The Sizewell C Project

6.6 Volume 5 Two Village Bypass

Chapter 5 Air Quality

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Contents

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None provided.

Appendices

Appendix 5A: Dust risk assessment for two village bypass.

5 AIR QUALITY

5.1 Introduction

5.1.1 This chapter of **Volume 5** of the **Environmental Statement** (**ES**) (Doc. Ref. 6.6) presents an assessment of the air quality effects arising from the construction and operational use of the two village bypass (referred to throughout this volume as the 'proposed development'). This includes an assessment of potential impacts, the significance of effects, the requirements for mitigation and the residual effects.

5.1.2 Detailed descriptions of the two village bypass site (referred to throughout this volume as the 'site'), the proposed development and the different phases of development are provided in **Chapters 1** and **2** of this volume of the **ES**. A glossary of terms and list of abbreviations used in this chapter is provided in **Appendix 1A** of **Volume 1** of the **ES**.

5.1.3 This assessment has been informed by the **Transport Assessment** (Doc Ref. 8.5), in particular the road traffic data which has been modelled to assess the potential impacts from road traffic emissions in the vicinity of the proposed development.

5.1.4 This assessment has also been informed by data presented in the following technical appendices:

- **Volume 2, Appendix 12B** of the **ES**: Transport Emissions Assessment; and
- **Appendix 5A** of this volume: Dust Risk Assessment for the two village bypass.

5.2 Legislation, policy and guidance

5.2.1 **Appendix 6H** of **Volume 1** of the **ES** identifies and describes legislation, policy and guidance of relevance to the assessment of the potential air quality impacts associated with the Sizewell C Project across all **ES** volumes.

5.2.2 This section provides an overview of the specific legislation, policy and guidance of relevance to the air quality assessment of the proposed development.

a) International

5.2.3 International legislation relating to the air quality assessment include:

- European Ambient Air Quality Directive 2008 (2008/50/EC) (Ref. 5.1); and
- Fourth Air Quality Daughter Directive 2004 (2004/107/EC) (Ref. 5.2).

5.2.4 The requirements of these, as relevant to the air quality assessment, are set out in **Appendix 6H** of **Volume 1** of the **ES**.

b) National

5.2.5 National legislation and policies relating to the air quality assessment include:

- Air Quality Standards Regulations 2010 (Ref. 5.3); and
- National Air Quality Strategy (Ref. 5.4).

5.2.6 The requirements of these, as relevant to the air quality assessment, are set out in **Appendix 6H** of **Volume 1** of the **ES**.

5.2.7 The Overarching National Policy Statement for Energy (NPS EN-1) (Ref. 5.5), and the National Policy Statement for Nuclear Power Generation (NPS EN-6) (Ref. 5.6) set out requirements for air quality associated with the development of major energy infrastructure. These requirements are discussed in detail in **Appendix 6H** of **Volume 1** of the **ES**.

c) Regional

- Regional legislation and policies relating to the air quality assessment include the Suffolk Local Transport Plan Parts 1 and 2 (Ref. 5.7).

5.2.8 The requirements of these, as relevant to the air quality assessment, are set out in **Appendix 6H** of **Volume 1** of the **ES**.

d) Local

5.2.9 Local policies relating to the air quality assessment include:

- Suffolk Coastal District Council Core Strategy and Development Management Policies (Ref. 5.8); and

- Suffolk Coastal District Council Final Draft Local Plan (Ref. 5.9).

5.2.10 Details of these, as relevant to the air quality assessment, are set out in **Appendix 6H** of **Volume 1** of the **ES**.

e) Guidance

5.2.11 Guidance relating to the air quality assessment include:

- Highways England's Sustainability & Environment Appraisal LA 105 Air Quality (Ref. 5.10);
- Institute of Air Quality Management (IAQM) and Environmental Protection UK Land Use Planning & Development Control: Planning for Air Quality (Ref. 5.11);
- IAQM: Guidance on the Assessment of Dust from Demolition and Construction Sites (Ref. 5.12);
- IAQM: A guide to the assessment of air quality impacts on designated nature conservation sites (Ref. 5.13); and
- National Atmospheric Emissions Inventory emission factors (Ref. 5.14).

5.2.12 Further details of this guidance, as relevant to the air quality assessment, are set out in **Appendix 6H** of **Volume 1** of the **ES**.

5.3 Methodology

a) Scope of the assessment

5.3.1 The generic Environmental Impact Assessment (EIA) methodology is detailed in **Volume 1**, **Chapter 6** of the **ES**.

5.3.2 The full method of assessment for air quality that has been applied for the Sizewell C Project is detailed in **Appendix 6H** of **Volume 1** of the **ES**.

5.3.3 This section provides specific details of the air quality methodology applied to the assessment of the proposed development, and a summary of the general approach to provide appropriate context for the assessment that follows. The scope of assessment considers the impacts of the construction and operation of the proposed development. Consideration has been given to air quality effects arising from construction dust (arising

from construction activities and non-road mobile machinery (NRMM)) and road traffic emissions (during both construction and operation).

5.3.4 The scope of this assessment has been established through a formal EIA scoping process undertaken with the planning inspectorate. A request for an EIA scoping opinion was initially issued to the planning inspectorate in 2014, with an updated request issued in 2019, see **Appendix 6A** of **Volume 1** of the **ES**.

5.3.5 Comments raised in the EIA scoping opinion received in 2014 and 2019 have been taken into account in the development of the assessment methodology. These are detailed in **Appendices 6A** to **6C** of **Volume 1** of the **ES**, including project-wide comments. Site-specific scoping comments and their response are detailed in **Table 5.1**.

Table 5.1: Site-specific scoping comments.

Consultation Body.	Comment	Response
East Suffolk Council.	It is unknown at this point whether increases in heavy goods vehicles (HGVs) through villages on the A12 would be substantial enough to affect the risk of exceeding the annual mean and 1-hour NO_2 Air Quality Objectives (AQOs). The applicant has stated that they will share their preliminary dispersion modelling results before the final EIA submission. These preliminary results will inform a view on whether a bypass is required for the other villages from an air quality point of view.	Preliminary assessment of likely effects at receptors on the A12 have been completed and were shared with relevant consultation bodies. The final assessment are reported in the air quality assessments presented in **Volume 2 to 9** of the **ES** including any feedback from the consultation exercise.

b) Consultation

5.3.6 The scope of the assessment has also been informed by ongoing consultation and engagement with statutory consultees throughout the design and assessment process. Consultation on the assessment methodology and conclusions for the main development site and associated developments, including the two village bypass, has been undertaken with Suffolk Coastal Council and East Suffolk Council. A summary of consultation relating to the air quality assessment is provided in **Appendix 6H** of **Volume 1** of the **ES.**

c) Study area

5.3.7 The geographical extent of the study area, determined using the methodology set out in **Appendix 6H** of **Volume 1** of the **ES**, for dust emissions includes:

- the proposed development site; and

- the area within 350 metres (m) from the site boundary, and 350m from public roads up to 500m from any location where vehicles transition from site onto the public highway.

