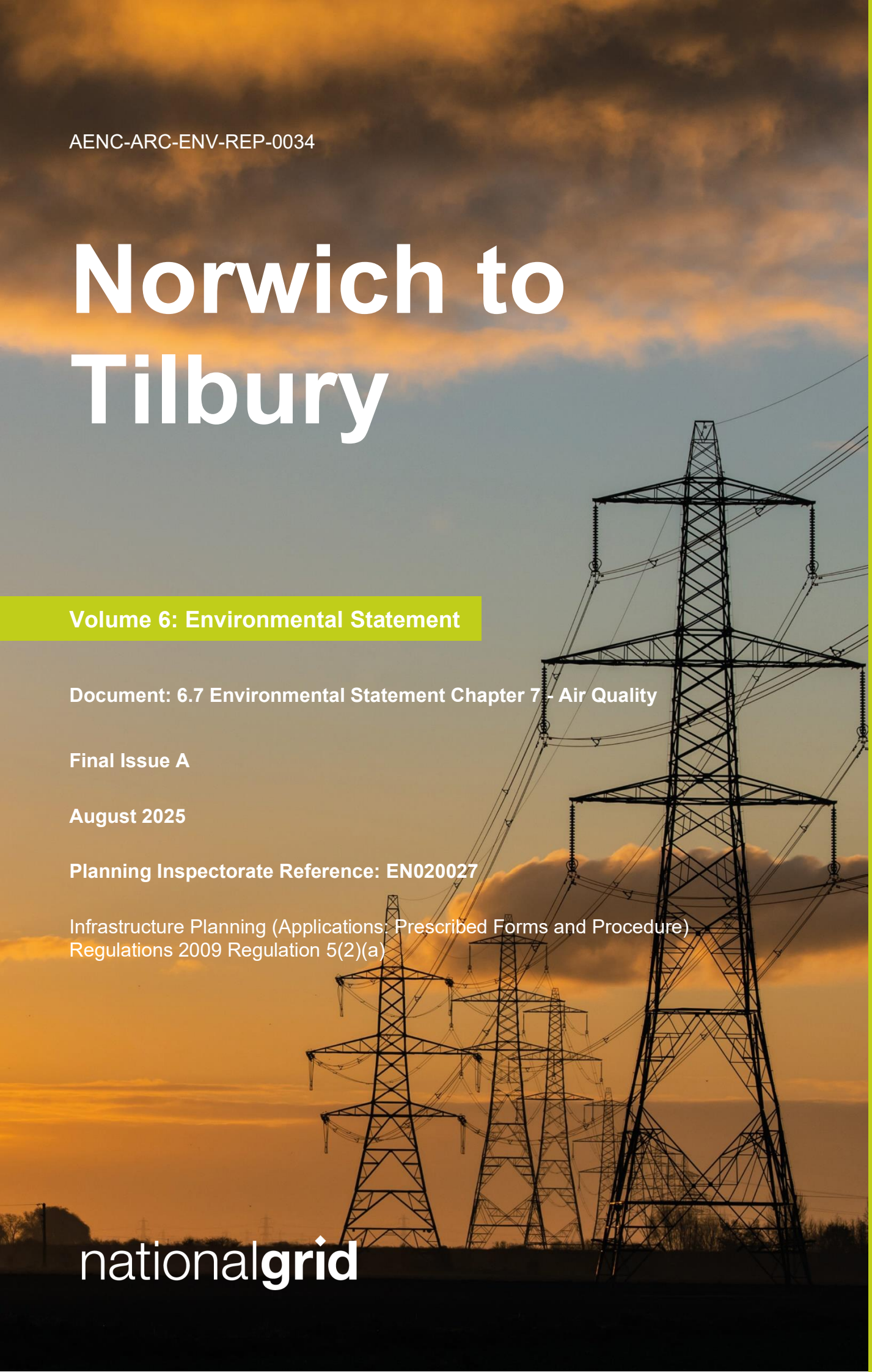
Document: 6.7 Environmental Statement Chapter 7 - Air Quality

Final Issue A

August 2025

Planning Inspectorate Reference: EN020027

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 Regulation 5(2)(a)



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7. Air Quality

7.1 Introduction

7.1.1 This chapter of the Environmental Statement (ES) (Volume 6 of the Development Consent Order (DCO) application) details the assessment of the potential residual effects of Norwich to Tilbury (the 'Project') on Air Quality. This chapter covers effects from the following, during construction:

- Dust
- Traffic emissions
- Generator and Non-Road Mobile Machinery (NRMM) emissions.

7.1.2 As set out in the Environmental Impact Assessment (EIA) Scoping Report (document reference 6.19) and agreed within the EIA Scoping Opinion (document reference 6.20), the operation (and maintenance) phase of the Project would not result in any significant effects to air quality and no further assessment has been carried out in the ES (Volume 6 of the DCO application).

7.1.3 There are interrelationships related to the likely residual effects on air quality and other environmental topics. Therefore, please also refer to the following chapters:

- Chapter 8: Ecology and Biodiversity (document reference 6.8)
- Chapter 10: Health and Wellbeing (document reference 6.10)
- Chapter 11: Historic Environment (document reference 6.11)
- Chapter 15: Socio-economics, Recreation and Tourism (document reference 6.15)
- Chapter 16: Traffic and Transport (document reference 6.16).

7.1.4 This chapter is supported by the following figures and appendices:

- Figure 7.1: Air Quality Study Area and Constraints (document reference 6.7.F1)
- Figure 7.2: Air Quality Background Concentrations (2023) (document reference 6.7.F2)
- Figure 7.3: Air Quality Background Concentrations (2030) (document reference 6.7.F3)
- Figure 7.4: Air Quality Construction Dust Study Area (document reference 6.7.F4)
- Figure 7.5: Air Quality Affected Road Network (document reference 6.7.F5)
- Figure 7.6: Air Quality Verification (document reference 6.7.F6)
- Figure 7.7: Air Quality Generators (document reference 6.7.F7)
- Appendix 7.1: Air Quality Assessment Methodology (document reference 6.7.A1)
- Appendix 7.2: Air Quality Baseline Data (document reference 6.7.A2)

- Appendix 7.3: Air Quality Assessment Results (document reference 6.7.A3).

7.2 Regulatory and Planning Policy Context

National Policy Statement (NPS)

7.2.1 Chapter 2: Key Legislation and Planning Policy Context (document reference 6.2) sets out the key overarching policy relevant to the Project. Overarching National Policy Statement for Energy (EN-1) (National Policy Statement EN-1) (Department for Energy Security and Net Zero (DESNZ, 2024a)) is the key overarching policy relevant to the Project. This is supported by National Policy Statement for Electricity Networks Infrastructure (EN-5) (National Policy Statement EN-5) (DESNZ, 2024b).

7.2.2 Full consideration of the relevant NPSs for the Project and this chapter can be found in the Policy Compliance Document (document reference 5.7).

Overarching NPS for Energy (EN-1)

7.2.3 NPS EN-1 (DESNZ, 2024a) contains the following paragraphs relating to Air Quality which have been considered within this chapter.

7.2.4 Paragraphs 5.2.1 to 5.2.9 provide an overall summary of how energy related projects can impact air quality. These points have been taken into account in this assessment.

7.2.5 Paragraph 5.2.9 of EN-1 (DESNZ, 2024a) states that an ES should describe:

- *'Existing air quality concentrations and the relative change in air quality from existing levels*
- *Any significant air quality effects, mitigation action taken and any residual effects, distinguishing between the project stages and taking account of any significant emissions from any road traffic generated by the project*
- *The predicted absolute emissions, concentration change and absolute concentrations as a result of the proposed project, after mitigation methods have been applied*
- *Any potential eutrophication impacts'.*

7.2.6 Paragraphs 5.2.10 to 5.2.12 summarise relevant considerations for legislation and how any impacts should be mitigated in consultation with relevant authorities.

7.2.7 Paragraph 5.2.13 states:

'The Secretary of State should consider whether mitigation measures are needed both for operational and construction emissions over and above any which may form part of the project application. A construction management plan may help codify mitigation at this stage. In doing so the Secretary of State should have regard to the Air Quality Strategy in England ... or any successors to these and should consider relevant advice within Local Air Quality Management guidance and $PM_{2.5}$ targets guidance'.

7.2.8 Paragraph 5.2.14 to 5.2.19 set out decision making criteria for the Secretary of State. These points are taken into account by providing a proportionate assessment and identifying mitigation where necessary.

7.2.9 This assessment has been carried out in accordance with the NPS EN-1.

NPS for Electricity Networks Infrastructure (EN-5)

7.2.10 NPS EN-5 (DESNZ, 2024b) makes no specific reference to Air Quality.

Other National Legislation and Policy

7.2.11 Although the Project will be considered against National Policy stated above, the assessment has also been undertaken in accordance with, and with reference to, the following national legislation and policy:

- Environment Act 2021
- Air Quality Standards Regulations 2010 (amended in 2016)
- Environmental Protection Act 1990
- Air Quality (England) Regulations 2000
- The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023
- The Non-Road Mobile Machinery (Type-Approval and Emission of Gaseous and Particulate Pollutants) Regulations 2018
- National Planning Policy Framework and accompanying planning practice guidance.

Air Quality Standards

7.2.12 The Air Quality Standards Regulations 2010 (amended in 2016) defines the policy framework for 12 air pollutants known to have harmful effects on human health or the natural environment. The Secretary of State for Environment, Food and Rural Affairs has the duty of ensuring compliance with the air quality limit values (pollutant concentrations not to be exceeded by a certain date). In this assessment, the term 'air quality standard' has been used to refer to the national limit values. Table 7.1 sets out the national air quality standards for oxides of nitrogen (NOx), nitrogen dioxide (NO_2), particulate patter (PM_{10} and $PM_{2.5}$) and ammonia (NH_3) used in this air quality assessment.

