


**Cambois Connection Onshore Scheme  
Environmental Statement Volume 2  
Chapter 14: Air Quality**

	<b>Cambois Connection – Onshore Scheme ES Chapter 14: Air Quality Chapter</b>	Doc No: A100796-S01 – ES Chapter 14: Air Quality – A01
		Classification: Final
Status: Final		Rev: A01

### Revision Information

Rev	Issue Status	Date	Originator	Checker	Approver
R01	Issued for review	29/08/2023	JM	BT	SP
R02	Issued for review	21/09/2023	JM	BT	SP
R03	Issued for review	09/10/2023	JM	SP	SP
A01	Final for sign-off	16/10/2023	JH	SP	SP

### Approval for Issue

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## Acronyms

Acronym	Description
AADT	Annual Average Daily Traffic
AQAL	Air Quality Assessment Level
AQAP	Air Quality Action Plan
AQMA	Air Quality Management Area
AQS	Air Quality Strategy
AQSR	Air Quality Standards Regulations
ASR	Annual Status Report
AURN	Automatic Urban and Rural Network
BBWFL	Berwick Bank Wind Farm Limited
BL	Blyth Library
CEA	Cumulative Effects Assessment
CEMP	Construction Environmental Management Plan
CR	Cowpen Road
Defra	Department for Environment, Food and Rural Affairs
DfT	Department for Transport
EEA	European Economic Area
EIA	Environmental Impact Assessment
EPUK	Environmental Protection UK
ES	Environmental Statement
HDV	Heavy Duty Vehicle
IAQM	Institute of Air Quality Management
Km	Kilometre
LAQM	Local Air Quality Management
m	Metre
MLWS	Mean Low Water Springs
NCC	Northumberland County Council

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Acronym	Description
NO <sub>2</sub>	Nitrogen Dioxide
NPPF	National Policy Planning Framework
NRMM	Non-Road Mobile Machinery
NTS	Non Technical Summary
PDE	Project Design Envelope
PPG	Planning Practice Guidance
SNAPS	Shared Nitrogen Action Plans
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest

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## 14. Air Quality

### 14.1. Introduction

1. This Chapter presents the assessment of the likely significant effects (as per the ‘EIA Regulations’<sup>1</sup>) on the environment arising from the Cambois Connection Onshore Scheme (the ‘Onshore Scheme’) on air quality. Specifically, this Chapter considers the likely significant effects of the Onshore Scheme landward of Mean Low Water Springs (MLWS) during the construction, operation and maintenance, and decommissioning phases.
2. The assessment scope has been informed by both national and local planning policy and guidance, established best practice and experience, as well as via the consultation process from relevant consultees.
3. This assessment is informed by the following technical Chapters:
  - Volume 2, Chapter 5: Project Description; and
  - Volume 2, Chapter 12: Transport, Traffic and Access.
4. This Chapter is complemented with information contained within Volume 3:
  - Technical Appendix 14.1: Legislation and Policy;
  - Technical Appendix 14.2: Construction Dust Assessment Methodology; and
  - Technical Appendix 14.3: Air Quality Mitigation Measures.

### 14.2. Purpose of this Chapter


5. This Chapter:
  - Presents the existing environmental baseline established from desk studies and feedback obtained during technical engagement with stakeholders;
  - Identifies any assumptions and limitations encountered in compiling the environmental information;
  - Presents the potential environmental impacts on air quality arising from the Onshore Scheme, and reaches a conclusion on the likely significant effects on air quality based on the information gathered and the analysis and assessments undertaken; and
  - Highlights any necessary monitoring and/or mitigation measures recommended to prevent, reduce or offset the likely significant adverse environmental effects of the Onshore Scheme on air quality.

### 14.3. Study Area

6. The Onshore Scheme is located at Cambois, Blyth, south of the River Wansbeck and north of the River Blyth and encompasses around 188 ha of land.

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<sup>1</sup> Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (as amended).

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7. The red line boundary for this area (hereafter referred to as 'the Site') is shown on Figure 1.2 and the Indicative Zones of Infrastructure are shown on Figure 5.1 (Volume 4).
8. An Air Quality Study Area has been defined separately for each assessment undertaken to support the Environmental Impact Assessment (EIA) (i.e., those scoped in) (section 14.8.1), as detailed below, using relevant guidance. The Study Areas are terrestrial; the receptors affected by these assessments are terrestrial and relate to onshore activities only.

#### 14.3.1. Construction Dust Assessment

9. The spatial extent of the Study Area for the construction dust assessment (hereafter referred to as the Air Quality Construction Dust Study Area) has been defined on the following threshold distances outlined in Institute of Air Quality Management (IAQM) construction guidance (IAQM, 2016):
  - Human receptors within 350 m of the Indicative Zones of Infrastructure and human receptors within 50 m of proposed routes used by construction vehicles on the public highway up to 500 m from the proposed Onshore Scheme access points; and
  - Ecological receptors within 50 m of the Indicative Zones of Infrastructure and ecological receptors within 50 m of proposed routes used by construction vehicles on the public highway up to 500 m from the proposed Onshore Scheme access points.
10. The spatial extent of the Air Quality Construction Dust Study Area is illustrated in Volume 4, Figure 14.1.


#### 14.3.2. Road Traffic Screening Assessment

11. The spatial extent of the Study Area for the road traffic screening assessment (hereafter referred to as the Air Quality Road Traffic Study Area) has been initially defined using a series of established screening criteria to determine the extent of the affected road network. The screening criteria utilised is dependent on the application (human vs. ecological). These are discussed further in section 14.9.2.
12. The criteria applied as part of this assessment relates to increases in development-generated traffic. Traffic data used for the purposes of this screening exercise has been informed by analysis undertaken and presented as part of Volume 2, Chapter 12: Transport, Traffic and Access.
13. Human and ecological receptors within 200 m of roads expected to experience increases in traffic flows as a result of the Onshore Scheme activities have been assessed, where appropriate. If an ecological and/or human receptor is located >200 m from an affected road link, further consideration is not required as beyond this distance the road source contribution is not typically discernible from fluctuations in the background concentration.
14. The 200 m distance screening threshold is supported in various guidance documents (IAQM, 2020 and Highways England et al., 2019) and is therefore considered appropriate.

### 14.4. Policy and Legislative Context

15. Policy and legislation in relation to air quality is set out in detail in Volume 3, Chapter 2: Legislative and Policy Framework of this Environmental Statement (ES). A summary of the policy and legislative provisions relevant to the air quality assessment are provided in Table 14.1 and Table 14.2.




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**Table 14.1 Summary of policy relevant to Air Quality**

Relevant Policy	Summary of Relevant Policy Framework	How and Where Considered in the ES
Overarching National Policy Statement for Energy (EN-1) <sup>2</sup>	Paragraph 5.2.7 of EN-1 states that <i>'Where the project is likely to have adverse effects on air quality the applicant should undertake an assessment of the impacts of the proposed project as part of the ES.'</i> Paragraph 5.2.8 of EN-1 states that <i>'The ES should describe:</i> <ul style="list-style-type: none"> <li>- <i>Existing air quality levels and the relative change in air quality from existing levels;</i></li> <li>- <i>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;</i></li> <li>- <i>The predicted absolute emission levels of the proposed project, after mitigation methods have been applied; and</i></li> <li>- <i>Any potential eutrophication impacts.'</i></li> </ul>	The existing baseline environment has been characterised within section 14.7.  The potential impacts associated with the Onshore Scheme have been assessed within section 14.11 and 14.13.2. Details regarding the extent of relevant proposed mitigation is presented within Volume 3, Technical Appendix 14.3: Air Quality Mitigation Measures.
National Planning Policy Framework (NPPF, 2023) – Chapter 15, Conserving and Enhancing the Natural Environment, Paragraph 186	The NPPF sets out relevant planning policy for England. The NPPF states that the planning system should contribute to, and enhance, the natural and local environment, by preventing new development from contributing to unacceptable concentrations of air pollution.  <i>'Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be</i>	The existing baseline environment has been characterised within section 14.7.  The potential impacts associated with the Onshore Scheme have been assessed within section 14.11 and 14.13.2. Details regarding the extent of relevant proposed mitigation is presented within Volume 3, Technical Appendix 14.3: Air Quality Mitigation Measures.

<sup>2</sup> Whilst it is acknowledged that neither BBWF nor the Onshore Scheme comprise or form part of an NSIP (please see Volume 2: Chapter 2: Policy and Legislative Context), NPSs are however a statement of government intention relating, in this case, to renewable energy projects, therefore can be taken into consideration during the preparation of the Onshore Scheme ES.

