



CHAPTER 7: AIR QUALITY

7.1 INTRODUCTION

- 7.1.1 This chapter of the ES has been produced by Hydrock to assess both the OPA Phase 1 and the Wider OPA in relation to the effects it would have upon Air Quality.
- 7.1.2 Potential effects can arise from dust impacts associated with the construction of both of the proposed developments, as well as traffic impacts from both the construction and operation. This chapter presents the results and conclusions of the potential effects and discusses mitigation measures where necessary.

7.2 ASSESSMENT CRITERIA & METHODOLOGY

Previous Assessment

- 7.2.1 Two previous air quality assessments have been undertaken for the Site. One for West of Horton Heath (WHH) application in December 2014 which was for 950 dwellings, and one for the North West Horton Heath (NWHH) site which assessed the parameters based on the masterplan for the 950 dwellings included in the WHH application, and the additional 450 dwellings included in the new application for NWHH proposals to deliver an overall comprehensive development of 1,400 units, with an addendum produced in 2016.
- 7.2.2 All assessments undertaken concluded that inclusion of good practice measures in the Construction Environmental Management Plan would ensure no significant effects during the construction phase of the proposals. Assessment of traffic data concluded that whilst there were some adverse impacts these were only negligible and so not significant. All levels of NO₂, PM₁₀ and PM_{2.5} were predicted to be within the objectives for human health.

Scoping Opinion

- 7.2.1 A Scoping Report was submitted to Eastleigh Borough Council on 20 April 2020. A Scoping Opinion was received from the Council on 12 August 2020. Comments in relation to air quality include
- The assessment of construction activities should be included;
 - The increase in pollutants needs to be assessed to look at the impacts of increasing the health risks to people, even if they remain below the legal limits;



- Consideration of potential production of canyon effects within the Proposed Development should be included;
- The benefits of new cycle network provisions should be accounted for in the assessment.

Legislative Context

EU

- 7.2.2 The overriding policy document which governs air regulation is the EU Council Directive on ambient air quality and cleaner air for Europe (2008/50/EC)¹, which came into force in 2008, and provides statutory guidance on air quality. This presents statutory requirements for the protection of human health and ecosystems through long and short-term limit values for: oxides of nitrogen (NO_x), nitrogen dioxide (NO₂), sulphur dioxide (SO₂), particulate matter with a diameter of less than 10 microns (PM₁₀), particulate matter with a diameter of less than 2.5 microns (PM_{2.5}) carbon monoxide (CO), lead, benzene and ozone (O₃). The above legislation replaces the EU's previous three daughter directives.
- 7.2.3 The 4th Daughter Directive 2004/107/EC² sets target values, where exposure is to be reduced to as low as reasonable possible, for arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons (PaH) within ambient air.
- 7.2.4 In addition, the Committee on the Medical Effects of Air Pollution (COMEAP)³, the World Health Organisation (WHO)⁴ and the United Nations Economic Commission for Europe (UNECE)⁵ provide medical and scientific evidence of the health risks to the general public and recommended concentration limits.

¹ EC, 'Directive 2008/50/EC of the European Parliament and of the Council', 21 May 2008, 50.

² EC, "Directive 2004/107/EC of the European Parliament and of the Council," December 15, 2004, 107.

³ COMEAP, 'The Mortality Effects of Long-Term Exposure to Particulate Air Pollution in the United Kingdom' (London: Committee on the Medical Effects of Air Pollutants (COMEAP), November 2010).

⁴ WHO, 'WHO | Air Pollution', WHO, 2016, http://www.who.int/topics/air_pollution/en/.

⁵ UNECE, 'Air Pollution - Air Pollution - Environmental Policy - UNECE', 2016, <http://www.unece.org/env/lrtap/welcome.html>.

UK

- 7.2.5 The above EU limit/target values within the EU Directives 2008/50/EC and 2004/107/EC were transposed into UK Law as part of the Air Quality Standards Regulations⁶ which came into force in 2010.
- 7.2.6 These set out how the government has interpreted these directives and sets out Air Quality Objectives (AQOs) that are maximum ambient pollutant concentrations that are not to be exceeded either without exception or with a permitted number of exceedances over a specified timescale. One of the main additions to these was the addition of regulatory framework on PM_{2.5}.
- 7.2.7 The Air Quality Strategy 2007 Volume 1⁷ outlines the National Air Quality Objectives that should be achieved. Whilst central government is ultimately responsible for meeting these objectives, part of the Environment Act 1995⁸ dictates that a local authority is required to assess and periodically review their compliance with the non-binding objectives and any areas that repeatedly exceed the allowed limits should be designated Air Quality Management Areas (AQMAS). The limits are shown in Table 7.1.

Table 7.1: National Air Quality Objectives

Pollutant	National Air Quality Objectives (NAQO)	
NO ₂	Annual mean	40 µg/m ³
	1 hour mean (18 times per year)	200 µg/m ³
PM ₁₀	Annual mean	40 µg/m ³
	24 hour mean (35 times per year)	50 µg/m ³
PM _{2.5}	Annual mean	25 µg/m ³
NO _x	Annual Mean for ecological receptors	30 µg/m ³

⁶ Air Quality Standards Regulations 2010.

⁷ Defra, 'The Air Quality Strategy for England, Scotland, Wales and Northern Ireland - Volume 1' (Department for Food, Environment and Rural Affairs (Defra), July 2007), https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69336/pb12654-air-quality-strategy-vol1-070712.pdf.

⁸ Environment Agency, 'Environment Act 1995' (The Environment Agency, 2002), <http://www.legislation.gov.uk/ukpga/1995/25/contents>.



Planning Policy and Guidance

National Planning Policy

7.2.8 The National Planning Policy Framework⁹ requires that planning decisions for any new development 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. Furthermore, 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.

Local Planning Policy

Current Planning Policy

7.2.9 EBC adopted the Local Plan (2001-2011) on 25 May 2006. Relevant policies in relation to air quality are:

32. ES *“Proposals for uses which may generate air, land or water pollution, will only be permitted if the Borough Council is satisfied that they have been designed to control their impact to an acceptable level”.*

33. ES *“Where new development appears likely to have a significant impact on air quality in the locality, or future occupiers of the development may be subject to unacceptable air quality, the Council will require a suitable air quality assessment to be carried out prior to consideration of the application”.*

Emerging Planning Policy

7.2.10 The emerging local plan (2016-2036) is currently under examination. Relevant policies in relation to air quality include:

Policy DM8, Pollution *“Development will not be permitted if it is likely to cause loss of amenity or impact on public health or other unacceptable environmental impacts through; i) air pollution (including odours or particulate emissions) ... Development susceptible to particular forms of*

⁹ Department for Communities and Local Government, “National Planning Policy Framework,” February 2019, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/6077/2116950.pdf.



pollution will not be permitted; a. where it will be affected by such pollution, unless measures can be taken that adequately mitigate the polluting effects..."

Guidance/ Best Practice

7.2.11 In order to determine if an air quality assessment is required, Defra Local Air Quality management (LAQM) Technical Guidance 2016¹⁰, and the IAQM Land-use Planning & Development Control: Planning for Air Quality¹¹ and the Highways Agency Design Manual for Roads and Bridges¹² is used as guidance.

Baseline Data Collection

7.2.12 Existing air quality for the area have been obtained from the following data for the assessment. No surveys were undertaken by Hydrock as part of the assessment

- Defra background maps¹³;
- Monitoring data from EBC local monitoring network;
- Traffic data was provided by the transport consultants for the Project (Paul Basham Associates);
- Multi-Agency Graphic Information for the Countryside (MAGIC) and the DEFRA GIS Portal for details on relevant ecological sites to be included within the assessment.

Assessment Methodology

Construction Dust

7.2.13 There is the potential for fugitive dust emissions to occur as a result of construction phase activities. These have been assessed on accordance with the methodology outlined within the

¹⁰ Defra, 'LAQM Technical Guidance LAQM.TG16' (Department for Food, Environment and Rural Affairs (Defra), February 2018), 16, <https://laqm.defra.gov.uk/documents/LAQM-TG16-February-18-v1.pdf>.

¹¹ IAQM, 'Land-Use Planning & Development Control: Planning for Air Quality' (Institute for Air Quality Management (IAQM), January 2017), <http://www.iaqm.co.uk/text/guidance/air-quality-planning-guidance.pdf>.

¹² DfT, *Design Manual for Roads and Bridges*, vol. 12.2.1: Traffic Appraisal of Road Schemes. Section 2: Advice (London: Highways Agency, 1996).

¹³ Food and Rural Affairs (Defra) webmaster@defra.gsi.gov.uk Department for Environment, 'Background Mapping Data for Local Authorities- Defra, UK', accessed 17 December 2018, <https://uk-air.defra.gov.uk/data/laqm-background-home>.



IAQMs 'Guidance on the Assessment of Dust from Demolition and Construction'¹⁴. The assessment approach classifies the risk posed by demolition and construction activities on a development site on the basis of the scale and nature of the activities, and the sensitivity and proximity of dust-sensitive receptors.

7.2.14 Activities on construction sites with the potential to generate dust and emissions can be categorised into four types of activities:

- Demolition – any activities associated with the removal of existing structures on site;
- Earthworks – includes the processes of soil-stripping, ground-levelling, excavation and landscaping;
- Construction – any activities relating to the provision of new structures on site; and
- Trackout – the transport of dust and dirt from the construction site onto the public road network where it may be deposited and re-suspended by traffic using the network.