5.3.8 The study area for road traffic emissions is an area 500m from the site boundary which includes the section of the A12 that the proposed development bypasses and the A1094. The changes to air pollutant concentrations on the wider transport network are considered in the Transport Emissions Assessment which is provided in **Appendix 12B** of **Volume 2** of the **ES**.

5.3.9 The study area and the location of representative receptors considered within this assessment are illustrated on **Figure 5.1** of this volume.

d) Assessment scenarios

5.3.10 The assessment scenarios for the proposed development comprise of the construction phase and operational phase. The assessment scenarios are as follows:

- Construction – consideration of ambient air quality and dust impacts during the construction of the proposed development during the early years of construction of the Sizewell C Project (2023). The construction programme is likely to take place over a total duration of up to 24 months. The assessment is divided into on-site emissions from construction activities and off-site emissions from road traffic movements.

- Operation – the proposed development would be operational during the peak construction phase of the Sizewell C Project. The proposed development will be permanent, and would be offered for adoption to the relevant highway authority as part of the road network after completion of the Sizewell C main development site. The assessment considers the emissions to atmosphere from road traffic using the proposed development during the peak construction year of the Sizewell C Project (2028), and during operation of the Sizewell C power station (2034). The assessment for the operational phase of the proposed development scenarios also covers off-site emissions from road traffic movements.

5.3.11 The traffic composition and flow data come from the **Transport Assessment** for the baseline, construction (2023) and operation (2028 and

2034) scenarios. This information is inherently cumulative as it includes traffic flows associated with consented developments.

e) Assessment criteria

5.3.12 As described in **Appendix 6H** of **Volume 1** of the **ES**, the EIA methodology considers whether impacts of the proposed development would have an effect on any resources or receptors.

5.3.13 A detailed description of the assessment methodology used to assess the potential effects on the air quality arising from the proposed development is provided in **Appendix 6H** of **Volume 1** of the **ES**. A summary of the approach and assessment criteria used in this assessment is presented in the following sub-sections.

i. Construction dust

5.3.14 The assessment of construction dust effects is determined by considering the magnitude of impacts and sensitivity of receptors that could be affected in order to classify effects.

5.3.15 The significant effects for construction phase dust emissions (including use of NRMM) are determined using professional judgement based on the risk of dust impacts, and the appropriateness of mitigation to control emissions of dust and exhaust emissions from NRMM identified within the **Code of Construction Practice** (**CoCP**) (Doc Ref. 8.11).

5.3.16 A detailed description of the assessment methodology used to assess the potential effects on air quality arising from construction dust and exhaust emissions from NRMM is provided in **Appendix 6H** of **Volume 1** of the **ES**. A summary of the criteria used in this assessment is presented in the following sub-sections.

Sensitivity

5.3.17 The assessment of assigning the levels of sensitivity to receptors is set out in **Table 5.2**.

Table 5.2: Assessment of the value or sensitivity of receptors for air quality.

Sensitivity	Human Perception of Dust Soiling Effects.	Particulate Matter (PM_{10}) Health Effects.	Ecological Dust Deposition Effects.
High	Experience a high level of amenity; appearance, aesthetics, or value of property would be diminished by dust soiling;	Public present for eight hours per day or more, for example residential, schools, care homes.	International/national designation and the designated feature is sensitive to dust soiling effects, for example special

Sensitivity	Human Perception of Dust Soiling Effects.	Particulate Matter (PM_{10}) Health Effects.	Ecological Dust Deposition Effects.
	and receptor expected to be present continuously, or regularly for example residential, museums, car showrooms or commercial horticulture.		areas of conservation for acid heathlands, or lichens, vascular species on the red data book (Joint Nature Conservation Committee).
Medium	Enjoy a reasonable level of amenity; appearance, aesthetics or value of property could be diminished by dust soiling; receptor not expected to be present continuously/regularly; for example, parks or places of work.	Only workforce present (no residential or high sensitivity receptors) eight hours per day or more.	Important plant species - unknown sensitivity to dust soiling; national designation which may be sensitive, for example site of special scientific interest with dust sensitive feature.
Low	Enjoyment of amenity not reasonably expected; appearance, aesthetics or value of property not diminished by soiling; receptors are transient/present for limited period of time; for example, playing fields, farmland, footpaths, short-term car parks* and roads.	Transient human exposure, for example footpaths, playing fields, parks.	Local designation where feature may be sensitive to dust soiling, for example local nature reserve.

**subject to typical usage, could be high sensitivity depending on the duration and frequency that cars would be expected to be parked there, and the level of amenity expected.*

Magnitude

5.3.18 The magnitude of risk to air quality from construction dust is based on the IAQM (Ref. 5.12) suggested criteria.

5.3.19 The descriptors used to classify the potential magnitude of emissions from construction and demolition activities is the first step in establishing the risks to air quality using the classifications shown in **Table 5.3**.

Table 5.3: Dust emission magnitude classification.

Magnitude	Demolition	Earthworks	Construction	Trackout
High	Total building volume greater than 50,000m^3, potentially dusty construction material (for example concrete) on-site crushing and screening, demolition activities greater than 20m above ground.	Site area greater than 1 hectare (ha), potentially dusty soil type (for example clay), greater than ten heavy earth moving vehicles at once, bunds greater than 8m high, total material moved greater than 100,000 tonnes.	Total building volume greater than 100,000m^3, on-site concrete batching, sandblasting.	Greater than 50 heavy duty vehicles (HDV)[1] (greater than 3.5 tonnes) peak outward movements per day, potentially dusty surface material (for example high clay content), unpaved road length greater than 100m.
Medium	Total building volume 20,000-50,000m^3, potentially dusty construction material, demolition activities 10-20m above ground.	Site area 0.25-1ha, moderately dusty soil type (for example silt), five to ten heavy earth moving vehicles at once, bunds 4-8m high, total material moved 20,000-100,000 tonnes.	Total building volume 25,000-100,000m^3, potentially dusty materials for example concrete, on-site concrete batching.	Ten to fifty HDV (greater than 3.5 tonnes) peak outward movements per day, moderately dusty surface material (for example high clay content), unpaved road length 50-100m.
Low	Total building volume less than 20,000m^3, construction material with low potential for dust (for example metal/timber), demolition activities less than 10m above ground, demolition during wetter months.	Site area less than 0.25, large grain soil type (for example sand), less than five heavy earth moving vehicles at once, bunds less than 4m high, total material moved less than 20,000 tonnes.	Total building volume less than 25,000m^3, low dust potential construction materials for example metal/timber.	Less than ten HDV (greater than 3.5 tonnes) peak outward movements per day, surface material low dust potential, unpaved road length less than 50m.

[1] The term heavy duty vehicles (HDV) is used as an extension of heavy good vehicles (HGVs) to include consideration of other heavy vehicles, for examples buses and/or coaches

Effect definitions

5.3.20 The risk definitions for dust emissions during different activities are shown in **Table 5.4** to **Table 5.6**.

Table 5.4: Risk of dust impacts - demolition.