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Relevant Policy	Summary of Relevant Policy Framework	How and Where Considered in the ES
	<p style="text-align: center;"><i>reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan.</i></p>	
<p>Planning Practice Guidance (PPG) (Ministry of Housing, Communities &amp; Local Government (MHCLG), 2019)</p>	<p>The PPG includes guiding principles on how planning can take account of the impacts of new development on air quality.</p> <p>The PPG sets out the information that may be required within the context of a supporting air quality assessment, stating that:</p> <p><i>‘Assessments need to be proportionate to the nature and scale of development proposed and the potential impacts (taking into account existing air quality conditions), and because of this are likely to be locationally specific.</i></p> <p><i>[...] Mitigation options will need to be locationally specific, will depend on the proposed development and should be proportionate to the likely impact’.</i></p>	<p>The assessment scope has been informed by both national and local planning policy and guidance, established best practice and experience, as well as via the consultation process from relevant consultees. Details of the methodology are provided in section 14.9.</p> <p>The existing baseline environment has been characterised within section 14.7.</p> <p>The potential impacts associated with the Onshore Scheme have been assessed within section 14.11 and 14.13.2.</p> <p>Details regarding the extent of relevant proposed mitigation is presented within Volume 3, Technical Appendix 14.3: Air Quality Mitigation Measures.</p>
<p>Air Quality Strategy (AQS) 2023 (Department for Environment, Food and Rural Affairs (Defra), 2023a)</p>	<p>The Air Quality Strategy (AQS) provides the delivery framework for air quality management across England for local authorities and summarises the air quality standards and objectives operable within England for the protection of public health and the environment.</p>	<p>The relevant environmental thresholds embedded within the AQS have been considered within this assessment as an Air Quality Assessment Level (AQAL), where necessary. See Volume 3, Chapter 2: Legislative and Policy Context.</p> <p>See section 14.7 for the characterisation of the existing baseline environment.</p> <p>See section 14.11 and 14.13.2 for the assessment of potential impacts associated with the Onshore Scheme.</p>
<p>The 2023 Environment Improvement Plan (Defra, 2023b)</p>	<p>This document sets out the 5-year delivery plan to improve the natural environment. The 2023 Environment Improvement Plan builds on the 2019 Clean Air Strategy by setting environmental targets and commitments to reduce air pollution. Goal 2 of the 25YEP is Clean Air – which relates to improving air quality.</p> <p>The document introduced an annual mean concentration target of 12µg/m<sup>3</sup> to be met across England by January 2028. Local Authorities have no statutory obligation to achieve this target.</p>	<p>Local Authorities have no statutory obligation to achieve this target and it has no legislative backing. Furthermore, the qualitative screening nature of the assessments undertaken (sections 14.11 and 14.13.2) does not require assessment against the quantitative targets or objectives.</p>
<p>Northumberland County Council Local Plan 2016 – 2036 (‘NCC,2022’): Policy POL 2 –</p>	<p>The policy states:</p>	<p>The existing baseline environment has been characterised within section 14.7.</p>

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Relevant Policy	Summary of Relevant Policy Framework	How and Where Considered in the ES
Pollution and air, soil and water quality	<p><i>‘Developments proposals in locations where they would cause or be adversely affected by pollution by virtue of the emissions of fumes, particles, effluent, radiation, smell, heat, light, noise or noxious substances will not be supported.</i></p> <p><i>Development proposals that may cause pollution of air, individually or cumulatively, are required to incorporate prevention/reduction measures.</i></p> <p><i>Developments where pollution levels are unacceptable, and/or unable to be mitigated to acceptable levels, will not be supported.</i></p> <p><i>Developments will be required to help: maintain air quality standards and support improvements in any identified Air Quality Management Areas consistent with any local air quality action plans.’</i></p>	<p>The potential impacts associated with the Onshore Scheme have been assessed within section 14.11 and 14.13.2.</p> <p>Details regarding the extent of relevant proposed mitigation is presented within volume 3, Technical Appendix 14.3: Air Quality Mitigation Measures.</p>

**Table 14.2 Summary of legislation relevant to Air Quality**

Relevant Legislation	Summary of Relevant Legislative Framework	How and Where Considered in the ES
Part IV of the Environment Act 1995 (HMSO, 1995) and Environment Act 2021 (HMSO, 2021).	<p>Section 82 of the Environment Act 1995 introduces a statutory duty for local authorities to undergo a process of Local Air Quality Management (LAQM) which requires local authorities to review and assess air quality.</p> <p>As per Sections 83 and 83A, where any of the prescribed AQALs are not likely to be achieved, the authority must designate an Air Quality Management Area (AQMA). For each AQMA, the local authority is required to prepare an Air Quality Action Plan (AQAP), which details measures the authority intends to introduce to deliver improvements in local air quality.</p> <p>Part IV of the Environment Act 2021 requires the Secretary of State to publish a national Air Quality Strategy (AQS) every five years.</p>	<p>Consideration of the AQS is summarised in Table 14.1</p> <p>The outcomes of the LAQM process undertaken by NCC have been examined to inform baseline conditions (section 14.7).</p> <p>These conditions have been used to inform the evidence base of the impact assessment (section 14.11).</p>
Air Quality Standards Regulations (AQSR) 2010 (His Majesty’s Stationary Office (HMSO), 2010) and Environment (Miscellaneous Amendments) (EU Exit) Regulations 2020r (Defra, 2020b) (HMSO, 2020).	<p>The AQSR transpose both the EU Ambient Air Quality Directive (2008/50/EC), and the Fourth Daughter Directive (2004/107/EC) within UK legislation.</p> <p>The AQSR includes Limit Values which are legally binding ambient concentration thresholds.</p> <p>Following the UK’s withdrawal from the EU, the Environment (Miscellaneous Amendments) (EU Exit) Regulations 2020 were introduced to mirror revisions to retained EU law. As a result, the fine particulate matter (PM<sub>2.5</sub>) Limit Value was reduced to 20µg/m<sup>3</sup> (to be met by 2020) which, however, are only applicable at specific locations as defined within Schedule 1 of the AQSR.</p>	<p>The relevant environmental thresholds embedded within the AQSR and the revised PM<sub>2.5</sub> Limit Value have been considered within this assessment as an AQAL, where necessary. See Volume 3, Technical Appendix 14.1: Legislation and Policy.</p> <p>See section 14.7 for the characterisation of the existing baseline environment.</p> <p>See section 14.11 and 14.13.2 for the assessment of potential impacts associated with the Onshore Scheme.</p>

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Relevant Legislation	Summary of Relevant Legislative Framework	How and Where Considered in the ES
Air Quality (England) Regulations 2000 (as amended) (HMSO, 2000)	The Air Quality (England) Regulations 2000 (as amended) ('the Regulations') provide the statutory basis for the Air Quality Objectives Local Authorities must adhere to under Local Air Quality Management (LAQM) in England.	The relevant environmental thresholds embedded within the Regulations have been considered within this assessment as an AQAL, where necessary. See Volume 3, Technical Appendix 14.1: Legislation and Policy. See section 14.7 for the characterisation of the existing baseline environment. See section 14.11 and 14.13.2 for the assessment of potential impacts associated with the Onshore Scheme.
The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023 (The Secretary of State (SoS), 2023)	The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023 introduced an annual mean concentration target of 10µg/m <sup>3</sup> to be met across England by 2040. Central Government is responsible for meeting this future target, whereas Local Authorities have no statutory obligation to achieve this target.	Local Authorities have no statutory obligation to achieve this target. Furthermore, the qualitative screening nature of the assessments undertaken (sections 14.11 and 14.13.2) does not require assessment against the quantitative targets or objectives.
The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2017 (as amended) (SoS, 2017)	The Conservation of Habitats and Species Regulations 2017 (the 'Habitats Regulations') (as amended) transposed the requirements of The EU Habitats Directive (The Council of European Communities, 1992) to introduce a range of measures for the protection of habitats and species into UK legislation. The Habitats Regulations introduces the precautionary principle for protected European sites, i.e., that projects can only be permitted to proceed; having ascertained that there will be no adverse effect on the integrity of the designated site. It requires an assessment to determine if significant effects are likely, followed by an 'appropriate assessment' by the competent authority, if necessary.	Sensitive ecological designations have been considered in this assessment, where relevant. Sensitive ecological designations have been assessed, where they are located within each Study Area, defined in section 14.3. See section 14.11 and 14.13.2 for the assessment of potential impacts associated with the Onshore Scheme.
The Countryside and Rights of Way Act 2000 (HMSO, 2000)	The Countryside and Rights of Way Act 2000 (HMSO, 2000) provides improved protection to Sites of Special Scientific Interest (SSSI) to ensure that developments are not likely to cause damage to designated sites. This act also provides protection to local nature conservation sites, which can be particularly important in providing 'buffers' to SSSIs and European sites.	Sensitive ecological designations have been considered in this assessment, where relevant. Sensitive ecological designations have been assessed, where they are located within each Study Area, defined in section 14.3. See section 14.11 and 14.13.2 for the assessment of potential impacts associated with the Onshore Scheme.

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## 14.5. Consultation and Technical Engagement

16. A summary of the key issues raised during consultation and technical engagement activities undertaken to date specific to air quality are presented in Table 14.3, together with how these issues have been considered in the production of this Chapter. Further detail is presented within Volume 1, chapter 4 of the ES.