Table 7.1 Air quality standards

Pollutant	Averaging Period	Air Quality Standard (micrograms per cubic metre - µg/m^3)
Nitrogen dioxide	1-hour mean	200 µg/m^3, not to be exceeded more than 18 times a year (99.79th percentile)
	Annual mean	40 µg/m^3
Particulate matter (PM_{10})	Daily mean	50 µg/m^3, not to be exceeded more than 35 times a year (90.4th percentile)
	Annual mean	40 µg/m^3
Particulate matter ($PM_{2.5}$)	Annual mean	12 µg/m^3 [1] (to be achieved by 31 December 2040)

Pollutant	Averaging Period	Air Quality Standard (micrograms per cubic metre - µg/m^3)
		10 µg/m^3 [1] (interim target to be achieved by 31 January 2028)
Oxides of nitrogen[2]	Daily mean	75 µg/m^3
	Annual mean	30 µg/m^3
Ammonia[2] (for ecosystems where lichens and bryophytes are present)	Annual mean	1 µg/m^3
Ammonia[2] (for all other ecosystems)	Annual mean	3 µg/m^3

Note:

[1] The current target for $PM_{2.5}$ is 20 µg/m^3, however the Environmental Targets (Fine Particular Matter) (England) Regulations 2023 (Department of Environment Food and Rural Affairs (Defra), 2023) state that the annual mean level of $PM_{2.5}$ in ambient air must be equal to or less than 10 µg/m^3 ('the target level') by 31 December 2040. The Environmental Improvement Plan (2023) (Department of Environment Food and Rural Affairs (Defra), 2023) sets an interim target of 12 µg/m^3, to be achieved by 31 January 2028. Due to the timescales of the Project, where construction is proposed (if consent is granted) to commence in 2027, this assessment has considered the target of 12 µg/m^3.

[2] For protection of vegetation and ecosystems rather than human health.

7.2.13 For $PM_{2.5}$, the goal set by the Department for Environment, Food and Rural Affairs (Defra) for Local Planning Authorities is to work towards reducing concentrations without setting any specific numerical value. In the absence of a numerical standard, it is convention to assess local air quality effects against the limit value, originally set at 25 µg/m^3 and currently set at 20 µg/m^3.

7.2.14 Defra has also set two new targets, and two new interim targets, for $PM_{2.5}$ concentrations in England. One set of targets focuses on absolute concentrations. The long-term target is to achieve an annual mean $PM_{2.5}$ concentration of 10 µg/m^3 by the end of 2040, with the interim target being a value of 12 µg/m^3 by the start of 2028 (i.e. assessed using measurements from 2027). The 2040 target would be assessed using measurements from 2040. National targets are assessed against concentrations expressed to the nearest whole number, for example a concentration of 10.4 µg/m^3 would not exceed the 10 µg/m^3 target.

7.2.15 The second set of targets relate to reducing overall population exposure to $PM_{2.5}$. By the end of 2040, overall population exposure to $PM_{2.5}$ should be reduced by 35% compared with 2018 levels, with the interim target of 12µg/m^3 being a reduction of 22% by the start of 2028.

7.2.16 Defra assess compliance with the population exposure targets by averaging concentrations measured at Defra owned background monitoring stations. This would not consider small changes over time to precisely where people are exposed (such as exposure introduced by a new development). While local authorities have an important role delivering the required improvements, these are expected to relate to controlling emissions and not to assessing $PM_{2.5}$ concentrations against the targets directly.

7.2.17 In October 2024 Interim Planning Guidance (Department of Environment Food and Rural Affairs (Defra), 2024) on the consideration of $PM_{2.5}$ targets was issued by Defra to support the implementation of the Environmental Targets (Fine Particulate Matter) Regulations 2023 prior to the release of detailed Defra guidance for applicants and planning authorities. In addition to focusing solely on legal limit exceedances, the forthcoming guidance will require integration of $PM_{2.5}$ mitigation from the design stage to demonstrate how emissions and exposure are minimised. It is recommended that, pending publication of the new guidance, applicants demonstrate there has been identification of key sources of $PM_{2.5}$ and that actions to quantify these and identify mitigation where necessary to minimise emissions, have been taken into account.

Regional and Local Policy

7.2.18 Chapter 2: Key Legislation and Planning Policy Context (document reference 6.2), the Planning Statement (document reference 5.6) and Policy Compliance Document (document reference 5.7) set out relevant regional and local policy.

7.2.19 Key regional and local policy relevant to air quality, that has informed the assessment within this ES (Volume 6 of the DCO application), comprises:

- Greater Norwich Local Plan – adopted in March and April 2024 (Broadland District Council, South Norfolk Council, Norwich City Council and Norfolk County Council, 2024)
- South Norfolk Council Local Plan - Development Management Policies Document – adopted in 2015 (South Norfolk Council, 2015)
- Babergh and Mid Suffolk Joint Local Plan – Part 1 (Babergh and Mid Suffolk District Councils, 2023)
- North Essex Authorities' Shared Strategic Section 1 Plan (adopted 2021) (Tendring, Colchester and Braintree)
- Tendring District Local Plan 2013-2033 and Beyond, Section 2 (Tendring District Council, adopted January 2022)
- Colchester City Local Plan 2017-2033 Section 2 (Colchester City Council, adopted July 2022)
- Braintree District Local Plan 2013 to 2033, adopted 2022 (Braintree District Council, 2022)
- Breckland Local Plan (adopted 2023) Brentwood Local Plan 2016 – 2033, adopted 2022 (Brentwood Borough Council, 2022)
- Chelmsford Local Plan 2013 – 2036, adopted 2020 (Chelmsford City Council, 2020)
- Basildon District Council Local Plan[1], adopted 2007 (Basildon District Council, 2007)
- Ipswich Local Plan 2018-2036, adopted 2022 (Ipswich Borough Council, 2022)

[1] A new Local Plan is currently in development

- Thurrock Core Strategy and Policies for Management and Development, adopted 2015 (Thurrock Council, 2015).

Guidance

7.2.20 Relevant guidance, specific to Air Quality, that has informed this ES (Volume 6 of the DCO application), comprises:

- Guidance on the Assessment on Dust from Demolition and Construction V2.2 (Institute of Air Quality Management (IAQM), 2024)
- Air Quality Monitoring in the Vicinity of Demolition and Construction Sites 2018 (Institute of Air Quality Management (IAQM), 2018)
- Land Use Planning and Development Control: Planning for Air Quality (IAQM/EPUK, 2017)
- European Council Directive 92/43/EEC (Habitats Directive) (The Council of the European Communities, 2013)
- A guide to the assessment of air quality impacts on designated nature conservation sites (IAQM, 2019).

7.3 Scope of the Assessment

7.3.1 The scope of the assessment has been informed by the EIA Scoping Report (document reference 6.19) and EIA Scoping Opinion (document reference 6.20) provided by the Planning Inspectorate in 2022 on behalf of the Secretary of State. The scope has also been informed through consultation and engagement with relevant consultees. A summary of the scope of the air quality assessment is provided in Appendix 5.2: Scope of the Assessment (document reference 6.5.A2).

7.3.2 In addition, the EIA Scoping Opinion, together with a response from National Grid against each point raised by the Planning Inspectorate relevant to Air Quality, is provided in Appendix 5.1: National Grid's response to the EIA Scoping Opinion (document reference 6.5.A1).

Project Engagement and Consultation

7.3.3 Consultation and engagement with relevant stakeholders has informed the assessment presented in this chapter. Responses to representations received during the statutory consultation in summer 2024 and subsequent consultations in 2025 are provided in Appendix K and Appendix M of the Consultation Report (document reference 5.1).

7.3.4 A summary of discussions and how these have influenced the Project, scope and the approach to the assessment are provided in Table 7.2.

Table 7.2 Engagement undertaken relevant to air quality

Engagement	Comment	National Grid's Response
South Norfolk District Council, Breckland District Council, Mid Suffolk District Council, Babergh District Council, Colchester City Council, Tendring District Council, Braintree District Council, Chelmsford City Council, Brentwood District Borough, Basildon Borough Council, Thurrock Council, Essex County Council, September 2022	A letter was issued to Local Planning Authorities setting out the proposed methodology and scope. Generally, responses outlined agreement with the proposed methodology. Responses outlined that construction dust should be assessed fully in a Code of Construction Practice (CoCP) and that most recent available baseline data must be used for assessment. It was recommended that the basis for the sensitivity and magnitude criteria, and the assessment matrix, be provided in the EIA Scoping Report to clarify under what conditions effects would be regarded as significant.	Construction traffic emissions have been scoped into the assessment and construction dust has also been assessed, with mitigation included in the Outline CoCP (document reference 7.2). The methodology used for assessing the effects on air quality follows that set out in the EIA Scoping Report (document reference 6.19) and agreed within the EIA Scoping Opinion (document reference 6.20).

7.4 EIA Approach and Methods

7.4.1 This section describes the methodology used to establish the existing and future baseline together with the methodology/approach used to undertake the assessment on Air Quality. The overarching approach is also described in Chapter 5: EIA Approach and Method (document reference 6.5).

Data Sources

7.4.2 The assessment has been informed by a desk study which has drawn on the following key information sources:

- Defra Background Air Quality Archive (2021-base year) (Department of Environment Food and Rural Affairs (Defra), 2024)
- Defra Air Quality Management Areas (AQMA) dataset (Department of Environment Food and Rural Affairs (Defra), 2024)
- Local Air Quality Progress Reports
- Environment Agency register on industrial installations
- Ordnance Survey (OS) mapping and address database to identify sensitive human receptors such as residential properties, schools, hospitals, and care homes

- Multi-Agency Geographic Information for the Countryside (MAGIC) mapping (Department of Environment Food and Rural Affairs (Defra), 2025) to identify statutory and non-statutory designated sites including Special Protection Areas (SPAs), Special Areas of Conservation (SACs), Ramsar Sites and Sites of Special Scientific Interest (SSSIs).
- Air Pollution Information System (APIS) database (UK Centre for Ecology & Hydrology (UKCEH), 2016)and information on pollutants and their impacts on habitats and species
- Construction traffic data from Chapter 16: Traffic and Transport (document reference 6.16)
- Construction areas/temporary construction compounds listed data from Chapter 4: Project Description (document reference 6.4).

Study Area

Baseline

7.4.3 The baseline Study Area has included a review of sources and available monitoring data within 2 km of the Order Limits (as per the EIA Scoping Report (document reference 6.19) and agreed in the EIA Scoping Opinion (document reference 6.20)). The 2 km Study Area reflects industry standard / good practice and is considered appropriate in order to understand the effects from local sources such as roads and industrial processes and to gather a suitably representative baseline monitoring dataset. The 2 km Study Area is shown on Figure 7.1: Air Quality Study Area and Constraints (document reference 6.7.F1).

