

# Sea Link

## Volume 6: Environmental Statement

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# 8. Air Quality

## 8.1 Introduction

- 8.1.1 This chapter of the Environmental Statement (ES) presents information about the environmental assessment of the likely significant air quality effects that could result from the Proposed Project (as described in **Application Document 6.2.1.4 Part 1 Introduction Chapter 4 Description of the Proposed Project**) specifically the Suffolk Onshore Scheme.
- 8.1.2 The construction and decommissioning phases of the Proposed Project have the potential to result in temporary air quality impacts due to construction vehicle, dust and Non-Road Mobile Machinery (NRMM) emissions. The operation and maintenance phase of the Proposed Project may also affect air quality due to vehicle emissions and emissions from the substation and converter station back-up generators.
- 8.1.3 This chapter describes the regulatory and planning policy framework, the methodology used, the datasets that have informed the assessment, baseline conditions, mitigation, and the residual significant air quality effects that could result from the Proposed Project.
- 8.1.4 The Order Limits, which illustrate the boundary of the Proposed Project, are illustrated on **Application Document 2.2.1 Overall Location Plan** and the Suffolk Onshore Scheme Boundary is illustrated on **Application Document 2.2.2 Suffolk Location Plan**.
- 8.1.5 This chapter should be read in conjunction with:
- **Application Document 6.2.1.3 Part 1 Introduction Chapter 3 Main Alternatives Considered;**
  - **Application Document 6.2.1.4 Part 1 Introduction Chapter 4 Description of the Proposed Project;**
  - **Application Document 6.2.1.5 Part 1 Introduction Chapter 5 EIA Approach and Methodology;**
  - **Application Document 6.2.1.6 Part 1 Introduction Chapter 6 Scoping Opinion and EIA Consultation;**
  - **Application Document 6.2.2.2 Part 2 Suffolk Chapter 2 Ecology and Biodiversity;**
  - **Application Document 6.2.2.7 Part 2 Suffolk Chapter 7 Traffic and Transport;**
  - **Application Document 6.2.2.11 Part 2 Suffolk Chapter 11 Health and Wellbeing;**
  - **Application Document 6.2.2.12 Part 2 Suffolk Chapter 12 Suffolk Onshore Scheme Intra-Project Cumulative Effects;** and
  - **Application Document 6.2.2.13 Part 2 Suffolk Chapter 13 Suffolk Onshore Scheme Inter-Project Cumulative Effects.**
- 8.1.6 This chapter is supported by the following figures:

- **Application Document 6.4.2.8 Air Quality;**
- **Application Document 6.4.2.7.2 Heavy Goods Vehicle (HGV) Routing Plan;** and
- **Application Document 2.14.1 Indicative General Arrangement Plans – Suffolk.**

8.1.7 This chapter is supported by the following appendices:

- **Application Document 6.3.2.8.A Appendix 2.8.A Construction Dust Assessment and Methodology;**
- **Application Document 6.3.2.8.B Appendix 2.8.B Air Quality Modelling Methodology;**
- **Application Document 6.3.2.8.C Appendix 2.8.C Air Quality Monitoring Data;** and
- **Application Document 6.3.1.4.B Appendix 1.4.B Construction Plant Schedule.**

8.1.8 This chapter is supported by the following application documents:

- **Application Document 7.5.3 Outline Onshore Construction Environmental Management Plan (CEMP);**
- **Application Document 7.5.3.1 CEMP Appendix A Outline Code of Construction Practice;**
- **Application Document 7.5.3.2 CEMP Appendix B Register of Environmental Actions and Commitments (REAC);**
- **Application Document 7.5.1.1 Outline Construction Traffic Management and Travel Plan (Suffolk);** and
- **Application Document 7.5.6.1 Outline Air Quality Management Plan - Suffolk.**

## 8.2 Regulatory and Planning Context

8.2.1 This section sets out the legislation and planning policy that is relevant to the air quality effects assessment. A full review of compliance with relevant national and local planning policy is provided within the **Application Document 7.1 Planning Statement** submitted as part of the application for Development Consent.

8.2.2 Policy generally seeks to minimise air quality effects from development and to avoid significant adverse effects. This applies particularly to traffic emissions associated with the Proposed Project and the impact of this on human health and ecology. This also applies to the dust and NRMM emissions during the construction of the Proposed Project.

8.2.3 A summary of the international, national, and local legislation, planning policy and guidance relevant to the air quality assessment for the Proposed Project is set out below.

### Legislation

#### **Directive 2008/50/EC on ambient air quality and cleaner air in Europe**

8.2.4 Prior to the UK's withdrawal from the European Union (EU), the EU Directive on ambient air quality (2008/50/EC) (The European Parliament and the Council of the

European Union, 2008) set out a range of mandatory Limit Values (LVs) for different pollutants including nitrogen dioxide (NO<sub>2</sub>) and particulate matter less than 10 microns in diameter (PM<sub>10</sub>), the key traffic related pollutants. The directive set LVs or Target Values for the concentrations of specific air pollutants and provided a new regulatory framework for particulate matter less than 2.5 microns in diameter (PM<sub>2.5</sub>). The Air Quality (Standards) Regulations 2010 (HM Government, 2010) transposed into English law the requirements of Directive 2008/50/EC (The European Parliament and the Council of the European Union, 2008) on ambient air quality.

- 8.2.5 Pursuant to the EU (Withdrawal) Act 2018 (HM Government, 2018), law derived from the EU has been converted into domestic law following the UK's withdrawal from the EU. The Air Quality (Amendment of Domestic Regulations) (EU Exit) Regulations 2019 (HM Government, 2019) made amendments to the Air Quality Standards Regulations 2010 (HM Government, 2010) to transpose provisions of the EU Ambient Air Quality Directive (2008/50/EC) (The European Parliament and the Council of the European Union, 2008) into UK law.
- 8.2.6 The Environment (Miscellaneous Amendments) (EU Exit) Regulations 2020 (HM Government, 2020) amended the PM<sub>2.5</sub> LV from 25 µg/m<sup>3</sup> (within the Air Quality Standards Regulations 2010) to 20 µg/m<sup>3</sup> in line with the requirement of the EU Directive (2008/50/EC) (The European Parliament and the Council of the European Union, 2008) during the transition of the UK's withdrawal from the European Union.

### Air Quality (England) Regulations 2000

- 8.2.7 The ambient air quality standards and objectives are given statutory backing in England through the Air Quality (England) Regulations 2000 (HM Government, 2000) and the Air Quality (England) (Amendment) Regulations 2002 (HM Government, 2002). The LVs were given statutory backing through the Air Quality Standards Regulations 2010 (HM Government, 2010). The Air Quality Strategy (AQS) objectives for the protection of human health and applicable to this assessment are presented in Table 8.1.

**Table 8.1 Air quality objectives**

Pollutant	Air Quality Period	
	Concentration (µg/m <sup>3</sup> )	Averaging Period
NO <sub>2</sub>	40	Annual mean
	200	1-hour mean; not to be exceeded more than 18 times a year
PM <sub>10</sub>	40	Annual mean
	50	24-hour mean; not to be exceeded more than 35 times a year
PM <sub>2.5</sub>	25* (LV is 20)	Annual mean

\* It should be noted that PM<sub>2.5</sub> was included in the air quality strategy 2007 but not in the regulations as a legal requirement to be achieved by local authorities. The LV is 20 µg/m<sup>3</sup> - this has been used in the assessment as it is lower.

- 8.2.8 Reporting against compliance with LVs is undertaken by the Department for Environment, Food & Rural Affairs (Defra) and reported at a zonal/agglomeration level.

Zones/agglomerations only comply when everywhere in the zone is below the LV and this is the basis of Defra’s reporting, which is designed to determine what the maximum concentration is within the zone and hence determine the date the zone will comply with the LV. AQS objectives are assessed at a much more local level where an Air Quality Management Area (AQMA) can be designated as a result of exceedance at individual properties.

- 8.2.9 The Air Quality Objectives only apply where members of the public are likely to be regularly present for the averaging time of the objective (i.e., where people will be exposed to pollutants). As detailed in LAQM.TG(22) (Department for Environment, Food and Rural Affairs, 2022), the annual mean objectives apply to all locations where members of the public might be regularly exposed; these include building façades of residential properties, schools, hospitals, care homes. The 24-hour mean objective applies to all locations where the annual mean objective would apply, together with hotels and gardens of residential properties. The one hour mean objective also applies at these locations as well as at any outdoor location where a member of the public might reasonably be expected to stay for one hour or more, such as shopping streets, parks and sports grounds, as well as bus stations and railway stations that are not fully enclosed.
- 8.2.10 The AQS Critical Level for the protection of vegetation and ecosystems applicable to this assessment is presented in Table 8.2.

**Table 8.2 AQS Critical Level for the protection of vegetation and ecosystems**

Pollutant	Critical Level	
	Concentration	Averaging Period
Oxides of nitrogen (NOx)	30 µg/m <sup>3</sup>	One calendar year

- 8.2.11 Local authorities have no legal requirement to comply with AQS objectives. They are however required to demonstrate best efforts to work towards achieving AQS objectives and a framework has been developed (Department for Environment, Food and Rural Affairs, 2023) to enable local authorities to deliver and contribute to long-term air quality goals.

**The Environment Act (1995)**

- 8.2.12 Part IV of the Environment Act 1995 (HM Government, 1995) required the UK Government to produce a national AQS which contains standards, objectives and measures for improving ambient air quality. The AQS (Department for Environment, Food and Rural Affairs, 2023) sets out objectives that are maximum ambient concentrations that are not to be exceeded either without exception or with a permitted number of exceedances over a specified timescale.
- 8.2.13 It is a requirement of the Environment Act (1995) (HM Government, 1995) that local authorities review current and future air quality within their area of jurisdiction under the system of Local Air Quality Management (LAQM). Where a local authority’s review and assessment of local air quality indicates that AQS objectives are not expected to be achieved, local authorities are required to designate an AQMA. An Air Quality Action

Plan (AQAP) must then be formulated, outlining a plan of action to meet AQS objectives in the AQMA.

### **The Environment Act (2021)**

- 8.2.14 The Environment Act 2021 (HM Government, 2021) has two main functions:
- to give a legal framework for environmental governance in the UK; and
  - to bring in measures for the improvement of the environment in relation to waste, resource efficiency, air quality, water, nature and biodiversity, and conservation.
- 8.2.15 The majority of the Act does not make any immediate changes for organisations other than regulators. Legislative requirements relevant to air quality include the requirement for the Secretary of State to set targets for PM<sub>2.5</sub>. The Environmental Targets (Fine Particulate Matter) England Regulations 2023 (HM Government, 2023) sets out the following targets for PM<sub>2.5</sub>:
- Annual Mean Concentration Target ('concentration target') – a target of 10 µg/m<sup>3</sup> to be met across England by 2040; and
  - Population Exposure Reduction Target ('exposure reduction target') – a 35% reduction in population exposure by 2040 (compared to a base year of 2018).
- 8.2.16 Defra is in the process of producing planning guidance on how developers and local planning authorities should take the targets into consideration in the planning process. The interim guidance (Department for Environment, Food and Rural Affairs, 2024) advises applicants to provide evidence in their planning applications that they have identified key sources of air pollution within their schemes and taken appropriate action to minimise emissions of PM<sub>2.5</sub> as far as is reasonably practicable.

### **Environmental Protection Act 1990**

- 8.2.17 Activities that generate dust of a sufficient scale and frequency, may become a statutory nuisance. The relevant legislation dealing with statutory nuisance is given in Part III of the Environmental Protection Act 1990 (HM Government, 1990). A statutory nuisance in relation to dust and deposits is defined under Section 79 of the act as follows:
- “(d) Any dust, steam, smell or other effluvia arising on industrial, trade or business premises and being prejudicial to health or a nuisance.*
- (e) any accumulation or deposit which is prejudicial to health or a nuisance.”*
- 8.2.18 Under the provisions of the Act, where a local authority is satisfied that a Statutory Nuisance exists, it is under a mandatory duty to serve an Abatement Notice requiring abatement or cessation of one or more activities deemed to be causing the nuisance. In the absence of any kind of standard, identification of a nuisance is dependent on the professional judgment of the local authority as to whether Best Practical Means (BPM) are being employed to control emissions. Where BPM is evident or can be clearly demonstrated then a particular activity cannot be deemed to be causing a Statutory Nuisance.

### **The Non-Road Mobile Machinery (Type-Approval and Emission of Gaseous and Particulate Pollutants) Regulations 2018**

- 8.2.19 The Non-Road Mobile Machinery (Type-Approval and Emission of Gaseous and Particulate Pollutants) Regulations 2018 (HM Government, 2018) set out gaseous and



particulate pollutant emission limits and type-approval for internal combustion engines for NRMM.

## National Policy

### National Policy Statements

8.2.1 National Policy Statements (NPS) set out the primary policy tests against which the application for a Development Consent Order (DCO) for the Proposed Project will be considered. Table 8.3 below provides details of the elements of NPS for Energy (EN-1) (Department for Energy Security & Net Zero, 2023) that are relevant to this chapter. There are no elements of NPS for Electricity Networks Infrastructure (EN-5) (Department for Energy Security & Net Zero, 2023) that are relevant to air quality. NPS EN-3 Renewable Energy Infrastructure has relevance to the Proposed Project, but only in respect of the offshore elements. As such it has no relevance to the assessment presented in this chapter.

**Table 8.3 NPS EN-1 requirements relevant to air quality**

NPS EN-1 section	Where this is covered in the ES
5.2.1 [Part] <i>“Energy infrastructure development can have adverse effects on air quality. The construction, operation and decommissioning phases can involve emissions to air which could lead to adverse impacts on health, on protected species and habitats, or on the wider countryside and species.”</i>	The ES has considered all phases of the Proposed Project (construction, operation/maintenance, and decommissioning) in terms of emissions to air on both human and ecological receptors. Assessment of these effects is detailed in Section 8.9 of this chapter.
5.2.3 <i>“For many air pollutants there is not a threshold below which there is no health impact so it is important that energy infrastructure schemes consider not just how a scheme may impact statutory air quality limits, objectives or targets but also measures to mitigate all emissions in order to minimise human exposure to air pollution, especially for those who are more susceptible to the impacts of poor air quality.”</i>	Mitigation measures have been proposed to minimise human exposure to air pollution, as summarised in Section 8.8 of this chapter.
5.2.4 [Part] <i>“A particular effect of air emissions from some energy infrastructure may be eutrophication, which is the excessive enrichment of nutrients in the environment. Eutrophication from air pollution results mainly from emissions of NOx and ammonia.”</i>	The assessment of air quality has considered air emissions from the Proposed Project and their effect on ecological receptors, as detailed in Section 8.9 of this chapter. Residual effects on ecological receptors have been determined as not significant. As such, eutrophication as a result of the Proposed Project would not be significant.