17. The outcomes associated with the consultation process undertaken to date have informed the air quality assessment.

**Table 14.3 Summary of key consultation and technical engagement undertaken for the Onshore Scheme relevant to Air Quality**

Date	Consultee and Type of Consultation	Issue(s) Raised	Response to Issue Raised and/or Where Considered in this Chapter
<b>Relevant consultation and engagement undertaken to date</b>			
August 2023	NCC, Onshore Air Quality Assessment Methodology Consultation	<p>General agreement to the assessment methodology raised:</p> <ul style="list-style-type: none"> <li>- Accept <i>the</i> proposed construction vehicle flows will be below the relevant IAQM screening thresholds for human receptors and therefore, no further assessment will be required;</li> <li>- Accept that assessment of NRMM is scoped out from assessment;</li> <li>- Accept that operational and maintenance phase impacts can be scoped out from requiring further assessment;</li> <li>- decommissioning phase not required and has been scoped out of the assessment for the reasons given; and</li> <li>- Accept mitigation measures to ameliorate any adverse effects will be identified in line with best practice guidance.</li> </ul> <p>A Dust Management Plan (DMP) should form part of any Construction Environmental Management Plan (CEMP) and should follow current guidance and be a working document to inform the principal contractor and any sub-contractors on acceptable working methods, monitoring (including visual), reporting procedures, mitigation and ways of engaging with the public including complainants. Any DMP should also risk assess receptors in proximity to the proposed works against proximity and also consider metrological impacts, this should follow the IAQM Guidance on the assessment of dust from demolition and construction.</p> <p>It is recommended that an onsite metrological station or handheld anemometer is used during onsite construction works to provide a tool to identify wind directions and speeds which could cause impacts upon receptors through entrained dust being carried offsite.</p> <p>It is also recommended that at the site entrance / entrances, that a notice board is displayed which</p>	<p>The impacts scoped out of the assessment are presented in section 14.8.1. The impacts assessed within the ES are presented within section 14.11.</p> <p>As outlined in Volume 3, Technical Appendix 14.3: Air Quality Mitigation Measures., a DMP will form part of the CEMP (which is also detailed in Table 14.14).</p> <p>Measures included within the DMP will be informed through reference to this ES Chapter including the measures NCC have suggested.</p>

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Date	Consultee and Type of Consultation	Issue(s) Raised	Response to Issue Raised and/or Where Considered in this Chapter
		has contact information both during normal work hours and out-of-hours for complaints to be addressed to the appropriate persons/companies. There should also be established a complaints procedure to investigating and resolving any complaints.	
August 2023	NCC, Onshore Air Quality Assessment Methodology Consultation	The 2023 Annual Status Report (ASR) for the 2022 reporting year has been provided.	The use of 2022 monitoring data has been discussed in Section 14.6.1 detailing its validity / representativeness.


Consultation on the Onshore Scheme: Scoping Opinion			
December 2022	Natural England, Scoping Opinion (Natural England, 2022)	The ES should take into account the risks of air pollution and how these can be managed and reduced. This should take into account any strategic solutions or Shared Nitrogen Action Plans (SNAPS), which may be being developed or implemented to mitigate the impacts on air quality, specifically air pollution impacts.	No specific response to the assessment methodology was raised. The risk of air pollution from the Onshore Scheme has been assessed in section 14.11 and section 14.13. No significant effects have been identified and therefore no mitigation measures are required. Reference should also be made to Volume 2, Chapter 9: Ecology & Ornithology, specifically section 9.10. This section outlines a number of mitigation measures to avoid and reduce risk of impact on ecological designations. Whilst not specific to air pollution, measures would reduce air pollution impact, e.g., use of Horizontal Directional Drilling (HDD) under priority sand dune habitats and avoidance of priority woodland habitats at the detailed design stage.
January 2023	NCC, Scoping Opinion (NCC, 2023a)	The ES should take into account the risks of air pollution and how these can be managed and reduced. This should take into account any strategic solutions or Shared Nitrogen Action Plans (SNAPS), which may be being developed or implemented to mitigate the impacts on air quality, specifically air pollution impacts.	As above.

## 14.6. Methodology to Inform Baseline

### 14.6.1. Desktop Study

18. Information on air quality within the two Study Areas was collected through a detailed desktop review of existing studies and datasets. These are summarised in Table 14.4 below.

19. The characterisation of the existing environment has been undertaken using the latest publicly available data sources not impacted by the COVID-19 pandemic. Pollutant concentrations monitored during 2020 and 2021 are expected to be atypical, and not representative of the local environment. It is

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acknowledged that 2022 monitoring is available, however the representativity of 2022 monitoring data as a typical year is subject to central and local government advice. This advice has yet to be published. As such, in the absence of this, it has been excluded. Despite this, the omission of 2022 monitoring data to characterise the existing environment will not affect the outcomes of this assessment.

20. There is considered to be sufficient coverage of publicly available data sources covering the spatial extents of the Study Area defined for each assessment (Air Quality Construction Dust Study Area and Air Quality Road Traffic Study Area).

**Table 14.4 Summary of key desktop studies & datasets**

Title	Source / Author	Year
2020 Air Quality Annual Status Report (ASR) (2019 annual monitoring)	NCC	2020
Background Mapped Concentration Estimates	Defra	2018
Automatic Urban and Rural Network (AURN)	Defra	2022

#### 14.6.2. Site-specific Surveys

21. No site-specific air quality surveys have been undertaken to inform the air quality assessment. The use of publicly available datasets for the purposes of characterising baseline conditions are found to be sufficient. NCC did not disagree with this suggested approach as per Table 14.3.
22. Details of publicly available datasets used for the purpose of characterising baseline conditions are presented in section 14.7.1.

### 14.7. Baseline Environment


#### 14.7.1. Overview of Baseline Environment

23. The characterisation of the existing environment has been undertaken through reference to the latest available local and national air quality datasets in the public domain, outlined in Table 14.4.
24. NCC, in fulfilment of statutory requirements, have conducted an on-going exercise to review and assess air quality within their administrative area.
25. NCC currently has no declared AQMAs. The nearest AQMA is located approximately 15 km south of the Onshore Scheme.

##### 14.7.1.1. REVIEW OF AIR QUALITY MONITORING

###### 14.7.1.1.1. AUTOMATIC MONITORING

26. NCC currently undertakes automatic monitoring within their administrative area at two locations (Blyth Library (BL) and Cowpen Road (CR)). The automatic monitors are located in Blyth. The automatic monitors record particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>) concentrations only.
27. The nearest automatic monitor associated with the AURN is located over 15 km from the Indicative Zones of Infrastructure. As such, automatic monitoring locations associated with the AURN are unlikely to be representative of baseline conditions of the receiving environment. No further consideration has therefore been given to the AURN.

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28. Details of the automatic monitors considered are presented in Table 14.5 and monitoring results are presented in Table 14.6 to Table 14.8 whilst their locations relative to the Onshore Scheme are illustrated in Volume 4, Figure 14.2.

**Table 14.5 Automatic monitoring sites: details**

Site ID	Site Type	National Grid Reference		Height (m)	Within AQMA	Approximate Distance to Onshore Scheme (km)
		X	Y			
CR	Roadside	428817	581815	3.0	No	1.4
BL	Urban Centre	431536	581531	3.0	No	2.0

**Table 14.6 Automatic monitoring sites: annual mean PM<sub>10</sub> results**

Site ID	2019 Data Capture	Annual Mean PM <sub>10</sub> Concentration (µg/m <sup>3</sup> )				
		2015	2016	2017	2018	2019
CR	85.8	14.0	15.0	13.5	15.6	16.2
BL	69.2	13.0	17.9	13.4	15.5	14.3

**Table 14.7 Automatic monitoring sites: 24-Hour mean PM<sub>10</sub> results**

Site ID	2019 Data Capture	24-Hour Means in Excess of 50 µg/m <sup>3</sup>				
		2015	2016	2017	2018	2019
CR	85.8	2	0	0	1	6
BL	69.2	2	8	4	1	3

**Table 14.8 Automatic monitoring sites: annual mean PM<sub>2.5</sub> results**


Site ID	2019 Data Capture	Annual Mean PM <sub>2.5</sub> Concentration (µg/m <sup>3</sup> )				
		2015	2016	2017	2018	2019
CR	85.8	6.1	5.8	5.5	6.7	7.2
BL	69.2	6.0	7.1	6.2	7.3	8.0

29. PM<sub>10</sub> and PM<sub>2.5</sub> concentrations are 'well below' the relevant annual mean and short term AQALs (detailed within Volume 3, Technical Appendix 14.1: Legislation and Policy) for the period presented (2015-2019). Both automatic monitors are situated in locations adjacent to roads within Blyth where concentrations are expected to be elevated relative to those anticipated across the Air Quality Construction Dust Study Area which is anticipated to witness relatively less traffic than the roads within Blyth. Concentrations may be greater along and adjacent to the A189 as part of the Air Quality Road Traffic Study Area, which is anticipated to witness relatively more traffic than the roads within Blyth. Annual mean PM<sub>10</sub> and PM<sub>2.5</sub> concentrations have remained relatively stable across the period presented.

