

CHAPTER 7: AIR QUALITY

7.1 INTRODUCTION

7.1.1 This chapter of the ES Addendum (ESA) Statement has been produced by Hydrock to review and, where necessary, update the original assessment and findings of the Air Quality assessment and the conclusions presented in the original Air Quality ES chapter.

7.2 CONFIRMATION OF AND UPDATES TO BASELINE ENVIRONMENT

Legislative and Guidance context

7.2.1 Since the original Air Quality ES chapter was produced there have been a number of updates to the legislative and policy context. There have also been updates to local planning policy including the adoption of the new Eastleigh Local Plan, as well as updates to industry guidance specific to Air Quality. These updates are summarised below.

Air Quality Strategy (AQS) 2023

7.2.2 There are two sets of air quality legislation which include ambient air quality thresholds for the protection of public health that apply in England, these include legally binding limit values originally set by the European Union (EU) Directive 2008/50/EC on ambient air quality and cleaner air for Europe¹; and regulations implementing national air quality objectives as set out in the 2023 Air Quality Strategy for England (AQS)² which local authorities are required to work towards achieving.

7.2.3 The 2023 AQS sets out the government's policies and framework for improving air quality in England with the aim of meeting the requirements of above legislation. The AQS also outlines the Limit Values, Target Values, Standards, Objectives, Critical Levels and Exposure Reduction Targets for the protection of human health and the environment (collectively termed Air Quality Assessment Levels (AQALs) throughout this chapter (previously referred to as National Air Quality Objectives (NAQOs)). The Environmental Targets (Fine Particulate Matter) (England)

¹ <https://eur-lex.europa.eu/eli/dir/2008/50/oj>

² <https://www.gov.uk/government/publications/the-air-quality-strategy-for-england>

Regulations 2023³ also brought forward a new target level for PM_{2.5}. Those relevant to this assessment are outlined below in Table 7.1:

Table 7.1: Air Quality Assessment Levels

Pollutant	Air Quality Assessment Levels	
Nitrogen dioxide (NO ₂)	Annual mean	40 µg/m ³
	1 hour mean (not to be exceeded more than 18 times per year)	200 µg/m ³
PM ₁₀	Annual mean	40 µg/m ³
	24-hour mean (not to be exceeded more than 35 times per year)	50 µg/m ³
PM _{2.5}	Annual mean	20 µg/m ³
	Annual Mean Concentration Target (AMCT) - To be met across England by 2040	10 µg/m ³
	Population Exposure Reduction Target ('exposure target')	35% reduction in population exposure by 2040 (compared to a base year of 2018).

7.2.4 With reference to the AMCT for PM_{2.5}, it should be noted that the date for compliance is 2040. The applicable PM_{2.5} AQAL for the purposes of this assessment is therefore the current AQAL of 20µg/m³.

National Planning Policy Framework (NPPF)

7.2.5 The NPPF has been revised several times, most recently in December 2023⁴. For completeness the new paragraph references relevant for Air Quality are summarised below:

7.2.6 The NPPF requires planning decisions for any new development to prevent new and existing development from contributing to, or being put at risk from, unacceptable levels of air pollution (paragraph 180). It also states that planning decisions should sustain and contribute towards compliance with relevant limit values or national objectives for air pollutants, taking into account

³ <https://www.legislation.gov.uk/uksi/2023/96/contents/made>

⁴ https://assets.publishing.service.gov.uk/media/65a11af7e8f5ec000f1f8c46/NPPF_December_2023.pdf

the presence of Air Quality Management Areas (AQMAs) and Clean Air Zones (CAZ)s (paragraph 192), and the cumulative impacts from other sites (paragraph 191).

- 7.2.7 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 AQMAs and CAZs is consistent with the local air quality action plan.
- 7.2.8 Also, to help reduce congestion and emissions and improve air quality and public health, significant development should be focused on locations which are / can be made sustainable through limiting the need to travel (paragraph 109).

Local Air Quality Management (LAQM)

- 7.2.9 Defra's Local Air Quality Management Technical Guidance 2022 (LAQM.TG (22))⁵ supersedes the previous LAQM.TG (16), and was published after the previous round of assessment. It provides guidance on where the above AQAL's should apply.
- 7.2.10 Obligations under the Environment Act 2021⁶ (which provides an amendment to the Environment Act 1995) requires local authorities to review and assess air quality in their administrative boundaries. Where AQALs are predicted to be exceeded, the local authority must declare an AQMA at sensitive receptor locations and formulate an Air Quality Action Plan (AQAP) to reduce pollution concentrations to values below AQALs.