7.2.15 The assessment follows a step approach which is outlined below.

Step 1

7.2.16 This involves screening for a more detailed assessment. An assessment of dust impacts should be undertaken if there are:

- Sensitive human receptors within 350m of the Site boundary and/or up to 500m from site entrances are identified.
- Sensitive ecological receptors within 50m of the site boundary and/or upto 500m from site entrances.

Step 2a

7.2.17 The potential dust emission magnitude for each of the four activities outlined above is determined on the scale and magnitude of the works and are classified as small, medium or large depending on the criteria outlined in Table 7.2 below.

Table 7.2: Potential Dust Emission Magnitude Criteria

Activity	Dust Emission Magnitude
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¹⁴ IAQM, 'Guidance on the Assessment of Dust from Demolition and Construction - Version 1.1' (Institute for Air Quality Management (IAQM), February 2014), <http://www.iaqm.co.uk/text/guidance/construction-dust-2014.pdf>.

	Small	Medium	Large
Demolition	Total building volume <20,000 m ³ , construction material with low potential for dust release (e.g. metal cladding or timber), demolition activities <10 m above ground, demolition during wetter months.	Total building volume 20,000 m ³ – 50,000 m ³ , potentially dusty construction material, demolition activities 10-20 m above ground level	Total building volume >50,000 m ³ , potentially dusty construction material (e.g. concrete), on-site crushing and screening, demolition activities >20 m above ground level;
Earthworks	Total site area <2,500 m ² , soil type with large grain size (e.g. sand), <5 heavy earth moving vehicles active at any one time, formation of bunds	Total site area 2,500 m ² – 10,000 m ² , moderately dusty soil type (e.g. silt), 5-10 heavy earth moving vehicles active at any one time, formation of bunds 4 m - 8 m in height, total material moved 20,000 tonnes – 100,000 tonnes; and	Total site area >10,000 m ² , potentially dusty soil type (e.g. clay, which will be prone to suspension when dry due to small particle size), >10 heavy earth moving vehicles active at any one time, formation of bunds >8 m in height, total material moved >100,000 tonnes;
Construction	Total building volume <25,000 m ³ , construction material with low potential for dust release (e.g. metal cladding or timber)	Total building volume 25,000 m ³ – 100,000 m ³ , potentially dusty construction material (e.g. concrete), on site concrete batching; and	Total building volume >100,000 m ³ , on site concrete batching, sandblasting;
Trackout	<10 HDV (>3.5t) outward movements in any one day, surface material with low potential for dust release, unpaved road length	10-50 HDV (>3.5t) outward movements in any one day, moderately dusty surface material (e.g. high clay content), unpaved road length 50 m – 100 m; and	>50 HDV (>3.5t) outward movements in any one day, potentially dusty surface material (e.g. high clay content), unpaved road length >100 m;

Step 2b

7.2.18 The sensitivity of the area is then defined on the specific sensitivities of the receptors in the area, the proximity and number of those receptors and local background concentrations of PM10 in relation to human health impacts. The sensitivity of the area is defined for separately dust soiling impacts as shown in Table 7.3, human health impacts as shown in Table 7.4 and ecological impacts as shown in Table 7.5 below.

Table 7.3: Sensitivity of the area to dust soiling impacts

Receptor Sensitivity	Number of Receptors	Distance from Source (m)			
		<20	<50	<100	<350
High	>100	High	High	Medium	Low
	10-100	High	Medium	Low	Low
	1-10	Medium	Low	Low	Low
Medium	<1	Medium	Low	Low	Low
Low	<1	Low	Low	Low	Low

Table 7.4: Sensitivity of the area to human health impacts

Receptor Sensitivity	Annual Mean PM ₁₀ Concentrations	Number of Receptors	Distance from Source (m)				
			<20	<50	<100	<200	<350
High	>32 µg/m ³	>100	High	High	High	Medium	Low
		10-100	High	High	Medium	Low	Low
		1-10	High	Medium	Low	Low	Low
	28-32 µg/m ³	>100	High	High	Medium	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	High	Medium	Low	Low	Low
	24-28 µg/m ³	>100	High	Medium	Low	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	Medium	Low	Low	Low	Low
	<24 µg/m ³	>100	Medium	Low	Low	Low	Low
		10-100	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
Medium	>32 µg/m ³	>10	High	Medium	Low	Low	Low
		1-10	Medium	Low	Low	Low	Low
	28-32 µg/m ³	>10	Medium	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
	24-28 µg/m ³	>10	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
	<24 µg/m ³	>10	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
Low	-	>1	Low	Low	Low	Low	Low

Table 7.5: Sensitivity of the area to ecological impacts

Receptor Sensitivity	Distance from Source (m)	
	<20	<50
High	High	Medium
Medium	Medium	Low
Low	Low	Low

Step 2c

7.2.19 Once the dust emission magnitudes for each activity have been determined in Step 2a and the sensitivity of the areas in relation to dust soiling and human health/ecological impacts have been determined in Step 2b, the risk of impacts is defined in Step 2c. The risk of impacts is determined for each of the four activities using the matrixes in Tables 7.6 to 7.9 below.

Table 7.6: Risk of dust impacts – Demolition

Sensitivity of the Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Medium Risk
Medium	High Risk	Medium Risk	Low Risk
Low	Medium Risk	Low Risk	Negligible

Table 7.7: Risk of dust impacts – Earthworks

Sensitivity of the Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible

Table 7.8: Risk of dust impacts – Construction

Sensitivity of the Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible

Table 7.9: Risk of dust impacts – Trackout

Sensitivity of the Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Low Risk	Negligible
Low	Low Risk	Low Risk	Negligible

7.2.20 The risk of dust impacts can be summarised to provide a completed risk table, as shown as an example in Table 7.10, taken from the IAQM guidance. High and Medium risks of impacts are defined as Significant Effects whereas Negligible and Low Risk impacts are defined as Not Significant Effects.

Table 7.10: Example summary of dust risk

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

7.2.21 The overall risk of impacts from the proposed development are the highest risk category for each of the activities and potential impacts. For the example shown in Table 7.10, the overall risk of impacts would be High risk.

Step 3

7.2.22 Based on the potential risks identified in Step 2, appropriate mitigation measures and best practice methods are recommended. The suggested measures and methods are based on IAQM guidance.

Step 4

7.2.23 Having taken account of the level of risk of impacts (Step 2) and the implementation of appropriate mitigation (Step 3) the significance of the potential residual dust effects is determined. Guidance states that following the implementation of risk specific mitigation, impacts can be reduced to negligible, and therefore a not significant effect.

Operational

7.2.24 EPUK and IAQM provide criteria for when a development has the potential to cause air quality impacts. These are:

- An increase of more than 100 AADT LGVs and/or 25 HGVs in or adjacent to an AQMA; or
- An increase of more than 500 AADT LGVs and/or 100 HGVs outside of an AQMA.

7.2.25 If the above criteria are met then a detailed dispersion modelling assessment should be undertaken. Roads which exceed the above criteria have been modelled using a detailed dispersion model to determine the impacts at sensitive human and receptor locations and the overall effect of traffic.

7.2.26 The following assessment scenarios have been considered in this assessment:

- Baseline/Verification 2019.

Assessment of OPA Phase 1

- 2023 Do Minimum (DM) - Baseline 2023 + Committed Development; and
- 2023 Do Something (DS) - Baseline 2023 + Committed Development + OPA Phase 1.

Assessment of Wider OPA

- 2030 DM - Baseline 2030 + Committed Development; and
- 2030 DS - Baseline 2030 + Committed Development + Wider OPA.

7.2.27 The difference in the DS and DM scenarios are calculated for the assessment year and is equated to the percentage change in relation to the NAQO. This is used along with the long-term concentration at the receptor location in the DS scenario to determine the impact at each receptor location, following the matrix in Table 7.11.

Table 7.11: Assessment of Impacts and Significance at Receptor Locations

Long term average concentrations at receptor in assessment year	% change in concentration relative to National Air Quality Objective (NAQO)			
	1	2-5	6-10	>10
75% or less of NAQO	Negligible	Negligible	Slight	Moderate
76-94% of NAQO	Negligible	Slight	Moderate	Moderate
95-102% of NAQO	Slight	Moderate	Moderate	Substantial
103-109% of NAQO	Moderate	Moderate	Substantial	Substantial
110% or more of NAQO	Moderate	Substantial	Substantial	Substantial

7.2.28 Negligible and Slight impacts are described as Not Significant effects and Moderate and Substantial impacts are described as Significant effects.

Dispersion Model

7.2.29 ADMS-Urban 5.0.0.1 is used in such types of assessments to establish the current and future air quality situation in the area. The software is commercially available, has been validated for this type of assessment and is used extensively for air quality assessments.

7.2.30 ADMS-Urban is able to provide an estimate of air quality both before and after development, considering important input data such as background pollutant concentrations, variable emissions, meteorological data, and traffic flows.

Traffic Data

7.2.31 Traffic flows were provided by Paul Basham Associates based on existing data submitted as part of the Wider OPA Site's extant planning permission (planning application references X/19/86475 and X/19/86303) for the Baseline 2020 + Committed Development data. Additional committed development traffic has then been added to this. TEMPro Growth Factors have been used to uplift 2020 flows to 2023 and 2030. The transport consultant has confirmed that the 2020 flows are suitable and representative for the 2019 baseline assessment. Traffic Flows are shown in Appendix 7.1.

Human Receptors

7.2.32 For this assessment the NAQOs for NO₂, PM₁₀ and PM_{2.5} are given in Table 7.1.

7.2.33 The most sensitive receptors are those where the annual objective applies. These receptors have been the primary focus of the assessment and are shown in Table 7.12 and Figure 7.1.