NPS EN-1 section	Where this is covered in the ES
<p>5.2.5 [Part] <i>“Emissions from combustion plants are generally released through exhaust stacks. Design of exhaust stacks, particularly height, is the primary driver for the delivery of optimal dispersion of emissions and is often determined by statutory requirements. The optimal stack height is dependent upon the local terrain and meteorological conditions, in combination with the emission characteristics of the plant.”</i></p>	<p>The assessment of air quality has considered air emissions from the Proposed Project, including emissions from back-up generators and NRMM, as detailed in Section 8.9 of this chapter.</p>
<p>5.2.8 <i>“Where the project is likely to have adverse effects on air quality the applicant should undertake an assessment of the impacts of the proposed project as part of the Environmental Statement (ES).”</i></p>	<p>An assessment of air quality effects has been undertaken to determine where the Proposed Project is likely to have adverse impacts on air quality. The results of this assessment are presented in Section 8.9.</p>
<p>5.2.9 <i>“The ES should describe:</i>  <i>- existing air quality levels and the relative change in air quality from existing levels;</i>  <i>- 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;</i>  <i>- the predicted absolute emissions, concentration change and absolute concentrations as a result of the proposed project, after mitigation methods have been applied; and</i>  <i>- any potential eutrophication impacts.”</i></p>	<p>Baseline air quality conditions have been considered in Section 8.7.</p> <p>Mitigation measures have been proposed where required and are summarised in Section 8.8.</p> <p>An assessment of air quality effects has been undertaken to determine where the Proposed Project is likely to have adverse impacts on air quality for each phase of the Proposed Project which is presented in Section 8.9. This has included the prediction of concentrations with and without the Proposed Project, and the absolute change in concentrations as a result of the Proposed Project.</p> <p>Residual effects on ecological receptors have been determined as not significant. As such, eutrophication as a result of the Proposed Project would not be significant.</p>
<p>5.2.10 <i>“Applicants should consider the Environment Targets (Fine Particulate Matter) (England) Regulations 2022 and associated Defra guidance.”</i></p>	<p>All the relevant legislation and guidance has been considered as outlined in Section 8.2 and Section 8.4, respectively.</p>
<p>5.2.11 <i>“Defra publishes future national projections of air quality based on estimates of future levels of emissions, traffic, and vehicle fleet. Projections are updated as the evidence base changes and the applicant should ensure these are current at the point of an application. The applicant’s assessment should be consistent with this but may include more detailed modelling and evaluation to</i></p>	<p>Current and future Defra air quality background concentrations as well as local air quality monitoring have been used in the assessment of air quality effects to determine where the Proposed Project is likely to have adverse impacts on air quality. The background concentrations are reported in Section 8.7. Detailed modelling of emissions has been</p>

NPS EN-1 section	Where this is covered in the ES
<i>demonstrate local and national impacts. If an applicant believes they have robust additional supporting evidence, to the extent they could affect the conclusions of the assessment, they should include this in their representations to the Examining Authority along with the source”</i>	undertaken, as detailed in Section 8.9 of this chapter.
5.2.12 <i>“Where a proposed development is likely to lead to a breach of any relevant statutory air quality limits, objectives or targets, or affect the ability of a noncompliant area to achieve compliance within the timescales set out in the most recent relevant air quality plan/strategy at the time of the decision, the applicant should work with the relevant authorities to secure appropriate mitigation measures to ensure that those statutory limits, objectives or targets are not breached.”</i>	The assessment of air quality has considered whether the Proposed Project is likely to lead to a breach of the air quality thresholds or affect the ability of a non-compliant area to achieve compliance, as detailed in Section 8.9 of this chapter. Mitigation measures have been proposed where required and are summarised in Section 8.8 of this chapter.
5.2.13 <i>“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 the Clean Air Plan for Wales in Wales, or any successors to these and should consider relevant advice within Local Air Quality Management guidance and PM2.5 targets guidance.”</i>	Mitigation measures have been proposed where required and are summarised in Section 8.8. An air quality management plan has been compiled, as presented in <b>Application Document 7.5.6.1 Outline Air Quality Management Plan – Suffolk</b> and measures have been incorporated into <b>Application Document 7.5.3.1 Outline Code of Construction Practice</b> and <b>Application Document 7.5.3.2 CEMP Appendix B Register of Environmental Actions and Commitments (REAC)</b> .
5.2.16 <i>“The Secretary of State should give air quality considerations substantial weight where a project would lead to a deterioration in air quality. This could for example, include where an area breaches any national air quality limits or statutory air quality objectives. However, air quality considerations will also be important where substantial changes in air quality levels are expected, even if this does not lead to any breaches of statutory limits, objectives or targets.”</i>	An assessment of air quality effects has been undertaken to determine where the Proposed Project is likely to have adverse impacts on air quality and whether there would be a breach of statutory limits, objectives or targets; this is presented in Section 8.9. Mitigation measures have been proposed where required and are summarised in Section 8.8 of this chapter.
5.7.5 <i>“The applicant should assess the potential for insect infestation and emissions of odour, dust, steam, smoke,</i>	An assessment of air quality effects has been undertaken to determine where the Proposed Project is likely to have adverse impacts on air

NPS EN-1 section	Where this is covered in the ES
<i>and artificial light to have a detrimental impact on amenity, as part of the ES”.</i>	quality and is presented in Section 8.9. Mitigation measures have been proposed where required and are summarised in Section 8.8 of this chapter. A summary of all potential sources of statutory nuisance, including those relating to air quality, is provided in <b>Application Document 6.7 Statement of Statutory Nuisance</b> .

## National Planning Policy Framework

- 8.2.2 The National Planning Policy Framework (NPPF) as revised in December 2024 (Ministry of Housing Communities and Local Government, 2024) sets out national planning policies that reflect priorities of the Government for operation of the planning system and the economic, social, and environmental aspects of the development and use of land. The NPPF has a strong emphasis on sustainable development, with a presumption in favour of such development. The NPPF has the potential to be considered important and relevant to the Secretary of State (SoS) consideration of the Proposed Project.
- 8.2.3 Table 8.4 below provides details of the elements of the NPPF that are relevant to this chapter, and how and where they are covered in the ES.

**Table 8.4 NPPF requirements relevant to air quality**

NPPF section	Where this is covered in the ES
<p>Paragraph 187</p> <p><i>“Planning policies and decisions should contribute to and enhance the natural and local environment by:</i></p> <p><i>...preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans.”</i></p>	<p>An assessment of air quality effects has been undertaken to determine where the Proposed Project is likely to have adverse impacts on air quality and is presented in Section 8.9. Mitigation measures have been proposed where required and are summarised in Section 8.8 of this chapter.</p>
<p>Paragraph 199</p> <p><i>“Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as</i></p>	<p>Mitigation measures have been proposed where required and are summarised in Section 8.8. An air quality management plan has been compiled, as presented in <b>Application Document 7.5.6.1 Outline Air Quality Management Plan – Suffolk</b> and measures have been incorporated into <b>Application Document 7.5.3.1 Outline Code of Construction Practice</b> and</p>



NPPF section	Where this is covered in the ES
<i>through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan.”</i>	<b>Application Document 7.5.3.2 CEMP Appendix B Register of Environmental Actions and Commitments (REAC).</b>

## National Planning Practice Guidance

- 8.2.4 The National Planning Practice Guidance (NPPG) (Ministry of Housing, Communities and Local Government, 2019) includes guidance relating to: planning and air quality; the role of Local Plans with regard to air quality; when air quality is likely to be relevant to a planning decision; what should be included within an air quality assessment and how impacts on air quality can be mitigated. The assessment follows the guidance which contains recommendations when undertaking an air quality assessment for the purpose of applying NPPF policy.

## Local Planning Policy

- 8.2.5 The Suffolk Onshore Scheme (refer to **Application Document 2.2.2 Suffolk Location Plan**) lies within the jurisdiction of Suffolk County Council (SCC) and, at a district level, East Suffolk Council (ESC). Planning guidance that is relevant to a study of air quality and has informed the assessment of effects in this chapter are as follows:
- Suffolk Coastal Local Plan (adopted in September 2020) (East Suffolk Council, 2020); and
  - East Suffolk Council (ESC) Air Quality Strategy 2021 (East Suffolk Council, 2021).

## Local Plans

- 8.2.6 At a district level, the Suffolk Onshore Scheme (refer to **Application Document 2.2.2 Suffolk Location Plan**) lies within the jurisdiction of ESC. Local planning policy for ESC consists of two parts; the Suffolk Coastal Local Plan (East Suffolk Council, 2020) and the Waveney Local Plan (East Suffolk Council, 2019).
- 8.2.7 The Suffolk Onshore Scheme lies within the boundary of the Suffolk Coastal Local Plan (adopted September 2020) (East Suffolk Council, 2020).
- 8.2.8 Local plan policies which are relevant to air quality and have informed the air quality assessment are detailed in Table 8.5 and Table 8.6.

**Table 8.5 Local planning policies relevant to air quality – Suffolk Coastal Local Plan**

<b>Suffolk Coastal Local Plan - Policy</b>	<b>Where this is covered in the ES</b>
<p><b>SCLP10.3: Environmental Quality</b></p> <p><i>“Development proposals will be expected to protect the quality of the environment...</i></p> <p><i>Development proposals will be considered in relation to impacts on;</i></p> <p><i>a) Air quality, and the impact on receptors in Air Quality Management Areas;”</i></p>	<p>An assessment of air quality effects has been undertaken to determine where the Proposed Project is likely to have adverse impacts on air quality and is presented in Section 8.9. Mitigation measures have been proposed where required and are summarised in Section 8.8 of this chapter.</p>
<p><b>SCLP11.2: Residential Amenity</b></p> <p><i>“When considering the impact of development on residential amenity, the Council will have regard to the following:...</i></p> <p><i>g) Air quality and other forms of pollution;</i></p> <p><i>...</i></p> <p><i>Development will provide for adequate living conditions for future occupiers and will not cause an unacceptable loss of amenity for existing of future occupiers of development in the vicinity.”</i></p>	<p>An assessment of air quality effects has been undertaken to determine where the Proposed Project is likely to have adverse impacts on air quality, including residential properties, and is presented in Section 8.9. Mitigation measures have been proposed where required and are summarised in Section 8.8 of this chapter.</p>

**Table 8.6 Local planning policies relevant to air quality – East Suffolk Air Quality Strategy**

<b>East Suffolk Air Quality Strategy</b>	<b>Where this is covered in the ES</b>
<p><b>Local Plan and Air Quality</b></p> <p><i>“The impact on air quality should continue to be significant consideration when land is allocated for development...”</i></p>	<p>An assessment of air quality effects has been undertaken to determine where the Proposed Project is likely to have adverse impacts on air quality and is presented in Section 8.9. Mitigation measures have been proposed where required and are summarised in Section 8.8 of this chapter.</p>
<p><b>Planning</b></p> <p><i>“... we will request an air quality assessment to enable us to advise the planners on the air quality implications of the decisions they make”</i></p>	<p>An assessment of air quality effects has been undertaken in accordance with the relevant guidance to determine where the Proposed Project is likely to have adverse impacts on air quality and is presented in Section 8.9 of this chapter.</p>

## 8.3 Scoping Opinion and Consultation

### Scoping

- 8.3.1 A Scoping Report for the Proposed Project was issued to the Planning Inspectorate (PINS) on 24 October 2022 (**Application Document 6.14 Environmental Scoping Report 2022**) and a Scoping Opinion was received from PINS on behalf of the SoS on 1 December 2022 (**Application Document 6.15 Scoping Opinion**). Table 8.7 sets out the comments raised in the Scoping Opinion and how these have been addressed in this ES. The Scoping Opinion takes account of responses from prescribed consultees as appropriate. **Application Document 6.3.1.6.A Appendix 1.6.A Responses to Scoping Opinion** provides responses to the comments made by the prescribed consultees at scoping stage and how each comment has been considered.

**Table 8.7 Comments raised in the Scoping Opinion**

ID	Inspectorate's comments	Response
3.8	<p><i>[Air quality impacts from an increase in vehicle emissions -construction, operation, maintenance, and decommissioning]</i></p> <p>The Scoping Report proposes to scope out these matters on the basis that it is not considered that construction, operational, maintenance and decommissioning traffic flows associated with the Proposed Development would exceed the Institute of Air Quality Management (IAQM) criteria for a detailed air quality assessment. The Inspectorate would expect the ES to provide a detailed explanation of the likely traffic flows during all phases of the Proposed Development to justify not undertaking further assessment. Cross reference should be made to the assessments of effects on Ecology and Biodiversity and on Human Health.</p>	<p>Traffic flows have been compared with the IAQM and Environmental Protection UK (EPUK) Development Control screening criteria (Institute of Air Quality Management and Environmental Protection UK, 2017) and are summarised in Section 8.9. Further details of traffic data are provided in <b>Application Document 6.2.2.7 Part 2 Suffolk Chapter 7 Traffic and Transport</b>. Traffic flows exceed the IAQM and EPUK Development Control screening criteria (Institute of Air Quality Management and Environmental Protection UK, 2017), therefore further assessment of vehicle emissions has been undertaken for the construction phase.</p> <p>Cross reference to the Ecology and Biodiversity Chapter and Health and Wellbeing Chapter (<b>Application Document 6.2.2.2 Part 2 Suffolk Chapter 2 Ecology and Biodiversity</b> and <b>Application Document 6.2.2.11 Part 2 Suffolk Chapter 11 Health and Wellbeing</b>, respectively) has been made in Section 8.1.</p>
3.8.2	<p><i>[Emissions from NRMM - construction and decommissioning]</i></p>	<p>NRMM emissions have been considered in Section 8.9. Mitigation measures have been proposed where required</p>

ID	Inspectorate's comments	Response
	<p>The Scoping Report proposes to scope out this matter on the basis that emissions would not be significant due to the temporary and transient nature of construction activity and incorporation of best practice measures included within the Code of Construction Practice (CoCP). Whilst the Inspectorate considers that emissions from NRMM are unlikely to be significant in most cases, in the absence of detail regarding the location of construction works with respect to receptors and the type and duration of NRMM to be deployed, the Inspectorate does not consider that this matter may be scoped out based on current evidence.</p> <p>The ES should include an assessment of emissions from NRMM on sensitive receptors where significant effects are likely.</p>	and are summarised in Section 8.8 of this chapter.