#### 14.7.1.1.2. PASSIVE DIFFUSION TUBE MONITORING

30. Passive nitrogen dioxide (NO<sub>2</sub>) diffusion tube monitoring is undertaken by NCC.



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31. The details and results of the monitoring locations of relevance to the Onshore Scheme (i.e. within 2 km of the Indicative Zones of Infrastructure) are presented in Table 14.9 and Table 14.10 respectively, whilst their locations are illustrated in Volume 4, Figure 14.3.

**Table 14.9 Diffusion tube monitoring sites: details**

Site ID	Site Type	National Grid Reference		Height (m)	Within AQMA	Approximate Distance to Site (km)
		X	Y			
B3	Roadside	428815	581813	3.0	No	1.4
B16	Roadside	430666	581604	2.0	No	1.4
B11	Urban Centre	431160	581415	3.0	No	1.8
B1	Urban Centre	431537	581537	3.0	No	1.9

**Table 14.10 Diffusion tube monitoring sites: annual mean NO<sub>2</sub> results**

Site ID	2019 Data Capture	Annual Mean NO <sub>2</sub> Concentration (µg/m <sup>3</sup> )				
		2015	2016	2017	2018	2019
B3	100	32.0	32.0	23.0	22.3	31.0
B16	100	-	-	-	-	23.7
B11	100	26.0	26.0	27.0	26.8	21.2
B1	100	27.0	29.0	31.0	31.4	27.8

32. For the period assessed (2015-2019), annual mean NO<sub>2</sub> concentrations recorded at the non-automatic monitoring locations of relevance to the Onshore Scheme were below the annual mean NO<sub>2</sub> AQAL (40 µg/m<sup>3</sup>). All monitoring locations are situated in roadside locations within Blyth where concentrations are expected to be elevated relative to those anticipated across the Air Quality Construction Dust Study Area and majority of the Air Quality Road Traffic Study Area (with the exception of the A189). Monitored annual mean NO<sub>2</sub> concentrations have remained relatively stable across the period presented.

33. The empirical relationship given in Defra's LAQM Technical Guidance TG22 (LAQM.TG(22)) (Defra, 2022) states that exceedances of the 1 hour mean AQAL for NO<sub>2</sub> is unlikely to occur where annual mean concentrations are <60 µg/m<sup>3</sup> at a location of relevant exposure. This indicates that an exceedance of the 1-hour mean AQAL is unlikely to have occurred at these sites between 2015 and 2019.


#### 14.7.1.1.3. DEFRA MAPPED BACKGROUND CONCENTRATIONS

34. Defra maintains a nationwide model for existing and future background air quality concentrations at a 1 km grid square resolution.

35. Annual mean background concentrations of NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> have been obtained from the Defra published background maps (projected from a 2018 reference year), based on the 1 km grid squares which cover the Indicative Zones of Infrastructure as described in Volume 2, Chapter 5: Project Description and presented on Figure 5.1, Volume 4.

36. The maximum Defra mapped background concentrations for the following milestone years are presented in Table 14.11.

- 2023 – Current year; and
- 2025 – Indicative earliest construction start year.

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**Table 14.11 Maximum Defra mapped background concentrations**

Year	Maximum Annual Mean Background Concentration ( $\mu\text{g}/\text{m}^3$ )		
	NO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
2023	12.4	11.1	6.1
2027	11.8	10.9	5.9
<b>AQAL</b>	<b>40</b>	<b>40</b>	<b>20</b>

37. As shown in Table 14.11, all of the mapped background concentrations are well below the respective AQALs.

#### 14.7.2. Future Baseline Scenario

38. Baseline air quality conditions are expected to evolve during the interim period prior to construction commencing, through to operation and completion of the Onshore Scheme.

39. Air quality is expected to improve in future years, with an increased uptake of electric vehicle use and more stringent emission standards, as well as the enforcement of local and national policy and initiatives. Improvements to air quality are also a legislative requirement for the government (i.e., the Environmental Targets (Fine Particulate Matter) (England) Regulations 2023 (SoS, 2023) – see Table 14.2. As such, pollutant concentrations reported locally are expected to reduce further, or at least remain comparable to those presented. This is reflected in annual mean background concentration projections provided by Defra (based on semi-empirical evidence), as presented in Table 14.11.

40. This data demonstrates the anticipated improvement in background pollutant concentrations for the local area; which reflects the current policy emphasis via the AQS 2023 (Defra, 2023a) for example.

#### 14.7.3. Data Assumptions and Limitations

41. The characterisation of the baseline environment has utilised data collected and ratified by NCC and Defra as detailed in section 14.7. Use of this data provides for the alignment of the assessment with analysis undertaken at a local and national level and that local sensitivities are appropriately accounted for.

42. As discussed in section 14.6.1, there is considered to be sufficient coverage of publicly available data sources to inform the air quality assessment. Use of publicly available data is considered proportional to the assessment.


43. A potential data limitation for the characterisation of the baseline environment is that pollutant concentrations monitored during the COVID-19 pandemic (i.e. 2020 and 2021) are expected to be atypical and not representative of the local environment. The latest available local monitoring data not affected by the COVID-19 pandemic has been utilised to characterise the baseline environment.

## 14.8. Key Parameters for Assessment

### 14.8.1. Impacts Scoped Out of the Assessment

44. Impacts scoped out of the assessment were proposed to key stakeholders throughout the EIA lifecycle as detailed in section 1.1, including:

- Submission of a Scoping Report (BBWFL, 2022); and

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- Submission of an Onshore Air Quality Assessment Methodology Consultation Memo (BBWFLG, 2023).

45. A Scoping Opinion was received from NCC (NCC, 2023) and a scoping consultation response was received from Natural England (Natural England, 2022). No detailed comments or disagreements were raised in response to the proposed scope. NCC responded to the Consultation Memo. NCC agreed the following could be scoped out:


- Detailed construction phase road traffic assessment (if below screening criteria);
- NRMM assessment;
- Operational and Maintenance (O&M) phase; and
- Decommissioning phase.

46. Table 14.12 details the extent of impacts scoped out of the assessment.

**Table 14.12 Impacts scoped out of the assessment for Air Quality (tick confirms impact is scoped out)**

Potential Impact	Phase <sup>3</sup> C O D	Justification
Non Road Mobile Machinery (NRMM)	✓ ✓ ✓	An assessment of emissions from NRMM has been scoped out from all phases, following Defra’s LAQM.TG(22) guidance, providing suitable controls are applied, emissions generated from NRMM are unlikely to contribute to a significant effect upon local air quality. Appropriate measures, as documented within Defra’s LAQM.TG(22) will form inclusion within the DMP and CEMP. These measures are detailed in Volume 3, Technical Appendix 14.3: Air Quality Mitigation Measures.
Dust	* ✓ ✓	<p>It is not expected that any significant volumes of dust will be generated once construction is complete. As such, an assessment of potential dust impacts during the operational phase has been scoped out.</p> <p>Details surrounding the decommissioning phase are yet to be fully clarified. At the end of the operational lifetime of the Onshore Scheme (approximately 40 years), the operator of the Onshore Scheme will develop and agree a solution for the onward handling of the onshore infrastructure with the regulator. This decision will be based on the advice from the regulator at the time and informed by the prevailing environmental regulatory requirements at that time, and relevant best-practice. The approach to decommissioning will align with regulatory guidance, requirements, and industry practices at the time of decommissioning and will be agreed with the relevant stakeholder and regulatory bodies.</p> <p>A decommissioning plan and supporting decommissioning environmental management plan will be prepared prior to commencement of decommissioning and will be subject to its own environmental assessment.</p> <p>Despite this, decommissioning activities are not anticipated to exceed the construction phase worst case criteria assessed, given the forecasted improvements to air quality and the potential for the cables to remain in situ reducing the volume of works in comparison. It is therefore assumed that impacts associated with decommissioning activities will be similar/ lesser in comparison to those established for the construction phase.</p>
Road Traffic	* ✓ ✓	<p>The number of vehicle trips required during the operational phase will be limited and not significant. As such, an assessment of the potential impacts from operational phase road traffic emissions has been scoped out.</p> <p>As above, it is assumed that impacts associated with decommissioning activities will be similar / lesser in comparison to those established for the construction phase and has therefore been scoped out.</p>

<sup>3</sup> C = Construction, O = Operational and maintenance, D = Decommissioning


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## 14.8.2. Maximum Design Scenario

47. The maximum design scenarios (MDS) summarised here have been selected as those having the potential to result in the greatest effect on an identified receptor or receptor group. These scenarios have been selected from the details provided in Volume 2, Chapter 5: Project Description of this ES. Effects of greater adverse significance are not predicted to arise should any other development scenario, based on details within the PDE (e.g., different infrastructure layout), to that assessed here, be taken forward in the final design scheme.
48. Given that the maximum design scenario is based on the design option (or combination of options) that represents the greatest potential for change, confidence can be held that development of any alternative options within the design parameters will give rise to no worse effects than assessed in this impact assessment.
49. Table 14.13 presents the maximum design scenario for potential impacts on air quality receptors during construction (i.e., phases scoped into assessment - see section 14.8.1).
50. The boundary and extent of the Onshore Scheme have been the subject of discussions with NCC. There are some design details related to the Onshore Scheme that are still to be finalised due to further ground investigations required, ongoing engineering design work and the procurement of cable and converter station suppliers which will define the final specification. The Site boundary has been chosen to allow flexibility to accommodate design details which will be subject to future Reserved Matters application(s) to NCC.