Construction Dust

7.4.4 The Study Area for construction dust comprises the following:

- 250 m from the Order Limits (50 m for ecological effects)
- 50 m from the Primary Access Routes (PARs) used by construction vehicles on the public highway, up to 250 m from the construction site entrance along haul roads used by Heavy Goods Vehicles (HGVs).

7.4.5 The Study Area is in accordance with the IAQM dust guidance (IAQM, 2024) and EIA Scoping Report (document reference 6.19). The Study Area's sensitivity to dust soiling, health and ecological effects has been determined through assessing the number of receptors and their sensitivity to dust soiling, health and ecological effects within 20 m, 50 m, 100 m, and 250 m from the Order Limits. This Study Area is shown on Figure 7.4: Air Quality Construction Dust Study Area (document reference 6.7.F4).

Construction Traffic

7.4.6 The Study Area for construction traffic emissions has been determined from the PARs shown on Figure 16.1: Primary Access Routes (document reference 6.16.F1) and predicted traffic numbers. For the assessment of construction traffic emissions, the criteria from the IAQM / Environmental Protection UK (EPUK) guidance (IAQM/EPUK, 2017) has been used to determine the affected road network (ARN).

The ARN includes all roads in the traffic model which are predicted to experience changes (as a result of the Project), due to:

- A change of Light Duty Vehicle (LDV)[2] flows of more than 100 Annual Average Daily Traffic (AADT) movements within or adjacent to an AQMA, or more than 500 AADT elsewhere, or
- A change of Heavy Duty Vehicle (HDV)[3] flows of more than 25 AADT movements within or adjacent to an AQMA, or more than 100 AADT elsewhere.

7.4.7 In areas where the above criteria are met, human and ecological receptors within 200 m of the road within the ARN are scoped into the assessment. The Study Area for the construction traffic assessment is shown on Figure 7.5: Air Quality Affected Road Network (document reference 6.7.F5).

Generator Use / NRMM

7.4.8 No specific guidance exists on the definition of a Study Area for NRMM and generator emissions due to the large variation in potential effects from different types of sources. For the purposes of this assessment, a Study Area of up to a 100 m radius from the temporary construction areas / compounds listed within Chapter 4: Project Description (document reference 6.4) is considered appropriate given the potential size and duration of the operations to be undertaken and the likely size of plant required. This Study Area also follows precedent set on other National Grid projects such as the Bramford to Twinstead Reinforcement project (National Grid, 2023). Beyond this distance it is considered that the effect of any emissions on local air quality would be very limited due to dispersion and influence of other pollution sources. Temporary construction compounds and associated Study Areas are as shown on Figure 7.7: Air Quality Generators (document reference 6.7.F7).

Site Survey

7.4.9 No site surveys to gather baseline information have been undertaken as air quality information is publicly available and has been sourced from Defra and the relevant Local Planning Authorities as part of their obligations under the Environment Act 2021 (Department of Environment Food and Rural Affairs (Defra), 2021).

Assessment Methodology

7.4.10 This section sets out the methodology used for assessing the effects on Air Quality for those aspects scoped into the assessment, as set out within the EIA Scoping Report (document reference 6.19) and agreed in the EIA Scoping Opinion (document reference 6.20). The scope of the Air Quality assessment is provided in Appendix 5.2: Scope of the Assessment (document reference 6.5.A2).

Construction Dust Assessment Methodology

7.4.11 The effects from construction of the Project have been assessed using the qualitative approach described in the latest guidance by the IAQM (IAQM, 2024), which

[2] LDV (vehicles up to 3.5 tonnes)

[3] HDV (vehicles greater than 3.5 tonnes, e.g. heavy good vehicles (HGVs), buses, coaches and 'vocational' vehicles such as gritters, refuse collection vehicles). HGVs are relevant for construction impacts, therefore they are the only type of HDV used for the Project. Also, the best practice mitigation refers to HGVs.

considers the potential for dust emissions from demolition, earthworks, construction and trackout[4] activities.

7.4.12 For each of these dust-generating activities, the guidance considers three separate effects:

- Annoyance due to dust soiling
- Harm to ecological receptors
- The risk of health effects due to changes in PM_{10} exposure.

7.4.13 The five-step construction dust assessment process is described in the IAQM guidance. This process starts with screening the need for a detailed assessment, based on the proximity of sensitive receptors and nature of the proposed works. If a detailed assessment is required, the next step involves defining the magnitude of the works and the sensitivity of the area and then defining the risk of impacts. The risk of dust impacts is determined by combining two key factors: the magnitude of dust emissions and the sensitivity of the area. The magnitude is assessed based on the scale and nature of the works (e.g. demolition, earthworks, construction, trackout), and is classified as small, medium or large. The sensitivity of the area is evaluated by considering the proximity and type of receptors, the baseline PM_{10} concentrations, and the number of receptors within defined distance bands. These two elements are then combined following IAQM guidance, to determine the overall risk of dust impacts. Once impacts and risk are defined the site-specific mitigation is identified and added to the CoCP where necessary. The residual effects of the impacts with mitigation in place is then taken into consideration when determining the overall risk for the Project. Further details of the construction dust assessment methodology are provided in Appendix 7.1: Air Quality Assessment Methodology (document reference 6.7.A1).

7.4.14 Sensitive receptors have been considered following the IAQM guidance (IAQM, 2024) which sets out, within Box 6 of the document, the approach for identifying high, medium and low sensitivity receptors.

- High sensitivity receptors would include areas where users can reasonably expect a high level of amenity such as residential properties, museums, schools or businesses such as car showrooms or those with food preparation
- Medium sensitivity receptors are locations where a moderate level of amenity is expected, though not to the same extent as residential areas. Examples include places of work and public car parks, where occupants may be present for extended periods but are generally less sensitive to dust and air quality impacts than at homes
- Low sensitivity receptors would include areas where the enjoyment of amenity would not reasonably be expected. For example, playing fields with transient use, farmland, footpaths and roads.

[4] IAQM guidance defines trackout as 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 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.

Construction Traffic Assessment Methodology

7.4.15 The assessment of the effects of emissions from construction traffic is based on the IAQM Air Quality for Planning guidance (IAQM/EPUK, 2017). This provides screening criteria (as mentioned in Paragraph 7.4.6 above) indicating the thresholds above which an assessment may be necessary. There are thresholds for the daily flows of LDVs and HDVs, which vary depending on whether AQMAs are present or not. Meeting either of the respective criteria indicates that detailed dispersion modelling of the road traffic emissions is necessary. Further detail on the construction traffic assessment methodology is included in Appendix 7.1: Air Quality Assessment Methodology (document reference 6.7.A1).

7.4.16 Traffic data for the Project represents the AADT flows, with reference to the following parameters:

- AADT flow, defined as vehicles/hour
- Percentage HDVs
- Traffic speeds.

7.4.17 The available traffic data indicates that the screening threshold of 100 AADT of HDVs outside of AQMAs is exceeded on the local road network. Therefore, a detailed assessment, incorporating dispersion modelling, has been carried out to determine the concentrations of pollutants in ambient air at human or ecological receptors adjacent to the ARN. The ARN is shown on Figure 7.5: Air Quality Affected Road Network (document reference 6.7.F5).

7.4.18 Effects from changes to air pollutant concentrations because of additional road traffic have been predicted using Atmospheric Dispersion Modelling Software (ADMS) and the specific model used for the ES (Volume 6 of the DCO application) is ADMS-Roads. The model has been widely validated for road emission sources and is accepted by the industry as ‘suitable’ for air quality assessments of road emissions. The model incorporates the latest understanding for boundary layer meteorology and dispersion. The model verification and model set up are detailed in Appendix 7.3: Air Quality Assessment Results (document reference 6.7.A3).

7.4.19 In order to carry out model verification and the process of comparing modelling outputs with real world monitoring results, the model was extended to assess the concentrations at locations where existing monitoring is located. Verification site locations are shown on Figure 7.6: Air Quality Verification (document reference 6.7.F6).

7.4.20 Annual mean concentrations of NOx, NO_2, PM_{10}, $PM_{2.5}$ and NH_3, along with the magnitude of change (with and without development), have been estimated for all sensitive receptors for comparison with the relevant air quality standards (shown in Table 7.1). The model results are detailed in Appendix 7.3: Air Quality Assessment Results (document reference 6.7.A3).

Assessment Scenarios

7.4.21 The assessment scenarios are summarised as follows:

- Baseline scenario for 2023 (using 2023 traffic volumes)
- Do Minimum (DM) scenario, which is the future construction year (2030) traffic flows without the construction of the Project (and using 2030 emissions)

- Do Something (DS) scenario, which is the same as the DM scenario but includes the construction traffic generated by the construction of the Project.

7.4.22 The baseline year is 2023, which is the most recent year for which monitoring data is available to allow model verification against monitored data.

7.4.23 The peak year is 2030 for construction vehicles, based on the traffic data provided by the traffic consultants.

Generator Use / NRMM Assessment Methodology

7.4.24 All temporary construction compounds and trenchless crossing locations are expected to require use of generators. UK Power Networks (UKPN) connections may be viable to supply electricity to the compounds. Space for connections to the nearest appropriate supply is included within the Order Limits where the connection distance is considered to be viable and economical. However, any UKPN connections remain subject to agreement and cannot be guaranteed. Therefore, the ES (Volume 6 of the DCO application) as a worst case assumes that generators would be present at all temporary construction compounds.

7.4.25 A review of NRMM equipment type and duration of use has been carried out to understand potential emissions and their locations.

7.4.26 Where effects are likely to occur, the IAQM Air Quality for Planning guidance (IAQM/EPUK, 2017) provides an indication of the likely magnitude of impact for short-term impacts as a percentage of the short-term Air Quality Assessment Level (AQAL). For long-term impacts, magnitude of an impact is based on the change in pollutant concentration resulting from the Project as a percentage of the AQAL. The AQAL levels are defined in Table 7.3 and Table 7.4.

7.4.27 This assessment considers any mitigation and commitments on emissions standards for engines and plant to be used in construction, included within the Outline CoCP (document reference 7.2). These measures are secured through the DCO, which requires compliance with the final CoCP to be approved by the relevant Local Planning Authority prior to the commencement of construction.

7.4.28 The effect of NRMM and generator use on ecological sites is not considered further as generator operation would be intermittent and occur for sporadic periods at differing locations within the Order Limits throughout the temporary construction phase. It is not considered that emitted pollutants would occur over a long enough time to have a material effect on rates of pollutant deposition.

