

Rampion 2 Wind Farm

Category 6: Environmental Statement

Volume 2, Chapter 19: Air quality (tracked)

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Executive Summary

This section summarises the assessment findings for air quality, based on **Chapter 19: Air Quality, Volume 2** of the ES (Document Reference: 6.2.19).

How effects on air quality have been assessed

Likely significant effects on air quality may be caused due to emissions of dust and odour, and any significant increases of pollutants in the air.

The main pollutants of concern in the UK in relation to health effects are nitrogen dioxide (NO₂) and particles (Particulate Matter - PM). The particles in the air which were considered in the assessment were PM₁₀ (particulate matter up to 10 micrometres in diameter) and PM_{2.5} (particulate matter up to 2.5 micrometres in diameter). Nitrogen oxides (NO_x) has also been considered in relation to ecological receptors.

Increased emissions that could arise because of changes in activity due to Rampion 2 have been assessed. These changes include activities that could generate dust and odour during construction and decommissioning, and changes in road vehicle movements in the construction, operation and maintenance and decommissioning phases.

The assessment has considered the potential effects of construction dust on people within 350m of work sites, and within 50m of the route(s) used by vehicles on the public highway, up to 500m from the temporary construction site. For sensitive ecological sites the distance considered is 200m of the boundary of the temporary construction site or of the route(s) used by construction vehicles on the public highway, up to 500m from the temporary construction site entrance.

For emissions of air pollutants from construction traffic and construction equipment on site the assessment has considered ecological receptors, residential properties and other locations where people may be exposed within 200m of affected roads and temporary construction sites and especially in Air Quality Management Areas (AQMAs). Additional traffic associated with the operational and decommissioning phases was screened out as insignificant using best practice guidance (Institute of Air Quality Management (IAQM), 2016~~24~~).

Information on existing air quality is based on data requests from a number of sources, including UK Government and local authority records, and consultation with Natural England, Arun District Council (ADC), Horsham District Council (HDC) and Mid Sussex District Council (MSDC), as these are the local authorities with responsibility for onshore air quality.

Baseline environment

Local planning authorities are required to assess air quality within their administrative area. They are required to declare an Air Quality Management Area (AQMA) where pollution levels may exceed Air Quality Objectives (AQOs) established for the protection of health.

The onshore landfall, cable corridor and substation areas lie within the administrative areas of three District Councils: Arun, Horsham and Mid Sussex. Each district council produces an Annual Status Report which describes air quality in its administrative area.

Two AQMAs have been declared within 5km of Rampion 2, both for NO₂: Storrington AQMA and, Cowfold AQMA. In addition, road traffic will pass through the administrative areas of other local authorities. In each AQMA there are currently localised exceedances of the AQO, however where this occurs it is generally close to busy roads and not everywhere in each AQMA.

Air quality is generally expected to improve with time, and pollutant concentrations are predicted to be lower in future than at present. This is because of factors such as newer road vehicles meeting tighter emission standards and an increase in electric vehicles on the road.

Embedded environmental measures

A range of environmental measures within the **Commitments Register** (Document Register 7.22) which relate to air quality are embedded as part of the Rampion 2 design to remove or reduce significant environmental effects. Examples of these embedded environmental measures are included in the following commitments:

- C-24: Best practice air quality management measures will be applied as described in Institute of Air Quality Management (IAQM) ([20162024](#)) guidance on the Assessment of Dust from Demolition and Construction [20162024](#), version [4.12.2](#).
- C-133: Stockpiles will be present for the shortest practicable timeframe, with stockpiles being reinstated as the construction work progresses in order to minimise areas of exposed soil and any associated silt laden run-off. [Topsoil s](#)Stockpiles which are anticipated to remain for more than six months will be seeded to encourage stabilisation, [except where the existing seed bank is to be used in reinstatement](#).
- C-158: The proposed heavy goods vehicle (HGV) routing during the construction period to individual accesses will avoid the Air Quality Management Area (AQMA) in Cowfold where possible. [This means that HGVs will only route through the village centre for trips related to accesses A-56 and A-57 or where use of local sourced materials / equipment makes its avoidance impracticable](#).

Likely significant effects

Overview

Based on the proposed location of the onshore substation and routing of the onshore cable corridor, plus the implementation of embedded environmental measures contained within the [Outline Air Quality Management Plan \(Document Reference: 8.62 \[REP5-113\]\)](#), Appendix E of the [Outline Code of Construction Practice \(Document Reference: 7.2 \[REP5-064\]\)](#) updated at [Deadline 6](#). ~~Outline Code of Construction Practice (CoCP) (Document Reference: 7.2)~~. No significant effects have been identified on air quality during the construction, operation and maintenance, and decommissioning phases.

Cumulative effects

No significant cumulative effects have been identified in relation to Rampion 2 on air quality from construction, operation and maintenance, and decommissioning activities.

Inter-related effects

No significant inter-related effects of greater significance compared to the effects considered alone were identified for air quality receptors from the construction, operation and maintenance, and decommissioning of Rampion 2.

Transboundary effects

No significant transboundary effects have been identified in relation to Rampion 2 on air quality receptors from construction, operation and maintenance, and decommissioning activities.



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19. Air quality

19.1 Introduction

19.1.1 This chapter of the Environmental Statement (ES) presents the results of the assessment of the likely significant effects of Rampion 2 with respect to air quality, including dust and odour. Specifically, this chapter considers the air quality effects landward of Mean High Water Springs (MHWS) during construction, operation and maintenance and decommissioning phases where appropriate. It should be read in conjunction with the project description provided in **Chapter 4: The Proposed Development, Volume 2** of the ES (Document Reference: 6.2.4) and the relevant parts of the following chapters and appendices:

- **Chapter 22: Terrestrial ecology and nature conservation, Volume 2** of the ES (Document Reference: 6.2.22) due to the potential air quality effects on designated sites; ~~and~~
- **Chapter 23: Transport, Volume 2** of the ES (Document Reference: 6.2.23) due to potential air quality effects from construction traffic; ~~and~~
- **Chapter 32: ES Addendum, Volume 2 of the ES (Document Reference: 6.2.32) and [REP5-038] due to potential air quality effects from construction traffic emissions.**

19.1.2 This technical chapter describes:

- the legislation, planning policy and other documentation that has informed the assessment (**Section 19.2: Relevant legislation, planning policy, and other documentation**);
- the outcome of consultation and engagement that has been undertaken to date, including how matters relating to air quality within the Statutory Consultation have been addressed (**Section 19.3: Consultation and engagement**);
- the scope of the assessment for air quality (**Section 19.4: Scope of the assessment**);
- the methods used for the baseline data gathering (**Section 19.5: Methodology for baseline data gathering**);
- the overall baseline (**Section 19.6: Baseline conditions**);
- embedded environmental measures relevant to air quality and the relevant maximum design scenario (**Section 19.7: Basis for ES assessment**);
- the assessment methods used for the ES (**Section 19.8: Methodology for ES assessment**);
- the assessment of air quality effects (**Section 19.9 - 19.10: Assessment of effects** and **Section 19.11: Assessment of cumulative effects**);

- consideration of transboundary effects (**Section 19.12: Transboundary effects**);
- inter-related effects (**Section 19.13: Inter-related effects**);
- a summary of residual effects for air quality (**Section 19.14: Summary of residual effects**);
- a glossary of terms and abbreviations is provided in **Section 19.15: Glossary of terms and abbreviations**; and
- a references list is provided in **Section 19.16: References**.

19.1.3 The chapter is also supported by the following appendices:

- **Appendix 19.1: Full results of construction road traffic modelling, Volume 4** of the ES (Document Reference: 6.4.19.1); and
- **Appendix 19.2: Full results of construction plant modelling, Volume 4** of the ES (Document Reference: 6.4.19.2).

19.2 Relevant legislation, planning policy and other documentation

Introduction

19.2.1 This section identifies the relevant legislation, policy and other documentation that has informed the assessment of effects with respect to air quality. Further information on policies relevant to the Environmental Impact Assessment (EIA) and their status is provided in **Chapter 2: Policy and legislative context, Volume 2** of the ES (Document Reference: 6.2.2).

Legislation and national planning policy

19.2.2 **Table 19-1** lists the legislation relevant to the assessment of the effects on air quality receptors.

Table 19-1 Legislation relevant to air quality

Legislation description	Relevance to assessment
<p>Directive 2008/50/EC on ambient air quality and cleaner air for Europe (the ‘Ambient Air Directive’)</p> <p>Consolidates previously existing European Union (EU)-wide air quality legislation (with the exception of Directive 2004/107/EC relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air) and provides a new regulatory</p>	<p>Rampion 2 has the potential for effects on human receptors covered by the Ambient Air Directive. The protection conferred to these receptors through legislation is accounted for within the scope of the assessment (see Section 19.4) and the environmental measures embedded within the design detailed in Table 19-29.</p>

Legislation description	Relevance to assessment
<p>framework for particulate matter (PM) smaller than 2.5 µm (PM_{2.5}).</p> <p>The Ambient Air Directive sets limit values (for the protection of human health) and critical levels (for the protection of vegetation and ecosystems) for selected pollutants that are to be achieved by specific dates, and details procedures EU Member States should take in assessing ambient air quality. Regulated pollutants include sulphur dioxide (SO₂), nitrogen dioxide (NO₂), oxides of nitrogen (NO_x), particulate matter smaller than 10 µm (PM₁₀), particulate matter smaller than 2.5 µm (PM_{2.5}), lead (Pb), benzene (C₆H₆) and carbon monoxide (CO).</p>	
<p>The limit values and critical levels are legally binding limits on concentrations of pollutants in the atmosphere which can broadly be taken to achieve a certain level of environmental quality. The values are based on the assessment of the effects of each pollutant on human health, taking into account the effects on sensitive groups such as children, the elderly and those with health conditions, or on vegetation and ecosystems. The limit values and critical levels relate to concentrations in ambient air. The Ambient Air Directive defines ambient air as outdoor air, and explicitly excludes workplaces and other places to which members of the public do not have regular access.</p>	
<p>EU legislation which applied directly or indirectly to the UK before 11.00 p.m. on 31 December 2020 has been retained in UK law as a form of domestic legislation known as ‘retained EU legislation’. This is set out in sections 2 and 3 of the <i>European Union (Withdrawal) Act 2018 (c. 16)[1]</i>. Section 4 of the 2018 Act ensures that any remaining EU rights and obligations, including directly effective rights within EU treaties,</p>	

Legislation description	Relevance to assessment
<p>continue to be recognised and available in domestic law after the UK's exit from the European Union.</p>	
<p><i>The Environmental Protection Act 1990</i></p>	
<p>Provides the framework for the control of nuisance from dust and odour.</p>	<p>The construction phase of Rampion 2 is associated with emissions of dust which can give rise to potential nuisance concerns. The provisions of the Environmental Protection Act 1990 are accounted for within the scope of the assessment (see Section 19.4) and the environmental measures embedded within the design detailed in Table 19-29.</p>
<p><i>The Environment Act 2021</i></p>	
<p>Environment Act 2021 establishes a legally binding duty on the UK Government to bring forward at least two new air quality targets in secondary legislation by 31 October 2022, including PM_{2.5}. This duty sits within the environmental targets framework outlined in the Environment Act (Part 1).</p>	<p>The Proposed Development has the potential to emit PM_{2.5} throughout the construction phase. PM_{2.5} emissions are addressed in the Environment Act 2021. The target has now been formally published and is presented in Table 19-3.</p>
<p><i>The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023</i></p>	
<p>The Act details the environmental targets that were set out in the Environmental Act 2021.</p>	<p>The regulations set out the new PM_{2.5} Air Quality Objective (AQO) that is to be met by 2040.</p>
<p><i>The Environment Act 1995</i></p>	
<p>Requires that local authorities periodically review air quality within their individual areas. This process of Local Air Quality Management (LAQM) is an integral part of delivering the Government's Air Quality Strategy and the AQOs contained in the Strategy.</p>	<p>The Environment Act 1995 sets the framework for setting criteria against which the air quality impacts of Rampion 2 should be assessed. In addition, the LAQM process is key to the provision of baseline air quality data for the assessment (see Section 19.6).</p>
<p><i>The Air Quality Standards Regulations 2010</i></p>	
<p>These came into force on 11 June 2010 and transpose <i>Directive 2008/50/EC</i>, including the limit values, into UK legislation. <i>The Air Quality Standards</i></p>	<p>Rampion 2 has the potential for effects on human receptors covered by the Regulations. The protection conferred to these receptors through legislation is</p>

Legislation description	Relevance to assessment
<p>Regulations 2010 impose a duty on the Secretary of State to meet these limit values.</p> <p>Similar to <i>Directive 2008/50/EC, The Air Quality Standards Regulations 2010</i> define ambient air as outdoor air, and explicitly exclude workplaces and other places to which members of the public do not have regular access.</p> <p>The Air Quality Standards (AQS) and AQOs relevant to the Air Quality Assessment from construction road traffic are reported in Table 19-2.</p>	<p>accounted for within the scope of the assessment (see Section 19.4) and the environmental measures embedded within the design detailed in Table 19-29.</p>
<p>Wildlife and Countryside Act 1981</p>	
<p>This provides the basis for the regulatory framework for the designation of Sites of Special Scientific Interest (SSSIs). Sites in England are designated by Natural England if they have special interest by reason of any of their flora, fauna, or geological or physiographical features.</p>	<p>Rampion 2 has the potential for air quality effects on SSSIs. The protection conferred to these sites through legislation is accounted for within the scope of the assessment (see Section 19.4) and the environmental measures embedded within the design detailed in Table 19-29.</p>

- 19.2.3 The Air Quality Standards Regulations 2010 currently set out the AQOs in the UK. **Table 19-2** provides the AQS and AQOs relevant to the Air Quality assessment of impacts from construction road traffic.

Table 19-2 Air Quality Standards and Objectives relevant to the construction road traffic assessment

Pollutant	Averaging period	Value ($\mu\text{g m}^{-3}$)
NO ₂	Annual mean	40
NO ₂	1 hour mean, not to be exceeded more than 18 times a year (equivalent to 99.79th percentile)	200
PM ₁₀	Annual mean	40
PM ₁₀	24 hours mean, not to be exceeded more than 35	50

Pollutant	Averaging period	Value ($\mu\text{g m}^{-3}$)
	times a year (equivalent of 90.4th percentile)	
PM_{2.5}	Annual mean	20

19.2.4 **Table 19-3** lists the national planning policy relevant to the assessment of the effects on air quality receptors.

Table 19-3 National planning policy relevant to air quality

Policy description	Relevance to assessment
<i>Overarching National Policy Statement (NPS) for Energy (EN-1) (Department for Energy and Climate Change (DECC), 2011)</i>	
<p>Sets out overarching guidance and requirements for nationally significant energy infrastructure projects.</p> <p>Section 5.2 discusses air quality and emissions and notes the variety of potential pollutants and impacts on human health and on ecological sites. Section 5.2.6 states: “Where the project is likely to have adverse effects on air quality the applicant should undertake an assessment of the impacts of the proposed project as part of the Environmental Statement (ES).” This paragraph identifies what the ES should describe. Section 5.2 also explains how the Planning Inspectorate should take air quality into account when making a decision, and how they should consider requirements for mitigation.</p> <p>Section 5.2.7 outlines what the ES should describe in relation to air quality including:</p> <ul style="list-style-type: none"> ○ “any significant air emissions, their mitigation and any residual effects distinguishing between the project stages and taking account of any significant emissions from any road traffic generated by the project; ○ the predicted absolute emission levels of the proposed project, after mitigation methods have been applied; 	<p>The construction of the onshore elements of the Proposed Development has the potential to result in air quality effects. For Rampion 2 air quality emissions, including dust, are associated with construction activities, combustion sources from construction plant equipment and construction traffic. Embedded environmental measures are presented in Section 19.7. These are designed to ensure that there are no significant air quality effects.</p>

Policy description	Relevance to assessment
<ul style="list-style-type: none"> ○ <i>existing air quality levels and the relative change in air quality from existing levels; and</i> ○ <i>any potential eutrophication impacts.”</i> <p>In addition, section 4.10.2 says: <i>“Pollution control is concerned with preventing pollution through the use of measures to prohibit or limit the releases of substances to the environment from different sources to the lowest practicable level. It also ensures that ambient air and water quality meet standards that guard against impacts to the environment or human health.”</i></p> <p>Section 5.6.1 says: <i>“During the construction, operation and decommissioning of energy infrastructure there is potential for the release of a range of emissions such as odour, dust, steam, smoke, artificial light and infestation of insects. All have the potential to have a detrimental impact on amenity or cause a common law nuisance or statutory nuisance under Part III, Environmental Protection Act 1990.”</i></p>	
<p>Draft Overarching National Policy Statement for Energy (EN-1), (Department of Energy Security and Net Zero (DESNZ), 2023)</p>	
<p>Updates the 2011 EN-1 statement and sets out requirements for nationally significant energy infrastructure projects.</p> <p>Section 5.2.1 covers the requirement to consider construction, operation and decommissioning phases as well as outlining the key pollutants of concern (NO_x and PM).</p> <p>Section 5.2.2 covers the AQOs.</p> <p>Section 5.2.3 to 5.2.5 refers to power plants with combustion sources.</p> <p>Section 5.2.6 to 5.2.9 details the content of an ES regarding air quality, including receptors and future air quality</p>	<p>The construction of the onshore elements of the Proposed Development has the potential to result in air quality effects. For Rampion 2 air quality emissions, including dust, are associated with construction activities, combustion sources from construction plant equipment and construction traffic. Embedded environmental measures are presented in Section 19.7. These are designed to ensure that there are no significant air quality effects.</p>

Policy description	Relevance to assessment
<p>Section 5.2.10 to 5.2.12 refer to ensuring no breaches of AQO and includes mitigation considerations. It references the need for a construction management plan as means to codify mitigation. It also references section 5.14 that details appropriate mitigation from transport. Project does not lead to air quality impacts from transport so not directly relevant to the AQ chapter but should be considered by Transport.</p> <p>Sections 5.2.13 to 5.2.17 sets out the role of the Secretary of State in the decision-making process.</p>	<p><i>The Air Quality Strategy for England, Scotland, Wales and Northern Ireland (2007) (Department for Environment, Food and Rural Affairs (Defra) et al., 2007)</i></p> <p>Provides a framework for improving air quality at a national and local level and supersedes the previous strategy published in 2000. It imposes a number of obligations on local authorities to manage air quality but does not directly impose obligations on developers.</p> <p>To carry out an air quality review and assessment under the LAQM process, local authorities produce an Annual Status Report which describes areas identified to be at potential risk of exceeding the objectives in the regulations, and progress towards meeting the objectives. Review and assessments of local air quality aim to identify areas where national policies to reduce vehicle and industrial emissions are unlikely to result in air quality meeting the UK Government's AQOs by the required dates.</p> <p>For the purposes of determining the focus of review and assessment, local authorities should have regard to those locations where members of the public are likely to be regularly present and are likely to be exposed over the averaging period of the objective.</p> <p>Where the assessment indicates that some or all of the objectives may be potentially exceeded, the</p>

Policy description	Relevance to assessment
	<p>local authority has a duty to declare an AQMA. The declaration of an AQMA requires the local authority to implement an Air Quality Action Plan, to reduce air pollution concentrations so that the required AQOs are met.</p> <p>The LAQM process is key to the provision of baseline air quality data for the assessment (see Section 19.6).</p>
<p><i>Clean Air Strategy 2019 (Defra, 2019)</i></p>	
<p>Describes the UK Government’s approach to tackling air pollution in England.</p>	<p>Rampion 2 aligns with the priorities set out in the Clean Air Strategy 2019.</p>
<p><i>National Planning Policy Framework (NPPF) (Ministry of Housing, Communities and Local Government, 2021)</i></p>	
<p>A key part of the UK Government’s reforms to make the planning system less complex and more accessible. The NPPF acts as guidance for local planning authorities and decision-takers, both in drawing up plans and making decisions about planning applications. Paragraph 186 states that policies and plans should sustain and improve air quality. In addition, paragraph 105 indicates that developments should, wherever possible, help to improve local environmental conditions such as air quality.</p>	<p>Section 19.7 outlines embedded environmental measures (Table 19-29) to mitigate any potential effects to local air quality.</p>
19.2.5	<p>The UK Government published draft NPS EN1-EN5 (Department for Energy Security and Net Zero (DESNZ), 2023a; DESNZ, 2023b) for consultation in September 2021 and subsequently in March 2023 with further amendments. The 2011 NPSs remain in force until the review is approved (designated) and under proposed transitional arrangements the 2023 amendments will only have effect in relation to applications for development consent accepted for examination after designation. However, the draft emerging NPSs can potentially be relevant planning considerations. Therefore, Rampion 2 has kept abreast of the potential changes to the energy NPSs and incorporated any updates where required in the ES.</p>
19.2.6	<p>The following emerging national planning policies are relevant to the assessment of the effects on air quality receptors:</p>

- *Draft Overarching National Policy Statement for Energy (EN-1)*, (DESNZ, 2023a); and

19.2.7 There are no emerging expectations or changes relevant to the assessment of the effects on air quality receptors from the current Overarching NPS EN1 for Energy (DECC, 2011a) listed in **Table 19-3**.

Local planning policy

19.2.8 **Table 19-4** lists the local planning policy relevant to the assessment of the potential effects on air quality receptors.

Table 19-4 Local planning policy relevant to air quality

Policy description	Relevance to assessment
<p><i>Air Quality and Emissions Mitigation Guidance for Sussex (2021) (Mid Sussex District Council (MSDC), 2021)</i></p> <p>Provides clarity on how local authorities in Sussex intend interpreting relevant Local Plan policies. Provides advice for developers and their consultants on how to assess and mitigate the impact that new developments may have on local air quality. This guidance details a consistent approach by developers and local planning authorities to manage of air quality issues in planning applications and to avoid unnecessary delays in the planning process. It also provides an approach to calculate damage cost from emissions to air to ensure adequate mitigation has been considered within the design.</p>	<p>The guidance is used to justify why the Proposed Development falls outside the screening criteria for undertaking damage cost calculations of emissions to air in response to a comment received from the Planning Inspectorate (see Table 19-6) Scoping Opinion (Planning Inspectorate, 2020).</p>
<p><i>Adoption Arun Local Plan 2011-2031 (July 2018) (Arun District Council (ADC), 2018)</i></p> <p>Section 21.4 and Policy QE DM3 of the Arun Local Plan address air quality. Policy QE DM3 requires that: “All major development proposals will be required to assess the likely impacts of the development on air quality and mitigate any negative impacts.”</p>	<p>This chapter presents an assessment of the air quality effects. Embedded environmental measures are presented in Section 19.7 (Table 19-29). These embedded environmental measures are designed to ensure that there are no significant air quality, dust or odour effects.</p>
<p><i>Horsham District Planning Framework (2015) (Horsham District Council (HDC), 2015)</i></p>	

Policy description	Relevance to assessment
<p>Policy 24: Strategic Policy: Environmental Protection addresses air quality, and states: <i>“Developments will be expected to minimise exposure to and the emission of pollutants including noise, odour, air and light pollution and ensure that they:</i></p> <p>4. Minimise the air pollution and greenhouse gas emissions in order to protect human health and the environment;</p> <p>5. Contribute to the implementation of local Air Quality Action Plans and do not conflict with its objectives;</p> <p>6. Maintain or reduce the number of people exposed to poor air quality including odour. Consideration should be given to development that will result in new public exposure, particularly where vulnerable people (e.g. the elderly, care homes or schools) would be exposed to the areas of poor air quality.”</p>	<p>Embedded environmental measures are presented in Section 19.7. These are designed to ensure that there are no significant air quality, dust or odour effects, in line with the HDC Air Quality Action Plan (HDC, 2023).</p>
<p>Mid Sussex District Plan 2014 – 2031 (2018) (MSDC, 2018)</p>	
<p>DP29: Noise, Air and Light Pollution states: <i>“The environment, including nationally designated environmental sites, nationally protected landscapes, areas of nature conservation or geological interest, wildlife habitats, and the quality of people’s life will be protected from unacceptable levels of noise, light and air pollution by only permitting development where:...</i></p> <p><i>It does not cause unacceptable levels of air pollution;...</i></p> <p><i>Development proposals (where appropriate) are consistent with Air Quality Management Plans.”</i></p>	<p>This chapter presents an assessment of the air quality effects. Embedded environmental measures are presented in Section 19.7. These are designed to ensure that there are no significant air quality, dust or odour effects.</p>
<p>South Downs Local Plan 2014-2031 (July 2019) (South Downs National Park, 2019)</p>	
<p>Development Management Policy SD54: Pollution and Air Quality states: <i>“1. Development proposals will be permitted provided that levels of air, noise, vibration, light, water, odour or other pollutants do not have a significant negative affect on people and the natural environment now or in the</i></p>	<p>This chapter presents an assessment of the air quality effects of Rampion 2 that demonstrates that no significant adverse effects are likely, including within AQMAs. Embedded environmental measures are presented in Section 19.7. A commitment to follow best practice</p>

Policy description	Relevance to assessment
<p><i>foreseeable future, taking into account cumulative impacts and any mitigation.</i></p> <p>2. Development proposals that by virtue of their location, nature or scale could impact on an existing AQMA, as shown on the Policies Map, will be required to:</p> <p>a) Have regard to any relevant Air Quality Action Plan (AQAP) and to seek improvements in air quality through implementation of measures in the AQAP; and</p> <p>b) Provide mitigation measures where the development and/or associated traffic would adversely affect any declared AQMA.</p> <p>3. Development proposals will be required to provide mitigation measures where the development and/or its associated traffic could lead to a declaration of a new or extended AQMA.</p> <p>4. Development proposals will be permitted where they follow best practice methods to reduce levels of dust and other pollutants arising during a development from demolition through to completion.”</p>	<p>methods to reduce levels of dust is given an embedded environmental measure C-24 (see Table 19-29).</p>

Other relevant information and guidance

- 19.2.9 A summary of other relevant information and guidance relevant to the assessment undertaken for air quality is provided in **Table 19-5**.