Table 7.12: Sensitive Human Receptor Locations

Receptor Number	Receptor Location	Receptor Location
R01	Swaythling Road	445786,115220
R02	Botley Road/Burnetts Lane	449601,117448
R03	Knowle Lane/Botley Road	449643,117422
R04	Botley Road	449646,117529
R05	Botley Road	449618,117665
R06	Botley Road	449646,117529
R07	Sandy Lane/Winchester Road	449117,119389
R08	Winchester Road	449102,119479
R09	Fair Oak Road	446856,119001
R10	Fir Tree Lane	448354,117592
R11	Burnetts Lane/Fir Tree Lane	449386,117257
R12	Fire Tree Lane	449347,117274
R13	Burnetts Lane	448969,116052
R14	Allington Lane	448390,117942
R15	Botley Road/Stubbington Way	449479,118519
R16	Botley Road/Eastleigh Road	449466,118448
R17	Botley Road	449610,118051
R18	Tollbar Way	448977,115473
R19	Sandy Lane	449101,119385
R20	Sandy Lane	449092,119412
R21	Sandy Lane/Winchester Road	449141,119427
R22	Burnetts Lane/Botley Road	449614,117392
R23	Botley Road	449584,116450
R24	Botley Road	449585,116613
R25	Tollbar Way	448983,115480
R26	Moorgreen Road	448301,115244
R27	Botley Road	449629,116402
R28	Bishopstoke Road	446050,119175
R29	Swaythling Road	445924,115160
R30	Fair Oak Road	448596,118643
R31	Winchester Road	449426,118616
R32	Sandy Lane	448837,118577
R33	Sandy Lane/Fair Oak Road	448822,118547
R34	Twyford Road/Romsey Road	445665,119284
R35	Southampton Road	445650,118661
R36	Grange Road	449243,113832
R37	Grange Road	449163,113928
R38	Grange Road	449246,113831
R39	Grange Road	449099,113891
R40	Turnpike Way	448668,113610
R41	Townhill Way	445796,115133

R42	Wildern Lane	449047,113780
R43	Wildern Lane	449036,113733
R44	Bishopstoke Road	446556,119138
R45	Fair Oak Road/Allington Lane	448937,118424
R46	Fair Oak Road/Allington Lane	448929,118414
R47	Allington Lane	446946,115786
R48	Allington Lane	446343,115719
R49	Moorgreen Road	447341,114496
R50	Townhill Way	445792,115159
R51	Swaythling Road/Allington Lane	445812,115233
R52	Moorgreen Road/Botley Road	447352,114450
R53	Charles Watts Way/Turnpike Way	448657,113641
R54	Tollbar Way	448821,115248
R55	Charles Watts Way/Turnpike Way	448608,113580
R56	Charles Watts Way/Turnpike Way	448607,113580
R57	Charles Watts Way/Turnpike Way	448621,113590
R58	Townhill Way	445794,115148
R59	Bubb Lane	449420,115944
R60	Botley Road/Stubbington Way	449504,118471
R61	Allington Lane	448284,117566
R62	Botley Road/Eastleigh Road	449450,118480
R63	Allington Lane	448301,117627
R64	Fair Oak Road	449162,118452
R65	Bubb Lane	449013,115509
R66	Moorgreen Road/Botley Road	447366,114441
R67	Botley Road	447443,114428

Ecological Receptors

7.2.34 The area surrounding the Wider OPA Site was assessed for the designations listed below, using data from the Office for National Statistics open data portal.

- Special Protection Areas (SPAs)
- Special Areas of Conservation (SACs)
- Ramsar sites (protected wetlands)
- Sites of Special Scientific Interest (SSSIs)
- Local nature sites (ancient woods, local wildlife sites (SINCs) and national and local nature reserves)

7.2.35 For ecological sites, the effect is considered to be not significant if the total predicted NO_x concentrations are below the NAQO of 30µg/m³ or if the predicted change in NO_x

concentrations is less than $0.4 \mu\text{g}/\text{m}^3$ if the NAQO is exceeded. If these conditions are not met then an assessment of nitrogen deposition has been undertaken.

7.2.36 The closest ecological receptors are shown in Figure 7.1 and detailed in Table 7.13 below.

Table 7.13: Sensitive Ecological Receptor Locations

Receptor Number	Receptor Name	Receptor Location
E01	Moorgreen Meadows SSSI	448618,114465
E02	River Itchen SAC/SSSI	446587,119142
E03	Round Copse, West End SINC	448708,116372
E04	Stoke Park Wood SINC	448100,118885
E05	Hall Lands Copse SINC	449388,118815
E06	Scoreys Copse SINC	449715,116409

7.2.37 EBC requested that air quality impacts were also considered on the New Forest SSSI/SPA/SAC, however, further assessment of this receptor has been scoped out due to the distance of the receptor from the site. The transport model did not extend to this location and as such, the development vehicle flows at this location will not exceed the threshold criteria for assessment as discussed in section 7.2.23. It can, therefore, be concluded that any impacts on the New Forest SSSI/SPA/SAC will be negligible and there will be Not Significant effects.

Background Data

7.2.38 In addition to local authority monitoring background monitoring, Defra provide an indication of local background concentrations across $1 \times 1 \text{ km}$ grid squares, from a baseline year of 2018, up to 2030. Background concentration data was considered from the Defra 1km 2019 grid for the verification assessment. Estimated future concentrations for 2023 and 2030 by Defra were used for the future year projections.

Model Verification

7.2.39 A verification study has been undertaken using EBC's air quality monitoring data from 2019. Full details of this study are included in Appendix 7.2. The model was found to be underpredicting concentrations of NO_x and NO_2 .

7.2.40 The model was found to be overpredicting apart from the majority of the study area, apart from the section of Bishopstoke Road between Sayers Road and Station Hill where the model was underpredicting. Therefore, an adjustment factor of 1.8 was applied to the modelled results in this section of road. An adjustment factor of 0.62 was applied across the rest of the study area.



Meteorological Data

7.2.41 Wind direction, wind speed, temperature, humidity and cloud cover data for the period 01/01/2019 – 31/12/2019 taken from Southampton weather station using the Worldmet R package¹⁵.

7.2.42 Surface roughness, Albedo and Minimum Monin-Obukhov Length derived by Air Pollution Services (APS) for the meteorological stations and the site area¹⁶.

Geographical Scope

7.2.43 IAQM guidance outlines the study area for a construction dust assessment, which consists of human receptors within 350m of the site boundary and 50m from roads, 500m from site access locations and ecological receptors within 50m of the site boundary. This study area is applied to both the Wider OPA and OPA Phase 1.

7.2.44 The road traffic assessment study area for both the Wider OPA and OPA Phase 1 has been determined by the changes in traffic flows along roads which may impact sensitive human and ecological receptors.

Temporal Scope

7.2.45 Construction activities are only considered to be temporary in nature. In relation to operational activities, the impacts from the Proposed Development (the Wider OPA and OPA Phase 1) is expected to be permanent.

Assumptions & Limitations

7.2.46 It is not possible to remove all error from the modelling process due to the nature of data processed. Traffic data utilised in the model, especially projected data will have some uncertainty in it and where this data may change, results of the modelling process may change.

7.2.47 Another source of data utilised in the modelling process are predicted background concentrations, which in themselves have some uncertainty associated with them and the

¹⁵ David Carslaw, *Worldmet: Import Surface Meteorological Data from NOAA Integrated Surface Database (ISD)*, version 0.9.2, 2020, <https://CRAN.R-project.org/package=worldmet>.

¹⁶ APS, 'Surface Characteristics at Meteorological Stations', Air Pollution Services, 19 November 2019, <http://www.airpollutionservices.co.uk/surface-characteristics-at-meteorological-sites/>.



monitoring data they are based on which is not 100% accurate in terms of published concentrations due to the nature of the method of monitoring used.

- 7.2.48 Data, and therefore, model uncertainty has been reduced to as small as possible through model verification. Further information on modelling assumptions and model verification is shown in Appendix 7.2.

7.3 CONSULTATION

- 7.3.1 An email outlining the proposed methodology was sent to Eastleigh Borough Council in August 2020, however a response is yet to be received. It is considered that the Scoping Opinion provides details on the main points to consider in relation to the air quality assessment.

7.4 BASELINE ENVIRONMENT

AQMAs

- 7.4.1 EBC have declared four AQMAs for the exceedances of the NO₂ annual mean objective. The Eastleigh AQMA No. 1 was declared in 2005, amended in 2015, and lies approximately 2.5 km from the Wider OPA Site. The location of the AQMA is shown in Figure 7.2.

Local Authority Monitoring

- 7.4.2 EBC has investigated air quality within the area as part of its responsibilities under the LAQM guidance. As part of this they have used automatic monitoring stations and diffusion tubes within the local area to monitor concentrations of NO₂ and PM₁₀.
- 7.4.3 One automatic station, ES1 (Location 445495,118237) is located approximately 2.8 km from the Wider OPA Site and is a roadside site which measures concentration of both NO₂ and PM₁₀. The results of the monitoring at ES1 are shown in Table 7.14 below and the location is shown in Figure 7.2.
- 7.4.4 17 diffusion tube monitoring locations are within approximately 3km of the Wider OPA Site. All of these tubes are roadside locations. Site details and concentrations up to 2019 are shown in Table 7.15, and the locations of these sites are shown in Figure 7.2.