Sensitivity of Area.	Potential Dust Emission Magnitude Without Applied Mitigation.		
	Large	Medium	Small
High	High risk.	Medium risk.	Medium risk.
Medium	High risk.	Medium risk.	Low risk.
Low	Medium risk.	Low risk.	Negligible risk.

Table 5.5: Risk of dust impacts – earthworks and construction.

Sensitivity of Area.	Potential Dust Emission Magnitude Without Applied Mitigation.		
	Large	Medium	Small
High	High risk.	Medium risk.	Low risk.
Medium	Medium risk.	Medium risk.	Low risk.
Low	Low risk.	Low risk.	Negligible risk.

Table 5.6: Risk of dust impacts - trackout.

Sensitivity of Area.	Potential dust emission magnitude without applied mitigation.		
	Large	Medium	Small
High	High risk.	Medium risk.	Low risk.
Medium	Medium risk.	Low risk.	Negligible risk.
Low	Low risk.	Low risk.	Negligible risk.

5.3.21 Based on the risk level of dust impacts, suitable mitigation should be applied to reduce the potential effects from dust emissions. The significance of dust effects is determined based on the mitigation proposed.

ii. Transport emissions

5.3.22 A detailed description of the assessment methodology used to assess the potential effects on air quality arising from the proposed development is provided in **Appendix 6H** of **Volume 1** of the **ES**.

5.3.23 A summary of the assessment descriptors used in the Transport Emissions Assessment as seen in **Volume 2, Appendix 12B** of the **ES**, is presented in the following sub-sections.

Magnitude

5.3.24 The magnitude of impact from transport emissions is based on IAQM (Ref. 5.11) suggested descriptors.

5.3.25 The descriptors for the assessment of magnitude are shown in **Table 5.7**.

Table 5.7: Assessment of transport emission magnitude of impact on air quality.

Magnitude of Change Descriptor.	Substance	Annual Mean Concentration (µg/m^3).	Justification
High	Nitrogen dioxide (NO_2) and particulate matter (PM_{10}).	Increase/decrease greater than 4.	Change in concentration relative to air quality objective value of greater than 10%.
	Particulate matter ($PM_{2.5}$).	Increase/decrease greater than 2.5.	
Medium	NO_2 and PM_{10}.	Increase/decrease 2 to 4.	Change in concentration relative to air quality objective value of between 6% and 10%.
	$PM_{2.5}$	Increase/decrease 1.4 to 2.5.	
Low	NO_2 and PM_{10}.	Increase/decrease 0.8 to 1.9.	Change in concentration relative to air quality objective value of between 2% and 5%.
	$PM_{2.5}$	Increase/decrease 0.5 to 1.3.	
Very Low.	NO_2 and PM_{10}.	Increase/decrease 0.4 to 0.7.	Change in concentration relative to air quality objective value of 1%.
	$PM_{2.5}$	Increase/decrease 0.3 to 0.4.	
Imperceptible	NO_2 and PM_{10}.	Increase/decrease less than 0.4.	Change in concentration relative to air quality objective value of less than 1%.
	$PM_{2.5}$	Increase/decrease less than 0.3.	

Effect definition

5.3.26 The definitions of effect of road traffic emissions for air quality are shown in **Table 5.8** and **Table 5.9**.

Table 5.8: Effect descriptors for annual mean NO_2 and PM_{10}.

Annual Mean Pollutant Concentration at Receptor in Assessment Year (µg/m^3).	Magnitude of Impact.				
	Imperceptible	Very Low.	Low	Medium	High
Less than or equal to 30.2	Negligible	Negligible	Negligible	Minor	Moderate
Greater than 30.2 to 37.8.	Negligible	Negligible	Minor	Moderate	Moderate
Greater than 37.8 to 41.1.	Negligible	Minor	Moderate	Moderate	Major
Greater than 41.1 to less than 43.8.	Negligible	Moderate	Moderate	Major	Major
Greater than or equal to 43.8	Negligible	Moderate	Major	Major	Major

Table 5.9: Effect descriptors for annual mean $PM_{2.5}$.

Annual Mean Pollutant Concentration at Receptor in Assessment Year (µg/m^3).	Magnitude of Impact.				
	Imperceptible	Very Low.	Low	Medium	High
Less than or equal to 18.9.	Negligible	Negligible	Negligible	Minor	Moderate
Greater than 18.to 23.6.	Negligible	Negligible	Minor	Moderate	Moderate
Greater than 23.6 to 25.6.	Negligible	Minor	Moderate	Moderate	Major
Greater than 25.6 to less than 27.4.	Negligible	Moderate	Moderate	Major	Major
Greater than or equal to 27.4.	Negligible	Moderate	Major	Major	Major

5.3.27 Following the classification of an effect as presented in **Table 5.8** and **Table 5.9**, a clear statement is made as to whether the effect is 'significant' or 'not significant'. As a general rule, major and moderate effects are considered to be significant, and minor and negligible effects are

considered to be not significant. However, professional judgement is also applied where appropriate. Where there is an increase in pollutant concentration resulting from the proposed development, the effect is adverse. Where there is a decrease in pollutant concentration, the effect is beneficial.

f) Assessment methodology

5.3.28 The methodology for the assessment of changes in air pollutant concentrations is set out in detail within **Appendix 6H** of **Volume 1** of the **ES**. The general approach is described in the following sections.

5.3.29 The change in air quality conditions are considered at receptors that are representative of changes that would occur at other sensitive receptors located nearby. The representative receptors (shown in **Figure 5.1**) are those located closest to the site boundary, and the affected road network within the study area.

5.3.30 The magnitude of change in air pollutant concentrations or construction dust deposition rates will be greatest at these representative receptor locations. Assessment of the representative receptors therefore represents a worst-case assessment of the potential construction dust effects. The sensitivity of individual representative receptors to construction dust is set out in **Appendix 5A** of this volume.

5.3.31 All receptors are considered to be of equal sensitivity to transport emissions as any member of the public could be present, including more sensitive members such as the young, elderly or unwell. Assessment of the representative receptors therefore represents a worst-case assessment of the potential transport emission effects.

i. Construction dust

5.3.32 The assessment of likely changes in emissions of coarse particulate matter (PM_{10} and dust) has been considered at the nearest representative receptor in all directions from the site boundary. Coarse particulate matter has been assessed as this can have adverse effects on human health, amenity and ecology where levels exceed their objective values, as set out in **Appendix 6H** of **Volume 1** of the **ES**.

5.3.33 The assessment considers the risk of the following construction activities giving rise to perceptible changes in dust deposition rates and the changes in concentrations of PM_{10} in air:

- earthworks (including vegetation and site clearance and stockpiling of soils);
- construction (including construction of new road, signage and landscaping); and
- trackout (HDV movements on unpaved surfaces and mud transferred onto the highway, up to 500m from site exit).

5.3.34 Taking into account the sensitivity of receptors to these changes, the effectiveness of mitigation measures set out in the **CoCP**, is considered based on the professional judgement of a suitably qualified and experienced person.

