



**East Pye Solar
Environmental Statement
Volume 1: Chapter 13 – Air Quality**
Revision 1
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Contents

13	Air Quality	1
13.1	Introduction	1
13.2	Consultation.....	1
13.3	Legislation, Planning Policy and Guidance	9
13.4	Assessment Assumptions and Limitations	13
13.5	Assessment Methodology	14
13.6	Baseline Conditions.....	23
13.7	Embedded Mitigation.....	30
13.8	Assessment of Likely Effects.....	33
13.9	Additional Mitigation Measures	38
13.10	Residual Effects.....	38
13.11	Cumulative Effects Assessment.....	38
13.12	Conclusion	49
	References	50

Tables

Table 13.1:	Relevant Scoping Opinion Comments from Statutory Bodies relating to Air Quality	2
Table 13.2:	Summary of Further Engagement Undertaken	8
Table 13.3:	Air Quality Scoping Summary	16
Table 13.4:	Relevant Air Quality Objectives.....	18
Table 13.5:	Examples of Locations Where Air Quality Objectives Apply	19
Table 13.6:	IAQM Impact Descriptors	21
Table 13.7:	Measured Annual Mean NO ₂ Concentrations 2020 - 2024.....	24
Table 13.8:	Measured Concentrations 2024 and 2025 at Long Stratton Zephyr Monitor	25
Table 13.9:	Estimated Background Concentration across the Order Limits in the 2025	25
Table 13.10:	Estimated Background Concentration across the Order Limits in the 2031	28
Table 13.11:	Predicted Daily Construction Traffic Flows for the Scheme in the Peak Construction Year	34
Table 13.12:	Predicted Daily Construction Cumulative Traffic Flows for the Scheme and Committed Development in the Peak Construction Year	41
Table 13.13:	Assessment of Cumulative Road Traffic Emission Effects on Ecological Receptors	45
Table 13.14:	Summary of Residual Effects for Air Quality	49

13 Air Quality

13.1 Introduction

- 13.1.1 This Chapter of the Environmental Statement (ES) presents the findings of the Environmental Impact Assessment (EIA) of potential effects on air quality as a result of the Scheme.
- 13.1.2 This Chapter identifies and proposes measures to address the potential impacts and likely significant effects on air quality, during the construction, operation and maintenance, and decommissioning phases.
- 13.1.3 The information presented within this Chapter has been informed by the Scheme information provided in **ES: Chapter 4 The Scheme [EN0110014/APP/6.1.4]**.
- 13.1.4 The following aspects have been considered within the air quality assessment process:
- An assessment of potential air quality effects of road traffic emissions on sensitive human receptors during construction and decommissioning phases of the Scheme.
 - An assessment of potential air quality effects of road traffic emissions on sensitive ecological receptors during construction and decommissioning phases of the Scheme.
- 13.1.5 This Chapter has been prepared by appropriately qualified experts. For further details, refer to **ES: Appendix 1.2 Statement of Expertise [EN0110014/APP/6.3.1.2]**.
- 13.1.6 A glossary of abbreviations can be found in **ES: Chapter 0 Contents, Glossary and Abbreviations [EN0110014/APP/6.1.0]**.

13.2 Consultation

- 13.2.1 The Scheme has been subject to consultation throughout the DCO preparation period. A request for an EIA Scoping Opinion was sought from the Secretary of State (SoS) through the Planning Inspectorate (PINS) in January 2025. A Scoping Opinion was adopted by PINS in February 2025. The EIA Scoping Opinion is provided in **ES: Appendix 2.2 EIA Scoping Opinion [EN0110014/APP/6.3.2.2]**.
- 13.2.2 The issues raised in the Scoping Opinion relating to air quality are summarised and responded to within **Table 13.1** which demonstrates how the matters raised in the Scoping Opinion are addressed in this ES.

Table 13.1: Relevant Scoping Opinion Comments from Statutory Bodies relating to Air Quality

Consultee and Date	Comment and Scoping Opinion ID No.	How has the comment been addressed in the ES chapter	Location of response in ES Chapter
<p>The Planning Inspectorate Scoping Opinion, 25th February 2025</p>	<p>3.1.1. Air quality effects during construction (construction dust). <i>‘The Scoping Report proposed to scope out an assessment of dust emissions during the construction phase on the basis that a construction dust risk assessment will be undertaken to determine the risk of dust impacts to sensitive receptors and identify appropriate mitigation measures that would be incorporated into the Outline Construction Environmental Management Plan (OCEMP). On this basis the Inspectorate agrees to scope this matter out provided that the OCEMP provides information on the general construction works, location of identified sensitive receptors identified mitigation and how would it be delivered’.</i></p>	<p>Effects from construction dust have been scoped out of the ES. A construction dust risk assessment has been undertaken to determine the appropriate mitigation measures for inclusion in the OCEMP.</p>	<p>ES: Appendix 13.1 Construction and Decommissioning Dust Risk Assessment [EN0110014/APP/6.3.13.1] presents the construction dust risk assessment.</p> <p>The construction dust mitigation measures have been incorporated into the Outline Construction Environmental Management Plan (Outline CEMP) [EN0110014/APP/7.1] which also includes a description of the construction works and sensitive receptor locations.</p>
<p>The Planning Inspectorate Scoping Opinion, 25th February 2025</p>	<p>3.1.2. Air quality effects during construction (exhaust emissions from non-road mobile machinery (NRMM). <i>‘The Scoping Report proposes to scope out this matter on the basis that NRMM would adhere to the emission standards set out in European Directive 2016/1628. The Inspectorate agrees to scope this matter out provided that the ES includes information on the type, number, location and operational hours of use of NRMM to demonstrate that no likely significant effects will occur.’</i></p>	<p>NRMM has been scoped out of the ES. Information on the type and number of NRMM are provided in ES Chapter 4: The Scheme. All NRMM will be compliant with the requirements of EU Directive 2016/1628, as secured in the OCEMP. The OCEMP also provides details of the construction working hours.</p>	<p>ES: Chapter 4 The Scheme [EN0110014/APP/6.1.4] for details of NRMM plant and the OCEMP [EN0110014/APP/7.1] for measures securing NRMM compliance with EU Directive 2016/1628.</p>
<p>The Planning Inspectorate Scoping Opinion, 25th February 2025</p>	<p>3.1.3. Air quality effects during construction (road traffic emissions and vehicle routing). <i>‘The Scoping Report proposes to scope out an assessment of road traffic emissions during the construction phase, However, paragraph 5.2.18 of the Scoping Report estimates that a maximum of approximately 108 daily two-way Heavy Good Vehicle (HGV)</i></p>	<p>An assessment of air quality effects of road traffic emissions during the construction phase is included in the ES.</p>	<p>Section 13.8.</p>

Consultee and Date	Comment and Scoping Opinion ID No.	How has the comment been addressed in the ES chapter	Location of response in ES Chapter
	<p><i>movements during the peak construction period which exceed the EPUK / IAQM screening criteria. On this basis, the Inspectorate does not agree to scope this matter out. The ES should include an assessment of road traffic emissions during construction which are likely to result in significant effects or otherwise present a justification in the ES as to why significant effects are not likely to occur.'</i></p>		
<p>The Planning Inspectorate Scoping Opinion, 25th February 2025</p>	<p>3.1.4. Air quality effects during operation (road traffic emissions and combustion plant). <i>'The Scoping Report proposes to scope out emission from combustion plant, and road traffic exhaust emissions during operation. This is on the basis of the nature of the Proposed Development, that no combustion plant is proposed and that there would only be limited movement of vehicles to the application site for maintenance purposes. The Inspectorate agrees that it is unlikely that the operation of the Proposed Development would generate significant emissions to air or significant operational traffic and that these matters can be scoped out of the assessment. The ES must however provide the information on the nature of vehicle movements during the operational phase including the type and scale of maintenance activities, frequency, estimated number of vehicle movements (alone and cumulatively) and confirm that these projections fall below the relevant thresholds set out in guidance. The ES project description should also confirm that there would be no emissions from operational plant that require further assessment.'</i></p>	<p>Air quality effects from operational road traffic and combustion plant emissions have been scoped out of the ES. The nature of vehicle movements during the operational phase including the type and scale of maintenance activities, frequency, estimated number of vehicle movements are provided in the OOTMP. The predicted light duty vehicle (LDV) and heavy duty vehicle (HDV) movements are below the Environmental Protection UK (EPUK) & Institute of Air Quality Management (IAQM) screening criteria (Ref 13-1), including during the panel and BESS replacement stage.</p> <p>The specification of the proposed generators has not been defined at this stage, however, given the infrequent operation of any back-up generators and the availability of mitigation measures such as an increased stack height and Selective Catalytic Reduction (SCR) abatement which can be used to reduce air quality impacts at sensitive receptor locations, the air quality effects of back-up generator emissions are considered to be not significant in EIA terms. An assessment of generator emissions should be undertaken pursuant to a DCO Requirement once the specification of the generators has been finalised.</p>	<p>Operational vehicle movements are provided in the Outline Operational Traffic Management Plan (Outline OTMP) [EN0110014/APP/7.7].</p>

Consultee and Date	Comment and Scoping Opinion ID No.	How has the comment been addressed in the ES chapter	Location of response in ES Chapter
<p>The Planning Inspectorate Scoping Opinion, 25th February 2025</p>	<p>3.1.5. Emissions to air from BESS fire event. <i>'The Scoping Report proposed to scope out this matter given the unlikely event of a fire at the BESS compound. Paragraph 5.2.27 of the Scoping Report states that the design of the BESS would not be located closer than 100m to human receptors and this will be secured and would be included in the Outline Battery Safety Management Plan to be submitted with the DCO application. On this basis, the inspectorate agrees that this matter can be scoped out.'</i></p>	<p>Air quality effects from emissions to air from a BESS fire event have been scoped out of the ES.</p>	<p>The Design Principles, Parameters and Commitments [EN0110014/APP/7.18] secures a minimum 200 m offset between BESS containers/compound and the nearest residential property.</p> <p>An assessment of emissions to air from a BESS fire event is appended to the OBSMP [EN0110014/APP/7.5].</p>
<p>The Planning Inspectorate Scoping Opinion, 25th February 2025</p>	<p>3.1.6. Assessment of air quality effects during decommissioning. <i>'The Scoping Report states that the effects during the decommissioning phase will be similar to or less than those during the construction phase and proposed to scope out this matter on the basis that mitigation would be managed via the implementation of an Outline Decommissioning Environmental Management Plan (ODEMP). On the basis that likely significant effects have been identified for the construction phase, the Inspectorate does not agree to scope out an assessment of decommissioning, The ES should include an assessment of dust emissions arising from activities and road traffic emissions during decommissioning which are likely to result in significant effect or otherwise present a justification in the ES as to why significant effects are not likely to occur. It should be clear how all mitigation measures would be delivered and secured, through cross reference to the ODEMP and DCO.'</i></p>	<p>An assessment of air quality effects from decommissioning road traffic emissions is included in the ES.</p> <p>Decommissioning dust effects have been scoped out of the ES on the basis that these will be no worse than construction dust effects which have been assessed as being 'not significant' in ES: Appendix 13.1 Construction and Decommissioning Dust Risk Assessment [EN0110014/APP/6.3.13.1] following the implementation of mitigation through the Outline CEMP [EN0110014/APP/7.1]. As similar mitigation will apply for the decommissioning phase (see ES: Appendix 13.1 Construction and Decommissioning Dust Risk Assessment [EN0110014/APP/6.3.13.1]) and will be mitigated through the Outline Decommissioning Environmental Management Plan (Outline DEMP) [EN0110014/APP/7.3], effects from decommissioning dust emissions will also be 'not significant' as confirmed in ES: Appendix 13.1 Construction and Decommissioning Dust Risk Assessment [EN0110014/APP/6.3.13.1].</p>	<p>An assessment of decommissioning road traffic emissions is presented in Section 13.8.</p> <p>ES: Appendix 13.1 Construction and Decommissioning Dust Risk Assessment [EN0110014/APP/6.3.13.1] presents the decommissioning dust risk assessment.</p> <p>The decommissioning dust mitigation measures have been incorporated into the Outline DEMP [EN0110014/APP/7.3].</p>