Value / Sensitivity

7.4.29 The construction dust assessment has determined the sensitivity of the area based on the guidance provided by the IAQM (IAQM, 2024), as shown in Appendix 7.1: Air Quality Assessment Methodology (document reference 6.7.A1).

7.4.30 The construction traffic and generator/NRMM assessment has treated all sensitive human receptors equally. Sensitivity was determined based on locations that reflect typical human exposure over the relevant averaging periods defined by air quality standards.

Impact Magnitude

7.4.31 For construction dust, the risk of impacts is defined in line with the IAQM construction dust guidance (IAQM, 2024), as shown in Appendix 7.1: Air Quality Assessment Methodology (document reference 6.7.A1).

7.4.32 Construction traffic impacts are determined using the EPUK / IAQM impact descriptions. The IAQM Land-use Planning and Development Control: Planning for Air Quality (IAQM/EPUK, 2017) provides an approach to determining the air quality impacts resulting from a project.

7.4.33 Firstly, impact descriptors are determined based on the magnitude of incremental change as a proportion of the relevant assessment level, in this instance the annual mean NO_2, PM_{10} and $PM_{2.5}$ standards. The change is then examined in relation to the predicted pollutant concentrations in the assessment year and its relationship with the annual mean NO_2, PM_{10} and $PM_{2.5}$ standards.

7.4.34 The assessment framework for determining the impact at each of the assessed receptors is presented in Table 7.3.

Table 7.3 IAQM impact magnitude criteria

Long-term Average Concentration at Receptor in Assessment Year	% Change in Concentration Relative to the AQAL			
	1	2-5	6-10	>10
75% or less of AQAL	Negligible	Negligible	Slight	Moderate
76-94% of AQAL	Negligible	Slight	Moderate	Moderate
95-102% of AQAL	Slight	Moderate	Moderate	Substantial
103-109% of AQAL	Moderate	Moderate	Substantial	Substantial
110% or more of AQAL	Moderate	Substantial	Substantial	Substantial
Note: Changes in pollutant concentrations of 0% i.e. <0.5% would be described as negligible				

7.4.35 The guidance also provides advice for determining the magnitude of change for hourly mean NO_2 concentrations, which is shown in Table 7.4. The impact descriptor is determined by considering the process contribution only. However, in assessing the significance, consideration is also given to total pollutant concentrations, including background concentrations, and comparison of these with the hourly mean NO_2 standard.

Table 7.4 Magnitude of change for hourly mean NO_2 concentrations

Changes in Hourly Mean Concentrations at Receptor in the Assessment Year	Magnitude of Change	Impact Descriptor
<10% of hourly mean NO_2 threshold	Imperceptible	Negligible
10 to 20% of hourly mean NO_2 threshold	Small	Slight
20 to 50% of hourly mean NO_2 threshold	Medium	Moderate
>50% of hourly mean NO_2 threshold	Large	Substantial

7.4.36 The impact descriptors at each of the assessed receptors can then be used as a starting point to make a judgement on the overall significance of a project, however other influences would also need to be taken into account, such as:

- The existing and future air quality in the absence of the Project
- The extent of current and future population exposure to the impacts
- The influence and validity of any assumptions adopted when undertaking the prediction of impacts.

Significance

7.4.37 In terms of construction traffic, the 2017 EPUK/IAQM guidance (IAQM/EPUK, 2017) provides an approach to determining the overall significance of local air quality effects arising from a project.

7.4.38 For the construction traffic assessment, professional judgement has been used to determine the overall significance of effects of the Project. This approach aligns with IAQM/EPUK guidance, which provides impact descriptors (negligible, slight, moderate, substantial) based on the magnitude of change in pollutant concentrations relative to relevant air quality standards. In EIA practice, a 'moderate' or 'substantial' impact typically indicates a change that is either approaching or exceeding air quality standards, or affecting a large number of sensitive receptors, and is therefore considered likely to give rise to a significant effect. Conversely, a 'negligible' or 'slight' impact reflects a small change in pollutant concentrations that remains well below air quality standards and is unlikely to materially effect human health or amenity and is therefore not considered significant.

7.4.39 For construction dust, the methodology for determining significance follows the five-step approach set out in the IAQM guidance (IAQM, 2024). This includes screening the need for a detailed assessment, defining the magnitude of dust emissions for each activity (e.g. earthworks, construction, trackout), and evaluating the sensitivity of the surrounding area based on the number and type of receptors, baseline PM_{10} concentrations, and proximity to the works. These factors are combined to determine the overall risk of dust impacts, which then informs the level of mitigation required. The residual risk, post-mitigation, is used to inform the significance of effects on human health, particularly in relation to PM_{10} exposure.

7.4.40 For NRMM and generator emissions, the assessment is based on IAQM/EPUK (IAQM/EPUK, 2017) guidance, using a qualitative approach supported by assumptions about equipment type, emission standards (e.g. Stage VI compliance),

and operational duration. The methodology considers the proximity of sensitive receptors to emission sources, the likely dispersion of pollutants, and the scale of emissions relative to relevant AQALs. Where appropriate, the magnitude of impact is expressed as a percentage of the AQAL, and the significance is determined by considering both the process contribution and total predicted concentrations at receptor locations.

Limitations of Assessment

7.4.41 As with all types of assessment of air quality effects, the assessment depends on the accuracy of data provided by third parties. It has therefore been assumed that data provided by the third parties is accurate.

7.4.42 The assessment of the construction traffic impact on the local road network as presented in Chapter 16: Traffic and Transport (document reference 6.16) is not based on the use of regional transport modelling. Additional information is provided in the same chapter.

7.4.43 Air quality dispersion modelling has inherent areas of uncertainty, including:

- Traffic data used in the model
- Traffic emissions data
- Simplifications in model algorithms and empirical relationships that are used to simulate complex physical and chemical processes in the atmosphere
- Background concentrations
- Meteorological data.

7.4.44 These limitations have been overcome as far as possible by verifying the modelled concentrations against monitoring results in appropriate locations. The traffic data used is appropriate for the purposes of this air quality assessment.

Key Parameters for Assessment and Assumptions

7.4.45 This section describes the key parameters and assumptions that have been used/made when undertaking the assessment presented within this chapter. The assumptions this chapter is based on are listed below:

- Construction dust:
  - Construction dust effects have been assumed to occur across the full area within the Order Limits, which is a conservative assumption included to cover all potential effects
  - Where there is uncertainty on volumes of earth works a ‘large’ magnitude has been assumed to provide a worst-case assessment.
- Construction traffic:
  - Emission rates for all road sources were calculated using (Department of Environment Food and Rural Affairs (Defra) 2025). Impacts on air quality during construction have been modelled using 2023 vehicle emission factors and 2023 background concentrations for the baseline scenario

- For the DM and DS scenarios, impacts on air quality during construction have been modelled using 2030 vehicle emission factors and 2030 background concentrations, which is the construction year assessed for the Project, as advised by the transport consultants.

- Generators and NRMM:
  - All overhead line temporary construction compounds have been assumed to have one unit, Stage V generator (130 kW to 560 kW) and operate 24 / 7 for the duration of works
  - All underground cable temporary construction compounds have been assumed to have one unit, Stage V generator (130 kW to 640 kW) and operate 24 / 7 for the duration of works
  - All trenchless crossings have been assumed would have one unit, Stage V generator (130 kW to 560 kW) and operate 24 / 7 for the duration of works.

7.5 Baseline Conditions

Existing Baseline

7.5.1 Baseline conditions have been gathered from desk-based information (see Section 11.4) and presented with reference to the section of the Project within which they are located.

7.5.2 Existing or baseline ambient air quality refers to the concentration of relevant substances that are already present in the environment. These are present from various sources, such as industrial processes, commercial and domestic activities, traffic, and natural sources.

Sources of Air Pollution

Industrial Processes

7.5.3 Industrial air pollution sources are regulated through a system of operating permits or authorisations, requiring stringent emission limits to be met and ensuring that any releases to the environment are minimised or rendered harmless. Regulated (or prescribed) industrial processes are classified as Part A or Part B processes, regulated through the Pollution Prevention and Control (PPC) system. The larger more-polluting processes (Part A) are regulated by the Environment Agency, and the smaller less-polluting ones (Part B) by the local authorities. Local authorities tend also to regulate only for emissions to air, whereas the Environment Agency regulates emissions to air, water and land.

7.5.4 There are 14 Part A industrial processes with emissions to air identified within the 2 km buffer from the Order Limits, as shown in Table A7.2.1: Part A Processes of Appendix 7.2: Air Quality Baseline Data (document reference 6.7.A2) and shown on Figure 7.1: Air Quality Study Area and Constraints (document reference 6.7.F1). An area of 2 km is included for the review of Part A processes as they are large emitters which can have an effect on local air quality. The distance of 2 km has been selected following Environment Agency guidance which sets the screening distances for Part A processes. There is one Part A industrial process located within the Order Limits.

This process is Chelmsford Compressor Station operated by National Grid (Permit EPR/LP3839LV).

7.5.5 The contribution of industrial processes to local air quality is included in the background concentrations presented in this section, based on Defra's modelled background pollution maps. These maps incorporate emissions from a range of sectors, including industrial sources. However, it is acknowledged that industrial processes, particularly those that are new, or atypical, may not be fully represented in the background data.

Road Traffic

7.5.6 In recent decades, atmospheric emissions from transport on a national basis have grown to match or exceed other sources in respect to many pollutants, particularly in urban areas. The local air quality around the Project is expected to be influenced by vehicle emissions.

7.5.7 Where local roads are scoped into the ARN their emissions have been explicitly modelled. Due to the limited extent of the road network, emissions from vehicles have not been removed from the background data provided by Defra. This background data inherently includes contributions from all sources, including local traffic, and is used to represent the cumulative environmental context. As a result, there may be a degree of double-counting of emissions from these roads. Nevertheless, this approach is considered conservative and ensures that potential air quality impacts are not underestimated.

Local Air Quality Management

7.5.8 The Environment Act 1995 (Department of Environment Food and Rural Affiars (Defra), 1995), as amended by the Environment Act 2021 (Department of Environment Food and Rural Affairs (Defra), 2021), requires local authorities to report to Defra on local air quality and local air quality management within their Local Planning Authority area. This also requires an assessment of compliance with the relevant limit or standard values. The Study Area for the Project and Order Limits extends into 13 Local Planning Authority areas (together with an additional three county councils). The Study Area looks at 2 km from the Order Limits, which is considered to provide sufficient data to assess baseline conditions.