Eastleigh Local Plan

- 7.2.11 Within the original Air Quality ES chapter, the previous Eastleigh Local Plan (2001-2011) was referenced, and relevant policies within the (at the time) emerging Local Plan were also reviewed. The Eastleigh Local Plan 2016-2036⁷ was adopted in April 2022 and represents an evolution of the previous Local Plan. The previous assessment was undertaken in light of the emerging plan and therefore its adoption does not result in any fundamental changes. However, for completeness, relevant policies in relation to air quality include Policy DM8, Pollution, which states:

⁵ <https://laqm.defra.gov.uk/wp-content/uploads/2022/08/LAQM-TG22-August-22-v1.0.pdf>

⁶ <https://www.legislation.gov.uk/ukpga/2021/30/contents>

⁷ <https://www.eastleigh.gov.uk/media/11806/to-be-published-final-local-plan-april-2022-v4.pdf>

“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 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...”

7.2.12 Finally, the Wider OPA Site is allocated within the adopted Local Plan as site HH1.

Baseline Conditions

7.2.13 Eastleigh Borough Council (EBC) has a statutory duty to investigate 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, which are reported annually.

7.2.14 At the time of preparing the original ES, annual mean data were available until 2019, as summarised in section 7.4 of the original ES chapter. However, data are available for 3 additional years (2020 – 2022), as reported in the 2023 Annual Status Report⁸, which are summarised in section 7.4 of this chapter.

Assessment Tools

Construction Phase

7.2.15 There has been a 2024 update to the Institute of Air Quality Management (IAQM) guidance⁹, therefore an updated Construction Dust Risk Assessment has been undertaken. Further details are provided in section 7.4 of this chapter, supplemented by Appendix 7.1.

Operational Phase

Emissions Factor Toolkit

7.2.16 The previous operational phase dispersion modelling assessment was based upon Emissions Factor Toolkit v.10, which was the latest available at the time of preparing the original Air Quality ES chapter.

⁸ <https://www.eastleigh.gov.uk/media/14253/annual-air-quality-report-2023.pdf>

⁹ <https://iaqm.co.uk/wp-content/uploads/2013/02/Construction-Dust-Guidance-Jan-2024.pdf>

7.2.17 However, in the intervening period, there have been a number of new versions of the EFT, and the latest available version, at the time of writing, is EFT v.12¹⁰. As such, a revised dispersion modelling assessment has been undertaken using this latest version of EFT.

Traffic Data

7.2.18 Full details of changes to the traffic and transport assessment are provided in ESA chapter 8. The authors of the chapter, Paul Basham Associates (PBA), have confirmed that there have not been any significant developments in the study area which may have had a particular impact on the baseline traffic flows, noting that TEMPro growth factors and committed developments were applied as part of the assessment.

7.2.19 In addition, the list of committed development lists does not include any new or evolving committed development sites which would need to be re-considered or which may impact the assessment undertaken thus far. PBA have confirmed that the traffic data inputs used for the previous dispersion modelling are still considered appropriate.

7.3 REVIEW OF PREVIOUS ASSESSMENTS AND CONCLUSIONS

7.3.1 The following assessments have been undertaken previously:

- Original Air Quality ES chapter, December 2020;
- April 2021 Technical Note
 - Document reference C-09820-C_OHH_Response_AQ;
 - This responded directly to a number of technical queries raised by EBC during determination, following submission of the original ES chapter. In particular this technical note reported additional and supplementary modelling data, included a PM₁₀ model adjustment factor and a separate model adjustment factor for the Eastleigh AQMA No.1 applied to R35, on Southampton Road;
- ES Addendum, May 2021
 - Prepared in response to a series of minor changes made to the One Horton Heath project;

¹⁰ <https://laqm.defra.gov.uk/air-quality/air-quality-assessment/emissions-factors-toolkit/>

- At the time the revised EIA parameters did not result in changes that would alter the assessment of potential effects, and the conclusions reached in Chapter 7: Air Quality of the original ES. Accordingly, no additional technical assessment was prepared;
- June 2021 Letter Response
 - Document reference OHH-HYD-ZZ-XX-LT-2001-P01;
 - This provided a number of additional points of clarity in relation to construction dust, odour, energy strategy and mitigation measures;
- ES Addendum, December 2021
 - Prepared as part of the Phase 3 Link Road application ESA, which concluded on likely significant effects;
 - A supplementary air quality assessment was prepared (ref: 17826-Air_Quality_Ecological_Assessment-P02) in response Natural England's statutory consultee response. The supplementary air quality assessment formed Appendix 7.1 to the December 2021 ES Addendum;
 - This supplementary assessment showed that the predicted changes in NO_x, NH₃, nutrient nitrogen deposition and acid deposition are considered to be insignificant in the context of the Site relevant Critical Levels and Critical Loads, which is consistent with the findings of the Local Plan Habitats Regulation Assessment (HRA)¹¹.