Consultee and Date	Comment and Scoping Opinion ID No.	How has the comment been addressed in the ES chapter	Location of response in ES Chapter
<p>The Planning Inspectorate Scoping Opinion, 25th February 2025</p>	<p>3.1.7. PM_{2.5} Targets Guidance. <i>‘The Applicant’s attention is Drawn to the Defra advice ‘PM_{2.5} Targets: Interim Planning Guidance’. The ES should explain how key sources of air pollution within the proposed development have been identified and how action has been taken to emissions of PM_{2.5} or its precursors.’</i></p>	<p>DEFRA’s PM_{2.5} Targets: Interim Planning Guidance (Ref 13-2) has been considered.</p>	<p>Section 13.3, 13.6 and 13.7, and ES: Appendix 13.1 Construction and Decommissioning Dust Risk Assessment [EN0110014/APP/6.3.13.1].</p>
<p>South Norfolk Council (SNC) Scoping Opinion Response (Appendix 2 of the Scoping Opinion dated 25th February 2025)</p>	<p><i>‘In 5.2.11 the table indicates that PM_{2.5} will be compared against 20 µg/m³ where The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023 state that the legal limit to be 10 µg/m³ by 2040 with an interim target of 12 µg/m³. The Council considers this should be corrected.’</i></p>	<p>The interim PM_{2.5} target has been revised to 10 µg/m³ by 2030 through the revised Environmental Improvement Plan (Ref 13-3). This interim target (which is more stringent than the previous target) has been assessed against in this Chapter of the ES.</p>	<p>Table 13-3 and Sections 13.6 and 13.8.</p>
<p>UK Health and Security Agency (UKHSA) Scoping Opinion Response (Appendix 2 of the Scoping Opinion dated 25th February 2025)</p>	<p><i>‘Our position is that pollutants associated with road traffic or combustion, particularly particulate matter and oxides of nitrogen are non-threshold; i.e. an exposed population is likely to be subject to potential harm at any level and that reducing public exposure to non-threshold pollutants (such as particulate matter and nitrogen dioxide) below air quality standards will have potential public health benefits. We support approaches which minimise or mitigate public exposure to non-threshold air pollutants, address inequalities (in exposure) and maximise co-benefits (such as physical exercise). We encourage their consideration during development design environmental and health impact assessment, and development consent.’</i></p>	<p>It is standard practice in the UK to assess the air quality impacts of a development against regulatory standards, However, DEFRA’s ‘PM_{2.5} Targets: Interim Planning Guidance’ (Ref 13-2) also requires early consideration of measures to reduce exposure to air pollutants (specifically PM_{2.5}) through scheme design and this guidance has been considered throughout this Chapter of the ES.</p>	<p>Section 13.6.</p>
<p>Norfolk County Council (NCC) Scoping Opinion Response (Appendix 2 of the Scoping Opinion dated 25th February 2025)</p>	<p>NCC Public Health notes the commitment to undertaking a construction dust risk assessment in accordance with Institute of Air Quality Management (IAQM) guidance. Potential health impacts should form an integral part of this, particularly in relation to vulnerable populations.</p>	<p>A construction dust risk assessment had been undertaken and includes an assessment of impacts resulting from particulate matter on human health in accordance with IAQM guidance (Ref 13-4).</p>	<p>ES: Appendix 13.1 Construction and Decommissioning Dust Risk Assessment [EN0110014/APP/6.3.13.1] presents the construction dust risk assessment.</p>

Consultee and Date	Comment and Scoping Opinion ID No.	How has the comment been addressed in the ES chapter	Location of response in ES Chapter
<p>Shotesham Parish Council, Shelton and Harwick Parish Council, Morningthorpe and Fritton Parish Council, Hempnell Parish Council and Brooke Parish Council Scoping Opinion Responses (Appendix 2 of the Scoping Opinion dated 25th February 2025)</p>	<p>Impacts of potential damage to air quality from BESS fire should be scoped into the ES.</p>	<p>The potential air quality effects of BESS fire emissions will be not significant in EIA terms with mitigation implemented through the Outline BSMP [EN0110014/APP/7.5]. However, an assessment of air quality impacts from emissions to air during a fire event has been undertaken and provided as an appendix of the Outline BSMP [EN0110014/APP/7.5].</p>	<p>The assessment of air quality impacts from emissions during a fire event is provided as an appendix of the Outline BSMP [EN0110014/APP/7.5].</p>
<p>Natural England Scoping Opinion Response (Appendix 2 of the Scoping Opinion dated 25th February 2025)</p>	<p>Natural England identify several nationally designated sites where assessment of air quality impacts resulting from dust and construction road traffic emissions should be scoped into the ES. These include:</p> <ul style="list-style-type: none"> • Pulham Market Big Wood Site of Special Scientific Interest (SSSI). • Shotesham-Woodton Hornbeam Woods SSSI. • Sexton Wood SSSI. • Flordon Common SSSI. • Hedenham Wood SSSI. • Tindall Wood, Ditchingam SSSI. <p>Natural England also advise that the Scheme's construction traffic flows should be screened against the 1,000 annual average daily traffic (AADT) or 200 HDV screening criteria for roads within 200 m of a designated ecological site in accordance with 'Natural England's approach to advising competent authorities on the assessment</p>	<p>A construction dust assessment which considers ecological sites within 50 m of the Order Limits or up to 50 m from roads along which material may be tracked (up to 250 m from construction accesses/ compounds) in accordance with IAQM guidance (Ref 13-4) has been undertaken.</p> <p>Construction traffic flows for the Scheme have been reviewed against the 1,000 total AADT or 200 HDV AADT screening criteria (alone and in combination with other projects and plans) in accordance with Natural England guidance (Ref 13-5).</p>	<p>ES: Appendix 13.1 Construction and Decommissioning Dust Risk Assessment [EN0110014/APP/6.3.13.1] presents the construction dust risk assessment.</p> <p>Section 13.8 provides an assessment of the effects of construction road traffic emissions on ecological receptors.</p>

Consultee and Date	Comment and Scoping Opinion ID No.	How has the comment been addressed in the ES chapter	Location of response in ES Chapter
	of road traffic emissions under the Habitats Regulations' (Ref 13-5).		

Statutory Consultation and Preliminary Environmental Information Report (PEIR)

- 13.2.3 Statutory consultation was held between 18th June 2025, and 6th August 2025. Relevant responses to the PEIR relating to air quality and how these have been addressed through the ES are set out within **Consultation Report Appendix 10 Section 47 Applicant Response Table [EN0110041.5.11]** and **Consultation Report Appendix 11 Section 42 Applicant Response Table [EN0110041.5.12]**.

Further Engagement

- 13.2.4 Further engagement has been undertaken as part of stakeholder engagement specific to air quality, as detailed within **Table 13.2**.

Table 13.2: Summary of Further Engagement Undertaken

Consultee and Date	Summary of Matter	Response
SNC Pre-application engagement meeting on 27th November 2024.	SNC discussed the use of 2018-based Department for Environment, Food and Rural Affairs (DEFRA) background maps and their tendency to overpredict particulate matter concentrations in the area. It was agreed that the latest background concentrations from the 2021-based background maps should be used in the air quality assessment. SNC confirmed agreement that traffic data for the Scheme should be reviewed against the screening criteria in the EPUK & IAQM guidance (Ref 13-1) and dispersion modelling undertaken if the criteria are exceeded.	2021-based background map data (Ref 13-6) have been used in this assessment and are presented in Section 13.6 . Traffic data for the Scheme have been compared against the EPUK & IAQM screening criteria (Ref 13-1) – see ES: Appendix 13.2 EPUK & IAQM Screening Criteria [EN0110014/APP/6.3.13.2] .
SNC Environmental Management Officer	Discussion of Statutory Consultee comments on Chapter 13: Air Quality of the PEIR. SNC confirmed that the air quality assessment methodology presented in the PEIR is accepted. 2024 air quality monitoring data was agreed to be provided by SNC.	The latest air quality monitoring data provided by SNC is presented in Section 13.6 of this Chapter. This Chapter of the ES uses the same assessment methodology as Chapter 13: Air Quality of the PEIR.

Targeted Consultation

- 13.2.5 A further round of targeted consultation was undertaken between 22nd October 2025 and 26th November 2025 following changes to the development boundary area of the Scheme presented in the PEIR and during Stage Two Statutory Consultation. All the changes are documented in full in the **Consultation Report [EN0110014/APP/5.1]**. These changes did not give rise to any materially

new or different likely significant environmental effects compared to those reported in the PEIR. How these have been addressed through the ES are set out within **Consultation Report Appendix 10 Section 47 Applicant Response Table [EN0110014/APP/5.11]** and **Consultation Report Appendix 11 Section 42 Applicant Response Table [EN0110014/APP/5.12]**.

13.3 Legislation, Planning Policy and Guidance

13.3.1 A summary of applicable legislation, planning policy and other guidance documents against which the Scheme has been considered relating to air quality is set out in **ES: Appendix 2.3 Legislation, Planning Policy and Guidance [EN0110014/APP/6.3.2.3]**.

13.3.2 An overview of the legislation, planning policy and guidance against which the Scheme has been considered against for the air quality assessment is set out below.

Legislation and Regulations

13.3.3 The key legislation for the assessment includes:

- Air Quality (England) Regulations 2000 (AQR) (Ref 13-7) and subsequent amendment in 2002 (Ref 13-8).
- Air Quality Standards Regulations 2010 (AQSR) (Ref 13-9) and subsequent amendments - transpose the requirements of the European Union (EU) Directive on ambient air quality (2008/50/EC) (Ref 13-12) into English law including air quality limit and target values.
- The Air Quality (Amendment of Domestic Regulations) (EU Exit) Regulations 2019 (Ref 13-10).
- The Environment (Miscellaneous Amendments) (EU Exit) Regulations 2020 (Ref 13-11) – amend the PM_{2.5} limit value from 25 µg/m³ from the AQSR to 20 µg/m³ in accordance with EU Directive 2008/50/EC (Ref 13-12).
- The Environment Act 1995 (Ref 13-13).
- The Air Quality Strategy 2007 (Ref 13-14).
- The Environment Act 2021 (Ref 13-15).
- The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023 (Ref 13-16).
- The Non-Road Mobile Machinery (Type-Approval and Emission of Gaseous and Particulate Pollutants) Regulations 2018 and The Road

Vehicles and Non-Road Mobile Machinery (Type Approval) (Amendment and Transitional Provisions) (EU Exit) Regulations 2022 (Ref 13-17).

- The Environmental Protection Act 1990 (Ref 13-18).

Planning Policy

National Planning Policy

- 13.3.4 National Policy Statements (NPS) set out the primary policy tests against which the application for a Development Consent Order (DCO) for the Scheme will be considered. Listed below are the details of the elements of NPS considered relevant to the air quality assessment.
- The latest version of the Overarching National Policy Statement (NPS) for Energy (EN-1), dated December 2025, came into force on 6th January 2026 (Ref 13-19). The relevant section to this Chapter is Section 5.2 Air Quality and Emissions.
 - NPS for Renewable Energy Infrastructure EN-3, dated December 2025 (Ref 13-20). Paragraphs 2.7.41– 2.7.44 set out the requirements of an ES in relation to air quality including consideration of cumulative effects from construction, operation and vehicle movements.
 - National Policy Statement for Electricity Networks EN-5, dated December 2025 (Ref 13-21). EN-5 does not specifically reference air quality.
- 13.3.5 National Planning Policy Framework - The National Planning Policy Framework (NPPF) (Ref 13-22) as revised in December 2024 (as subsequently amended in February 2025) 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's (SoS) consideration of the Scheme.
- 13.3.6 Listed below are the details of the elements of the NPPF that are relevant to this Chapter, and how and where they are covered in the ES.
- NPPF Section 15 paragraph 187 states *'planning policies and decisions should contribute to and enhance the natural and local environment by: [...] 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 stability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality [...]'*. An assessment of air quality impacts and effects of the Scheme has been

undertaken and is presented in **Section 13.8**. Mitigation measures are summarised in **Section 13.7** and **Section 13.9**.