7.5.9 The 13 Local Planning Authorities within 2 km of the Order Limits comprise:

- Babergh District Council
- Basildon Borough Council
- Braintree District Council
- Breckland District Council
- Brentwood Borough Council
- Chelmsford City Council
- Colchester City Council
- Gravesham Borough Council
- Ipswich Borough Council

- Mid Suffolk District Council
- South Norfolk District Council
- Tendring District Council
- Thurrock Council.

7.5.10 Where air quality standards are not predicted to be met, Local Planning Authorities must declare the area as an AQMA. In addition, Local Planning Authorities are required to produce an Air Quality Action Plan which includes measures to improve air quality in the AQMA.

7.5.11 There are no AQMAs within 2 km of the Order Limits. However, AQMA No.4 and AQMA No.5, located on the A1306 and A13 (Thurrock Council) (Section H), although not within the 2 km of the Order Limits, are located within 200 m of the ARN.

7.5.12 AQMA No.4 was declared for exceedances of the annual NO_2 standard. AQMA No.5 was declared for exceedance of the annual NO_2 standard alongside the daily (24-hour) PM_{10} standard. These AQMAs have identified road traffic as a predominant source of pollution, from the surrounding A roads (A1306 and A13).

Local Air Quality Monitoring

7.5.13 The baseline Study Area (2 km from the Order Limits) extends into 13 Local Planning Authority areas (listed above). These local authorities carry out diffusion tube and automatic monitoring throughout the Study Area. Information from the monitoring has been used to establish baseline air quality conditions and details are provided in the paragraphs that follow.

Automatic Monitoring

7.5.14 There is a single automatic monitoring station (CM1), within 2 km of the Order Limits, located in Thurrock Council (Section H), which measured concentrations of NO_2 and $PM_{2.5}$ in 2023, the baseline year. The location of automatic monitoring station CM1 is presented in Table A7.2.2 of Appendix 7.2: Air Quality Baseline Data (document reference 6.7.A2) and shown on Figure 7.1: Air Quality Study Area and Constraints (document reference 6.7.F1).

7.5.15 The most recent results for NO_2, PM_{10} and $PM_{2.5}$ are shown in Table A7.2.3, Table A7.2.4, Table A7.2.5 respectively, within Appendix 7.2: Air Quality Baseline Data (document reference 6.7.A2).

7.5.16 No exceedances of the NO_2 annual mean standard (40 µg/m^3) were recorded at the automatic monitoring station CM1 between 2019 to 2023 (the most recent years of available monitoring data). No exceedances of the hourly mean NO_2 standard have been recorded at CM1 between 2019 and 2023.

7.5.17 No exceedances of the PM_{10} annual mean or 24-hour PM_{10} mean standards were recorded at CM1 between 2019 and 2022 (PM_{10} monitoring was decommissioned at CM1 in 2023).

7.5.18 No exceedances of the $PM_{2.5}$ annual mean standard (interim target of 12 µg/m^3, to be achieved by 31 January 2028) were recorded at the automatic monitoring site CM1 in 2023, the only available year of $PM_{2.5}$ monitoring at this site.

Diffusion Tube Monitoring

7.5.19 Diffusion tube monitoring is a method used to measure the concentration of NO_2 in the air over a period of time. Diffusion tubes are widely used for monitoring air quality by Local Planning Authorities.

7.5.20 There are 36 diffusion tubes within 2 km of the Order Limits. The details of these monitors are provided in Table A7.2.6 within Appendix 7.2: Air Quality Baseline Data (document reference 6.7.A2) and shown on Figure 7.1: Air Quality Study Area and Constraints (document reference 6.7.F1).

7.5.21 The annual mean NO_2 concentrations for 2019 to 2023 are shown in Table A7.2.7 within Appendix 7.2: Air Quality Baseline Data (document reference 6.7.A2). No exceedances of the annual standard of 40 µg/m^3 were recorded between 2019 and 2023.

7.5.22 The maximum NO_2 concentration recorded by the diffusion tubes located within the 2 km Study Area in 2023 was 29.2 µg/m^3 at the SS10 kerbside diffusion tube site, located approximately 1.8 km south-east of the Order Limits.

Background Pollutant Concentrations

7.5.23 Background concentrations refer to the existing levels of pollution in the atmosphere, produced by a variety of stationary sources, such as industrial processes, and non-stationary sources, such as roads. The Defra website (Department of Environment Food and Rural Affairs (Defra), 2024) includes estimated background pollutant concentrations for NOx, NO_2, PM_{10} and $PM_{2.5}$ for each 1 km x 1 km OS Grid square in the UK.

7.5.24 The Defra background concentrations for NO_2 are well below the standard of 40 µg/m^3 across the Order Limits as shown on Figure 7.2: Air Quality Background Concentrations (2023) (document reference 6.7.F2). The highest background NO_2 concentration, in 2023, was 15.8 µg/m^3 to the north-east of Grays (Section B). The lowest NO_2 background concentration was 5.4 µg/m^3 near Gislingham (Section B).

7.5.25 The background concentrations of NOx (relevant to ecological receptors) in 2023 are below the limit value for the protection of vegetation of 30 µg/m^3 within the Order Limits. The highest background concentration of NOx is 21.7 µg/m^3 to the north-east of Grays (Section B), the minimum concentration is 6.8 µg/m^3 near Gislingham (Section B).

7.5.26 The 2023 background concentrations of PM_{10} did not exceed the annual mean standard. The highest concentration within the Order Limits was 16.3 µg/m^3 west of Colchester (Section D) and the lowest was 10.8 µg/m^3 near to Diss (Section A).

7.5.27 In 2023, the highest background concentrations of $PM_{2.5}$ within the Order Limits was 8.4 µg/m^3 west of Colchester (Section D) and the lowest concentration was 5.7 µg/m^3 near to Diss (Section A). These concentrations are well below the interim target of 12µg/m^3 for $PM_{2.5}$.

Receptors – Sensitive to Construction Dust

7.5.28 For the assessment of construction dust, the identification of receptors and their sensitivity to dust effects followed IAQM guidance (IAQM, 2024).

7.5.29 The Order Limits pass within 250 m of residential receptors in settlements such as Gislingham, Offton, Ardleigh, Little Waltham and Thurrock. There are also schools

within 250 m of the Order Limits, including those in Little Waltham and Ardleigh. All sensitive receptors have been considered in the assessment using the OS Address Base layer data which provides a point reference for all properties and businesses in the Study Area. Other receptors such as playing fields or farmland have been considered in the assessment and are taken into account when determining mitigation requirements.

7.5.30 A number of medium sensitivity (SSSI) and low sensitivity (Local Nature Reserve (LNR) and ancient woodland) ecological receptors have been identified within 50 m of the Order Limits. Details of the sensitive ecological receptors are provided in Table 7.5 and in Chapter 8 Ecology and Biodiversity (document reference 6.8).

7.5.31 The locations of the various sensitive human and ecological receptors within 250 m of the Order Limits and 50 m respectively are shown on Figure 7.4: Air Quality Construction Dust Study Area (document reference 6.7.F4).

Table 7.5 Sensitive ecological receptors within 50 m of the Order Limits

Designated Sites	Ecological Sites	Site Name (and Project Section(s))
Statutory	SSSI	Middle Wood, Offton (Section B)
		Marks Tey Brickpit (Section D)
		Wortham Ling (Section B)
		River Ter (Section F)
		Langdon Ridge (Sections G and H)
Non-statutory	LNR	Roydon Fen (Section A)
	Ancient woodland	Aldamhall Wood (Section D)
		Brimlin Wood (Section C)
		Bullen Wood (Section B)
		Burstall Long Wood (Section C)
		Bushy Wood (Section F)
		Border Wood (Section F)[5]
		Botneyhill Wood (Section G)[5]
		Chapel Wood (Section F)
		Church House Wood (Section D)
		Clapgate Wood (Section G)
		Fiddlers Wood (Section D)
		Friern Manor Wood (Section G)
		Great Newton Wood (Section B)

Designated Sites	Ecological Sites	Site Name (and Project Section(s))
		Hallhook Row (Section E)
		Harrow Wood (Section D)[5]
		Little Newton Wood (Section B)
		Little Bladen's Wood[5]
		Lower Wood (Section B)
		Lyonshall Wood (Section F)
		Mann/Parsons Woods (Sections F and E)
		Middle Wood (Section B)
		Millers Wood (Section B)
		Osbornes Wood (Section F)
		Rainbow Wood (Section H)[5]
		Rivenhall Thicks (Section E)
		Round Wood (Section G)[5]
		Round Wood (Section B)
		Sandy Wood (Section E)
		Sheepcotes Wood (Section F)
		Somersham Park (Section B)
		Sparrowhawk Wood (Section F)
		Spring Wood (Brentwood) (Section G)[5]
		Stonefield Strip (Section D)[5]
		St Margaret's Wood and Lane[5]
		Primstock[5]
		Wenham Thicks (Section C)
		Writtle-James Spring (Section F)
		Writtle-Writtlepark Wood (Section F)

[5] Woodland is not mapped as ancient woodland on the national Ancient Woodland Inventory (Woodland Trust, 2025), however is considered an ancient woodland for the purpose of the ES (Volume 6 of the DCO application), as a worst case, as its designation citation indicates it contains ancient woodland features

Future Baseline

7.5.32 The future baseline relates to known or anticipated changes to the current baseline in the future which should be assessed as part of the Project in the ES (Volume 6 of the DCO application).

7.5.33 Even if the Project were not to come forward, there is likely to be a change to the future baseline conditions because of other factors and developments in proximity. The future baseline represents the conditions that would prevail 'Without Development' in place (DM scenario, see Paragraph 7.4.21). The 'Without Development' scenario is used, where appropriate, as a comparator for the assessed case, to show the effect of the Project against an appropriate reference point.

7.5.34 Background air pollutant concentrations are currently available using the 2021 base year for projections (Department of Environment Food and Rural Affairs (Defra), 2024). These are predicted to improve over time due to reductions in emissions resulting from:

- Reductions in transport emissions resulting from improvements in fuel efficiency and uptake in low emission vehicles
- General reduction in the use of fossil fuels
- Reductions in pollutant emissions from agricultural sources due to improvements in management envisaged in the 2019 Clean Air Strategy (Department of Environment Food and Rural Affairs (Defra), 2019)
- Improved emission standards for NRMM and static generators.