Construction Phase Assessment

7.3.2 The Original Air Quality ES chapter showed that the Proposed Development was High Risk for adverse impacts during construction, as a worst-case, in the absence of mitigation. To effectively reduce the risk of impacts to negligible, appropriate mitigation measures should be adopted.

7.3.3 An updated Construction Dust Risk Assessment has been undertaken in accordance with the 2024 IAQM guidance to ensure that appropriate mitigation measures are adopted.

¹¹ <https://www.eastleigh.gov.uk/media/11217/hra-addendum.pdf>

Operational Phase Assessment

7.3.4 All previous assessments in turn have concluded that the operational phase of the Proposed Development will not result in any significant effects as the overall impacts will be Negligible.

7.3.5 However, despite confirmation that there are no changes to traffic data used in the previous assessments, the latest version of EFT v12 has been used to re-model the previous assessment to ensure that the conclusions are appropriate for decision making in 2024 in accordance with the latest available fleet emissions projections.

7.3.6 To this end, EFT v12 has been used to re-run the following model scenarios:

- Baseline/Verification 2019;

Assessment of Wider Outline Planning Application (OPA):

- 2030 DM – Baseline 2030 + Committed Development, and
- 2030 DS – Baseline 2030 + Committed Development + Wider OPA

7.3.7 A number of additional improvements and adjustments have been made to the modelling in order to consolidate various comments received during consultations on the Original Air Quality ES chapter and associated addendums, which resulted in a number of updates, technical notes and new modelling datasets.

Ecological Impact Assessment

7.3.8 In preparing this updated ES chapter, no further assessment of operational phase ecological impacts has been undertaken. As the Wider OPA Site is allocated within the local plan (HH1), it is appropriate to 'defer upwards' to the Local Plan HRA, which concludes no adverse effect to the integrity of ecological receptors in terms of atmospheric pollution. This is appropriate in the context of paragraph 5.3.3 of the IAQM's guidance, which states:

"the assessor should first investigate whether the air quality issues have already been fully explored for the Local Plan HRA. If this has been done, then it would be appropriate and in line with government guidance to defer to that over-arching Local Plan assessment. This should be a suitable approach for windfall developments as well as actual allocations, as Local Plans all make an allowance for a specified quantum of windfall development in particular locations and this should be included in the strategic Local Plan air quality assessment and HRA."

7.3.9 The remainder of this chapter focuses on updates the operational phase assessment of human health.

7.4 ASSESSMENT SUMMARY

Baseline Assessment

AQMAs

7.4.1 EBC have declared four AQMAs for the exceedances of the NO₂ AQAL. No additional AQMAs have been declared since the preparation of the original ES.

Local Authority Monitoring

7.4.2 Baseline data for 3 additional years (2020 – 2022) are summarised below. The locations of these monitoring sites are shown in Figure 7.2 of the original Air Quality ES chapter.

Table 7.2: EBC Automatic Monitoring Data from ES1

Pollutant	AQAL	Annual mean NO ₂ concentration (µg/m ³)			
		2019	2020	2021	2022
NO ₂	Annual Mean (AQAL; 40µg/m ³)	34.1	26.3	-	28.2
	Number of hours the 1-hour mean >200µg/m ³ (18 exceedances of the 1-hour mean)	0	0	-	0
PM ₁₀	Annual Mean (AQAL 40µg/m ³)	21.1	16.9	-	-
	Number of hours the 24-hour mean >50µg/m ³ (35 exceedances of the 24-hour mean)	0	0	0	0

Table 7.3: EBC Diffusion Tube Monitoring Data

Site ID	Site Location (X,Y)	In AQMA?	Annual mean NO ₂ concentration (µg/m ³)			
			2019	2020	2021	2022
JW	447690,114912	No	21.3	16.5	17.4	18.6
SWA	446170,114603	No	28.6	24.1	23.6	24.5
AL	445908,115544	No	23.5	19.0	19.8	20.7
BOT	449634,117382	No	31.9	27.6	28.0	27.3
FOR	447427,118780	No	20.1	17.6	17.3	16.8
BR	446604,119149	No	33.8	29.6	29.0	30.5
BR2	446051,119171	No	31.3	26.8	26.6	27.2
TW	445739,119856	No	24.7	22.5	22.4	22.2
MS	445707,119619	No	26.4	22.9	24.2	25.0
SRAN (17)	445495,118237	Yes	26.6	29.4	33.1	28.9
SR1	445450,118144	Yes	43.6	33.1	28.9	36.3
SR2	445651,118634	Yes	37.6	31.7	36.1	34.2
CA(15)	445339,118111	No	23.9	21.5	21.3	20.9
WYV	449577,118165	No	24.1	23.4	24.7	23.6
FORSL	448788,118553	No	28.0	23.4	23.9	24.6
Bold denotes exceedance of the annual mean AQAL						

7.4.3 Table 7.2 and Table 7.3 show that, overall, nearby monitoring indicates concentrations were below the AQALs in 2019, except at SR1 which measured 43.6 µg/m³ and is located within the AQMA. No exceedances of the short term NO₂ or PM₁₀ objectives were observed at ES1 in 2019.