5.3.35 Where the risk of a significant effect is identified, additional site-specific mitigation measures will be proposed so that there are no likely significant residual effects.

ii. Transport emissions

5.3.36 The Transport Emissions Assessment as provided in **Appendix 12B** of **Volume 2** of the **ES** details the technical dispersion modelling method and predicted air pollutant concentrations resulting from HDVs, light duty vehicles, and rail traffic for all scenarios of the Sizewell C Project on the wider transport network. NO_2, PM_{10} and $PM_{2.5}$ are assessed as these can cause adverse effects to human health and ecology at levels exceeding their objective values.

5.3.37 The traffic model includes data for all associated developments and the Sizewell C main development site, therefore the study area for the Transport Emissions Assessment as seen in **Appendix 12B** of **Volume 2** of the **ES** extends from Lowestoft to Ipswich for the Sizewell C Project. However, for the purpose of this assessment, the roads likely to be affected by the proposed development within the study area include the A12 and the A1094, which were modelled within the Transport Emissions Assessment as seen in **Appendix 12B** of **Volume 2** of the **ES**. Traffic emissions are assessed for the representative years for the early construction of the Sizewell C main development site (2023), the anticipated peak construction of the main development site (2028) and the operation of the main development site (2034).

5.3.38 Construction of the proposed development is not anticipated to generate as much traffic as either the early construction year (2023) or the peak construction year of the Sizewell C Project (2028).

5.3.39 The predicted impacts within the study area for the proposed development are considered in this chapter for the future baseline and with development scenarios for the early and peak construction years as well as the operational year. The future baselines for the representative years 2023, 2028 and 2034, informed by projected traffic data for these years, are used for comparison with the future construction and operational scenarios, to assess how the proposed development is expected to have an effect on air quality.

5.3.40 Traffic data for the construction year (2023) of the proposed development is based on traffic flow for an average day during the 'early years' construction scenario for the Sizewell C Project. This includes construction workers, and HDVs travelling to and from the main development site, the proposed development and other Sizewell C Project sites.

5.3.41 Traffic data for the operational phase year, during the peak construction of Sizewell C Project (2028), is based on two scenarios, an average day and a busy day. These include traffic using the proposed development and other associated developments, and construction traffic for the Sizewell C main development site. Busy day traffic data includes additional traffic expected in the event there is an outage at the Sizewell B power station.

5.3.42 Traffic data for the operational year once the Sizewell C Project is complete (2034) is based on traffic flow for an average day during operation of the Sizewell C nuclear power station. This includes traffic using the proposed development, and other permanent associated developments, and also traffic travelling to the Sizewell C nuclear power station for operation

g) Assumptions and limitations

5.3.43 Assumptions and limitations relevant to this assessment, for example emission rates, are described in **Appendix 6H** of **Volume 1** of the **ES**.

5.3.44 In the event the vertical or lateral alignment of the route of the two village bypass shifted within the site parameters set out in **Chapter 2** of this volume, changes in air quality would be limited and unlikely to result in a material change in the conclusions of this assessment. There are no further site-specific assumptions or limitations.

5.4 Baseline environment

5.4.1 This section presents a description of the baseline environmental characteristics within the site and in the surrounding area.

a) Current baseline

5.4.2 The closest human receptors to the site are located along the A1094 (SX10), the A12 near Stratford St Andrew and Farnham (SX5 to SX7 and SX15), and to the south of these villages where the proposed development will be built (SX8, SX9 and WM1), as identified in **Figure 5.1**.

5.4.3 Foxburrow Wood county wildlife site (CWS) (also identified as ancient woodland) lies to the east of the proposed development. It is predicted to experience a total nitrogen deposition of 16.5 kgN/ha/Yr for the 2018 baseline year.

5.4.4 There is one air quality management area (AQMA) in the study area. This AQMA is located along the A12, within Stratford St Andrew, approximately 150m from the site boundary. This AQMA was declared in 2014 for exceedances of the NO_2 annual mean objectives.

5.4.5 NO_2 and PM_{10} and $PM_{2.5}$ 2018 background concentrations within the site are projected to be between 7.9 and 8.8µg/m^3 for NO_2, between 14.7 and 15.8µg/m^3 for PM_{10}, and between 9.1 and 9.4µg/m^3 for $PM_{2.5}$ (Ref. 5.15).

5.4.6 The overall predicted baseline concentrations, including nearby road traffic contributions, for pollutants NO_2, PM_{10} and $PM_{2.5}$ at sensitive receptors near the proposed development are reported in **Table 5.10** to one decimal place. Further details on modelled 2018 baseline pollutant concentrations at receptors can be found in **Appendix 12B** of **Volume 2** of the **ES**.

Table 5.10: NO_2, PM_{10} and $PM_{2.5}$ concentrations for the baseline year 2018 at nearby sensitive receptors.

Receptor	2018 NO_2 Concentration (µg/m^3).	2018 PM_{10} Concentration (µg/m^3).	2018 $PM_{2.5}$ Concentration (µg/m^3).
SX5	18.5	15.8	10.6
SX6	24.3	16.1	11.5
SX7	26.1	16.3	11.8
SX8	8.5	15.4	9.3
SX9	8.6	15.4	9.3
SX10	14.0	16.3	10.2
SX15	30.1	16.9	12.3
WM1	9.5	14.8	9.3

5.4.7 Dust levels are related to the action of wind on exposed soils and arable fields in the area, long range transport of airborne PM_{10}, and climatic

conditions year to year, but existing dust levels are likely to be low given the arable nature of the existing land use.

b) Future baseline

5.4.8 No notable changes are expected in land use in the surrounding area and it is expected that the future baseline rates of dust deposition are likely to be similar to current levels.

5.4.9 NO_2 and PM_{10} and $PM_{2.5}$ 2023 background concentrations within the site are projected to be between 6.6 and 7.3µg/m^3 for NO_2, between 13.8 and 15.0µg/m^3 for PM_{10} and between 8.4 and 8.7µg/m^3 for $PM_{2.5}$ (Ref. 5.15).

5.4.10 NO_2 and PM_{10} and $PM_{2.5}$ 2028 background concentrations within the site are projected to be between 6.0 and 6.4µg/m^3 for NO_2, between 13.5 and 14.7µg/m^3 for PM_{10}, and between 8.2 and 8.4µg/m^3 for $PM_{2.5}$ (Ref. 5.15).

5.4.11 NO_2 and PM_{10} and $PM_{2.5}$ 2030[2] background concentrations within the site are projected to be between 5.8 and 6.2µg/m^3 for NO_2, between 13.5 and 14.7µg/m^3 for PM_{10} and between 8.2 and 8.4µg/m^3 for $PM_{2.5}$ (Ref. 5.15).

5.4.12 Two new dwellings are proposed at Pond Farm (application reference DC/17/1331/FUL). This committed development is in close proximity to an existing receptor (SX8), and the baseline conditions presented for receptor SX8 are considered representative for this potential future receptor. Therefore, no additional receptors need to be included for the future scenarios.