- NPPF Section 15 paragraph 199 states '*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 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.*' The assessment undertaken in **Section 13.8** takes into account national objectives for air pollutants, cumulative impacts and the presence of any Air Quality Management Areas (AQMAs). Mitigation measures are summarised in **Section 13.7** and **Section 13.9**.

National Planning Practice Guidance

- 13.3.7 The air quality section of the National Planning Practice Guidance (NPPG) (Ref 13-23), last updated in 2019, includes guidance on the contents of an air quality assessment and how effects on air quality can be mitigated. The assessment presented in **Section 13.8** has been undertaken in accordance with the NPPG which also contains recommendations for air quality assessments undertaken for compliance with NPPF policies.

Local Planning Policy

- 13.3.8 The Scheme is located within the administrative areas of NCC and SNC who are the host authorities. Local planning policies which are relevant to air quality and have informed the air quality assessment are detailed below.
- The South Norfolk Development Management Policies Document (Ref 13-24), adopted in October 2015. Notably, Policy DM.3.14 and DM 3.13.
 - The Scheme is located within an area that is covered by the Greater Norwich Local Plan Greater Norwich Local Plan (GNLP), adopted by SNC in March 2024 (Ref 13-25). Through Policy 2 'Sustainable Communities', the GNLP requires developments proposals to avoid risks of unacceptable levels of air pollution.

Other Guidance

13.3.9 The assessment has been carried out in accordance with the following other guidance documents.

- DEFRA 'Local Air Quality Management Technical Guidance (LAQM.TG (22))' (Ref 13-26)
- TEPUK & IAQM 'Land-Use Planning & Development Control: Planning for Air Quality'
- TEPUK & IAQM 'Land-Use Planning & Development Control: Planning for Air Quality' (Ref 13-1).
- IAQM 'Guidance on the Assessment of Dust from Demolition and Construction' (Ref 13-4).
- IAQM 'Guide to the Assessment of Air Quality Impacts on Designated Nature Conservation Sites' (Ref 13-27) which adopts a similar procedure to that detailed in Natural England guidance on the assessment of road traffic emissions (Ref 13-5).
- Joint Nature Conservation Committee 'Guidance on Decision-making Thresholds for Air Pollution' (Ref 13-28).
- Natural England 'Air Pollution and Development: Advice for Local Authorities' Guidance (Ref 13-29).

Environmental Improvement Plan

13.3.10 The revised Environmental Improvement Plan (Ref 13-3) sets out Government strategy to restore nature and improve environmental quality and security. It sets out a number of measurable commitments in relation to environmental improvements including two interim targets for PM_{2.5} for concentrations and exposure. The interim PM_{2.5} targets included in the Plan are:

- An annual mean concentrations target of 10 µg/m³ by December 2030.
- A population exposure reduction target of 30% compared to 2018 to be achieved by December 2030.

DEFRA PM_{2.5} Targets: Interim Planning Guidance

13.3.11 DEFRA is developing guidance to ensure that the PM_{2.5} targets are appropriately considered in planning applications and planning decisions. Interim guidance (Ref 13-2) has been published, requiring applicants to evidence that key sources of air pollution have been identified within their schemes and appropriate action taken to minimise exposure to and emissions of PM_{2.5} as far as reasonably practicable.

13.4 Assessment Assumptions and Limitations

13.4.1 The air quality assessment has considered the following assumptions:

- The construction AADT flows for the Scheme are indicative and representative of activities at each of the Sites occurring simultaneously. Whilst realistically this is highly unlikely to occur in the construction phase as construction activities will be staggered to reduce impacts on the highway network, it means that a worst-case scenario has been assessed.
- Traffic generation forecasts associated with the operational and maintenance and decommissioning phases will be no worse than the construction phase. Furthermore, it is assumed that the road traffic emission impacts of the operational and decommissioning phases will be lower than the construction phase also due to the reduction in background pollutant concentrations and vehicle emissions over time as a result of increased uptake of EVs, technological advances (SCR abatement technologies), national policy and regulatory regimes.
- The potential likely effects of dust generated by activities during the decommissioning phase are assumed to be similar to or less than those experienced in the construction phase. This is because earthworks, construction and trackout activities during the construction phase of the Scheme have been assessed as having a 'high risk' of dust impacts, and therefore proportionate mitigation measures for a site with a 'high risk' of dust impacts (see **ES: Appendix 13.1 Construction and Decommissioning Dust Risk Assessment [EN0110014/APP/6.3.13.1]**) have been recommended for inclusion in the **Outline CEMP [EN0110014/APP/7.1]**. As 'high risk' is the maximum level of risk from construction dust impacts, the decommissioning dust impacts can be no worse than this and similar mitigation will be secured in the **Outline DEMP [EN0110014/APP/7.3]** for the decommissioning phase.
- All construction and decommissioning activities other than construction and decommissioning road traffic movements will take place within the Order Limits.

13.4.2 The air quality assessment has considered the following limitations:

- Traffic data is limited to the study area of the Transport Assessment (**ES Appendix 11.1: Transport Assessment [EN0110014/APP/6.3.11.1]**). The traffic data encompasses the roads which will experience the greatest development flows and includes human and ecological receptors likely to experience the largest impacts assessed. Therefore, this study area limitation does not affect the validity of the findings of this assessment as appropriate worst-case receptor locations have been assessed.

13.5 Assessment Methodology

13.5.1 This section sets out the scope and methodology for the assessment of the impacts of the Scheme on air quality.

Sources of Information

13.5.2 The following sources of information that have been consulted in the preparation of this Chapter:

- Monitoring data presented in the SNC and Broadland District Council's (BDC) joint 2025 Air Quality Annual Status Report (ASR) (Ref 13-30).
- Indicative particulate matter (PM₁₀ / PM_{2.5}) monitoring undertaken by SNC.
- DEFRA UK Air Website to obtain data from national pollution maps published by DEFRA (Ref 13-6).

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

Study Area

13.5.4 The road network considered in the assessment of construction road traffic emission impacts on sensitive human and ecological receptor locations is presented in **ES Figures 11.14 - 11.17 Traffic Survey Locations [EN0110014/APP/6.2.11.14 - 11.17]**

13.5.5 For the assessment of construction road traffic emissions on sensitive human receptors, the screening criteria outlined in **ES: Appendix 13.2 EPUK & IAQM Screening Criteria [EN0110014/APP/6.3.13.2]** has been applied to all roads that traffic data have been provided for.

13.5.6 For the assessment of construction road traffic emissions on sensitive ecological receptors, the screening criteria outlined in relevant guidance documents produced by Natural England and the IAQM for the assessment of air quality impacts on ecological sites (Ref 13-5, Ref 13-29, Ref 13-27) have been applied to roads that traffic data has been provided for and are within 200 m of a designated site.

Potential Impacts

13.5.7 Embedded mitigation measures being incorporated into the design and construction of the Scheme are set out in **Section 13.7**.

13.5.8 Prior to the implementation of any mitigation (embedded or additional), the Scheme has the potential to affect air quality (beneficially or adversely),

during the construction, operational and decommissioning phases in the following ways:

- Increases in road traffic emissions during construction, operational and decommissioning phases at sensitive human and ecological receptor locations.
- Dust deposition, increased PM₁₀ concentrations and impacts on ecological receptors as a result of fugitive dust emissions during the construction, operational (i.e. during solar panel PV and BESS replacement activities) and decommissioning phases of the Scheme.
- NRMM emissions during construction and decommissioning phases.
- Combustion plant emissions from emergency back-up generators at the National Grid Substation.
- BESS fire event emissions.

13.5.9 **Table 13.3** provides a summary of the agreed topics included in this ES chapter.

Table 13.3: Air Quality Scoping Summary

Topic	Construction	Operation	Decommissioning
Potential air quality effects of fugitive dust emissions	Scoped out	Scoped out	Scoped out
Potential air quality effects of NRMM emissions	Scoped out	Scoped out	Scoped out
Potential air quality effects of road traffic emissions on sensitive human receptors	Scoped in	Scoped out	Scoped in
Potential air quality effects of road traffic emissions on sensitive ecological receptors	Scoped in	Scoped out	Scoped in
Potential air quality effects of combustion plant emissions	Scoped out	Scoped out	Scoped out
Potential air quality effects of BESS fire event emissions	Scoped out	Scoped out	Scoped out

Scoped Out

13.5.10 The following effects have been scoped out of the ES as agreed through the Scoping Opinion from PINS (**ES: Appendix 1.2 East Pye Scoping Opinion [EN0110014/APP/6.3.2.2]**) and through subsequent consultation (see **Table 13.1** and **Table 13.2** of this Chapter):

- Effects resulting from road traffic emissions during the operation and maintenance phase at human and ecological receptors. There are anticipated to be a limited number of visits (approximately five) per month for maintenance to the Scheme during the operation and maintenance phase, typically using cars, vans or other light goods vehicles (LGVs), which would be below the relevant the screening criteria outlined in the EPUK & IAQM guidance (Ref 13-1) (see **ES: Appendix 13.2 EPUK & IAQM Screening Criteria [EN0110014/APP/6.3.13.2]**) as confirmed in the **Outline OTMP [EN0110014/APP/7.7]**. Consequently, effects resulting from operational road traffic emissions will be **not significant in EIA terms** and are not assessed in this Chapter of the ES.
- Effects resulting from dust deposition, increased PM₁₀ concentrations and impacts on ecological receptors associated with fugitive dust emissions during the construction, operational (solar PV panel and BESS replacement) and decommissioning phases of the Scheme. The air quality effects of construction, operational and decommissioning phase dust emissions will be **not significant in EIA terms** following the implementation of dust mitigation measures included in the **Outline CEMP [EN0110014/APP/7.1]**, **Outline OEMP [EN0110014/APP/7.2]** and **Outline DEMP [EN0110014/APP/7.3]**. Construction, operational and maintenance, and decommissioning dust effects have been scoped out of the ES, however a dust risk assessment is presented in **ES: Appendix 13.1 Construction and Decommissioning Dust Risk Assessment [EN0110014/APP/6.3.13.1]** to determine appropriate mitigation

measures for inclusion in the **Outline CEMP [EN0110014/APP/7.1]**, **Outline OEMP [EN0110014/APP/7.2]** and **Outline DEMP [EN0110014/APP/7.3]**.