## Statutory Consultation

- 8.3.2 Statutory Consultation for the Proposed Project took place between 24 October and 18 December 2023. A further Targeted Consultation exercise on the main changes to the Proposed Project introduced after the 2023 statutory consultation, was undertaken between 8 July and 11 August 2024. In addition, a project update and a local engagement exercise took place between 22 November 2024 and 12 January 2025, focusing on design amendments made following Targeted Consultation. A summary of relevant feedback received during consultation relating to air quality is provided below. Further details on how consultation responses have informed the assessment can be found in **Application Document 5.1 Consultation Report** and **Application Document 5.1.9 Appendix H Summary 2023 Response**.
- ESC requested for a commitment to reduce NRMM emissions, including commitments to use renewable energy sources alongside Stage 4 NRMM as a minimum and Stage 5 where possible. This measure has been incorporated into the outline CEMP (**Application Document 7.5.3.1 CEMP Appendix A Outline Code of Construction Practice**).
  - ESC requested that all areas of impact including air quality, dust, and noise and vibration should be robustly assessed for inter project cumulative effects. Intra and inter cumulative effects have been considered in **Application Document 6.2.2.12 Part 2 Suffolk Chapter 12 Suffolk Onshore Scheme Intra-Project Cumulative Effects** and **Application Document 6.2.2.13 Part 2 Suffolk Chapter 13 Suffolk Onshore Scheme Inter-Project Cumulative Effects**, respectively.



- ESC state that it is essential that cumulative effects with other projects, with consideration of the impact of this project on traffic flows potentially some distance away, is included in the detailed assessment. Intra and inter cumulative effects have been considered in **Application Document 6.2.2.12 Part 2 Suffolk Chapter 12 Suffolk Onshore Scheme Intra-Project Cumulative Effects** and **Application Document 6.2.2.13 Part 2 Suffolk Chapter 13 Suffolk Onshore Scheme Inter-Project Cumulative Effects**, respectively.
- ESC agreed that air quality impacts associated with the operational phase vehicle emissions can be scoped out for further assessment.
- Natural England (NE) raised concerns about the effect of the Proposed Project on the nearby ecological sites in terms of air quality. An assessment of air quality effects has been undertaken to determine if the Proposed Project is likely to have adverse impacts on air quality at both human and ecological receptor locations, and the results are presented in Section 8.9. Mitigation measures have been proposed, where required, and are summarised in Section 8.8 of this chapter.
- NE queried the construction dust study area for ecological receptors. This has been considered in Section 8.6 of this chapter.

## Further Engagement

- 8.3.3 Three air quality thematic meetings have taken place with Suffolk County Council (SCC) and ESC following statutory consultation, as part of further stakeholder engagement specific to this ES chapter. A thematic meeting has also taken place with NE. A summary of the topics covered is set out below.
- 8.3.4 In February 2024, a meeting was held with SCC and ESC to cover a project update, statutory consultation feedback, and the assessment methodology. A separate meeting was held with NE in February 2024, covering the same matters.
- 8.3.5 In July 2024, a meeting was held with SCC and ESC to review the proposed design changes to the Suffolk Onshore Scheme as part of the targeted consultation between 8 July and 11 August 2024, including the potential implications to the air quality assessment. The proposed air quality monitoring during the construction phase was also discussed.
- 8.3.6 In January 2025, a meeting was held with SCC and ESC to provide a project update, to discuss the assessment findings, and to agree the air quality monitoring locations proposed for the construction phase. A follow up call was held in February 2025 with ESC to discuss the air quality monitoring locations.

## Summary of Scope of Assessment

- 8.3.7 This section details what aspects have been scoped in and scoped out of the assessment through the scoping process and consultation with stakeholders.

### Aspects scoped into the assessment

- 8.3.8 The assessment considers temporary air quality impacts due to construction vehicle, dust, and NRMM emissions during the construction and decommissioning phases of the Proposed Project. It also considers the operation and maintenance phase of the Proposed Project, which may affect air quality due to vehicle emissions and emissions from the substation and converter station back-up generators.

## Aspects scoped out of the assessment

- 8.3.9 Gas Insulated Switchgear (GIS) is proposed at the substation. GIS can use the gas sulphur hexafluoride as an electrical insulator which is a potent greenhouse gas. However, it is not considered to be a local air quality pollutant. In addition, manufacturers now produce GIS switchgear that have no or minimal leakage and National Grid avoid the use of sulphur hexafluoride in GIS where possible. This gas is therefore not considered further in this assessment.

## 8.4 Approach and Methodology

- 8.4.1 **Application Document 6.2.1.5 Part 1 Introduction Chapter 5 EIA Approach and Methodology** sets out the overarching approach which has been used in developing the environmental assessment. This section describes the technical methods used to determine the baseline conditions, sensitivity of the receptors and magnitude of effects and sets out the significance criteria that have been used for the air quality assessment.

### Guidance Specific to the Air Quality Assessment

- 8.4.2 The air quality assessment has been carried out in general accordance with the following good practice guidance documents:
- IAQM: Guidance on the Assessment of Dust from Demolition and Construction (Institute of Air Quality Management, 2024) (hereafter referred to as IAQM Construction Dust guidance). This guidance was updated in January 2024 and the construction dust study area and assessment methodology have been updated since the Preliminary Environmental Information Report (PEIR);
  - IAQM and EPUK: Land Use Planning and Development Control: Planning for Air Quality guidance (Institute of Air Quality Management and Environmental Protection UK, 2017) (hereafter referred to as IAQM and EPUK Development Control guidance);
  - IAQM: A Guide to the Assessment of Air Quality Impacts on Designated Nature Conservation Sites (Institute of Air Quality Management, 2020);
  - Defra: Local Air Quality Management Technical Guidance (LAQM.TG(22)) (Department for Environment, Food and Rural Affairs, 2022); and
  - National Highways: Design Manual for Roads and Bridges (DMRB) LA105 (National Highways (formerly Highways England), 2024).

### Baseline Data Gathering and Forecasting Methods

- 8.4.3 Baseline information on air quality has been collected from the following sources:
- Defra UK AIR website (Department for Environment, Food and Rural Affairs, 2024) – to establish predicted background concentrations for NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> for the base year and future years, and to determine existing AQMAs;
  - Annual Air Quality Status Reports – to determine existing AQMAs and local air quality monitoring results:
    - ESC Annual Status Report (ASR) 2024 (East Suffolk Council, 2024).

- MAGIC website (Natural England, 2024) – to identify ecological sites within the air quality study areas; and
- Air Pollution Information Service (APIS) (UK Centre for Hydrology and Ecology, 2024) – to identify any habitats or features of designated sites that are sensitive to nutrient nitrogen and acid deposition.

8.4.4 There is sufficient baseline data to inform the assessment, therefore no project specific air quality monitoring has been undertaken.

## Assessment Criteria

8.4.5 This section sets out the methodology used for assessing the effects on air quality for those aspects scoped into the assessment.

### Construction Dust Emissions

8.4.6 During the construction phase, there is the potential for fugitive dust emissions to occur as a result of construction phase activities. These have been assessed in accordance with the methodology outlined in the IAQM construction dust guidance (Institute of Air Quality Management, 2024). The methodology is summarised in the following paragraphs and detailed assessment steps are presented in **Application Document 6.3.2.8.A Appendix 3.8.A Construction Dust Assessment and Methodology**.

8.4.7 There is also the potential for fugitive dust emissions during the decommissioning phase. Details regarding decommissioning phase activities are limited. However, the potential effects on air quality associated with the decommissioning phase are considered to be similar to those risks identified during the construction phase. As such, the assessment undertaken for construction dust and its outcome are considered applicable in relation to decommissioning and a separate assessment for fugitive dust emissions for the decommissioning phase has not been undertaken.

### Sensitivity of air quality receptors

8.4.8 The sensitivity of the area to dust impacts, can be defined as low, medium or high sensitivity, in accordance with IAQM construction dust guidance (Institute of Air Quality Management, 2024). This terminology is consistent with that in the IAQM construction dust guidance (Institute of Air Quality Management, 2024) and has therefore been used in the assessment, rather than that set out in **Application Document 6.2.1.5 Part 1 Introduction Chapter 5 EIA Approach and Methodology**.

8.4.9 The influencing factors to define receptor sensitivity to dust impacts are as follows:

- High – where human receptors are expected to be present continuously for extended periods of time and where a high level of amenity is expected e.g. residential properties, hospitals, schools and care homes. Internationally or nationally designated ecological sites where the designated features may be affected by dust soiling, or where there is a particular dust sensitive species.
- Medium – where human receptors wouldn't reasonably be expected to be present continuously or regularly for extended periods and where a reasonable level of amenity is expected which could be diminished by dust soiling e.g. parks and places of work. Nationally designated ecological sites with dust sensitive features.

- Low – where enjoyment of amenity would not reasonably be expected and exposure would be for limited periods e.g. footpaths, shopping streets and car parks. Locally designated ecological sites where the features may be affected by dust.

- 8.4.10 The IAQM construction dust guidance (Institute of Air Quality Management, 2024) defines a human receptor as *“any location where a person or property may experience the adverse effects of airborne dust or dust soiling, or exposure to PM over a time period relevant to the air quality objectives, as defined in the Government’s technical guidance for Local Air Quality Management. In terms of annoyance effects, this will most commonly relate to dwellings, but may also refer to other premises such as buildings housing cultural heritage collections (e.g. museums and galleries), vehicle showrooms, food manufacturers, electronics manufacturers, amenity areas and horticultural operations (e.g. salad or soft-fruit production)”*.
- 8.4.11 An ecological receptor is defined as *“any sensitive habitat affected by dust soiling. This includes the direct impacts on vegetation or aquatic ecosystems of dust deposition, and the indirect impacts on fauna (e.g. on foraging habitats)”*.

### Magnitude of dust effects

- 8.4.12 The scale and nature of the works determines the magnitude of dust arising as small, medium or large. This terminology is consistent with that in the IAQM construction dust guidance (Institute of Air Quality Management, 2024) and has therefore been used in the assessment, rather than that set out in **Application Document 6.2.1.5 Part 1 Introduction Chapter 5 EIA Approach and Methodology**.
- 8.4.13 The relevant criteria to define the potential magnitude of dust emission includes the following factors:
- Small – demolition volume under 12,000 m<sup>3</sup> less than 6m above ground level, total site area less than 18,000 m<sup>2</sup>, soil type with large grain size, construction material with low potential for dust release, less than 20 outward Heavy Duty Vehicle (HDV) trips per day, unpaved road length less than 50 m etc;
  - Medium – demolition volume 12,000 m<sup>3</sup> – 75,000 m<sup>3</sup> 6 m – 12 m above ground level, total site area 18,000 m<sup>2</sup> – 110,000 m<sup>2</sup>, moderately dusty soil type, potentially dusty construction material, 20 to 50 outward HDV trips per day, unpaved road length 50 – 100 m etc.; and
  - Large – demolition volume greater than 75,000 m<sup>3</sup>, on-site crushing and screening, demolition activities greater than 12 m above ground level, total site area greater than 110,000 m<sup>2</sup>, more than 10 heavy earth moving vehicles active at any one time, on site concrete batching, sandblasting, more than 50 outward HDV trips per day, unpaved road length greater than 100 m etc.

### Significance of effects

- 8.4.14 The IAQM construction dust guidance (Institute of Air Quality Management, 2024) categorises the unmitigated risk of dust impacts on human health and amenity (rather than ascribe a significance of effect) as a means of identifying the level of dust emissions mitigation required to ensure that residual effects are 'not significant'. The risk of dust impact categories are presented in Tables 1.6 to 1.8 of **Application Document 6.3.2.8.A Appendix 2.8.A Construction Dust Assessment and**



**Methodology.** A higher dust risk rating requires more stringent mitigation measures in order to limit residual effects.

## Vehicle Emissions

- 8.4.15 The assessment of the impacts of vehicle emissions from traffic related to the construction phase of the Proposed Project is based on the IAQM and EPUK Development Control guidance (Institute of Air Quality Management and Environmental Protection UK, 2017). This provides screening criteria indicating the thresholds above which an assessment may be necessary. There are thresholds for the daily flows of Light Duty Vehicles (LDVs) and HDVs (greater than 3.5t), which vary depending on whether an AQMA is present or not. Where the criteria are met, an assessment is generally considered necessary to determine the concentrations of pollutants in ambient air at human or ecological receptors adjacent to the roads that meet the criteria. The IAQM and EPUK Development Control screening criteria (Institute of Air Quality Management and Environmental Protection UK, 2017) are as follows:
- A change in LDV flows of >100 Annual Average Daily Traffic (AADT) within or adjacent to an AQMA, or >500 AADT elsewhere;
  - A change in HDV flows of >25 AADT within or adjacent to an AQMA, or >100 AADT elsewhere;
  - Where a road is realigned by 5 m or more and is within an AQMA; and
  - Where a junction is added or removed close to existing receptors.
- 8.4.16 There is also the potential for vehicle emissions during the decommissioning phase. Vehicle trip rates associated with the decommissioning phase are not available. However, in the event that the Proposed Project is decommissioned, there are expected to be fewer Heavy Goods Vehicle (HGV), Light Goods Vehicle (LGV) and worker arrivals and departures associated with the decommissioning phase of the Suffolk Onshore Scheme than during the construction phase. It is therefore considered reasonable to assume that the impacts of the decommissioning phase will be the same as, or less than, the construction phase in terms of vehicle emissions.
- 8.4.17 During the operational and maintenance phase, the Proposed Project will be staffed by a limited number of operatives across the site, with additional infrequent trips associated with maintenance/inspections or repairs when required. This is likely to include up to four daily car/LGV trips associated with two staff members who will be on-site or on call at all times for the proposed Saxmundham Converter Station. In addition, there will be monthly substation inspections and annual maintenance visits for Friston Substation and Saxmundham Converter Station, which would be carried out by LGVs and potentially HGVs on rare occasions where equipment needs to be replaced. Due to the low level of trips likely to be generated, which would be well below the IAQM and EPUK Development Control screening criteria (Institute of Air Quality Management and Environmental Protection UK, 2017), air quality impacts associated with operational phase vehicle emissions will not be significant and have not been subject to further assessment.