5.4.13 In addition, the traffic composition and flow data come from the **Transport Assessment** for the baseline, construction and operation scenarios. This information is inherently cumulative as it includes traffic flows associated with consented developments.

5.4.14 The future baseline pollutant concentrations at nearby sensitive receptors for the years 2023, 2028 and 2034[3] are presented in **Table 5.11** to **Table 5.13**, respectively, reported to one decimal place. Further details of modelled pollutant concentrations for the years 2023, 2028 and 2034 can be found in **Appendix 12B** of **Volume 2** of the **ES**.

[2] Defra backgrounds used are projected from a 2017 reference year and the furthest projected is 2030.
[3] Predicted concentrations (modelled) are predicted for the year 2034 based on traffic flows for this year.

Table 5.11: NO_2, PM_{10} and $PM_{2.5}$ concentrations for the baseline year 2023 at nearby sensitive receptors.

Receptor	2023 NO_2 Concentration ($\mu g/m^3$).	2023 PM_{10} Concentration ($\mu g/m^3$).	2023 $PM_{2.5}$ Concentration ($\mu g/m^3$).
SX5	14.1	14.9	9.8
SX6	18.4	15.2	10.7
SX7	19.8	15.4	11.0
SX8	7.1	14.5	8.6
SX9	7.2	14.6	8.6
SX10	11.2	15.5	9.5
SX15	22.5	15.9	11.5
WM1	7.8	13.9	8.6

Table 5.12: NO_2, PM_{10} and $PM_{2.5}$ concentrations for the baseline year 2028 at nearby sensitive receptors.

Receptor	2028 NO_2 Concentration ($\mu g/m^3$).	2028 PM_{10} Concentration ($\mu g/m^3$).	2028 $PM_{2.5}$ Concentration ($\mu g/m^3$).
SX5	11.0	14.6	9.6
SX6	14.1	14.9	10.5
SX7	15.1	15.1	10.8
SX8	6.3	14.2	8.3
SX9	6.3	14.3	8.3
SX10	9.2	15.2	9.3
SX15	16.9	15.6	11.3
WM1	6.7	13.6	8.3

Table 5.13: NO_2, PM_{10} and $PM_{2.5}$ concentrations for the baseline year 2034 at nearby sensitive receptors.

Receptor	2034 NO_2 Concentration ($\mu g/m^3$).	2034 PM_{10} Concentration ($\mu g/m^3$).	2034 $PM_{2.5}$ Concentration ($\mu g/m^3$).
SX5	10.5	14.7	9.7
SX6	13.4	15.0	10.7
SX7	14.3	15.2	11.0
SX8	6.1	14.3	8.3
SX9	6.2	14.3	8.4

Receptor	2034 NO_2 Concentration ($\mu g/m^3$).	2034 PM_{10} Concentration ($\mu g/m^3$).	2034 $PM_{2.5}$ Concentration ($\mu g/m^3$).
SX10	8.8	15.2	9.4
SX15	15.9	15.7	11.5
WM1	6.6	13.6	8.4

5.4.15 Foxburrow Wood is predicted to experience a total nitrogen deposition of 16.4 kgN/ha/Yr for the 2023 baseline year, 16.3 kgN/ha/Yr for the 2028 baseline year and 16.3 kgN/ha/Yr for the 2034 baseline year.

5.5 Environmental design and mitigation

5.5.1 As detailed in **Volume 1**, **Chapter 6** of the **ES**, a number of primary and tertiary mitigation measures have been identified through the iterative EIA process, and have been incorporated into the design and construction planning of the proposed development. Tertiary mitigation measures are legal requirements, or are standard practices that would be implemented as part of the proposed development.

5.5.2 The assessment of likely significant effects of the proposed development assumes that primary and tertiary mitigation measures are in place. For air quality, these measures are identified in the following sections, with a summary provided on how the measures contribute to the mitigation and management of potentially significant environmental effects.

a) Primary mitigation

5.5.3 Primary mitigation is often referred to as 'embedded mitigation' and includes modifications to the location or design to mitigate impacts; these measures become an inherent part of the proposed development.

5.5.4 Primary mitigation for the proposed development includes:

- The proposed alignment of the two village bypass would offer road users an alternative route for the A12, reducing traffic flows within Stratford St. Andrew and Farnham during both the peak construction of the Sizewell C Project and upon completion of the power station.
- The site boundary has been designed to avoid sensitive receptors and increase distance of construction works and the proposed development where reasonably practicable.

5.5.5 Primary measures to minimise and manage additional traffic on the roads associated with the construction and operation of the Sizewell C Project are set out in **Volume 2**, **Chapter 10** of the **ES**.

b) Tertiary mitigation

5.5.6 Tertiary mitigation will be required regardless of any EIA assessment, as it is imposed, for example, as a result of legislative requirements and/or standard sectoral practices.

5.5.7 Air quality impacts arising from the construction phase would be managed through a range of control measures detailed in the **CoCP**, which will include measures as per the IAQM Guidance (Ref. 5.12) based on a 'high risk' site. These measures will be incorporated into construction working practices to reduce the likelihood of significant adverse dust impacts, and would include measures such as the requirement to:

- positioning site access as far as reasonably practicable from sensitive receptors;
- any potential use of concrete batching plant located as far as practicable from receptors;
- locating mobile crushing and screening plant as far as practicable from receptors.
- covering potentially dusty loads (loose earth, spoil, aggregates etc) in transit;
- managing site run-off of water or mud;
- cover, seed or fence stockpiles to prevent wind whipping;
- ensure an adequate water supply to the site for effective dust/PM_{10} suppression/mitigation, using non-potable water where possible and appropriate;
- display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary; and
- develop and implement dust management measures, in accordance with the **CoCP**.

5.5.8 The contractors will prepare Construction Environmental Management Plans including dust management measures, in accordance with the **CoCP.** An **Outline Dust Management Plan** is also included in **Volume 2, Appendix 12A**.

5.5.9 During construction, a **Construction Traffic Management Plan** (Doc Ref. 8.7) and a **Construction Workforce Travel Plan** (Doc Ref. 8.8) would be implemented to reduce and manage the effects of traffic generated by the Sizewell C Project (see **Volume 2, Chapter 10** of the **ES**).

5.6 Assessment

a) Introduction

5.6.1 This section presents the findings of the air quality assessment for the construction and operational phases of the proposed development.

5.6.2 This section identifies any likely significant effects that are predicted to occur, and **section 5.7** of this chapter then highlights any secondary mitigation and monitoring measures that are proposed to minimise any adverse significant effects (if required).

b) Construction

5.6.3 The potential impacts on sensitive receptors associated with the construction of the proposed development include fugitive emissions of dust, emissions from NRMM on the site, emissions from HDVs accessing the site and emissions from vehicles carrying workers to and from the site.

i. Construction dust

5.6.4 A dust risk assessment has been undertaken for the proposed development, which also considers the risk from NRMM used to undertake works. A summary of the assessment is presented in **Table 5.14**, and full details of the assessment are provided in **Appendix 5A** of this volume.