- Effects resulting from NRMM emissions during construction and decommissioning phases. As outlined in the IAQM construction dust guidance (Ref 13-4), impacts from exhaust emissions from NRMM are unlikely to be significant as NRMM must adhere to the emission standards for NO₂ and PM₁₀ set out in outlined in the Road Vehicles and Non-Road Mobile Machinery (Type-Approval) (Amendment and Transitional Provisions) (EU Exit) Regulations 2022 (Ref 13-17) and measures to control NRMM emissions are included in the **Outline CEMP [EN0110014/APP/7.1]** and **Outline DEMP [EN0110014/APP/7.3]**. Consequently, the impacts of NRMM on local air quality will be **not significant in EIA terms** and therefore have been scoped out of the ES.
- Effects resulting from combustion plant emissions from emergency back-up generators at the National Grid Substation. Where connections to the local grid network are not possible the National Grid Substation will be equipped with a backup diesel generator up to 500kVA. This generator is intended to operate in the event of a grid connection failure (power outage). It will also maintain communication and protection systems to ensure a safe restart when power is restored. The specification of the proposed generators has not been defined at this stage however, operation of any back-up generators will be infrequent, typically including routine testing and maintenance (i.e. once monthly) and emergency situations only, and embedded mitigation measures such as an appropriate stack height and Selective Catalytic Reduction (SCR) abatement are available to reduce air quality impacts at sensitive receptor locations. Furthermore, the closest residential receptor is located more than 250 m north of the proposed National Grid Substation. Considering the infrequency of back-up generator operation, distance to sensitive receptor locations and available mitigation, the air quality effects of back-up generator emissions are considered to be **not significant in EIA terms** and have been scoped out of the ES. As secured through the **Outline CEMP [EN0110014/APP/7.1]** detailed assessment of generator emissions should be undertaken once the specification of the generators has been finalised if generator emissions exceed the EPUK & IAQM guidance (Ref 13-1) screening criteria of 5mg/s (**ES: Appendix 13.2 EPUK & IAQM Screening Criteria [EN0110014/APP/6.3.13.2]**).
- Effects resulting from BESS fire event emissions. BESS units will be offset more than 200 m from the closest residential property, as secured in the **Design Principles, Parameters and Commitments [EN0110014/APP/7.18]**. Furthermore, the **Outline BSMP [EN0110014/APP/7.5]** includes measures to protect sensitive receptors from air quality impacts of emissions to air during a fire event. The Outline BSMP will be submitted with the DCO Application and secured by DCO Requirement. Therefore, potential effects from BESS fire event emissions on sensitive receptors in the vicinity of the Order Limits are

considered to be **not significant in EIA terms** and have been scoped out of the ES. However, an assessment of emissions to air during a fire event has been undertaken to understand the potential impacts to sensitive human receptors locations in an emergency situation so that appropriate mitigation measures are included in the Outline BSMP. The assessment of emissions to air during a BESS fire event is provided in an appendix to the **Outline BSMP [EN0110014/APP/7.5]**.

Impact Assessment Methodology

- 13.5.11 The methodology for attributing sensitivity of receptors, magnitude of impacts and the significance of effects scoped into this Chapter is described further below.
- 13.5.12 The assessment considers air quality effects due to construction road traffic emissions on sensitive human and ecological receptors during the construction and decommissioning phases of the Scheme.
- 13.5.13 The relevant AQOs from legislation and guidance that are pertinent to this assessment are set out in **Table 13.4**.

Table 13.4: Relevant Air Quality Objectives

Pollutant	Time Period	Objectives	Source
Human Receptors			
NO₂	1-hour mean	200 µg/m ³ not to be exceeded more than 18 times a year	AQS AQO (Ref 13-14) and AQSR Limit Value (Ref 13-9)
	Annual mean	40 µg/m ³	AQS AQO (Ref 13-14) and AQSR Limit Value (Ref 13-9)
PM₁₀	24-hour mean	50 µg/m ³ not to be exceeded more than 35 times a year	AQS AQO (Ref 13-14) and AQSR Limit Value (Ref 13-9)
	Annual mean	40 µg/m ³	AQS AQO (Ref 13-14) and AQSR Limit Value (Ref 13-9)
PM_{2.5}	Annual mean	20 µg/m ³	AQSR Limit Value (Ref 13-9)
	Annual Mean	10 µg/m ³ by 2040	Environmental Targets Regulations Annual Mean Concentration Target (AMCT) (Ref 13-16)
	Annual Mean	10 µg/m ³ by 2030	Environmental Improvement Plan Interim AMCT (Ref 13-3)
Ecological Receptors			

Pollutant	Time Period	Objectives	Source
NO _x	Annual mean	30 µg/m ³	AQS AQO (Ref 13-14) and AQSR Critical Level (Ref 13-9)
	24-hour mean	75 µg/m ³	World Health Organisation Guideline (Ref 13-31) Ref 13-31
NH ₃	Annual mean	3 µg/m ³ (unless lichens or bryophytes are present, then 1 µg/m ³)	UNECE

Sensitivity of Receptor

13.5.14 DEFRA LAQM.TG(22) (Ref 13-26) defines a sensitive receptor as a location that is representative of human or ecological exposure to a pollutant over the time period of the relevant air quality objectives.

13.5.15 For human receptors, these include outdoor locations where members of the public are likely to be regularly present for the averaging period of the objective (which vary from 15 minutes to a year) as summarised in **Table 13.5**.

Table 13.5: Examples of Locations Where Air Quality Objectives Apply

Averaging Period	Objectives should apply at:	Objectives do not apply at
Annual Mean	All locations where members of the public might be regularly exposed. For example: Building façades of residential properties, schools, hospitals, care homes etc.	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 residences. Kerbside sites. Any other location where public exposure is expected to be short term.
24-hour mean, and 8-hour mean	All locations where the annual mean AQO would apply, together with hotels and gardens of residences.	Kerbside sites. Any other location where public exposure is expected to be short term.
1-hour mean	All locations where the annual mean and 24 and 8-hour mean AQOs apply as well as: Kerbside sites. Those parts of car parks, bus stations and railway stations etc. which are not fully	Kerbside locations where the public would not be expected to have regular access.

Averaging Period	Objectives should apply at:	Objectives do not apply at
	enclosed, where members of the public might 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.	
15-minute mean	All locations where members of the public might reasonably be regularly exposed for a period of 15 minutes or longer.	

13.5.16 For ecological receptors, these are considered within the following designations when there are features present which are sensitive to air pollution concentrations or deposition:

- Ramsar sites;
- Special Areas of Conservation (SACs);
- Special Protection Areas (SPAs);
- Sites of Special Scientific Interest (SSSIs);
- National Nature Reserves (NNRs);
- Local Nature Reserves (LNRs);
- County Wildlife Sites (CWS); and
- Ancient Woodlands.

13.5.17 All human receptors identified in this assessment are considered to be of ‘high’ sensitivity. This is because the air quality objectives only apply where there is relevant exposure (such as residential properties and educational facilities). Furthermore, air quality impacts are only assessed within ecological sites with features present that are sensitive to air pollution and therefore all ecological receptor locations assessed are considered to be of ‘high’ sensitivity.

Magnitude of Impact

Human Receptors

13.5.18 In relation to air quality impacts on human receptors, there is no official guidance in the UK on how to assess the significance of the air quality impacts of a new development on receptors. The approach developed by EPUK and the IAQM (Ref 13-1), which considers the change in air quality as a result of a scheme on receptors in combination with baseline concentrations at the receptors is used.

13.5.19 The guidance sets out three stages, namely: determining the magnitude of change at each receptor; describing the impact; and assessing the overall significance. Impact magnitude relates to the change in pollutant concentration; and the impact description relates this change to the AQO and is shown in **Table 13.6**.

13.5.20 The terminology in **Table 13.5** has been adapted to be consistent with EIA terminology used in this ES. Therefore, a ‘slight’ impact in the EPUK & IAQM guidance (Ref 13-1) is described as a ‘minor’ impact in this Chapter and a ‘substantial’ impact in the IAQM guidance is described as ‘major’ impact in this Chapter.

Table 13.6: IAQM Impact Descriptors

Long Term Average Concentrations at Receptor in Assessment Year	% Change in Concentration relative to AQO			
	1	2-5	6-10	>10
> 110 % a	Moderate	Major	Major	Major
>102% - ≤110% b	Moderate	Moderate	Major	Major
>95% - ≤102% c	Minor	Moderate	Moderate	Major
>75% - ≤95% d	Negligible	Minor	Moderate	Moderate
≤75% e	Negligible	Negligible	Minor	Moderate

Where concentrations increase the impact is described as adverse, and where it decreases as beneficial. % change rounded to nearest whole number. Where the % change is 0 (i.e. less than 0.5%) the impact will be ‘negligible’.

a NO₂ or PM₁₀: > 44 µg/m³ annual mean; PM_{2.5} >22 µg/m³ annual mean; PM₁₀ >35.2 µg/m³ annual mean (days).

b NO₂ or PM₁₀: > 40.8 – ≤ 44 µg/m³ annual mean; PM_{2.5} > 20.4 – ≤22 µg/m³ annual mean; PM₁₀ >32.64 – ≤35.2 µg/m³ annual mean (days).

c NO₂ or PM₁₀: > 38 – ≤40.8 µg/m³ annual mean; PM_{2.5} >19 – ≤20.4µg/m³ of annual mean; PM₁₀ >30.4 – ≤32.64 µg/m³ annual mean (days).

d NO₂ or PM₁₀: >30 - ≤38 µg/m³ annual mean; PM_{2.5} >15 - ≤19 µg/m³ annual mean; or <24 - ≤ 30.4 µg/m³ annual mean (days).

e NO₂ or PM₁₀: ≤30 µg/m³ annual mean; PM_{2.5} ≤15 µg/m³ annual mean; PM₁₀ ≤24 µg/m³ annual mean (days).

13.5.21 It should be noted that where traffic flows resulting from the Scheme are less than the EPUK & IAQM screening criteria (Ref 13-1) set out in **ES: Appendix 13.2 EPUK & IAQM Screening Criteria [EN0110014/APP/6.3.13.2]**, the change in concentration relative to the AQO is accepted as being <0.5% and the impact magnitude will therefore be ‘negligible’.

Ecological Receptors

13.5.22 In relation to ecological receptors, Natural England guidance (Ref 13-5) (Ref 13-29) indicates that a detailed (quantitative) air quality assessment of impacts is required if there are sensitive habitats (within designated sites) within 200 m of a road with a ‘potentially significant change’ as a result of the Scheme. If there are no designated sites containing sensitive habitats within

200 m of the affected road, then no further assessment is required as research shows that there is no credible risk of a significant effect beyond 200 m from a road.

13.5.23 The potentially significant change could be associated with realignment (i.e. increased proximity to receptors), changes to speed (>10 kph) or traffic flow. The applied screening criteria for changes in road traffic flows is a change of total traffic flows of more than 1,000 AADT and a change in HDV flows of more than 200 AADT.

13.5.24 This change in traffic flows has been shown to not have the potential to result in changes to annual NO_x in excess of 0.3 µg/m³ (1% of the critical level) within a few metres of roadside (Ref 13-5). Changes in traffic flows below the 1,000 AADT (or HDV flows of less than 200 AADT) criteria are therefore not considered to have the potential to result in a significant effect which might undermine a site's conservation objectives when applied for the Scheme alone (for all non-statutory and statutory designated sites) and in combination with cumulative developments (for SSSIs and internationally designated sites only).

Categorising Scale of Effect

Human Receptors

13.5.25 The EPUK & IAQM guidance (Ref 13-1) notes that the impact descriptors are for individual receptors only and states that the overall assessment of significance should be based on professional judgement, taking into account factors including:

- The number of properties affected by 'minor', 'moderate' or 'major' adverse air quality impacts and a judgement on the overall balance;
- The magnitude of the changes and the descriptions of the impacts at the receptors;
- Whether or not an exceedance of an AQO is predicted to arise in the study area (where there are significant changes in traffic) where none existed before, or an exceedance area is substantially increased;
- The uncertainty, comprising the extent to which worst-case assumptions have been made; and
- The extent to which an AQO or limit value is exceeded.

13.5.26 Consequently, where impacts on an individual human receptor are classified as 'negligible' or 'minor', effects would be considered 'not significant'. However, where 'moderate' or 'major' adverse impacts are identified at individual human receptors, the overall effect needs to be considered in context. A judgement is then made as to whether the overall air quality effect of the Scheme on human receptors is 'significant' or not.

Ecological Receptors

- 13.5.27 Where the road traffic impact of the Scheme is less than 1,000 AADT on roads within 200 m of an ecological receptor, the effects of road traffic emissions are considered to be 'not significant'.
- 13.5.28 Where a detailed assessment of air quality impacts on ecological receptors is undertaken, an impact of less than 1% of the critical level or load is outlined in Natural England's approach on the assessment of road traffic emissions (Ref 13-5) as a suitable threshold for determining no likely significant effects. An impact of more than 1% is not, per se, an indication that a significant effect exists, only the possibility of one which would trigger the need for further, more detailed assessment of the ecological sensitivity and value of the habitat.
- 13.5.29 For air quality impacts on ecological receptors, where the predicted impact exceeds 1%, consideration needs to be given to the overall critical level or load. Where the critical level or load is exceeded, consideration will be given to the potential significance of the impact and resultant effects.