Table 19-5 Other guidance relevant to air quality

Policy description	Relevance to assessment
<p>World Health Organization (WHO), Global Air Quality Guidelines (2021)</p>	
<p>The World Health Organization’s Air Quality Guidelines (AQG) serve as a global target for national, regional and city governments to work towards improving their citizen’s health by reducing air pollution.</p>	<p>The new guidelines will form part of any future updates to the Air Quality Objectives set out in the Air Quality Strategy (see Table 19-3).</p>
<p>The WHO Air quality guidelines are a set of evidence-based recommendations of limit values for specific air pollutants developed to help countries achieve air quality that protects public health. The first release of</p>	

Policy description	Relevance to assessment
<p>the guidelines was in 1987. Since then, several updated versions have appeared and the latest global version was published in 2005. WHO updates the Air Quality Guidelines on a regular basis so as to assure their continued relevance and to support a broad range of policy options for air-quality management in various parts of the world, especially taking into account the breadth of new health studies that have been published in the meanwhile.</p> <p>The 2021 update of the WHO air quality guidelines is in response to the real and continued threat of air pollution to public health.</p>	
<p><i>World Health Organization (WHO), Air Quality Guidelines for Europe (2000, 2006)</i></p>	
<p>Aims to provide a basis for protecting public health from adverse effects of air pollutants and to eliminate or reduce exposure to those pollutants that are known or likely to be hazardous to human health or well-being. These guidelines are intended to provide guidance and information to international, national and local authorities making risk management decisions, particularly in setting air quality standards.</p>	<p>The guidelines form part of the evidence that enable the development the Air Quality Objectives set out in the Air Quality Strategy, that are referenced in this assessment (see Table 19-3).</p>
<p><i>Defra, Local Air Quality Management Technical Guidance (TG22) (Defra, 2022)</i></p>	
<p>The technical guidance is designed to support local authorities in carrying out their duties under the Environment Act 1995 and includes information on monitoring and modelling air quality.</p>	<p>The assessment has consulted the guidance and it has informed the sensitivity of receptors and the approach to verification of traffic emissions dispersion modelling (see Section 19.8).</p>
<p><i>Environment Agency and Defra, Air emissions risk assessment for your environmental permit (2023)</i></p>	
<p>Contains long- and short-term assessment levels for releases to air derived from a number of published UK and international sources.</p> <p>Gives criteria for screening out source contributions in the context of</p>	<p>The Environment Agency screening criteria have been considered in the assessment of potential effects on sensitive receptors from construction plant equipment (see Section 19.8).</p>

Policy description	Relevance to assessment
<p>environmental permit applications. Although intended for use in evaluating permit applications, it is often used for planning applications where no better guidance is available (particularly for ecological receptors).</p> <p>This guidance also introduces the terms ‘<i>process contribution</i>’ (PC), meaning the concentration or deposition rate resulting from the development activities only, excluding other sources, and ‘<i>predicted environmental contribution</i>’ (PEC), meaning the total modelled concentration, equal to the PC plus the background contribution from all other sources. These terms are commonly used in air quality assessments, even where the term ‘process’ is not strictly accurate, and so are used in this assessment with ‘process’ referring to the Proposed Development.</p>	
<p>Institute of Air Quality Management (IAQM) and Environmental Protection UK (EPUK), <i>Land-use Planning and Development Control: Planning for Air Quality</i> (2017)</p>	
<p>Suggests how to classify the magnitude and significance of air quality effects from a new development for planning purposes.</p> <p>This guidance also promulgates the term air quality assessment level (AQAL) as a generic term for the various standards, objectives, limit values etc. against which impacts need to be assessed.</p>	<p>The guidance underpins the significance criteria applied to this assessment (see Table 19-30).</p>
<p>IAQM, <i>A guide to the assessment of air quality impacts on designated nature conservation sites</i> (2020)</p>	
<p>Provides guidance on the assessment of air quality impacts at designated nature conservation sites.</p>	<p>The guidance underpins the approach in assessing air quality effects on the identified ecological receptors (see Section 19.8).</p>
<p>IAQM, <i>Guidance on the assessment of dust from demolition and construction version 2.2</i> (2024)¹⁶</p>	

Policy description	Relevance to assessment
Provides guidance on the assessment of dust from construction activities.	The guidance underpins the approach in assessing construction dust effects as presented in Section 19.8 .
IAQM, Guidance on the assessment of odour for planning (2018)	
Provides guidance on the assessment of odour.	The guidance underpins the approach in assessing odour effects as presented in Section 19.8 .

19.3 Consultation and engagement

Overview

- 19.3.1 This section describes the stakeholder engagement undertaken for Rampion 2. This consists of the outcome of, and response to, the Scoping Opinion (Planning Inspectorate, 2020) in relation to the air quality assessment, the Evidence Plan Process (EPP), non-statutory consultation and Rampion 2's statutory consultation. An overview of consultation and engagement undertaken for Rampion 2 relevant to the EIA is outlined in **Section 5.17** of **Chapter 5: Approach to the EIA, Volume 2** of the ES (Document Reference: 6.2.5).
- 19.3.2 Given the social distancing restrictions which have been in place due to the COVID-19 pandemic from 2020 to 2022, technical consultation relating to air quality has taken place online, primarily in the form of conference calls using Microsoft Teams.

Scoping Opinion

- 19.3.3 Rampion Extension Development Ltd (RED) submitted a Scoping Report (RED, 2020) and request for a Scoping Opinion to the Secretary of State (administered by the Planning Inspectorate) on 2 July 2020. A Scoping Opinion was received on 11 August 2020 (Planning Inspectorate, 2020). The Scoping Report set out the proposed air quality assessment methodologies, outline of the baseline data collected to date and proposed, and the scope of the assessment. **Table 19-6** sets out the comments received in Section 5 of the Planning Inspectorate's Scoping Opinion (2020) 'Aspect based scoping tables – Onshore' that relate to air quality, and how these have been addressed in this ES. A full list of the Planning Inspectorate's Scoping Opinion comments and responses is provided in **Appendix 5.2: Response to the Scoping Opinion, Volume 4** of the ES (Document Reference: 6.4.5.2). Regard has also been given to other stakeholder comments that were received in relation to the Scoping Report.

Table 19-6 Planning Inspectorate (2020) Scoping Opinion responses – air quality

Planning Inspectorate ID number	Scoping Opinion comment	How this is addressed in this ES
5.2.1	<p><i>“Emissions of air pollutants from construction and decommissioning equipment on site.</i></p> <p><i>The Scoping Report proposes to scope out an assessment of air quality impacts from the on-site construction and decommissioning equipment. This conclusion is not justified through the provision of mobile plant and construction equipment numbers and details. The Applicant should provide specific details of the equipment required on site with justification for scoping them out of the assessment against relevant guidance and criteria. The Inspectorate also notes that there is further work to be done in terms of refinement of the route, locations of construction compounds and the location of the substation. Whilst these (and thus proximity to air quality sensitive receptors) are uncertain, the Inspectorate considers it premature to rule out likely significant effects during construction and decommissioning.”</i></p>	<p>The assessment now considers air quality impacts from on-site construction equipment with detailed information on the mobile plant and construction equipment required presented in Appendix 21.1: Noise and vibration, Volume 4 of the ES (Document Reference: 6.4.21.1). A quantitative assessment of effects from temporary construction activities associated with Trenchless Crossings (TCs) construction compounds, landfall and substations is presented along with an assessment of likely effects on receptors in Section 19.9, Section 19.10 and Appendix 19.2: Full results of construction plant modelling, Volume 4 of the ES (Document Reference: 6.4.19.2). These are the sources that are associated with emissions to air.</p> <p>The assessment has been updated to reflect the proposed DCO Order Limits and receptors have been selected to ensure that the most sensitive receptors across the</p>

Planning Inspectorate ID number	Scoping Opinion comment	How this is addressed in this ES
		<p>TCs, landfill and substations works are considered. The proposed batching plant at the Oakendene substation is mainly associated with dust emissions and these have been considered in the qualitative dust assessment (see Table 19-33).</p> <p>Potential impacts from decommissioning on-site equipment have been scoped out as the number of equipment is a fraction of the anticipated construction equipment.</p>
5.2.2	<p><i>“Emissions of odour from construction, operation and decommissioning</i> <i>The Inspectorate is content that there is unlikely to be significant emissions of odour during construction and therefore agrees that this matter can be scoped out of the air quality assessment.</i> <i>The Inspectorate notes the Applicant’s intention at commitment C-6 to avoid areas of historic landfill through the design and DCO [Development Consent Order] order limits and the agreement that this can be scoped out is on this basis.”</i></p>	<p>Acknowledged. Further refinement of the Proposed Development since receipt of the Scoping Opinion resulted in the potential for temporary construction activity to take place in/close to areas of historical landfill, and therefore an odour assessment has been carried out where appropriate (see Section 19.9).</p> <p>Effects from odour during the operation and maintenance and decommissioning phases remain scoped out.</p>
5.2.3	<p><i>“Emissions of air pollutants during operation.</i></p>	<p>A screening of operational traffic using</p>

Planning Inspectorate ID number	Scoping Opinion comment	How this is addressed in this ES
	<p><i>The Inspectorate is content that there will be no significant emissions associated with the onshore cable or substation during operation and maintenance and this matter to be scoped out of the air quality assessment. However specific details should be provided on the amount of road traffic associated with the operational Proposed Development and how these relate to the IAQM/EPUK screening values set out in paragraph 6.3.3.”</i></p>	<p>the IAQM/EPUK criteria (2017) is presented in Section 19.8. This confirmed that operational traffic is below the IAQM screening criteria and it can therefore be scoped out of the assessment.</p>
5.2.3	<p>“Emissions of air pollutants during operation. <i>With reference to the description of the Proposed Development, any potential sources of emissions from the proposed substation should also be set out in demonstrating significant effects on receptors sensitive to air quality can be ruled out.”</i></p>	<p>No sources of emissions to air from the operation of the onshore substation have been identified, therefore significant effects on receptors sensitive to air quality can be ruled out. Therefore, air quality effects from the onshore substation during the operation and maintenance phase have been scoped out.</p>
5.2.4	<p>“Emissions of dust during operation <i>The Inspectorate is content that there is unlikely to be significant emissions of dust during operation and therefore agrees that this matter can be scoped out of the air quality assessment.”</i></p>	<p>Acknowledged. Emissions of dust during the operation and maintenance phase have been scoped out.</p>
5.2.5	<p>“Sensitive ecological receptors <i>The ES should set out the relevant Zols¹ within which ecological effects from the construction works will be considered (both in terms of the cable route and substation works).”</i></p>	<p>The assessment presents the identified sensitive receptors within the Zols in Section 19.8.</p>
5.2.6	<p>“Study area/AQMAs <i>The Inspectorate agrees with the methodology for designating the proposed</i></p>	<p>Acknowledged. The Study Area is detailed in Section 19.4. Locations</p>

¹ Zones of Influence (Zols)

Planning Inspectorate ID number	Scoping Opinion comment	How this is addressed in this ES
	<p><i>study area set out in paragraph 6.3.3. The study area for the assessment should be sufficiently broad to ensure that all receptors which could experience a significant effect are captured within the assessment. The ES should consider how traffic and transport due to construction of the Proposed Development would contribute to air quality levels in the relevant AQMAs. Effort should be made to agree the extent of the study area with relevant consultation bodies and justified within the ES.”</i></p>	<p>likely to be affected by air quality effects have been discussed with relevant stakeholders to ensure they are included in the assessment (see Section 19.8).</p>
5.2.7	<p>“Baseline/monitoring <i>The Scoping Report provides limited information regarding the need for surveys in order to characterise the baseline environment or otherwise inform the Air Quality Assessment. Paragraph 6.3.15 claims that existing data sources are sufficient to characterise the baseline air quality, without the need for further monitoring. Effort should be made to agree the requirement for additional baseline survey data with the relevant consultation bodies. The Applicant should set out in the ES any proposals for air quality monitoring of emissions from the Proposed Development during construction.”</i></p>	<p>Acknowledged. There are several publicly available air quality datasets from Defra and the relevant local authorities. Therefore, there was sufficient information to characterise baseline concentrations and no site-specific air monitoring surveys was required. Details on the existing baseline are provided in Section 19.6. Table 19-36 includes proposed mitigation measures to address dust emissions during construction. Measure 12 references monitoring of PM₁₀ and dust, if required depending on the size of the construction site and after consultation with the local authority.</p>
5.2.8	<p>“Mitigation <i>The Inspectorate would expect an Air Quality Management Plan to form part of the CoCP [Code of Construction Practice]. The</i></p>	<p>The relevant dust mitigation measures form part of the Outline Code of Construction</p>

Planning Inspectorate ID number	Scoping Opinion comment	How this is addressed in this ES
	<p><i>Applicant should ensure that drafts of these documents, demonstrating the minimum measures relied upon as mitigation, are submitted with the ES and appropriately secured.</i></p>	<p>Practice (CoCP) (Document Reference: 7.2) (see Table 19-29), secured through embedded environmental measure C-24. The Outline CoCP (Document Reference: 7.2) includes an embedded environmental measure to produce Dust Management Plans for the areas within the proposed DCO Order Limits that are associated with medium dust risk.</p>
<p>5.2.9</p>	<p>“Emissions of dust from construction/decommissioning <i>The Inspectorate is satisfied with the methodology proposed, which is based on the Institute of Air Quality Management’s (IAQM) (2016) Guidance on the assessment of dust from decommissioning and construction. The assessment should include an examination of effects on both human and ecological receptors.”</i></p>	<p>Acknowledged. The assessment of emissions of dust from construction / decommissioning is presented in Section 19.9 in line with IAQM guidance (2016<u>2024</u>).</p>
<p>5.2.10</p>	<p>“Emissions of air pollutants from construction/decommissioning traffic on roads <i>The Inspectorate is satisfied with the methodology proposed, which is based on industry standard guidance (IAQM and Environmental Protection UK (EPUK)) and includes the assessment of effects on both human and ecological receptors. Paragraph 6.3.46 states that ‘It is likely that the construction and decommissioning road traffic will be below IAQM thresholds for scoping out.’ If this is the case the ES should include justification for its exclusion from the ES.”</i></p>	<p>An assessment of the air quality effects of road traffic associated with the construction phase is provided in Section 19.9 in line with IAQM and EPUK guidance (2017). Traffic associated with the decommissioning phase is assumed to be half of the construction traffic and below the IAQM and EPUK guidance (2017) screening criteria. Therefore,</p>

Planning Inspectorate ID number	Scoping Opinion comment	How this is addressed in this ES
5.2.11	<p>“Relationship between air quality assessment and TA [Transport Assessment] <i>The air quality assessment should be informed by the TA and the projects transport consultants particularly with regards to defining the study area and the potential impact from vehicle movements during both construction and operation.”</i></p>	<p>potential impacts from decommissioning traffic have been scoped out.</p> <p>The Proposed Development does not require a full Transport Assessment. The relevant traffic characteristics are assessed in Chapter 23: Transport, Volume 2 of the ES (Document Reference: 6.2.23) <u>and Chapter 32: ES Addendum, Volume 2 of the ES (Document Reference: 6.2.32 and [REP5-038])</u>. The air quality assessment is informed by this traffic modelling, with traffic information referenced in Section 19.8 and Section 19.9.</p>

Evidence Plan Process (EPP)

Overview

- 19.3.4 The EPP has been set up to provide a formal, non-legally binding, independently chaired forum to agree the scope of the EIA and Habitats Regulations Assessment (HRA), and the evidence required to support the DCO Application. The EPP commenced in January 2020 and has continued throughout the EIA helping to inform the ES.
- 19.3.5 For air quality, further engagement has been primarily undertaken via the EPP Expert Topic Group (ETG) ‘Traffic, Air Quality, Noise, Health and Socio-economics (onshore)’ ETG Meeting alongside additional meetings with specific stakeholders as required.
- 19.3.6 Further information is provided in the **Evidence Plan** (Document Reference: 7.21). **Table 19-7** summarises the topics covered in the air quality sections of the relevant Expert Topic Group (ETG) meeting and the recorded outcomes of the meetings.

Table 19-7 Summary of air quality ETG meetings

Meeting	Meeting Attendees	Topics Covered	Outcomes
27 October 2020	West Sussex County Council (WSCC), South Downs National Park (SDNPA), Highways England, ADC, HDC, MSDC	This meeting covered the scope of the air quality assessment, proposed methodology, proposed Study Area and the key datasets to stakeholders.	RED outlined that no site-specific air quality monitoring is planned. MSDC asked RED for confirmation that there would be no significant air quality effects from the operation and maintenance phase of Rampion 2, which was given. MSDC suggested that RED should consider providing charging points for electric vehicles at the onshore substation. No other substantive points around air quality were raised.
16 March 2021	WSCC, SDNPA Highways England, ADC, HDC, and MSDC	This meeting covered an update on progress since scoping, consultation progress, and initial feedback on the air quality assessment in the Preliminary Environmental Information Report (PEIR).	Confirmed the changes in scope that included an assessment of construction traffic and construction plant associated with the Proposed Development. It confirmed further consultation with Worthing Borough Council (WBC) to inform the approach to the air quality assessment.
04 November 2021	WSCC, SDNPA Highways England, ADC, HDC, and MSDC	This meeting covered an update on progress since the submission of the PEIR (RED, 2021), a discussion on the Section 42 feedback and how this would be addressed within the ES.	Confirmed agreed scope. Discussion on the need for an Air Emission Mitigation Strategy and further consultation required.
17 November 2022	MSDC, WSCC; and ADC	This meeting covered an update on progress since	Agreed further consideration of more stringent assumptions for

Meeting	Meeting Attendees	Topics Covered	Outcomes
		the submission of the PEIR Supplementary Information Report (SIR) (RED, 2022), an update on Section 42 feedback and, where relevant, how feedback would be addressed within the ES.	construction (i.e. duration of stockpiles). Discussion on the scope of the Air Emission Mitigation Strategy, agreed further consultation with MSDC to confirm scope.
02 March 2023	EA, ADC, WSCC and SDNPA	This meeting covered an update on progress since November 2022 including feedback received from the second Statutory Consultation exercise Preliminary Environmental Information Report Supplementary Information Report (PEIR SIR) and the third Statutory Consultation exercise Preliminary Environmental Information Report Further Supplementary Information Report (PEIR FSIR) (RED, 2021; 2022) consultations. Section 42 comments were also discussed.	Discussion on construction traffic routing and the need to avoid the Storrington High Street with confirmation that this is covered in the Outline Construction Traffic Management Plan (Outline CTMP) (Document Reference: 7.6). Discussion to be undertaken to inform HDC that an Air Emission Mitigation Strategy is no longer relevant to the Proposed Development, given the anticipated construction traffic and duration of activities that were amended to reflect the final onshore <u>cable</u> route.
June 2023	WSCC, HDC and SDNPA	Confirmed that there are not changes to the scope and the	Meeting arranged with HDC to discuss traffic data and that the Proposed Development does not meet

Meeting	Meeting Attendees	Topics Covered	Outcomes
		outcome of the completed assessments are inline with PEIR outcomes. Issues raised around the request to produce the air emissions mitigation strategy and the traffic data that underpinned the screening out of this output.	the criteria set out in the Sussex Guidance (2022) for an air emissions mitigation strategy. Agreed to consider the inclusion of an air emissions mitigation strategy.

Non-statutory consultation

Non-statutory consultation exercise – January / February 2021

- 19.3.7 RED carried out a non-statutory Consultation Exercise for a period of four weeks from 14 January 2021 to 11 February 2021. This non-statutory consultation exercise aimed to engage with a range of stakeholders including the prescribed and non-prescribed consultation bodies, local authorities, Parish Councils and general public with a view to introducing the Proposed Development and seeking early feedback on the emerging designs.
- 19.3.8 The key themes emerging from the non-statutory consultation exercise in January 2021 relating to air quality were:
- concerns over the location of the Wineham Lane substation search areas and their proximity to nearby properties;
 - concerns over the use of Wineham Lane for construction traffic;
 - concerns over minimising impacts on sensitive sites including ancient hedgerows, ancient woodland, trees, SSSIs and areas of high biodiversity;
 - limiting working hours onshore;
 - traffic management during construction and the capacity of local roads;
 - details around construction programming and phasing; and
 - limiting working hours onshore for noisy equipment
- 19.3.9 Further detail about the results of the non-statutory consultation exercise can be found in the [Consultation Report](#) (Document Reference: 5.1).

Statutory consultation exercises

- 19.3.10 Rampion 2's first Statutory Consultation exercise under Section 42 of the Planning Act 2008 ('formal consultation') ran from 14 July to 16 September 2021, a period

of nine weeks. The PEIR was published as part of the first Statutory Consultation which provided preliminary information on air quality within Chapter 20 of the PEIR (RED, 2021).

- 19.3.11 **Table 19-8** provides a summary of the key themes of the feedback received in relation to air quality and outlines how the feedback has been considered in this ES chapter. A full list of all comments received during the first Statutory Consultation exercise in 2021 and the responses to those comments are provided in the **Consultation Report** (Document Reference: 5.1).

Table 19-8 First Statutory Consultation exercise (July – September 2021) feedback

Stakeholder	Theme	How this is addressed in this ES
ADC	Consideration of charging points for electric vehicles.	To be considered in detailed design.
	Ensure the traffic model uses the peak construction year in regard to vehicle movements.	The construction traffic modelling undertaken as part of this ES has used the peak construction traffic years as presented in Chapter 23: Transport, Volume 2 of the ES (Document Reference: 6.2.23).
	Baseline data should not reflect traffic activity levels throughout the COVID-19 pandemic. A representative period of traffic data should be used, for example 2019 data.	The impacts of the COVID-19 pandemic on the data used for assessment have been considered as part of the baseline data gathering as presented in Section 19.5 . The traffic modelling has used 2019 as baseline year for the model verification to ensure a robust assessment.
	Consideration of monitoring data and air quality baseline concentrations in Arun.	According to ADC latest Air Quality Annual Status Report (ADC, 2022) current monitoring indicates that there is good air quality within the district and no exceedances of the AQOs have been identified (Section 19.6). The air quality assessment has considered effects from construction traffic on road links that exceed the criteria detailed in the IAQM Guidance (IAQM and EPUK, 2017) on land-use planning and development control: Planning for air quality 2017 v1.2. Traffic increases associated with the Proposed Development within Arun do not

Stakeholder	Theme	How this is addressed in this ES
		<p>exceed the IAQM and EPUK (2017) criteria and therefore potential effects from construction traffic at in Arun have been screened out. Traffic data are presented in Chapter 23: Transport, Volume 2 of the ES (Document Reference: 6.2.23). Regardless, according to ADC latest Air Quality Annual Status Report (ADC, 2022) current monitoring indicates that there is good air quality within the district and no exceedances of the AQOs have been identified (Section 19.6).</p>
	Lack of receptors considered within Arun in the construction traffic model.	Construction traffic modelling has focused in areas where anticipated additional traffic is above the IAQM and EPUK (2017) criteria. Only one road link (B2135, South of Ashurst) falls within the criteria and has been assessed (see Section 19.9).
	Consideration of mitigation for locations with moderate adverse impacts.	Moderate adverse impacts have been predicted in areas where the total pollutant concentrations are comfortably below the relevant objective. Given the temporary nature of the impacts and the concentrations at these locations, no additional mitigation is proposed (see Section 19.9).
	Source of dust mitigation measures.	Dust mitigation measures have been taken from the IAQM (2016 2024) <i>Guidance on the Assessment of Dust from Demolition and Construction</i> (see Table 19-36).
Highways England South East	Construction traffic model should be updated to consider the new baseline.	Construction traffic modelling has been updated accordingly (see Section 19.6).
HDC	Provision of receptor location in excel.	Noted. Receptor location provided in a suitable format (see Appendix 19.1: Full results of construction

Stakeholder	Theme	How this is addressed in this ES
		<p>road traffic modelling, Volume 4 of the ES (Document Reference: 6.4.19.1) and Appendix 19.2: Full results of construction plant modelling, Volume 4 of the ES (Document Reference: 6.4.19.2)). A full list of final receptors and their grid location was also provided in Microsoft Excel format, during the June 2023 ETG.</p>
	<p>Provision of an Air Quality Mitigation Plan.</p>	<p>The request for an Air Quality Mitigation Plan was discussed in the ETG (see Table 19-7). Considering the nature and timescales of the Proposed Development an Air Mitigation Plan is not required.</p>
	<p>Feasibility of enforcement Heavy Goods Vehicle (HGV) routing to avoid the Cowfold AQMA.</p>	<p>The justification of the HGV routes forms part of the Outline Construction Traffic Management Plan (CTMP) (Document Reference: 7.6) supporting the DCO Application and is a requirement of the DCO. Enforcement of the Outline CTMP (Document Reference: 7.6) is secured through commitment C-158 (see Commitment Register (Document Reference: 7.22)).</p> <p>In addition, Chapter 23: Transport, Volume 2 and Chapter 32: ES Addendum, Volume 2 of the ES (Document Reference: 6.2.23) presents the methodology and calculation of construction traffic, confirming that no traffic will be routed through the Cowfold AQMA.</p>
	<p>Confirm the emission standards of the construction traffic vehicles and Non-Road Mobile Machinery (NRMM) used for cable installation along the A272.</p>	<p>Onshore elements of the Proposed Development will be to a EURO standard V class or better wherever possible as outlined in the Outline CTMP (Document Reference: 7.6)</p>

Stakeholder	Theme	How this is addressed in this ES
	Clarification of the duration of the installation activities taking place along the A272 between the A23 and A24.	There are two construction compounds bordering the A272 between the A23 and A24 to support the construction of the substation and the onshore cable corridor, anticipated to take 4 years.
	Air quality dispersion model receptor locations.	<p>Air quality dispersion model receptor locations are presented in Appendix 19.1: Full results of construction road traffic modelling, Volume 4 of the ES (Document Reference: 6.4.19.1) and Appendix 19.2: Full results of construction plant modelling, Volume 4 of the ES (Document Reference: 6.4.19.2).</p> <p>Figure 19.2, Volume 3 of the ES (Document Reference: 6.3.19) also presents the location of the receptors considered for the traffic model.</p>
MSDC	Charging points for electric vehicles	To be considered in detailed design.
Natural England	Transport Assessment to ensure the peak construction year is assessed.	Assessment has considered the peak construction year (see Section 19.9).
	Access road management adjacent to Amberley Mount to Sullington Hill SSSI.	Further information included in the Outline CTMP (Document Reference: 7.6) on the management of the access road adjacent to SSSI.
	Confirmation that dust impacts are unlikely on the Climping Beach SSSI.	The ES chapter assesses Climping Beach SSSI for completeness due to its location adjacent to the proposed DCO Order Limits in the vicinity of landfall. Dust impacts are considered negligible (Sections 19.8 and 19.9).
	Consideration of dust impacts on Sullington Hill SSSI.	Consideration of potential dust impacts on Amberley Mount to

Stakeholder	Theme	How this is addressed in this ES
		Sullington Hill SSSI is included in the ES (Sections 19.8 and 19.9).
WSCC	Update to the CEA table	Table 19-40 has been updated to reflect all current projects that have the potential to result in cumulative effects with the Proposed Development.
	Consideration of the mitigation measure <i>'to hold regular liaison meetings with other high risk construction sites within 500m of the temporary construction site boundary, should be considered for other construction activities where risks are identified'</i> . (Section 19.12.9)	Acknowledged. The environmental measures considered, included the measure referenced in the comment, have been informed from the risk identified during the construction dust assessment.