7.5.35 The 2030 Defra background concentrations for NO_2 are well below the annual mean standard of 40 µg/m^3 across the Order Limits – shown on Figure 7.3: Air Quality Background Concentrations (2030) (document reference 6.7.F3). The highest background NO_2 concentration, in 2030, is 13.1 µg/m^3 in Thurrock (Section H). The lowest NO_2 background concentration is 4.4 µg/m^3 near Gislingham (Section B)

7.5.36 The 2030 background concentrations of NOx (relevant to ecological receptors) are below the standard for the protection of vegetation of 30 µg/m^3 within the Order Limits. The highest background concentration of NOx is 17.7 µg/m^3 in Thurrock (Section H), the lowest concentration is 5.5 µg/m^3 near Gislingham (Section B).

7.5.37 The 2030 background concentrations of PM_{10} do not exceed the annual mean standard of 40 µg/m^3. The highest concentration within the Order Limits is 15.8 µg/m^3 west of Colchester (Section D) and the lowest is 5.2 µg/m^3 near Diss (Section A).

7.5.38 The 2030 Defra background concentrations are below the recent $PM_{2.5}$ air quality guideline (12 µg/m^3 to be achieved by 2028). The maximum concentration within the Order Limits is 8.0 µg/m^3 west of Colchester (Section D) and the lowest concentration is 5.2 µg/m^3 near Diss (Section A).

7.5.39 The Defra modelled concentrations for the year 2030 show reductions in both NO_2 and NOx levels within the Order Limits compared to the 2023 forecast. The forecast shows minimal changes in concentrations of PM_{10} and $PM_{2.5}$ between 2023 and 2030. Therefore, it is considered that the baseline in relation to air quality would not change significantly from that described in the baseline within the timeframe for the construction of the Project.

7.6 Proposed Mitigation

7.6.1 The approach to mitigation including a description of the mitigation hierarchy is set out in Chapter 5: EIA Approach and Method (document reference 6.5). Three types of mitigation have been incorporated into the Project and assessment: embedded, standard and additional environmental mitigation.

Embedded Mitigation

7.6.2 Environmental appraisal has been an integral part of the Project design from the outset, which has meant that the Project has been able to avoid environmentally sensitive features as far as reasonably practicable.

7.6.3 National Grid has also embedded measures into the design of the Project to avoid or reduce significant effects that may otherwise be experienced during the construction of the Project.

7.6.4 Embedded measures are those that are intrinsic to and built into the design of the Project, which are presented in Table 4.2 of Chapter 4: Project Description (document reference 6.4). Embedded measures relevant to Air Quality include:

- The alignment and associated Order Limits have been designed to avoid large residential and urban areas and consequently avoid areas of existing poor air quality. In addition, an almost continuous haul road is proposed as part of the design to reduce construction traffic using the local highway network. By diverting construction vehicles away from large residential and urban areas, the haul roads help to reduce localised emissions and associated air quality impacts in these locations.

Standard Mitigation

7.6.5 Standard mitigation measures, comprising management activities and techniques, would be implemented during construction of the Project to limit effects through adherence to good site practices and achieving legal compliance.

7.6.6 The Outline CoCP (document reference 7.2) contains relevant standard/good practice measures relating to Air Quality. Note that measures have been assigned references, for example (GG01). For ease of cross-reference, these align with the references provided in Table 6.1 of the Outline CoCP (document reference 7.2). These measures include but are not limited to:

- AQ01: Dust management plans will be prepared prior to the construction of each planned work package for the Project. Dust-emitting activities will be reduced by applying site-specific mitigation measures for high-risk sites during construction. The full list of site-specific measures for high-risk sites can be found in Annex A of Appendix D: Outline Dust Management Plan. Professional judgement is required for the mitigation measures, as it is difficult to provide generic guidance. These measures are not expected to be applied at all locations. These would include, but are not limited to, the following controls:

Communications

- Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the Environmental Manager/ engineer or the site manager
- Display the head or regional office contact information of the Main Works Contractor(s)
- Implement a Dust Management Plan (an Outline is presented in Appendix D of the Outline CoCP (document refence 7.2))

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 Planning Authority when asked
- 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 log book
- Hold regular liaison meetings with other high risk construction sites within 250 m 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 Planning Authority when asked. This should include regular dust soiling checks of surfaces such as street furniture and cars within 100 m of site boundary. The frequency and extent of dust soiling checks should be proportionate to site-specific risk and receptor sensitivity, and may be adjusted where necessary in consultation with the relevant Local Planning Authority
- 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 Planning Authority, when asked
- 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 $PM_{2.5}$ and PM_{10} continuous monitoring locations with the Local Planning Authority. Where possible commence baseline monitoring at least three months before work commences on site or, if it is a large site, before work on a phase commences. Further guidance is provided by IAQM on monitoring during demolition, earthworks and construction

Preparing and maintaining the site

- Plan the site layout so that machinery and dust-causing activities are located away from receptors, as far as practical or possible
- Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site (where appropriate and practical)
- Avoid site runoff of water or mud
- Keep site fencing, barriers and scaffolding clean using wet methods where appropriate
- Remove materials that have a potential to produce dust from site as soon as practicable, unless being re-used on site
- Cover, seed or fence stockpiles to prevent wind whipping (where needed and depending on duration)

Operating vehicle/machinery and sustainable travel

- Ensure all on-road vehicles comply with the requirements of the London Low Emission Zone standards where applicable
- Ensure all vehicles switch off engines when stationary – no idling vehicles where practicable
- 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 on haul roads and work areas
- Implement a Construction Worker Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing)

Operations

- Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques, such as water sprays or local extraction where reasonably practicable
- Ensure an adequate water supply on the site for effective dust /particulate matter suppression/ mitigation
- Use enclosed chutes and conveyors and covered skips where reasonably practicable
- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use the 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 where practicable

Waste Management

- Avoid bonfires and burning of waste materials

Demolition

- Avoid explosive blasting, use appropriate manual or mechanical alternatives where reasonably practicable
- Bag and remove any biological debris or damp down such material before demolition

Earthworks

- Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable in line with the Outline Soil Resources Plan (Appendix C of the Outline CoCP (document reference 7.2))

Construction

- 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 powder materials ensure bags are sealed after use and stored appropriately to prevent dust

Trackout

- Use water-assisted dust sweeper(s) 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.
- Avoid dry sweeping of large areas
- Ensure vehicles entering and leaving the site are covered to prevent escape of materials during transport where practicable
- Inspect on-site haul roads for integrity and instigate necessary repairs to the surface as soon as reasonably practicable
- Record all inspections of haul roads and any subsequent actions in a site log book
- Where practicable, install hard surfaced haul roads, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned so far as is reasonably practicable
- Access gates to be located at least 10 m from sensitive receptors (a location that may be affected by dust emissions during demolition and construction. Human receptors include locations where people spend time and where property may be impacted by dust. Ecological receptors are habitats that might be sensitive to dust) where practicable

- AQ2: Where diesel generators are used and located next to sensitive sites consideration will be given to increasing the release height of emissions for sufficient dispersion, and relevant abatement technology.

7.6.7 The Outline CoCP (document reference 7.2) is secured by Requirement 4 in the draft DCO (document reference 3.1) which required the main Works Contractor(s) to prepare the CoCP to discharge the Requirement.

7.6.8 The Outline CoCP (document reference 7.2) includes an Outline Dust Management Plan (Appendix D), which will need to be updated to a Dust Management Plan by the Main Works Contractor(s) prior to commencement of construction.

Additional Mitigation

7.6.9 Additional mitigation comprises measures over and above any embedded and standard mitigation measures to further reduce significant environmental effects.

7.6.10 No additional mitigation measures, beyond the embedded and standard measures identified above, are required.

7.7 Residual Effects

7.7.1 The likely significant effects of the Project have been assessed using current available data relating to the construction phase of the Project. The residual effects are outlined below. As previously stated, this section assumes that all embedded mitigation measures mitigation and standard practice mitigation measures are in place before assessing the effects. This is in accordance with guidance from the Institute of Environmental Management and Assessment (IEMA) as part of preparing a proportional assessment (IEMA, 2024). No additional mitigation measures have been identified as required at this stage.

Construction

Construction Dust

7.7.2 The likely significant effects of the Project have been considered based upon currently available data relating to the construction phase of the Project, with assumptions made utilising the construction information currently available in Chapter 4: Project Description (document reference 6.4).

7.7.3 The construction effects have been assessed following the IAQM methodology (IAQM, 2024). The individual construction dust risk assessments for each Project Section can be found in Appendix 7.3: Air Quality Assessment Results (document reference 6.7.A3).

7.7.4 Without applying mitigation measures, there would be the potential for significant effects. However, proposed standard mitigation measures for high-risk sites are set out in the Outline CoCP (document reference 7.2). Following the implementation of the proposed standard mitigation measures, the effects of construction on dust soiling, human health and ecological effects, are anticipated to be **not significant**, in line with IAQM guidance (IAQM, 2024).

7.7.5 The application of mitigation measures within the Outline CoCP (document reference 7.2) will be applied in a proportionate manner based on the risk criteria set out in the IAQM guidance.

Construction Traffic

Modelled Concentrations at Human Receptors

7.7.6 Full results for construction traffic data are provided in Appendix 7.3: Air Quality Assessment Results (document reference 6.7.A3).

7.7.7 Annual mean pollutant concentrations for NO_2, PM_{10} and $PM_{2.5}$ which were predicted at 59 sensitive human receptors all resulted in a predicted **negligible** magnitude of change, and therefore effects are considered to be **not significant.**

NO_2 Results

7.7.8 The predicted annual mean concentrations of NO_2 for all three scenarios (Baseline, DM and DS) at each receptor are presented in Appendix 7.3: Air Quality Assessment Results (document reference 6.7.A3), along with the EPUK / IAQM significance of effect. Predicted concentrations are below the annual mean air quality standard (40 µg/m^3) at all sensitive receptor locations for each of the Baseline, DM and DS scenarios.

7.7.9 The highest concentration was recorded at receptor HR_56, a residential receptor on Thorndon Avenue, located adjacent to the A127 (Section G) and was 16.5 µg/m^3 in the DM scenario and 16.6 µg/m^3 in the DS scenario.