## Sensitivity of air quality receptors

- 8.4.18 Should screening of the relevant data indicate that any of the IAQM and EPUK Development Control screening criteria (Institute of Air Quality Management and Environmental Protection UK, 2017) for the daily flows of light duty vehicles and heavy-

duty vehicles are met, then potential impacts of vehicle emissions at sensitive receptor locations are assessed by calculating the change in NO<sub>2</sub> and particulate matter concentrations as a result of the Proposed Project.

- 8.4.19 LAQM.TG(22) (Department for Environment, Food and Rural Affairs, 2022) defines a sensitive receptor as a location representative of human (or ecological) exposure to a pollutant, over a time period relevant to the objective that is being assessed against, where the Air Quality Strategy objectives are considered to apply, as detailed in Table 8.8.

**Table 8.8 Examples of where the AQS Objectives apply**

Averaging Period	Objectives Should Apply At	Objectives Should Not Apply At
Annual Mean	All locations where members of the public might be regularly exposed. Building façades of residential properties, schools, hospitals, care homes etc.	Building façades of offices or other places of work where members of the public do not have regular access. Hotels, unless people live there as their permanent residence. Gardens of residential properties. Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short term.
24-Hour Mean	All locations where the annual mean objective would apply, together with hotels and gardens of residential properties.	Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short term.
1-Hour Mean	All locations where the annual mean and 24-hour mean objectives apply. Kerbside sites (for example, pavements of busy shopping streets). Those parts of car parks, bus stations and railway stations etc. which are not fully enclosed, where reasonably be expected to spend one hour or more. Any outdoor locations where members of the public might reasonably be expected to spend one hour or longer.	Kerbside sites where the public would not be expected to have regular access.

- 8.4.20 All air quality receptors are treated equally, with sensitivity being identified as locations representative of exposure to the averaging periods of relevant air quality objectives.

## Magnitude of vehicle emission effects

- 8.4.21 Should the IAQM and EPUK Development Control screening criteria (Institute of Air Quality Management and Environmental Protection UK, 2017) be exceeded, detailed dispersion modelling is undertaken using Atmospheric Dispersion Modelling Software (ADMS) to predict pollutant concentrations at worst case receptor locations within 200 m of affected vehicle routes. The magnitude of change is calculated and total concentrations compared against the relevant AQS objectives/critical level (Table 8.1 and Table 8.2). Further details regarding the detailed modelling undertaken for this assessment are presented in **Application Document 6.3.2.8.B Appendix 2.8.B Air Quality Modelling Methodology**.

## Significance of effects

- 8.4.22 The significance of vehicle emission effects is determined in accordance with the IAQM and EPUK Development Control guidance (Institute of Air Quality Management and Environmental Protection UK, 2017) and is dependent upon the percentage change in the predicted NO<sub>2</sub>, PM<sub>10</sub>, PM<sub>2.5</sub> and NO<sub>x</sub> concentrations between the 'without and with Proposed Project' scenarios, relative to the relevant air quality objectives, as presented in Table 8.9.

**Table 8.9 IAQM impact descriptors for individual receptors**

Long Term Average Concentration at Receptor in Assessment Year	% Change in Concentration Relative to Air Quality Assessment Level (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

- 8.4.23 The IAQM and EPUK Development Control guidance (Institute of Air Quality Management and Environmental Protection UK, 2017) notes that the impact descriptors in Table 8.9 are for individual receptors only and the overall significance of effect should be determined using professional judgement, taking into the degree of impact and factors such as:
- the existing and future air quality in the absence of the development;
  - the extent of current and future populations exposure to the impact; and
  - the influence and validity of any assumptions adopted when undertaking the prediction of impacts.

## NRMM Emissions

- 8.4.24 The assessment of construction phase NRMM emissions is based on the IAQM and EPUK Development Control guidance (Institute of Air Quality Management and Environmental Protection UK, 2017), LAQM.TG(22) (Department for Environment, Food and Rural Affairs, 2022) and professional judgement.
- 8.4.25 There is also the potential for NRMM emissions during the decommissioning phase. Details regarding decommissioning phase activities are limited. However, the potential effects on air quality associated with the decommissioning phase are considered to be similar to those risks identified during the construction phase. As such, the assessment undertaken for construction phase NRMM emissions and its outcome are considered applicable in relation to decommissioning, and a separate assessment of NRMM emissions during the decommissioning phase has not been undertaken.

## Sensitivity of air quality receptors

- 8.4.26 As stated previously, all air quality receptors are treated equally, with sensitivity being identified as locations representative of exposure to the averaging periods of relevant air quality objectives. LAQM.TG(22) (Department for Environment, Food and Rural Affairs, 2022) defines a sensitive receptor as a location representative of human (or ecological) exposure to a pollutant, over a time period relevant to the objective that is being assessed against, where the Air Quality Strategy objectives are considered to apply, as detailed in Table 8.8.

## Magnitude of NRMM emissions effects

- 8.4.27 If required, detailed dispersion modelling is undertaken using ADMS to predict pollutant concentrations at worst case receptor locations. The magnitude of change is calculated and total concentrations compared against the relevant AQS objectives/critical level (Table 8.1 and Table 8.2).

## Significance of effects

- 8.4.28 The significance of NRMM emissions effects is assessed in accordance with the IAQM and EPUK Development Control guidance (Institute of Air Quality Management and Environmental Protection UK, 2017) where the overall significance of the project in terms of NRMM emissions is then determined using professional judgement, taking into account factors such as the baseline and future air quality in the absence of the Proposed Project, the number of receptors affected (which is determined using the IAQM Impact Descriptors shown in Table 8.9) and the influence and validity of any assumptions adopted when undertaking the assessment.
- 8.4.29 Significance of NRMM emissions effects for ecological receptors is assessed in accordance with the Guide to the Assessment of Air Quality Impacts on Designated Nature Conservation Sites (Institute of Air Quality Management, 2020). The guidance states that *“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”*. As such, if the long-term Process Contribution (PC) is less than 1% of the critical level (30 µg/m<sup>3</sup>), then the effect of NRMM emissions is considered to be not significant. Where the 1% threshold is exceeded this does not necessarily mean that a significant effect is caused,

it requires further assessment work to evidence a conclusion as to whether the change in air quality is likely to cause a significant effect on the ecological receptor.

### Substation and Converter Station Back-Up Generator Emissions

- 8.4.30 As described in **Application Document 6.2.1.4 Part 1 Introduction Chapter 4 Description of the Proposed Project**, a back-up diesel generator is proposed at Friston Substation and Saxmundham Converter Station during the operational phase. This has been assessed following the methodology outlined for the assessment of NRMM emissions.

## Assumptions and Limitations

- 8.4.31 The following limitations and assumptions have been identified:
- It is assumed that all construction activities other than construction traffic using public roads will take place within the Suffolk Onshore Scheme Order Limits.
  - Dust generating activities have been assumed to occur across the full area within the Suffolk Onshore Scheme boundary. This is a worst case assumption included to cover all potential effects.
  - Construction traffic data assumptions are provided in **Application Document 6.2.2.7 Part 2 Suffolk Chapter 7 Traffic and Transport**.
  - It is assumed for the purpose of the assessment that NRMM will be used throughout the Order Limits, however the majority of NRMM will be used at the construction compounds, Saxmundham Converter Station and Friston Substation.
  - There is limited detail regarding decommissioning activities. Potential effects on air quality associated with the decommissioning phase are considered to be similar to those risks identified during the construction phase. As such, the assessment undertaken for construction phase air quality effects is considered applicable in relation to decommissioning.
  - It is assumed that all data provided by third parties is accurate.

## 8.5 Basis of Assessment

- 8.5.1 This section sets out the assumptions that have been made in respect of design flexibility maintained within the Proposed Project and the consideration that has been given to alternative scenarios and the sensitivity of the assessment to changes in the construction commencement year.
- 8.5.2 Details of the available flexibility and assessment scenarios are presented in **Application Document 6.2.1.4 Part 1 Introduction Chapter 4 Description of the Proposed Project** and **Application Document 6.2.1.5 Part 1 Introduction Chapter 5 EIA Approach and Methodology**.

### Flexibility Assumptions

- 8.5.3 The environmental assessments have been undertaken based on the description of the Proposed Project provided in **Application Document 6.2.1.4 Part 1 Introduction Chapter 4 Description of the Proposed Project**. To take account of the flexibility allowed in the Proposed Project, consideration has been given to the potential for



effects to be of greater or different significance should any of the permanent or temporary infrastructure elements be moved within the Limits of Deviation (LoD) or Order Limits.

- 8.5.4 The assumptions made regarding the use of flexibility for the main assessment, and any alternatives assumptions are set out in Table 8.10.

**Table 8.10 Flexibility assumptions**

<b>Element of flexibility</b>	<b>How it has been considered within the assessment</b>
Lateral LoD High Voltage Direct Current (HVDC)/High Voltage Alternating Current (HVAC) cables	Changing the location of the HVDC/HVAC cables laterally would not affect the outcome of the construction dust assessment, vehicle emissions, or NRMM emissions. Therefore, any lateral movement of the HVDC cables within the LoD would not affect the outcome of the assessment.
Lateral LoD Saxmundham Converter Station and Friston Substation	<p>Changing the location of the Suffolk Converter Station or Friston Substation laterally would not affect the outcome of the construction dust assessment, vehicle emissions or NRMM emissions.</p> <p>To allow for flexibility of the lateral movement of Saxmundham Converter Station, it has been assumed that the operation phase back-up generators would be located anywhere within the LoD. Therefore, any lateral movement of Saxmundham Converter Station within the LoD would not affect the outcome of the assessment.</p>
Vertical LoD Saxmundham Converter Station and Friston Substation	<p>Vertical movement of Saxmundham Converter Station or Friston Substation within the vertical LoD will not affect the construction vehicle emissions assessment as the construction vehicle numbers have been based on the maximum height, as a worst case.</p> <p>Similarly, the construction dust assessment is based on worst case parameters (i.e. worst-case construction vehicle numbers). Additionally, the potential magnitude of dust emissions for construction activities has been assessed as large (the highest rating). As the rating is already large due to several factors (including total building volume and construction material), the outcome of the construction dust assessment would not be affected by the height of Saxmundham Converter Station or Friston Substation.</p> <p>The vertical movement of Saxmundham Converter Station or Friston Substation would not affect the outcome of the converter station and substation generator and NRMM emissions assessments.</p>

Element of flexibility	How it has been considered within the assessment
Lateral and Vertical LoD overhead line (where Friston Substation is built as part of the Proposed Project)	Changing the location of the of the overhead cables laterally within the LoD would not affect the outcome of the construction dust assessment, vehicle emissions, or NRMM emissions. Therefore, any lateral movement of the overhead line within the LoD would not affect the outcome of the assessment. Vertical movement of overhead lines within the LoD should not affect the outcome of any of the aspects considered in the air quality assessment.
Order Limits – temporary construction works	<p>For the construction dust assessment, it has been assumed that construction activities could be undertaken up to the Suffolk Onshore Scheme Order Limits (<b>Application Document 6.4.2.8.1 Suffolk Construction Dust Assessment Study Area</b>), as a reasonable worst case in accordance with the IAQM construction dust guidance (Institute of Air Quality Management, 2024).</p> <p>The location of construction activity within the Order Limits would not affect the number of construction vehicles required.</p> <p>It is assumed for the purpose of the assessment that NRMM emissions within the Order Limits would be transient and that the majority of NRMM emissions would be from equipment used at the construction compounds, Saxmundham Converter Station and Friston Substation.</p>

## Consideration of Scenarios

- 8.5.5 The following scenarios with regards to Friston Substation have been considered in the assessment as explained in **Application Document 6.2.1.4 Part 1 Introduction Chapter 4 Description of the Proposed Project**:
- Friston Substation is installed under the current consent granted to Scottish Power Renewable (SPR) pursuant to 'The East Anglia ONE North (EA1N) Offshore Wind Farm Order 2022' and 'The East Anglia TWO (EA2) Offshore Wind Farm Order 2022'; or
  - Friston Substation is built as part of the Proposed Project.
- 8.5.6 The following options with regards to the proposed bridge over the River Fromus have been considered in the assessment as described in **Application Document 6.2.1.4 Part 1 Introduction Chapter 4 Description of the Proposed Project**:
- Option 1 - A bridge height of up to 6 m (from the ground level at the abutment to the top of the parapet) with 62 m long approach ramps; and
  - Option 2 - A bridge height of up to 4 m (from the ground level at the abutment to the top of the parapet) with 42 m long approach ramps.
- 8.5.7 There is also optionality regarding the converter station construction compound location. Any one of the three areas of land included within the Order Limits (S02, S03 and

S04/05), as illustrated in **Application Document 2.14.1 Indicative General Arrangement Plans – Suffolk**, could be used for this purpose.

### **Construction Dust Emissions**

- 8.5.8 The construction dust assessment assumes that Friston Substation will be built as part of the Proposed Project. Construction dust emissions associated with the Proposed Project would be lower if Friston Substation is installed under the current consent granted to SPR. As such, the construction dust assessment is based on the worst-case scenario.
- 8.5.9 Construction dust emissions would be similar for both of the River Fromus bridge options. As such, the construction dust assessment is applicable to both of the options.
- 8.5.10 In regards to the converter station construction compound, the construction dust assessment has included all three locations, as a worst case.

### **Construction Vehicle Emissions**

- 8.5.11 As detailed in **Application Document 6.2.2.7 Part 2 Suffolk Chapter 7 Traffic and Transport**, the construction vehicle numbers predicted for the Proposed Project assume that Friston Substation will be built as part of the Proposed Project. Should Friston Substation be installed under the current consent granted to SPR, then this would be expected to reduce peak construction vehicle trips given that the substation would be built at an earlier time. As such, the construction vehicle emissions assessment considers the worst-case scenario (that Friston Substation is built as part of the Proposed Project).
- 8.5.12 There would be no difference in construction vehicle numbers between the two River Fromus bridge options. As such, the construction vehicle emissions assessment is applicable to both of the options.
- 8.5.13 Similarly, the converter station construction compound location would not affect construction vehicle numbers. As such, the construction vehicle emissions assessment is applicable to all three of the options.