Table 7.14: EBC Automatic Monitoring Data from ES1

	Objective	2016	2017	2018	2019
NO ₂	Annual Mean (NAQO 40µg/m ³)	40.8	37.4	37.8	34.1
	Number of hours the 1-hour mean >200µg/m ³ (18 exceedances of the 1-hour mean)	4	0	0	0
PM ₁₀	Annual Mean (NAQO 40µg/m ³)	22.2	20.9	22.5	21.1
	Number of hours the 24-hour mean >50µg/m ³ (35 exceedances of the 24-hour mean)	7	7	0	4

Table 7.15: EBC Diffusion Tube Monitoring Data

Site ID	Site Location (X,Y)	In AQMA?	Annual mean NO ₂ concentration (µg/m ³)			
			2016	2017	2018	2019
JW	447690,114912	No	27.9	24.8	24.7	21.3
SWA	446170,114603	No	31.7	29.5	27.7	28.6
AL	445908,115544	No	28	25.2	25.1	23.5
BOT	449634,117382	No	36.5	34.4	32.5	31.9
WHL	450422,113751	No	-	19.1	20.3	17.5
FOR	447427,118780	No	23.5	22.9	21.9	20.1
BR	446604,119149	No	34.5	33	33.4	33.8
BR2	446051,119171	No	33	39.5	31.7	31.3
TW	445739,119856	No	28.3	26.5	27.5	24.7
MS	445707,119619	No	31.2	28.9	32.1	26.4
SRAN (17)	445495,118237	Yes	-	43.4	38.3	36.8
SR1	445450,118144	Yes	47.3	44.7	45.7	43.6
SR2	445651,118634	Yes	-	-	42.7	37.6

CA(15)	445339,118111	No	28.6	24.5	25.8	23.9
WYV	449577,118165	No	32.2	25	29.5	24.1
FORSL	448788,118553	No	33.2	30.2	28	28
MS	445707,119619	No	31.2	28.9	32.1	26.4

7.4.5 Table 7.14 and Table 7.15 show that, overall, nearby monitoring indicates concentrations were below the NAQOs in 2019, except at SR1 which measured 43.6 $\mu\text{g}/\text{m}^3$ and is located within the AQMA. No exceedances of the short term NO_2 or PM_{10} objectives were observed at ES1 in 2019.

Background Concentrations

7.4.6 Table 7.16 presents the Defra background concentrations for the grid squares which the Proposed Development resides in for the verification year of 2019 and the future assessment year of 2023 and 2030.

Table 7.16: Defra background concentrations

Defra grid square	2019			2023			2030		
	NO_2	PM_{10}	$\text{PM}_{2.5}$	NO_2	PM_{10}	$\text{PM}_{2.5}$	NO_2	PM_{10}	$\text{PM}_{2.5}$
448500,117500	13.1	14.1	9.5	11.5	13.3	9.5	9.8	13.0	8.7
449500,117500	12.6	13.6	9.5	11.1	12.9	9.5	9.4	12.6	8.7
448500,116500	13.9	13.5	9.4	12.1	12.8	9.4	10.2	12.5	8.6
449500,116500	13.5	13.6	9.4	11.8	12.8	9.4	10.0	12.5	8.6
448500,115500	15.5	14.3	9.9	13.4	13.6	9.9	11.2	13.3	9.1
449500,115500	14.4	13.9	9.7	12.6	13.2	9.7	10.6	12.8	8.9

7.4.7 The Defra background concentrations are predicted to be well below all the NAQOs in both 2019, 2023 and 2030.

7.4.8 EBC have one background monitoring location (HG) within 3.5 km of the Wider OPA Site. It is expected that this provides more accurate background NO_2 concentrations for the Wider OPA Site and surrounding modelled receptors than the Defra Background concentrations. The 2019

monitored concentration at HG has been used in the model and has also been used along with Defra background concentrations to predict future NO₂ concentrations for the 2030 assessment year.

7.4.9 Table 7.17 below shows the monitored concentrations and predicted monitored concentrations of NO₂ used in the model.

Table 7.17: NO₂ concentrations used in the model

Year	Monitored NO ₂ at HG3	Defra Background NO ₂	Ratio of monitored NO ₂ to Defra background NO ₂
2019	17.1 µg/m ³	15.9 µg/m ³	1.08
Year	Defra Background NO ₂	Ratio applied to Defra background	Predicted Monitored NO ₂ at HG3 used in the model
2023	13.6 µg/m ³	1.08	14.7 µg/m ³
2030	11.2 µg/m ³	1.08	12.0 µg/m ³

7.4.10 Table 7.17 shows that the model utilised a background NO₂ concentration of 17.1 µg/m³ in 2019, 14.7 µg/m³ in 2023 and 12.0 µg/m³ in 2030. Background PM₁₀ and PM_{2.5} concentrations utilised in the model were the Defra background concentrations shown in Table 7.16.

7.5 INHERENT DESIGN MITIGATION

1.5.1.1 A construction environmental management plan (CEMP) will be produced and implemented for both the OPA Phase 1 and Wider OPA which will aid in reducing any dust impacts during the construction phases. However, guidance states that a dust assessment in the absence of measures should be undertaken to determine specific measures. Therefore, a construction dust assessment and relevant mitigation is still presented.

7.6 POTENTIAL ENVIRONMENTAL IMPACTS & EFFECTS

OPA Phase 1

Construction Impacts and Effects

7.6.1 The construction phase of the proposed development will involve a number of activities that will produce polluting emissions to air. Predominantly, these will be emissions of dust.

7.6.2 The IAQM's guidance states that, from experience of assessing exhaust emissions from site traffic, it is unlikely that any significant adverse impacts on local air quality would be caused and



in the vast majority of cases, quantitative assessment is not needed. As such, short term effects of construction traffic emissions have not been assessed.

Demolition

- 7.6.3 There is no demolition associated with the OPA Phase 1, therefore, the impact of demolition activities is Not Applicable.

Earthworks

- 7.6.4 The total area of the site is above the IAQM's 'Large' threshold of 10,000m². There are likely to be more than 10 heavy moving vehicles active at any one time.

Construction

- 7.6.5 The total volume of buildings to be erected is estimated to fall above the IAQM's 'Large' threshold of 100,000m³.

Trackout

- 7.6.6 The unpaved road network is likely to be greater than less than 50m in length. In addition, the number of site vehicles is unlikely to exceed the IAQM's 'Medium' threshold of 10-50 HDV (>3.5t) outward movements. Accordingly, the potential dust emission magnitude during Trackout is considered to be 'Medium'.

Sensitivity of Area

- 7.6.7 The prevailing wind direction for the closest regionally representative meteorological measurement station to the application site, at Southampton Airport is shown in Appendix 7.3. The wind rose shows that the prevailing winds are from the south-west. As such, receptors downwind (i.e. north, east/north-east) of the site are more sensitive to dust impacts than those located upwind.
- 7.6.8 The main areas of human sensitivity are to the south east. Based on the IAQM guidance residential dwellings are considered as high sensitivity receptors in relation to both dust soiling and health effects of PM₁₀. Indicative examples of medium sensitivity receptors include places of work, such as offices.
- 7.6.9 There are more than 10 high-sensitivity receptors within 20m of the site boundary. According to IAQM guidance, where there are more than 10 high sensitivity receptors within 20m, the overall sensitivity of the surrounding area to nuisance dust soiling effects during Demolition, Earthworks and Construction is defined as 'High'.



- 7.6.10 With regard to Trackout, the sensitivity is assessed where receptors are located within 50m from Trackout routes up to 500m from the site. As there are more than 10 high-sensitivity receptors within 50m of the Trackout route, the sensitivity to dust soiling impacts from Trackout is defined as ‘High’.
- 7.6.11 UK-AIR predictions show that annual mean concentrations of PM₁₀ are well below 32 µg/m³ in the vicinity of the site (the concentration at which exceedance of the 24-hour NAQO is likely), and are not likely to exceed 24 µg/m³. According to IAQM guidance, where PM₁₀ concentrations are <24 µg/m³ and there are fewer than 100 high sensitivity receptors within 20m of the site boundary, the overall sensitivity of the surrounding area to human health impacts is defined as ‘Low’ for all stages.

Risk of Impacts

- 7.6.12 Using the methodology prescribed in the IAQM guidance, the overall risk of impacts can be defined by combining the sensitivity of the area with the potential dust emission magnitude of each stage of the construction phase as described above.
- 7.6.13 Table 2.18 provides a summary of the construction dust risk assessment. Overall, the development is considered to be High Risk for nuisance dust soiling effects, Low Risk for PM₁₀ health effects and to be Low Risk for ecological impacts, in the absence of mitigation.

Table 1.18: Risk of adverse impacts during construction phase

Construction Activity	Risk of Impacts		
	Nuisance Dust Soiling	Human Health	Ecological
Demolition	Not Applicable	Not Applicable	Not Applicable
Earthworks	High	Low	Low
Construction	High	Low	Low
Trackout	Medium	Low	Low

Occupation Impacts and Effects

Human Receptors

- 7.6.14 Concentrations of NO₂, PM₁₀ and PM_{2.5} have been modelled both without and with the OPA Phase 1 in the 2023 assessment year. The results are shown in Tables 7.19, 7.20 and 7.21



below. The tables also report the impact in line with IAQM guidance. Impacts of Slight Adverse or below are not considered significant.