13.6 Baseline Conditions

The Order Limits

- 13.6.1 The Scheme is located within the administrative areas of NCC and SNC who are the host authorities. A full description of the Order limits is provided in **ES: Chapter 4 The Scheme [EN0110014/APP/6.1.4]**.

Existing Baseline

- 13.6.2 This section describes the existing baseline conditions for the air quality assessment.

LAQM

- 13.6.3 The Order Limits are within the administrative boundary of SNC. The Joint 2025 ASR for SNC and the neighbouring local authority, BDC, states that neither of the Councils have declared any AQMAs. The nearest AQMA to the Order Limits is the Central Norwich AQMA, declared by Norwich City Council due to exceedances of the annual mean NO₂ AQO, approximately 9.6 km from the closest part of the Order Limits (Sub-Site 8B).
- 13.6.4 SNC monitors NO₂ concentrations for LAQM purposes at a number of passive (diffusion tube) monitoring locations. The closest monitoring location to the Order Limits is 'DT20' located along the A140 in Long Stratton, approximately 800 m west of CRC 4 at its closest point. The closest and most representative monitoring locations to the Order Limits are described in **Table 13.7** and their locations are shown in **ES: Figure 13.1 Local Authority Air Quality Monitoring Locations [EN0110014/APP/6.2.13.1]**.

Table 13.7: Measured Annual Mean NO₂ Concentrations 2020 - 2024

Site ID	Site Type	Annual Mean NO ₂ (µg/m ³)				
		2020	2021	2022	2023	2024
DT3 – 90 The Street, Poringland	Suburban	12.6	13.4	13.3	12.1	11.6
DT7 – A140 Long Stratton	Roadside	24.6	27.3	25.8	24.4	23.7
DT18 – Long Stratton (LS) Chinese	Roadside	18.0	20.4	20.0	18.9	17.4
DT19 – LS Traffic Light East	Roadside	23.3	24.4	24.3	22.8	21.5
DT20 – LS Funeral Directors	Suburban	19.6	21.0	21.8	21.1	18.2
DT21 – LS Southbound 60 m	Suburban	21.1	23.4	21.6	20.2	18.6
DT22 – LS Swan Land Co-op	Roadside	15.0	15.5	16.1	15.1	14.4
DT25 – LS Bus Stop	Roadside	19.8	21.2	21.1	19.8	19.0
AQO		40				

13.6.5 Measured NO₂ concentrations at the closest monitoring location to the Order Limits, DT20 (as shown on **ES: Figure 13.1 Local Authority Air Quality Monitoring Locations [EN0110014/APP/6.2.13.1]**) have been well below the annual mean AQO between 2020 – 2024. There have been no reported exceedances of the annual mean NO₂ AQO in South Norfolk for many years and measured concentrations have also below 60 µg/m³, indicating that it is unlikely that any exceedances of the 1-hour mean NO₂ AQO have occurred. There is a generally decreasing trend in concentrations over time, which is in accordance with national trends (Ref 13-32).

Indicative Monitoring

13.6.6 SNC also undertakes monitoring of NO₂, PM₁₀ and PM_{2.5} concentrations for indicative purposes using two Earthsense Zephyr monitors within their administrative area. The closest Zephyr monitor is located adjacent to the A140 in Long Stratton, approximately 990 m northwest of CRC 4 at its closest point.

13.6.7 Indicative data for Long Stratton Zephyr monitor is provided in **Table 13.8**, and its location is shown in **ES: Figure 13.1 [EN0110014/APP/6.2.13.1]**. Monitoring began at this location on 7th August 2024 and data has been provided up to the 12th November 2025. Annual data capture for 2024 was 40% whilst data capture for 2025 up to the date data has been provided for is 86%. As data capture during 2024 was low, data from this year should be treated with caution.

13.6.8 The measured 2024 and 2025 period mean concentrations at the Long Stratton Zephyr monitor are well below the AQOs and PM_{2.5} interim AMCT.

Table 13.8: Measured Concentrations 2024 and 2025 at Long Stratton Zephyr Monitor

Site ID	Site Type	Period Mean NO ₂ (µg/m ³)		Period Mean PM ₁₀ (µg/m ³)		Period Mean PM _{2.5} (µg/m ³)	
		2024	2025	2024	2025	2024	2025
Zephyr 1516 – A140 Long Stratton	Roadside	23.7	21.7	10.9	11.2	7.1	7.6
AQO		40		40		20 / 10	

Background Concentrations

13.6.9 Estimated background concentrations for the grid squares that cover the Order Limits have been obtained from the latest 2021-based national maps published by DEFRA (Ref 13-6) and are provided in **Table 13.9**. A range of concentrations is given where the Sites / Sub-Sites cover more than one 1 km grid square and the concentration varies across grid squares.

13.6.10 The predicted background concentrations across the Order Limits are all well below the relevant AQOs.

Table 13.9: Estimated Background Concentration across the Order Limits in the 2025

Site / Sub-Site	2025 Annual Mean Concentration (µg/m ³)			
	NO _x	NO ₂	PM ₁₀	PM _{2.5}
Sub-Site 1A	6.9	5.5	11.7 - 12.1	5.7
Sub-Site 1C	6.9	5.5	12.1	5.7
Sub-Site 1D	6.8	5.4	12.6 - 12.6	5.7
Sub-Site 2A	6.8 - 7.2	5.4 - 5.7	11.5 - 12.9	5.6 - 5.8
Sub-Site 2B	6.8 - 7.2	5.4 - 5.7	12.4 - 12.9	5.7 - 5.8
Sub-Site 2C	6.8 - 7.2	5.4 - 5.7	12.4 - 12.8	5.7 - 5.8
Site 3	6.7 - 6.9	5.4 - 5.5	11.3 - 11.9	5.5 - 5.6
Sub-Site 4A	7.2 - 7.8	5.7 - 6.2	10.8 - 13	5.7 - 5.8
Sub-Site 4B	7.4 - 7.6	5.9 – 6.0	13.0	5.8 - 5.9
Sub-Site 5A	7.0 - 7.1	5.5 - 5.6	11.5 - 12.6	5.6 - 5.7

Site / Sub-Site	2025 Annual Mean Concentration ($\mu\text{g}/\text{m}^3$)			
	NO _x	NO ₂	PM ₁₀	PM _{2.5}
Sub-Site 5B	7.0 - 7.1	5.5 - 5.6	11.5 - 12.6	5.7
Site 6	6.9 – 7.0	5.5 - 5.6	11.9 - 12.5	5.7
Sub-Site 7A	7.3 - 7.8	5.8 - 6.2	10.8 – 11.0	5.6 - 5.7
Sub-Site 7B	7.1	5.6	11.5 - 11.5	5.6 - 5.7
Sub-Site 7C	7.0 - 7.3	5.6 - 5.8	11.0 - 11.7	5.6 - 5.7
Sub-Site 7D	7.0 - 7.1	5.6	11.5 - 12.4	5.6 - 5.7
Sub-Site 7E	7.0	5.6	11.5 - 11.7	5.6
Sub-Site 7F	7.0 - 7.1	5.6	11.5 - 12.4	5.6 - 5.7
Sub-Site 7G	7.0	5.6	11.5 - 11.7	5.6
Sub-Site 7H	7.0	5.6	11.5 - 12.9	5.6 - 5.7
Sub-Site 7I	7.0	5.6	11.5 - 12.9	5.6 - 5.7
Sub-Site 7J	7.0	5.6	11.5 - 12.9	5.6 - 5.7
Sub-Site 7K	7.0 - 7.1	5.6	11.7 - 12.9	5.7
Sub-Site 7L	7.0	5.6	12.5 - 12.9	5.7
Sub-Site 8A	7.1	5.6 - 5.7	11.4 - 11.8	5.6 - 5.7
Sub-Site 8B	7.1	5.7	11.4	5.6
Site 9	7.2 - 7.4	5.7 - 5.8	11.3 - 12.5	5.7 - 5.8
Sub-Site 10A	7.1	5.6	12.3	5.8
Sub-Site 10C	7.1 - 7.2	5.7	12.5 - 12.6	5.8
Sub-Site 10D	7.2	5.7	12.5	5.8
Sub-Site 10E	7.2	5.7	12.1 - 12.2	5.8
CRC1	6.8 - 6.9	5.4 - 5.5	12.1 - 12.5	5.7
CRC2	6.8 - 7.1	5.4 - 5.6	12.5 - 12.9	5.7
CRC3	7.1	5.6	12.9	5.8
CRC4	6.8 - 7.7	5.4 - 6.1	11.7 - 16	5.6 - 6.1
CRC6	6.9 - 7.1	5.5 - 5.7	11.5 - 13.4	5.6 - 5.8

Site / Sub-Site	2025 Annual Mean Concentration ($\mu\text{g}/\text{m}^3$)			
	NO _x	NO ₂	PM ₁₀	PM _{2.5}
CRC7	7.1	5.6	11.5	5.6 - 5.7
CRC8	7.0	5.5 - 5.6	11.5 - 12.9	5.6 - 5.7
CRC9	7.0 - 7.1	5.6 - 5.7	12.5 - 12.7	5.7 - 5.8
CRC10	7.0 - 7.1	5.6	11.5 - 11.8	5.6 - 5.7
CRC11	7.3	5.8	11.0	5.6
CRC12	7.0 - 7.1	5.6	11.5 - 11.7	5.6
CRC13	7.1 - 7.2	5.7	11.4 - 11.7	5.6 - 5.7
CRC14	7.2	5.7 - 5.7	11.2 - 12.1	5.7 - 5.8
BESS Site	6.8	5.4	11.5	5.6
LSR1 & LSR2	6.8	5.4	11.5	5.6
LSR3	7.2	5.7	12.4 - 12.9	5.7 – 5.8
LSR4	7.2	5.7	12.9	5.8
LIR	8.0	6.3	11.7	6.2
LHL	7.2	5.7	12.1	5.8
LCH	7.3 – 7.6	5.8 – 6.0	11.4 – 11.9	5.7
AQOs	30^a	40^b	40^b	20^b / 10^b

a. Only applies at ecological receptor locations.
 b. Only applies at human receptor locations.

Future Baseline

13.6.11 This Section considers changes to the baseline conditions as far as changes can be established, that might occur in the absence of the Scheme coming forward during the time period over which the Scheme would be in place. The future baseline scenarios are set out in **ES: Chapter 2 EIA Methodology [EN0110014/APP/6.1.2]**.

13.6.12 It is anticipated that there will be reduction in pollutant concentrations overtime in the future. This is due to reduction in background pollutant concentrations and vehicle emissions as a result of replacement of older vehicles in the vehicle fleet with newer vehicles (zero tailpipe emission and Euro 6/IV engine emission standards). Furthermore, decarbonisation of the vehicle fleet and a movement towards Net Zero, through Government policies such as the Transport Decarbonisation Plan (Ref 13-33Ref 13-33)

and Net Zero Highways Plan (Ref 13-34) are also expected to deliver future air quality improvements.

- 13.6.13 Estimated background concentrations for the grid squares that cover the Order Limits have been obtained from the latest 2021-based national maps published by DEFRA (Ref 13-6) and are provided in **Table 13.10** for the Scheme energisation year in 2031.
- 13.6.14 The predicted background concentrations across the Order Limits are all well below the relevant AQOs and demonstrate a reduction in concentrations overtime when compared to **Table 13.9**. Furthermore, PM_{2.5} concentrations are well below the interim AMCT for PM_{2.5} of 10 µg/m³ to be achieved by 2030.