7.4.4 Table 7.2 and Table 7.3 show that, since 2019 overall, nearby monitoring indicates concentrations have remained below the AQAL in the subsequent 3 year trend. However, it is acknowledged that the impact of COVID-19 may have resulted in anomalous data, particularly

during 2020 and 2021. Therefore, these years should be treated with caution. Comparison between 2022 and 2019 data at all sites shows that annual mean concentrations have declined, with only one diffusion tube considered to be 'at risk' of exceedance (i.e., within 10% of the AQAL) at SR1 in 2022.

- 7.4.5 In addition to the above, there are additional diffusion tube data reported on the EBC website in raw format¹². However, while 2023 data is available, the results are reported as provisional, and have not yet been appropriately processed and bias adjusted. As such, the data is not reproduced in this chapter. There is also additional data for the automatic reference station ES1 on the Air Quality England website¹³, which is fully ratified up to the end of 2023.
- 7.4.6 It is noted that the previous ES included a 2023 assessment scenario for the First Residential Parcel (FRP). Therefore, it is considered a useful exercise to compare the 2023 modelled data with recent monitoring data. For this, modelled outputs at Receptor R35 have been used, as this is located at Southampton Road in Eastleigh AQMA No.1, in proximity to the automatic reference station ES1. In addition, concerns were raised in the initial determination period over the accuracy of modelled outputs, particularly in this AQMA.
- 7.4.7 The 2023 annual mean NO₂ modelled concentration for R35 in the original ES (as reported in Table 2 of the April 2021 technical note) were 28.9 µg/m³ in the DS scenario. The 2022 annual mean concentration monitored at ES1, as reported in the EBC 2023 ASR⁸ and summarised above in Table 7.2, was 28.2 µg/m³. Furthermore, the ratified 2023 annual mean concentration monitored at ES1, as reported on the Air Quality England website, was 23 µg/m³. This comparison raises confidence in the original outputs of the dispersion model forecasts.

Construction Phase Assessment

- 7.4.8 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.
- 7.4.9 An updated construction dust risk assessment has been undertaken in accordance with IAQM's updated 2024 guidance. This is provided in Appendix 7.1 of this ESA. No changes to the development parameters originally assessed have been made.

¹² <http://eastleigh.my-air.uk/diffusion-tube-data/>

¹³ https://www.airqualityengland.co.uk/site/statistics?site_id=ES001

7.4.10 The qualitative construction dust risk assessment shows that the Proposed Development remains High Risk for adverse impacts during construction, as a worst-case, in the absence of mitigation.

7.4.11 To effectively reduce the risk of impacts to negligible, appropriate mitigation measures should be adopted. The IAQM provides guidance for mitigation measures which is considered to be best-practice for the UK. Recommended measures are provided in Appendix 7.2.

Operational Phase Assessment

Methodology

7.4.12 Table 7.11 of the original Air Quality ES chapter provides the criteria used to determine the magnitude of impacts. These criteria remain appropriate and are referred to again in this Addendum. Negligible and Slight impacts are described as Not Significant effects and Moderate and Substantial impacts are described as Significant effects.

7.4.13 Table 7.12 and Figure 7.1 of the original Air Quality ES chapter summarise the operational phase human receptors considered, and the extent of the study area. The same human receptor locations have been assessed in this Addendum.

7.4.14 Background data used in the dispersion model are derived from UK-AIR¹⁴. Estimated future concentrations for 2030 by Defra were used for the future year projections. Meteorological data used in the model are consistent with the latest round of assessment, derived from Southampton Airport (2019).

7.4.15 The model verification exercise has been updated in accordance with EFT v12 vehicle fleet emissions factors, and to consolidate the additional verification exercises which were undertaken in supplementary studies. Full details of the renewed verification exercise are provided in Appendix 7.3 of this ESA, which resulted in the following adjustment factors being applied:

- Main study area:
 - NO₂ adjustment factor **1.069**;
- Eastleigh AQMA No. 1 study area:

¹⁴ <https://uk-air.defra.gov.uk/data/laqm-background-maps?year=2018>

- NO₂ adjustment factor **2.670**; and
- ES1 Automatic Monitoring Site: PM₁₀ and PM_{2.5} adjustment factor **3.160**.
 - The verification factors for the Eastleigh AQMA No.1 study area have been applied to the model outputs for the following receptors only, which are located within or in close proximity to the Eastleigh AQMA No.1 study area:
 - R09, R44, R28, R34, and R35.