7.7.10 The magnitude of change to annual mean NO_2 concentrations at all receptor locations is predicted to be **negligible** and therefore **not significant** according to EPUK / IAQM guidance (IAQM/EPUK, 2017).

PM_{10} Results

7.7.11 The predicted annual mean concentrations of PM_{10} for all three scenarios (Baseline, DM and DS) at each receptor are presented in Appendix 7.3: Air Quality Assessment Results (document reference 6.7.A3), along with the EPUK / IAQM significance of effect. Predicted concentrations are below the annual mean air quality standard (40 µg/m^3) at all sensitive receptor locations for each of the Baseline, DM and DS scenarios.

7.7.12 The highest concentration was recorded at receptor HR_43, a residential receptor on Priory Lane located approximately 40 m south of the A131, to the south-west of Braintree (Section E) and was 16.4 µg/m^3 in the DM scenario and 16.4 µg/m^3 in the DS scenario (to one decimal place).

7.7.13 The magnitude of change to annual mean PM_{10} concentrations at all receptor locations is predicted to be **negligible** and therefore **not significant** according to EPUK / IAQM guidance (IAQM/EPUK, 2017).

$PM_{2.5}$ Results

7.7.14 The predicted annual mean concentrations of $PM_{2.5}$ for all three scenarios (Baseline, DM and DS) at each receptor are presented in Appendix 7.3: Air Quality Assessment Results (document reference 6.7.A3), along with the EPUK / IAQM significance of effect. Predicted concentrations are below the annual mean air quality target (12 µg/m^3, to be achieved by 31 January 2028) at all the sensitive receptor locations for each modelled scenario. In addition, the predicted annual mean $PM_{2.5}$

concentrations at all receptors meet the 10 µg/m^3 legal target to be achieved by 2040.

7.7.15 The highest concentration was recorded at receptor HR_38, a nursery school on Halstead Road, Colchester located adjacent to the A12 (Section D) and was 7.6 µg/m^3 in the DM scenario and 7.6 µg/m^3 in the DS scenario (to one decimal place).

7.7.16 The magnitude of change to annual mean $PM_{2.5}$ concentrations at all receptor locations is predicted to be **negligible** and therefore **not significant** according to EPUK / IAQM guidance (IAQM/EPUK, 2017).

Modelled Concentrations at Ecological Receptors

7.7.17 For NOx annual mean, the highest concentration was recorded at receptor ER_13 (Millers Wood) and was 0.45 µg/m^3, which is below the critical level of 30 µg/m^3.

7.7.18 For NH_3 annual mean, the highest concentration was recorded at receptor ER_4 (Broad Border 3) and was 0.12 µg/m^3, which is below the critical level of 3 µg/m^3.

7.7.19 For nitrogen deposition, the assessment has considered contributions from both NOx and NH_3. The assessment of construction effects at designated habitats identified 20 ecological receptors in total (ancient woodland and LNRs) where the predicted process contribution (PC) is greater than 1% of the critical load. Where results exceed 1% of the critical load, these have been considered further by ecologists[6] and are identified below.

7.7.20 The baseline and estimated increase in nitrogen levels for 13 of the 20 sensitive ecological receptors was below the minimum critical load per ha per year, resulting in no potential for a significant effect on the habitats or species supported by these receptors.

7.7.21 The remaining seven ecological receptors (identified in Table 7.6) have been identified with nitrogen levels that fall either within or above the critical load range as defined by APIS (UK Centre for Ecology & Hydrology (UKCEH), 2016).

Table 7.6 Nitrogen modelling at ecological receptors

Receptor ID	Name	Designation	N Critical Load Min to Max (kg N/ha/yr)	Total N Dry Dep (N + NH3) (kg N/ha/yr) DM	Total N Dry Dep (N + NH3) (kg N/ha/yr) DS
ER_4	Broad Border 3	Ancient woodland	10-15	9.2	10.2
ER_16	Bentley Long Wood	Ancient woodland	10-15	12.5	13.2
ER_17	Birch Wood	Ancient woodland	10-15	11.2	11.9

[6] The 1% threshold has become widely used throughout the air quality assessment profession to define a reasonable quantum of long-term pollution which is not likely to be discernible from fluctuations in background/measurements. For example, for many habitats, 1% of the critical load for nitrogen deposition equates to a very small change of less than 0.1 kgN/ha/yr, well within the expected normal variation in deposition. Its use has not been challenged by the courts, but it should be used in the context of an in-combination assessment.

Receptor ID	Name	Designation	N Critical Load Min to Max (kg N/ha/yr)	Total N Dry Dep (N + NH3) (kg N/ha/yr) DM	Total N Dry Dep (N + NH3) (kg N/ha/yr) DS
ER_19	Walls Wood 2	Ancient woodland	10-15	15.5	15.9
ER_37	Round Shaw	Ancient woodland	10-15	15.6	15.7
ER_38	Warley Hall Wood	Ancient woodland	10-15	22.6	22.8
ER_39	Brickbarn Wood	Ancient woodland	10-15	13.4	13.5

7.7.22 The baseline levels of nitrogen associated with these 7 receptors was already elevated due to their location adjacent to main trunk roads (namely the A12, A13, A14, A120 and A127). The small increase in nitrogen levels resulting from the Project during construction is not expected to have a significant effect on these receptors as the construction impact would be experienced for a maximum of four years.

7.7.23 Overall, **no significant residual effect** is likely to be experienced by these sensitive ecological sites as a result of the minor increase in nitrogen levels that would be caused by the Project.

Generator Use / NRMM

7.7.24 Generator effects would be sufficiently mitigated by measures including, but not limited to, locating away from sensitive receptors, increasing the release height of emissions for sufficient dispersion, and relevant abatement technology.

7.7.25 No specific data on the exact location of equipment and generators to be used for the Project is available at this stage. The type of equipment to be used along with numbers of units and estimates of daily use were provided and are shown in Table A7.3.12 in Appendix 7.3: Air Quality Assessment Results (document reference 6.7.A3). Work would be carried out along the length of the Project with concentrations of activity around temporary construction compounds and work areas.

7.7.26 Locations where temporary construction compounds are within 100 m of sensitive human receptors have been reviewed using GIS and the results are provided in Table A7.3.11 in Appendix 7.3: Air Quality Assessment Results (document reference 6.7.A3) and shown on Figure 7.7: Air Quality Generators (document reference 6.7.F7).

7.7.27 The use of construction NRMM is unlikely to result in significant effects on local air quality according to the guidance from Local Air Quality Management – Technical Guidance (TG22) Paragraph 7.30 (Department of Environment Food and Rural Affairs (Defra), 2022). This guidance is provided based on previous assessments of the emissions of NRMM, which determined that emissions are unlikely to have a significant effect on local air quality with suitable controls and site management in place. Standard mitigation measures in the Outline CoCP (document reference 7.2) state that NRMM and plant, including generators, would meet the European Stage VI engine emission standards (European Parliament and Council, 2016).

7.7.28 Therefore, it is considered that effects from emissions from construction equipment and plant are likely to be **neutral** and **not significant.**

7.8 Monitoring

7.8.1 'Monitoring measures' are defined in Regulation 2(1) of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 as *'…the monitoring of any significant adverse effects on the environment of proposed development, including any measures contained in a requirement imposed by an order granting development consent'.*

7.8.2 No requirement for monitoring measures has been identified for air quality.

7.9 Sensitivity Testing

7.9.1 Sensitivity testing has been undertaken as described in Chapter 5: EIA Approach and Method (document reference 6.5) to determine if delays or an extension to the construction programme, changes in the design within the Limits of Deviation (LoD) or if any of the design scenarios presented in Table 4.4 in Chapter 4: Project Description (document reference 6.4) would affect the assessment.

Flexibility in Construction Programme

7.9.2 This chapter assumes the base construction schedule described in Chapter 4: Project Description (document reference 6.4) for the purposes of the assessment. Qualitative sensitivity testing considering alternative Project phasing, a later construction start date e.g. up to five years later and a longer construction programme, has shown that there would be no new or different likely significant effects to those identified in this chapter.

Flexibility in Design

7.9.3 This chapter has assumed the pylon locations and underground cable route is as shown on Figure 4.1: Proposed Project Design (document reference 6.4.F1) and Figure 4.2: Proposed Project Design – Permanent Features (document reference 6.4.F2). These figures illustrate alterations to the existing ZB route to the south of the proposed Tilbury North Substation, including emended pylon locations, two proposed new Cable Sealing End (CSE) compounds, and a section of underground cable between the CSE compounds. Additionally, the existing route is shown with modifications to existing pylon locations and new pylon locations to facilitate connection into and out of the new substation, linking to the existing Tilbury connection. The LoD in this area have been widened to allow flexibility for design refinements due to other uncertainties related to other nearby projects (e.g. Lower Thames Crossing). These refinements may include variations in overhead line or cable configurations and positioning of CSE compounds, such as a double CSE compound arrangement or undergrounding of the current route into the substation.

7.9.4 Figure 4.1: Proposed Project Design (document reference 6.4.F1) and Figure 4.2: Proposed Project Design – Permanent Features (document reference 6.4.F2) also show pylons TB140, TB141, and TB142 to the south of the River Chelmer as low-height pylons. However, following feedback received during consultations in 2025, certain technical detains are being refined. As a result, flexibility has been retained to allow for the installation of standard lattice pylons in this area instead. This may also include the removal of one of three pylons and slight adjustments to the locations of the remaining two within the LoDs.

7.9.5 Alternative pylon and underground cable route locations identified within the design scenarios in Table 4.4 of Chapter 4: Project Description (document reference 6.4) within the Order Limits, would have no new or different likely significant effects. This is because there would be no additional receptors or significant changes to traffic movements. In addition, the assessment has assumed that diesel powered plant may be present at the temporary construction compounds. If alternative locations were identified for temporary construction compounds, emissions to air from diesel-powered plant would still occur, but would be redistributed to new locations – potentially closer to or further from sensitive receptors. However, given the limited number of residential properties that lie within close proximity to the LoDs, the nature of the plant to be used and the good practice measures that would be in place, emissions are highly unlikely to cause an exceedance of the legislative 1-hour limit value for NO_2 of 200 µg/m^3 (Air Quality Standard Regulations 2010 (amended in 2016)), especially given the low background concentrations of NO_2 in the area.