Table 7.19: 2023 NO₂ Assessment Results

Receptor Number	Without development concentration (ug/m ³)	With development concentration (ug/m ³)	Change	EPUK Impact
R01	20.3	20.4	0.1	Negligible
R02	20.9	20.9	0.0	Negligible
R03	31.5	31.6	0.1	Negligible
R04	21.1	21.1	0.0	Negligible
R05	18.7	18.7	0.0	Negligible
R06	21.1	21.1	0.0	Negligible
R07	18.3	18.3	0.1	Negligible
R08	17.4	17.4	0.0	Negligible
R09	27.7	27.8	0.1	Negligible
R10	16.8	16.9	0.1	Negligible
R11	16.5	16.5	0.0	Negligible
R12	16.4	16.4	0.0	Negligible
R13	16.4	16.4	0.1	Negligible
R14	16.5	16.6	0.1	Negligible
R15	26.7	26.7	0.1	Negligible
R16	23.0	23.1	0.0	Negligible
R17	19.9	19.9	0.0	Negligible
R18	19.6	19.7	0.1	Negligible
R19	18.1	18.2	0.1	Negligible
R20	18.0	18.1	0.1	Negligible
R21	18.5	18.5	0.1	Negligible
R22	23.7	23.7	0.0	Negligible
R23	17.4	17.4	0.0	Negligible
R24	20.1	20.2	0.0	Negligible
R25	19.6	19.6	0.1	Negligible
R26	16.7	16.8	0.1	Negligible
R27	18.7	18.7	0.0	Negligible
R28	28.0	28.2	0.1	Negligible
R29	26.5	26.6	0.1	Negligible
R30	19.0	19.1	0.1	Negligible
R31	19.4	19.4	0.0	Negligible
R32	19.0	19.0	0.1	Negligible
R33	19.9	19.9	0.1	Negligible
R34	20.0	20.0	0.1	Negligible
R35	17.7	17.7	0.0	Negligible

R36	19.5	19.5	0.0	Negligible
R37	20.4	20.4	0.0	Negligible
R38	19.7	19.7	0.0	Negligible
R39	18.9	19.0	0.0	Negligible
R40	18.5	18.6	0.0	Negligible
R41	20.4	20.4	0.0	Negligible
R42	18.3	18.3	0.0	Negligible
R43	18.9	18.9	0.0	Negligible
R44	25.0	25.1	0.1	Negligible
R45	21.2	21.3	0.2	Negligible
R46	21.7	21.9	0.2	Negligible
R47	16.9	16.9	0.1	Negligible
R48	16.9	17.0	0.1	Negligible
R49	20.6	20.6	0.1	Negligible
R50	20.0	20.0	0.0	Negligible
R51	20.0	20.1	0.1	Negligible
R52	24.4	24.5	0.1	Negligible
R53	19.0	19.1	0.0	Negligible
R54	25.0	25.2	0.1	Negligible
R55	19.4	19.5	0.1	Negligible
R56	19.4	19.5	0.1	Negligible
R57	19.3	19.3	0.0	Negligible
R58	20.1	20.1	0.0	Negligible
R59	19.6	19.7	0.1	Negligible
R60	24.1	24.2	0.1	Negligible
R61	17.2	17.3	0.1	Negligible
R62	27.4	27.4	0.0	Negligible
R63	16.9	17.0	0.1	Negligible
R64	17.6	17.6	0.0	Negligible
R65	18.8	18.9	0.1	Negligible
R66	25.9	26.0	0.0	Negligible
R67	20.3	20.4	0.0	Negligible

7.6.15 The results indicate that annual mean NO₂ concentrations at all modelled receptor locations are below the NAQO. The predicted EPUK impact is Negligible at all modelled receptor locations. As such, no significant effects are predicted.

Table 7.20: 2023 PM₁₀ Assessment Results

Receptor Number	Without development concentration (ug/m ³)	With development concentration (ug/m ³)	Change	EPUK Impact
R01	18.0	18.0	0.0	Negligible

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R02	13.9	13.9	0.0	Negligible
R03	15.2	15.2	0.0	Negligible
R04	14.8	14.8	0.0	Negligible
R05	14.2	14.2	0.0	Negligible
R06	14.8	14.8	0.0	Negligible
R07	13.7	13.7	0.0	Negligible
R08	13.4	13.4	0.0	Negligible
R09	15.7	15.7	0.0	Negligible
R10	14.1	14.1	0.0	Negligible
R11	13.5	13.5	0.0	Negligible
R12	13.5	13.5	0.0	Negligible
R13	13.5	13.5	0.0	Negligible
R14	14.1	14.1	0.0	Negligible
R15	14.9	15.0	0.0	Negligible
R16	14.2	14.2	0.0	Negligible
R17	15.3	15.4	0.0	Negligible
R18	15.5	15.5	0.0	Negligible
R19	13.7	13.7	0.0	Negligible
R20	13.8	13.8	0.0	Negligible
R21	14.1	14.1	0.0	Negligible
R22	14.2	14.2	0.0	Negligible
R23	13.7	13.7	0.0	Negligible
R24	15.1	15.1	0.0	Negligible
R25	15.5	15.5	0.0	Negligible
R26	14.4	14.4	0.0	Negligible
R27	14.2	14.2	0.0	Negligible
R28	15.1	15.1	0.0	Negligible
R29	17.4	17.5	0.0	Negligible
R30	15.4	15.5	0.0	Negligible
R31	14.5	14.5	0.0	Negligible
R32	15.2	15.2	0.0	Negligible
R33	15.6	15.7	0.0	Negligible
R34	16.6	16.7	0.0	Negligible
R35	15.3	15.3	0.0	Negligible
R36	15.5	15.5	0.0	Negligible
R37	16.9	16.9	0.0	Negligible
R38	15.6	15.6	0.0	Negligible
R39	15.5	15.5	0.0	Negligible
R40	17.4	17.5	0.0	Negligible
R41	17.3	17.3	0.0	Negligible
R42	15.5	15.5	0.0	Negligible
R43	15.7	15.7	0.0	Negligible

R44	14.6	14.6	0.0	Negligible
R45	14.8	14.9	0.0	Negligible
R46	14.8	14.8	0.0	Negligible
R47	16.0	16.1	0.0	Negligible
R48	16.3	16.4	0.0	Negligible
R49	16.3	16.4	0.0	Negligible
R50	17.1	17.1	0.0	Negligible
R51	17.6	17.6	0.0	Negligible
R52	16.7	16.7	0.0	Negligible
R53	17.7	17.7	0.0	Negligible
R54	15.4	15.4	0.0	Negligible
R55	17.7	17.7	0.0	Negligible
R56	17.7	17.7	0.0	Negligible
R57	17.6	17.6	0.0	Negligible
R58	17.2	17.2	0.0	Negligible
R59	15.6	15.7	0.1	Negligible
R60	14.8	14.8	0.0	Negligible
R61	14.2	14.3	0.0	Negligible
R62	14.9	14.9	0.0	Negligible
R63	14.2	14.3	0.0	Negligible
R64	14.1	14.1	0.0	Negligible
R65	14.7	14.8	0.0	Negligible
R66	16.8	16.8	0.0	Negligible
R67	17.1	17.1	0.0	Negligible

7.6.16 The results indicate that annual mean PM₁₀ concentrations at all modelled receptor locations are below the NAQO. The predicted EPUK impact is Negligible at all modelled receptor locations. As such, no significant effects are predicted.

Table 7.21: 2023 PM_{2.5} Assessment Results

Receptor Number	Without development concentration (ug/m ³)	With development concentration (ug/m ³)	Change	EPUK Impact
R01	12.7	12.7	0.0	Negligible
R02	10.2	10.2	0.0	Negligible
R03	11.0	11.0	0.0	Negligible
R04	10.6	10.7	0.0	Negligible
R05	10.4	10.5	0.0	Negligible
R06	10.6	10.7	0.0	Negligible
R07	10.1	10.1	0.0	Negligible
R08	9.8	9.8	0.0	Negligible
R09	11.5	11.5	0.0	Negligible

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R10	10.0	10.0	0.0	Negligible
R11	9.9	9.9	0.0	Negligible
R12	9.9	9.9	0.0	Negligible
R13	9.8	9.9	0.0	Negligible
R14	10.0	10.0	0.0	Negligible
R15	10.9	10.9	0.0	Negligible
R16	10.7	10.7	0.0	Negligible
R17	11.2	11.2	0.0	Negligible
R18	11.3	11.3	0.0	Negligible
R19	10.0	10.0	0.0	Negligible
R20	10.0	10.0	0.0	Negligible
R21	10.1	10.1	0.0	Negligible
R22	10.5	10.5	0.0	Negligible
R23	10.2	10.2	0.0	Negligible
R24	10.9	10.9	0.0	Negligible
R25	11.3	11.3	0.0	Negligible
R26	10.4	10.4	0.0	Negligible
R27	10.5	10.5	0.0	Negligible
R28	11.5	11.5	0.0	Negligible
R29	12.4	12.4	0.0	Negligible
R30	11.2	11.2	0.0	Negligible
R31	10.8	10.8	0.0	Negligible
R32	11.1	11.1	0.0	Negligible
R33	11.4	11.4	0.0	Negligible
R34	12.2	12.2	0.0	Negligible
R35	11.5	11.5	0.0	Negligible
R36	11.8	11.8	0.0	Negligible
R37	12.1	12.1	0.0	Negligible
R38	11.9	11.9	0.0	Negligible
R39	11.7	11.7	0.0	Negligible
R40	12.5	12.5	0.0	Negligible
R41	12.5	12.5	0.0	Negligible
R42	11.5	11.5	0.0	Negligible
R43	11.6	11.6	0.0	Negligible
R44	11.2	11.2	0.0	Negligible
R45	11.1	11.1	0.0	Negligible
R46	11.0	11.0	0.0	Negligible
R47	11.5	11.5	0.0	Negligible
R48	11.5	11.5	0.0	Negligible
R49	11.7	11.7	0.0	Negligible
R50	12.4	12.4	0.0	Negligible
R51	12.4	12.5	0.0	Negligible

R52	11.9	12.0	0.0	Negligible
R53	12.6	12.6	0.0	Negligible
R54	11.2	11.2	0.0	Negligible
R55	12.7	12.8	0.0	Negligible
R56	12.7	12.8	0.0	Negligible
R57	12.7	12.7	0.0	Negligible
R58	12.4	12.4	0.0	Negligible
R59	11.2	11.3	0.0	Negligible
R60	10.8	10.8	0.0	Negligible
R61	10.2	10.2	0.0	Negligible
R62	11.0	11.0	0.0	Negligible
R63	10.1	10.1	0.0	Negligible
R64	10.5	10.5	0.0	Negligible
R65	10.9	10.9	0.0	Negligible
R66	12.0	12.0	0.0	Negligible
R67	12.1	12.1	0.0	Negligible

7.6.17 The results indicate that annual mean PM_{2.5} concentrations at all modelled receptor locations are below the NAQO. The predicted EPUK impact is Negligible at all modelled receptor locations. As such, no significant effects are predicted.