Table 5.14: Potential risk of dust impacts from activities without applied mitigation.

Potential Impact.	Risk		
	Earthworks: Large Magnitude.	Construction: Medium Magnitude.	Track out: Medium Magnitude.
Dust Soiling.	High risk.	Medium risk.	Medium risk.
Human Health.	Medium risk.	Medium risk.	Low risk.
Ecological	Low risk.	Low risk.	Low risk.

5.6.5 The main risk is anticipated to be related to earthworks as this phase of construction can typically require a high volume of material to be moved. A high level of activity could potentially place the dust emission category as 'large' by IAQM classification (Ref. 5.12), with the likelihood of a 'high' risk based on the number and sensitivity of local receptors. Each risk category has the potential to lead to proportional adverse, albeit temporary, impacts which have the potential to be significant without appropriate mitigation.

5.6.6 However, assuming all primary and tertiary mitigation measures as detailed in **section 5.5** of this chapter, are effectively implemented and monitored through an effective **CoCP**, at the level recommended by the dust risk assessment, any construction dust risk would likely be negligible, and would therefore be **not significant** for any of the proposed construction activities at the site.

ii. Construction traffic

5.6.7 Due to the number of daily HDV movements expected during construction of the proposed development, and the number of developments undergoing construction during the early years construction phase of the Sizewell C Project in the wider study area (Lowestoft to Ipswich), a detailed assessment of transport emissions for the construction phase scenario has been undertaken for completeness. Full details on the modelling approach can be found in the Transport Emissions Assessment as provided in **Appendix 12B** of **Volume 2** of the **ES**.

5.6.8 The predicted concentrations for NO_2, PM_{10} and $PM_{2.5}$ resulting from traffic emissions in the area of the proposed development during construction, based on the average day during the early years construction (2023) and the magnitude of change from the predicted baseline conditions are shown in **Table 5.15** to **Table 5.17**, reported to one decimal place. Further details on modelled pollutant concentrations for the year 2023 can be found in **Appendix 12B** of **Volume 2** of the **ES**.

Table 5.15: NO_2 concentration for construction phase year 2023 and the magnitude of change compared to the 2023 baseline concentration.

Receptor	2023 Average Day*.		Magnitude of Change Descriptor.	Effect Descriptor.
	Concentration (µg/m^3).	Magnitude of Change (µg/m^3).		
SX5	14.6	0.6	Very low.	Negligible
SX6	19.1	0.7	Very low.	Negligible
SX7	20.5	0.7	Very low.	Negligible

Receptor	2023 Average Day*.		Magnitude of Change Descriptor.	Effect Descriptor.
	Concentration (µg/m^3).	Magnitude of Change (µg/m^3).		
SX8	7.1	Less than 0.1.	Imperceptible	Negligible
SX9	7.2	Less than 0.1.	Imperceptible	Negligible
SX10	11.6	0.3	Imperceptible	Negligible
SX15	23.7	1.2	Low	Negligible
WM1	7.8	0.1	Imperceptible	Negligible

** All values have been rounded to the nearest decimal place.*

Table 5.16: PM_{10} concentration for construction phase year 2023 and the magnitude of change compared to the 2023 baseline concentration.

Receptor	2023 Average Day*.		Magnitude of Change Descriptor.	Effect Descriptor.
	Concentration (µg/m^3).	Magnitude of Change (µg/m^3).		
SX5	15.0	0.1	Imperceptible	Negligible
SX6	15.4	0.2	Imperceptible	Negligible
SX7	15.6	0.2	Imperceptible	Negligible
SX8	14.6	Less than 0.1.	Imperceptible	Negligible
SX9	14.6	Less than 0.1.	Imperceptible	Negligible
SX10	15.5	Less than 0.1.	Imperceptible	Negligible
SX15	16.2	0.3	Imperceptible	Negligible
WM1	13.9	Less than 0.1.	Imperceptible	Negligible

** All values have been rounded to the nearest decimal place.*

Table 5.17: $PM_{2.5}$ concentration for construction phase year 2023 and the magnitude of change compared to the 2023 baseline concentration.

Receptor	2023 Average Day*.		Magnitude of Change Descriptor.	Effect Descriptor.
	Concentration (µg/m^3).	Magnitude of Change (µg/m^3).		
SX5	10.0	0.2	Imperceptible	Negligible
SX6	11.1	0.3	Very low.	Negligible
SX7	11.4	0.4	Very low.	Negligible

Receptor	2023 Average Day*.		Magnitude of Change Descriptor.	Effect Descriptor.
	Concentration (µg/m^3).	Magnitude of Change (µg/m^3).		
SX8	8.6	Less than 0.1.	Imperceptible	Negligible
SX9	8.6	Less than 0.1.	Imperceptible	Negligible
SX10	9.6	0.1	Imperceptible	Negligible
SX15	11.9	0.4	Very low.	Negligible
WM1	8.6	Less than 0.1.	Imperceptible	Negligible

** All values have been rounded to the nearest decimal place.*

5.6.9 Following the classification of effects of construction phase transport emissions, the predicted change in impacts from transport emissions compared to the 2023 future baseline scenario would have a 'negligible' effect at all receptors.

5.6.10 The overall effects resulting from the transport emissions associated with the construction of the proposed development during the early year construction scenario of the Sizewell C Project are predicted to be **not significant** for all sensitive receptors within the study area.

5.6.11 Foxburrow Wood CWS is predicted to experience a total nitrogen deposition of 16.4 kgN/ha/Yr during the construction phase of the Sizewell C Project (2023). The effect of total nitrogen deposition on Foxburrow Wood CWS is considered further in **Chapter 7** of this volume.

iii. Inter-relationship effects

5.6.12 There are potential inter-relationship effects on ecological and amenity and recreation receptors as a result of changes to air quality during the construction phase of development. These potential impacts are considered within **Chapters 7** and **8** of this volume respectively. There is also the potential for impacts relating to soils management on site as detailed in **Chapter 10** of this volume, to give rise to air quality effects from dust. Inter-relationship effects on human health receptors are considered further in **Volume 2, Chapter 28** of the **ES** and in **Volume 10, Chapter 2** of the **ES** (Doc Ref. 6.11).

c) Operation

i. Operation of the proposed development during peak construction year of the main development site (2028)

5.6.13 The air quality assessment for operation of the proposed development covers the peak year (2028) during the construction of the Sizewell C main development site on its busiest days, and on an average day.

5.6.14 The predicted concentrations for NO_2, PM_{10} and $PM_{2.5}$ resulting from road traffic in the study area for the proposed development for the operational year 2028 average day scenarios, and the magnitude of change from the predicted baseline conditions are shown in **Table 5.18** to **Table 5.20**, reported to one decimal place. Further details on modelled air pollutant concentrations at receptors for the 2028 average day scenario can be found in **Appendix 12B** of **Volume 2** of the **ES**.

Table 5.18: NO_2 concentration during operation of the proposed development during the 2028 average day and the magnitude of change compared to the 2028 baseline concentration.