### **Construction NRMM Emissions**

- 8.5.14 The assessment of NRMM emissions during the construction phase assumes that Friston Substation will be built as part of the Proposed Project. NRMM emissions associated with the Proposed Project would be lower if Friston Substation is installed under the current consent granted to SPR. As such, the NRMM emissions assessment is based on the worst-case scenario.
- 8.5.15 Construction NRMM emissions would be similar for both of the River Fromus bridge options. As such, the construction NRMM emissions assessment is applicable to both of the options.
- 8.5.16 In regards to the converter station construction compound, the construction NRMM emissions assessment has considered all three locations, as a worst case.

### **Substation Back-Up Generator Emissions and Vehicle Emissions during the Operational Phase**

- 8.5.17 The assessment of back-up generator emissions and vehicle emissions during the operational phase assumes that Friston Substation will be built as part of the Proposed

Project. Emissions associated with the Proposed Project would be lower if Friston Substation was not built as part of the Proposed Project. As such, a worst-case scenario has been considered.

- 8.5.18 The River Fromus bridge options would have no effect on operational phase substation back-up generator emissions or vehicle emissions. As such, the assessment of the operational phase is applicable to both of the options.
- 8.5.19 Similarly, the converter station construction compound location would have no effect on operational phase substation back-up generator emissions or vehicle emissions. As such, the assessment of the operational phase is applicable to all three of the options.

## Sensitivity Test

- 8.5.20 It is likely that under the terms of the draft DCO, construction could commence in any year up to five years from the granting of the DCO which is assumed to be 2026. Consideration has been given to whether the effects reported would be any different if the works were to commence in any year up to year five. Where there is a difference, this is reported in Section 8.12.

## 8.6 Study Area

### Construction dust

- 8.6.1 The IAQM Construction Dust guidance (Institute of Air Quality Management, 2024) recommends the following study area for construction phase dust:
- 250 m from the Order Limits for human receptors and up to 50 m for ecological receptors; and
  - 50 m from the route(s) used by construction vehicles on the public highway, up to 250 m from the proposed bellmouths.
- 8.6.2 However, NE raised concerns about the study area being smaller for ecological receptors than for human receptors. As such, the study area for ecological areas has been amended so that it is the same as for human receptors. The study area for construction phase dust for the Proposed Project is therefore as follows:
- 250 m from the Order Limits for human and ecological receptors; and
  - 50 m from the route(s) used by construction vehicles on the public highway, up to 250 m from the proposed bellmouths for human and ecological receptors.
- 8.6.3 The construction dust study area is presented in **Application Document 6.4.2.8.1 Suffolk Construction Dust Assessment Study Area**.

### Construction vehicle emissions

- 8.6.4 The study area for assessment of construction vehicle emissions is an area within 200 m of the construction traffic routes which exceed the IAQM and EPUK Development Control screening criteria (Institute of Air Quality Management and Environmental Protection UK, 2017), in accordance with DMRB LA105 (National Highways (formerly Highways England), 2024). The construction vehicle emissions study area is presented in **Application Document 6.4.2.8.4 Air Quality Receptor and Verification Locations – Suffolk Onshore Scheme**.

## NRMM emissions

- 8.6.5 No specific guidance exists on the definition for a study area for NRMM point sources due to the large variation in the extent of potential impact from different types of sources. For the purposes of this assessment, identification of any receptors within 200 m of the construction compounds is considered appropriate given the size and temporary nature of the operations, based on professional judgement. Beyond this distance, it is judged that the effect of any emissions on local air quality would have no potential to be significant. Whilst NRMM would be used anywhere within the Order Limits, it has been assumed that the majority of NRMM would be used within the construction compounds, converter station and substation LoDs; generators in other areas are considered to be of a size and their use appropriately infrequent that they do not need to be included in the assessment. As such, the study area for NRMM emissions is an area within 200 m of the construction compounds, of the LoD for Friston Substation and of the LoD for Saxmundham Converter Station, as presented in **Application Document 6.4.2.8.2 NRMM and Substation and Converter Station Back-Up Generator Emissions Assessment Study Area**.

## Substation and Converter Station Back-Up Generator Emissions

- 8.6.6 As with NRMM, no specific guidance exists on the definition for a study area for generators. For the purposes of this assessment a study area of up to 200 m radius from the Saxmundham Converter Station and the Friston Substation boundary is considered appropriate. Beyond this distance it is judged that the effect of any emissions on local air quality would have no potential to be significant. As a reasonable worst case, the study area has been defined as an area within 200 m of the LoD for Saxmundham Converter Station and of the LoD for Friston Substation, as presented in **Application Document 6.4.2.8.2 NRMM and Substation and Converter Station Back-Up Generator Emissions Assessment Study Area**.

## 8.7 Baseline Conditions

- 8.7.1 This section of the chapter comprises an overview of the baseline conditions for air quality, in order to establish the likely type and nature of potential effects.

### Baseline Environment

- 8.7.2 A review of the existing baseline has been undertaken to establish an understanding of the baseline air quality environment, to identify areas that are likely to be sensitive to changes in emissions as a result of the Proposed Project.
- 8.7.3 As required by Part IV of the Environment Act 1995 (HM Government, 2021), local authorities produce ASRs each year. The most recently available report for ESC is the 2024 ASR (East Suffolk Council, 2024) which summarises air quality within East Suffolk during 2023.
- 8.7.4 A review of the report confirmed that there were no recorded exceedances of the NO<sub>2</sub> annual mean AQS objective in 2023. However, there is one small area where the objective for annual mean NO<sub>2</sub> has been exceeded in the past, and for which the Stratford St Andrew AQMA is currently declared. The AQMA was declared in 2014 and encompasses four properties along Main Road (A12) in Stratford St. Andrew (refer to **Application Document 6.4.2.8.3 Air Quality Baseline** which presents the AQMA location). The AQMA last saw an exceedance of the annual mean NO<sub>2</sub> objective in



2016 (42.9µg/m<sup>3</sup>). NO<sub>2</sub> concentrations have fallen each year thereafter and the AQMA has achieved compliance for seven consecutive years. It is understood that ESC is seeking to revoke the AQMA in the near future.

## Monitoring Data

### Local Authority Air Quality Monitoring Data

- 8.7.5 A review of the most recent ESC ASR (East Suffolk Council, 2024) has been undertaken to identify the local air pollutant concentrations from a combination of passive diffusion tubes and automatic monitoring sites. The collated monitoring data relevant to the Proposed Project is presented in **Application Document 6.3.2.8.C Appendix 2.8.C Air Quality Monitoring Data** and **Application Document 6.4.2.8.3 Air Quality Baseline**.
- 8.7.6 ESC has one automatic monitoring station (Woodbridge Junction), which measures NO<sub>2</sub> concentrations and is located approximately 17 km south-west of the Proposed Project. **Application Document 6.3.2.8.C Appendix 2.8.C Air Quality Monitoring Data** presents the monitoring data from the station for the last 5 years. The monitoring data shows that there has not been an exceedance at this monitoring station over the last five years (East Suffolk Council, 2024).
- 8.7.7 ESC also undertakes non-automatic monitoring of NO<sub>2</sub> using diffusion tubes. Review of the monitoring data (presented in **Application Document 6.3.2.8.C Appendix 2.8.C Air Quality Monitoring Data**) indicates that there have been no reported exceedances of the annual mean NO<sub>2</sub> AQS objective at any of the sites for the past five years (East Suffolk Council, 2024).
- 8.7.8 There is one ESC monitoring site (SAX 1) within 1 km of the Order Limits, which is located 530 m west of the Order Limits on Church Street in Saxmundham. In 2023 this site measured an annual mean NO<sub>2</sub> concentration of 21.8 µg/m<sup>3</sup>, which is well below the annual mean NO<sub>2</sub> AQS objective of 40 µg/m<sup>3</sup> (East Suffolk Council, 2024).
- 8.7.9 ESC does not have results from reference method or equivalent monitoring for PM<sub>2.5</sub> or PM<sub>10</sub> in 2023 (East Suffolk Council, 2024).

### Other Air Quality Monitoring Data

- 8.7.10 A review of the applications from surrounding projects Sizewell C (SZC Co., 2020) and East Anglia ONE North Offshore Windfarm (Scottish Power Renewables, 2019) has been undertaken to identify any project-specific air quality monitoring undertaken as part of their respective Environmental Statements.
- 8.7.11 It has been identified that Sizewell C has undertaken three months of passive NO<sub>2</sub> diffusion tube monitoring (SZC Co., 2020). A number of these monitoring sites are in the vicinity of the Proposed Project traffic network. These have been presented in **Application Document 6.3.2.8.C Appendix 2.8.C Air Quality Monitoring Data** and **Application Document 6.4.2.8.3 Air Quality Baseline**. This data has been bias adjusted and annualised as per the Sizewell C ES (SZC Co., 2020).
- 8.7.12 As shown in **Application Document 6.3.2.8.C Appendix 2.8.C Air Quality Monitoring Data**, NO<sub>2</sub> concentrations from the Sizewell C monitoring data were well below the annual mean NO<sub>2</sub> AQS objective of 40 µg/m<sup>3</sup> in 2019 at all locations.

Receptors

- 8.7.13

There are a number of human receptors surrounding the Suffolk Onshore Scheme. The town of Saxmundham is to the north-western part of the Proposed Project. As well as residential properties, there are three schools in Saxmundham; Kelsale Church of England Primary School, Saxmundham Primary School, and Saxmundham Free School. Kelsale Church of England Primary School is approximately 1.4 km northwest of the Order Limits. Saxmundham Primary School is approximately 1.1 km northwest of the Order Limits, and 360 m east of the A12, which is one of the proposed primary access routes. Saxmundham Free School is approximately 600 m northwest of the Order Limits and approximately 300 m east of the A12. Other notable communities in close proximity to the Order Limits, or along proposed primary access routes, include those in Knodishall, Aldeburgh, Aldringham, Friston, Sternfield, and Benhall.
- 8.7.14

The closest human receptor to Friston Substation is the residential dwelling at Little Moor Farm situated approximately 280 m north of the LoD. The closest human receptor to the Saxmundham Converter Station is a residential property (Wood Farm) approximately 250 m north-west of the LoD.
- 8.7.15

There are a number of ecological receptors within the vicinity of the Proposed Project. These include Alde-Ore Estuary RAMSAR, Outer Thames Estuary Special Protection Area (SPA), Alde-Ore Estuary SPA, Sandlings SPA, Leiston – Aldeburgh Site of Special Scientific Interest (SSSI), Alde-Ore Estuary SSSI, Alde-Ore and Butley Estuaries Special Area of Conservation (SAC), The Haven Local Nature Reserve (LNR), Grove Wood Ancient Woodland (AW) and Wildlife Site, Knodishall Common Wildlife Site, Benhall Green Meadows Wildlife Site, Great Wood AW and Wildlife Site, Aldeburgh Golf Course Wildlife Site and Aldringham to Aldeburgh Disused Railway Line Wildlife Site. Further information on the ecological sites in the vicinity of the Proposed Project is presented in **Application Document 6.2.2.2 Part 2 Suffolk Chapter 2 Ecology and Biodiversity**.

Defra background concentrations

- 8.7.16

Predictions of background pollutant concentrations are periodically produced by Defra to assist local authorities in their review and assessment of air quality. These are produced for every 1 km Ordnance Survey grid square in the UK. The Proposed Project is located across several grid squares. Data for these grid squares were downloaded from the Defra website (Department for Environment, Food & Rural Affairs, 2024) for the purposes of the assessment. Table 8.11 summarises the range of background concentrations for 2024 relating to the grid squares covering the Order Limits and surrounding study area.

Table 8.11 Background pollutant concentrations 2024 (Defra 2024)

Pollutant	Minimum Concentration (µg/m³)	Maximum Concentration (µg/m³)	Average Concentration (µg/m³)	Annual Mean Air Quality Objective/Critical Level (µg/m³)
NO <sub>2</sub>	5.1	5.4	5.3	40

Pollutant	Minimum Concentration (µg/m <sup>3</sup> )	Maximum Concentration (µg/m <sup>3</sup> )	Average Concentration (µg/m <sup>3</sup> )	Annual Mean Air Quality Objective/Critical Level (µg/m <sup>3</sup> )
PM <sub>10</sub>	8.8	12.5	11.1	40
PM <sub>2.5</sub>	5.3	5.9	5.6	20*
NO <sub>x</sub>	6.4	6.8	6.6	30

\*LV presented as this is lower than the AQS objective

- 8.7.17 Table 8.11 shows that 2024 background NO<sub>2</sub>, NO<sub>x</sub> and particulate matter concentrations in the vicinity of the Proposed Project are below the relevant annual mean air quality objectives and Critical Level.

## Future baseline

- 8.7.18 Background pollutant concentrations are predicted to decrease in future years, as evidenced by trends observed from local authority monitoring data and future predicted Defra background map concentrations.
- 8.7.19 Traffic emissions are likely to contribute to baseline air quality concentrations in the vicinity of the Proposed Project. Whilst vehicle numbers are likely to increase, emissions (per vehicle) are predicted to decrease over time due to new technology, increasingly stringent emission regulations and cleaner fuel formulations.
- 8.7.20 Consented developments in the surrounding area may increase traffic flows in the vicinity of the Proposed Project. This may therefore result in an increase in local air quality concentrations.
- 8.7.21 In addition, construction of any consented developments may result in a temporary increase in particulate concentrations as a result of fugitive dust emissions during construction works.
- 8.7.22 Predicted background data for the grid squares that cover the Proposed Project were downloaded from the Defra website (Department for Environment, Food & Rural Affairs, 2024) for the purposes of the assessment. Table 8.12 summarises the range of background concentrations for 2028 (worst case construction year), relating to the grid squares covering the Order Limits.