Ecological Receptors

7.6.18 Concentrations of NO_x have been modelled both without and with the OPA Phase 1 in the 2023 assessment year. The results are shown in Table 7.22 below. Where the NO_x NAQO of 30 µg/m³ is exceeded then further investigation of impacts is required.

Table 7.22: 2023 NO_x Assessment Results at Ecological Receptors

Receptor Number	Without development concentration (ug/m ³)	With development concentration (ug/m ³)	Change (ug/m ³)	NO _x NAQO 30 µg/m ³ Exceeded	Change greater than 0.4 ug/m ³	Effect
E01	25.5	25.8	0.3	No	No	Not Significant
E02	43.0	43.3	0.3	Yes	No	Not Significant
E03	10.6	10.7	0.1	No	No	Not Significant
E04	17.8	17.9	0.1	No	No	Not Significant
E05	18.8	18.8	0.1	No	No	Not Significant
E06	14.0	14.1	0.1	No	No	Not Significant

7.6.19 Table 7.22 shows that the predicted NO_x concentration at all modelled ecological receptor locations are below 30 µg/m³, except E02 where the both the with and without development scenarios predict NO_x concentrations above the NAQO. The change, however, is less than the



criteria of $0.4 \mu\text{g}/\text{m}^3$, therefore the impact is not significant. No further assessment is therefore required and predicted effects are Not Significant.

The Wider OPA

Construction Impacts and Effects

7.6.20 The construction phase of the proposed development will involve a number of activities that will produce polluting emissions to air. Predominantly, these will be emissions of dust.

7.6.21 The IAQM's guidance states that, from experience of assessing exhaust emissions from site traffic, it is unlikely that any significant adverse effects on local air quality would be caused and in the vast majority of cases, quantitative assessment is not needed. As such, short term effects of construction traffic emissions have not been assessed.

Demolition

7.6.22 Victoria Farmhouse is to be demolished as part of the Wider OPA. The total volume of these buildings has been estimated to be within the IAQM's threshold range of less than $20,000\text{m}^3$, indicating a potential dust emission magnitude of 'Small'.

Earthworks

7.6.23 The total area of the site is above the IAQM's 'Large' threshold of $10,000\text{m}^2$. There are likely to be more than 10 heavy moving vehicles active at any one time.

Construction

7.6.24 The total volume of buildings to be erected is estimated to fall above the IAQM's 'Large' threshold of $100,000\text{m}^3$.

Trackout

7.6.25 Due to the size of the site, the unpaved road network is likely to be greater than 100m in length. In addition, the number of site vehicles is unlikely to exceed the IAQM's 'Medium' threshold of 10-50 HDV (>3.5t) outward movements. Accordingly, the potential dust emission magnitude during Trackout is considered to be 'Medium'.

Sensitivity of Area

7.6.26 The prevailing wind direction for the closest regionally representative meteorological measurement station to the application site, at Southampton Airport is shown in Appendix 7.3. The wind rose shows that the prevailing winds are from the south-west. As such, receptors



downwind (i.e. north, east/north-east) of the site are more sensitive to dust impacts than those located upwind.

7.6.27 The main areas of human sensitivity are to the north west, north, north-east and east (downwind). Based on the IAQM guidance residential dwellings are considered as high sensitivity receptors in relation to both dust soiling and health effects of PM₁₀. Indicative examples of medium sensitivity receptors include places of work, such as offices.

7.6.28 There are over 10 high-sensitivity receptors within 20m of the site boundary. According to IAQM guidance, where there are more than 10 high sensitivity receptors within 20m, the overall sensitivity of the surrounding area to nuisance dust soiling effects during Demolition, Earthworks and Construction is defined as 'High'.

7.6.29 With regard to Trackout, the sensitivity is assessed where receptors are located within 50m from Trackout routes up to 500m from the site. As there are more than 10 high-sensitivity receptors within 50m of the Trackout route, the sensitivity to dust soiling impacts from Trackout is defined as 'High'.

7.6.30 UK-AIR predictions show that annual mean concentrations of PM₁₀ are well below 32 µg/m³ in the vicinity of the site (the concentration at which exceedance of the 24-hour NAQO is likely), and are not likely to exceed 24 µg/m³. According to IAQM guidance, where PM₁₀ concentrations are <24 µg/m³ and there are fewer than 100 high sensitivity receptors within 20m of the site boundary, the overall sensitivity of the surrounding area to human health impacts is defined as 'Low' for all stages.

Risk of Impacts

7.6.31 Using the methodology prescribed in the IAQM guidance, the overall risk of impacts can be defined by combining the sensitivity of the area with the potential dust emission magnitude of each stage of the construction phase as described above.

7.6.32 Table 2.23 provides a summary of the construction dust risk assessment. Overall, the development is considered to be High Risk for nuisance dust soiling effects, Low Risk for PM₁₀ health effects and to be Low Risk for ecological impacts, in the absence of mitigation.

Table 2.23: Risk of adverse impacts during construction phase

Construction Activity	Risk of Impacts		
	Nuisance Dust Soiling	Human Health	Ecological
Demolition	Negligible	Negligible	Negligible
Earthworks	High	Low	Low
Construction	High	Low	Low
Trackout	Medium	Low	Low

Occupation Impacts and Effects

Human Receptors

7.6.33 Concentrations of NO₂, PM₁₀ and PM_{2.5} have been modelled both without and with the Wider OPA in the 2030 assessment year. The results are shown in Tables 7.24, 7.25 and 7.26 below. The tables also report the impact in line with IAQM guidance. Impacts of Slight Adverse or below are not considered significant.

Table 7.24: 2030 NO₂ Assessment Results

Receptor Number	Without development concentration (ug/m ³)	With development concentration (ug/m ³)	Change	EPUK Impact
R01	15.3	15.5	0.2	Negligible
R02	16.4	16.7	0.4	Negligible
R03	25.9	26.8	0.9	Negligible
R04	16.0	16.3	0.3	Negligible
R05	14.2	14.3	0.1	Negligible
R06	16.0	16.3	0.3	Negligible
R07	13.9	14.0	0.2	Negligible
R08	13.4	13.5	0.1	Negligible
R09	18.8	19.2	0.4	Negligible
R10	13.1	13.6	0.5	Negligible
R11	12.9	13.1	0.2	Negligible
R12	12.9	13.1	0.3	Negligible
R13	12.8	13.0	0.2	Negligible
R14	12.9	13.1	0.2	Negligible
R15	21.2	21.5	0.3	Negligible
R16	18.2	18.4	0.2	Negligible

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R17	14.7	14.9	0.1	Negligible
R18	14.3	14.7	0.4	Negligible
R19	13.8	14.0	0.2	Negligible
R20	13.7	13.9	0.2	Negligible
R21	14.0	14.1	0.1	Negligible
R22	18.3	18.9	0.6	Negligible
R23	13.3	13.4	0.1	Negligible
R24	14.6	14.8	0.2	Negligible
R25	14.3	14.7	0.4	Negligible
R26	13.0	13.2	0.2	Negligible
R27	13.9	14.0	0.1	Negligible
R28	19.0	19.4	0.4	Negligible
R29	21.1	21.3	0.2	Negligible
R30	14.2	14.4	0.2	Negligible
R31	14.8	15.0	0.1	Negligible
R32	14.3	14.5	0.3	Negligible
R33	14.7	15.0	0.3	Negligible
R34	14.7	14.9	0.1	Negligible
R35	13.5	13.5	0.0	Negligible
R36	14.5	14.5	0.1	Negligible
R37	14.9	15.0	0.1	Negligible
R38	14.6	14.6	0.1	Negligible
R39	14.2	14.2	0.1	Negligible
R40	13.9	14.0	0.1	Negligible
R41	15.5	15.6	0.1	Negligible
R42	13.8	13.8	0.0	Negligible
R43	14.1	14.1	0.0	Negligible
R44	17.4	17.7	0.3	Negligible
R45	16.3	17.0	0.7	Negligible
R46	16.9	17.7	0.9	Negligible
R47	13.1	13.3	0.2	Negligible
R48	13.2	13.4	0.2	Negligible
R49	15.9	16.3	0.4	Negligible
R50	15.3	15.4	0.1	Negligible
R51	15.3	15.5	0.2	Negligible
R52	18.9	19.3	0.4	Negligible
R53	14.1	14.2	0.1	Negligible
R54	18.8	19.9	1.1	Negligible
R55	14.3	14.5	0.2	Negligible
R56	14.3	14.5	0.2	Negligible
R57	14.3	14.4	0.1	Negligible
R58	15.3	15.4	0.1	Negligible

R59	14.2	14.6	0.5	Negligible
R60	19.1	19.3	0.3	Negligible
R61	13.3	13.6	0.3	Negligible
R62	21.7	21.9	0.2	Negligible
R63	13.2	13.5	0.3	Negligible
R64	13.6	13.6	0.1	Negligible
R65	13.9	14.3	0.4	Negligible
R66	20.0	20.2	0.2	Negligible
R67	15.1	15.2	0.1	Negligible

7.6.34 The results indicate that annual mean NO₂ concentrations at all modelled receptor locations are below the NAQO. The predicted EPUK impact is Negligible at all modelled receptor locations. As such, no significant effects are predicted.