- 19.3.12 Following feedback to the first Statutory Consultation exercise in 2021 and after further analysis, it was identified that some coastal residents did not receive consultation leaflets as intended. Therefore, the first Statutory Consultation was reopened between 7 February 2022 to 11 April 2022 for a further nine weeks. No further comments were received in regard to air quality.

Second Statutory Consultation exercise – October to November 2022

- 19.3.13 The second Statutory Consultation exercise was undertaken from 18 October 2022 to 29 November 2022. This was a supplementary consultation which focused on updates to the onshore cable route proposals which were being considered following feedback from consultation and further engineering and environmental works. As part of this second Statutory Consultation exercise, RED sought feedback on the potential changes to the onshore cable route proposals to inform the onshore design taken forward to DCO application.
- 19.3.14 **Table 19-9** provides a summary of the key themes of the feedback received in the second Statutory Consultation exercise in 2022 relation to air quality and outlines how the feedback has been considered in this ES chapter. A full list of all comments received during the second Statutory Consultation exercise in 2022 and the responses to those comments is provided in the **Consultation Report** (Document Reference: 5.1).

Table 19-9 Second Statutory Consultation exercise (October – November 2022) feedback

Stakeholder	Theme	How this is addressed in this ES
Storrington & Sullington Parish Council	Concerns on traffic routing along the Storrington AQMA and a request that traffic measures, such as Automatic Number Plate Recognition (ANPR) cameras, along any prescribed HGV route that includes the A24 and Long Furlong, are considered.	A review of construction traffic flows has confirmed that there will be no significant traffic travelling through the Storrington High Street AQMA. AADT along the AQMA are below the IAQM and EPUK (2017) screening criteria for road links in AQMAs (see Section 19.9). Therefore, potential impacts are negligible. The routing of construction traffic will be managed by the Outline CTMP (Document Reference: 7.6).

Third Statutory Consultation exercise – February 2023 to March 2023

19.3.15 The third Statutory Consultation exercise was undertaken from 24 February 2023 to 27 March 2023. This was a targeted consultation which focused on a further single onshore cable route alternative being considered following feedback from consultation and further engineering and environmental works. As part of this third Statutory Consultation exercise, RED sought feedback on the potential changes to the onshore cable route proposals to inform the onshore design taken forward to DCO Application. No further comments were received regarding air quality.

Fourth Statutory Consultation exercise – April to May 2023

19.3.16 The fourth Statutory Consultation exercise was undertaken from 28 April 2023 to 30 May 2023. This was a targeted consultation which focused on the proposed extension works to the existing National Grid Bolney substation to facilitate the connection of the Rampion 2 onshore cable route into the national grid electricity infrastructure. As part of this fourth Statutory Consultation exercise, RED sought feedback on the proposed substation extension works to inform the onshore design and mitigation taken forward to the DCO Application. No further comments were received regarding air quality.

19.4 Scope of the assessment

Overview

- 19.4.1 This section sets out the scope of the ES assessment for air quality. This scope has been developed as Rampion 2 design has evolved and responds to feedback received as set out in **Section 19.3**.

Spatial scope and Study Area

- 19.4.2 The Study Area for the air quality assessment is defined as the area of the Proposed Development together with the Zones of Influence (ZOIs). ZOIs for air quality are the area immediately around the Proposed Development (for a distance based on expert judgement and recognised guidance), plus roads on which traffic related to the Proposed Development may travel.
- 19.4.3 Guidance published by IAQM ([20162024](#)) suggests dust impacts may extend up to 350m from temporary construction site boundaries, and up to 500m from the temporary construction site entrance/exit along roads on which construction traffic is travelling.
- 19.4.4 Guidance published jointly by the IAQM and EPUK (2017) recommends a ZOI extending for a distance of 200m from roads on which a significant increase in traffic would occur as a result of the development. The guidance further defines a significant increase in traffic as follows:
- cause a significant change in Light Duty Vehicle (LDV)² traffic flows on local roads with relevant receptors:
 - ▶ more than 100 Annual Average Daily Traffic (AADT)³ within or adjacent to an AQMA; or
 - ▶ more than 500 AADT elsewhere.
 - cause a significant change in Heavy Duty Vehicle (HDV)⁴ flows on local roads with relevant receptors:
 - ▶ more than 25 AADT within or adjacent to an AQMA; or
 - ▶ more than 100 AADT elsewhere.
 - realign roads, for instance changing the proximity of receptors to traffic lanes, where the change is 5m or more and the road is within an AQMA; or
 - introduce a new junction or remove an existing junction near to relevant receptors. This applies to junctions that cause traffic to significantly change vehicle accelerate / decelerate (for example, traffic lights, or roundabouts).

² LDV = cars and small vans less than 3.5 t gross vehicle weight.

³ AADT = annual average daily traffic flow (24-hour).

⁴ HDV = goods vehicles and buses greater than 3.5 t gross vehicle weight.

- 19.4.5 Odour sources are sufficiently variable that there are no recognised quantitative criteria for determining ZOIs. The IAQM (2018) risk-based assessment methodology, used here, relies on professional judgement.
- 19.4.6 The Proposed Development will not feature any road realignments or new junctions, bar the junction of the A272 access road to the Oakendene substation. A number of new temporary and permanent accesses are proposed along existing roads.

Temporal scope

- 19.4.7 The temporal scope of the assessment of air quality is the entire lifetime of Rampion 2 which therefore covers the construction, operation and maintenance, and decommissioning phases.
- 19.4.8 The peak of construction road traffic is taken to occur in 2026 for the purpose of determining vehicle emission factors.

Potential receptors

- 19.4.9 The spatial and temporal scope of the assessment enables the identification of receptors which may experience a change as a result of Rampion 2. The receptors identified that may experience likely significant effects for air quality are outlined in **Table 19-10**.

Table 19-10 Receptors requiring assessment for air quality

Receptor group	Receptors included within group
Human receptors	<p>A number of human receptors are located close to the onshore part of the proposed DCO Order Limits. Receptors include residential properties, schools, medical facilities, prisons and commercial properties. For assessing impacts from dust, it is sufficient to count the number of receptors within various distance bands of the onshore part of the proposed DCO Order Limits. For air quality impacts, notional receptors have been used to demonstrate that there are negligible impacts from construction. For the road traffic assessment, specific receptors have been identified along the road link (B2135, South of Ashurst) that have been screened as requiring assessment. No impacts are anticipated on the AQMAs declared in the local authorities that fall within the proposed Study Area (see Paragraph 19.8.6).</p> <p>For odour impacts, receptors potentially most affected by emissions from historical landfill sites that may be disturbed by construction works have been identified. These are described in detail in Section 19.8.</p>
Ecological receptors	Two SSSIs have the potential to be affected by air quality impacts from the Proposed Development, namely Amberley

Receptor group	Receptors included within group
	Mount to Sullington Hill SSSI and Climping Beach SSSI, which lie within the ZOI for dust impacts.

19.4.10 The human receptors that have been considered in this assessment were informed by the Defra LAQM.TG (2022) guidance where they state where the Air Quality Objective (AQO) should apply. The information is presented in **Table 19-11**.

Table 19-11 Examples of where the AQO should apply for human receptors

Averaging Period	AQO Objectives should apply at:	AQO Objectives should generally not apply at:
Annual mean	All locations where members of the public might be regularly exposed. Building façades of residential properties, schools, hospitals, care homes etc.	Building façades of offices or other places of work where members of the public do not have regular access. Hotels, unless people live there as their permanent residence. Gardens of residential properties. Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short term.
24-hour mean	All locations where the annual mean objectives would apply, together with hotels. Gardens of residential properties ⁵	Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short term.
1-hour mean	All locations where the annual mean and 24- and 8-hour mean objectives would apply. Kerbside sites (e.g. pavements of busy shopping streets). Those parts of car parks, bus stations and railway stations etc. which are not fully enclosed, where	Kerbside sites where the public would not be expected to have regular access.

⁵ For gardens, such locations should represent parts of the garden where relevant public exposure is likely, for example where there is a seating or play areas. It is unlikely that relevant public exposure would occur at the extremities of the garden boundary, or in front gardens, although local judgement should always be applied.

Averaging Period	AQO Objectives should apply at:	AQO Objectives should generally not apply at:
	<p>the public might reasonably be expected to spend one hour or more.</p> <p>Any outdoor locations at which the public may be expected to spend one hour or longer.</p>	

Potential effects

19.4.11 Potential effects on air quality receptors that have been scoped in for assessment are summarised in **Table 19-12**.

Table 19-12 Potential effects on air quality receptors scoped in for further assessment

Receptor	Activity or impact	Potential effect
Construction phase		
Residential properties and other locations where people may be exposed over relevant time periods, within 200m of affected roads and especially in AQMAs. Sensitive ecological receptors within 200m of affected roads.	Emissions of air pollutants from construction traffic on roads.	Health effects on human receptors. Damage to ecological receptors.
Residential properties and other locations where people may be exposed over relevant time periods, within 200m of a temporary construction site and especially in AQMAs. Sensitive ecological receptors within 200m of a temporary construction site.	Emissions of air pollutants from construction equipment on site.	Health effects on human receptors. Damage to ecological receptors.
Residential properties and other locations with public access, and ecological sites, within 350m from the temporary construction site boundaries, and up to 500m from the temporary construction site entrance/exit along roads on which construction traffic is travelling.	Emissions of dust from construction	Loss of amenity at human receptors. Damage to ecological receptors.
Residential properties and other locations with public access near the temporary construction site.	Emissions of odour from construction	Loss of amenity.

Receptor	Activity or impact	Potential effect
Decommissioning phase		
Residential properties and other locations where people may be exposed over relevant time periods, within 200m of affected roads and especially in AQMAs. Sensitive ecological receptors within 200m of affected roads.	Emissions of air pollutants from decommissioning traffic on roads	Health effects on human receptors. Damage to ecological receptors.
Residential properties and other locations where people may be exposed over relevant time periods, especially in AQMAs. Sensitive ecological receptors.	Emissions of air pollutants from equipment on site	Health effects on human receptors. Damage to ecological receptors.
Residential properties and other locations with public access, and ecological sites, within 350m from temporary construction site boundaries, and up to 500m from the temporary construction site entrance/ exit along roads on which construction traffic is travelling.	Emissions of dust from decommissioning activities	Loss of amenity at human receptors. Damage to ecological receptors.

19.4.12 The only air pollutants that have been scoped into the assessment are NO₂, PM₁₀, PM_{2.5} and NO_x (for ecological receptors only). Both emissions and background concentrations of other pollutants are extremely low and there is no risk of any exceedance of any assessment levels.

Activities or impacts scoped out of assessment

19.4.13 A number of potential effects have been scoped out from further assessment, resulting from a conclusion of no likely significant effect. These conclusions have been made based on the knowledge of the baseline environment, the nature of planned works and the wealth of evidence on the potential for impact from such projects more widely. The conclusions follow (in a site-based context) existing best practice. Each scoped out activity or impact is considered in turn in **Table 19-13**.

Table 19-13 Activities or impacts scoped out of assessment

Activity or impact	Rationale for scoping out
Emissions of air pollutants from operational traffic	Road traffic during the operation and maintenance phase is considered to be limited to occasional site visits and maintenance works. Traffic flows are therefore expected to be well below the IAQM and EPUK criteria (2017) at which a detailed assessment should be considered (see Paragraph

Activity or impact	Rationale for scoping out
Emissions of air pollutants from plant and equipment during operation and maintenance	<p>19.8.4). No further assessment is therefore necessary, and it is concluded that the residual effect is of negligible permanent direct significance, which is Not Significant in EIA terms.</p> <p>Emissions of air pollutants from plant and equipment during the operation and maintenance phase have been scoped out because the amount of such plant or equipment associated with the operation of Rampion 2 is extremely small and there will be no significant emissions.</p> <p>The Planning Inspectorate agreed that this can be scoped out of the EIA in the Scoping Opinion (Planning Inspectorate, 2020) with further detail provided in ID 5.2.3 in Table 19-6.</p>
Emissions of dust during operation and maintenance	<p>Emissions of dust during the operation and maintenance phase have been scoped out because there are no dust sources associated with the operation of Rampion 2.</p> <p>The Planning Inspectorate agreed that this can be scoped out of the EIA in the Scoping Opinion (Planning Inspectorate, 2020) with further detail provided in ID 5.2.2 in Table 19-6.</p>
Emissions of odour during operation and maintenance	<p>Emissions of odour during operation and maintenance phase have been scoped out because there are no odour sources associated with the operation of Rampion 2.</p> <p>The Planning Inspectorate agreed that this can be scoped out of the EIA in the Scoping Opinion (Planning Inspectorate, 2020) with further detail provided in ID 5.2.2 in Table 19-6.</p>
Emissions of odour during decommissioning	<p>Emissions of odour during the decommissioning phase have been scoped out because there are no odour sources identified apart from the historical landfill. As the decommissioning strategy is to leave the cables in situ, there will be no additional disturbance to the historical landfill and therefore no odour source (see Section 4.89 in Chapter 4: The Proposed Development, Volume 2 of the ES (Document Reference: 6.2.4)).</p>

19.5 Methodology for baseline data gathering

Overview

- 19.5.1 Baseline data collection has been undertaken to obtain information over the Study Area described in **Section 19.4: Scope of the assessment**. The current baseline conditions presented in **Section 19.6: Baseline conditions** sets out data currently available information from the Study Area.

Desk study

19.5.2 The data sources that have been collected and used to inform this air quality assessment are summarised in **Table 19-14**.

Table 19-14 Data sources used to inform the air quality ES assessment

Source	Date	Summary	Coverage of Study Area
Department for Environment, Food and Rural Affairs (Defra) (2020)	May 2023	Background maps of forecast air quality concentrations.	Full coverage of Study Area.
ADC (2022)	August 2022	Monitoring data and supporting information on AQMAs.	Monitoring sites in ADC area.
HDC (2022)	June 2022	Monitoring data and supporting information on AQMAs.	Monitoring sites in HDC area.
MSDC (2022)	June 2022	Monitoring data and supporting information on AQMAs.	Monitoring sites in MSDC area.
Worthing Borough Council (WBC) (2022)	September 2022	Monitoring data and supporting information on AQMAs.	Monitoring sites in WBC area.
Defra (2023)	May 2023	Locations of AQMAs.	Full coverage of Study Area.

Data limitations

19.5.3 There are no data limitations relating to air quality that affect the robustness of the assessment of this ES.

19.6 Baseline conditions

Current baseline

AQMAs

- 19.6.1 The onshore part of the proposed DCO Order Limits (**Figure 1.1, Volume 3** of the ES (Document Reference: 6.3.1)) lies within the administrative areas of three District Councils: Arun, Horsham and Mid Sussex. Each district council produces an Annual Status Report which describes air quality in its administrative area, including any AQMAs in force, and the results of air quality monitoring.
- 19.6.2 There are two AQMAs within 5km of the onshore part of the proposed DCO Order Limits, both for annual mean NO₂ (**Figure 19.1, Volume 3** of the ES (Document Reference: 6.3.19)):
- Storrington AQMA: a 540m length of the A283 through Storrington, including properties close to the road. This AQMA is approximately 1.9km north of the onshore part of the proposed DCO Order Limits at its closest point; and
 - Cowfold AQMA: a 700m length of the A272 through Cowfold, including properties close to the road. This AQMA is approximately 800m west of the onshore part of the proposed DCO Order Limits at its closest point.
- 19.6.3 In addition, road traffic associated with the onshore elements of the Proposed Development will pass through the administrative areas of other local authorities. An appreciable amount of traffic during the construction phase will pass through WBC AQMA No. 2 in Worthing, which is a 2.5km length of the A27 centred on the Grove Lodge roundabout. This AQMA lies approximately 4km south of the onshore part of the proposed DCO Order Limits at its closest point and referred to as Worthing AQMA in this chapter.
- 19.6.4 Within all three AQMAs, monitoring of concentrations of NO₂ shows that levels are very sensitive to location, especially distance from the road and amount of vehicle queuing and congestion on the nearest part of the road. Monitored concentrations in the Storrington AQMA in 2021 vary between 10.1µg m⁻³ and 39.6 µg m⁻³. Monitored concentrations in the Cowfold AQMA in 2021 vary between 10.5µg m⁻³ and 31.2µg m⁻³. Monitored concentrations in the Worthing AQMA vary between 9.1µg m⁻³ and 45.1µg m⁻³. In 2021, there were no monitoring sites in Storrington and Cowfold AQMA where the annual mean NO₂ objective was exceeded.

Defra background maps

- 19.6.5 Defra (2017) maintains a nationwide model (the Pollution Climate Mapping (PCM) model) of current and future background air quality concentrations at a 1km grid square resolution. The datasets include annual average concentration estimates for NO₂, as well as other pollutants. The PCM model is semi-empirical in nature: it uses data from the National Atmospheric Emissions Inventory (NAEI) to model the concentrations of pollutants at the centroid of each 1km grid square but then calibrates these concentrations in relation to actual monitoring data. Concentrations represent background locations, not roadside locations or those particularly influenced by point sources.

19.6.6 The dataset was updated in 2020 for a reference year of 2018 (Defra, 2020). Data is available for years covering 2018 to 2030, with modelled concentrations generally decreasing over that time. The range of background concentrations of air pollutants across the seventy grid squares in which the onshore part of the proposed DCO Order Limits lies are given in **Table 19-15**. These are taken from the Defra maps for the years 2019 to 2022 and they represent concentrations at locations away from major roads or point sources of emissions. **Table 19-15** shows that all air quality pollutants are well below their respective assessment levels.

Table 19-15 Background concentrations across the onshore part of the proposed DCO Order Limits ($\mu\text{g m}^{-3}$)

Year	NO _x	NO ₂	PM ₁₀	PM _{2.5}
2019	9.2-14.7	7.2-11.1	12.1-14.9	8.3-9.3
2020	8.8-14.0	6.9-10.6	11.9-14.7	8.2-9.2
2021	8.5-13.4	6.7-10.2	11.7-14.6	8.1-9.0
2022	8.2-12.8	6.5-9.8	11.5-14.4	7.9-8.9
Assessment level	30*	40	40	25
Grid square of maximum concentration (2022)	524500, 122500	512500, 114500	524500, 122500	524500, 122500

* At ecological receptors

19.6.7 Concentrations at background locations for the grid squares (508500, 114500; 524500,122500;521500,122500) covering the Storrington, Worthing and Cowfold AQMAs are presented in **Table 19-16** to **Table 19-18** for 2019 to 2022. Again, all air quality pollutants are well below their respective assessment levels at background locations. Concentrations close to major roads will be higher.

Table 19-16 Background concentrations across the Storrington AQMA ($\mu\text{g m}^{-3}$)

Year	NO _x	NO ₂	PM ₁₀	PM _{2.5}
2019	11.9	9.2	13.6	9.3
2020	11.4	8.8	13.3	9.1
2021	11.0	8.5	13.2	8.9
2022	10.6	8.2	13.0	8.8
Assessment level	30*	40	40	25

* At ecological receptors

Table 19-17 Background concentrations across the Worthing AQMA ($\mu\text{g m}^{-3}$)

Year	NO _x	NO ₂	PM ₁₀	PM _{2.5}
2019	17.3	12.9	15.4	10.9
2020	16.6	12.4	15.1	10.7
2021	15.9	11.9	14.9	10.5
2022	15.3	11.5	14.7	10.4
Assessment level	30*	40	40	25

* At ecological receptors

Table 19-18 Background concentrations across the Cowfold AQMA ($\mu\text{g m}^{-3}$)

Year	NO _x	NO ₂	PM ₁₀	PM _{2.5}
2019	13.4	10.2	14.5	9.8
2020	12.9	9.8	14.3	9.6
2021	12.4	9.5	14.1	9.4
2022	11.9	9.1	13.9	9.3
Assessment level	30*	40	40	25

Monitoring data

- 19.6.8 This section presents pollutant concentrations within and in close proximity to the AQMAs. The data was extracted from the latest ASR reports published by the local authorities. Full monitoring data for sites within the Storrington, Worthing and Cowfold AQMAs is presented in **Table 19-19** to **Table 19-27**.
- 19.6.9 **Table 19-19** shows that concentrations of NO₂ at roadside locations within the Storrington AQMA are mostly comfortably below the AQO of 40 $\mu\text{g m}^{-3}$, with no exceedances reported in 2020 and 2021. The last reported exceedance was in 2019 at site 47, located within the AQMA. Concentrations at the automatic monitor (see **Table 19-20**), located outside the AQMA, have been comfortably below the annual mean AQO for all years reported.
- 19.6.10 **Table 19-17** shows that concentrations of NO₂ at roadside locations within the Worthing AQMA are mostly comfortably below the AQO of 40 $\mu\text{g m}^{-3}$. An exceedance of 44.4 $\mu\text{g m}^{-3}$ (distance corrected to nearest exposure) was reported in 2021 at site 47. Concentrations at the automatic monitor (see **Table 19-17**) have been comfortably below the annual mean AQO for all years reported.

- 19.6.11 **Table 19-26** presents monitored concentrations of NO₂ in the Cowfold AQMA using diffusion tubes. In 2021 NO₂ concentrations were up to 31.1 µg m⁻³ (distance corrected to nearest exposure), or 77.8% of the AQO of 40µg m⁻³. Concentrations have been declining steadily over the past 10 years from 47.8µg m⁻³ recorded in 2010 to 30.2µg m⁻³ in 2020. Concentrations within the Cowfold AQMA are strongly influenced by congested road traffic where the A272 and A281 roads intersect. Concentrations at the automatic monitor (see **Table 19-27**) have been comfortably below the annual mean AQO for all years reported.

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Table 19-19 NO₂ diffusion tube monitoring sites in the vicinity of Storrington AQMA

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Inlet Height (m)	Pollutants monitored	Distance to relevant exposure (m)	Distance to kerb (m)	In an AQMA?
13	Storrington 1	Roadside	508960	114270	3	NO ₂	2.5	1.1	Yes
15	Storrington 3	Roadside	508935	114297	2	NO ₂	0	1.2	Yes
16	Storrington 4	Roadside	508832	114272	3	NO ₂	2.8	2.2	Yes
17	Storrington 5	Roadside	508742	114288	3.5	NO ₂	1.9	1.9	Yes
18	Storrington 6	Roadside	508396	114449	2.4	NO ₂	7.7	1.9	No
19	Storrington 7	Roadside	508338	114374	3	NO ₂	6.7	1.6	No
29, 30, 31	Storrington 8, 9,10 AURN	Roadside	509083	114198	3.3	NO ₂	9.6	4.6	No
32	Storrington 13n	Roadside	508675	114306	2.2	NO ₂	0.5	3	Yes
33	Storrington 12n	Roadside	508598	114323	2.6	NO ₂	7	2.3	Yes
34	Storrington 11n	Roadside	508511	114365	3	NO ₂	1	3	Yes
38	Storrington 14n	Roadside	509319	114160	2.6	NO ₂	20	0.9	No
39	Storrington 16n	Roadside	508966	114356	2.6	NO ₂	0	1.3	No
40	Storrington 15n	Roadside	509103	114532	2.2	NO ₂	12	1.7	No

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Inlet Height (m)	Pollutants monitored	Distance to relevant exposure (m)	Distance to kerb (m)	In an AQMA?
41	Storrington 17n	Urban Background	508677	114149	2.2	NO ₂	1	1.5	No
42	Storrington 18n	Roadside	508215	114348	2.2	NO ₂	5	1.9	No
47	Storrington 19n	Roadside	508945	114268	2	NO ₂	0	1	Yes

Table 19-20 Monitored annual mean NO₂ concentrations in the vicinity of Storrington AQMA ($\mu\text{g m}^{-3}$)

Site ID	2017	2018	2019	2020	2021
13	40.7	44.7	38.9	31.6	34.3
15	31.6	32.9	28.3	23.3	24.8
16	37.5	35.8	29.7	25.5	25.9
17	27.4	26.4	23.3	18.7	19.9
18	24.3	22.3	18.8	14.8	17.1
19	21.5	20.9	18.4	15.6	17.6
29,30,31	25.5	26.6	22.9	20.5	21.7
32	31.1	29.9	25.6	21.4	23.1
33	29.0	28.6	26.0	20.0	23.0

Site ID	2017	2018	2019	2020	2021
34	37.5	37.8	29.8	25.0	26.5
38	43.0	38.5	33.4	27.8	25.8
39	23.5	24.0	21.6	18.9	19.2
40	20.3	18.9	16.9	14.9	15.4
41	12.9	13.3	11.2	9.8	10.0
42	20.4	19.1	16.0	13.4	18.1
47	56.4	50.6	47.7	38.4	39.6

Table 19-21 Monitored annual mean NO₂ concentrations in the Storrington AQMA ($\mu\text{g m}^{-3}$) from automatic monitor

Site ID	2017	2018	2019	2020	2021
H04	22.7	23.0	22.0	17.4	20.1

Table 19-22 NO₂ monitoring sites in the vicinity of Worthing AQMA

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Inlet Height (m)	Pollutants monitored	Distance to relevant exposure (m)	Distance to kerb (m)
WT2	Grove Lodge	Roadside	514184	104963	1.8	NO ₂ ; PM _{2.5}	18.3	2.9
N30A	Grove Lodge Cottages	Roadside	514183	104948	2.5	NO ₂	0.2	2.2

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Inlet Height (m)	Pollutants monitored	Distance to relevant exposure (m)	Distance to kerb (m)
N35	30 Upper Brighton Road House	Roadside	514266	104961	2	NO ₂	0	11.2
N39	SW of roundabout at Grove Lodge	Roadside	514088	104906	4	NO ₂	47.8	2.2
N43	23 Upper Brighton Road	Suburban	514199	104982	2	NO ₂	0	19.2
N44A	NOx Analyser, 21 Upper Brighton Road	Roadside	514184	104963	2	NO ₂	18.4	2.8
N44B	NOx Analyser, 21 Upper Brighton Road	Roadside	514184	104963	2	NO ₂	18.4	2.8
N44C	NOx Analyser, 21 Upper Brighton Road	Roadside	514184	104963	2	NO ₂	18.4	2.8
N45	11 Hill Barn Lane	Suburban	514126	105063	2	NO ₂	0	13
N53	Offington Corner	Roadside	513278	105623	2	NO ₂	20.5	6

Table 19-23 Monitored annual mean NO₂ concentrations in the vicinity of Worthing AQMA ($\mu\text{g m}^{-3}$)

Site ID	2017	2018	2019	2020	2021
N24	25.9	34.5	23.5	18.4	20.1
N29	32.4	23.6	29.9	25.6	24.2
N30A	68.2	60.1	56.6	45.1	44.4
N35	28.5	26.2	24.4	21.1	-
N39	32	32.7	28.5	24.1	23.7
N43	23.1	22.3	19.9	17.6	17.2
N44A	40.5	39.8	36.2	31.1	29.8
N44B	40.3	41.6	35.7	31.1	29.8
N44C	41.2	40.8	36.3	31.1	29.8
N66	N/A	N/A	N/A	25.0	24.9

Table 19-24 Monitored annual mean NO₂ concentrations in the Worthing AQMA ($\mu\text{g m}^{-3}$) from automatic monitor

Site ID	2017	2018	2019	2020	2021
WT2	35.8	36.8	32.9	26.0	27.6

Table 19-25 NO₂ diffusion tube monitoring sites in the vicinity of Cowfold AQMA

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Inlet Height (m)	Pollutants monitored	Distance to relevant exposure (m)	Distance to kerb (m)
HO5	Cowfold	Roadside	521356	122553	2.0	NO ₂	4.0	6.5
14	Cowfold 9	Roadside	521584	122457	2.0	NO ₂	4.5	1.0
12, 20	Cowfold 1,2	Roadside	521324	122610	2.7	NO ₂	2.5	1.7
21	Cowfold 3	Roadside	521267	122677	2.7	NO ₂	9.7	2.0
22	Cowfold 4	Roadside	521311	122704	2.4	NO ₂	9.3	2.0

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Inlet Height (m)	Pollutants monitored	Distance to relevant exposure (m)	Distance to kerb (m)
35	Cowfold 5n	Roadside	521070	122706	2.5	NO ₂	23.0	3.6
36	Cowfold 6n	Roadside	521309	122248	2.2	NO ₂	3.0	1.8
37	Cowfold 7n	Roadside	521460	122473	2.2	NO ₂	2.0	1.1
43	Cowfold 8n	Urban Background	521411	122667	2.0	NO ₂	7.0	0.3
44, 45, 46	Cowfold AU A/B/C	Roadside	521356	122552	2.0	NO ₂	20.0	6.5

Table 19-26 Monitored annual mean NO₂ concentrations in the vicinity of Cowfold AQMA ($\mu\text{g m}^{-3}$)

Site ID	2017	2018	2019	2020	2021
14	-	-	-	19.3	18.3
12, 20	37.6	35.4	31.6	26.8	26.5
21	33.1	31.8	30.7	24.6	26.5
22	29.5	31.4	26.8	22.5	22.2
35	29.7	24.9	22.5	20.4	21.3
36	26.4	25.1	23.5	21.7	20.5
37	43.8	42.4	36.1	30.2	31.2
43	13.9	13.5	11.6	10.9	10.5
44, 45, 46	27.0	26.6	23.6	19.2	19.9

Table 19-27 Monitored annual mean NO₂ concentrations in the Cowfold AQMA ($\mu\text{g m}^{-3}$) from automatic monitor

Site ID	2017	2018	2019	2020	2021
H05	29.5	28.4	23.6	23.4	20.3

Odour

- 19.6.12 Ambient levels of odour are typically very low and are not routinely monitored in the UK. Elevated levels of odour can result in complaints which may then result in monitoring taking place in the local area to determine if a nuisance is present. Potential sources of odour in the vicinity of the onshore part of the Proposed Development may include historical landfill agriculture, roads and light industry. Stakeholder engagement has not identified any concerns that may suggest there are existing odour problems in the vicinity of the onshore part of the Proposed Development.