**Table 14.13 Maximum design scenario specific to Air Quality impact assessment**

Potential Impact	Maximum Design Scenario	Justification
<b>Construction</b>		
Dust/PM <sub>10</sub> emissions generated from temporary onshore construction works.	<ul style="list-style-type: none"> <li>Construction activities as detailed in Volume 2, Chapter 5: Project Description have been considered;</li> <li>MDS parameters / extents of any proposed construction areas have been used for the purpose of defining potential dust sources. This has included the use of the maximum extent of the infrastructure associated with the Onshore Scheme to determine the extent of all potential dust sources;</li> <li>For the purpose of trackout, all potential construction access points and subsequent access routes have been considered within the assessment; and</li> <li>Onshore construction areas have been assessed collectively, rather than in discrete sections.</li> </ul>	<ul style="list-style-type: none"> <li>This ensures that all potential scenarios within the parameters of the reasonable worst case and associated impacts have been assessed.</li> <li>The aggregated approach will increase the opportunity for greater derived sensitivities and dust emission magnitudes, and therefore impacts.</li> </ul>
Temporary construction generated road traffic volumes on human receptors and ecological receptors.	<ul style="list-style-type: none"> <li>Traffic data used for the purpose of the assessment has been informed by analysis undertaken and presented in Volume 2, Chapter 12: Transport, Traffic and Access. Road traffic volumes for all potential construction scenarios have been considered.</li> <li>In order to provide greater confidence in the assessment outcomes, construction traffic flows have been calculated on each individual link with the use of the maximum consecutive 12 month (representing annual) total vehicle flows over the entire construction programme for all proposed construction activities.</li> </ul>	<ul style="list-style-type: none"> <li>This ensures that all potential scenarios within the parameters of the reasonable worst case and associated impacts have been assessed.</li> <li>This ensures the highest average period of construction is assessed for each individual road link across the Air Quality Road Traffic Study Area. This approach ensures reasonable worst case maximum road traffic flows across the construction period are assessed.</li> </ul>

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## 14.9. Methodology for Assessment of Effects

### 14.9.1. Overview

51. Whilst Volume 2, Chapter 3: EIA Methodology provides an indicative EIA assessment matrix, it also identifies that assessment methodologies will reflect the prevailing technical area guidance and specific requirements of receptor groups. As such the following sections provide a description of the assessment criteria and assessment methodologies used to assess impacts on air quality receptors, which are derived from best practice guidance documents.

#### 14.9.1.1. CONSTRUCTION DUST

52. The assessment of dust generated by potential construction activities on nearby sensitive human and ecological receptors has been undertaken in accordance with the IAQM construction dust guidance (IAQM, 2016).

53. The likely unmitigated dust emission magnitude associated with four activities (demolition, earthworks, construction and trackout) is used in conjunction with the sensitivity of the surrounding area to determine the risk of impact for each activity. These sensitivities are:

- Annoyance due to dust soiling,
- The risk of health effects due to an increase in exposure to PM<sub>10</sub>, and
- Harm to ecological receptors.

54. As discussed further in section 14.9.2, criteria provided within the IAQM guidance is used to define the magnitude, sensitivities and subsequent risk for each activity – as high, medium, low or negligible.

55. The risk of impact is then used to determine proportionate mitigation requirements, whereby through effective application, residual effects can be considered to be not significant in terms of the EIA Regulations. This is in accordance with IAQM guidance which states that, with the implementation of recommended mitigation, effects will be not significant.

56. Full details of the assessment methodology are provided within Volume 3, Technical Appendix 14.2: Construction Dust Assessment Methodology.

#### 14.9.1.2. ROAD TRAFFIC ASSESSMENT

57. For the assessment of construction phase road traffic emissions on ecological and human receptors, an initial screening exercise has been conducted to determine whether detailed modelling is required.


58. The screening criteria utilised is dependent on the application (ecological or human receptors). These are discussed further in section 14.9.2.

59. If road traffic movements are found to be below the relevant screening thresholds, then a detailed impact assessment is consequently not required as effects are deemed to be not significant.

### 14.9.2. Impact Assessment Criteria

#### 14.9.2.1. CONSTRUCTION DUST

60. The criteria for the assessment for construction dust differ from those set out in Chapter 3: EIA Methodology.

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61. The IAQM construction dust assessment methodology provides a framework to establish the unmitigated risk of construction dust impacts associated with a development at both human and ecological receptors.
62. This risk is based on a relationship between the anticipated dust emission magnitude and the sensitivity of the surrounding area. These have been defined with use of criteria provided within the IAQM construction guidance. The criteria are presented within Volume 3, Technical Appendix 14.2: Construction Dust Assessment Methodology.
63. Following determination of these risks, proportionate mitigation is recommended, with the aim of rendering residual effects as not significant in terms of the EIA regulations.
64. Significance is only assigned to the effect after considering the construction activity with mitigation. This is because for construction activities, the aim is to prevent significant effects on receptors through the use of effective mitigation.
65. The IAQM construction guidance (IAQM, 2016) therefore does not provide a framework to determine the significance of unmitigated effects, as is not considered appropriate nor relevant in this context. For these reasons, the significance of the unmitigated effect of construction dust cannot be defined.
66. Full details of the assessment methodology are provided within Volume 3, Technical Appendix 14.2: Construction Dust Assessment Methodology.


#### 14.9.2.2. ROAD TRAFFIC ASSESSMENT

##### 14.9.2.2.1. HUMAN RECEPTORS

67. The assessment procedure outlined in the Environmental Protection UK (EPUK) & IAQM guidance document (EPUK & IAQM, 2017) has been used to determine whether further assessment of traffic emissions on sensitive human receptors is required.
68. The Onshore Scheme is not within or adjacent to an AQMA (section 14.7), therefore the following screening thresholds apply:
  - A change of light duty vehicle (LDV) flows of more than 500 annual average daily traffic (AADT); and/ or
  - A change of heavy duty vehicle (HDV) flows of more than 100 AADT.
69. If the traffic flows are not found to exceed any of the screening criteria presented, then effects are considered to be insignificant and can be screened out of further consideration.

##### 14.9.2.2.2. ECOLOGICAL RECEPTORS

70. The assessment procedure outlined within the IAQM guidance document (IAQM, 2020) has been used in relation to the assessment of sensitive ecological receptors and road traffic. This initially comprises a screening assessment to indicate whether:
  - Any ecological designations with sensitive qualifying features are located within 200 m of a road link projected to experience developmental-generated vehicle movements; and
  - Onshore construction activities are likely to generate either >1,000 (and/ or >200 HDV) AADT movements on a road link within 200 m of the ecological receptor.
71. Whilst assessing impacts on internationally designated ecological sites, screening has been undertaken in-combination with other developments and plans In-combination screening has also been

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conducted with respect to national ecological designations (SSSIs) following a review of consultation comments provided by Natural England on other developments. The extent of relevant developments and plans considered within the in-combination screening exercise is clarified in section 14.13.1.

72. Whilst assessing impacts on local ecological designations, it is appropriate to assess developmental trips in isolation. This is reflective of the level of protection afforded to these sites.
73. If the above conditions are not met, then impacts on ecological designations are likely to be negligible, whereby resultant effects are considered to be not significant in EIA terms.

### 14.10. Measures adopted as part of the Onshore Scheme


74. As part of the project design process, a number of measures have been proposed to reduce the potential for impacts on air quality (see Table 14.14). These include measures which have been incorporated as part of the Onshore Scheme’s design (referred to as ‘designed in measures’) and measures which will be implemented regardless of the impact assessment (referred to as ‘tertiary mitigation’).
75. As there is a commitment to implementing these measures, they are considered inherently part of the design of the Onshore Scheme and have therefore been considered in the assessment presented in section 14.11 below (i.e. the determination of significance assumes implementation of these measures).
76. These measures are considered standard industry practice for this type of development. No additional mitigation is considered to be required on the basis of the current project information.

**Table 14.14 Measures adopted as part of the Onshore Scheme (designed in measures & tertiary mitigation)**

Mitigation Measure	Justification
<b>Construction</b>	
Standard industry practice construction measures	Construction activities would be undertaken in accordance with good practice techniques, that are proportional to the outcomes of the construction dust assessment (section 14.11). These are outlined in Volume 3, Technical Appendix 14.3: Air Quality Mitigation Measures.
DMP / CEMP	A Dust and Air Quality Management Plan will be included within the CEMP and will include best practice measures in accordance with the Institute of Air Quality Management (IAQM) recommended guidance An outline CEMP has been provided as part of this application (Technical Appendix 5.1)

### 14.11. Assessment of Effects

77. The potential impacts arising from the construction phase of the Onshore Scheme are listed in
78. Table 14.13 along with the MDS against which each impact has been assessed.
79. An assessment of the likely significance of the effects of the Onshore Scheme on air quality receptors caused by each identified impact is given below.