Table 7.25: 2030 PM₁₀ Assessment Results

Receptor Number	Without development concentration (ug/m ³)	With development concentration (ug/m ³)	Change	EPUK Impact
R01	17.8	17.9	0.2	Negligible
R02	13.6	13.7	0.1	Negligible
R03	15.1	15.3	0.2	Negligible
R04	14.5	14.7	0.1	Negligible
R05	13.9	14.0	0.1	Negligible
R06	14.5	14.7	0.1	Negligible
R07	13.5	13.6	0.1	Negligible
R08	13.2	13.3	0.1	Negligible
R09	15.5	15.6	0.1	Negligible
R10	13.8	14.1	0.3	Negligible
R11	13.2	13.3	0.1	Negligible
R12	13.2	13.5	0.2	Negligible
R13	13.2	13.4	0.2	Negligible
R14	13.8	14.0	0.2	Negligible
R15	14.7	14.8	0.1	Negligible
R16	13.9	14.0	0.1	Negligible
R17	15.2	15.3	0.1	Negligible
R18	15.1	15.4	0.3	Negligible
R19	13.5	13.6	0.1	Negligible
R20	13.6	13.7	0.2	Negligible
R21	13.9	14.0	0.1	Negligible
R22	13.9	14.0	0.1	Negligible
R23	13.4	13.5	0.1	Negligible
R24	14.7	14.9	0.2	Negligible

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R25	15.0	15.4	0.3	Negligible
R26	14.1	14.2	0.1	Negligible
R27	13.8	13.9	0.1	Negligible
R28	14.9	15.0	0.1	Negligible
R29	17.2	17.2	0.0	Negligible
R30	15.2	15.4	0.1	Negligible
R31	14.2	14.3	0.1	Negligible
R32	15.0	15.2	0.2	Negligible
R33	15.4	15.6	0.2	Negligible
R34	16.4	16.6	0.1	Negligible
R35	15.0	15.0	0.0	Negligible
R36	15.3	15.3	0.0	Negligible
R37	16.7	16.8	0.1	Negligible
R38	15.4	15.4	0.0	Negligible
R39	15.2	15.3	0.0	Negligible
R40	17.2	17.3	0.1	Negligible
R41	17.1	17.1	0.0	Negligible
R42	15.2	15.3	0.0	Negligible
R43	15.5	15.5	0.0	Negligible
R44	14.4	14.5	0.1	Negligible
R45	14.6	14.8	0.2	Negligible
R46	14.5	14.7	0.2	Negligible
R47	15.7	15.9	0.1	Negligible
R48	16.1	16.2	0.2	Negligible
R49	16.0	16.2	0.2	Negligible
R50	16.9	16.9	0.0	Negligible
R51	17.4	17.5	0.1	Negligible
R52	16.4	16.5	0.1	Negligible
R53	17.4	17.5	0.1	Negligible
R54	15.0	15.3	0.3	Negligible
R55	17.4	17.5	0.1	Negligible
R56	17.4	17.5	0.1	Negligible
R57	17.3	17.4	0.1	Negligible
R58	16.9	17.0	0.0	Negligible
R59	15.2	15.7	0.5	Negligible
R60	14.5	14.6	0.1	Negligible
R61	14.0	14.2	0.2	Negligible
R62	14.6	14.7	0.1	Negligible
R63	14.0	14.2	0.2	Negligible
R64	13.8	13.8	0.0	Negligible
R65	14.3	14.6	0.3	Negligible
R66	16.5	16.6	0.1	Negligible

R67	16.8	16.8	0.0	Negligible
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7.6.35 The results indicate that annual mean PM₁₀ concentrations at all modelled receptor locations are below the NAQO. The predicted EPUK impact is Negligible at all modelled receptor locations. As such, no significant effects are predicted.

Table 7.26: 2030 PM_{2.5} Assessment Results

Receptor Number	Without development concentration (ug/m ³)	With development concentration (ug/m ³)	Change	EPUK Impact
R01	11.8	11.9	0.1	Negligible
R02	9.4	9.5	0.1	Negligible
R03	10.3	10.4	0.1	Negligible
R04	9.9	9.9	0.1	Negligible
R05	9.7	9.7	0.1	Negligible
R06	9.9	9.9	0.1	Negligible
R07	9.3	9.4	0.1	Negligible
R08	9.1	9.1	0.1	Negligible
R09	10.7	10.8	0.1	Negligible
R10	9.2	9.4	0.2	Negligible
R11	9.1	9.2	0.1	Negligible
R12	9.1	9.2	0.1	Negligible
R13	9.0	9.1	0.1	Negligible
R14	9.2	9.3	0.1	Negligible
R15	10.1	10.2	0.1	Negligible
R16	9.9	9.9	0.0	Negligible
R17	10.4	10.5	0.1	Negligible
R18	10.4	10.6	0.2	Negligible
R19	9.3	9.4	0.1	Negligible
R20	9.2	9.3	0.1	Negligible
R21	9.4	9.4	0.1	Negligible
R22	9.7	9.8	0.1	Negligible
R23	9.3	9.4	0.1	Negligible
R24	10.1	10.2	0.1	Negligible
R25	10.4	10.6	0.2	Negligible
R26	9.6	9.7	0.1	Negligible
R27	9.7	9.8	0.1	Negligible
R28	10.7	10.8	0.1	Negligible
R29	11.5	11.5	0.0	Negligible
R30	10.4	10.5	0.1	Negligible
R31	10.0	10.1	0.1	Negligible
R32	10.3	10.5	0.1	Negligible

R33	10.6	10.7	0.1	Negligible
R34	11.4	11.5	0.1	Negligible
R35	10.7	10.7	0.0	Negligible
R36	11.0	11.1	0.0	Negligible
R37	11.3	11.3	0.0	Negligible
R38	11.1	11.1	0.0	Negligible
R39	10.9	10.9	0.0	Negligible
R40	11.6	11.6	0.1	Negligible
R41	11.7	11.7	0.0	Negligible
R42	10.7	10.7	0.0	Negligible
R43	10.8	10.9	0.0	Negligible
R44	10.4	10.5	0.1	Negligible
R45	10.3	10.4	0.1	Negligible
R46	10.2	10.3	0.1	Negligible
R47	10.6	10.8	0.1	Negligible
R48	10.6	10.7	0.1	Negligible
R49	10.9	11.0	0.1	Negligible
R50	11.6	11.6	0.1	Negligible
R51	11.6	11.7	0.1	Negligible
R52	11.1	11.2	0.1	Negligible
R53	11.8	11.8	0.1	Negligible
R54	10.3	10.5	0.2	Negligible
R55	11.9	12.0	0.1	Negligible
R56	11.9	12.0	0.1	Negligible
R57	11.8	11.9	0.1	Negligible
R58	11.6	11.6	0.0	Negligible
R59	10.3	10.6	0.3	Negligible
R60	10.0	10.1	0.1	Negligible
R61	9.4	9.6	0.2	Negligible
R62	10.2	10.2	0.0	Negligible
R63	9.3	9.4	0.2	Negligible
R64	9.7	9.8	0.0	Negligible
R65	10.0	10.2	0.2	Negligible
R66	11.1	11.2	0.0	Negligible
R67	11.3	11.3	0.0	Negligible

7.6.36 The results indicate that annual mean PM_{2.5} concentrations at all modelled receptor locations are below the NAQO. The predicted EPUK impact is Negligible at all modelled receptor locations. As such, no significant effects are predicted.

Ecological Receptors

7.6.37 Concentrations of NO_x have been modelled both without and with the Wider OPA in the 2030 and assessment year. The results are shown in Table 7.27 below. Where the NO_x NAQO of 30 µg/m³ is exceeded then further investigation of impacts is required.

Table 7.27: 2030 NO_x Assessment Results at Ecological Receptors

Receptor Number	Without development concentration (ug/m ³)	With development concentration (ug/m ³)	Change (ug/m ³)	NO _x NAQO 30 µg/m ³ Exceeded	Change greater than 0.4 ug/m ³	Effect
E01	16.7	17.7	1.0	No	No	Not Significant
E02	26.4	27.4	1.0	No	No	Not Significant
E03	9.2	9.5	0.3	No	No	Not Significant
E04	13.2	13.5	0.2	No	No	Not Significant
E05	13.8	14.1	0.3	No	No	Not Significant
E06	10.8	11.0	0.2	No	No	Not Significant

7.6.38 Table 7.27 shows that the predicted NO_x concentration at all modelled ecological receptor locations are below 30 µg/m³. No further assessment is therefore required and predicted effects are Not Significant.