Updated Operational Phase Assessment Results – 2030 Wider OPA

7.4.16 Annual mean concentrations of NO₂, PM₁₀ and PM_{2.5} have been re-modelled both without and with the Wider OPA in the 2030 assessment year using EFT v12. The results are shown in Tables 7.4, 7.5 and 7.6 below. The tables also report the Environmental Protection UK (EPUK) & IAQM magnitude of impact descriptors. Impacts of Slight Adverse or below are not considered significant.

Table 7.4: Annual Mean NO₂ Modelling Results

Receptor	DM (µg/m ³)	DS (µg/m ³)	Concentration Change (µg/m ³)	DS % of AQAL	% Change of AQAL	EPUK & IAQM Impact Descriptor
R01	25.0	25.3	0.3	63.2%	1	Negligible
R02	14.5	14.7	0.2	36.7%	0	Negligible
R03	18.3	18.7	0.4	46.8%	1	Negligible
R04	15.7	15.8	0.1	39.6%	0	Negligible
R05	15.1	15.2	0.1	38.0%	0	Negligible
R06	15.7	15.9	0.2	39.6%	0	Negligible
R07	14.2	14.4	0.2	35.9%	0	Negligible
R08	13.5	13.7	0.2	34.1%	0	Negligible
R09	24.1	24.6	0.5	61.5%	1	Negligible
R10	14.6	15.2	0.6	37.9%	2	Negligible
R11	13.7	13.9	0.2	34.9%	1	Negligible
R12	13.7	14.2	0.4	35.4%	1	Negligible
R13	14.9	15.2	0.3	38.0%	1	Negligible
R14	14.1	14.4	0.3	35.9%	1	Negligible
R15	16.3	16.5	0.2	41.2%	0	Negligible
R16	15.4	15.5	0.1	38.9%	0	Negligible
R17	16.9	17.1	0.2	42.8%	0	Negligible
R18	19.0	19.6	0.6	49.0%	1	Negligible
R19	14.0	14.2	0.2	35.5%	0	Negligible

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Receptor	DM (µg/m³)	DS (µg/m³)	Concentration Change (µg/m³)	DS % of AQAL	% Change of AQAL	EPUK & IAQM Impact Descriptor
R20	13.9	14.1	0.2	35.3%	0	Negligible
R21	14.5	14.7	0.2	36.6%	0	Negligible
R22	15.5	15.8	0.3	39.4%	1	Negligible
R23	15.0	15.1	0.1	37.8%	0	Negligible
R24	17.1	17.4	0.3	43.5%	1	Negligible
R25	19.0	19.6	0.6	48.9%	1	Negligible
R26	16.9	17.1	0.2	42.8%	1	Negligible
R27	16.0	16.2	0.2	40.5%	0	Negligible
R28	23.4	23.8	0.4	59.6%	1	Negligible
R29	24.4	24.5	0.1	61.3%	0	Negligible
R30	16.3	16.5	0.2	41.2%	0	Negligible
R31	15.6	15.7	0.1	39.3%	0	Negligible
R32	15.6	15.9	0.3	39.8%	1	Negligible
R33	16.5	16.8	0.3	42.0%	1	Negligible
R34	25.9	26.3	0.4	65.6%	1	Negligible
R35	21.8	21.8	<0.1	54.5%	0	Negligible
R36	19.4	19.4	<0.1	48.6%	0	Negligible
R37	20.5	20.6	0.1	51.4%	0	Negligible
R38	19.5	19.6	0.1	49.0%	0	Negligible
R39	19.1	19.1	<0.1	47.9%	0	Negligible
R40	25.0	25.2	0.2	62.9%	0	Negligible
R41	23.9	23.9	<0.1	59.8%	0	Negligible
R42	18.7	18.8	<0.1	46.9%	0	Negligible
R43	19.2	19.2	<0.1	48.1%	0	Negligible
R44	20.9	21.2	0.3	53.1%	1	Negligible
R45	15.7	16.0	0.3	40.0%	1	Negligible
R46	15.5	15.8	0.3	39.6%	1	Negligible
R47	21.3	21.5	0.2	53.9%	1	Negligible
R48	21.2	21.4	0.2	53.5%	1	Negligible
R49	20.5	20.8	0.3	52.0%	1	Negligible
R50	23.6	23.7	0.1	59.4%	0	Negligible
R51	24.1	24.3	0.2	60.7%	1	Negligible
R52	21.0	21.2	0.2	53.1%	0	Negligible
R53	25.3	25.5	0.2	63.6%	0	Negligible
R54	18.8	19.3	0.5	48.2%	1	Negligible
R55	25.4	25.6	0.2	64.1%	1	Negligible
R56	25.4	25.6	0.2	64.1%	1	Negligible
R57	25.3	25.5	0.2	63.8%	0	Negligible
R58	23.7	23.8	0.1	59.4%	0	Negligible
R59	18.0	18.7	0.7	46.8%	2	Negligible