Table 13.10: Estimated Background Concentration across the Order Limits in the 2031

Site / Sub-Site	2031 Annual Mean Concentration (µg/m ³)			
	NO _x	NO ₂	PM ₁₀	PM _{2.5}
Sub-Site 1A	5.7	4.5 - 4.6	11.2 - 11.7	5.3
Sub-Site 1C	5.7	4.5	11.7	5.3
Sub-Site 1D	5.6	4.5	12.1 - 12.1	5.3
Sub-Site 2A	5.6 - 5.7	4.5 - 4.6	11.0 - 12.5	5.2 - 5.4
Sub-Site 2B	5.6 - 5.8	4.5 - 4.6	11.9 - 12.5	5.3 - 5.4
Sub-Site 2C	5.6 - 5.8	4.5 - 4.6	11.9 - 12.3	5.3 - 5.4
Site 3	5.6 - 5.7	4.5 - 4.6	10.9 - 11.4	5.1 - 5.2
Sub-Site 4A	5.9 - 6.2	4.7 - 5.0	10.3 - 12.6	5.3 - 5.4
Sub-Site 4B	6.0 - 6.1	4.8 - 4.9	12.5 - 12.6	5.4 - 5.5
Sub-Site 5A	5.7 - 5.8	4.6	11.1 - 12.1	5.2 - 5.3
Sub-Site 5B	5.7 - 5.8	4.6 - 4.7	11.0 - 12.1	5.3 - 5.3
Site 6	5.7 - 5.8	4.6	11.4 - 12.0	5.2 - 5.3
Sub-Site 7A	5.9 - 6.2	4.7 - 5.0	10.3 - 10.5	5.2 - 5.3
Sub-Site 7B	5.8	4.6 - 4.7	11.0 - 11.1	5.2 - 5.3
Sub-Site 7C	5.8 - 5.9	4.6 - 4.7	10.5 - 11.2	5.2 - 5.3
Sub-Site 7D	5.8 - 5.9	4.6 - 4.7	11.0 - 11.9	5.2 - 5.3
Sub-Site 7E	5.8	4.6	11.0 - 11.2	5.2

Site / Sub-Site	2031 Annual Mean Concentration ($\mu\text{g}/\text{m}^3$)			
	NO _x	NO ₂	PM ₁₀	PM _{2.5}
Sub-Site 7F	5.8 - 5.9	4.6 - 4.7	11.0 - 11.9	5.2 - 5.3
Sub-Site 7G	5.8	4.6	11.0 - 11.2	5.2
Sub-Site 7H	5.8	4.6	11.0 - 12.4	5.2 - 5.3
Sub-Site 7I	5.8	4.6	11.0 - 12.4	5.2 - 5.3
Sub-Site 7J	5.8	4.6	11.0 - 12.4	5.2 - 5.3
Sub-Site 7K	5.8 - 5.9	4.6 - 4.7	11.2 - 12.4	5.3
Sub-Site 7L	5.8	4.6 - 4.7	12.0 - 12.4	5.3
Sub-Site 8A	5.8 - 5.9	4.7	10.9 - 11.4	5.2
Sub-Site 8B	5.9	4.7	10.9 - 11.0	5.2
Site 9	5.9 - 6.1	4.7 - 4.9	10.8 - 12.0	5.3 - 5.4
Sub-Site 10A	5.8 - 5.9	4.7	11.8 - 11.9	5.3 - 5.4
Sub-Site 10C	5.9 - 6.0	4.7 - 4.8	12.0 - 12.1	5.4
Sub-Site 10D	6.0	4.8	12.0	5.4
Sub-Site 10E	6.0	4.8	11.6 - 11.7	5.3 - 5.4
CRC1	5.6 - 5.7	4.5	11.7 - 12.1	5.3
CRC2	5.6 - 5.7	4.5 - 4.6	12.1 - 12.5	5.3 - 5.4
CRC3	5.7	4.6	12.5	5.4
CRC4	5.6 - 6.2	4.5 - 5.0	11.2 - 15.5	5.2 - 5.7
CRC6	5.7 - 5.9	4.6 - 4.7	11.0 - 12.9	5.2 - 5.4
CRC7	5.8	4.6 - 4.7	11.0 - 11.1	5.2 - 5.3
CRC8	5.7 - 5.8	4.6 - 4.7	11.0 - 12.4	5.2 - 5.3
CRC9	5.8 - 5.9	4.7	12.0 - 12.2	5.3 - 5.4
CRC10	5.8	4.6 - 4.7	11.0 - 11.4	5.2
CRC11	5.9	4.7	10.5 - 10.5	5.2
CRC12	5.8	4.6 - 4.7	11.0 - 11.2	5.2
CRC13	5.9	4.7	11.0 - 11.3	5.2 - 5.3

Site / Sub-Site	2031 Annual Mean Concentration ($\mu\text{g}/\text{m}^3$)			
	NO _x	NO ₂	PM ₁₀	PM _{2.5}
CRC14	5.9 – 6.0	4.8	10.7 - 11.6	5.3
BESS Site	5.6	4.5	11.0	5.2
LSR1 & LSR2	5.6	4.5	11.0	5.2
LSR3	5.7	4.6	12.0 – 12.4	5.3 – 5.4
LSR4	5.7	4.6	12.4	5.4
LIR	6.4	5.1	11.3	5.7
LHL	5.9	4.7	11.6	5.4
LCH	6.0 – 6.2	4.8 – 5.0	10.9 – 11.4	5.3
AQOs	30^a	40^b	40^b	20^b / 10^b

a. Only applies at ecological receptor locations.
 b. Only Applies at human receptor locations.

13.7 Embedded Mitigation

13.7.1 Likely environmental effects have been or will be avoided, minimised, mitigated or reduced through design measures and/or management of the Scheme, as outlined in this Section. Proposed environmental enhancements are also described where relevant.

Embedded Construction Phase Mitigation

13.7.2 The following embedded mitigation measures have been incorporated into the Scheme’s design for the construction phase:

- Commitments made within the **Outline CEMP [EN0110014/APP/7.1]**. The Outline CEMP will be submitted with the DCO Application, with the **draft DCO [EN0110014/APP/3.1]** including a requirement that a detailed CEMP be prepared substantially in accordance with the OCEMP. Air quality specific measures to mitigate against construction dust, NRMM and road traffic emission impacts have been incorporated into the Outline CEMP.
- **The Outline Construction Traffic Management Plan (OCTMP) [EN0110014/APP/7.6]** provides a framework for the management of construction vehicle movements to and from the Scheme. A number of measures within the Outline CTMP will minimise air quality impacts from construction road traffic including:

- Use of construction compounds for materials consolidation and distribution.
 - Delivery scheduling.
 - Defined construction vehicle routes.
 - Construction working days and times that are limited.
 - A Construction Worker Travel Plan (CWTP).
- A Framework Construction Worker Travel Plan is provided in Section 8 of the **Outline CTMP [EN0110014/APP/7.6]** with the aim of promoting sustainable transport for workers during the Scheme's construction phase. The Framework Construction Worker Travel Plan includes measures such as staff minibus services, Travel Plan coordinator and provision of bicycle parking facilities. A final CTMP, including a final CWTP, will be secured via a DCO requirement and approved by the LPA in consultation with relevant stakeholders.

Embedded Operation and Maintenance Phase Mitigation

13.7.3 The following embedded mitigation measures have been incorporated into the Scheme's design for the operation and maintenance phase:

- The Scheme does not include a centralised combustion-based energy centre.
- Sensitive routing and siting of infrastructure which have been considered throughout the design process such as locating BESS Containers/Compound a minimum of 200 m from the nearest residential receptor location as secured in the **Design Principles, Parameters and Commitments [EN0110014/APP/7.18]**.
- Creation of new woodland belts and native tree planting and restoration of key hedgerows which can be beneficial in terms of trapping and absorption of air pollutants.
- The **Outline Landscape and Ecology Management Plan (OLEMP) [EN0110014/APP/7.4]** seeks to increase green infrastructure, where appropriate.
- Measures included in the **Outline BSMP [EN0110014/APP/7.5]**. The Outline BSMP will be submitted with the DCO Application, with the draft DCO including a requirement that a detailed BSMP be prepared substantially in accordance with the Outline BSMP. Mitigation measures include notification of potentially affected residents including advice on the health effects of smoke and ways to reduce exposure (e.g. close windows and stay indoors) in the event of a BESS fire.

- An **Outline OEMP [EN0110014/APP/7.2]** and **Outline Operational Traffic Management Plan (Outline OTMP) [EN0110014/APP/7.7]** will be submitted with this DCO Application, focusing on maintenance and replacement aspects. A final OEMP and OTMP will be secured via DCO requirement and approved by the LPA in consultation with relevant stakeholders. Air quality specific measures to mitigate against dust and NRMM emissions during panel replacement activities have been incorporated into the Outline OEMP. The Outline OTMP includes measures to reduce emissions from operational road traffic such as reducing worker car trips during replacement activities.

Embedded Decommissioning Phase Mitigation

13.7.4 The following embedded mitigation measures have been incorporated into the Scheme design for the decommissioning phase:

- The decommissioning phase would be programmed in order to minimise transportation effects and subsequent air quality effects. This would include the consolidation of wastes and exports to minimise the quantum of vehicle movements. Those movements would be assigned to the network such that the effects would be no greater than during the construction phase.
- An **Outline DEMP [EN0110014/APP/7.3]** will be submitted with the DCO Application and sets out the principles as to how the decommissioning phase will initially be mitigated and managed. Air quality specific measures to mitigate against decommissioning dust, NRMM and road traffic emission impacts have been incorporated into the Outline DEMP.
- The **Draft Development Consent Order [EN0110014/APP/3.1]** includes a Requirement that a detailed Decommissioning Environmental Management Plan would be prepared substantially in accordance with the **Outline Decommissioning Environmental Management Plan [EN0110014/APP/7.3]** and approved by the relevant authorities at the time of decommissioning, in advance of the commencement of decommissioning works and would including timescales and transportation methods. The detailed Decommissioning Strategy will ensure that decommissioning is undertaken safely with regard to the environmental legislation at the time of decommissioning.

Consideration of PM_{2.5}

13.7.5 In accordance with DEFRA's PM_{2.5} Targets: Interim Planning Guidance (Ref 13-2), specific consideration has been given to mitigating PM_{2.5} emissions and exposure to PM_{2.5} resulting from the Scheme.

- 13.7.6 As discussed in **Section 13.6**, baseline PM_{2.5} concentrations in the study area are not expected to exceed the interim AMCT of 10 µg/m³.
- 13.7.7 The embedded mitigation listed in the previous section contains several measures which will contribute towards reducing PM_{2.5} emissions associated with the Scheme, as well as reducing exposure to PM_{2.5} for surrounding receptors. These measures include:
- Measures to reduce worker vehicle movements during the construction phase through the Framework Construction Worker Travel Plan provided in the **Outline CTMP [EN0110014/APP/7.6]**.
 - The Scheme does not include a centralised combustion-based energy centre.
 - Creation of new woodland belts and native tree planting and restoration of key hedgerows and green infrastructure provisions set out in the LEMP **[EN0110014/APP/7.4]**.
 - Construction traffic routing defined in the **Outline CTMP [EN0110014/APP/7.6]** to avoid, where possible, routing through the villages of Great Moulton, Long Stratton, Hempnall, Saxlingham Nethergate and Brooke.

13.8 Assessment of Likely Effects

- 13.8.1 This section identifies and characterises potential air quality impacts arising during the construction and decommissioning phases of the Scheme.
- 13.8.2 Taking into account the embedded mitigation measures as detailed in **Section 13.7**, the potential for the likely effects of the Scheme on air quality receptors was assessed using the methodology as detailed in **Section 13.5** of this Chapter. In the sections below, effects scoped into this ES chapter during the construction and decommissioning phases of the Scheme are assessed for air quality receptors.
- 13.8.3 Any additional mitigation required to reduce these effects is then set out in **Section 13.9**. Thereafter, an assessment is made of the significance of any residual effects after all mitigation measures have been accounted for.