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### 14.11.1. Potential Effects During Construction


#### CONSTRUCTION DUST

80. There are both human and ecological receptors within the relevant screening distances outlined in section 14.3.1. Therefore, an assessment of construction dust on both human and ecological receptors has been undertaken.
81. Where figures relating to the area and volume of the Onshore Scheme, approximate number of construction vehicles or distances to receptors are given, these relate to thresholds as defined in the IAQM construction guidance (IAQM, 2016) and presented in Volume 3, Technical Appendix 14.2: Construction Dust Assessment Methodology. The principal purpose of these figures is to assist the assessor in the definition of the dust emissions magnitude and sensitivity of the area.
82. Furthermore, the maximum design parameters/ extents of any proposed construction area have been used for the purposes of defining potential dust sources. Onshore construction areas have been assessed collectively, rather than in discrete sections. This aggregated approach will increase the opportunity for greater derived sensitivities and dust emission magnitudes. As such, there is the potential for the assessment to overstate the potential risk of impacts, which could result in a higher level of mitigation being recommended than would realistically be required. This ensures that all potential scenarios and associated impacts have been assessed. Further detail is provided in section 14.8.2, specifically Table 14.13.

#### 14.11.1.1. MAGNITUDE OF IMPACT

83. Construction dust impacts are predicted to be of local spatial extent, short term duration, intermittent and high reversibility. It is predicted that the impact will affect the receptors directly.
84. Proposed construction activities as detailed in Volume 2, Chapter 5: Project Description.
85. No demolition activities are proposed as part of the Onshore Scheme construction works. As such, impacts associated with demolition activities have therefore not been considered further and are screened out.
86. The total area where earthworks are required is greater than 10,000 m<sup>2</sup> across the whole Onshore Scheme. The total aggregated material moved will be >100,000 tonnes. In addition, >10 heavy earth moving vehicles will be active at any worst-case time. Therefore, the dust emission magnitude for earthworks is considered to be Large.
87. Whilst the full extent of building dimensions is to be defined at detailed design stage, construction will include building of a Onshore Converter Station (30 m high with a potential footprint up to 290 m long and 275 m wide), construction compounds (>10) and jointing bays (indicatively 16). As such total construction volumes have the potential to exceed 100,000 m<sup>3</sup> including the use of potentially dusty construction material (e.g., concrete). The dust emission magnitude for construction is therefore conservatively considered to be Large.
88. The maximum number of outward HDV movements in any worst-case day from a given site access will be greater than 50. In addition, unpaved road lengths are likely to be >100 m in length. Therefore, the dust emission magnitude for trackout is considered to be Large.
89. Table 14.15 presents a summary of the assigned dust emission magnitude for each activity.



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**Table 14.15 Potential dust emission magnitude**


Activity	Dust Emission Magnitude
Earthworks	Large
Construction	Large
Trackout	Large

#### 14.11.1.2. SENSITIVITY OF RECEPTORS IN THE SURROUNDING AREA

90. Overall, there are anticipated to be >100 existing residential properties (highly sensitive receptors) within 20 m of potential dust sources associated with the construction phase of the Onshore Scheme.
91. There are 10-100 residential properties (high sensitivity receptors) within 20 m of road links within 500 m of construction access points (commensurate of a large dust emission magnitude for trackout) assuming construction vehicles travel south along Unity Terrace and route west along Brock Lane (Road Links (RLs) 11, 10, 9, 8, 7, 6, and 3) towards the A189 as illustrated in Volume 4, Figure 12.1.
92. Human receptors are deemed to be of high vulnerability, low recoverability and high value.
93. Therefore, the sensitivity of the area with respect to dust soiling impacts on people and property is considered to be High in relation to earthworks, construction and trackout.
94. As presented in Table 14.11, the maximum 2019 mapped background PM<sub>10</sub> concentration (2018 base year) across the Onshore Scheme is estimated to be 11.1 µg/m<sup>3</sup> (i.e. falls into the <24 µg/m<sup>3</sup> class).
95. Given the number of residential properties within 20 m of potential dust sources associated with the construction phase of the Onshore Scheme and access roads up to 500 m from the construction access points and the above PM<sub>10</sub> concentration, the sensitivity of the area with respect to human health impacts in relation to earthworks and construction is considered to be Medium and in relation to trackout is considered to be Low.
96. With respect to ecological designations, areas of the Northumberland Marine Special Protection Area (SPA) and Northumberland Shore SSSI are located within 20 m of the Indicative Zones of Infrastructure.
97. For the purpose of defining a risk of dust impacts it has been conservatively assumed that the ecological designations contain dust sensitive features. Furthermore, the highest sensitivity across all the receptors has been applied. This relates to the Northumberland Marine SPA which is considered to be a High sensitivity receptor.
98. Given the above, ecological receptors are deemed to be of high vulnerability, medium recoverability and high value.
99. The sensitivity of the area with respect to ecological impacts in relation to earthworks, construction and trackout activities is therefore considered to be High.

**Table 14.16 Sensitivity of air quality receptors in the surrounding area for construction activities**

Potential Impact	Sensitivity of Surrounding Area		
	Earthworks	Construction	Trackout
Dust Soiling	High	High	High
Human Health	Medium	Medium	Low
Ecological	High	High	High

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### 14.11.1.3. RISK OF IMPACTS AND SIGNIFICANCE OF EFFECT

100. The outcome of the assessment of the potential magnitude of dust emissions, and the sensitivity of the area are combined in Table 14.17 below to determine the risk of impact. The defined level of risk is then used to inform the selection of appropriate mitigation. Following application of measures, the likely significance of effect on air quality receptors in line with the EIA Regulations can then be determined.

101. The IAQM construction dust assessment methodology does not include the consideration of embedded mitigation measures when determining the potential risk of dust impacts.

**Table 14.17 Risk of dust impacts**

Potential Impact	Earthworks	Construction	Trackout
Dust Soiling	High Risk	High Risk	High Risk
Human Health	Medium Risk	Medium Risk	Low Risk
Ecological	High Risk	High Risk	High Risk

102. Following the construction dust assessment, potential reasonable worst-case onshore construction works are found to be:

- High risk in relation to dust soiling impacts on people and property;
- Medium risk in relation to human health impacts; and
- High risk in relation to ecological impacts.

103. Potential dust effects during the construction phase are considered to be temporary and short-term (lasting approximately 5 years for the construction of the Onshore Scheme) and may only arise at particular times (i.e. certain activities and/or meteorological conditions).

104. Mitigation measures corresponding to the assessed risk of dust impact outlined above are required to reduce the potential impacts arising from any construction works. These measures are sourced from the IAQM construction guidance (IAQM, 2016). A list of these measures is provided in Volume 3, Technical Appendix 14.3: Mitigation Measures. These measures will be included in the DMP within the CEMP (see Table 14.14).


105. As such, in accordance with the IAQM construction guidance and with reference to the methodology described in section 14.9.1 and Volume 3, Technical Appendix 14.2: Construction Dust Assessment Methodology, construction dust impacts are considered to be removed or minimised. The residual effects are concluded to be **not significant** in EIA terms.

### ROAD TRAFFIC IMPACTS ON HUMAN RECEPTORS

106. For the assessment of construction phase road traffic emissions on human receptors, an initial screening exercise has been conducted to determine whether detailed modelling is required.

107. Consistent with the assessment criteria outlined in section 14.9.2, road traffic flows generated by the Onshore Scheme on the local road network have been compared against the EPUK and IAQM prescribed screening thresholds, as detailed in Table 14.18.

108. The road traffic flows capture all potential construction scenarios and represent a maximum potential AADT flow. Further details are provided in section 14.8.2, specifically Table 14.13.

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**Table 14.18 Maximum construction-generated road traffic flows**

Road Link	AADT	
	HDV	LDVs
C415 Spine Road west of Brock Lane	78	144
<b><i>EPUK &amp; IAQM Screening Criteria</i></b>	<b><i>100</i></b>	<b><i>500</i></b>

#### 14.11.1.4. MAGNITUDE OF IMPACT

109. The maximum road traffic flows generated by the Onshore Scheme during the construction phase on the local road network are found to be below the relevant EPUK & IAQM screening thresholds. Further assessment of impacts is therefore not required. The magnitude of impact can therefore be considered to be negligible.
110. Construction phase road traffic impacts on human receptors are predicted to be of local spatial extent, short term duration, intermittent and low reversibility. It is predicted that the impact will affect the receptors directly.

#### 14.11.1.5. SENSITIVITY OF RECEPTORS

111. Affected human receptors are deemed to be of high vulnerability, low recoverability and high value. Therefore, the sensitivity of human receptors to road traffic impacts is considered to be High.

#### 14.11.1.6. SIGNIFICANCE OF EFFECT


112. The maximum road traffic flows generated by the Onshore Scheme during the construction phase on the local road network are found to be below the relevant EPUK & IAQM screening thresholds. As such, road traffic impacts associated with the construction of the Onshore Scheme can be considered to have an not significant effect on local air quality and no further assessment is required. The residual effects are concluded to be **not significant** in EIA terms.