Receptor	DM ($\mu\text{g}/\text{m}^3$)	DS ($\mu\text{g}/\text{m}^3$)	Concentration Change ($\mu\text{g}/\text{m}^3$)	DS % of AQAL	% Change of AQAL	EPUK & IAQM Impact Descriptor
R60	16.0	16.1	0.1	40.3%	0	Negligible
R61	14.9	15.3	0.4	38.2%	1	Negligible
R62	16.6	16.7	0.1	41.7%	0	Negligible
R63	14.4	14.8	0.3	36.9%	1	Negligible
R64	14.9	14.9	<0.1	37.4%	0	Negligible
R65	17.3	17.8	0.5	44.5%	1	Negligible
R66	21.3	21.5	0.2	53.7%	0	Negligible
R67	21.7	21.8	0.1	54.4%	0	Negligible

7.4.17 The results indicate that annual mean NO_2 concentrations at all modelled receptor locations are below the annual mean AQAL. The modelled EPUK & IAQM impact descriptor is Negligible at all receptor locations. As such, no significant effects are predicted.

Table 7.5: Annual Mean PM_{10} Modelling Results

Receptor	DM ($\mu\text{g}/\text{m}^3$)	DS ($\mu\text{g}/\text{m}^3$)	Concentration Change ($\mu\text{g}/\text{m}^3$)	DS % of AQAL	% Change of AQAL	EPUK & IAQM Impact Descriptor
R01	19.3	19.5	0.2	48.8%	1	Negligible
R02	14.8	14.9	0.1	37.3%	0	Negligible
R03	17.0	17.3	0.3	43.2%	1	Negligible
R04	15.8	15.9	0.1	39.7%	0	Negligible
R05	15.4	15.5	0.1	38.6%	0	Negligible
R06	15.8	15.9	0.1	39.7%	0	Negligible
R07	14.8	14.9	0.1	37.2%	0	Negligible
R08	14.3	14.4	0.1	36.0%	0	Negligible
R09	22.7	23.2	0.5	58.0%	1	Negligible
R10	15.1	15.5	0.4	38.8%	1	Negligible
R11	14.4	14.6	0.2	36.4%	0	Negligible
R12	14.4	14.7	0.3	36.8%	1	Negligible
R13	14.3	14.5	0.2	36.2%	0	Negligible
R14	14.8	15.0	0.2	37.4%	0	Negligible
R15	16.1	16.2	0.1	40.4%	0	Negligible
R16	15.5	15.6	0.1	39.0%	0	Negligible
R17	16.8	16.9	0.1	42.2%	0	Negligible
R18	16.9	17.4	0.5	43.4%	1	Negligible
R19	14.6	14.7	0.1	36.9%	0	Negligible
R20	14.5	14.7	0.1	36.7%	0	Negligible
R21	15.0	15.1	0.1	37.8%	0	Negligible
R22	15.4	15.6	0.2	39.0%	0	Negligible

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Receptor	DM (µg/m³)	DS (µg/m³)	Concentration Change (µg/m³)	DS % of AQAL	% Change of AQAL	EPUK & IAQM Impact Descriptor
R23	14.6	14.7	0.1	36.8%	0	Negligible
R24	16.2	16.4	0.2	40.9%	0	Negligible
R25	16.9	17.3	0.4	43.4%	1	Negligible
R26	15.4	15.5	0.2	38.8%	0	Negligible
R27	15.3	15.5	0.2	38.7%	0	Negligible
R28	22.1	22.5	0.4	56.2%	1	Negligible
R29	18.7	18.7	0.1	46.8%	0	Negligible
R30	16.6	16.8	0.2	41.9%	0	Negligible
R31	15.7	15.8	0.1	39.6%	0	Negligible
R32	16.1	16.3	0.2	40.7%	0	Negligible
R33	16.8	17.0	0.2	42.4%	0	Negligible
R34	22.3	22.7	0.4	56.7%	1	Negligible
R35	19.3	19.3	<0.1	48.3%	0	Negligible
R36	17.0	17.0	<0.1	42.5%	0	Negligible
R37	17.8	17.9	0.1	44.7%	0	Negligible
R38	17.1	17.1	<0.1	42.8%	0	Negligible
R39	16.7	16.8	0.1	42.0%	0	Negligible
R40	19.0	19.1	0.1	47.7%	0	Negligible
R41	18.4	18.4	<0.1	46.0%	0	Negligible
R42	16.4	16.4	<0.1	41.1%	0	Negligible
R43	16.7	16.7	<0.1	41.9%	0	Negligible
R44	19.8	20.1	0.3	50.2%	1	Negligible
R45	16.1	16.3	0.2	40.8%	0	Negligible
R46	15.9	16.2	0.3	40.4%	1	Negligible
R47	17.1	17.3	0.2	43.2%	0	Negligible
R48	17.0	17.2	0.2	42.9%	0	Negligible
R49	17.5	17.7	0.2	44.2%	1	Negligible
R50	18.2	18.3	0.1	45.7%	0	Negligible
R51	18.6	18.7	0.1	46.8%	0	Negligible
R52	17.8	17.9	0.1	44.8%	0	Negligible
R53	19.2	19.3	0.1	48.2%	0	Negligible
R54	16.6	16.9	0.3	42.3%	1	Negligible
R55	19.2	19.4	0.2	48.5%	0	Negligible
R56	19.2	19.4	0.2	48.5%	0	Negligible
R57	19.2	19.3	0.1	48.3%	0	Negligible
R58	18.2	18.3	0.1	45.7%	0	Negligible
R59	16.5	17.1	0.6	42.7%	1	Negligible
R60	15.9	16.0	0.1	39.9%	0	Negligible
R61	15.3	15.6	0.3	39.0%	1	Negligible
R62	16.2	16.3	0.1	40.8%	0	Negligible