**Table 8.12 Predicted future background pollutant concentrations 2028**

Pollutant	Minimum Concentration (µg/m <sup>3</sup> )	Maximum Concentration (µg/m <sup>3</sup> )	Average Concentration (µg/m <sup>3</sup> )	Annual Mean Air Quality Objective/Critical Level (µg/m <sup>3</sup> )
NO <sub>2</sub>	4.5	4.8	4.6	40
PM <sub>10</sub>	8.5	12.1	10.8	40

<b>Pollutant</b>	<b>Minimum Concentration (µg/m³)</b>	<b>Maximum Concentration (µg/m³)</b>	<b>Average Concentration (µg/m³)</b>	<b>Annual Mean Air Quality Objective/Critical Level (µg/m³)</b>
PM <sub>2.5</sub>	5.0	5.6	5.3	20
NOx	5.6	6.0	5.8	30

\*LV presented as this is lower than the AQS objective

8.7.23 Table 8.12 shows that predicted 2028 background NO<sub>2</sub>, NOx, and particulate matter concentrations in the vicinity of the Proposed Project are below the relevant annual mean air quality objectives and Critical Level.

8.7.24 Table 8.13 summarises the range of background concentrations for 2032 relating to the grid squares covering the Proposed Project.

**Table 8.13 Predicted future background pollutant concentrations 2032**

<b>Pollutant</b>	<b>Minimum Concentration (µg/m³)</b>	<b>Maximum Concentration (µg/m³)</b>	<b>Average Concentration (µg/m³)</b>	<b>Annual Mean Air Quality Objective/Critical Level (µg/m³)</b>
NO <sub>2</sub>	4.0	4.2	4.1	40
PM <sub>10</sub>	8.2	11.9	10.5	40
PM <sub>2.5</sub>	4.8	5.4	5.1	20*
NOx	5.0	5.3	5.1	30

\*LV presented as this is lower than the AQS objective

8.7.25 Table 8.13 shows that 2032 background NO<sub>2</sub>, NOx, and particulate matter concentrations in the vicinity of the Proposed Project are below the relevant annual mean air quality objectives and critical level.

#### **PM<sub>2.5</sub> 2040 Annual Mean Target**

8.7.26 Whilst there is currently limited Defra guidance on how the PM<sub>2.5</sub> Targets will be applied in the planning process, The Environmental Targets (Fine Particulate Matter) (England) Regulations 2022 (HM Government, 2022) and the interim guidance (Department for Environment, Food and Rural Affairs, 2024) suggest that compliance with the targets will be determined at qualifying monitoring stations (which are part of Defra's Automatic Urban and Rural Network (AURN)). The nearest qualifying monitoring station to the Suffolk Onshore Scheme with data available for 2023 is Norwich Lakenfields Urban Background. In 2023, the annual mean PM<sub>2.5</sub> concentration was 7.6 µg/m³ which is below the 2040 target (10 µg/m³) (Department for Environment, Food and Rural Affairs, 2024). As such it is unlikely that there will be any exceedance of the PM<sub>2.5</sub> targets in the vicinity of the Proposed Project. PM<sub>2.5</sub> concentrations are expected to decline in the future as a result of the population exposure reduction target.

## 8.8 Proposed Project Design and Embedded Mitigation

- 8.8.1 The Proposed Project has been designed, as far as possible, following the mitigation hierarchy in order to, in the first instance, avoid or reduce air quality impacts and effects through the process of design development, and by embedding measures into the design of the Proposed Project.
- 8.8.2 As set out in **Application Document 6.2.1.5 Part 1 Introduction Chapter 5 EIA Approach and Methodology**, mitigation measures typically fall into one of three categories: embedded measures; control and management measures; and additional mitigation measures. Embedded, and control and management measures are set out below. Additional mitigation measures are discussed in Section 8.10.

### Embedded Measures

- 8.8.3 Embedded measures have been integral in reducing, and where possible avoiding, the air quality effects of the Proposed Project. Measures that have been incorporated are:
- Sensitive routeing and siting of infrastructure and temporary works to avoid or reduce air quality impacts on sensitive receptors; and
  - Commitments made within **Application Document 7.5.3.2 CEMP Appendix B Register of Environmental Actions and Commitments (REAC)**.

### Control and Management Measures

- 8.8.4 Measures relevant to the control and management of impacts during construction have been included within **Application Document 7.5.3.1 CEMP Appendix A Outline Code of Construction Practice**. The following measures have been taken into account in assessing the air quality effects of the Proposed Project:
- GG02 - A Construction Environmental Management Plan (CEMP), Landscape and Ecological Management Plan (LEMP) and Construction Traffic Management and Travel Plan (CTMTP) will be produced and submitted to the relevant authority for approval prior to construction of the relevant stage of the Proposed Project to which it relates. The plan produced will be substantially in accordance with the outline versions submitted as part of the application for development consent. In accordance with the Requirement 6 of Schedule 3 of the draft DCO, the contractor will need to comply with the approved plans (including any amendments to the plans subsequently approved).
  - GG03 - The CEMP shall include measures to manage dust, waste, water, noise, vibration and soil during construction. The contractor(s) shall undertake daily site inspections to check conformance to the Management Plans. The title and contact number of person(s) accountable for issues relating to dust, waste, water, noise, vibration and soil will be displayed at site boundary.
  - GG09 - The name and contact details for the Proposed Project will be displayed at the entrance to all compounds. This will include an emergency number.
  - GG10 - Any activity carried out or equipment located within a construction compound that may produce a noticeable nuisance, including but not limited to dust, noise, vibration and lighting, will be located away from sensitive receptors such as residential properties or ecological sites where practicable.



- GG11 - Appropriate site layout and housekeeping measures will be implemented by the contractor(s) at all construction sites. This will include but not be limited to:
  - preventing pests and vermin control and treating any infestation promptly, including arrangements for the proper storage and disposal of waste produced on site;
  - access gates will be located at least 10 m from sensitive receptors where possible;
  - inspecting and collecting any waste or litter found on site;
  - locating or designing site offices and welfare facilities to limit the overlooking of residential properties;
  - locating designated smoking/vaping areas to avoid nuisance to neighbours;
  - managing staff/vehicles entering or leaving site, especially at the beginning and end of the working day; and
  - managing potential off-site contractor and visitor parking.
- GG12 - Plant and vehicles will conform to relevant applicable standards for the vehicle type as follows:
  - Euro 4 (NOx) for petrol cars, vans and minibuses;
  - Euro 6 (NOx and PM) for diesel cars, vans and minibuses; and
  - Euro VI (NOx and PM) for lorries, buses, coaches and Heavy Goods Vehicles (excluding specialist abnormal indivisible loads).

Vehicles will be correctly maintained and operated in accordance with manufacturer's recommendations and in a responsible manner. All plant and vehicles will be required to switch off their engines when not in use and when it is safe to do so. In addition, plant and vehicles will conform to relevant applicable standards for the vehicle type.

- GG15 - Runoff across the site will be controlled through a variety of methods including header drains, buffer zones around watercourses, on-site ditches, silt traps and bunding. There will be no intentional discharge of site runoff to ditches, watercourses, drains or sewers without appropriate treatment and agreement of the appropriate authority (except in the case of an emergency).
- GG16 - Where required, wash down of vehicles and equipment will take place in designated areas within construction compounds. Wash water will be prevented from passing untreated into watercourses and groundwater. Appropriate measures will include use of sediment traps. Ensure there is an adequate area of hard surfaced road between the wash facility and the site exit, wherever site size and layout permits.
- GG17 - Where required, wheel washing will be provided at each main construction works compound access point on to the highway. An adequate supply of water will be made available at these locations at all times. Road sweepers will be deployed on public roads where necessary to prevent excessive dust or mud deposits.
- GG18 - Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. Avoid dry sweeping of large areas.

- GG19 - Earthworks and stockpiled soil will be protected by covering, seeding or using water suppression where appropriate.
- GG20 - Bonfires and the burning of waste material will be prohibited.
- GG27 - Members of the community and local businesses will be kept informed regularly of the works through active community liaison. This will include notification of noisy activities, heavy traffic periods and start and end dates of key phasing. A contact number will be provided which members of the public can use to raise any concerns or complaints about the Proposed Project. All construction-related complaints will be logged by the contractor(s) in a complaints register, together with a record of the responses given and actions taken. This will be made available to local authorities for review on request.
- GG28 - 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.

8.8.5

Further air quality specific measures relevant to the control and management of impacts during construction have been identified following the construction dust risk assessment as outlined in **Application Document 6.3.2.8.A Appendix 2.8.A Construction Dust Assessment and Methodology**; these measures are included within **Application Document 7.5.3.1 CEMP Appendix A Outline Code of Construction Practice** and are as follows:

- AQ01 - Develop and implement an Air Quality Management Plan (AQMP), approved by the Local Authority.
- AQ02 - Monitoring
  - Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the Local Authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100 m of site boundary, with cleaning to be provided if necessary.
  - Carry out regular site inspections to monitor compliance with the AQMP, record inspection results, and make an inspection log available to the local 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<sub>10</sub> continuous monitoring locations with the Local Authority. Where possible, commence baseline monitoring at least three months before work commences on site or, if it a large site, before work on a phase commences.
- AQ03 - Preparing and maintaining the site:
  - Erect solid screens or barriers around dusty activities or the site boundary so that they are at least as high as any stockpiles on site.
  - Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period.
  - Keep site fencing, barriers and scaffolding clean using wet methods.

- Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site, cover as described below.
- AQ04 - Operating vehicle/machinery and sustainable travel:
  - 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 unsurfaced haul roads and work areas.
  - Hold regular liaison meetings with other high risk construction sites within 500 m of the site boundary, to ensure plans are co-ordinated to minimise dust and particulate matter emissions and to understand the interactions of the off-site transport/deliveries which might be using the same strategic road network routes.
- AQ05 - Operations
  - Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems.
  - Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.
  - Use enclosed chutes and conveyors and covered skips.
  - Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.
- AQ06 - Earthworks
  - Use Hessian, mulches or tackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable.
  - Only remove the cover in small areas during work and not all at once.
- AQ07 - Construction
  - Avoid scabbling (roughening of concrete surfaces) if possible.
  - Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.
  - Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.
  - For smaller supplies of fine powder materials ensure bags are sealed after use and stored appropriately to prevent dust.
- AQ08 - Trackout
  - Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.
  - Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.

- Record all inspections of haul routes and any subsequent action in a site log book.
- Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned where possible.
- AQ09 - Ensure all equipment complies with the appropriate Non-Road Mobile Machinery standards. Use stage 4 NRMM as a minimum and stage 5 where possible. Additionally, where possible, use alternative / renewable energy to power NRMM.

8.8.6 Measures relating to construction traffic have been included in **Application Document 7.5.1.1 Outline Construction Traffic Management and Travel Plan (Suffolk)**.

8.8.7 **Application Document 7.5.6.1 Air Quality Management Plan – Suffolk** sets out the specific mitigation measures required for the construction phase of Suffolk Onshore Scheme. It also includes proposed approximate air quality monitoring locations which will be in place for the construction phase of the project, which will be used to ensure mitigation measures are working effectively.

## 8.9 Assessment of Impacts and Likely Significant Effects

8.9.1 The assessment of the effects of the Proposed Project on air quality receptors described in this section considers the embedded and control and management measures described in Section 8.8.

### Construction Phase

#### Construction dust

8.9.2 A construction dust assessment has been undertaken in accordance with the IAQM construction dust guidance (Institute of Air Quality Management, 2024), as detailed in **Application Document 6.3.2.8.A Appendix 2.8.A Construction Dust Assessment and Methodology**.

8.9.3 The construction dust risk assessment has identified high sensitivity human receptors within the study area, including residential properties in Saxmundham, Aldeburgh, Friston, and Benhall, as well as ecological sites including Alde-Ore Estuary RAMSAR, Outer Thames Estuary SPA, Alde-Ore Estuary SPA, Sandlings SPA, Leiston – Aldeburgh SSSI, Alde-Ore Estuary SSSI, Alde-Ore and Butley Estuaries SAC, The Haven Aldeburgh LNR, Grove Wood AW and Wildlife Site, Great Wood AW and Wildlife Site, Aldeburgh Golf Course Wildlife Site, Aldringham to Aldeburgh Disused Railway Line Wildlife Site, Benhall Green Meadows Wildlife Site and Knodishall Common Wildlife Site

8.9.4 Combining the dust emissions magnitude and area sensitivities, the overall risk of impacts with no applied mitigation for each construction activity has been determined. The potential risk of dust soiling is high for earthworks, construction, and trackout (deposition of dust and dirt from construction sites onto public roads by construction vehicles). The potential risk of human health impacts is low for earthworks, construction, and trackout. The potential risk of temporary dust impacts on ecological sites is high for earthworks, construction, and trackout. The assessment has therefore indicated that the maximum risk of dust effects is high, as a worst case.

- 8.9.5 Mitigation measures have been identified based on a high risk of dust effects determined by the construction dust assessment, with high risk measures for earthworks, construction activities, and trackout. These measures have been incorporated into the outline CEMP (**Application Document 7.5.3.1 CEMP Appendix A Outline Code of Construction Practice**).
- 8.9.6 With the implementation of the relevant mitigation measures outlined, the temporary effect of construction dust emissions is predicted to be not significant.

## Construction vehicle emissions

### Primary Construction Vehicle Routes

- 8.9.7 The primary construction vehicle routes to/from the Proposed Project will be via the A12 to the respective access points including the B1121 Main Road for access S-BM09 and the A1094 and B1069 Snape Road for accesses S-BM03 and S-BM04. Additional routes include the B1119 (S-BM12), B1121 Aldeburgh Road and B1121 Saxmundham Road (S-BM11), A1094 Aldeburgh Road (S-BM10), B1122 Leiston Road (S-BM01 and S-BM02) and Thorpe Road (for S-BM13), although these will experience less construction vehicle activity than the primary routes outlined above. No construction vehicles will be expected to use Grove Road. The HGV routes are presented in **Application Document 6.4.2.7.2 Heavy Goods Vehicle (HGV) Routing Plan**.
- 8.9.8 Traffic data has been provided for the construction vehicle routes for the peak construction year (2028) and is summarised in Table 8.14. Further traffic data, including base year flows are provided in **Application Document 6.3.2.8.B Appendix 2.8.B Air Quality Modelling**. The link locations are presented in **Application Document 6.4.2.7.2 HGV Routing Plan**.
- 8.9.9 It should be noted that the peak construction year, in terms of total annual construction vehicle movements for the Suffolk Onshore Scheme, would be 2028. However, at some access points, the peak construction traffic flows may be in a different year. Table 8.14 presents the peak construction traffic numbers at each access point (which is 2028 for S-BM03 and 2027 for S-BM04 and S-BM09).