Future baseline

- 19.6.13 In general, air quality is improving in the UK. Background concentrations of key pollutants, including NO₂, PM₁₀ and PM_{2.5}, are expected to decline steadily over the next ten years or so in response to measures to reduce emissions from a range of key sources, including domestic, industrial and transport sources.
- 19.6.14 At roadside locations, concentrations of NO₂ are expected to fall considerably as an improvement in emission factors following the introduction of Euro 6 engine controls in 2016 outweighs the projected increase in vehicle numbers. For particulate matter, future changes at roadside locations are more balanced, as there has been less focus on reducing emissions of this family of pollutants in recent years. However, emission factors are still expected to improve by around 2% per year over the next few years, which will outweigh the likely increase in vehicle numbers.
- 19.6.15 Dust and odour are associated with local sources so there are no particular trends or expected changes to the future baseline.

19.7 Basis for ES assessment

Maximum design scenario

- 19.7.1 Assessing using a parameter-based design envelope approach means that the assessment considers a maximum design scenario whilst allowing the flexibility to make improvements in the future in ways that cannot be predicted at the time of submission of the DCO Application. The assessment of the maximum adverse scenario for each receptor establishes the maximum potential adverse impact and as a result impacts of greater adverse significance would not arise should any other development scenario (as described in **Chapter 4: The Proposed Development, Volume 2** of the ES (Document Reference: 6.2.4)) to that assessed within this Chapter be taken forward in the final scheme design.
- 19.7.2 [A change request \[AS-046\] to the DCO Application was accepted by the Examining Authority on 24 July 2024 \[PD-018\]. These changes included minor reductions to the proposed DCO Order Limits \(onshore only\) where adjacent to areas of Ancient Woodland to provide a 25m buffer from these features. Further localised reductions to the extent of Works 9 and 19 were also made, assigning these areas to a class of work with lower impacts from those previously assessed as cable installation. The changes made result in no new or different effects from](#)

those reported in this chapter of the ES. The figures supporting this chapter of the ES have not been updated due to the minor nature of these changes, the final proposed DCO Order Limits and Works areas should be viewed on the **Onshore Works Plans** (Document Reference: 2.2.2 and **[AS-026]**).

- 19.7.3 The maximum parameters and assessment assumptions that have been identified to be relevant to air quality are outlined in **Table 19-28** and are in line with the Project Design Envelope (**Chapter 4: The Proposed Development, Volume 2** of the ES (Document Reference: 6.2.4)).

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Table 19-28 Maximum parameters and assessment assumptions for impacts on air quality

Project phase and activity/impact	Maximum assessment assumptions	Justification
Construction		
Emissions of air pollutants from construction traffic on roads	The maximum design scenario consists of the maximum rolling 52-week AADT, generated as part of the construction traffic data informing the assessment of transport effects (Chapter 23: Transport, Volume 2 of the ES (Document Reference: 6.2.23)).	This provides a worst case for this source of air emissions. Details of construction traffic flows are given in Section 19.8 .
Emissions of air pollutants from construction equipment on site	The maximum design scenario is based on the construction equipment/plant list outlined in the noise and vibration assessment, particularly the design assumptions summarised in Table 21-14 of Chapter 21: Noise and vibration, Volume 2 of the ES (Document Reference: 6.2.21) and the detailed plant lists in Table 4-1 to 4-7 of Appendix 21.2: Construction plant list, Volume 4 of the ES (Document Reference: 6.4.21.2).	These assessment assumptions represent a reasonable worst case for the amount of construction equipment/plant required.
Emissions of dust from construction	<p><i>Landfall:</i> Construction compound of 100m x 120m Trenchless Crossings (TCs) to be used at landfall to connect offshore cables with the onshore cable corridor.</p> <p><i>Onshore cable corridor:</i> Up to 40m wide corridor for construction works, including four trenches, temporary spoil heaps, and access track; this may be expanded at discrete locations to accommodate working area for example for trenchless</p>	These assessment assumptions represent the greatest dust generation potential from temporary construction activities that may affect relevant receptors.

Project phase and activity/impact	Maximum assessment assumptions	Justification
	<p>crossings (see Chapter 4: The Proposed Development, Volume 2 of the ES (Document Reference: 6.2.4)).</p> <p>Onshore cable is approximately 38.8km long.</p> <p>Temporary construction compounds and laydown areas as shown within the onshore part of the proposed DCO Order Limits. Trenchless crossing sites as detailed in Chapter 4: The Proposed Development, Volume 2 of the ES (Document Reference: 6.2.4).</p> <p>Total installation duration up to three years.</p> <p><i>Oakendene onshore substation:</i></p> <p>Overall built site footprint: 6 hectares within the onshore part of the proposed DCO Order Limits.</p> <p>Maximum number of buildings 12.</p> <p>Maximum main building height <u>12.5</u>m.</p> <p>Duration of construction three years.</p> <p><i>Existing National Grid Bolney substation extension works:</i></p> <p>Overall built site footprint: <u>0.7-63</u> hectares within the onshore part of the proposed DCO Order Limits.</p> <p>Maximum number of buildings <u>42</u>.</p> <p>Maximum main building height 12m.</p> <p><u>Duration of construction up to one year.</u></p>	
Emissions of odour from construction	<p>Onshore part of the proposed DCO Order Limits as defined in Chapter 4: The Proposed Development, Volume 2 of the ES (Document Reference: 6.2.4).</p>	<p>Combined with historical landfill data, this ensures that any locations where temporary construction works may involve passing through and disturbing historic landfills are identified and assessed.</p>

Project phase and activity/impact	Maximum assessment assumptions	Justification
Decommissioning		
Emissions of air pollutants from decommissioning traffic on roads	At most the same as those for construction phase, since the decommissioning plan is to reverse the construction of above-ground structures and leave below-ground structures in place.	These assessment assumptions represent the greatest potential for air emissions from decommissioning activities that may affect relevant receptors.
Emissions of air pollutants from equipment on site	At most the same as those for construction phase, since the decommissioning plan is to reverse the construction of above-ground structures and leave below-ground structures in place.	These assessment assumptions represent the greatest potential for air emissions from decommissioning activities that may affect relevant receptors.
Emissions of dust from decommissioning activities	At most the same as those for construction phase, since the decommissioning plan is to reverse the construction of above-ground structures and leave below-ground structures in place.	These design assumptions represent the greatest dust generation potential from decommissioning activities that may affect relevant receptors.

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Embedded environmental measures

- 19.7.4 As part of the Rampion 2 design process, a number of embedded environmental measures have been adopted to reduce the potential for impacts on air quality. These embedded environmental measures have evolved over the development process as the EIA has progressed and in response to consultation.
- 19.7.5 These embedded environmental measures also include those that have been identified as good or standard practice and include actions that would be undertaken to meet existing legislation requirements. As there is a commitment to implementing these embedded environmental measures (see **Table 19-29**), and also to various standard sectoral practices and procedures, they are considered inherently part of the design of Rampion 2 and are set out in this ES.
- 19.7.6 **Table 19-29** sets out the relevant embedded environmental measures within the design and how these affect the air quality assessment



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Table 19-29 Relevant air quality embedded environmental measures

ID	Environmental measure proposed	Project phase measure introduced	How the environmental measures will be secured	Relevance to air quality assessment
C-6	Where practical, sensitive sites will be avoided by the temporary and permanent onshore project footprint including SSSIs, Local Nature Reserves, Local Wildlife Sites, ancient woodland, areas of consented development, areas of historical and authorised landfills and other known areas of potential contamination, National Trust Land, Listed Buildings, Scheduled monuments, and mineral resources (including existing mineral sites, minerals sites allocated in development plans and mineral safeguarding areas).	Scoping – updated at PEIR	<u>Draft Development Consent Order (DCO), Schedule 1, Part 1 The Authorised Development DCO works plans and order limits</u>	Reduces risk of adverse air quality effects on sensitive sites. Avoiding areas of historic and authorised landfills and other contamination reduces risk of odour impacts.
C-19	The onshore cable will be constructed in discrete sections. The trenches will be excavated, the cable ducts will be laid, the trenches backfilled and the reinstatement process commenced in as short a timeframe as practicable. At regular intervals (typically 600m – 1,000m) along the route joint bays/pits will be installed to enable the cable installation and connection <u>jointing</u> process. <u>The stage specific CMS will set out a protocol for the reinstatement of land used temporarily for construction including the timing in accordance with C-103.</u>	Scoping	<u>Draft DCO, Schedule 1, Part 3, Requirement 10 Programme of works (1), Requirement 22 (4) Code of construction practice (CoCP), Requirement 23 Onshore construction method statement (2) (h) Outline CoCP</u> (Document Reference: 7.2) and DCO requirement	Reduces risk of adverse air quality effects on sensitive receptors.

ID	Environmental measure proposed	Project phase measure introduced	How the environmental measures will be secured	Relevance to air quality assessment
C-20	<p>The typical construction working corridor will be 40m along the onshore cable corridor to minimise the construction footprint. At other discrete locations this may be expanded to accommodate working area for example for Horizontal Directional Drilling (HDD).</p>	Scoping	<p><u>Draft DCO, Schedule 1, Part 3, Requirement 22 (4) CoCP</u>Outline CoCP (Document Reference: 7.2) and DCO requirement</p>	<p>Reduces risk of adverse air quality effects on sensitive human and ecological receptors.</p>
C-22	<p><u>Core working hours for construction of the onshore components will be 08:00 to 18:00 Monday to Friday, and 08:00 to 13:00 on Saturdays. Apart from specific circumstances that are set out in the Outline COCP, where extended and continuous periods of construction are required.</u></p> <p><u>Prior to and following the core working hours Monday to Friday, a ‘shoulder hour’ for mobilisation and shut down will be applied (07:00 to 08:00 and 18:00 to 19:00). The activities permitted during the shoulder hours include staff arrivals and departures, briefings and toolbox talks, deliveries to site and unloading, and activities including site and safety inspections and plant maintenance. Such activities shall not include noise generating activity including use of heavy plant or activity resulting in impacts between objects resulting in loud noises, ground breaking or earthworks.</u>Core working hours for construction of the onshore components will be 0700 to 1900 Monday to Friday, and 0800 to 1300 on Saturdays, apart from</p>	Scoping	<p><u>Draft DCO, Schedule 1, Part 3, Requirement 22 CoCP (4) (n)Outline CoCP</u> (Document Reference: 7.2) and DCO requirement</p>	<p>Reduces risk of adverse air quality effects on sensitive human and ecological receptors.</p>

ID	Environmental measure proposed	Project phase measure introduced	How the environmental measures will be secured	Relevance to air quality assessment
	<i>specific circumstances to be set out and agreed in the Outline CoCP.</i>			
C-24	Best practice air quality management measures will be applied as described in the Institute of Air Quality Management (IAQM) (2016 2024) Guidance on the Assessment of Dust from Demolition and Construction 2016 2024, v1.12.2.	PEIR	<u>Draft DCO, Schedule 1, Part 3, Requirement 22 CoCP (4) (h) Outline CoCP</u> (Document Reference: 7.2) and DCO requirement	Reduces risk of adverse air quality effects on sensitive receptors.
C-33	<u>Stage specific CoCPs will include measures</u> An Outline CoCP will be adopted to minimise temporary disturbance to residential properties, recreational users and existing land users. It will include provide details of measures to protect these environmental receptors <u>including the use of screen fencing at the temporary construction compounds to contribute to minimising visual and noise impacts.</u>	Scoping	<u>Draft DCO, Schedule 1, Part 3, Requirement 22 CoCP and 22 (4) (g) Outline CoCP</u> (Document Reference: 7.2) and DCO requirement	Reduces risk of adverse dust and air quality effects on sensitive human and ecological receptors.
C-72	Prior to construction, an unexpected contamination protocol will be developed in line with Environment Agency (2020) guidance (LCRM) to minimise the potential risks to human health and controlled waters from any unexpected ground contamination. The protocol will take into account the requirements for risk assessment, the use of Personal Protective Equipment (PPE) and adoption of best practice methods during construction.	Scoping	<u>Draft DCO, Schedule 1, Part 3, Requirement 25 Contamination risk (3) Outline CoCP</u> (Document Reference: 7.2) and DCO requirement	Reduces risk of odour impacts.

ID	Environmental measure proposed	Project phase measure introduced	How the environmental measures will be secured	Relevance to air quality assessment
C-106	Speed limits will be imposed on all construction haul roads and access tracks to minimise the risk of road traffic collisions with fauna such as badgers, otters, bats and barn owls.	Scoping	Draft DCO, Schedule 1, Part 3, Requirement 22 CoCP (4) Outline CoCP (Document Reference: 7.2) and DCO requirement	Reduces risk of adverse air quality effects on sensitive human (including the AQMA) and ecological receptors.
C-114	No ground-breaking activity or use of wheeled or tracked vehicles will take place within Sullington Hill LWS ⁶ unless remedial action is required. Any predicted activity will be restricted to foot access for the purpose of surveying and monitoring of the progress of the horizontal directional drill (HDD). The existing farm tracks through Sullington Hill LWS may be used by light vehicles (e.g. 4x4, light van) for access purposes during the operation and maintenance phase.	PEIR	Draft DCO, Schedule 1, Part 3, Requirement 22 CoCP (4) (f), Requirement 23 Onshore construction method statement (2) (b) Outline CoCP (Document Reference: 7.2) and DCO requirement	Reduces risk of adverse air quality effects on sensitive ecological receptors, including the LWS.
C-133	Stockpiles will be present for the shortest practicable timeframe, with stockpiles being reinstated as the construction work progresses in order to minimise areas of exposed soil and any associated silt laden run-off. Stockpiles which are anticipated to remain for more than six months will be seeded to encourage stabilisation,	PEIR	Draft DCO, Schedule 1, Part 3, Requirement 22 CoCP (4) (e) Outline CoCP (Document Reference: 7.2) and DCO requirement	Reduces risk of adverse air quality effects on sensitive receptors.

⁶ Local Wildlife Site (LWS)

ID	Environmental measure proposed	Project phase measure introduced	How the environmental measures will be secured	Relevance to air quality assessment
	<p><u>except where the existing seed bank is to be used in reinstatement.</u></p> <p>Stockpiles will be present for the shortest practicable timeframe, with stockpiles being reinstated as the construction work progresses in order to minimise areas of exposed soil and any associated silt laden run-off. Stockpiles which are anticipated to remain for more than six months will be seeded to encourage stabilisation.</p>			
C-158	<p>The proposed heavy goods vehicle (HGV) routeing during the construction phase to individual accesses will avoid the Air Quality Management Area (AQMA) in Cowfold where possible. <u>This means that HGVs will only route through the village centre for trips related to accesses A-56 and A-57 or where use of local sourced materials / equipment makes its avoidance impracticable.</u></p>	PEIR	<p><u>Draft DCO, Schedule 1, Part 3, Requirement 24 Construction traffic management plan (2)</u> (a) Proposed routing in agreed Outline CTMP (Document Reference: 7.6).</p>	<p>Reduces risk of adverse air quality effects on sensitive human receptors.</p>
C-303	<p><u>Where medium risk construction sites have been identified in Table 2-2 of the Outline AQMP the nature, frequency and locations of site monitoring including any necessary baseline will be discussed and agreed with the relevant planning authority to allow adequate time to collect baseline prior to commencement of works at those sites.</u></p>	<u>Examination</u>	<p><u>Draft DCO, Schedule 1, Part 3, Requirement 22, CoCP, 4 (i) Outline Code of Construction Practice (Document Reference 7.2 and [REP5-064]).</u></p>	<p><u>Reduces risk of adverse air quality effects on sensitive human receptors.</u></p>

- 19.7.7 Further detail on the embedded environmental measures in **Table 19-29** is provided in the **Commitments Register** (Document Reference: 7.22) which sets out how and where particular environmental measures will be implemented and secured.

19.8 Methodology for ES assessment

Modelling and assessing air quality impacts from construction road traffic

- 19.8.1 Road traffic for the construction phase has been modelled as part of the assessment of transport effects (**Chapter 23: Transport, Volume 2** of the ES (Document Reference: 6.2.23) and Chapter 32: ES Addendum, Volume 2 of the ES (Document Reference: 6.2.32) and [REP5-038]). The transport assessment has calculated road traffic on a selection of key road links affected by the Proposed Development, for three scenarios:
- 2019 baseline;
 - 2026 without the Proposed Development; and
 - 2026 with the Proposed Development.
- 19.8.2 Traffic flows are available on a 24-hour basis (i.e. all traffic regardless of time of day) and are split into LDVs (LDVs; under 3.5 tonnes) and HGVs (HGVs; over 3.5 tonnes). In **Chapter 23: Transport Volume 2** of the ES (Document Reference: 6.2.23), modelled road links were divided into those that directly provide access to parts of the temporary construction site, and those that provide more general distribution of traffic on primary routes.
- 19.8.3 For the primary routes weekly flows were generated representing the various stages of the construction phase. 52-week averages and subsequently 24-hour AADT were calculated for each year of construction of the Proposed Development. The worst-case year and was then used in the assessment.
- 19.8.4 IAQM (2017) (see **Section 19.8**) provides guidance on when it is appropriate to carry out a detailed air quality assessment of a development that generates road traffic. The key criteria for the present assessment are that a detailed assessment may be required if there is:
- a change in LDV flows of:
 - ▶ more than 100AADT within or adjacent to an AQMA;
 - ▶ more than 500AADT elsewhere; or
 - a change in HGV flows of:
 - ▶ more than 25AADT within or adjacent to an AQMA;
 - ▶ more than 100AADT elsewhere.
- 19.8.5 Examination of the traffic data showed that there are seven road links where these criteria are exceeded. These include A27 High Salvington, A24 Offington, A24 Findon, A280 Long Furlong, A283, A281 Cowfold Centre and A272 Station

Road. These links are either within or in close proximity of the Worthing and Cowfold AQMAs. Therefore, these road links were brought forward for detailed assessment. The data also confirms that there are no impacts on other AQMAs within the Study Area except Worthing and Cowfold AQMAs.

- 19.8.6 **Figure 19.2a and 19.2b, Volume 3** of the ES (Document Reference: 6.2.19) shows the modelled road links, the modelled receptors and the monitoring sites used to inform the road traffic modelling.
- 19.8.7 Within the Worthing AQMA, concentrations were modelled at 14 WBC monitors, and 193 receptors representing the façades of each property closest to the road sources (also shown on **Figure 19.2a, Volume 3 Volume 2** of the ES (Document Reference: 6.2.19)).
- 19.8.8 Within the Cowfold AQMA, concentrations were modelled at three monitors, and 50 receptors representing the façades of each property closest to the road sources (also shown on **Figure 19.2b, Volume 3** of the ES (Document Reference: 6.3.19)).
- 19.8.9 The model used in this assessment is the latest version of the Atmospheric Dispersion Modelling System (ADMS)-Roads 5.0 atmospheric dispersion model developed and validated by Cambridge Environmental Research Consultants (CERC). ADMS-Roads is a version of the ADMS software tool adapted for modelling air quality impacts from roads. The model has been used extensively throughout the UK for regulatory compliance purposes and is accepted as an appropriate air quality modelling tool by the Environment Agency and local authorities.
- 19.8.10 For each of the three scenarios, emissions were calculated within ADMS-Roads, which uses emission factors from Defra's Emission Factors Toolkit (EFT) version 10.1. ADMS-Roads was then used to model the dispersion of the emissions and calculate the resulting concentrations at the specified receptors. Meteorological data from the Shoreham Airport station for 2019, the closest most relevant station to the Proposed Development, were used; this year was chosen to allow for the model verification and adjustment described in **Paragraph 19.8.12**.
- 19.8.11 Concentrations from the road sources, as output from ADMS-Roads, were added to background concentrations from the Defra background maps (see **Section 19.6**) to obtain total concentrations of NO_x, PM₁₀ and PM_{2.5}. Concentrations of NO₂ were determined using Defra's NO_x to NO₂ Calculator, which is consistent with the use of the background maps and the EFT 10.1.
- 19.8.12 In accordance with Defra's guidance (2022), a model verification and adjustment were carried out and is presented in **Appendix 19.1: Full results of construction road traffic modelling, Volume 4** of the ES (Document Reference: 6.4.19.1). The adjustment factor applied was 2.8 for Worthing and 1.78 for Cowfold AQMA. Concentrations of NO₂ were determined after applying the adjustment to the NO_x roads contribution.
- 19.8.13 IAQM (2017) provide guidance on the assessment of the significance of impacts of a development. This provides a quantitative method to assign standard descriptors to impacts depending on the magnitude of the change in ground level concentrations and the background concentration, in relation to the relevant AQO. These are shown in **Table 19-30** and apply to human receptors as defined in

Table 19-10. Although these descriptors have no official status, they are widely used and accepted.

19.8.14 The IAQM (2017) guidance then goes on to provide qualitative guidance on the assessment of significance. The descriptors above feed into this assessment, but not in a rigorously prescribed way. Rather, the assessment of significance is based on professional judgement, taking into account the guidance and the various relevant factors. The relevant factors it identifies as needing to be taken into account are:

- *“the existing and future air quality in the absence of the development;*
- *the extent of current and future population exposure to the impacts; and*
- *the influence and validity of any assumptions adopted when undertaking the prediction of impacts.”*

Table 19-30 Impact descriptors for increases in annual mean concentrations

Absolute concentration with scheme, relative to assessment level	Increase in concentration relative to assessment level				
	0%	1%	2–5%	6–10%	>10%
75% or less	Negligible	Negligible	Negligible	Slight	Moderate
76–94%	Negligible	Negligible	Slight	Moderate	Moderate
95–102%	Negligible	Slight	Moderate	Moderate	Substantial
103–109%	Negligible	Moderate	Moderate	Substantial	Substantial
110% or more	Negligible	Moderate	Substantial	Substantial	Substantial

Table notes: The table is intended to be used by calculating percentages relative to the assessment level and then rounding the percentages to whole numbers.

19.8.15 To align the air quality assessment impact descriptors with the descriptors presented in **Graphic 5-3, Chapter 5: Approach to the EIA, Volume 2** of the ES (Document Reference: 6.2.5), all residential receptors are assumed to have very high sensitivity and any impacts in **Table 19-30** are classed in EIA terms as:

- IAQM and EPUK (2017) negligible and slight impact = ‘minor’ in EIA terms
- IAQM and EPUK (2017) moderate impact = ‘moderate’ in EIA terms; and
- IAQM and EPUK (2017) major impact = ‘major’ in EIA terms.

19.8.16 Following submission of the DCO Application, the conclusions of the ES, Relevant Representations and the Rule 6 letter [PD-006] were reviewed in relation to traffic and transport matters. In response, a further sensitivity test and update to the construction traffic assessment was undertaken in order to address issues raised in relevant representations and the principal issues identified by the Examining Authority in its Rule 6 letter [PD-006]. This sensitivity test considers the peak week

for traffic at each receptor location. Whilst recognising that this is an unrealistic scenario for consideration of the overall worst case, due to those weeks occurring at different weeks in the programme, this sensitivity test provides a more localised and refined impact assessment and confirms the worst case construction traffic impact for all receptor locations within the Study Area.