Receptor	DM ($\mu\text{g}/\text{m}^3$)	DS ($\mu\text{g}/\text{m}^3$)	Concentration Change ($\mu\text{g}/\text{m}^3$)	DS % of AQAL	% Change of AQAL	EPUK & IAQM Impact Descriptor
R63	15.0	15.2	0.2	38.1%	1	Negligible
R64	15.2	15.3	<0.1	38.2%	0	Negligible
R65	16.0	16.4	0.4	41.0%	1	Negligible
R66	18.0	18.1	0.1	45.2%	0	Negligible
R67	18.4	18.5	0.1	46.2%	0	Negligible

7.4.18 The results indicate that annual mean PM_{10} concentrations at all modelled receptor locations are below the annual mean AQAL. The modelled EPUK & IAQM impact descriptor is Negligible at all receptor locations. As such, no significant effects are predicted.

Table 7.6: Annual Mean $\text{PM}_{2.5}$ Modelling Results

Receptor	DM ($\mu\text{g}/\text{m}^3$)	DS ($\mu\text{g}/\text{m}^3$)	Concentration Change ($\mu\text{g}/\text{m}^3$)	DS % of AQAL	% Change of AQAL	EPUK & IAQM Impact Descriptor
R01	12.8	12.9	0.1	64.5%	1	Negligible
R02	10.1	10.1	<0.1	50.7%	0	Negligible
R03	11.2	11.4	0.2	56.9%	1	Negligible
R04	10.6	10.6	<0.1	53.2%	0	Negligible
R05	10.4	10.4	<0.1	52.1%	0	Negligible
R06	10.6	10.6	<0.1	53.2%	0	Negligible
R07	10.0	10.0	<0.1	50.1%	0	Negligible
R08	9.7	9.8	0.1	48.9%	0	Negligible
R09	14.6	14.9	0.3	74.3%	1	Negligible
R10	10.0	10.2	0.2	51.2%	1	Negligible
R11	9.9	9.9	<0.1	49.7%	0	Negligible
R12	9.9	10.0	0.1	50.2%	1	Negligible
R13	9.8	9.9	0.1	49.4%	0	Negligible
R14	9.9	10.0	0.1	49.8%	0	Negligible
R15	10.9	11.0	0.1	54.9%	0	Negligible
R16	10.7	10.7	<0.1	53.5%	0	Negligible
R17	11.3	11.4	0.1	56.9%	0	Negligible
R18	11.3	11.5	0.2	57.5%	1	Negligible
R19	9.9	10.0	0.1	49.8%	0	Negligible
R20	9.9	9.9	<0.1	49.6%	0	Negligible
R21	10.1	10.1	<0.1	50.7%	0	Negligible
R22	10.4	10.5	0.1	52.4%	1	Negligible
R23	10.0	10.0	<0.1	50.2%	0	Negligible
R24	10.8	10.9	0.1	54.6%	0	Negligible
R25	11.2	11.5	0.2	57.4%	1	Negligible