**Table 8.14 24-Hour AADT for the peak construction year associated with the Proposed Project (2028)**

Link Reference	Link Description	LDVs	HGVs
S-RL1	A12 (south of A1094)	121	104
S-RL2	A12 (between A1094 & B1121 Main Rd south junction)	90	69
S-RL3	A12 (between B1121 Main Road junctions)	95	61



Link Reference	Link Description	LDVs	HDVs
S-RL4	A12 (north of B1121 Main Road northern junction)	95	61
S-RL5	B1121 Main Road (east of A12)	78	72
S-RL6	B1121 Main Road (south of B1119 Church Street)	4	0
S-RL7	B1119 Church Street (east of B1121 Main Road)	4	0
S-RL8	B1121 Aldeburgh Road (between A1094 and B1121 Saxmundham Road)	2	0
S-RL9	B1121 Saxmundham Road (north of Grove Road)	2	0
S-RL10	A1094 (between A12 and B1069 Snape Road)	112	50
S-RL11	A1094 Aldeburgh Road (between B1069 Snape Road and Leiston Road)	16	14
S-RL12	B1069 Snape Road (between A1094 Aldeburgh Road and Aldringham Lane)	112	50
S-RL13	Leiston Road (between A1094 Aldeburgh Road and Aldringham Lane)	6	2

8.9.10 All traffic links apart from S-RL1 are located outside of AQMAs; as such, on these links the less stringent IAQM and EPUK Development Control screening criteria (Institute of Air Quality Management and Environmental Protection UK, 2017) apply (a change in LDV flows of greater than 500 AADT, or a change in HDV flows of greater than 100 AADT). Review of the traffic data indicates that the flows on all construction vehicle routes outside of AQMAs would be below the IAQM and EPUK Development Control screening criteria (Institute of Air Quality Management and Environmental Protection UK, 2017). On traffic link S-RL1, the more stringent IAQM and EPUK Development Control screening criteria (Institute of Air Quality Management and Environmental Protection UK, 2017) apply (a change in LDV flows of greater than 100 AADT, or a change in HDV flows of greater than 25 AADT) and, as such, this road has been screened in for detailed modelling due to exceedances of both the HDV and LDV criteria. For those routes screened out of detailed modelling the effect of vehicle emissions is not significant.

## Haul roads

- 8.9.11 The Suffolk Onshore Scheme will predominantly be accessed via the following three access points during the construction phase (as shown on **Application Document 6.4.2.7.2 Heavy Goods Vehicle (HGV) Routing Plan**):
- **B1069 Eastern Side (S-BM03)**: Access to the area to the east of the B1069, including for cable installation, building the Joint Bay shed, cable jointing and joint bays. To be used throughout the construction programme, peak activity at this access is expected to occur in 2028.
  - **B1069 Western Side (S-BM04)**: Access to the area to the west of the B1069, including for access works, utility crossings, haul road and compound installation, access to Friston substation (for installation), cable jointing, testing, demobilisation and reinstatement. To be used throughout the construction programme, peak activity at this access is expected to occur in 2027.
  - **B1121 Main Road (S-BM09)**: Access to Saxmundham Converter Station for preparation works, haul road and compound installation, bridge and converter station installation, demobilisation and reinstatement. To be used throughout the construction programme, peak activity at this access is expected to occur in 2027.
- 8.9.12 A very low proportion of construction vehicles (circa 3% in total) is expected across the remaining access points which comprise S-BM01 and S-BM02 (Leiston Road), S-BM11 (B1121 Saxmundham Road), S-BM10 (A1094 Aldeburgh Road), S-BM12 (B1119 Church Street) and S-BM13 (Thorpe Road). The accesses on Grove Road (S-BM05 and S-BM06) will be used as a vehicle crossover only and no vehicles will therefore turn to/ from Grove Road to use these access points.
- 8.9.13 Whilst 2028 represents the peak year of construction, based on total annual forecast construction traffic movements, the worst-case AADT for the Proposed Project varies across the network between years 2026, 2027, and 2028. The flows on the haul roads for the peak year are as follows:
- S-BM03 haul roads would have 14 HGVs and 34 LGVs (two way) per day during the peak year (2028);
  - S-BM04 haul roads would have 36 HDVs and 78 LDVs during the peak year (2027); and
  - S-BM09 haul roads would have flows of 72 HDVs and 74 LDVs (two way) during the peak year (2027).
- 8.9.14 Review of the traffic data for the haul roads indicates that both the HDV and LDV flows would be below the IAQM and EPUK Development Control screening criteria (Institute of Air Quality Management and Environmental Protection UK, 2017). As such, the haul roads have not been included in the detailed modelling and the effect of construction vehicle emissions on any receptors within the vicinity of the haul roads would be not significant.

## Construction vehicle emissions detailed modelling

- 8.9.15 ADMS Roads (version 5.0) was used to predict NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> concentrations at selected worst case receptor locations within 200 m of the affected primary construction vehicle route (traffic link A12 (south of A1094) (S-RL1)).

- 8.9.16 Worst case human receptors were selected for inclusion in the model, as presented in Table 8.15 and in **Application Document 6.4.2.8.4 Air Quality Receptor and Verification Locations**. There are no sensitive ecological designated sites within 200m of the A12 (south of A1094) (S-RL1); as such assessment of these has been excluded from the assessment.

**Table 8.15 Worst case human receptors within 200 m of the affected vehicle route**

Receptor ID	Name	X OS Grid Reference (m)	Y OS Grid Reference (m)
R1	Clark's Cottage, 3 Long Row, Main Road	635753	260004
R2	1 Corner Cottages, Main Road	635811	260106
R3	Rosemary Cottage, Main Road	635851	260098
R4	Turret House, Main Road	636274	260135
R5	Ash Tree Cottage, Main Road	636209	260093
R6	54 Stockhouse Cottages, Main Road	636834	260485

- 8.9.17 The construction vehicle emissions assessment considered the following scenarios:
- Base Year (2023) – predicted baseline air quality scenario, used to characterise the air quality baseline and to carry out model verification;
  - Do-Nothing (2028) – predicted future air quality scenario in the Proposed Project's worst case construction year, without the Proposed Project; and
  - Do-Something (2028) – predicted future air quality scenario in the Proposed Project's worst case construction year, with the Proposed Project.

- 8.9.18 Further details on the model inputs are presented in **Application Document 6.3.2.8.B Appendix 2.8.B Air Quality Modelling**.

### Modelling results

- 8.9.19 Table 8.16 presents the predicted NO<sub>2</sub> concentrations at the modelled receptors, for the Base Year, Do-Nothing, and Do-Something scenarios.

**Table 8.16 Modelled annual mean NO<sub>2</sub> concentrations**

Receptor ID	Annual Mean NO <sub>2</sub> Concentration (µg/m <sup>3</sup> )			
	Base Year (2023)	Do-Nothing (2028)	Do-Something (2028)	Change
R1	19.7	13.2	13.4	0.2
R2	9.8	7.2	7.2	0.0
R3	16.2	11.0	11.2	0.2
R4	18.6	12.5	12.6	0.1
R5	11.9	8.4	8.5	0.1
R6	13.9	9.6	9.7	0.1

- 8.9.20 The predicted NO<sub>2</sub> concentrations presented in Table 8.16 indicate that there are no predicted exceedances of the annual mean NO<sub>2</sub> AQS objective (40µg/m<sup>3</sup>) at any of the modelled receptors. Additionally, exceedances of the 1-hour mean NO<sub>2</sub> AQS objective are unlikely to occur as the annual mean is less than 60 µg/m<sup>3</sup>.
- 8.9.21 In accordance with the IAQM and EPUK Development Control impact descriptors outlined in Table 8.9, the changes in annual mean NO<sub>2</sub> concentrations at all receptors are **negligible** (not significant).
- 8.9.22 Table 8.17 presents the predicted PM<sub>10</sub> concentrations at the modelled receptors, for the Base Year, Do-Nothing and Do-Something scenarios.

**Table 8.17 Modelled annual mean PM<sub>10</sub> concentrations**

Receptor ID	Annual Mean PM <sub>10</sub> Concentration (µg/m <sup>3</sup> )			
	Base Year (2023)	Do-Nothing (2028)	Do-Something (2028)	Change
R1	16.0	15.6	15.8	0.2
R2	12.5	12.0	12.1	0.1
R3	14.7	14.3	14.4	0.1
R4	15.9	15.5	15.6	0.1
R5	13.5	13.1	13.1	0.0

Receptor ID	Annual Mean PM <sub>10</sub> Concentration (µg/m <sup>3</sup> )			
	Base Year (2023)	Do-Nothing (2028)	Do-Something (2028)	Change
R6	14.2	13.8	13.8	0.0

- 8.9.23 The predicted PM<sub>10</sub> concentrations presented in Table 8.17 indicate that there are no predicted exceedances of the annual mean PM<sub>10</sub> AQS objective (40 µg/m<sup>3</sup>) at any of the modelled receptors. Additionally, an exceedance of the 24-hour mean PM<sub>10</sub> AQS objective is unlikely to occur **as** the annual mean PM<sub>10</sub> concentration is less than 32 µg/m<sup>3</sup>.
- 8.9.24 In accordance with the IAQM and EPUK Development Control impact descriptors outlined in Table 8.9, the changes in annual mean PM<sub>10</sub> concentrations at all receptors are **negligible** (not significant).
- 8.9.25 Table 8.18 presents the predicted PM<sub>2.5</sub> concentrations at the modelled receptors, for the Base Year, Do-Nothing and Do-Something scenarios.

**Table 8.18 Modelled annual mean PM<sub>2.5</sub> concentrations**

Receptor ID	Annual Mean PM <sub>2.5</sub> Concentration (µg/m <sup>3</sup> )			
	Base Year (2023)	Do-Nothing (2028)	Do-Something (2028)	Change
R1	8.4	8.0	8.1	0.1
R2	6.5	6.1	6.1	0.0
R3	7.7	7.3	7.3	0.0
R4	8.2	7.8	7.8	0.0
R5	6.9	6.5	6.5	0.0
R6	7.2	6.8	6.9	0.1

- 8.9.26 The predicted PM<sub>2.5</sub> concentrations presented in Table 8.18 indicate that there are no predicted exceedances of the annual mean PM<sub>2.5</sub> LV (20 µg/m<sup>3</sup>) at any of the modelled receptors and the changes in annual mean PM<sub>2.5</sub> concentrations at all receptors are **negligible** (not significant).
- 8.9.27 In accordance with the IAQM and EPUK Development Control impact descriptors outlined in Table 8.9, the changes in annual mean PM<sub>2.5</sub> concentrations at all receptors are **negligible** (not significant).



- 8.9.28 On the basis that the changes in NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> concentrations are all negligible, construction vehicle emissions as a result of the Proposed Project have been determined as **negligible** (not significant).

### **NRMM emissions**

- 8.9.29 Temporary construction compounds are required throughout the route to facilitate construction activities. These compounds store all materials necessary for the works, including plant, waste, cable ducts, cable drums and accessories. In addition to storage, compounds also provide a location for site offices, parking, and welfare facilities for construction operatives.
- 8.9.30 For the Suffolk Onshore Scheme, construction compounds are proposed adjacent to the B1121 bellmouth (construction compound S01), proposed Saxmundham Converter Station site (construction compounds S02, S03, S04 and S05), proposed Friston Substation site (construction compounds S06 and S07), along the proposed HVDC cable route (construction compounds S08 and S09) and proposed landfall site (construction compound S10). The indicative location of the construction compounds for the Suffolk Onshore Scheme are illustrated in **Application Document 2.14.1 General Arrangement Plans - Suffolk**.
- 8.9.31 It should be noted that not all of the construction compounds S02, S03, S04 and S05 would be required for the Proposed Project's Saxmundham Converter Station site, but either S02, or S03, or a combination of both S04 and S05 would be used. However, as a worst case, all compounds have been considered in the assessment.
- 8.9.32 It is understood that the Friston Substation and Saxmundham Converter Station site will be connected to the existing Distribution Network Operator system to provide an electricity supply to the sites, both temporarily during construction and permanently for operation. However, there may be a requirement for generators at the construction compounds and other NRMM will be operational throughout the construction phase as indicated in **Application Document 6.3.1.4.B Appendix 1.4.B Construction Plant Schedule**.
- 8.9.33 A small number of receptors within 200 m of the proposed construction compounds, Friston Substation and Saxmundham Converter Station have been identified which include:
- Residential properties along Church Hill and Main Road, with the nearest property to the B1121 compound being 90 m south-west (Four Feathers, Main Road). Additionally, Benhall Green Meadows Wildlife Site is just under 200 m south of the compound.
  - There are no human or ecological receptors within 200 m of the Saxmundham Converter Station LoD; however, there is a residential property located 100 m to the south west of the potential Saxmundham Converter Station construction compound location (Wood Farm) and 150 m to the north (Trust Farm).
  - There are residential properties along Warren Hill Lane, with the closest being 145 m south west of the landfall site construction compound (Kings Legend, Warren Hill Lane). Additionally, Sandlings SPA and Leiston – Aldeburgh SSSI are 25 m to the north of the compound and Aldringham to Aldeburgh Disused Railway Line Wildlife Site is just less than 10 m to the east of the compound.

- 8.9.34 Background pollutant concentrations are well below the respective air quality objectives and critical level for each pollutant, as presented in Table 8.12 for the peak construction year (2028).
- 8.9.35 Several control measures relating to NRMM emissions have been included in the outline CEMP (**Application Document 7.5.3.1 CEMP Appendix A Outline Code of Construction Practice**) including AQ04, AQ09, and GG10.
- 8.9.36 Additionally, monitoring of NO<sub>2</sub>, NO<sub>x</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> is proposed at the boundaries of the construction compounds where there are receptors within 200 m to ensure the measures are working effectively, as detailed in the AQMP (**Application Document 7.5.6.1 Air Quality Management Plan - Suffolk**). Should monitored concentrations exceed the trigger thresholds, the construction activities would be reviewed and additional abatement controls implemented where required, or the site works may need to temporarily stop. New procedures or controls would be developed where problems continue to occur, and the AQMP would be updated if required.
- 8.9.37 Due to the temporary and transient nature of NRMM operation, low background concentrations, proximity of receptors, and NRMM control measures, the use of construction NRMM is unlikely to result in significant effects on local air quality that would result in exceedances of the AQS objectives and critical level at receptors within 200m of the construction compounds.
- 8.9.38 In addition, LAQM.TG(22) states that *“experience of assessing the exhaust emissions from on-site plant (NRMM) and site traffic suggests that, with suitable controls and site management, they are unlikely to make a significant impact on local air quality.”*
- 8.9.39 Therefore, it is considered that the temporary effect of emissions from construction equipment and plant would be not significant.