7.7 ADDITIONAL MITIGATION, COMPENSATION & ENHANCEMENT MEASURES

OPA Phase1

Construction

7.7.1 The qualitative construction dust risk assessment shows that the site is High Risk for adverse impacts during construction, as a worst-case, in the absence of mitigation.

7.7.2 To effectively reduce the risk of impacts to negligible, appropriate mitigation measures should be adopted. The Greater London Authority provides guidance for mitigation measures which is considered to be best-practice for the UK. Appropriate measures that could be included in the construction of the proposed development include:

- ideally cutting, grinding and sawing should not be conducted on-site and pre-fabricated material and modules should be brought in where possible;
- where such work must take place, water suppression should be used to reduce the amount of dust generated;
- skips, chutes and conveyors should be completely covered and, if necessary, enclosed to ensure that dust does not escape;

- any excess material should be reused or recycled on-site;
- developers should produce a waste or recycling plan;
- following earthworks, exposed areas and soil stockpiles should be re-vegetated to stabilise surfaces, or otherwise covered with hessian or mulches;
- stockpiles should be stored in enclosed or bunded containers or silos and kept damp where necessary;
- hard surfaces should be used for haul routes where possible;
- haul routes should be swept/washed regularly;
- vehicle wheels should be washed on leaving the site;
- all vehicles carrying dusty materials should be securely covered; and
- delivery areas, stockpiles and particularly dusty items of construction plant should be kept as far away from neighbouring properties as possible.

7.7.3 In addition to the above, the IAQM's highly recommended mitigation measures for Medium risk sites is provided at Appendix 7.4.

Occupation

7.7.4 The assessment concluded that the operation of the Proposed Development will not result in any significant effects as the overall impacts will be Negligible, therefore no additional mitigation is required.

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Construction

7.7.5 The qualitative construction dust risk assessment shows that the site is High Risk for adverse impacts during construction, as a worst-case, in the absence of mitigation.

7.7.6 To effectively reduce the risk of impacts to negligible, appropriate mitigation measures should be adopted. The Greater London Authority provides guidance for mitigation measures which is considered to be best-practice for the UK. Appropriate measures that could be included in the construction of the proposed development include:

- ideally cutting, grinding and sawing should not be conducted on-site and pre-fabricated material and modules should be brought in where possible;
- where such work must take place, water suppression should be used to reduce the amount of dust generated;
- skips, chutes and conveyors should be completely covered and, if necessary, enclosed to ensure that dust does not escape;

- any excess material should be reused or recycled on-site;
- developers should produce a waste or recycling plan;
- following earthworks, exposed areas and soil stockpiles should be re-vegetated to stabilise surfaces, or otherwise covered with hessian or mulches;
- stockpiles should be stored in enclosed or bunded containers or silos and kept damp where necessary;
- hard surfaces should be used for haul routes where possible;
- haul routes should be swept/washed regularly;
- vehicle wheels should be washed on leaving the site;
- all vehicles carrying dusty materials should be securely covered; and
- delivery areas, stockpiles and particularly dusty items of construction plant should be kept as far away from neighbouring properties as possible.

7.7.7 In addition to the above, the IAQM's highly recommended mitigation measures for Medium risk sites is provided at Appendix 7.4.

Occupation

7.7.8 The assessment concluded that the operation of the Proposed Development will not result in any significant effects as the overall impacts will be Negligible, therefore no additional mitigation is required.

7.8 RESIDUAL ENVIRONMENTAL IMPACTS & EFFECTS

Construction

7.8.1 Implementation of the recommended mitigation measures during the construction phase will reduce any medium impacts to negligible and the residual effects will be Not Significant.

Occupation

7.8.2 The overall impact is predicted to be negligible and Not Significant, therefore, the residual effects continue to be Not Significant.

7.9 CUMULATIVE EFFECTS

7.9.1 The traffic data utilised in the assessment has included committed developments and therefore has been considered in the air quality assessment. The traffic data has used existing data submitted as part of the sites extant planning permission for the Baseline 2020 + Committed Development data. Additional committed development traffic includes Pembers Hill Farm



(O/15/77190), Land North West of Boorley Green (P/15/75953), Land West of Woodhouse Lane (O/18/83634) and Land North of Winchester Street (O/18/83698).

7.10 IMPACT OF CLIMATE CHANGE

- 7.10.1 The UK CP18 Climate Change projections indicate that during the summer season, mean air temperatures will increase, average precipitation rates will decrease and average wind speeds will decrease, resulting in dryer and warmer summers. Such changes are likely to result in higher dust levels during construction due to dryer and warmer weather thus producing more dust. This could indicate that construction dust risk impacts could be higher than outlined in the assessment.
- 7.10.2 The climate projections indicate that during the winter season, the mean air temperature will increase, the average precipitation rate will increase and average wind speeds are likely to stay roughly the same, resulting in warmer and wetter winters. This could result in higher dust levels due to warmer weather, however, an increased precipitation rate will also result in higher suppression of suspended dust.
- 7.10.3 It is not anticipated that any additional mitigation is required as a result of climate change for either OPA Phase 1 or the Wider OPA. The construction phases take place during the shorter-term climate changes and the highest level of mitigation has been recommended in line with IAQM guidance. Any unlikely increased impacts as a result of climate change will be adequately mitigated.
- 7.10.4 Impacts from the climate change projections during the operational phase are more difficult to determine. Warmer and dryer summers could result in reduced vehicle use; however, warmer and wetter winters could result in an increased use in vehicle use.
- 7.10.5 It is not anticipated that any mitigation is required as a result of climate change. The modelled concentrations for both the OPA Phase 1 and the Wider OPA predict negligible impacts well below the relevant NAQOs, and it is unlikely that any climate change impacts would result in a change to these impacts.

7.11 ASSESSMENT SUMMARY

- 7.11.1 Table 7.28 and Table 7.29 summarises the construction effects and occupational effects both before and after mitigation to give the residual impact of the OPA Phase 1 and the Wider OPA respectively.

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OPA Phase 1

Table 7.28: Air Quality Assessment Summary

Environmental Effect	Sensitivity of Receptor	Nature of Impact	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
Construction Effects							
Demolition Activities	High	Temporary	Negligible	Not Significant	Specific measures to be included in the CEMP as outlined in Appendix 7.4	Negligible	Not Significant
Earthworks Activities	High	Temporary	Medium	Potentially Significant	Specific measures to be included in the CEMP as outlined in Appendix 7.4	Negligible	Not Significant
Construction Activities	High	Temporary	Medium	Potentially Significant	Specific measures to be included in the CEMP as outlined in Appendix 7.4	Negligible	Not Significant
Track out Activities	High	Temporary	Low	Potentially Significant	Specific measures to be included in the CEMP as outlined in Appendix 7.4	Negligible	Not Significant
Operation Effects							
Additional Road Traffic	High	Permanent	Negligible	Not Significant	None	Negligible	Not Significant
Cumulative Effects							
Effect	Description				Mitigation		Significance
Construction Effects	There is the potential for dust impacts from other nearby construction sites during overlapping construction phases.				Mitigation included within the CEMP will reduce dust impacts from the site and thus the cumulative impacts		Not Significant.
Operational Effects	The impact of road traffic effects from committed development within the area. This is included within the modelled traffic data and presented in the results.				Not required		Not Significant
Impact of Climate Change							
Effect	Description				Mitigation		Significance
Construction	Potential for increased dust impacts due to dryer and warmer weather				Not required		Not Significant
Operational Impacts	Climate change unlikely to change impacts of additional vehicle emissions				Not required		Not Significant

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Wider OPA

Table 7.29: Air Quality Assessment Summary

Environmental Effect	Sensitivity of Receptor	Nature of Impact	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
Construction Effects							
Demolition Activities	High	Temporary	Negligible	Not Significant	Specific measures to be included in the CEMP as outlined in Appendix 7.4	Negligible	Not Significant
Earthworks Activities	High	Temporary	Medium	Potentially Significant	Specific measures to be included in the CEMP as outlined in Appendix 7.4	Negligible	Not Significant
Construction Activities	High	Temporary	Medium	Potentially Significant	Specific measures to be included in the CEMP as outlined in Appendix 7.4	Negligible	Not Significant
Track out Activities	High	Temporary	Low	Potentially Significant	Specific measures to be included in the CEMP as outlined in Appendix 7.4	Negligible	Not Significant
Operation Effects							
Additional Road Traffic	High	Permanent	Negligible	Not Significant	None	Negligible	Not Significant
Cumulative Effects							
Effect	Description				Mitigation		Significance
Construction Effects	There is the potential for dust impacts from other nearby construction sites during overlapping construction phases.				Mitigation included within the CEMP will reduce dust impacts from the site and thus the cumulative impacts		Not Significant.
Operational Effects	The impact of road traffic effects from committed development within the area. This is included within the modelled traffic data and presented in the results.				Not required		Not Significant
Impact of Climate Change							
Effect	Description				Mitigation		Significance
Construction	Potential for increased dust impacts due to dryer and warmer weather				Not required		Not Significant
Operational Impacts	Climate change unlikely to change impacts of additional vehicle emissions				Not required		Not Significant

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Table 7.30: Mitigation Implementation

Mitigation Measure	Implementing Agent(s)	Legal Instrument	Compliance Target	Implementation Timescale
Construction Measures in CEMP	Contractor	Planning Condition		Construction Phase