- 19.8.17 Alongside this additional sensitivity test, a review of receptors included within the ES was undertaken using a cautious approach to their identification so to highlight potential impacts of the Proposed Development at new locations.
- 19.8.18 The results of the additional transport sensitivity test have been considered in relation to air quality and noise and vibration with the updates to the assessments presented in **Chapter 32: ES Addendum, Volume 2** of the ES (document reference 6.2.32 [REP5-038]).
- 19.8.19 Section 2 of **Chapter 32: ES Addendum, Volume 2** of the ES (document reference 6.2.32 [REP5-038]) provides details on the updates made to the traffic data and in light of the new traffic data. Section 3 of **Chapter 32: ES Addendum, Volume 2** of the ES (Document Reference 6.2.32 [REP5-038]) presents an updated assessment of the likely significant air quality effects of construction traffic emissions expected from Rampion 2. The results of this updated assessment within **Chapter 32: ES Addendum, Volume 2** of the ES (Document Reference 6.2.32 [REP5-038]) have been compared with the results of the assessment of air quality effects of construction traffic emissions reported in this chapter.
- 19.8.20 In light of the new traffic data, AADT based on average daily traffic during each construction year were calculated and used for the assessment presented in Section 3 of **Chapter 32: ES Addendum, Volume 2** of the ES (Document Reference 6.2.32 [REP5-038]). The worst construction year which is Year 2 has been modelled and reported in Section 3 of **Chapter 32: ES Addendum, Volume 2** of the ES (Document Reference 6.2.32 [REP5-038]).
- 19.8.21 Review of the updated traffic data against the criteria from the EPUK and IAQM (EPUK and IAQM, 2017) show that the AADT along road link A27 High Salvington and road link A24 Offington are above the indicative criteria for undertaking a detailed assessment of effects as is the case for the assessment within this chapter of the ES [APP-060]. Comparing the 24-hour AADT reported for these road links as presented in Section 3 of **Chapter 32: ES Addendum, Volume 2** of the ES (Document Reference 6.2.32 [REP5-038]) concludes that the 24-hour AADT traffic flows reported within this chapter of the ES are higher.
- 19.8.22 The updated assessment of the likely significant air quality effects from construction traffic emissions in line with the further sensitivity test and updates made to the traffic data is presented in Section 3 within **Chapter 32: ES Addendum, Volume 2** of the ES (Document Reference 6.2.32 [REP5-038]). As the assessment in Section 3 within **Chapter 32: ES Addendum, Volume 2** of the ES (Document Reference 6.2.32 [REP5-038]) reports 24-hour AADT traffic flows to be lower, the assessment also concludes **Not Significant** in EIA terms and therefore there is no change to the assessment conclusions presented in this chapter of the ES.

Modelling and assessing air quality impacts from construction plant and equipment on site

- 19.8.23 Construction plant and equipment data assumed for the calculation of air quality impacts is summarised in **Table 19-31**. Power ratings for each plant type are taken from public sources for representative equipment of each type.
- 19.8.24 Emission factors for NO_x, PM₁₀ and PM_{2.5} are taken from the EU *Directive 2004/26/EC* setting regulatory limits for emissions from non-road mobile machinery. These depend on engine power rating and the age of the plant. All new plant sold since 2011 must meet at least Stage IIIB, and as a worst case it is assumed that plant used for the proposed Development do not meet the newer, tighter standards of Stage IV or Stage V. Dispersion modelling of emissions will be carried out using the ADMS software tool (see **Paragraph 19.8.9**).
- 19.8.25 For modelling purposes, works have been divided into trenching, TCs construction compounds, landfall and onshore substation works (Oakendene) and existing National Grid Bolney substation extension works. It has been assumed that plant items operate 24 hours a day, seven days a week. This provides a worst-case assessment which is likely to be highly conservative.

Table 19-31 Construction plant and equipment list

Plant	Quantity	On time (%)	Total power (kW)	NO _x emission factor (g/kWh)	PM emission factor (g/kWh)
<i>Trenching</i>					
Topsoil stripping					
Dumper	3	83%	306	2	0.025
Bulldozer	1	83%	142	2	0.025
Excavator	1	83%	102	3.3	0.025
<i>Benching / levelling, grading of working area</i>					
Grader	2	100%	205	2	0.025
Duct delivery and stringing					
HGV	1	10%	0	4.7	0.025
Trench excavation					
Trenching machines/mechanical excavators	2	83%	102	3.3	0.025
Compressor	1	20%	45	4.7	0.025

Plant	Quantity	On time (%)	Total power (kW)	NO _x emission factor (g/kWh)	PM emission factor (g/kWh)
Dewatering	1	10%	20	4.7	0.025
Lower and lay					
Excavators / sideboom tractors	2	100%	102	3.3	0.025
Backfilling					
HGV delivering Cement Bound Sand (CBS)	1	10%	0	4.7	0.025
Articulated Dump Truck (ADT)	2	80%	187	2	0.025
Roller	2	10%	145	2	0.025
Grader	2	100%	205	2	0.025
Landfall works / Trenchless crossings (TCs)					
Excavator	2	10%	127	3.3	0.025
Dump truck	1	10%	85	3.3	0.025
Mobile crane	1	0%	205	2	0.025
TC Drill rig	1	90%	560	2	0.025
Water pump	1	100%	0	4.7	0.025
Generator	1	100%	128	3.3	0.025
Onshore substation construction					
Site preparation (topsoil stripping)					
Dumper	2	50	306	2	0.025
Bulldozer	2	83	142	2	0.025
Wheeled loader backhoe loader – Clearing Site	2	40	170	2	0.025

Plant	Quantity	On time (%)	Total power (kW)	NO _x emission factor (g/kWh)	PM emission factor (g/kWh)
Wheeled loader (backhoe) loading lorries	2	40	193	2	0.025
Excavator	2	83	102	3.3	0.025
Dump truck (tipping fill)	2	2	306	2	0.025
Dozer	2	50	142	2	0.025
Groundwork (pre-earthworks drainage)					
Dumper	2	50	306	2	0.025
Bulldozer	2	83	142	2	0.025
Wheeled loader (backhoe) loading lorries	2	40	193	2	0.025
Excavator – trenching	2	83	102	3.3	0.025
Wheeled backhoe loader – trenching	2	40	62	3.3	0.025
Dump truck (tipping fill)	2	5	306	2	0.025
Dozer	2	50	142	2	0.025
Lorries	1	10	0	4.7	0.025
Dewatering	1	10	20	4.7	0.025
Large concrete mixer (mixing concrete)	1	73	216	2	0.025
Truck mounted concrete truck with Boom arm (pumping concrete)	1	10	216	2	0.025
Groundwork (excavation and installation of below ground cables ducts and pipes)					
Dumper	2	50	306	2	0.025
Bulldozer	2	83	142	2	0.025

Plant	Quantity	On time (%)	Total power (kW)	NO _x emission factor (g/kWh)	PM emission factor (g/kWh)
Wheeled loader (backhoe) loading lorries	2	40	193	2	0.025
Excavator – trenching	2	83	102	3.3	0.025
Wheeled backhoe loader – trenching	2	40	102	3.3	0.025
Dump truck (tipping fill)	2	5	306	2	0.025
Dozer	2	10	142	2	0.025
Lorries	1	10	0	4.7	0.025
Dewatering	1	10	20	4.7	0.025
Vibratory compactor	1	50	0	4.7	0.025
Civils (piling)					
Directional drill (Generator)	1	50	106	3.3	0.025
Mobile crane	1	50	132	2	0.025
Piling	1	83	106	3.3	0.025
Drop hammer pile rig power pack	1	83	23	4.7	0.025
Civils (trench excavation and laying concrete foundations)					
Excavator – trenching	2	83	102	3.3	0.025
Large concrete mixer (mixing concrete)	1	73	216	2	0.025
Truck mounted concrete truck with Boom arm (pumping concrete)	1	10	216	2	0.025
Lorries	2	10	0	4.7	0.025
Dewatering	1	10	20	4.7	0.025

Plant	Quantity	On time (%)	Total power (kW)	NO _x emission factor (g/kWh)	PM emission factor (g/kWh)
Civils (backfilling)					
HGV delivering CBS	1	10	0	4.7	0.025
ADT	2	80	187	2	0.025
Excavator	2	83	102	3.3	0.025
Wheeled backhoe loader – trenching	2	40	102	3.3	0.025
Roller	2	10	145	2	0.025
Grader	2	100	205	2	0.025
Civils (pits, chambers, troughs, trays and ducting)					
Dumper	2	50	306	2	0.025
Bulldozer	2	83	142	2	0.025
Wheeled loader (backhoe) loading lorries	2	40	193	2	0.025
Excavator – Trenching	2	83	102	3.3	0.025
Wheeled backhoe loader – trenching	2	40	102	3.3	0.025
Dump truck (tipping fill)	2	5	306	2	0.025
Dump truck (empty) – moving	2	10	306	2	0.025
Lorries	1	10	0	4.7	0.025
Dewatering	1	10	20	4.7	0.025
Mobile crane	1	20	132	2	0.025
Vibratory compactor	1	50	0	4.7	0.025
Finishing (topsoil replacement and landscape implementation)					
Dumper	2	50	306	2	0.025

Plant	Quantity	On time (%)	Total power (kW)	NO _x emission factor (g/kWh)	PM emission factor (g/kWh)
Bulldozer	2	83	142	2	0.025
Wheeled loader backhoe loader – Clearing Site	2	40	62	3.3	0.025
Wheeled loader (backhoe) loading lorries	2	40	193	2	0.025
Excavator	2	83	102	3.3	0.025
Dump truck (tipping fill)	2	2	306	2	0.025
Dozer	2	50	107	3.3	0.025

Open trenching

- 19.8.26 As open trenching will take place along the approximately 38.8km length of the onshore temporary construction corridor, it is not practical to model the full length in detail. Instead, a simple straight-line 1km length of trench has been modelled, with a width of 40m corresponding to the actual onshore cable temporary construction area. Receptors have been placed immediately next to, and at various distances from, the boundary of the works area. This provides a robust worst-case estimate of the impact at receptors located along the open trenching activity.
- 19.8.27 The open trenching works occur in a number of successive stages at each point of the onshore cable corridor:
- topsoil stripping;
 - benching / levelling, grading of working area;
 - duct delivery and stringing;
 - trench excavation;
 - lower and lay; and
 - backfilling.
- 19.8.28 These are assumed to be non-overlapping. The greatest emission rate was estimated to be during the topsoil stripping stage. Exact durations of each stage are not known at this time. For the purpose of determining annual mean concentrations, it was assumed that the emission rate corresponding to the topsoil

stripping stage applies to all the trenching works stages. This is a conservative assumption.

- 19.8.29 The workfront is assumed to proceed at a rate of 35m per day, based on 150m per trench and four trenches. It is therefore estimated that it will take 27 working days, or 0.073 years, to complete the modelled 1km length, so the average emission rate while plant is operating has been multiplied by 0.073 to obtain an annual average emission rate that can be used to obtain the annual average concentrations for comparison against the AQOs.

Trenchless crossings (TCs)

- 19.8.30 TC construction compounds have been modelled individually as volume sources, typically about 75m × 50m. Concentrations have been calculated at relevant receptors near to each TC site.
- 19.8.31 Works at each location are expected to last considerably less than a year, typically about six weeks depending on the length of the trenchless crossing bore. To obtain the annual average concentrations for comparison against the AQOs, the assessment has followed standard procedure (e.g. Environment Agency, 2023) and modelled emissions for a full calendar year, and then scaled the resulting concentrations in proportion to the expected emission duration. Durations and annualisation factors for each TC site are given in **Table 19-32**.

Table 19-32 TC durations and annualisation factors

TCs Location	Drilling duration (weeks)	Annualisation factor
01	26	0.50
02	8.1	0.16
03	8.1	0.16
04	5.3	0.10
05	4.7	0.09
06	5.3	0.10
07	4.7	0.09
08	4.7	0.09
09	4.7	0.09
10	5.3	0.10
11	4.7	0.09
12	7.6	0.15
15	7.6	0.15

TCs Location	Drilling duration (weeks)	Annualisation factor
16	9.9	0.19
17	5.9	0.11
18	5.9	0.11
19	5.9	0.11
20	7.6	0.15
21	5.9	0.11
22	5.3	0.10
23	7.6	0.15
24	4.7	0.09
25	4.7	0.09
26	5.9	0.11
27	4.7	0.09

Landfall

19.8.32 The landfall works are assumed (to reflect the maximum design scenario) to require a temporary construction compound of 100m × 120m, with the bulk of the works lasting up to 24 months. The location of the temporary construction compound, and receptors in the vicinity, have been modelled based on the proposed DCO Order Limits (see [Figure 1.1, Volume 3](#) of the ES (Document Reference: 6.3.1)). The concentrations have been annualised in the same manner as for trenchless crossing locations (see [Paragraph 19.8.31](#)).

Onshore substations

19.8.33 The Oakendene onshore substation site has been modelled, with actual receptors in the vicinity. Eight stages of onshore substation construction were identified, namely:

- site preparation (topsoil stripping);
- groundwork (pre-earthworks drainage);
- groundwork (excavation and installation of below ground cables ducts and pipes);
- civils (piling);
- civils (trench excavation and laying concrete foundations);
- civils (backfilling);

- civils (pits, chambers, troughs, trays and ducting); and
- finishing (topsoil replacement and landscape implementation).

- 19.8.34 These are assumed to be largely non-overlapping. The greatest emission rate was determined to be during the groundwork (pre-earthworks drainage) stage. Overall onshore substation construction is expected to take up to three years, but exact durations of each stage are not known at this time. For the purpose of determining annual mean concentrations, it was assumed that the groundwork (pre-earthworks drainage) stage lasts for a full calendar year. This is a conservative assumption.
- 19.8.35 Regarding the Bolney substation extension works, the modelling has assumed that emissions are half of Oakendene, although the works are very limited in comparison. This ensured that the assessment represents worst case.

Assessing dust impacts from temporary construction activities

- 19.8.36 The IAQM guidance ([2016/2024](#)) provides a method to assess the significance of construction effects by considering the annoyance due to dust soiling as well as harm to ecological receptors and the risk of health effects due to any significant increases to PM₁₀ or PM_{2.5}.
- 19.8.37 A detailed assessment is deemed to be required as described in the IAQM guidance ([2016/2024](#)) where there is:
- a "human receptor" located within: 350m from the temporary construction site boundary; and/or within 50m of the route(s) used by vehicles on the public highway, up to 500m from the temporary construction site entrance(s); or
 - an "ecological receptor" located within: 200m of the boundary of the temporary construction site; or 200m of the route(s) used by construction vehicles on the public highway, up to 500m from the temporary construction site entrance.
- 19.8.38 The temporary construction site has been classified according to the risk of effects (based upon the scale and nature of the works, plus the proximity of sensitive receptors), appropriate site-specific environmental measures have been identified and the significance of effects has been determined.
- 19.8.39 The IAQM ([2016/2024](#)) dust assessment methodology starts by determining the risk of significant impacts, starting with the assumption that there will be no dust mitigation measures, in other words the counterfactual case in which the embedded environmental measures does not exist⁷. The resulting level of risk is then used to determine the level of environmental measures required to ensure that actual impacts are not significant.
- 19.8.40 In the IAQM ([2016/2024](#)) methodology, site activities are divided into four types to reflect their different potential effects:
- Demolition: "an activity involved with the removal of an existing structure or structures";

⁷ NB: This approach is used for the dust assessment only. Other parts of the assessment assume embedded environmental measures are implemented.

- Earthworks: “the processes of soil-stripping, ground-levelling, excavation and landscaping”;
- Construction: “an activity involved in the provision of a new structure”; and
- Trackout: “the transport of dust and dirt from the site onto the public road network [...]. This arises when vehicles leave site with dusty materials or transfer dust and dirt onto the road having travelled over muddy ground on-site.”

19.8.41 The methodology addresses three types of impact:

- dust soiling effects on people and property;
- human health impacts; and
- ecological impacts.

19.8.42 The IAQM (~~2016~~2024) methodology for determining the risk of dust impacts proceeds through a number of steps. These are summarised briefly as follows:

- determine the potential dust emission magnitude (classified as large, medium or small). That is, how much dust is the activity likely to generate, without mitigation. This is done for each of the four types of activity (demolition, earthworks, construction and trackout);
- determine the sensitivity of receptors that may be affected by dust (classified as high, medium or low), for each of the three impact types. For example, residential receptors are high sensitivity for dust soiling while footpaths are low sensitivity;
- define the sensitivity of the area (classified as high, medium or low), for each of the three impact types. This is determined by considering how many receptors there are, and how sensitive the receptors are, at various distances from the source. Background levels of PM₁₀ also affect the sensitivity of the area;
- define the risk of impacts in the absence of mitigation (classified as high risk, medium risk, low risk or negligible risk). This is determined by combining the dust emission magnitude with the sensitivity of the area. This is done for each of the four types of activity (demolition, earthworks, construction and trackout) and each of the three impact types (dust soiling, health and ecological) in combination; and
- determine the necessary mitigation to reduce the risk of impacts to a negligible level.

Assessing odour impacts from construction

19.8.43 There is a risk of temporary odour from the construction phase due to excavation works encroaching on the one area of historical landfill, as shown in **Figure 19.3, Volume 3** of the ES (Document Reference: 6.3.19). The historical landfill took non-biodegradable wastes operating between 1996 – 2016. A small area east of the main Brook Barn Farm landfill area is shown as a landfill taking inert, industrial waste and operating between 1970 and 1975. This is mainly offsite but extends up

to the proposed DCO Order Limits at a potential access road location, and landfilled waste may extend beneath the proposed DCO Order Limit (see [Appendix 24.1: Phase 1 geo-environmental desk study, Volume 4](#) of the ES (Document Reference: 6.4.24.1)). There is also an historical landfill adjacent to the proposed DCO Order Limits, however this site will not be excavated as part of the Proposed Development and is not considered further in this assessment, as the risk of odour is negligible.

- 19.8.44 A simple risk-based assessment based on IAQM guidance (IAQM, 2018) has therefore been carried out. A more sophisticated assessment is not practical given the poor characterisation of the potential odour source given the fact the landfill has not been excavated yet, but the simple approach is considered adequate in view of the low risk of significant impacts and the temporary nature of any impacts.
- 19.8.45 The IAQM risk-based odour approach (IAQM, 2018) uses a Source–Pathway–Receptor approach to consider the strength of the odour source, how the odour will be diluted and dispersed in the open air, the resulting concentration of odour at receptors, and the sensitivity of affected receptors. The IAQM guidance offers suggestions for rating the source odour potential, the pathway effectiveness (i.e. how much odour is likely to arrive at the receptors), and the sensitivity of the receptors. The guidance then provides tables to combine these elements to obtain a qualitative estimate of the likely odour effect.
- 19.8.46 The next step in the assessment procedure is to consider the sensitivity of the receptors. Finally, the guidance (IAQM, 2018) provides tables to combine the likely odour effect with the sensitivity of the receptors to determine the final odour effect at the receptors.
- 19.8.47 A further application of professional judgement then needs to be applied to conclude the significance of the odour effect from the development as a whole, taking into account the possibly different magnitude of effects that occur at different receptors.

Introduction

- 19.8.48 The project-wide generic approach to assessment is set out in [Chapter 5: Approach to the EIA, Volume 2](#) of the ES (Document Reference: 6.2.5). The assessment methodology for air quality for the ES is consistent with that provided in the Scoping Report (RED, 2020) and no changes have been made since the scoping phase.

Assessing dust impacts from decommissioning

- 19.8.49 The dust impacts anticipated during the decommissioning phase have been assessed using the same methodology applied when assessing dust impacts during the construction phase (see [Paragraphs 19.8.36 to 19.8.42](#)). It has been assumed that decommissioning activities are the reverse of construction activities. They include demolition of onshore substation buildings and landfill infrastructure. It has been assumed that the on-shore cable will remain in-situ.

19.9 Assessment of effects: Construction phase

Emissions of air pollutants from construction traffic on roads

Magnitude of impact

- 19.9.1 Full quantitative results of the modelling are given in [Appendix 19.1: Full results of construction road traffic modelling, Volume 4](#) of the ES (Document Reference: 6.4.19.1). Key results are summarised here.
- 19.9.2 The following discussion uses terminology promulgated by the Environment Agency (2023) but widely used in air quality assessments. The Process Contribution (PC) is the contribution to the concentration of pollutant arising from the Proposed Development, in this case from road traffic generated by temporary construction activity. The Predicted Environmental Contribution (PEC) is the total concentration, including the contribution from the Proposed Development plus the contribution from all other sources, including background sources and road traffic not associated with the Proposed Development.
- 19.9.3 The road sources within the Worthing and Cowfold AQMAs were modelled separately therefore results are presented in their respective sections below.
- 19.9.4 Results presented in the following paragraphs for the Worthing and Cowfold AQMAs are to several decimal places. This is to aid comparison against AQOs, between receptors and between the ‘With Proposed Development’ and ‘Without Proposed Development’ scenarios. The number of decimal places should not be interpreted as an indication of the precision of the results.

Worthing AQMA

- 19.9.5 For annual mean NO₂, the greatest PC at any of the modelled human receptors is 0.2µg m⁻³ at the R138 receptor. Under IAQM and EPUK (2017) guidance, this impact is classified as **Negligible** according to **Table 19-30**. At all other modelled receptors, the impact from predicted annual mean NO₂ concentrations is classified as **Negligible**.
- 19.9.6 The annual mean NO₂ at all modelled receptors is well below 60µg m⁻³. Defra guidance (2023) suggests that there is no risk of an exceedance of the hourly mean NO₂ AQO of 200µg m⁻³ if the annual mean of NO₂ is below 60µg m⁻³ at a modelled receptor.
- 19.9.7 For annual mean PM₁₀, the greatest PC at any of the modelled human receptors is 0.057µg m⁻³, at the R138 receptor representing a residential property along A27. The PEC here is modelled to be 21.06µg m⁻³, or 52.6% of the AQO of 40µg m⁻³. Under IAQM and EPUK (2017) guidance, the impact at all modelled human receptors is classified as **Negligible** according to **Table 19-30**.
- 19.9.8 Using the formula in Defra (2018) to estimate daily mean PM₁₀ concentrations, it is estimated that there will be at most one day in the year when the hourly PM₁₀ is above 50µg m⁻³, compared with a limit in the AQO of 35 days per year. There is therefore no risk of an exceedance of the AQO for daily mean PM₁₀.

- 19.9.9 For annual mean PM_{2.5}, the greatest PC at any of the modelled human receptors is 0.030µg m⁻³, again at the R138 receptor. The PEC here is modelled to be 13.77µg m⁻³, or 68.8% of the AQO of 20µg m⁻³. Under IAQM and EPUK (2017) guidance, the impact at all modelled human receptors is classified as **Negligible** according to **Table 19-30**.

Cowfold AQMA

- 19.9.10 For annual mean NO₂, the greatest PC at any of the modelled human receptors is 1.59µg m⁻³ at the R37 receptor, representing a residential property at A281. The PEC here is modelled to be 21.05µg m⁻³. Under IAQM and EPUK (2017) guidance, this impact is classified as **Negligible** according to **Table 19-30**. At all other modelled receptors, the impact from predicted annual mean NO₂ concentrations is classified as **Negligible**.
- 19.9.11 As the annual mean NO₂ is well below 60µg m⁻³ at all modelled receptors, Defra guidance (2023) suggests that there is no risk of an exceedance of the hourly mean NO₂ AQO of 200µg m⁻³ at any of the modelled receptors.
- 19.9.12 For annual mean PM₁₀, the greatest PC at any of the modelled human receptors is 0.555µg m⁻³, at the R37 receptor. The PEC here is modelled to be 17.00µg m⁻³, or 42.50% of the AQO of 40µg m⁻³. Under IAQM and EPUK (2017) guidance, the impact at all modelled human receptors is classified as **Negligible** according to **Table 19-30**.
- 19.9.13 Using the formula in Defra (2018) to estimate daily mean PM₁₀ concentrations, it is estimated that there will be at most one day in the year when the hourly PM₁₀ is above 50µg m⁻³, compared with a limit in the AQO of 35 days per year. There is therefore no risk of an exceedance of the AQO for daily mean PM₁₀.
- 19.9.14 For annual mean PM_{2.5}, the greatest PC at any of the modelled human receptors is 0.302µg m⁻³, again at the R37 receptor. The PEC here is modelled to be 10.87µg m⁻³, or 54.38% of the AQO of 20µg m⁻³. Under IAQM and EPUK (2017) guidance, the impact at all modelled human receptors is classified as **Negligible** according to **Table 19-30**.

Sensitivity or value of receptor

- 19.9.15 Impacts have been assessed at human receptors within both AQMAs, considered to have a high sensitivity, with relevant exposure in accordance with Defra guidance (2022). AQOs are set with such receptors in mind.

Significance of residual effect

- 19.9.16 All impacts from the construction traffic are classified as **Negligible** within both AQMAs. In view of the small overall impacts, the highly conservative way in which construction traffic flows on these road links were estimated, and the temporary nature of the construction phase, the residual effect, taking into account the high sensitivity of the receptors, is direct, temporary and of **Negligible** significance, which is **Not Significant** in EIA terms. As a result no additional mitigation is required.

- 19.9.17 As described in paragraphs 19.8.16 to 19.8.22 in this chapter of the ES, Chapter 32: ES Addendum, Volume 2 of the ES (Document Reference 6.2.32 [REP5-038]) presents an updated assessment of the likely significant air quality effects of construction traffic emissions expected from Rampion 2 in line with the further sensitivity test and update to the construction traffic assessment. This sensitivity test considers the peak week for traffic at each receptor location and is presented in Section 2 of Chapter 32: ES Addendum, Volume 2 of the ES (Document Reference 6.2.32 [REP5-038]).
- 19.9.18 The updated assessment of the likely significant air quality effects of construction traffic emissions expected from Rampion 2 presented in Section 3 within Chapter 32: ES Addendum, Volume 2 of the ES (Document Reference 6.2.32 [REP5-038]) also concludes **Not Significant** in EIA terms and therefore there is no change to the assessment conclusions presented in this chapter of the ES.

Emissions of air pollutants from construction equipment on site

Magnitude of impact

- 19.9.19 Full quantitative results of the modelling are given in **Appendix 19.2: Full results of construction plant modelling, Volume 4** of the ES (Document Reference: 6.4.19.2). Key results are summarised here.
- 19.9.20 The following discussion uses terminology promulgated by the Environment Agency (2021) but widely used in air quality assessments. The PC is the contribution to the concentration of pollutant arising from the Proposed Development, in this case from construction equipment generated. The PEC is the total concentration, including the contribution from the Proposed Development plus the contribution from all other sources, including background sources and road traffic not associated with the Proposed Development.
- 19.9.21 Results are presented in the following paragraphs to several decimal places. This is to aid comparison against AQOs, between receptors and between the 'With Proposed Development' and 'Without Proposed Development' scenarios. The number of decimal places should not be interpreted as an indication of the accuracy of the results.