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Receptor	DM (µg/m³)	DS (µg/m³)	Concentration Change (µg/m³)	DS % of AQAL	% Change of AQAL	EPUK & IAQM Impact Descriptor
R26	10.4	10.5	0.1	52.6%	0	Negligible
R27	10.4	10.5	0.1	52.3%	0	Negligible
R28	14.3	14.5	0.2	72.4%	1	Negligible
R29	12.4	12.5	0.1	62.3%	0	Negligible
R30	11.3	11.3	<0.1	56.7%	0	Negligible
R31	10.8	10.8	<0.1	54.1%	0	Negligible
R32	11.0	11.1	0.1	55.4%	0	Negligible
R33	11.3	11.4	0.1	57.2%	1	Negligible
R34	14.6	14.8	0.2	73.8%	1	Negligible
R35	13.0	13.0	<0.1	64.8%	0	Negligible
R36	11.6	11.7	0.1	58.3%	0	Negligible
R37	12.1	12.1	<0.1	60.6%	0	Negligible
R38	11.7	11.7	<0.1	58.6%	0	Negligible
R39	11.5	11.5	<0.1	57.7%	0	Negligible
R40	12.5	12.6	0.1	62.9%	0	Negligible
R41	12.3	12.3	<0.1	61.6%	0	Negligible
R42	11.3	11.4	0.1	56.8%	0	Negligible
R43	11.5	11.5	<0.1	57.7%	0	Negligible
R44	13.1	13.2	0.1	66.1%	1	Negligible
R45	11.0	11.1	0.1	55.4%	1	Negligible
R46	10.9	11.0	0.1	55.0%	1	Negligible
R47	11.4	11.5	0.1	57.6%	0	Negligible
R48	11.4	11.5	0.1	57.3%	0	Negligible
R49	11.8	11.9	0.1	59.5%	1	Negligible
R50	12.2	12.3	0.1	61.3%	0	Negligible
R51	12.4	12.5	0.1	62.4%	0	Negligible
R52	11.9	12.0	0.1	60.1%	0	Negligible
R53	12.6	12.7	0.1	63.5%	0	Negligible
R54	11.1	11.3	0.2	56.3%	1	Negligible
R55	12.7	12.8	0.1	63.9%	0	Negligible
R56	12.7	12.8	0.1	63.9%	0	Negligible
R57	12.6	12.7	0.1	63.6%	0	Negligible
R58	12.2	12.3	0.1	61.3%	0	Negligible
R59	11.1	11.4	0.3	57.1%	1	Negligible
R60	10.8	10.9	0.1	54.5%	0	Negligible
R61	10.1	10.3	0.1	51.5%	1	Negligible
R62	11.0	11.1	0.1	55.4%	0	Negligible
R63	10.0	10.1	0.1	50.5%	1	Negligible
R64	10.5	10.5	<0.1	52.7%	0	Negligible
R65	10.9	11.1	0.2	55.3%	1	Negligible

Receptor	DM ($\mu\text{g}/\text{m}^3$)	DS ($\mu\text{g}/\text{m}^3$)	Concentration Change ($\mu\text{g}/\text{m}^3$)	DS % of AQAL	% Change of AQAL	EPUK & IAQM Impact Descriptor
R66	12.0	12.1	0.1	60.5%	0	Negligible
R67	12.3	12.3	<0.1	61.5%	0	Negligible

7.4.19 The results indicate that annual mean $\text{PM}_{2.5}$ concentrations at all modelled receptor locations are below the annual mean AQAL. The modelled EPUK & IAQM impact descriptor is Negligible at all receptor locations. As such, no significant effects are predicted.

Summary

7.4.20 Upon review of the original Air Quality ES chapter, its associated Addendums and the findings of this updated assessment, which seeks to ensure the Proposed Development is tested against the latest available guidance and assessment tools, it is concluded that all previously reported conclusions on likely significant effects being Negligible remain valid and appropriate for decision making in 2024.

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Table 7.7: 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 Phase Effects							
Earthworks Activities	High	Temporary	Large	Not assigned pre-mitigation	Specific measures to be included in the CEMP as outlined in Appendix 7.2	Negligible	Not Significant
Construction Activities	High	Temporary	Large	Not assigned pre-mitigation	Specific measures to be included in the CEMP as outlined in Appendix 7.2	Negligible	Not Significant
Trackout Activities	High	Temporary	Medium	Not assigned pre-mitigation	Specific measures to be included in the CEMP as outlined in Appendix 7.2	Negligible	Not Significant
Operational Phase Effects							
Emissions from Additional Road Traffic	High	Permanent	Negligible	Not Significant	None	Negligible	Not Significant
Cumulative Effects							
Effect	Description				Mitigation		Significance
Construction Phase 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 Proposed Development and thus the cumulative impacts		Not Significant.
Operational Phase Effects	The operational effects of the Proposed Development described in this chapter relating to road traffic emissions have been assessed in-combination with committed developments. This approach has been taken as it is not practicable to separate the impacts of road traffic emissions from each of the committed developments as the road network will be shared by the Proposed Development and the committed developments.				Not required		Not Significant
Impact of Climate Change – as reported in the original ES							
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 7.8:



Mitigation Implementation

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