Construction Phase

Potential Effects from Construction Road Traffic Emissions

Sensitive Human Receptors

13.8.4 The daily peak traffic flows for the peak construction year are presented in **Table 13.11**.

Table 13.11: Predicted Daily Construction Traffic Flows for the Scheme in the Peak Construction Year

Link	Location	Scheme AADT Flows		
		LDVs	HDVs	All Vehicles
01	A140 (North of B1527)	228	67	295
02	B1527	132	38	170
03	A140 (South of B1527)	154	67	221
04	Bungay Road	0	0	0
05	Fairstead Lane (West)	78	22	100
06	Norwich Road	0	0	0
07	Broaden Lane	0	0	0
08	Littlebeck Lane	22	6	28
09	Shotesham Road	62	20	82
10	B1332 (North)	125	6	131
11	Harvey Lane	52	14	66
12	B1527 (Woodton)	122	50	172
13	B1332 (South)	66	70	136
14	Alburgh Road	30	8	38
15	The Street	16	5	21
16	Lodge Rd	0	0	0
17	B1134	60	38	98
18	The Green	0	0	0

Link	Location	Scheme AADT Flows		
		LDVs	HDVs	All Vehicles
19	Wash Lane	0	0	0
20	Baxter's Lane	0	0	0
21	A140 (South of B1134)	76	67	143
22	Spring Lane	22	6	28
23	The Krons	78	22	100
24	Fairstead Lane (East)	0	0	0
25	Fylands Road	22	3	25
26	Bussey's Loke	22	3	25
27	Heath Road	22	8	30
28	Market Lane	12	4	16
29	Wood Lane	0	0	0
30	Edge's Lane	0	0	0
HR 1A-B	Haul Route Sub-Sites 1A-B	9	9	18
HR BESS	Haul Route BESS Site	11	3	14
HR 2A-C	Haul Route Sub-Sites 2A-C	10	4	14
HR 3	Haul Route Site 3	6	2	8
HR 6	Haul Route Site 6	2	1	3
HR 4A	Haul Route Sub-Site 4A	4	2	6
HR 4B	Haul Route Sub-Site 4B	6	2	8
HR 5A-B	Haul Route Sub-Sites 5A-B	9	3	12
HR 7A-C	Haul Route Sub-Sites 7A-C	10	4	14
HR 7D-F	Haul Route Sub-Sites 7D-F	12	4	16
HR 7G-J	Haul Route Sub-Sites 7G-J	6	2	8
HR 7K-L	Haul Route Sub-Sites 7K-L	5	2	7
HR 8A	Haul Route Sub-Site 8A	3	1	4

Link	Location	Scheme AADT Flows		
		LDVs	HDVs	All Vehicles
HR 8B	Haul Route Sub-Site 8B	3	1	4
HR 9	Haul Route Sub-Site 9	6	2	8
HR 10A-E	Haul Route Sub-Sites 10A-E	14	5	19

13.8.5 The greatest increase in total AADT traffic flow on any road as a result of the Scheme is predicted to be a total flow of 295 AADT (228 LDVs and 67 HDVs). This increase in road traffic is expected to occur on Link 01 - the A140 (north of the B1527). The greatest increase in HDV AADT (70 AADT) traffic flow on any road as a result of the Scheme is expected to occur on Link 13 - the B1332 Norwich Road to the east of the Order Limits routing onto the A143.

13.8.6 Furthermore, the Project Transport Consultant, Stantec, confirmed that no development HDVs will route through the Norwich AQMA and this has been secured in the **Outline CTMP [EN0110014/APP/7.6]**. Whilst a small number of LDV trips associated with construction staff movements will likely come from Norwich, these will be less than 100 AADT.

13.8.7 The increases in road traffic as a result of the Scheme during the construction phase are well below the EPUK & IAQM guidance (Ref 13-1) screening criteria presented in **ES: Appendix 13.2 EPUK & IAQM Screening Criteria [EN0110014/APP/6.3.13.2]** within and outside of an AQMA. Therefore, the impacts of road traffic emissions associated with the Scheme on pollutant concentrations at human receptors are considered to be **negligible**. The overall air quality effects of road traffic emissions during the construction phase on human receptors will be **not significant in EIA terms**.

Sensitive Ecological Receptors

13.8.8 The impacts on ecological receptor locations within 200 m of a road with an increase in traffic flows resulting from the Scheme have initially been assessed taking into account the screening criteria presented in **Section 13.5** for the impacts of the Scheme alone.

13.8.9 **Table 13.11** shows that there are no roads which are predicted to experience an increase in road traffic as a result of the Scheme exceeding the screening criteria of 1,000 total AADT or 200 HDV AADT when considering the Scheme alone. Therefore, the impacts of road traffic emissions associated with the Scheme on pollutant concentrations and deposition at ecological receptors are considered to be **negligible**. The

overall air quality effects as a result of road traffic emissions associated with the Scheme alone on all sensitive ecological receptors will be **not significant in EIA terms**.

Decommissioning Phase

Potential Effects from Decommissioning Road Traffic Emissions

Sensitive Human Receptors

- 13.8.10 The decommissioning phase is not anticipated to exceed the number of vehicles forecast during the construction phase, and it is expected that the decommissioning phase will be similar in duration to the construction phase. This is as the decommissioning phase will include similar activities to the construction phase, but in reverse, in addition to the removal of Project Substations (excluding the National Grid substation), the BESS, Solar PV Panels, Mounting Structures, above ground cabling, and Conversion Units / 33Kv Sub-Distribution Switch Rooms. As such, similar impacts are anticipated to those during the construction phase, subject to changes in technology and construction techniques. The number of vehicles required for the decommissioning of the CRC will also be lower as the underground ducting and jointing baya are anticipated to be left in situ to minimise adverse environmental effects, and the National Grid Substation and Grid Connection Infrastructure will not be decommissioned.
- 13.8.11 Furthermore, it is anticipated that there will be reduction in pollutant concentrations over the lifetime of the Scheme due to reduction in background pollutant concentrations and vehicle emissions as a result of replacement of older vehicles in the vehicle fleet with newer vehicles (zero tailpipe emission and Euro 6/IV engine emission standards). Furthermore, decarbonisation of the vehicle fleet and a movement towards Net Zero, through Government policies such as the Transport Decarbonisation Plan (Ref 13-33) and Net Zero Highways Plan (Ref 13-34) are also expected to deliver future air quality improvements.
- 13.8.12 Therefore, the road traffic emission impacts of the Scheme during the decommissioning period are expected to be no worse than the construction phase which are assessed as being **negligible**. The air quality effects of decommissioning phase road traffic on sensitive human receptors are considered to be **not significant in EIA terms**.

Sensitive Ecological Receptors

- 13.8.13 For reasons stated above, it is considered that the road traffic emission impacts of the Scheme during the decommissioning period will be no worse than the construction phase which are assessed as being negligible. The air quality effects from decommissioning phase road traffic on sensitive ecological receptors are considered to be **not significant in EIA terms**.

13.9 Additional Mitigation Measures

13.9.1 As no significant effects have been identified above for receptors during any phase of the Scheme once embedded mitigation is taken into account, no additional mitigation measures for the Scheme are required.

13.10 Residual Effects

13.10.1 As there are no additional mitigation measures identified, the residual effects will remain unchanged as those reported above in the assessment of likely effects (**Section 13.8**).

13.11 Cumulative Effects Assessment

13.11.1 This Section presents an assessment of cumulative effects between the Scheme and other existing and/or approved developments.

13.11.2 As set out in **ES: Chapter EIA Methodology [EN0110014/APP/6.1.2]**, a Cumulative Effects Assessment (CEA) has been undertaken as part of the EIA in accordance with PINS Advice on Cumulative Effects Assessment (September 2024) and has considered two types of cumulative effects.

- In combination effects: the combined effect generated by individual effects on a particular receptor (presented within **ES: Chapter 19 In-Combination Effects [EN0110014/APP/6.1.19]**); and
- Cumulative effects: effects generated by the Scheme and other planned or approved developments on the same receptor (presented in **ES: Chapter 6 to 18**).

Cumulative Effects

13.11.3 Cumulative effects may arise as a result of effects associated with the Scheme combining with effects associated with other developments. The list of developments has been narrowed down to focus on those developments which are most likely to give rise to cumulative effects. A long-list was generated which was then refined following consultation with relevant planning authorities, this short-list forms the basis of this assessment.

13.11.4 The shortlist of cumulative developments/allocations can be found in **ES: Appendix 2.4: Cumulative Schemes [EN0110014 /APP/6.3.2.4]**.

Cumulative Effects Assessment

Construction Phase

Sensitive Human Receptors

- 13.11.5 The cumulative traffic flows for the Scheme and committed developments combined in the peak construction year (2029) are presented in **Table 13-12**.
- 13.11.6 The EPUK & IAQM screening criteria (Ref 13-1) (see **ES: Appendix 13.2 EPUK & IAQM Screening Criteria [EN0110014/APP/6.3.13.2]**) are predicted to be exceeded on Links 01, 03 and 21 - the A140 (north and south of the B1527 and south of the B1134, respectively). The greatest increase in cumulative total AADT traffic flow is predicted to be a total flow of 1,387 AADT (581 LDVs and 806 HDVs) on Link 01 - the A140 (north of the B1527). The changes in cumulative traffic flows on all remaining road links presented in **Table 13-12** do not exceed the EPUK & IAQM screening criteria.
- 13.11.7 In relation to air quality impacts on existing human receptor locations adjacent to the A140, the EPUK & IAQM guidance (Ref 13-1) states that *'the criteria provided are precautionary and should be treated as indicative. They are intended to function as a sensitive 'trigger' for initiating assessment in cases where there is a possibility of a significant effect arising on local air quality. This possibility will, self-evidently, not be realised in many cases'*.
- 13.11.8 The increases in road traffic associated with the Scheme alone on the A140 (and all remaining road links) are well below the EPUK & IAQM screening criteria of 500 LDV AADT and 100 HDV AADT. On the A140 (north of B1527), the increase in road traffic resulting from the Scheme is 295 total AADT (including 67 HDV AADT), whereas the increase in traffic resulting from committed developments is predicted to be 1,092 total AADT (including 739 HDV AADT). The Scheme therefore contributes a small portion to the total cumulative traffic flow
- 13.11.9 Baseline conditions have been reviewed to understand whether the increase in cumulative traffic flow could result in exceedances of the AQOs. The maximum measured annual mean NO₂ concentration in 2024 at any of the SNC monitoring locations adjacent to the A140 was 23.7 µg/m³ (see **Table 13.7**) and was therefore well below the AQO of 40 µg/m³. Indicative PM₁₀ and PM_{2.5} monitoring at the Zephyr monitor on the A140 also suggests that PM₁₀ and PM_{2.5} concentrations are well below the AQOs (see **Table 13.8**). NO₂, PM₁₀ and PM_{2.5} concentrations are expected to improve by the peak construction year (as demonstrated by predicted reductions in background pollutant concentrations presented in **Table 13.9** and **Table 13.10**).
- 13.11.10 The increase in road traffic as a result of the Scheme and committed developments is therefore not considered likely to result in any exceedances of the AQOs. Furthermore, the construction phase will be for a relatively

short-period and construction traffic movements will be controlled through the **Outline CTMP [EN0110014/APP/7.6]** which also includes measures aimed at minimising construction staff trips.

- 13.11.11 Overall, taking into account baseline conditions and mitigation measures in place, the cumulative effect of construction phase road traffic emissions is considered to be **not significant in EIA terms**.