Open trenching

- 19.9.22 The greatest annual mean NO₂ concentration from the modelled trench source is predicted to be 1.1µg m⁻³, immediately adjacent to the onshore cable corridor. This was calculated from the NO_x PC of 2.01 µg m⁻³ and the maximum 2022 NO_x background of 12.8µg m⁻³. The NO₂ annual mean PEC is 10.9µg m⁻³ (based on an NO₂ background of 9.8 µg m⁻³). This is the worst-case impact from the open trenching works, and the impact is classified as **Negligible** under IAQM and EPUK (2017) criteria.
- 19.9.23 The greatest annual mean PM₁₀ concentration from the modelled trench source is predicted to be 0.02µg m⁻³, immediately adjacent to the temporary construction site boundary. With the maximum 2022 PM₁₀ background anywhere along the

length of the onshore temporary construction corridor being $14.4\mu\text{g m}^{-3}$ (**Table 19-15**), this evaluates to an annual mean PEC of $14.4\mu\text{g m}^{-3}$. This is the worst-case impact from the open trenching works, and the impact is classified as **Negligible** under IAQM and EPUK (2017) criteria.

- 19.9.24 The greatest annual mean $\text{PM}_{2.5}$ concentration from the modelled trench source is predicted to be $0.02\mu\text{g m}^{-3}$, immediately adjacent to the temporary construction site boundary. With the maximum 2022 $\text{PM}_{2.5}$ background anywhere along the length of the onshore temporary construction corridor being $8.9\mu\text{g m}^{-3}$ (**Table 19-15**), this evaluates to an annual mean $\text{PM}_{2.5}$ PC of $0.02\mu\text{g m}^{-3}$ and a PEC of $8.9\mu\text{g m}^{-3}$. This is the worst-case impact from the trenching works, and the impact is classified as **Negligible** under IAQM and EPUK (2017) criteria.

Landfall

- 19.9.25 The greatest PC for annual mean NO_2 at any of the modelled receptors around the landfall is $4.79\mu\text{g m}^{-3}$ at a residential property (H08), at British national grid coordinates 501325, 101019. The PEC here is modelled to be $11.08\mu\text{g m}^{-3}$ or 29.5% of the AQO of $40\mu\text{g m}^{-3}$, and the impact is classified as **Moderate Adverse** under IAQM and EPUK (2017) criteria. The greatest annual PEC at any of the modelled receptors is $11.08\mu\text{g m}^{-3}$ that is at this same receptor. The other modelled receptor at H05 (501551, 101248) also experiences **Moderate Adverse** impacts. The impact on annual concentrations at all other modelled receptors is classified as **Negligible**. As all annual PECs are below $60\mu\text{g m}^{-3}$, no exceedances of the hourly NO_2 AQO is anticipated following the LAQM.TG(22) Defra (2022) guidance and impacts are classed as **Negligible**.
- 19.9.26 The greatest PC for annual mean PM_{10} at any of the modelled receptors around the landfall is $0.12\mu\text{g m}^{-3}$ at a residential property (H05), where the PEC is modelled to be $12.67\mu\text{g m}^{-3}$ or 31.7% of the AQO of $40\mu\text{g m}^{-3}$. The greatest annual PEC at any of the modelled receptors is $12.67\mu\text{g m}^{-3}$ that is at this same receptor. The impact at all modelled receptors is classified as **Negligible** under IAQM and EPUK (2017) criteria. Following the LAQM.TG(22) (Defra, 2022) guidance in converting annual concentrations to 24 hour averages, there are no exceedances of the 24 hour PM_{10} AQO and impacts are classed as **Negligible**.
- 19.9.27 The greatest PC for annual mean $\text{PM}_{2.5}$ at any of the modelled receptors around the landfall is $0.11\mu\text{g m}^{-3}$ at H05, where the PEC is modelled to be $8.17\mu\text{g m}^{-3}$ or 81.7% of the AQO of $10\mu\text{g m}^{-3}$. The greatest annual PEC at any of the modelled receptors is $8.17\mu\text{g m}^{-3}$ that is at this same receptor. The impact at all modelled receptors is classified as **Negligible** under IAQM and EPUK (2017) criteria.

TCs

- 19.9.28 The greatest PC for annual mean NO_2 at any of the modelled receptors around the TC sites is $6.54\mu\text{g m}^{-3}$ at a residential property (H68), at national grid coordinates 517970,115613. The PEC here is modelled to be $13.49\mu\text{g m}^{-3}$ or 33.4% of the AQO of $40\mu\text{g m}^{-3}$, and the impact is classified as **Moderate Adverse** under IAQM and EPUK (2017) criteria. The greatest annual PEC at any of the modelled receptors is $13.49\mu\text{g m}^{-3}$ that is at this same receptor. The other modelled receptor at H37(512337,112914) experience **Moderate Adverse** impacts. In addition, impacts on annual concentrations is classified as **Slight Adverse** at 13

receptors H14, H15, H22-H26, H36, H38, H43, H52-53 and H69. Impacts on all other receptors is classified as **Negligible**. As all annual PECs are below $60 \mu\text{g m}^{-3}$, no exceedances of the hourly NO_2 AQO is anticipated following the LAQM.TG(22) Defra (2022) guidance and impacts are classed as **Negligible**.

- 19.9.29 The greatest PC for annual mean PM_{10} at any of the modelled receptors around the TC sites and landfall is $1.04 \mu\text{g m}^{-3}$ at a residential property (H68) at national grid coordinates 512337,112914, where the PEC is modelled to be $12.18 \mu\text{g m}^{-3}$ or 30.2% of the AQO of $40 \mu\text{g m}^{-3}$. The greatest modelled PEC is modelled to be $13.94 \mu\text{g m}^{-3}$ or 35% of the AQO at a semidetached residential property (H38) at national grid coordinates 512227,113043. The impact at all modelled receptors is classified as **Negligible** under IAQM and EPUK (2017) criteria. Following the LAQM.TG(22) (Defra, 2022) guidance in converting annual concentrations to 24 hour averages, there are no exceedances of the 24 hour PM_{10} AQO and impacts are classed as **Negligible**.
- 19.9.30 The greatest PC for annual mean $\text{PM}_{2.5}$ at any of the modelled receptors around the TC sites is $0.12 \mu\text{g m}^{-3}$ at H68, where the PEC is modelled to be $7.98 \mu\text{g m}^{-3}$ or 78.6% of the AQO of $10 \mu\text{g m}^{-3}$. The greatest modelled PEC is modelled to be $8.98 \mu\text{g m}^{-3}$ or 89.8% of the AQO at H81 (Field House farm), at national grid reference 521865,122232. The impact at all modelled receptors is classified as **Negligible** under IAQM and EPUK (2017) criteria.

Oakendene substation

- 19.9.31 The greatest PC for annual mean NO_2 at any of the modelled receptors around the onshore substation site is $12.11 \mu\text{g m}^{-3}$ at residential property (H71), where the PEC is modelled to be $19.16 \mu\text{g m}^{-3}$ or 47.9% of the AQO of $40 \mu\text{g m}^{-3}$ and the impact is classified as **Moderate Adverse** under IAQM and EPUK (2017) criteria. The greatest annual PEC at any of the modelled receptors is $19.16 \mu\text{g m}^{-3}$ that is at this same receptor. Modelled receptor H74, H78 and H79 also experience **Moderate Adverse** impacts. In addition, impacts on annual concentrations is classified as **Slight Adverse** at receptors H72, H73 and H82. Impacts on all other receptors is classified as **Negligible**. As all annual PECs are below $60 \mu\text{g m}^{-3}$, no exceedances of the hourly NO_2 AQO is anticipated following the LAQM.TG(22) Defra (2022) guidance and impacts are classed as **Negligible**.
- 19.9.32 The greatest PC for annual mean PM_{10} at any of the modelled receptors around the onshore substation site is $0.24 \mu\text{g m}^{-3}$ at a residential property (H71), where the PEC is modelled to be $12.52 \mu\text{g m}^{-3}$ or 30.7% of the AQO of $40 \mu\text{g m}^{-3}$. The greatest modelled PEC is $15.68 \mu\text{g m}^{-3}$ or 39.2% of the AQO at a residential receptor (H83). The impact at all modelled receptors is classified as **Negligible** under IAQM and EPUK (2017) criteria.
- 19.9.33 The greatest PC for annual mean $\text{PM}_{2.5}$ at any of the modelled receptors around the onshore substation site is $0.24 \mu\text{g m}^{-3}$ at a residential property (H71), where the PEC is modelled to be $8.31 \mu\text{g m}^{-3}$ or 80.7% of the AQO of $10 \mu\text{g m}^{-3}$, and the impact is classified as **Slight Adverse** under IAQM and EPUK (2017) criteria. The greatest modelled PEC is $9.0 \mu\text{g m}^{-3}$ or 90.0% of the AQO at receptor H81. Impacts on annual concentrations is also classified as **Slight Adverse** at receptors H74, H79 and H83. The impact at all other modelled receptors is classified as **Negligible** under IAQM and EPUK (2017) criteria.

National Grid Bolney substation extension works

- 19.9.34 The greatest PC for annual mean NO₂ at any of the modelled receptors around the existing National Grid Bolney substation extension site is 3.60µg m⁻³ at receptor H96, where the PEC is modelled to be 9.36 µg m⁻³ or 23.4% of the AQO of 40µg m⁻³. This is the greatest modelled PEC at any of the modelled receptors. The impact at all modelled receptors is classified as **Negligible** under IAQM and EPUK (2017) criteria.
- 19.9.35 The greatest PC for annual mean PM₁₀ at any of the modelled receptors around the existing National Grid Bolney substation extension site is 0.04µg m⁻³ at receptor H96, where the PEC is modelled to be 12.8µg m⁻³ or 32.0% of the AQO of 40µg m⁻³. This is the greatest modelled PEC at any of the modelled receptors. The impact at all modelled receptors is classified as **Negligible** under IAQM and EPUK (2017) criteria.
- 19.9.36 The greatest PC for annual mean PM_{2.5} at any of the modelled receptors around the existing National Grid Bolney substation extension site is 0.04µg m⁻³ at receptor H96 where the PEC is modelled to be 8.34µg m⁻³ or 83.4% of the AQO of 10µg m⁻³. This is the greatest modelled PEC at any of the modelled receptors. The impact at all modelled receptors is classified as **Negligible** under IAQM and EPUK (2017) criteria.

Sensitivity or value of receptor

- 19.9.37 Impacts have been assessed at human receptors, classified as having high sensitivity, with relevant exposure in accordance with Defra guidance (2022). AQOs are set with such receptors in mind.

Significance of residual effect

- 19.9.38 All impacts from the construction plant activity are classified as negligible, except:
- two receptors where the impact on annual mean NO₂ is classified as moderate adverse due to TCs; and
 - 13 receptors where the impact on annual mean NO₂ is classified as slight adverse due to TCs.
- 19.9.39 In view of the small overall impacts, the highly conservative way in which construction plant emissions and concentrations from these sources were estimated (for example, the assumption that construction plant only meets Stage IIIB emission standards), and the temporary nature of the construction phase, the residual effect, taking into account the high sensitivity of the receptors, is direct, temporary and of **Minor adverse** to **Negligible** significance, which is **Not Significant** in EIA terms.

Emissions of dust from construction

Dust emission magnitude (without embedded environmental measures)

- 19.9.40 **Table 19-33** details the potential dust emission magnitude for each of the four types of activity (see **Section 19.8**) according to the different components

considered of the Proposed Development relevant to the dust assessment. Reasons for the choice of magnitude are given with reference to IAQM (2016/2024) guidance, where appropriate. Note that these emission magnitudes assume, counterfactually, that no mitigation is in place; this is part of the IAQM (2016/2024) assessment process and in reality, all necessary mitigation against construction dust is a commitment (C-24; see **Table 19-29** and **Commitments Register** (Document Reference: 7.22)).

- 19.9.41 A number of temporary construction compounds (TCCs) will be required in support of the construction of the onshore elements of the Proposed Development. Details of these are in Chapter 4 Project Information.
- 19.9.42 TCCs will store materials, will house concrete batching plants as well as form a base for traffic travelling to and from the various construction site locations which are shown in **Figure 23.1.2a-c, Volume 3** of the ES (Document Reference: 6.4.23.1). The three TCCs are as follows:
- Washington compound, north of Washington, West Sussex (accessed from A283) approximately 39,100m² (3.91ha) for the cable installation temporary construction compound;
 - Climping compound, off Church Lane; approximately 61,300m² (6.13ha) for the cable installation temporary construction compound; and
 - Oakendene west compound, west of the Oakendene Industrial Estate (accessed from A272) approximately 50,000m² (5ha) for the cable installation temporary construction compound.
- 19.9.43 There are also additional construction compounds associated with the new onshore substation at Oakendene and the extension works at the existing National Grid Bolney substation. **Figure 23.4, Volume 3** of the ES (Document Reference: 6.3.23) sets out the onshore cable corridor sections and temporary construction compounds

Table 19-33 Dust emission magnitude

	Demolition	Earthworks	Construction	Trackout
Construction compound - Washington	N/A	Large (total site area > 10,000m ²)	Medium (total building volume <25,000 m ³ , batching plant)	Large (>50 HDVs)
Construction compound – Climping	N/A	Large (total site area > 10,000m ²)	Medium (total building volume <25,000 m ³ , batching plant)	Large (>50 HDVs)
Construction compound – Oakendene west	N/A	Large (total site area > 10,000m ²)	Medium (total building volume <25,000 m ³ , batching plant))	Large (>50 HDVs)

	Demolition	Earthworks	Construction	Trackout
TC activities	N/A	Small (total site area > 2,500m ²)	Small (total building volume <25,000 m ³)	Small (<10 HDVs)
Landfall	N/A	Large (total site area > 10,000m ² , total material moved > 100,000t)	Large (total building volume <100,000 m ³ , batching plant)	Large (>50 HDVs)
Oakendene substation (inclusive of adjacent construction compound)	N/A	Large (total site area > 10,000m ² , total material moved > 100,000t)	Large (total building volume <100 000 m ³ , batching plant)	Large (>50 HDVs)
National Grid Bolney substation extension works (inclusive of adjacent construction compound)	N/A	Medium (Small (total site area < 2,500m ²)	Small (total building volume <25,000 m ³)	Medium (<10 HDVs)

Sensitivity of the area

- 19.9.44 Receptors potentially affected by dust include residential properties, schools, prisons, medical facilities and so on, which have high sensitivity to dust soiling and health effects. In the IAQM guidance ([2016/2024](#)) other types of receptors are expressed as equivalent to a certain number of residential properties based on the judgement of the assessor.
- 19.9.45 Along the Washington construction compound, there are less than 10 residential properties that lie within 20m of the onshore part of the proposed DCO Order Limits, so the area is classified as having **Medium Sensitivity** to dust soiling from earthworks and construction. Over 20 residential properties lie within 20m of roads up to 500m from the proposed access routes of the onshore part of the proposed DCO Order Limits, so the area is classified as having **High Sensitivity** to dust soiling from trackout.
- 19.9.46 Along the Climping construction compound, there are less than 10 residential properties that lie within 20m of the onshore part of the proposed DCO Order Limits, so the area is classified as having **Medium Sensitivity** to dust soiling from earthworks and construction dust soiling from earthworks and construction. Less than 20 residential properties lie within 20m of roads up to 500m from the proposed access routes of the onshore part of the proposed DCO Order Limits, so the area is classified as having **High Sensitivity** to dust soiling from trackout.

- 19.9.47 Along the Oakendene west construction compound, there are less than 10 residential properties that lie within 20m of the onshore part of the proposed DCO Order Limits, so the area is classified as having **Medium Sensitivity** to dust soiling from earthworks and construction dust soiling from earthworks and construction. Less than 20 residential properties lie within 20m of roads up to 500m from the proposed access routes of the onshore part of the proposed DCO Order Limits, so the area is classified as having **High Sensitivity** to dust soiling from trackout.
- 19.9.48 Along the onshore cable corridor, there are a maximum of between 10 and 100 residential properties that lie within 20m of the TCs within the onshore part of proposed DCO Order Limits, so the area is classified as having **High Sensitivity** to dust soiling from earthworks and construction. Over 100 residential properties lie within 20m of roads up to 500m from the proposed access routes of the onshore part of the proposed DCO Order Limits, so the area is classified as having **High Sensitivity** to dust soiling from trackout.
- 19.9.49 Regarding the landfall area there are less than 10 residential properties that lie within 20m of the onshore part of the proposed DCO Order Limits, so the area is classified as having **Medium Sensitivity** to dust soiling from earthworks and construction. Less than 10 residential properties lie within 20m of roads up to 500m from the onshore part of the proposed DCO Order Limits, so the area is classified as having **Low Sensitivity** to dust soiling from trackout.
- 19.9.50 Regarding the Oakendene substation site there are less than 10 residential properties that lie within 20m of the onshore part of the proposed DCO Order Limits, so the area is classified as having **Medium Sensitivity** to dust soiling from earthworks and construction. There are more than 10 residential properties that lie within 20m of roads up to 500m from the onshore part of the proposed DCO Order Limits, so the area is classified as having **High Sensitivity** to dust soiling from trackout.
- 19.9.51 Regarding the existing National Grid Bolney substation extension works there are less than 10 residential properties that lie within 20m of the onshore part of the proposed DCO Order Limits, so the area is classified as having **Low Sensitivity** to dust soiling from earthworks and construction. Less than 10 residential properties lie within 20m of roads up to 500m from the onshore part of the proposed DCO Order Limits, so the area is classified as having **Medium Sensitivity** to dust soiling from trackout.
- 19.9.52 The background annual mean PM₁₀ concentration across the proposed DCO Order Limits is below 24µg m⁻³ (see **Section 19.6**), so considering the number of residential properties near to the work areas as above, all areas are classified as having **Low Sensitivity** to human health.
- 19.9.53 Regarding ecological sites, the Climping Beach SSSI and Amberley Mount to Sullington Hill SSSI are judged to be of **Medium Sensitivity** (Natural England 2022). The Climping Beach SSSI is adjacent to the proposed DCO Order Limits near the landfall area and the Amberley Mount to Sullington Hill SSSI lies within 100m of the onshore part of the proposed DCO Order Limits and trackout zone. No construction activity will take place within 50m of the SSSIs. No sites of high sensitivity have been identified within 50m of the onshore part of the proposed

DCO Order Limits or trackout zone. The area is therefore considered to be of medium sensitivity to ecological impacts from earthworks and trackout.

19.9.54 The sensitivity of the area with respect to the various activities and impacts is summarised in **Table 19-34**.

Table 19-34 Sensitivity of the area

	Demolition	Earthworks	Construction	Trackout
<i>Construction compound - Washington</i>				
Dust soiling	N/A	Medium	Medium	High
Human health	N/A	Low	Low	Low
Ecological	N/A	N/A	N/A	N/A
<i>Construction compound - Climping</i>				
Dust soiling	N/A	Low	Low	High
Human health	N/A	Low	Low	Low
Ecological	N/A	N/A	N/A	N/A
<i>Construction compound – Oakendene west</i>				
Dust soiling	N/A	Medium	Medium	High
Human health	N/A	Low	Low	Low
Ecological	N/A	N/A	N/A	N/A
<i>TC activities</i>				
Dust soiling	N/A	High	High	High
Human health	N/A	Low	Low	Low
Ecological	N/A	N/A	N/A	N/A
<i>Landfall</i>				
Dust soiling	N/A	Medium	Medium	Low
Human health	N/A	Low	Low	Low
Ecological	N/A	Medium	Medium	Medium
<i>Oakendene substation</i>				
Dust soiling	N/A	Medium	Medium	High
Human health	N/A	Low	Low	Low
Ecological	N/A	N/A	N/A	N/A

	Demolition	Earthworks	Construction	Trackout
National Grid Bolney substation extension works				
Dust soiling	N/A	Low	Low	Medium
Human health	N/A	Low	Low	Low
Ecological	N/A	N/A	N/A	N/A

Risk of impacts (without embedded environmental measures)

- 19.9.55 Combining the dust emission magnitude with the sensitivity of the area, the risk of dust impacts in the absence of embedded environmental measures is determined as shown in **Table 19-35**. For TC activities earthworks, construction and trackout activities would carry a low risk of dust soiling impacts and a negligible risk to human health and ecology.
- 19.9.56 For Washington, Climping and Oakendene TCCs, earthworks, and construction activities would carry a medium risk of dust soiling impacts and a low risk to human health. Trackout activities for the three TCCs would carry a low risk of dust soiling impacts and a negligible risk to human health
- 19.9.57 For the landfall activities earthworks, construction and trackout activities would carry a medium risk of dust soiling impacts, a low risk to human health and medium risk to ecological receptors. For the Oakendene substation works earthworks, construction and trackout activities would carry a medium risk of dust soiling impacts and a low risk to human health. For the Bolney substation works all activities are classed as negligible in terms of dust soiling and potential human health effects.

Table 19-35 Summary dust risk (without embedded environmental measures)

	Demolition	Earthworks	Construction	Trackout
Construction compound - Washington				
Dust soiling	N/A	Medium risk	Medium risk	High Risk
Human health	N/A	Low Risk	Low Risk	Negligible
Ecological	N/A	N/A	N/A	N/A
Construction compound - Climping				
Dust soiling	N/A	Medium risk	Medium risk	High Risk
Human health	N/A	Low Risk	Low Risk	Negligible

	Demolition	Earthworks	Construction	Trackout
Ecological	N/A	N/A	N/A	N/A
Construction compound – Oakendene west				
Dust soiling	N/A	Medium risk	Medium risk	High risk
Human health	N/A	Low risk	Low risk	Negligible
Ecological	N/A	N/A	N/A	N/A
Route (TC activities)				
Dust soiling	N/A	Low risk	Low risk	Low risk
Human health	N/A	Negligible	Negligible	Negligible
Ecological	N/A	Negligible	Negligible	Negligible
Landfall				
Dust soiling	N/A	Medium risk	Medium risk	Low risk
Human health	N/A	Low risk	Low risk	Low risk
Ecological	N/A	Medium risk	Medium risk	Medium risk
Oakendene substation				
Dust soiling	N/A	Medium risk	Medium risk	Medium risk
Human health	N/A	Low risk	Low risk	Low risk
Ecological	N/A	N/A	N/A	N/A
National Grid Bolney substation				
Dust soiling	N/A	Negligible	Negligible	Negligible
Human health	N/A	Negligible	Negligible	Negligible
Ecological	N/A	N/A	N/A	N/A

Environmental measures

- 19.9.58 As stated in **Section 19.7**, embedded environmental measure C-24 will to be secured through an **Outline CoCP** (Document Reference: 7.2) and DCO requirement ensuring best practices air quality management measures will be applied as described in *IAQM Guidance On the Assessment of Dust From Demolition And Construction, Version 1.1-2.2 (2016-2024)* (**Table 19-29**).

19.9.59 Given the risks of impacts assessed above (see **paragraphs 19.9.55 to 19.9.58**) it is possible to determine the specific environmental measures required to ensure that the overall effects are negligible. These are given in **Table 19-36**. These are reproduced directly from IAQM guidance ([20162024](#)), so some environmental measures may not be relevant to the Proposed Development (e.g. where there are references to requirements specific to London). IAQM measures specific to demolition (IAQM Numbers 32 to 35) are not needed and therefore not included in **Table 19-36**. However, all other IAQM measures are highly recommended or desirable. These environmental measures therefore constitute the best practice air quality management measures referred to in embedded environmental measure C-24 (see **Table 19-29**) in relation to the construction phase of the onshore elements of the Proposed Development. **Table 19-36** also identifies the areas that these apply. It should be noted that no environmental measures are recommended for the existing National Grid Bolney substation extension works as the risk was **Negligible**.

Table 19-36 Specific environmental measures to be applied for construction dust management (from IAQM [20162024](#))

IAQM number	Environmental measure	Applicable
Mitigation for all sites: Communications		
1.	<i>“Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.”</i>	Landfall and Oakendene substation. Not recommended for the onshore cable route as it is considered low risk (Table 19-35).
2.	<i>“Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager.”</i>	Onshore cable route, Landfall and Oakendene substation.
3.	<i>“Display the head or regional office contact information”</i>	Onshore cable route, Landfall and Oakendene substation.
Mitigation for all sites: Dust management		
4.	<i>“Develop and implement a Dust Management Plan (DMP), which may include measures to control other emissions, approved by the Local Authority. The level of detail will depend on the risk, and should include as a minimum the highly recommended measures in this document. The desirable measures should be</i>	Landfall and Oakendene substation. Desirable for the onshore cable route but excluded due to the limited construction period of TC activities.

IAQM number	Environmental measure	Applicable
	<p><i>included as appropriate for the site. In London additional measures may be required to ensure compliance with the Mayor of London’s guidance. The DMP may include monitoring of dust deposition, dust flux, real-time PM₁₀ continuous monitoring and/or visual inspections.”</i></p>	
Site management		
5.	<p><i>“Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken.”</i></p>	Onshore cable route, Landfall and Oakendene substation.
6.	<p><i>“Make the complaints log available to the Local Authority when asked.”</i></p>	Onshore cable route, Landfall and Oakendene substation.
7.	<p><i>“Record any exceptional incidents that cause dust and/or air emissions, either on- or offsite, and the action taken to resolve the situation in the log book.”</i></p>	Onshore cable route, Landfall and Oakendene substation.
8.	<p><i>“Hold regular liaison meetings with other high risk construction sites within 500m of the site boundary, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. It is important to understand the interactions of the off-site transport/ deliveries which might be using the same strategic road network routes.”</i></p>	Landfall and Oakendene substation. Not recommended for the onshore cable route as it is considered low risk (Table 19-35).
Monitoring		
9.	<p><i>“Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100m of site boundary, with cleaning to be provided if necessary.”</i></p>	Landfall and Oakendene substation. Not recommended for the onshore cable route as it is considered low risk (Table 19-35).
10.	<p><i>“Carry out regular site inspections to monitor compliance with the DMP, record inspection</i></p>	Onshore cable route, Landfall and Oakendene substation. Note that a

IAQM number	Environmental measure	Applicable
	<i>results, and make an inspection log available to the local authority when asked”</i>	DMP is not recommended for the route as it is considered low risk (Table 19-35).
11.	<i>“Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.”</i>	Onshore cable route, Landfall and Oakendene substation.
12.	<i>“Agree dust deposition, dust flux, or real-time PM₁₀ continuous monitoring locations with the Local Authority. Where possible commence baseline monitoring at least three months before work commences on site or, if it a large site, before work on a phase commences. Further guidance is provided by IAQM on monitoring during demolition, earthworks and construction.”</i>	Landfall and Oakendene substation. Not recommended for the onshore cable route as it is considered low risk (Table 19-35).
Preparing and maintaining the site		
13.	<i>“Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.”</i>	Onshore cable route, landfall and Oakendene substation.
14.	<i>“Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.”</i>	Onshore cable route, landfall and Oakendene substation.
15.	<i>“Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period”</i>	Landfall and Oakendene substation. Not recommended for the onshore cable route as TC activities are short term (Table 19-35).
16.	<i>“Avoid site runoff of water or mud.”</i>	Onshore cable route, landfall and Oakendene substation.
17.	<i>“Keep site fencing, barriers and scaffolding clean using wet methods.”</i>	Onshore cable route, landfall and Oakendene substation.