## Operation and Maintenance Phase

### Operation and maintenance vehicle emissions

- 8.9.40 As stated previously, during the operational and maintenance phase, the Proposed Project will be staffed by a limited number of operatives across the site, with additional infrequent trips associated with maintenance/inspections or repairs when required. The number of trips likely to be generated would be well below the IAQM and EPUK Development Control screening criteria (Institute of Air Quality Management and Environmental Protection UK, 2017).
- 8.9.41 A permanent access road is proposed from the B1121 Saxmundham Road to the west of the proposed Friston Substation to allow operational vehicular access to the substation. A permanent bellmouth (S-BM11) would be constructed to allow vehicles to turn safely from the B1121 into the access road. However, the proposed main access is not in close proximity to receptors, it would not cause traffic to significantly accelerate/decelerate (as the junction would not include traffic lights or roundabouts) and there would be a very limited number of vehicles using the access road.
- 8.9.42 As such, temporary air quality effects associated with operational phase vehicle emissions are considered to be not significant.

## **Substation and converter station back-up generator emissions**

- 8.9.43 There are no human or ecological receptors within 200 m of the Saxmundham Converter Station LoD or Friston Substation LoD. As such, the effect of back-up generator emissions associated with the operational phase is predicted to be not significant.

## **Decommissioning Phase**

### **Construction dust**

- 8.9.44 There is the potential for fugitive dust emissions to be generated during the decommissioning phase. Details regarding decommissioning phase activities are limited at this stage; however, the potential effects on air quality associated with the decommissioning phase are considered to be similar to those risks identified during the construction phase. As such, with the implementation of the relevant mitigation measures proposed for the construction stage, the temporary effect of dust emissions at the decommissioning phase is predicted to be not significant.

### **Construction vehicle emissions**

- 8.9.45 There is the potential for vehicle emissions during the decommissioning phase. Vehicle trip rates associated with the decommissioning phase are not available at this stage of the development of the Proposed Project. However, in the event that the Proposed Project is decommissioned, there are expected to be fewer HGV, LGV, and worker arrivals and departures associated with the Suffolk Onshore Scheme than during the construction phase. It is therefore reasonable to assume that the impacts of vehicle emissions during the decommissioning phase will be the same as, or less than, the construction phase. As such, it is considered that the temporary effect of vehicle emissions associated with the decommissioning phase would be not significant.

### **NRMM emissions**

- 8.9.46 There is the potential for NRMM emissions during the decommissioning phase. Details regarding decommissioning phase activities are limited at this stage of the development of the Proposed Project; however, the potential effects on air quality associated with the decommissioning phase are considered to be similar to effects identified for the construction phase. As such, it is considered that the temporary effect of NRMM emissions associated with the decommissioning phase would be not significant.

## **8.10 Additional Mitigation**

- 8.10.1 No likely significant effects have been predicted, therefore additional mitigation measures are not required.

## **8.11 Residual Effects and Conclusions**

- 8.11.1 As there are no likely significant effects identified, and no need for additional mitigation measures, the residual effects are the same as those reported in section 8.9 above.
- 8.11.2 The construction dust risk assessment undertaken for the construction phase determined that the worst-case risk of dust effects would be high. Appropriate measures

have been identified and incorporated into the outline CEMP (**Application Document 7.5.3.1 CEMP Appendix A Outline Code of Construction Practice**). With the implementation of these measures, the temporary effects of construction dust have been determined to be not significant.

- 8.11.3 There is also the potential for temporary fugitive dust emissions during the decommissioning phase. It is considered that the potential effects on air quality associated with the decommissioning phase would be similar to those identified during the construction phase. With the implementation of the measures identified for the construction phase, the effect of dust associated with the decommissioning phase have been determined to be not significant.
- 8.11.4 There is the potential for temporary air quality effects as a result of vehicle emissions during the construction phase. Review of the traffic data for the construction vehicle routes and haul roads indicated that the flows would be below the IAQM and EPUK Development Control screening criteria (Institute of Air Quality Management and Environmental Protection UK, 2017), other than on the A12 due to the presence of an AQMA in this location, and therefore the more stringent IAQM and EPUK Development Control screening criteria applied. Detailed modelling has been undertaken at worst case receptor locations along the A12. Changes in NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> concentrations at these locations are predicted to be negligible. Construction vehicle emissions as a result of the Proposed Project have therefore been determined as negligible (not significant).
- 8.11.5 During the operational and maintenance phase, the proposed Project will be staffed by a limited number of operatives across the site, with additional infrequent trips associated with maintenance/inspections or repairs when required. Therefore, due to the low level of trips likely to be generated, which would be well below the IAQM indicative criteria, air quality effects associated with operational phase vehicle emissions have been determined to be not significant.
- 8.11.6 There is also the potential for temporary air quality effects as a result of vehicle emissions during the decommissioning phase. Vehicle trip rates associated with the decommissioning phase were not available. However, in the event that the Proposed Project is decommissioned, there are expected to be fewer HGV, LGV and worker arrivals and departures associated with the decommissioning phase of the Suffolk Onshore Scheme than during the construction phase. The impacts of the decommissioning phase will therefore likely be the same as, or less than, the construction phase in terms of vehicle emissions. As such, it is considered that the effect of vehicle emissions associated with the decommissioning phase would be not significant.
- 8.11.7 Temporary construction compounds are required throughout the route to facilitate construction activities. There may be a requirement for generators at the construction compounds and other NRMM will be operational throughout the construction phase. Due to the temporary and transient nature of NRMM operation, low background concentrations, proximity of receptors and NRMM control measures, the use of construction NRMM is unlikely to result in significant effects on local air quality that would result in exceedances of the AQS objectives and critical level at receptors within 200m of the construction compounds. As such, it is considered that the temporary effect of NRMM emissions associated with the construction phase would be not significant.
- 8.11.8 There is also the potential for NRMM emissions during the decommissioning phase. Details regarding decommissioning phase activities are limited. However, the potential effects on air quality associated with the decommissioning phase are considered to be

similar to those risks identified during the construction phase. As such, it is considered that the temporary effect of NRMM emissions associated with the decommissioning phase would be not significant.

- 8.11.9 During the operational phase, back-up generators would be located at the Friston Substation and Saxmundham Converter Station. However, there are no human or ecological receptors within 200 m of the respective LoDs. As such, the effect of back-up generator emissions associated with the operational phase is predicted to be not significant.

## 8.12 Sensitivity Testing

- 8.12.1 It is likely that under the terms of the draft DCO, construction could commence in any year up to five years from the granting of the DCO which is assumed to be 2026. Consideration has been given as to whether the effects reported would be any different if the works were to commence in any year up to year five. The air quality assessment assumes that construction will commence in the earliest year. Whilst baseline traffic flows during a later assessment year (e.g. due to a delay in the Proposed Project) would be expected to be higher, the flows associated with the Proposed Project itself would not change. Additionally, air quality is expected to improve with time as technology improves, therefore further sensitivity testing has not been deemed necessary.



# References

- Department for Energy Security & Net Zero. (2023). *National Policy Statement for Electricity Networks Infrastructure (EN-5)*. Retrieved from <https://assets.publishing.service.gov.uk/media/65a78a5496a5ec000d731abb/nps-electricity-networks-infrastructure-en5.pdf>
- Department for Energy Security & Net Zero. (2023). *Overarching National Policy Statement for Energy (EN-1)*. Retrieved from <https://assets.publishing.service.gov.uk/media/65bbfdbc709fe1000f637052/overarching-nps-for-energy-en1.pdf>
- Department for Environment, Food & Rural Affairs. (2024). Retrieved from Background Maps: <https://laqm.defra.gov.uk/air-quality/air-quality-assessment/background-maps/>
- Department for Environment, Food and Rural Affairs. (2022). *Local Air Quality Management Technical Guidance (TG22)*. Retrieved from <https://laqm.defra.gov.uk/wp-content/uploads/2022/08/LAQM-TG22-August-22-v1.0.pdf>
- Department for Environment, Food and Rural Affairs. (2023). *Air Quality Strategy: Framework for Local Authority Delivery*. Retrieved from <https://www.gov.uk/government/publications/the-air-quality-strategy-for-england/air-quality-strategy-framework-for-local-authority-delivery>
- Department for Environment, Food and Rural Affairs. (2024). *PM2.5 Targets: Interim Planning Guidance*. Retrieved from <https://uk-air.defra.gov.uk/pm25targets/planning>
- Department for Environment, Food and Rural Affairs. (2024). *UK AIR*. Retrieved from <https://uk-air.defra.gov.uk/>
- East Suffolk Council. (2019). *Waveney Local Plan*. Retrieved from <https://www.eastsuffolk.gov.uk/assets/Planning/Waveney-Local-Plan/Adopted-Waveney-Local-Plan-including-Erratum.pdf>
- East Suffolk Council. (2020). *Suffolk Coastal Local Plan*. Retrieved from <https://www.eastsuffolk.gov.uk/assets/Planning/Planning-Policy-and-Local-Plans/Suffolk-Coastal-Local-Plan/Adopted-Suffolk-Coastal-Local-Plan/East-Suffolk-Council-Suffolk-Coastal-Local-Plan.pdf>
- East Suffolk Council. (2021). *East Suffolk Council Air Quality Strategy*. Retrieved from <https://www.eastsuffolk.gov.uk/assets/Environment/Environmental-Protection/Air-Quality/AQ-Strategy-2021.pdf>
- East Suffolk Council. (2024). *2024 Annual Status Report*.
- HM Government. (1990). *Environment Protection Act 1990*. Retrieved from <https://www.legislation.gov.uk/ukpga/1990/43/contents>
- HM Government. (1995). *Environment Act 1995*. Retrieved from <https://www.legislation.gov.uk/ukpga/1995/25/contents>
- HM Government. (1995). *Environment Act 1995*. Retrieved from <https://www.legislation.gov.uk/ukpga/1995/25/contents>
- HM Government. (2000). *The Air Quality (England) Regulations 2000*. Retrieved from <https://www.legislation.gov.uk/uksi/2000/928/contents/made>
- HM Government. (2002). *The Air Quality (England) (Amendment) Regulations 2002*. Retrieved from <https://www.legislation.gov.uk/uksi/2002/3043/contents>
- HM Government. (2010). *Air Quality Standards Regulations 2010. SI 2010/1001*. Retrieved from <https://www.legislation.gov.uk/uksi/2010/1001/contents/made>
- HM Government. (2018). *European Union (Withdrawal) Act 2018*. Retrieved from <https://www.legislation.gov.uk/ukpga/2018/16/contents/enacted>
- HM Government. (2018). *The Non-Road Mobile Machinery (Type-Approval and Emission of Gaseous and Particulate Pollutants) Regulations 2018*.
- HM Government. (2019). *The Air Quality (Amendment of Domestic Regulations) (EU Exit) Regulations 2019*. Retrieved from <https://www.legislation.gov.uk/uksi/2019/74/made>

- HM Government. (2020). *The Environment (Miscellaneous Amendments) (EU Exit) Regulations 2020*. Retrieved from <https://www.legislation.gov.uk/uksi/2020/1313/contents/made>
- HM Government. (2021). *Environment Act 2021*. Retrieved from <https://www.legislation.gov.uk/ukpga/2021/30/contents>
- HM Government. (2021). *Environment Act 2021*. Retrieved from <https://www.legislation.gov.uk/ukpga/2021/30/contents>
- HM Government. (2022). *The Environmental Targets (Fine Particulate Matter) (England) Regulations 2022*. Retrieved from <https://www.legislation.gov.uk/ukdsi/2022/9780348242959>
- HM Government. (2023). *The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023*. Retrieved from <https://www.legislation.gov.uk/uksi/2023/96/note/made>
- Institute of Air Quality Management. (2020). *A Guide to the Assessment of Air Quality Impacts on Designated Nature Conservation Sites*. Retrieved from <https://iaqm.co.uk/text/guidance/air-quality-impacts-on-nature-sites-2020.pdf>
- Institute of Air Quality Management. (2024). *Guidance on the Assessment of Dust from Demolition and Construction Version 2.2*. Retrieved from <https://iaqm.co.uk/wp-content/uploads/2013/02/Construction-Dust-Guidance-Jan-2024.pdf>
- Institute of Air Quality Management and Environmental Protection UK. (2017). *Land-Use Planning & Development Control: Planning for Air Quality*. Retrieved from <https://iaqm.co.uk/text/guidance/air-quality-planning-guidance.pdf>
- Ministry of Housing Communities and Local Government. (2024). *National Planning Policy Framework*. Retrieved from <https://assets.publishing.service.gov.uk/media/675abd214cbda57cacd3476e/NPPF-December-2024.pdf>
- Ministry of Housing, Communities and Local Government. (2019). *National Planning Practice Guidance*. Retrieved from <https://www.gov.uk/government/collections/planning-practice-guidance>
- National Highways (formerly Highways England). (2024). *Design Manual for Roads and Bridges LA 105*. Retrieved from <https://www.standardsforhighways.co.uk/search/html/af7f4cda-08f7-4f16-a89f-e30da703f3f4?standard=DMRB>
- Natural England. (2024). *Magic*. Retrieved from <https://magic.defra.gov.uk/>
- Scottish Power Renewables. (2019). Retrieved from East Anglia ONE North Offshore Windfarm: <https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010077/EN010077-001275-6.1.19%20EA1N%20Environmental%20Statement%20Chapter%2019%20Air%20Quality.pdf>
- SZC Co. (2020). *The Sizewell C Project, Volume 2 Main Development Site, Chapter 12 Air Quality*. Retrieved from [https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-001832-SZC\\_Bk6\\_ES\\_V2\\_Ch12\\_Air%20Quality.pdf](https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-001832-SZC_Bk6_ES_V2_Ch12_Air%20Quality.pdf)
- The European Parliament and the Council of the European Union. (2008). *Directive 2008/50/EC of the European Parliament and of the Council on Ambient Air Quality and Cleaner Air for Europe*. Retrieved from <https://www.legislation.gov.uk/eudr/2008/50/introduction>
- UK Centre for Hydrology and Ecology. (2024). *APIS*. Retrieved from <https://www.apis.ac.uk/>

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