Table 13.12: Predicted Daily Construction Cumulative Traffic Flows for the Scheme and Committed Development in the Peak Construction Year

Link	Location	Scheme AADT Flows			Committed Development AADT Flows			Total Cumulative AADT Flows		
		LDVs	HDVs	All Vehicles	LDVs	HDVs	All Vehicles	LDVs	HDVs	All Vehicles
01	A140 (North of B1527)	228	67	295	353	739	1,092	581	806	1,387
02	B1527	132	38	170	150	0	150	282	38	320
03	A140 (South of B1527)	154	67	221	353	739	1,092	507	806	1,313
04	Bungay Road	0	0	0	0	0	0	0	0	0
05	Fairstead Lane (West)	78	22	100	0	0	0	78	22	100
06	Norwich Road	0	0	0	0	0	0	0	0	0
07	Broaden Lane	0	0	0	0	0	0	0	0	0
08	Littlebeck Lane	22	6	28	0	0	0	22	6	28
09	Shotesham Road	62	20	82	0	0	0	62	20	82
10	B1332 (North)	125	6	131	75	0	75	200	6	206
11	Harvey Lane	52	14	66	0	0	0	52	14	66
12	B1527 (Woodton)	122	50	172	0	0	0	122	50	172

Link	Location	Scheme AADT Flows			Committed Development AADT Flows			Total Cumulative AADT Flows		
		LDVs	HDVs	All Vehicles	LDVs	HDVs	All Vehicles	LDVs	HDVs	All Vehicles
13	B1332 (South)	66	70	136	75	0	75	141	70	211
14	Alburgh Road	30	8	38	0	0	0	30	8	38
15	The Street	16	5	21	0	0	0	16	5	21
16	Lodge Rd	0	0	0	0	0	0	0	0	0
17	B1134	60	38	98	0	0	0	60	38	98
18	The Green	0	0	0	0	0	0	0	0	0
19	Wash Lane	0	0	0	0	0	0	0	0	0
20	Baxter's Lane	0	0	0	0	0	0	0	0	0
21	A140 (South of B1134)	76	67	143	278	739	1,017	354	806	1,160
22	Spring Lane	22	6	28	0	0	0	22	6	28
23	The Krons	78	22	100	0	0	0	78	22	100
24	Fairstead Lane (East)	0	0	0	0	0	0	0	0	0
25	Fylands Road	22	3	25	0	0	0	22	3	25
26	Bussey's Loke	22	3	25	0	0	0	22	3	25

Link	Location	Scheme AADT Flows			Committed Development AADT Flows			Total Cumulative AADT Flows		
		LDVs	HDVs	All Vehicles	LDVs	HDVs	All Vehicles	LDVs	HDVs	All Vehicles
27	Heath Road	22	8	30	0	0	0	22	8	30
28	Market Lane	12	4	16	0	0	0	12	4	16
29	Wood Lane	0	0	0	0	0	0	0	0	0
30	Edge's Lane	0	0	0	0	0	0	0	0	0

Sensitive Ecological Receptors

- 13.11.12 For SSSIs and internationally designated sites, an assessment of cumulative air quality impacts of the Scheme and other projects and plans is required in accordance with Natural England guidance (Ref 13-5). **Table 13.12** presents the in-combination traffic flows for the Scheme and committed developments. These have been compared against the screening criteria in **Section 13.5** and an assessment of in-combination air quality effects on SSSIs and internationally designated sites in the study area is presented in **Table 13.13**.
- 13.11.13 Based on the assessment presented in **Table 13.13** for each ecological site, the overall air quality effect as a result of road traffic emissions associated with the Scheme in-combination with committed developments on all sensitive ecological receptors will be **not significant in EIA terms**.

Table 13.13: Assessment of Cumulative Road Traffic Emission Effects on Ecological Receptors

Ecological Site	Assessment
The Broads SAC	<p>Parts of the SAC are within 200 m of major roads in the area including the A47 New Road (approximately 15 km from the Order Limits), and the A146 Beccles Road (approximately 16 km from the Order Limits). All remaining parts of the SAC are either more than 200 m from adjacent roads or within 200 m of minor roads where no development traffic flows are expected.</p> <p>The cumulative AADT flow on the B1332 Norwich Road (link ID 13 in Table 13-12), travelling southeast of the Scheme, in the direction of the A146 Beccles Road, is 211 total AADT (70 HDV AADT). Therefore, cumulative traffic flows will not exceed the 1,000 total AADT or 200 HDV AADT screening criteria on the A146 Beccles Road adjacent to the Broads SAC.</p> <p>The cumulative AADT flow on the A140 (north of B1527) (link ID 1 in Table 13-12), travelling north of the Scheme, in the direction of the A47 New Road, is 1,387 total AADT (806 HDV AADT). There are a number of junctions between the A140 and the A47 New Road within 200 m of part of the Broads SAC and Scheme traffic will further distribute at these junctions. The Project Transport Consultants, Stantec, have provided additional estimated traffic flows for the A47 New Road (east of Acle) adjacent to the Broads SAC; a total cumulative AADT flow of 277 AADT (161 HDV AADT) is predicted on the A47 New Road (east of Acle). As such, cumulative traffic flows are predicted to be below the 1,000 total AADT or 200 HDV AADT screening criteria on the A47 New Road adjacent to the Broads SAC.</p> <p>The cumulative effect of road traffic emissions on the sensitive ecological receptors within the Broads SAC is considered to be not significant.</p>
Broadland Ramsar	<p>As the Broadland Ramsar overlaps the Broads SAC designation at the A47 New Road and A146 Beccles Road, for reasons stated above for the Broads SAC, the cumulative effect of road traffic emissions on the sensitive ecological receptors within the Broadland Ramsar is considered to be not significant.</p>
Norfolk Valley Fens SAC	<p>The closest part of the Norfolk Valley Fens SAC to the Order Limits is adjacent to The Street and Marsh Lane, Flordon (approximately 2 km west of the Order Limits). There are predicted to be no scheme or committed development flows on these roads.</p> <p>Remaining parts of the Norfolk Valley Fens SAC are either more than 200 m from the nearest road or are adjacent to minor roads which will not be used by construction traffic associated with the Scheme or are located more than 20 km from the Order Limits.</p> <p>The cumulative effect of road traffic emissions on the sensitive ecological receptors within the Norfolk Valley Fens SAC is considered to be not significant.</p>
Pulham Market Big Wood SSSI	<p>Pulham Market Big Wood SSSI is located within 200 m of Wood Lane (link ID 29 in Table 13-12) and approximately 190 m from CRC4. There are predicted to be no scheme or committed development traffic flows on Wood Lane.</p>

Ecological Site	Assessment
	The cumulative effect of road traffic emissions on the sensitive ecological receptors within the Pulham Market Big Wood SSSI is considered to be not significant .
Shotesham-Woodton Hornbeam Woods SSSI	There are two SSSI units within the Shotesham-Woodton Hornbeam Woods located within 200 m of roads: The Green and Market Lane. Cumulative traffic flows on these roads, link IDs 18 and 28 in Table 13-12 , respectively, are well below the 1,000 total AADT or 200 HDV AADT screening criteria. The cumulative effect of road traffic emissions on the sensitive ecological receptors within the Shotesham-Woodton Hornbeam Woods SSSI is considered to be not significant .
Flordon Common SSSI	For reasons stated above for the Norfolk Valley Fens SAC, which overlays the Flordon Common SSSI designation, the cumulative effect of road traffic emissions on the sensitive ecological receptors within the Flordon Common SSSI is considered to be not significant .
Hedenham Wood SSSI	Hedenham Wood SSSI is located within 200 m of Seething Road and approximately 140 m from Sub-Site 10B. There are predicted to be no scheme or committed development traffic flows on Seething Road. The cumulative effect of road traffic emissions on the sensitive ecological receptors within the Hedenham Woods SSSI is considered to be not significant .
Fritton Common SSSI	Fritton Common SSSI is located adjacent to The Street (Fritton) and approximately 600 m from Sub-Site 5B. The cumulative traffic flow on ID 15 – The Street (Table 13-12) is 21 AADT (5 HDV AADT) and therefore well below the 1,000 total AADT or 200 HDV AADT screening criteria. The cumulative effect of road traffic emissions on the sensitive ecological receptors within the Fritton Common SSSI is considered to be not significant .
Tindall Wood, Ditchingham SSSI	The only road which the SSSI is located within 200 m of a small farm access track. There are predicted to be no scheme or committed development traffic flows on this road. The cumulative effect of road traffic emissions on the sensitive ecological receptors within the Tindall Wood, Ditchingham SSSI is considered to be not significant .
Shotesham Common SSSI	The SSSI is located adjacent to Norwich Road (Shotesham). No scheme or committed development traffic is predicted to travel along Norwich Road (link 6 in Table 13-12). The cumulative effect of road traffic emissions on the sensitive ecological receptors within the Shotesham Common SSSI is considered to be not significant .
Leet Hill, Kirby Cane SSSI	Leet Hill, Kirby Cane SSSI is located within 200 m of A143 Yarmouth Road and approximately 7 km from Sub-site 10B. Traffic data for the A143 are not available, however, the cumulative AADT flow on the B1332 Norwich Road (link ID 13 in Table 13-12), travelling southeast of the Scheme in the direction of the A143 Yarmouth Road, is 211 total AADT (70 HDV AADT). Therefore, cumulative traffic flows are not predicted to exceed the 1,000 total AADT or 200 HDV AADT screening criteria on the A143 Yarmouth Road, within 200 m of the Leet Hill, Kirby Cane SSSI.

Ecological Site	Assessment
	The cumulative effect of road traffic emissions on the sensitive ecological receptors within the Leet Hill, Kirby Cane SSSI is considered to be not significant .
Sexton Wood SSSI	<p>Sexton Wood SSSI is located adjacent to Sexton Road and Banham's Lane, approximately 2.2 km south of Sub-Site 10A. Scheme-related traffic is not predicted to use either Sexton Road or Banham's Lane. The closest road expected to experience an increase in traffic resulting from the Scheme is the B1332 Norwich Road which is located more than 200 m north of the SSSI.</p> <p>The cumulative effect of road traffic emissions on the sensitive ecological receptors within the Sexton Wood SSSI is considered to be not significant.</p>

Decommissioning Phase

Sensitive Human Receptors

- 13.11.14 The decommissioning phase is not anticipated to exceed the number of vehicles forecast during the construction phase, and it is expected that the decommissioning phase will be similar in duration to the construction phase.
- 13.11.15 Furthermore, it is anticipated that there will be reduction in pollutant concentrations over the lifetime of the Scheme due to reduction in background pollutant concentrations and vehicle emissions as a result of replacement of older vehicles in the vehicle fleet with newer vehicles (zero tailpipe emission and Euro 6/IV engine emission standards). Furthermore, decarbonisation of the vehicle fleet and a movement towards Net Zero, through Government policies such as the Transport Decarbonisation Plan (Ref 13-33) and Net Zero Highways Plan (Ref 13-34) are also expected to deliver future air quality improvements.
- 13.11.16 Therefore, it is considered that the cumulative effects of the Scheme during the decommissioning period will be no worse than the construction phase and the effects from decommissioning phase road traffic on sensitive human receptors is considered to be **not significant in EIA terms**.

Sensitive Ecological Receptors

- 13.11.17 For reasons stated above, it is considered that the cumulative effects of the Scheme during the decommissioning period will be no worse than the construction phase and the effects from decommissioning phase road traffic on sensitive ecological receptors is considered to be **not significant in EIA terms**.

13.12 Conclusion

13.12.1 This Chapter has set out and assessed the likely effects of the Scheme in relation to air quality. Likely effects have been assessed for the construction and decommissioning phases of the Scheme. Following the implementation of embedded and additional mitigation as detailed in **Section 13.7** and **13.9** respectively, residual effects have not been identified in relation to air quality during the construction and decommissioning phases.

13.12.2 **Table 13.14** sets out a summary of the air quality environmental effects.

Table 13.14: Summary of Residual Effects for Air Quality

Receptor	Sensitivity	Description of Impact	Magnitude of Impact	Scale and Nature of Effect	Significant/Not Significant
Construction Phase					
Human receptors	High	Increases in NO ₂ , PM ₁₀ and PM _{2.5} concentrations resulting from road traffic emissions.	Negligible	Not significant	Not significant
Ecological receptors	High	Increases in NO _x , NH ₃ concentrations, and nitrogen and acid deposition resulting from road traffic emissions.	Negligible	Not significant	Not significant
Decommissioning Phase					
Human receptors	High	Increases in NO ₂ , PM ₁₀ and PM _{2.5} concentrations resulting from road traffic emissions.	Negligible	Not significant	Not significant
Ecological receptors	High	Increases in NO _x , NH ₃ concentrations, and nitrogen and acid deposition resulting from road traffic emissions.	Negligible	Not significant	Not significant

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