### ROAD TRAFFIC IMPACTS ON ECOLOGICAL RECEPTORS

113. For the assessment of construction phase road traffic emissions on ecological receptors, an initial screening exercise has been conducted to determine whether detailed modelling is required.
114. Consistent with the assessment criteria outlined in section 14.9.2, road traffic flows generated by the Onshore Scheme on the local road network within 200 m of an ecological designation have been compared against the IAQM prescribed screening thresholds (IAQM, 2020) as presented in section 14.9.2
115. Volume 4, Figure 14.2 provides an illustration of the proposed main public road network routing arrangements (referred to as the 'Affected Links'), along with 200 m buffers from these roads for initial screening. It should be noted that the 'Ecological Road Traffic Screening Routes' are based on access routes established as part of Volume 2, Chapter 12: Transport, Traffic & Access. They capture all potential construction scenarios. Further detail is provided in section 14.8.2, specifically Table 14.13.

#### 14.11.1.7. MAGNITUDE OF IMPACT

116. Where impacts are screened out of further assessment, they can be assumed to be negligible.

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117. Construction phase road traffic impacts on ecological receptors are predicted to be of local spatial extent, short term duration, intermittent and low reversibility. It is predicted that the impact will affect the receptors directly.

#### 14.11.1.8. SENSITIVITY OF RECEPTOR

118. One international ecological designation (the Northumberland Marine SPA) is found within 200 m of the road links expected to witness a change in vehicular flows as a result of construction activities. One SSSI (the Northumberland Shore SSSI) is also found within 200 m of the road links expected to witness a change in vehicular flows as a result of construction activities.

119. Given the nature of these designations, an in-combination screening assessment of road traffic flows has been undertaken as presented in section 14.9.2 and as per IAQM guidance.


120. The extent of the relevant projects and plans that have the potential to generate road traffic flows within 200 m of the ecological designations are presented in section 14.13.1.

121. The in-combination assessment represents a conservative approach (i.e., assumes all committed developments are fully operational by the time peak construction activities associated with the Onshore Scheme are on the network).

122. The affected ecological receptors have the potential to be of high vulnerability, low recoverability and high value (subject to qualifying features being present within the affected areas). Therefore, the sensitivity of ecological receptors with respect to road traffic impacts is considered to be High.

#### 14.11.1.9. SIGNIFICANCE OF THE EFFECT

123. Table 14.19 details the extent of the given Affected Links located within 200 m of an ecological designation identified in Section 14.11.1.8.

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**Table 14.19 Screening of Affected Links within 200 m of an ecological designation**

Road Link ID	Road Link	Designation Name	Designation Type	Project Alone		In-Combination	
				Total	HDV	Total	HDV
				AADT			
RL1	A198 (S)	Northumberland Marine	SPA	166	58	2,061	134
RL2	A198 (N)	Northumberland Marine	SPA	55	19	471	35
RL3	C415 Spine Road west of Brock Lane	Northumberland Marine	SPA	222	78	1,861	169
RL4	Moorland Avenue	Northumberland Marine	SPA	36	13	49	13
RL5	Brock Lane (21/03723/FUL access to C415 Spine Road)	Northumberland Marine	SPA	36	13	355	13
RL6	C415 between AC1 and AC4	Northumberland Marine	SPA	222	78	1,555	169
RL10	C415 Spine Road east of AC7	Northumberland Marine	SPA	120	42	16	42
RL11	Unity Terrace	Northumberland Marine	SPA	120	42	63	42
RL12	A198 (S) off slip	Northumberland Marine	SPA	83	29	1,097	67
RL13	A198 (S) on slip	Northumberland Marine	SPA	83	29	1,097	67
RL10	C415 Spine Road east of AC7	Northumberland Shore	SSSI	120	42	163	42
RL11	Unity Terrace	Northumberland Shore	SSSI	120	42	163	42
<b>IAQM Screening Thresholds</b>				<b>1,000</b>	<b>200</b>	<b>1,000</b>	<b>200</b>

#### NORTHUMBERLAND SHORE SSSI


124. As shown in Table 14.21, the maximum construction-generated road traffic flows within 200 m of the Northumberland Shore SSSI are below the in-combination screening criteria and therefore no further consideration is required. The effect of road traffic impacts on Northumberland Shore SSSI can therefore be considered as **not significant** in EIA terms.

#### NORTHUMBERLAND MARINE SPA

125. The Northumberland Marine SPA is located within 200 m of road links expected to witness a change in vehicular flows above the IAQM prescribed in-combination screening criteria for further assessment as follows:

- RL1 (A198 (S));
- RL3 (C415 Spine Road west of Brock Lane);
- RL6 (C415 between AC1 and AC4);
- RL12; and
- RL13 (A198 (S) slips roads).

126. The qualifying features of the Northumberland Marine SPA within 200 m of the above links are confirmed as not being sensitive to road traffic emissions. The habitats within 200 m of the above links are intertidal with the SPA boundary following the MHWS. None of the species that are sensitive

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to nutrient nitrogen impacts on the broad habitat are expected to be present in the areas within 200 m of the affected road links. The effect of road traffic impacts on Northumberland Marine SPA can therefore be considered as **not significant** in EIA terms.

127. As such, effects from road traffic emissions associated with the construction of the Onshore Scheme on ecological designations within the Air Quality Road Traffic Study Area are considered to be **not significant** in EIA terms.

## 14.12. Proposed Monitoring


128. Following the construction dust assessment detailed in section 14.11.1, mitigation measures, as identified by the IAQM construction guidance (IAQM, 2016) are required to ensure that any potential impacts arising from any onshore construction works are minimised and, where possible, completely removed. A list of these measures is provided in Volume 3, Technical Appendix 14.3: Mitigation Measures. These measures will be included in the DMP within the CEMP.

129. These include monitoring measures which are repeated in Table 14.20 below with justification and means of implementation outlined.

**Table 14.20 Monitoring commitments for Air Quality**

Likely Significant Environmental Effect	Monitoring Commitment	Justification for Monitoring	Means of Implementation
Dust / PM <sub>10</sub> effects during construction.	Daily on-site and off-site inspections, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority.  Including regular dust soiling checks of surfaces such as street furniture, cars and windowsills within 100 m of the site boundary, with cleaning to be provided if necessary.  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.	Proportionate to the assessed level of risk as per section 14.11.1.	Implemented through inclusion within the DMP within the CEMP.  Carry out regular site inspections to monitor compliance with the DMP/CEMP, record inspection results, and make an inspection log available to the local authority when asked.
Dust / PM <sub>10</sub> effects during construction.	Carry out regular site inspections to monitor compliance with the CEMP.  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.	Commensurate to the assessed level of risk as per section 14.11.1.	Implemented through inclusion within the DMP within the CEMP.
Dust/PM <sub>10</sub> effects during construction.	Dust deposition, dust flux, or real-time PM <sub>10</sub> continuous monitoring.	Commensurate to the assessed level of risk as per section 14.11.1.	Implemented through inclusion within the DMP within the CEMP. To be agreed with the local authority.


130. No further monitoring is required for all other phases of the Onshore Scheme.

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## 14.13. Cumulative Effects Assessment

### 14.13.1. Methodology


131. The Cumulative Effects Assessment (CEA) takes into account the impact associated with the Onshore Scheme together with other relevant plans, developments and activities. Cumulative effects are therefore the complete set of effects arising from the Onshore Scheme together with the effects from a number of different developments, on the same receptor or resource. Please see Volume 2, chapter 3: EIA Methodology of the Onshore ES for detail on CEA methodology.
132. The developments selected as relevant to the CEA presented within this Chapter are based upon the results of a screening exercise and the development of a ‘long list’ of cumulative developments relevant to the Onshore Scheme (see Volume 3, Technical Appendix 3.1: Long-list of Cumulative Developments). Each development has been considered on a case by case basis for screening in or out of this Chapter’s assessment based upon data confidence, impact-receptor pathways and the spatial/temporal scales involved, to create the ‘short list’ as summarised in Table 14.21. The projects were refined through review of traffic data provided by the Transport consultant, further details can be found in Volume 2, Chapter 12: Transport, Traffic and Access. This approach was agreed during Scoping and further consultation and technical engagement undertaken with consultees, as detailed in Table 14.3.
133. The specific projects scoped into the CEA for air quality, are outlined in Table 14.21.