IAQM number	Environmental measure	Applicable
18.	<i>“Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below.”</i>	Onshore cable route, landfall and Oakendene substation.
19.	<i>“Cover, seed or fence stockpiles to prevent wind whipping. Operating vehicle/machinery and sustainable travel”</i>	Onshore cable route, landfall and Oakendene substation.
20.	<i>“Ensure all on-road vehicles comply with the requirements of the London Low Emission Zone and the London NRMM standards, where applicable”</i>	Onshore cable route, landfall and Oakendene substation.
21.	<i>“Ensure all vehicles switch off engines when stationary – no idling vehicles.”</i>	Onshore cable route, landfall and Oakendene substation.
22.	<i>“Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable.”</i>	Onshore cable route, landfall and Oakendene substation.
23.	<i>“Impose and signpost a maximum-speed-limit of 15 mph on surfaced and 10 mph on unsurfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate)”</i>	Onshore cable route, landfall and Oakendene substation.
24.	<i>“Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials.”</i>	Onshore cable route, landfall and Oakendene substation.
25.	<i>“Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing)”</i>	Not considered relevant given the nature and duration of activities and the location of the different construction areas.
Operations		
26.	<i>“Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems.”</i>	Landfall and Oakendene substation. Not recommended for the onshore cable route as it is

IAQM number	Environmental measure	Applicable
		considered low risk (Table 19-35).
27.	<i>“Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.”</i>	Onshore cable route, landfall and Oakendene substation.
28.	<i>“Use enclosed chutes and conveyors and covered skips.”</i>	Onshore cable route, landfall and Oakendene substation.
29.	<i>“Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.”</i>	Onshore cable route, landfall and Oakendene substation.
30.	<i>“Ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.”</i>	Onshore cable route, landfall and Oakendene substation.
Waste management		
31.	<i>“Avoid bonfires and burning of waste materials.”</i>	Onshore cable route, landfall and Oakendene substation.
Measures specific to earthworks		
36.	<i>“Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.”</i>	Landfall and Oakendene substation. Not recommended for the onshore cable route as it is considered low risk (Table 19-35).
37.	<i>“Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable”</i>	Landfall and Oakendene substation. Not recommended for the onshore cable route as it is considered low risk (Table 19-35).
38.	<i>“Only remove the cover in small areas during work and not all at once”</i>	Landfall and Oakendene substation. Not recommended for the onshore cable route as it is

IAQM number	Environmental measure	Applicable
considered low risk (Table 19-35).		
Measures specific to construction		
39.	<i>“Avoid scabbling (roughening of concrete surfaces) if possible”</i>	Route, landfall and Oakendene substation.
40.	<i>“Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.”</i>	Onshore cable route, landfall and Oakendene substation.
41.	<i>“Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.”</i>	Landfall and Oakendene substation. Not recommended for the onshore cable route as it is considered low risk (Table 19-35).
42.	<i>“For smaller supplies of fine power materials ensure bags are sealed after use and stored appropriately to prevent dust.”</i>	Landfall and Oakendene substation. Not recommended for the onshore cable route as it is considered low risk (Table 19-35).
Measures specific to trackout		
43.	<i>“Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use.”</i>	Onshore cable route, landfall and Oakendene substation.
44.	<i>“Avoid dry sweeping of large areas.”</i>	Onshore cable route, landfall and Oakendene substation.
45.	<i>“Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.”</i>	Onshore cable route, landfall and Oakendene substation.
46.	<i>“Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.”</i>	Landfall and Oakendene substation. Not recommended for the onshore cable route as it is

IAQM number	Environmental measure	Applicable
		considered low risk (Table 19-35).
47.	<i>“Record all inspections of haul routes and any subsequent action in a site log book.”</i>	Onshore cable route, landfall and Oakendene substation.
48.	<i>“Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.”</i>	Landfall and Oakendene substation. Not recommended for the onshore cable route as it is considered low risk (Table 19-35).
49.	<i>“Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).”</i>	Onshore cable route, landfall and Oakendene substation.
50.	<i>“Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits.”</i>	Not recommended for the onshore cable route as it is considered low risk (Table 19-35).
51.	<i>“Access gates to be located at least 10m from receptors where possible. “</i>	Not recommended for the onshore cable route as it is considered low risk (Table 19-35).

Significance of residual effect

- 19.9.60 In the IAQM methodology ([2016/2024](#)), once the risk of dust impacts has been determined and the appropriate dust mitigation measures identified, the final step is to determine whether there are significant effects arising from the construction phase of the Proposed Development.
- 19.9.61 IAQM guidance ([2016/2024](#)) states that:
- “For almost all construction activity, the aim should be to prevent significant effects on receptors through the use of effective mitigation. Experience shows that this is normally possible. Hence the residual effect will normally be ‘not significant’.”*
- 19.9.62 No reasons have been identified why this should not apply to the Proposed Development. The embedded environmental measures (as shown in **Table 19-29**) include a commitment to embed the measures recommended by IAQM guidance (2016) under environmental measure C-24. The residual effect is therefore direct,

temporary and of **Negligible** significance, which is **Not Significant** in EIA terms. This applies to the onshore cable corridor and onshore substation site.

Emissions of odour from construction

Magnitude of impact

- 19.9.63 The exact nature of the landfills is not known for certain at present. However, the Brook Barn Farm Landfill was authorised for non-biodegradable waste only and is therefore considered to have a Small source odour potential.
- 19.9.64 Receptors potentially most affected by the works through the Brook Barn Farm Landfill site are residential properties on Battin Lane, which lie 200m east of the Brook Barn Farm Landfill site at the closest point, as shown in **Figure 19.3, Volume 3** of the ES (Document Reference: 6.3.19). In addition, there are allotments which lie about 50m east of the Brook Barn Farm Landfill site at the closest point. There is no other public access close to the Brook Barn Farm Landfill site (e.g. public footpaths). Other land use in the area is primarily agricultural.
- 19.9.65 The pathway effectiveness to residential receptors is considered to be Ineffective, for the following reasons. Battin Lane and Brook Barn Farm are broadly downwind from the Brook Barn Farm Landfill site, at distances of at least 200m. At these distances, there is likely to be considerable dilution before any emitted odour reaches the receptors.
- 19.9.66 The pathway effectiveness to the allotments is considered to be moderately effective, in view of the relatively short distance (50m) broadly downwind. There is no other public access close to the potential odour source.
- 19.9.67 In addition, the sources of odour will be in a confined underground space, which will reduce wind flow across the surfaces, so that passive diffusion is the main way of transporting odours from the source to the ambient air. This will tend to reduce the pathway effectiveness.
- 19.9.68 **Table 19-37** summarises the source odour potentials and pathway effectiveness ratings, and the resulting risk of odour exposure according to IAQM (2018) guidance. The risk of odour exposure from the Brook Barn Farm Landfill site is **Negligible** at all receptors, so impacts from this site are not considered further.

Table 19-37 Risk of odour exposure

Landfill site	Receptor	Source odour potential	Pathway effectiveness	Risk of odour exposure
Brook Barn Farm Landfill site	Battin Lane properties	Small	Ineffective	Negligible Risk
Brook Barn Farm Landfill site	Allotments	Small	Moderately effective	Negligible Risk

Sensitivity or value of receptor

- 19.9.69 The most sensitive receptors to odour are residential receptors that are considered to have a **High Sensitivity**, since these are locations where people would expect a high level of amenity and to be present for long periods. The allotments are classed as having a **Medium Sensitivity**.

Significance of residual effect

- 19.9.70 Given the Low risk of odour exposure and the high receptor sensitivity, the likely magnitude of odour effect at Brook Barn Farm is categorised as **Slight** adverse at residential receptors and **Negligible** for the remaining receptors, according to the IAQM (2018) guidance,
- 19.9.71 The odour source will only be present temporarily, during temporary construction work between excavating and refilling the trench. This is in contrast to the typical development for which the IAQM (2018) guidance is designed, which are permanent sources of odour. The residual effect is therefore direct, temporary and of **Minor adverse** significance, which is **Not Significant** in EIA terms. This applies to the onshore cable corridor and the onshore substation site.

19.10 Assessment of effects: Decommissioning phase

Emissions of air pollutants from decommissioning traffic on roads

- 19.10.1 Road traffic data is not available to permit the modelling and assessment of impacts from road traffic during the decommissioning phase. However, given the decommissioning plan is to reverse the construction phase for above-ground structures, and to leave underground structures in situ, it is expected that decommissioning traffic will be less than construction traffic, which was shown to have a negligible residual effect (see **Paragraph 19.9.16**).
- 19.10.2 It is therefore concluded that the residual effect is direct, temporary and of **Negligible** significance, which is **Not Significant** in EIA terms.

Emissions of air pollutants from decommissioning equipment on site

- 19.10.3 Plant and equipment data is not available in sufficient detail to permit the modelling and assessment of impacts from decommissioning equipment on site. However, given the decommissioning plan is to reverse the construction phase for above-ground structures, and to leave underground structures in situ, it is expected that decommissioning activity will be less than construction activity, which was shown to have a **Negligible** residual effect (see **Section 19.9**). In addition, decommissioning is expected to take place in about 2055, by which time it is highly unlikely that construction plant and equipment will be a significant source of emissions.
- 19.10.4 It is therefore concluded that given the fact that decommissioning activities are significantly smaller in scale, the residual effect is direct, temporary and of **Minor**

Adverse to Negligible significance, which is **Not Significant** in EIA terms. This applies to the onshore cable corridor and onshore substation site.

Emissions of dust from decommissioning

Dust emission magnitude (without embedded environmental measures)

- 19.10.5 The anticipated decommissioning activities include the demolition of buildings and infrastructure in the landfall areas and onshore substations, representing a reasonable worst case considering the lack of detailed information. The potential dust emission magnitude for each of the four types of activity is judged to be as follows. Reasons for the choice of magnitude are given with reference to IAQM (2016) guidance, where appropriate. Note that these emission magnitudes assume, counterfactually, that no mitigation is in place; this is part of the IAQM assessment process and in reality all necessary mitigation against construction dust is a commitment (C-24; see **Table 19-29**).
- Demolition: Medium. Several structures forming the onshore substation and the existing National Grid Bolney substation extension to be demolished.
 - Earthworks: Negligible.
 - Construction: Negligible.
 - Trackout: Medium. It is conservatively assumed that there will be at most 10–50 outward HDV movements per day.

Sensitivity of the area

- 19.10.6 Receptors potentially affected by dust include residential properties, schools, prisons, medical facilities and so on, which have high sensitivity to dust soiling and health effects. The IAQM (~~2016~~2024) guidance works in terms of residential properties, with other types of receptors being expressed as equivalent to a certain number of residential properties based on the judgement of the assessor. Between 10 and 100 residential properties lie within 50m the onshore substation site, so the area is classified as having **Medium sSensitivity** to dust soiling from demolition. Between 10 and 100 residential properties lie within 20m of roads up to 500m from the onshore substation site so the area is classified as having **Medium sSensitivity** to dust soiling from trackout.
- 19.10.7 The background annual mean PM₁₀ concentration is below 24µg m⁻³ (see **Section 19.6**), so considering the number of residential properties near to the decommissioning works as above, the area is classified as having **Low sSensitivity** to human health from demolition and trackout.
- 19.10.8 Regarding ecological sites, no sensitive sites have been identified within 50m of the onshore substation site or trackout zone. The area is therefore considered to be of **Negligible sensitivity** to ecological impacts.
- 19.10.9 The sensitivity of the area with respect to the various activities and impacts is summarised in **Table 19-38**.

Table 19-38 Sensitivity of the area

	Demolition	Earthworks	Construction	Trackout
Dust soiling	Medium	Negligible	Negligible	High
Human health	Low	Negligible	Negligible	Low
Ecological	Negligible	Negligible	Negligible	Negligible

Risk of impacts (without embedded environmental measures)

- 19.10.10 Combining the dust emission magnitude with the sensitivity of the area, the risk of dust impacts in the absence of embedded environmental measures is determined as shown in **Table 19-39**. Earthworks and construction activities would carry a negligible risk, trackout and demolition activities have a high risk of significant dust soiling impacts. The risk to human health is classed as low for demolition and trackout and negligible for earthworks and construction. The risk to ecological receptors is negligible.

Table 19-39 Summary dust risk (without embedded environmental measures)

	Demolition	Earthworks	Construction	Trackout
Dust soiling	Medium risk	Negligible	Negligible	Medium risk
Human health	Low risk	Negligible	Negligible	Low risk
Ecological	Negligible	Negligible	Negligible	Negligible

Environmental measures

- 19.10.11 As stated in **Section 19.7**, embedded environmental measure C-24 will to be secured through the **Outline CoCP** (Document Reference: 7.2) and DCO requirement, that ensures best practices air quality management measures will be applied as described in *IAQM Guidance on the Assessment of Dust from Demolition and Construction 202416*, version **1.12.2** (202416) (**Table 19-29**).
- 19.10.12 Given the risks of impacts assessed above (see paragraphs **19.10.5** to **19.10.10**), it is possible to determine the specific environmental measures required to ensure that the overall effects are negligible. The measures presented in **Table 19-36**, that apply to construction phase, also apply to the decommissioning phase These are reproduced directly from IAQM guidance (20162024), so some environmental measures may not be relevant to the Proposed Development (e.g. where there are references to requirements specific to London). These environmental measures therefore constitute the best practice air quality management measures referred to in embedded environmental measure C-24 (see **Table 19-36**) for the decommissioning phase of the onshore elements of the Proposed Development.

Significance of residual effect

- 19.10.13 In the IAQM methodology (2016/2024), once the risk of dust impacts has been determined and the appropriate dust mitigation measures identified, the final step is to determine whether there are significant effects arising from the decommissioning phase of the Proposed Development.
- 19.10.14 IAQM guidance (2016/2024) states that:
- “For almost all construction activity [i.e. including demolition and related dust-generating activities], the aim should be to prevent significant effects on receptors through the use of effective mitigation. Experience shows that this is normally possible. Hence the residual effect will normally be ‘not significant’.”*
- 19.10.15 No reasons have been identified why this should not apply to the Proposed Development. The embedded environmental measures (as shown in **Table 19-29**) include a commitment to embed the measures recommended by IAQM guidance (2016/2024) under environmental measure C-24. The residual effect is therefore direct, temporary and of **Negligible Adverse** significance, which is **Not Significant** in EIA terms. This applies to the onshore substation site as the only location where decommissioning activities are anticipated.

19.11 Assessment of cumulative effects

Approach

- 19.11.1 A CEA examines the combined impacts of Rampion 2 in combination with other developments on the same single receptor or resource and the contribution of Rampion 2 to those impacts. The overall method followed in identifying and assessing potential cumulative effects in relation to the onshore environment is set out in **Chapter 5: Approach to the EIA, Volume 2** of the ES (Document Reference: 6.2.5) and **Appendix 5.3: Cumulative effects assessment detailed onshore search and screening criteria, Volume 4** of the ES (Document Reference: 6.4.5.3).
- 19.11.2 The onshore screening approach follows the Planning Inspectorate’s Advice Note Seventeen (Planning Inspectorate, 2019) which is an accepted process for Nationally Significant Infrastructure Projects (NSIPs) and follows the four-stage approach set out in the guidance.

Cumulative effects assessment

- 19.11.3 For air quality, a ZOI as in **Section 19.8** has been applied for the CEA to ensure direct and indirect cumulative effects can be appropriately identified and assessed. The ZOI takes into consideration the areas/receptors likely to be affected by Rampion 2 activities and facilities. Effects from unplanned but predictable potential effects caused by Rampion 2 that may occur later or at a different location have also been considered.
- 19.11.4 A short list of ‘other developments’ that may interact with the Rampion 2 ZOIs during their construction, operation and maintenance or decommissioning is

presented in **Appendix 5.4: Cumulative effects assessment shortlisted developments, Volume 4** of the ES (Document Reference: 6.4.5.4) and on **Figure 5.4.2 to 5.4.4, Volume 4** of the ES (Document Reference: 6.5.4.5). This short list has been generated applying criteria set out in **Chapter 5: Approach to the EIA, Volume 2** of the ES (Document Reference: 6.2.5) and **Appendix 5.3: Cumulative effects assessment detailed onshore search criteria, Volume 4** of the ES (Document Reference: 6.4.5.3) and has been collated up to the finalisation of the ES through desk study, consultation, and engagement.

- 19.11.5 Only those developments in the short list that fall within the air quality ZOI have the potential to result in cumulative effects with the Proposed Development. The air quality ZOI is shown in **Figure 19.4, Volume 3** of the ES (Document Reference: 6.3.19). All developments falling outside the air quality ZOI are excluded from this assessment.
- 19.11.6 Other developments have the potential for generating cumulative effects in a number of ways:
- Generation of additional road traffic. This has been taken into account in the air quality modelling by means of the traffic modelling (presented in **Chapter 23: Transport, Volume 2** of the ES (Document Reference: 6.2.23)) which includes growth factors which represent the overall amount of growth in road traffic given expected developments on a wide scale. It is therefore not necessary to consider these separately in the CEA. This includes residential and commercial development that are not in the ZOI.
 - Generation of dust during construction. The ZOI for this is 350m.
 - Generation of air quality emissions from the other development, either during construction or operation and maintenance. For these effects, the ZOI is less well defined, but based on the results of the main air quality assessment, may be conservatively taken as 200m.
- 19.11.7 A tiered approach to the CEA has been set out in Table 5-6 in **Chapter 5: Approach to the EIA, Volume 2** of the ES (Document Reference: 6.2.5) and can be summarised as follows:
- Tier 1: developments under construction, permitted applications, and submitted applications;
 - Tier 2: Other developments on the Planning Inspectorate Programme of Projects where a Scoping Report has been submitted; and
 - Tier 3: Other developments on the Planning Inspectorate Programme of Projects where a Scoping Report has not been submitted, or where developments are identified in Development Plans or other plans as appropriate.
- 19.11.8 On the basis of the above, the following specific other developments contained within the short list in **Appendix 5.4: Cumulative effects assessment shortlisted developments, Volume 4** of the ES (Document Reference: 6.4.5.4) are considered in this CEA, **Table 19-40**. The other developments reported in **Table 19-40** are those which have been initially screened to be within 350m of the

Proposed DCO Order Limits. The cumulative project design envelope for air quality is described in **Table 19-41**.

Table 19-40 Developments considered as part of the air quality CEA

ID ⁸	Development type	Development name	Application reference	Status	Confidence in assessment	Tier ⁹	Distance to Rampion 2 (m)
11	Leisure Golf course including associated buildings and infrastructure	Bognor Regis Golf Club	M/16/22/PL	Application pending a decision: submitted 11/02/2022	High	1	457
13 / 14 / 63	Mixed Use 300 dwellings and ancillary infrastructure	Land at Climping Arun Local Plan (2018) Reference Site SD10 Policy H SP2c	CM/48/21/RES / CM/1/17/OUT / Local Plan site (SD10)	Application pending a decision: submitted 31/08/2021 / Application approved (after appeal) 28/09/2018 / Allocated in Local Plan	High	13 / 14 / 63	Within proposed DCO Order Limits
16	Mixed Use Demolition of existing treatment works and	Land west of Bridge Road Roundabout	LU/238/20/OUT	Application approved 22/04/2022	High	1	146

⁸ ID reference as stated in Table 2-1 in [Appendix 5.4: Cumulative effects assessment shortlisted developments, Volume 4](#) of the ES (Document Reference: 6.4.5.4) and on [Figure 5.4.2 to 5.4.4, Volume 4](#) of the ES (Document Reference: 6.4.5.4).

⁹ [Chapter 5: Approach to the EIA, Volume 2](#) of the ES (Document Reference: 6.2.5) sets out the full definitions of the tiers.

ID ⁸	Development type	Development name	Application reference	Status	Confidence in assessment	Tier ⁹	Distance to Rampion 2 (m)
	redevelopment to provide up to 105 homes						
17	Industrial (waste) Change of use of existing hangar building from industrial / storage to a combined heat and power plant	Rudford Industrial Estate	WSCC/015/22	Application pending a decision: submitted 10/06/2022	High	1	375
21	Energy generation (solar) Installation of a Solar Photovoltaic (PV) generation system.	HM Prison Ford Road	F/16/21/PL	Application approved 23/11/2021	High	1	199
32	Mixed use development 600 dwellings and multi- functional green infrastructure	Development of land at Courtwick	LU/355/10/	Application approved 23/02/12	High	1	Within proposed DCO Order Limits

ID⁸	Development type	Development name	Application reference	Status	Confidence in assessment	Tier⁹	Distance to Rampion 2 (m)
36	Mixed Use 160 dwellings with public open space	Land off Arundel Road	A/122/19/OUT	Application approved 17/03/2020	High	1	211
39	Industry (resource extraction) The continued winning, working and processing of sand from the existing Rock Common Quarry.	Rock Common Quarry	WSCC/028/21	Application pending a decision: submitted 14/07/2021	High	1	Within proposed DCO Order Limits
42	Industry (resource extraction) Continuation of working the mineral (sand extraction), but with an enhanced restoration scheme for nature conservation and informal recreation	Sandgate Park Quarry	WSCC/044/18/SR	Application approved 08/01/2020	High	1	79

ID ⁸	Development type	Development name	Application reference	Status	Confidence in assessment	Tier ⁹	Distance to Rampion 2 (m)
49	Energy storage Battery Energy Storage Facility at Bolney	Battery Energy Storage Facility at Bolney #2	DM/21/2276	Application pending a decision: submitted 14/06/2021	High	1	59
51	Energy storage Proposed energy storage system and associated equipment	Ghyll Farm	DM/20/2554	Negative screening decision (EIA not required): decision 06/08/2020	Low	3	Within proposed DCO Order Limits
54	Energy generation (solar) Solarvoltaic panels and associated infrastructure	Land at Coombe Farm	DM/15/0644	Application approved 17/02/2017	High	1	21
56	Energy storage Battery Energy Storage Facility	Battery Energy Storage System at Coombe Farm #4	DM/23/0769	Application pending a decision: submitted 20/03/2023	High	1	Within proposed DCO Order Limits
57	Utilities infrastructure (energy)	Grid Stability Infrastructure at the existing National	DM/21/4285	Negative screening decision (EIA not	Low	3	Within proposed DCO

ID ⁸	Development type	Development name	Application reference	Status	Confidence in assessment	Tier ⁹	Distance to Rampion 2 (m)
	Grid stability infrastructure	Grid Bolney Substation		required): decision 14/01/2022			Order Limits
59	Highways Creation of a 1.1km highway, with shared cycleway and footway	Lyminster Bypass	WSCC/049/18/LY	Application approved 09/05/2019	High	1	Within proposed DCO Order Limits

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Table 19-41 Cumulative Project Design Envelope for air quality

Project phase and activity / impact	Scenario	Justification
Potential dust emission effects relating to the construction compounds reported in Table 19-33 and potential construction plant equipment effects relating to the locations reported in Table 19-31.	Any of the projects identified in Table 19-40 which are within the ZOIs reported in Paragraph 19.11.6 (as applicable).	There is potential for cumulative effects with the Proposed Development if a cumulative project's construction activities are expected to coincide with the Proposed Development's construction activities. Furthermore, cumulative effects could arise if a project is within the applicable ZOI of a location where construction dust emission and construction plant equipment emissions from the Proposed Development have been assessed within this ES chapter.

- 19.11.9 A further stage of the CEA is to carry out a simple qualitative assessment (as justified in **Table 19-40**) of the potential for any significant cumulative effects to arise. A CEA assessment is carried out in **Table 19-42**.



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Table 19-42 Cumulative effects assessment for air quality

Project ¹⁰	Development name	Application reference	Assessment discussion	Environmental measures
11	Bognor Regis Golf Club	M/16/22/PL	<p>Project comprises laying out of an 18 hole golf course, a nine hole golf course, practice greens, and a driving range including a buggy compound with associated access and infrastructure, 457m west of the proposed DCO Order Limits. This development may overlap in temporal scope with Rampion 2</p> <p>This ES chapter has assessed the impacts from construction dust emissions and from plant equipment emissions expected at the landfall location TC-01. This project is more than 1km from the landfall location TC-01. This is outside of the ZOI for construction dust emissions (350m) and therefore no cumulative effects of this kind are expected. This is also outside of the ZOI for construction plant equipment emissions (200m) and therefore no cumulative effects of this kind are expected.</p>	-
13 / 14 / 63	<p>Land at Climping</p> <p>Arun Local Plan (2018) Reference Site SD10</p>	<p>CM/48/21/RES / CM/1/17/OUT / Local Plan site (SD10)</p>	<p>Residential development comprising erection of 300 dwellings and a building within use Class E, together with other associated infrastructure. The project overlaps with the onshore part of the proposed DCO Order Limits. The project lies on the opposite side of the road from the Climping construction compound. There is likely to be an overlap in timescales for the construction and operational phases of the</p>	<p>Proposed environmental measure as described in C-24 would seek to limit the</p>

¹⁰ ID reference as stated in Table 2-1 in [Appendix 5.4: Cumulative effects assessment shortlisted developments, Volume 4](#) of the ES (Document Reference: 6.4.5.4) and on [Figure 5.4.2 to 5.4.4, Volume 4](#) of the ES (Document Reference: 6.4.5.4).