Receptor	2028 Average Day*.		Magnitude of Change Descriptor.	Effect Descriptor.
	Concentration (µg/m³).	Magnitude of Change (µg/m³).		
SX5	6.6	-4.5	High	Moderate beneficial.
SX6	6.7	-7.5	High	Moderate beneficial.
SX7	6.8	-8.3	High	Moderate beneficial.
SX8	7.0	0.8	Low	Negligible
SX9	7.0	0.6	Very low.	Negligible
SX10	9.3	0.1	Imperceptible	Negligible
SX15	6.5	-10.4	High	Moderate beneficial.
WM1	6.4	-0.3	Low	Negligible

** All values have been rounded to the nearest decimal place.*

Table 5.19: PM_{10} concentration during operation of the proposed development during the 2028 average day and the magnitude of change compared to the 2028 baseline concentration.

Receptor	2028 Average Day*.		Magnitude of Change Descriptor.	Effect Descriptor.
	Concentration ($\mu g/m^3$).	Magnitude of Change ($\mu g/m^3$).		
SX5	13.9	-0.7	Very low.	Negligible
SX6	13.6	-1.3	Low	Negligible
SX7	13.6	-1.4	Low	Negligible
SX8	14.4	0.1	Imperceptible	Negligible
SX9	14.3	0.1	Imperceptible	Negligible
SX10	15.2	Less than 0.1.	Imperceptible	Negligible
SX15	13.9	-1.7	Low	Negligible
WM1	13.6	-0.1	Imperceptible	Negligible

** All values have been rounded to the nearest decimal place.*

Table 5.20: $PM_{2.5}$ concentration during operation of the proposed development during the 2028 average day and the magnitude of change compared to the 2028 baseline concentration.

Receptor	2028 Average Day*.		Magnitude of Change Descriptor.	Effect Descriptor.
	Concentration ($\mu g/m^3$).	Magnitude of Change ($\mu g/m^3$).		
SX5	8.4	-1.2	Low	Negligible
SX6	8.3	-2.2	Medium	Minor beneficial.
SX7	8.4	-2.5	High	Moderate beneficial.
SX8	8.5	0.2	Imperceptible	Negligible
SX9	8.5	0.2	Imperceptible	Negligible
SX10	9.3	Less than 0.1.	Imperceptible	Negligible
SX15	8.3	-3.0	High	Moderate beneficial.
WM1	8.2	-0.1	Imperceptible	Negligible

** All values have been rounded to the nearest decimal place.*

5.6.15 The predicted concentrations for NO_2, PM_{10} and $PM_{2.5}$ for the operational year 2028 busiest day scenario and the magnitude of change from the predicted baseline conditions are shown in **Table 5.21** to **Table 5.23**, reported to one decimal place. Further details on modelled pollutant

concentrations for the 2028 busiest day scenario can be found in **Appendix 12B** of **Volume 2** of the **ES**.

Table 5.21: NO_2 concentration during operation of the proposed development during the 2028 busiest day and the magnitude of change compared to the 2028 baseline concentration.

Receptor	2028 Busiest Day*.		Magnitude of Change Descriptor.	Effect Descriptor.
	Concentration ($\mu g/m^3$).	Magnitude of Change ($\mu g/m^3$).		
SX5	6.6	-4.5	High	Moderate beneficial.
SX6	6.7	-7.4	High	Moderate beneficial.
SX7	6.8	-8.3	High	Moderate beneficial.
SX8	7.0	0.8	Low	Negligible
SX9	7.0	0.6	Very low.	Negligible
SX10	9.3	0.1	Imperceptible	Negligible
SX15	6.5	-10.4	High	Moderate Beneficial.
WM1	6.4	-0.3	Imperceptible	Negligible

** All values have been rounded to the nearest decimal place.*

Table 5.22: PM_{10} concentration during operation of the proposed development during the 2028 busiest day and the magnitude of change compared to the 2028 baseline concentration.

Receptor	2028 Busiest Day*.		Magnitude of Change Descriptor.	Effect Descriptor.
	Concentration ($\mu g/m^3$).	Magnitude of Change ($\mu g/m^3$).		
SX5	13.9	-0.7	Very low.	Negligible
SX6	13.6	-1.3	Low	Negligible
SX7	13.6	-1.4	Low	Negligible
SX8	14.4	0.1	Imperceptible	Negligible
SX9	14.4	0.1	Imperceptible	Negligible
SX10	15.2	Less than 0.1.	Imperceptible	Negligible
SX15	13.9	-1.7	Low	Negligible
WM1	13.6	-0.1	Imperceptible	Negligible

** All values have been rounded to the nearest decimal place.*

Table 5.23: $PM_{2.5}$ concentration during operation of the proposed development during the 2028 busiest day and the magnitude of change compared to the 2028 baseline concentration.

Receptor	2028 Busiest Day*.		Magnitude of Change Descriptor.	Effect Descriptor.
	Concentration ($\mu g/m^3$).	Magnitude of Change ($\mu g/m^3$).		
SX5	8.4	-1.2	Low	Negligible
SX6	8.3	-2.2	Medium	Minor beneficial.
SX7	8.4	-2.5	High	Moderate beneficial.
SX8	8.5	0.2	Imperceptible	Negligible
SX9	8.5	0.2	Imperceptible	Negligible
SX10	9.3	Less than 0.1.	Imperceptible	Negligible
SX15	8.3	-3.0	High	Moderate beneficial.
WM1	8.3	-0.1	Imperceptible	Negligible

** All values have been rounded to the nearest decimal place.*

5.6.16 Following the classification of effects of operational phase transport emissions, the predicted change in impacts from transport emissions compared to the 2028 future baseline scenario would have a 'negligible' effect at most receptors, with the rest experiencing beneficial effects on local air quality that would be 'minor' or 'moderate'.

5.6.17 Whilst receptors SX5, SX6, SX7 and SX15 would experience a moderate beneficial effect on air quality due to the reduction of NO_2 emissions (and $PM_{2.5}$ emissions for SX15), and a minor beneficial effect on air quality at SX6 and SX7 due to reduction of $PM_{2.5}$ emissions, the overall effects for the study area as a whole, resulting from the transport emissions associated with the operation of the proposed development during the peak year construction scenario of the Sizewell C Project, are predicted to be **not significant** for all sensitive receptors within the study area. The total concentrations observed are well below the air quality objective values as presented in **Appendix 6H** of **Volume 1** of the **ES**. The principal benefit (although not significant overall) of the proposed development is that by providing an alternative route along the A12, the Sizewell C Project and other traffic (and associated emissions) would be reduced through Stratford St Andrew and Farnham, including the AQMA.