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**Table 14.21 List of other developments considered within the CEA for Air Quality**

Development / Plan	Status	Distance from Indicative Zones of Infrastructure (km)	Description of Development / Plan	Dates of Construction	Dates of Operation	Overlap with the Onshore Scheme
Cambois Connection Marine Scheme	In planning	0km	Offshore works (below MHWS therefore has overlap with the Onshore Scheme at the intertidal) associated with the Cambois Connection project (whilst subject to separate consents) is linked to the Onshore Scheme. Construction 2025 onward; anticipated to be operational from 2030.	Simultaneous	Simultaneous	Potential for direct overlap with the Onshore Scheme
Land at Former Power Station Site on Northern Side of Cambois (21/00818/FULES)	Consented	Within boundary	Erection of battery manufacturing plant with ancillary offices, together with associated development and infrastructure works (including site preparation works, ground modelling, drainage, landscaping, vehicular access, cycle and pedestrian access, parking provision, substation and other associated works)	Unknown	Unknown	Operational Phase may overlap with Onshore Scheme construction phase
Land North of Blyth Power Station Substation, East Sleekburn (22/00879/FUL)	Consented	Within boundary	Erection of building for manufacturing of subsea cables, with ancillary offices and outdoor cable storage, together with associated development and infrastructure works including vehicular accesses off Brock Lane, landscaping and vehicular parking	Under construction	2027	Potential for overlap of construction and operational phase with Onshore Scheme
Land To North of Spring Ville, East Sleekburn (21/03723/FUL)	Consented	0.1	Proposed residential development for 48 dwellings with associated access and an area of public open space.	Under construction	Not known	Operational Phase may overlap with Onshore Scheme construction phase
Former Vald Birn Foundary, Cambois (23/01278/SCREEN)	Screening Opinion Issued May 2023	0.2	Screening Opinion under Environmental Impact Assessment Regulations. Residential development (c. 220 dwellings) and associated infrastructure.	-	N/A	Operational Phase may overlap with Onshore Scheme construction phase



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### 14.13.2. Cumulative Effects Assessment

134. An assessment of the likely significance of the cumulative effects of the Onshore Scheme upon air quality receptors arising from each identified impact is given below.

#### 14.13.2.1. EFFECTS DURING CONSTRUCTION

##### **CUMULATIVE CONSTRUCTION DUST**


135. Cumulative dust effects arising from construction activities could be experienced where construction activities from more than one scheme overlap at an affected receptor, dependent on the impact (e.g., dust soiling, human health and ecological).
136. However, all schemes which are considered to pose a risk of cumulative effects will have had to undertake a construction dust assessment separately relating to their own site activities and associated risks, with the recommendation of good practice mitigation to reduce residual effects as not significant in terms of the EIA regulations.
137. These measures would be integrated into a CEMP or similar, to be adhered to during construction, as part of their own environmental responsibilities and commitment.
138. IAQM guidance (IAQM, 2016) states that, with the implementation of the recommended mitigation, effects will be not significant. As such, it is not anticipated that there would be significant cumulative effects associated with construction phase dust emissions.
139. Given that all other assessment considerations have been screened out in isolation (as per guidance), no further assessment in relation to cumulative effects is therefore required.

##### **CUMULATIVE ROAD TRAFFIC IMPACTS ON HUMAN RECEPTORS**

140. Road traffic flows generated by construction activities have been compared against criteria outlined within the EPUK & IAQM guidance document (as presented in section 14.11.1). Construction road traffic flows screen below the EPUK & IAQM criteria and effects are considered to be not significant in terms of the EIA Regulations. No further assessment is required including a CEA.

##### **CUMULATIVE ROAD TRAFFIC IMPACTS ON ECOLOGICAL RECEPTORS**

141. The road traffic screening assessment has considered all types of relevant terrestrial sensitive ecological designations.
142. The Northumberland Marine SPA and the Northumberland Shore SSSI are identified to be within 200 m of road links expected to witness a change in vehicular flows as a result of construction activities.
143. As outlined in section 14.9.1, screening of road traffic impacts on internationally and nationally designated ecological designations (section 14.11.1) has been undertaken cumulatively with other developments and plans (i.e. in-combination) as required by IAQM guidance. It is therefore considered the assessment undertaken in section 14.11.1 is already cumulative and the conclusions remain.
144. The cumulative effect of road traffic impacts on ecological receptors is therefore considered to be **not significant** in terms of the EIA Regulations and no further assessment is required.

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### 14.13.3. Proposed Monitoring

145. Following the outcomes of the CEA, no monitoring is considered necessary.

## 14.14. Inter-Related Effects

146. Inter-related effects are the potential effects of multiple impacts, effecting one receptor or a group of receptors. Inter-related effects include interactions between the impacts of the different stages of the Onshore Scheme (i.e., interaction of impacts across construction, operation and maintenance and decommissioning), as well as the interaction between impacts on a receptor within a Onshore Scheme stage. A description of the likely inter-related effects arising from the Onshore Scheme on Air Quality is provided below.

147. For the onshore physical environment, the following potential impacts have been considered within the inter-related assessment.

- Dust / PM<sub>10</sub> generated from temporary construction activities on people and property, human health and ecological receptors;
- Temporary construction-generated road traffic volumes on human receptors; and
- Temporary construction-generated road traffic volumes on ecological receptors.


148. The above impacts relate to the construction phase of the Onshore Scheme. As detailed within 14.8.1, an assessment of potential impacts during the operational and maintenance and decommissioning phases has been scoped out. As such, inter-related effects are not considered relevant for this assessment and do not require further consideration. The assessed inter-related effects would not be significant in EIA terms. Table 14.22 lists the summary of likely significant inter-related effects.

**Table 14.22 Summary of likely significant inter-related effects on the environment individual effects occurring across the construction, operation and maintenance and decommissioning of the Onshore Scheme**

Description of Impact	Phase			Likely Significant Inter-Related Effects
	C	O	D	
Dust/PM <sub>10</sub> generated from temporary construction activities on people and property, human health and ecological receptors	✓	✗	✗	No likely significant inter-related effects.
Temporary construction-generated road traffic volumes on human receptors	✓	✗	✗	No likely significant inter-related effects.
Temporary construction-generated road traffic volumes on ecological receptors	✓	✗	✗	No likely significant inter-related effects.

## 14.15. Summary of Impacts, Mitigation Measures, Likely Significant Effects and Monitoring

149. Information on air quality within the defined Air Quality Study Areas was collected through a detailed desktop review of publicly available datasets. Table 14.23 and Table 14.24. present a summary of the potential impacts, mitigation measures and the conclusion of likely significant effects in EIA terms in respect to air quality. The impacts assessed include:

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- Dust / PM<sub>10</sub> generated from temporary construction activities on people and property, human health and ecological receptors;
- Temporary construction-generated road traffic volumes on human receptors; and
- Temporary construction-generated road traffic volumes on ecological receptors.

150. Overall, it is concluded that there will be no likely significant effects arising from the Onshore Scheme during the construction, operation and maintenance or decommissioning phases. Table 14.24 presents a summary of the potential cumulative impacts, mitigation measures and the conclusion of likely significant effects on air quality in EIA terms. The cumulative effects assessed include:

- Cumulative dust / PM<sub>10</sub> generated from temporary concurrent construction activities on people and property, human health and ecological receptors;
- Cumulative road traffic volumes associated with committed developments on human receptors; and
- Cumulative road traffic volumes associated with committed developments on ecological receptors.

151. Overall, it is concluded that there will be no likely significant cumulative effects from the Onshore Scheme alongside other developments / plans.

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**Table 14.23 Summary of likely significant environmental effects, mitigation and monitoring**

Description of Impact	Phase			Magnitude of Impact	Sensitivity of Receptor	Significance of Effect	Secondary Mitigation	Residual Effect	Proposed Monitoring
	C	O	D						
Dust / PM <sub>10</sub> generated from temporary construction activities – annoyance from dust deposition on property	✓	✗	✗	Medium-High	High	Effect significance is only assessed following the implementation of mitigation in line with IAQM construction guidance (refer to section 14.9.1.1).	None (designed in mitigation measures only)	Not significant	Detailed in Table 14.20.
Dust / PM <sub>10</sub> generated from temporary construction activities - Human health impacts from PM <sub>10</sub>	✓	✗	✗	Medium-High	Low-Medium		None (designed in mitigation measures only)	Not significant	Detailed in Table 14.20
Dust / PM <sub>10</sub> generated from temporary construction activities - Ecological Impacts from dust soiling	✓	✗	✗	Medium-High	High		None (designed in mitigation measures only)	Not significant	Detailed in Table 14.20.
Temporary construction-generated road traffic volumes on human receptors	✓	✗	✗	Negligible	High	Not significant	Not required	Not significant	Not required
Temporary construction-generated road traffic volumes on ecological receptors	✓	✗	✗	Negligible	High	Not significant	Not required	Not significant	Not required


Classification: Final

Status: Final

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**Table 14.24 Summary of likely significant cumulative environment effects, mitigation and monitoring**

Description of Impact	Phase			Cumulative Effects Assessment Tier	Magnitude of Impact	Sensitivity of Receptor	Significance of Effect	Secondary Mitigation	Residual Effect	Proposed Monitoring
	C	O	D							
Cumulative dust / PM <sub>10</sub> impacts generated from temporary concurrent construction activities	✓	✗	✗	Tier 1 – Tier 2	Medium-High	Low-High	Effect significance is only assessed following the implementation of mitigation (refer to section 14.9.1.1).	None (Designed in mitigation measures only)	Not significant	Detailed in Table 14.20
Cumulative road traffic volumes associated with committed developments on human receptors.	✓	✗	✗	Tier 1 – Tier 2	Negligible	High	Not significant	Not required	Not significant	Not required
Cumulative road traffic volumes associated with committed developments on ecological receptors (in-combination screening for national and international ecological designations).	✓	✗	✗	Tier 1 – Tier 2	Negligible	High	Not significant	Not required	Not significant	Not required

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