Project ¹⁰	Development name	Application reference	Assessment discussion	Environmental measures
	Policy H SP2c		<p>project which currently has a planned construction between 2024 and 2030.</p> <p>This chapter has assessed the impacts from construction dust emissions at the Climping construction compound, therefore the cumulative effects that could arise are construction dust emissions from this project. Further to this, there are no plant equipment emissions expected at the Climping construction compound.</p> <p>The IAQM recommended dust controls in place (as would be standard best practice), the magnitude of impacts from cumulative developments are expected to be the same or similar to the impacts from construction of Rampion 2. Provided that the cumulative developments use the recommended IAQM dust controls, the effect will be Not Significant in EIA terms.</p>	magnitude and overall effect.
16	Land west of Bridge Road Roundabout	LU/238/20/OUT	<p>Mixed use development 2.30ha in size within 145m east of the proposed DCO Order Limits, on the opposite side of the River Arun. There is likely to be an overlap in timescales for the construction and operational phases of the project which currently has a planned construction between 2022 and 2027.</p> <p>This chapter has assessed the impacts from construction dust emissions at the Climping construction compound, therefore the cumulative effects that could arise are construction dust emissions from this project. Further to this, there are no plant equipment emissions expected at the Climping construction compound.</p>	Proposed environmental measure as described in C-24 would seek to limit the magnitude and overall effect.

Project ¹⁰	Development name	Application reference	Assessment discussion	Environmental measures
17	Rudford Industrial Estate	WSCC/015/22	<p>The IAQM recommended dust controls in place (as would be standard best practice), the magnitude of impacts from cumulative developments are expected to be the same or similar to the impacts from construction of Rampion 2. Provided that the cumulative developments use the recommended IAQM dust controls, the effect will be Nnot Ssignificant in EIA terms.</p> <p>Project involves change of use of an existing hangar building for a heat and power plant 375m northwest of the proposed DCO Order Limits. There is likely to be an overlap in timescales for the construction and operational phases of the project which currently has a planned construction between 2023 and 2028.</p> <p>This chapter has assessed the impacts from construction dust emissions at the Climping construction compound, therefore the cumulative effects that could arise are construction dust emissions from this project. Further to this, there are no plant equipment emissions expected at the Climping construction compound.</p> <p>The IAQM recommended dust controls in place (as would be standard best practice), the magnitude of impacts from cumulative developments are expected to be the same or similar to the impacts from construction of Rampion 2. Provided that the cumulative developments use the recommended IAQM dust controls, the effect will be Nnot Ssignificant in EIA terms.</p>	<p>Proposed environmental measure as described in C-24 would seek to limit the magnitude and overall effect.</p>

Project ¹⁰	Development name	Application reference	Assessment discussion	Environmental measures
21	HM Prison Ford Road	F/16/21/PL	<p>The location of this project is approximately 488m from the Climping construction compound. the location of this project is outside of the ZOI (200m) for construction plant equipment emissions and therefore no cumulative effects of this kind are expected.</p> <p>Project to install a 239.2MWh solar photovoltaic generation system approximately 200m northwest of the proposed DCO Order Limits. There is likely to be an overlap in timescales for the construction and operational phases of the project which currently has a planned construction between 2022 and 2027.</p> <p>This chapter has assessed the impacts from construction dust emissions at the Climping construction compound, therefore the cumulative effects that could arise are construction dust emissions from this project. Further to this, there are no plant equipment emissions expected at the Climping construction compound.</p> <p>The IAQM recommended dust controls in place (as would be standard best practice), the magnitude of impacts from cumulative developments are expected to be the same or similar to the impacts from construction of Rampion 2. Provided that the cumulative developments use the recommended IAQM dust controls, the effect will be Nnot Ssignificant in EIA terms.</p> <p>The location of this project is approximately 400m from the Climping construction compound. the location of this project is</p>	<p>Proposed environmental measure as described in C-24 would seek to limit the magnitude and overall effect.</p>

Project ¹⁰	Development name	Application reference	Assessment discussion	Environmental measures
			outside of the ZOI (200m) for construction plant equipment emissions and therefore no cumulative effects of this kind are expected.	
32	Development of land at Courtwick	LU/355/10/	Mixed use development including up to 600 residential dwellings within an area of land which lies adjacent to the proposed DCO Order Limits. Construction phase complete. Therefore, no cumulative effects are expected to arise.	-
36	Land off Arundel Road	A/122/19/OUT	<p>Mixed use development including 160 dwellings 210m south of the proposed DCO Order Limits. There is likely to be an overlap in timescales for the construction and operational phases of the project which currently has a planned construction between 2020 and 2025.</p> <p>The IAQM recommended dust controls in place (as would be standard best practice), the magnitude of impacts from cumulative developments are expected to be the same or similar to the impacts from construction of Rampion 2. Provided that the cumulative developments use the recommended IAQM dust controls, the effect will be Nnot Ssignificant in EIA terms.</p> <p>The location of this other development is greater than the ZOI (200m) for construction plant equipment emissions and therefore no cumulative effects of this kind are expected.</p>	Proposed environmental measure as described in C-24 would seek to limit the magnitude and overall effect.
39	Rock Common Quarry	WSCC/028/21	This application relates to the continuation of operational activities. There are no construction activities expected and	-

Project ¹⁰	Development name	Application reference	Assessment discussion	Environmental measures
			therefore there have been no cumulative effects concluded with the Proposed Development.	
42	Sandgate Park Quarry	WSCC/044/18/SR	This application relates to the continuation of operational activities. There are no construction activities expected and therefore there have been no cumulative effects concluded with the Proposed Development.	-
49	Battery Energy Storage Facility at Bolney #2	DM/21/2276	<p>Energy storage facility 59m south of the proposed DCO Order Limits. There is likely to be an overlap in timescales for the construction and operational phases of the project which currently has a planned construction between 2024 and 2030.</p> <p>This chapter has assessed the impacts from construction dust emissions at the existing National Grid Bolney substation, therefore the cumulative effects that could arise are construction dust emissions from this project. Further to this, there are no plant equipment emissions expected at the existing National Grid Bolney substation.</p> <p>The IAQM recommended dust controls in place (as would be standard best practice), the magnitude of impacts from cumulative developments are expected to be the same or similar to the impacts from construction of Rampion 2. Provided that the cumulative developments use the recommended IAQM dust controls, the effect will be Not Significant in EIA terms.</p>	Proposed environmental measure as described in C-24 would seek to limit the magnitude and overall effect.
51	Ghyll Farm	DM/20/2554	Proposed energy storage facility adjacent to the proposed DCO Order Limits. At the time of writing, overlap in	Proposed environmental

Project ¹⁰	Development name	Application reference	Assessment discussion	Environmental measures
			<p>timescales for the construction and operational phases of the project are currently unknown.</p> <p>The IAQM recommended dust controls in place (as would be standard best practice), the magnitude of impacts from cumulative developments are expected to be the same or similar to the impacts from construction of Rampion 2. Provided that the cumulative developments use the recommended IAQM dust controls, the effect will be Nnot Ssignificant in EIA terms.</p> <p>Information regarding the plant equipment emissions for ID 51 are not known, due to the size and scale of ID 51 it is assumed that there will be not impacts outside the red line boundary of the cumulative project. Therefore, no cumulative effects shall occur with the development of Rampion 2.</p>	<p>measure as described in C-24 would seek to limit the magnitude and overall effect.</p>
54	Land at Coombe Farm	DM/15/0644	<p>Installation of solar photovoltaic panels and associated infrastructure across a 43.57ha area, within 20m of the proposed DCO Order Limits. There is likely to be an overlap in timescales for the construction and operational phases of the project which currently has a planned construction between 2023 and 2025.</p> <p>The IAQM recommended dust controls in place (as would be standard best practice), the magnitude of impacts from cumulative developments are expected to be the same or similar to the impacts from construction of Rampion 2. Provided that the cumulative developments use the recommended IAQM dust controls, the effect will be Nnot Ssignificant in EIA terms.</p>	<p>Proposed environmental measure as described in C-24 would seek to limit the magnitude and overall effect.</p>

Project ¹⁰	Development name	Application reference	Assessment discussion	Environmental measures
56	Battery Energy Storage System at Coombe Farm #4	DM/23/0769	<p>This ES chapter has assessed the impacts from plant equipment emissions expected at the existing National Grid Bolney substation. No cumulative plant equipment emissions are expected to occur with the development of Rampion 2.</p> <p>Installation of battery energy storage and associated infrastructure across a 11.47ha area, which overlaps with the proposed DCO Order Limits. There is likely to be an overlap in timescales for the construction and operational phases of the project which currently has a planned construction between 2024 and 2027.</p> <p>The project is expected to be located approximately 300m East of the National Grid Bolney substation. This is outside of the ZOI for cumulative effects to arise from construction plant equipment emissions, however this is within the ZOI for cumulative effects to arise from construction dust emissions.</p> <p>The IAQM recommended dust controls in place (as would be standard best practice), the magnitude of impacts from cumulative developments are expected to be the same or similar to the impacts from construction of Rampion 2. Provided that the cumulative developments use the recommended IAQM dust controls, the effect will be Not Significant in EIA terms.</p>	<p>Proposed environmental measure as described in C-24 would seek to limit the magnitude and overall effect.</p>
57	Grid Stability Infrastructure	DM/21/4285	<p>Development of grid stability infrastructure at land north of Bolney substation across a 11.47ha area, which overlaps with the proposed DCO Order Limits. Overlap in timescales for the</p>	<p>Proposed environmental measure as</p>

Project ¹⁰	Development name	Application reference	Assessment discussion	Environmental measures
	at Bolney Substation		<p>construction and operational phases of the project are currently unknown.</p> <p>The IAQM recommended dust controls in place (as would be standard best practice), the magnitude of impacts from cumulative developments are expected to be the same or similar to the impacts from construction of Rampion 2. Provided that the cumulative developments use the recommended IAQM dust controls, the effect will be Nnot Ssignificant in EIA terms.</p> <p>Information regarding the plant equipment emissions for ID 51 are not known, due to the size and scale of ID 51 it is assumed that there will be not impacts outside the red line boundary of the cumulative project. Therefore, no cumulative effects shall occur with the development of Rampion 2.</p>	described in C-24 would seek to limit the magnitude and overall effect.
58	The Barns solar system	DM/22/2749	<p>Installation of a 10 kWh ground mounted solar photovoltaic system for domestic use, 98m north of the proposed DCO Order Limits, which is an operational access A-65. Project lies 290m north of the onshore cable corridor. There is likely to be an overlap in timescales for the construction and operational phases of the project which currently has a planned construction between 2023 and 2025.</p> <p>The project is expected to be located approximately 300m north of the existing National Grid Bolney substation. This is outside of the ZOI for cumulative effects to arise from construction plant equipment emissions, however this is</p>	Proposed environmental measure as described in C-24 would seek to limit the magnitude and overall effect.

Project ¹⁰	Development name	Application reference	Assessment discussion	Environmental measures
			<p>within the ZOI for cumulative effects to arise from construction dust emissions.</p> <p>The IAQM recommended dust controls in place (as would be standard best practice), the magnitude of impacts from cumulative developments are expected to be the same or similar to the impacts from construction of Rampion 2. Provided that the cumulative developments use the recommended IAQM dust controls, the effect will be Nnot Ssignificant in EIA terms.</p>	

19.12 Transboundary effects

- 19.12.1 Transboundary effects arise when impacts from a development has the potential to give rise to significant effects on the environment in a European Economic Area (EEA). The consideration of effects of a transboundary nature is required under the EIA Regulations 2017. A screening of transboundary effects has been carried out and is presented in Appendix B of the Scoping Report (RED, 2020). There is no potential for significant transboundary air quality effects upon the interests of European Economic Area (EEA) states. For this reason, it is not discussed further.

19.13 Inter-related effects

- 19.13.1 The inter-related effects assessment considers likely significant effects from multiple impacts and activities from the construction, operation and maintenance and decommissioning phases of Rampion 2 on the same receptor, or group of receptors.
- 19.13.2 Inter-related effects could potentially arise in one of two ways. The first type of inter-related effect is a Proposed Development lifetime effect, where multiple phases of the Proposed Development interact to create a potentially more significant effect on a receptor than in one phase alone. The phases for Rampion 2 are construction, operation and maintenance, and decommissioning. All Proposed Development lifetime effects are assessed in [Chapter 30: Inter-related effects, Volume 2](#) (Document Reference: 6.2.30).
- 19.13.3 The second type of inter-related effect is receptor-led effects. Receptor-led effects are where effects from different environmental aspects combine spatially and temporally on a receptor. These effects may be short-term, temporary, transient, or longer-term. Receptor-led effects have been considered, where relevant, in this chapter. Full results of the receptor-led effects assessment can be found in [Chapter 30: Inter-related effects, Volume 2](#) of the ES (Document Reference: 6.2.30).

19.14 Summary of residual effects

- 19.14.1 **Table 19-43** presents a summary of the assessment of impacts, any relevant embedded environmental measures and residual effects on air quality receptors.

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Table 19-43 Summary of assessment of residual effects

Activity and impact	Magnitude of impact	Receptor and sensitivity or value	Embedded environmental measures	Assessment of residual effect (significance)
Construction				
Emissions of air pollutants from construction traffic on roads	Negligible	In accordance with AQO	None	Negligible
Emissions of air pollutants from construction equipment on site	Minor adverse to Negligible	In accordance with AQO	None	Minor adverse to Negligible (Not significant)
Emissions of dust from construction	Not applicable	Human receptors – High . Ecological receptors – Medium	C-20, C-24, C-33, C-106, C-114 and Table 19-36 .	Negligible
Emissions of odour from construction	Low	High	C-6 and C-72	Minor adverse (Not Significant)
Decommissioning				
Emissions of air pollutants from traffic on roads	Negligible	In accordance with AQO	None	Negligible
Emissions of air pollutants from equipment on site	Minor adverse to Negligible	In accordance with AQO	None	Minor adverse to Negligible (Not significant)
Emissions of dust from decommissioning	Not applicable	Human receptors – High . Ecological receptors – Medium	C-24 and Table 19-39 .	Negligible

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19.15 Glossary of terms and abbreviations

Table 19-44 Glossary of terms and abbreviations – air quality

Term (acronym)	Definition
AADT	Annual average daily traffic flow (24-hour).
ADC	Arun District Council
ADMS	A software tool dispersion modelling marketed by Cambridge Environmental Research Consultants.
Annual Mean	The annual mean is the average concentration of a pollutant measured over one year. This is normally for a calendar year.
AQAL	Air quality assessment level. A generic term for the various standards, objectives, limit values etc. against which impacts need to be assessed.
AQMA	Air Quality Management Area. If a Local Authority identifies any locations within its boundaries where the Air Quality Objectives are not likely to be achieved, it must declare the area as an AQMA. The area may encompass just one or two streets, or it could be much bigger. The Local Authority is subsequently required to put together a plan to improve air quality in that area — a Local Air Quality Action Plan.
AQO	Air Quality Objective. The Air Quality Objectives are policy targets generally expressed as a maximum ambient concentration to be achieved, either without exception or with a permitted number of exceedances, within a specified timescale. The Objectives are set out in the UK Government's Air Quality Strategy for the key air pollutants.
Automatic Monitoring	Monitoring is usually termed "automatic" or "continuous" if it produces real-time measurements of pollutant concentrations. Automatic fixed point monitoring methods exist for a number of pollutants, providing high resolution data averaged over very short time periods.
Baseline	Refers to existing conditions as represented by latest available survey and other data which is used as a benchmark for making comparisons to assess the impact of development.
Baseline conditions	The environment as it appears (or would appear) immediately prior to the implementation of the Proposed Development together with any known or foreseeable future changes that will take place before completion of the Proposed Development.

Term (acronym)	Definition
BEIS	Department of Business, Energy and Industrial Strategy
C₆H₆	Benzene.
CEA	Cumulative Effects Assessment.
CO	Carbon monoxide.
Code of Construction Practice (CoCP)	The code sets out the standards and procedures to which developers and contractors must adhere to when undertaking construction of major projects. This will assist with managing the environmental impacts and will identify the main responsibilities and requirements of developers and contractors in constructing their projects.
Construction	Used both to refer to the whole construction phase of a project, and more specifically to refer to an activity involved in the provision of a new structure (building, road, etc.).
Construction Effects	Used to describe both temporary effects that arise during the construction phases as well as permanent existence effects that arise from the physical existence of development (for example new buildings).
Cumulative effects	Additional changes caused by a Proposed Development in conjunction with other similar developments or as a combined effect of a set of developments, taken together' (SNH, 2012)
Cumulative Effects Assessment	Assessment of impacts as a result of the incremental changes caused by other past, present and reasonably foreseeable human activities and natural processes together with the Proposed Development.
DCO Application	An application for consent to undertake a Nationally Significant Infrastructure Project made to the Planning Inspectorate who will consider the application and make a recommendation to the Secretary of State, who will decide on whether development consent should be granted for the Proposed Development.
Decommissioning	The period during which a development and its associated processes are removed from active operation.
Defra	Department for Environment, Food and Rural Affairs.
Demolition	An activity involved with the removal of an existing structure or structures.

Term (acronym)	Definition
Development Consent Order (DCO)	This is the means of obtaining permission for developments categorised as Nationally Significant Infrastructure Projects, under the Planning Act 2008.
Diffusion tubes	Passive diffusion tube samplers collect nitrogen dioxide and other pollutants by molecular diffusion along an inert tube to an efficient chemical absorbent. After exposure for a known time, the absorbent material is chemically analysed and the concentration calculated.
Dispersion modelling	Dispersion modelling is a means of calculating air pollution concentrations using information about the pollutant emissions and the nature of the atmosphere.
DMP	Dust Management Plan, detailing the dust mitigation measures that would be implemented as well as responsibilities and any information on monitoring and inspections.
Earthworks	The processes of soil-stripping, ground-levelling, excavation and landscaping.
European Economic Area (EEA)	Member States of the European Union (EU) and three countries of the European Free Trade Association (EFTA) (Iceland, Liechtenstein and Norway; excluding Switzerland).
Embedded environmental measures	Equate to 'primary environmental measures' as defined by Institute of Environmental Management and Assessment (2016). They are measures to avoid or reduce environmental effects that are directly incorporated into the preferred masterplan for the Proposed Development.
Environmental Impact Assessment (EIA)	The process of evaluating the likely significant environmental effects of a proposed project or development over and above the existing circumstances (or 'baseline').
Environmental Statement (ES)	The written output presenting the full findings of the Environmental Impact Assessment.
EPUK	Environmental Protection UK
ES	Environmental Statement
EU	European Union
EU Directives	The European Union has been legislating to control emissions of air pollutants and to establish air quality objectives since the early 1970s. European Directives on ambient air quality require the UK to undertake air quality assessment, and to report the findings to the European Commission on an annual basis. At the time of the

Term (acronym)	Definition
	UK's departure from the EU, these continue to provide much of the legislative base.
Exceedance	An exceedance defines a period of time during which the concentration of a pollutant is greater than, or equal to, the appropriate air quality criterion. For AQOs, an exceedance is a concentration greater than the AQO value.
Formal consultation	Formal consultation refers to statutory consultation that is required under Section 42 and Section 47 of the Planning Act 2008 with the relevant consultation bodies and the public on the preliminary environmental information.
Future Baseline	Refers to the situation in future years without the Proposed Development.
HDC	Horsham District Council
HDV	Heavy Duty Vehicle. Goods vehicles and buses greater than 3.5 t gross vehicle weight.
HGV	Heavy Goods Vehicle. Goods vehicles greater than 3.5 t gross vehicle weight.
Horizontal Directional Drilling (HDD)	An engineering technique avoiding open trenches.
IAQM	Institute of Air Quality Management.
Impact	The changes resulting from an action.
Impact pathway	A change descriptively assessed by one aspect, used by another aspect to inform a related assessment.
Indirect effects	<p>Effects that result indirectly from the Proposed Development as a consequence of the direct effects, often occurring away from the site, or as a result of a sequence of interrelationships or a complex pathway. They may be separated by distance or in time from the source of the effects.</p> <p>Often used to describe effects on landscape character that are not directly impacted by the Proposed Development such as effects on perceptual characteristics and qualities of the landscape.</p>
LAQM (Local Air Quality Management)	The LAQM process requires Local Authorities to periodically review and assess the current and future quality of air in their areas.

Term (acronym)	Definition
LDV	Light Duty Vehicle. Cars and vans up to 3.5 t gross vehicle weight.
Likely Significant Effects	It is a requirement of Environmental Impact Assessment Regulations to determine the likely significant effects of the Proposed Development on the environment which should relate to the level of an effect and the type of effect.
LNR	Local Nature Reserve.
Magnitude (of change)	A term that combines judgements about the size and scale of the effect, the extent of the area over which it occurs, whether it is reversible or irreversible and whether it is short term or long term in duration'. Also known as the 'degree' or 'nature' of change.
Micrograms per cubic metre ($\mu\text{g m}^{-3}$)	A measure of concentration in terms of mass per unit volume. A concentration of $1 \mu\text{g m}^{-3}$ means that one cubic metre of air contains one microgram (10^{-6} grams) of pollutant.
MSDC	Mid Sussex District Council.
Nationally Significant Infrastructure Project	Nationally Significant Infrastructure Projects are major infrastructure developments in England and Wales which are consented by DCO under the Planning Act 2008. These include proposals for offshore wind farms with an installed capacity over 100MW.
NE	Natural England.
Non-statutory consultation	Non-statutory consultation refers to the voluntary consultation undertaken by RED in addition to the Statutory Consultation requirements.
NO₂	Nitrogen dioxide.
NO_x	Oxides of nitrogen. The sum of NO ₂ and nitric oxide (NO).
NRMM	Non-road mobile machinery.
Pb	Lead.
PC	Process contribution.
PEC	Predicted environmental contribution.
Planning Inspectorate	The Planning Inspectorate is the government agency supervising the planning process for NSIPs under the Planning Act 2008. The purpose of the Planning Inspectorate is to provide expertise on planning appeals, national infrastructure planning applications,

Term (acronym)	Definition
	examinations of local plans and other planning-related and specialist casework in England and Wales.
PM	Particulate matter. Microscopic portions of solid matter suspended in air. This includes a wide range of particle sizes and different chemical constituents. It consists of both primary components, which are emitted directly into the atmosphere, and secondary components, which are formed within the atmosphere as a result of chemical reactions. Commonly used to refer to both PM ₁₀ and PM _{2.5} .
PM₁₀	Particulate matter smaller than 10 µm in diameter.
PM_{2.5}	Particulate matter smaller than 2.5 µm in diameter.
PPE	Personal Protective Equipment.
Preliminary Environmental Information Report (PEIR)	The written output of the preliminary environmental assessments as required under the Infrastructure Planning ‘Environmental Impact Assessment’ Regulations 2017. It is developed to support public statutory consultation and presents the preliminary findings of the assessment to allow an informed view to be developed of the Proposed Development, the assessment approach that has been undertaken, draw preliminary conclusions on the likely significant effects of the Proposed Development and environmental measures proposed
Preliminary Environmental Information Report Supplementary Information Report (PEIR SIR)	The PEIR Supplementary Information Report (SIR) identified and provided additional supporting preliminary environmental information associated with proposed alternatives and modifications to the onshore part of the original PEIR Assessment Boundary which have been identified since the publication of the original PEIR (RED, 2021) in July 2021.
Preliminary Environmental Information Report Further Supplementary Information Report (PEIR FSIR)	The PEIR Further Supplementary Information Report (FSIR) identified and provided further preliminary environmental information associated with the proposed alternative route option identified since the publication of the original PEIR and PEIR SIR in July 2021 and October 2022 respectively (RED, 2021; 2022).
Proposed Development	The development that is subject to the application for development consent, as described in Chapter 4: The Proposed Development, Volume 2 of the ES (Document Reference: 6.2.4).

Term (acronym)	Definition
Proposed DCO Order Limits	The proposed DCO Order Limits combines the search areas for the offshore and onshore infrastructure associated with the Proposed Development. It is defined as the area within which the Proposed Development and associated infrastructure will be located, including the temporary and permanent construction and operational work areas.
Receptor	These are as defined in Regulation 5(2) of The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 and include population and human health, biodiversity, land, soil, water, air, climate, material assets, cultural heritage and landscape that may be at risk from exposure to direct and indirect impacts as a result of the Proposed Development.
RED	Rampion Extension Development Limited (the Applicant)
SAC	Special Area of Conservation.
Secretary of State (SoS)	The SoS of Business, Energy and Industrial Strategy oversees the planning system and decision making with regards to development consent for offshore wind farms. This agent works within the relevant government department relating to the application.
Scoping Opinion	A Scoping Opinion is adopted by the Secretary of State for a Proposed Development.
Scoping Report	A report that presents the findings of an initial stage in the Environmental Impact Assessment process.
Secretary of State	The body who makes the decision to grant development consent.
Sensitivity	A term applied to specific receptors, combining judgements of the susceptibility of the receptor to the specific type of change or development proposed and the value associated to that receptor.
Significance	A measure of the importance of the environmental effect, defined by criteria specific to the environmental aspect.
Significant effects	<p>It is a requirement of the EIA Regulations to determine the likely significant effects of the development on the environment which should relate to the level of an effect and the type of effect. Where possible significant effects should be mitigated.</p> <p>The significance of an effect gives an indication as to the degree of importance (based on the magnitude of the effect and the sensitivity of the receptor) that should be attached to the impact described.</p>

Term (acronym)	Definition
	<p>Whether or not an effect should be considered significant is not absolute and requires the application of professional judgement. Significant – ‘noteworthy, of considerable amount or effect or importance, not insignificant or negligible’. The Concise Oxford Dictionary.</p> <p>Those levels and types of landscape and visual effect likely to have a major or important / noteworthy or special effect of which a decision maker should take particular note.</p>
SO₂	Sulphur dioxide.
SPA	Special Protection Area.
Sites of Special Scientific Interest (SSSI)	Sites designated at the national level under the Wildlife & Countryside Act 1981 (as amended). They are a series of sites that are designated to protect the best examples of significant natural habitats and populations of species.
Statutory Consultation	Statutory Consultation refers to statutory consultation that is required under Section 42 and Section 47 of the Planning Act 2008 with the relevant consultation bodies and the public on the preliminary environmental information.
TA	Transport Assessment.
Temporal Scope	The temporal scope covers the time period over which changes to the environment and the resultant effects are predicted to occur and are typically defined as either being temporary or permanent.
Trackout	The transport of dust and dirt from the site onto the public road network. This arises when vehicles leave site with dusty materials or transfer dust and dirt onto the road having travelled over muddy ground on-site.
Trenchless Crossings (TC)	Trenchless crossing engineering technique that uses a drill steered underground without the requirement for open trenches. The technique is often employed when crossing environmentally sensitive areas, major water courses and highways. This method is able to be carried out underground for the installation of pipes and cables with minimal surface disruption.
WBC	Worthing Borough Council.
WHO	World Health Organization.
Workfront	The location of the active works along the onshore cable corridor, that moves along the corridor as work progresses.

Term (acronym)	Definition
ZOI	Zone of Influence.
Zone of Influence	The area surrounding the Proposed Development which could result in likely significant effects.

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