Flexibility Within the Order Limits

7.9.6 This chapter has assumed the pylon locations and underground cable route is as shown on Figure 4.1: Proposed Project Design (document reference 6.4.F1) and Figure 4.2: Proposed Project Design – Permanent Features (document reference 6.4.F2). These figures illustrate alterations to the existing ZB route to the south of the proposed Tilbury North Substation, including emended pylon locations, two proposed new CSE compounds, and a section of underground cable between the compounds. Additionally, the existing route is shown with modifications to existing pylon locations and new pylon locations to facilitate connection into and out of the new substation, linking to the existing Tilbury connection. The Order Limits in this area have been widened to allow flexibility for design refinements due to other uncertainties related to other nearby projects (e.g. Lower Thames Crossing). These refinements may include variations in overhead line or cable configurations and positioning of CSE compounds, such as a double CSE compound arrangement or undergrounding of the current route into the substation.

7.9.7 Figure 4.1: Proposed Project Design (document reference 6.4.F1) and Figure 4.2: Proposed Project Design – Permanent Features (document reference 6.4.F2) also show pylons TB140, TB141, and TB142 to the south of the River Chelmer as low-height pylons. However, following feedback received during consultations in 2025, certain technical detains are being refined. As a result, flexibility has been retained to allow for the installation of standard lattice pylons in this area instead. This may also include the removal of one of three pylons and slight adjustments to the locations of the remaining two within the Order Limits.

7.9.8 Alternative pylon and underground cable route locations identified within the design scenarios in Table 4.4 of Chapter 4: Project Description (document reference 6.4) within the Order Limits, would have no new or different likely significant effects. This is because there would be no additional receptors or significant changes to traffic movements. In addition, the assessment has assumed that diesel powered plant may be present at the temporary construction compounds. If alternative locations were identified for temporary construction compounds, emissions to air from diesel-powered plant would still occur, but would be redistributed to new locations – potentially closer to or further from sensitive receptors. However, given the limited number of residential properties that lie within close proximity to the Order Limits, the nature of the plant to be used and the good practice measures that would be in place, emissions are highly unlikely to cause an exceedance of the legislative 1-hour

limit value for NO_2 of 200 µg/m^3 (Air Quality Standard Regulations 2010 (amended in 2016)), especially given the low background concentrations of NO_2 in the area.

Abbreviations

Abbreviation	Full Reference
AADT	Annual Average Daily Traffic
ADMS	Atmospheric Dispersion Modelling Software
AQAL	Air Quality Assessment Level
AQMA	Air Quality Management Area
APIS	Air Pollution Information System
ARN	Affected road network
CoCP	Code of Construction Practice
CSE	Cable Sealing End
DCO	Development Consent Order
Defra	Department for Environment, Food and Rural Affairs
DESNZ	Department for Energy Security and Net Zero
DM	Do-Minimum
DS	Do-Something
EIA	Environmental Impact Assessment
EPUK	Environmental Protection UK
ES	Environmental Statement
HDV	Heavy Duty Vehicle
HGV	Heavy Goods Vehicle
IAQM	Institute of Air Quality Management
IEMA	Institute of Environmental Management and Assessment
LDV	Light Duty Vehicle
LNR	Local Nature Reserve
LoD	Limits of Deviation
MAGIC	Multi-Agency Geographic Information for the Countryside
NH_3	Ammonia
NO_2	Nitrogen dioxide
NOx	Oxides of nitrogen
NPS	National Policy Statement

Abbreviation	Full Reference
NRMM	Non-Road Mobile Machinery
OS	Ordnance Survey
PAR	Primary Access Route
PPC	Pollution Prevention and Control
$PM_{2.5}$	Particulate matter (2.5 micrometres or less in diameter)
PM_{10}	Particulate matter (10 micrometres or less in diameter)
SAC	Special Area of Conservation
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
UKPN	UK Power Networks
$\mu g/m^3$	Micrograms per cubic metre

Glossary

Term	Definition
Affected road network	All roads that trigger the traffic screening criteria.
Air Quality Management Area	Areas that are identified as areas where Air Quality Standards are not likely to be achieved. The area covered can range from one or two streets, to much larger areas. The Local Planning Authority will put together a plan to improve the air quality in the AQMA – a Local Air Quality Action Plan.
Air Quality Standard	AQS are policy targets for a maximum ambient pollutant concentration to be achieved. The standards are set out in the UK Government's Air Quality Strategy for the key air pollutants.
Amenity	A term used to describe the character or attractiveness of an area. The assessment of amenity considers landscape and visual, noise and vibration, and traffic and transport effects.
Ancient woodland	Land that has been continually wooded since at least 1600 in England. Regarded as 'irreplaceable habitat' in national planning policy and guidance. Ancient woodland greater than 2 ha is recorded on the Natural England Ancient Woodland Inventory.
Ancient woodland inventory	A dataset managed by Natural England to identify and record information about ancient woodland sites in England.
Annual Average Daily Traffic movements	24-hour traffic count data averaged for all the days in the year i.e. the total traffic flow on a road for a year divided by 365.
Atmospheric dispersion modelling	The mathematical computation of the dispersal of emissions as they travel through the ambient atmosphere.
Background concentration	The ambient pollutant concentration from multiple sources.
Baseline conditions	The existing (pre-Project) environmental conditions against which any future changes can be measured or predicted.
Code of Construction Practice	The Code of Construction Practice (CoCP) sets out the standards and procedures to which a developer (and its contractors) must adhere in order to manage the potential impacts of construction works.
Diffusion tube	A passive pollution monitoring device.
Dust	Dust is defined as all particulate matter up to 75 µm (millionths of a metre or thousandths of a millimetre) in diameter (according to BS 6069) and is both suspended in air and deposited from air. Particles less than 1 µm behave more like gases than solids and are generally termed 'fume'. The bulk of particulate matter generated by demolition and construction activity has a diameter greater than 30 µm.

Term	Definition
Do Minimum scenario	A scenario which assumes that the Project does not go ahead, the future construction year (2030) traffic flows without the construction of the Project (using 2030 emissions).
Do Something scenario	A scenario which assumes that the Project does go ahead, the future construction year (2030) traffic flows and the construction traffic flows generated by the construction of the Project (2030 emissions).
Earthworks	Engineering works created through the processing of parts of the earth's surface involving quantities of soil or unformed rock.
Embedded design measures	Measures for the protection of the environment that are embedded (intrinsic) with the design.
Emissions factor	The emission rate of a pollutant attributable to a specific activity.
Environmental Impact Assessment (EIA)	An assessment of the likely effects of a development project on the environment, which is reported in an Environmental Statement that is publicised and consulted on and taken into account in the decision on whether a project should proceed.
Environmental Statement (ES)	The main output from the EIA process, an ES is the report required to accompany an application for development consent (under the Infrastructure Planning (EIA) Regulations 2017) to inform public and stakeholder consultation and the decision on whether a project should be allowed to proceed. The EIA Regulations set out specific requirements for the contents of an ES for Nationally Significant Infrastructure Projects.
Haul road	A route used by construction traffic within the Order Limits to access a working area from a site access point.
Heavy Duty Vehicles	Vehicles weighing more than 3,500 kg.
Light Duty Vehicles	Vehicles weighing 3,500 kg or less.
Local Nature Reserves	Sites dedicated by the Local Planning Authority under Section 21 of the National Parks and Access to the Countryside Act 1949 for nature conservation which have wildlife or geological features that are of special interest locally.
Local Planning Authority	The public authority whose duty it is to carry out specific planning functions for a particular area.
Magnitude of change	A term that combines judgements about the size and scale off the effect, the extent of the area over which it occurs, whether it is reversible or irreversible and whether it is short or long term in duration.
Mitigation measure	Measures, including any process, activity or design that will avoid, reduce, remedy or compensate for the predicted significant effects of a development on the environmental baseline.

Term	Definition
Non-Road Mobile Machinery	Any mobile machine, transportable equipment, or vehicle that is not intended for carrying passengers or goods on roads and is fitted with a combustion engine.
National Planning Policy Framework	The National Planning Policy Framework sets out the government's planning policies for England and how these should be applied. The Planning Practice Guidance to support the framework is published online and regularly updated.
Order Limits	The maximum extent of land within which the authorised development may take place.
Ordnance Survey (OS)	The OS is the national mapping agency for Great Britain and produces large scale maps.
Primary Access Route	These are the roads on the local road network that would be used by construction vehicles between the strategic road network and the access points within the Order Limits.
Project Sections	Geographical 'sections' have been identified that break the Project down into smaller units for ease of description within the documentation.
Pylon	Structures that support the overhead line (conductors).
Receptor	A population, fauna, flora, soil, water, air, climatic factors, material assets with the potential to be impacted by the Project.
Residual effects	The consequence of an 'impact' of construction, operation and decommissioning of the proposed development after mitigation measures have been applied.
Sensitivity	A term applied to specific receptors, combining judgements of the susceptibility of the receptors to the specific type of change or development proposed and the value related to that receptor.
Scoping Report	Report determining the content and extent of matters that should be covered in the Environmental Impact Assessment.
Special Protection Area	Site of European importance for bird conservation designated under the Birds Directive.
Significance	A measure of the importance or gravity of the environmental effect, defined by significance criteria specific to the environmental topic.
Site of Special Scientific Interest (SSSI)	A statutory designation under the Wildlife and Countryside Act 1981 (as amended), protecting nationally important wildlife sites, habitats and geological sites.
Statutory consultation	The formal period of public consultation, prior to deciding a planning application.
Temporary Construction compounds	Temporary construction compounds installed during the construction phase of the Project. Each compound may contain storage areas including laydown areas, soils storage and areas for equipment and

Term	Definition
	fuel, drainage, generators, car parking and offices and welfare areas (portacabins).
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.
Trenchless crossing	A crossing installation method that has limited above ground disturbance which is used to avoid a sensitive feature such as an environmental feature.
UK Power Networks	UK Power Networks (Operations) Limited (registered company number 03870728) and/or its affiliate Eastern Power Networks plc (registered company number 02366906) as applicable.
Underground cable	An insulated conductor carrying electric current designed for underground installation. Underground cables link together two Cable Sealing End compounds.

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National Grid plc
National Grid House,
Warwick Technology Park,
Gallows Hill, Warwick.
CV34 6DA United Kingdom

Registered in England and Wales
No. 4031152
nationalgrid.com