5.6.18 Foxburrow Wood CWS is predicted to experience a total nitrogen deposition of 17.4 kgN/ha/Yr during both the 2028 average day and busiest day scenarios. The effect of total nitrogen deposition on Foxburrow Wood CWS is considered further in **Chapter 7** of this volume.

ii. Operation of the proposed development during operation of Sizewell C power station (2034)

5.6.19 The predicted concentrations for NO_2, PM_{10} and $PM_{2.5}$ resulting from road traffic in the study area for the proposed development for the operational year 2034 scenario, and the magnitude of change from the predicted baseline conditions are shown in **Table 5.24** to **Table 5.26**. Further details on modelled air pollutant concentrations at receptors for the 2034 scenario can be found in **Appendix 12B** of **Volume 2** of the **ES**.

Table 5.24: NO_2 concentration during operation of the proposed development once Sizewell C power station is operational (2034) and the magnitude of change compared to the 2034 baseline concentration.

Receptor	2034 Average Day*.		Magnitude of Change Descriptor.	Effect Descriptor.
	Concentration (µg/m³).	Magnitude of Change (µg/m³).		
SX5	6.4	-4.1	High	Moderate beneficial.
SX6	6.5	-6.9	High	Moderate beneficial.
SX7	6.8	-7.5	High	Moderate beneficial.
SX8	6.8	0.7	Very low	Negligible
SX9	6.7	0.6	Very low	Negligible
SX10	8.9	Less than 0.1.	Imperceptible	Negligible
SX15	6.3	-9.6	High	Moderate beneficial.
WM1	6.3	-0.2	Imperceptible	Negligible

** All values have been rounded to the nearest decimal place.*

Table 5.25: PM_{10} concentration during operation of the proposed development once Sizewell C power station is operational (2034) and the magnitude of change compared to the 2034 baseline concentration.

Receptor	2034 Average Day*.		Magnitude of Change Descriptor.	Effect Descriptor.
	Concentration (µg/m³).	Magnitude of Change (µg/m³).		
SX5	13.9	-0.8	Low	Negligible
SX6	13.6	-1.3	Low	Negligible
SX7	13.7	-1.5	Low	Negligible
SX8	14.4	0.1	Imperceptible	Negligible
SX9	14.3	0.1	Imperceptible	Negligible

SX10	15.2	Less than 0.1.	Imperceptible	Negligible
SX15	13.9	-1.8	Low	Negligible
WM1	13.6	Less than 0.1.	Imperceptible	Negligible

** All values have been rounded to the nearest decimal place.*

Table 5.26: $PM_{2.5}$ concentration during operation of the proposed development once Sizewell C power station is operational (2034) and the magnitude of change compared to the 2034 baseline concentration.

Receptor	2034 Average Day*.		Magnitude of Change Descriptor.	Effect Descriptor.
	Concentration (µg/m³).	Magnitude of Change (µg/m³).		
SX5	8.4	-1.3	Low	Negligible
SX6	8.3	-2.3	Medium	Minor beneficial.
SX7	8.4	-2.6	High	Moderate beneficial.
SX8	8.5	0.2	Imperceptible	Negligible
SX9	8.5	0.2	Imperceptible	Negligible
SX10	9.4	Less than 0.1.	Imperceptible	Negligible
SX15	8.3	-3.1	High	Moderate beneficial.
WM1	8.3	-0.1	Imperceptible	Negligible

** All values have been rounded to the nearest decimal place.*

5.6.20 Following the classification of effects of 2034 operational phase transport emissions, the predicted change in impacts from transport emissions compared to the 2034 reference case scenario would have a 'negligible' effect at most receptors, with the rest experiencing beneficial effects on local air quality that would be 'minor' or 'moderate' due to rerouting of traffic away from the A12 villages of Stratford St Andrew and Farnham, including the AQMA. Whilst receptors SX5, SX6, SX7 and SX15 would experience a moderate beneficial effect on air quality due to the reduction of NO_2 emissions (and $PM_{2.5}$ emissions for SX15), and a minor beneficial effect on air quality at receptors SX6 and SX7 due to a reduction of $PM_{2.5}$ emissions, the overall effects for the study area resulting from transport emissions associated with the operation of the proposed development during the operational scenario of the Sizewell C Project are predicted to be **not significant** for all sensitive receptors within the study area. The total concentrations would be well below the air quality objective values as presented in **Appendix 6H** of **Volume 1** of the **ES**. The principal benefit (although not significant overall) of the proposed development is that by providing an alternative route along the A12, the Sizewell C Project and

other traffic (and associated emissions) would be reduced through Stratford St Andrew and Farnham, including the AQMA.

5.6.21 Foxburrow Wood CWS is predicted to experience a total nitrogen deposition of 17.2 kgN/ha/Yr during the operational year of the Sizewell C Project. The effect of total nitrogen deposition on Foxburrow Wood CWS is considered further in **Chapter 7** of this volume.

iii. Inter-relationship effects

5.6.22 There are potential inter-relationship effects on ecological and amenity and recreation receptors as a result of changes to air quality during the operational phase of development. These potential impacts are considered within **Chapters 7** and **8** of this volume respectively. Inter-relationship effects on human health receptors are considered further in **Volume 2, Chapter 28** of this volume and in **Volume 10, Chapter 2** of the **ES**.

5.7 Mitigation and monitoring

a) Introduction

5.7.1 Where possible, mitigation measures have been proposed where a significant effect is predicted to occur. Primary and tertiary mitigation measures, which have been accounted for as part of the assessment, are summarised in in **section 5.5** of this chapter.

5.7.2 No further mitigation measures for the air quality are required to reduce or avoid a significant adverse effect. In addition, no monitoring of air pollutant concentrations or dust deposition rates is proposed, given the routing of the traffic and that no significant effects are predicted.

5.8 Residual effects

5.8.1 The following tables (**Table 5.27** to **Table 5.29**) present a summary of the air quality assessment. They identify the receptor/s likely to be impacted, the level of effect and, where the effect is deemed to be significant, the tables include the mitigation proposed and the resulting residual effect.

5.8.2 No significant adverse residual effects are predicted during the construction, operation or removal and reinstatement phases of the proposed development.

Table 5.27: Summary of effects for the construction phase.

Receptor	Impact	Primary or Tertiary Mitigation.	Assessment of effects.	Additional Mitigation.	Residual Effects.
Residential Properties.	Potential amenity or health impacts from generation of PM_{10} from construction activities.	As recommended in **CoCP** based on risk assessment.	Negligible	None required.	Negligible (**not significant**).
Residential Properties.	Emissions from additional road vehicle movements.	Site selection and layout.	Negligible.	None required.	Negligible (**not significant**).

Table 5.28: Summary of effects for both 2028 operational phases.

Receptor	Impact	Primary or Tertiary Mitigation.	Assessment of effects.	Additional Mitigation.	Residual Effects.
Residential Properties.	Emissions from vehicular traffic.	Site selection and layout.	Moderate beneficial to negligible.	None required.	Moderate beneficial to negligible (**not significant**).

Table 5.29: Summary of effects for 2034 operational phase.

Receptor	Impact	Primary or Tertiary Mitigation.	Assessment of effects.	Additional Mitigation.	Residual Effects.
Residential Properties.	Emissions from vehicular traffic.	Site selection and layout.	Moderate beneficial to negligible.	None required.	Moderate beneficial to negligible (**not significant**).

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