



Maple Place, Eastleigh

Air Quality Assessment

June 2023

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Comments

Comments

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Executive Summary

Planning permission is sought for the development of land located on the corner of Derby Road and Chamberlayne Road, Eastleigh, Hampshire. The proposals are for the *“Construction of 12no. dwellings comprising of 9no. apartments and 3no. houses, with associated landscaping, parking and access from Derby Road”*.

The main likely effects on local air quality during construction relates to nuisance dust. A range of mitigation measures to minimise or prevent dust emissions would be implemented through the construction works. This would ensure effects would be not significant at all local sensitive receptor locations.

With the implementation of a range of appropriate management practices, the effects associated with construction vehicles would be not significant.

Any emissions from equipment and machinery operating during construction would be small and would not significantly affect air quality.

The Development would not result in a change in Annual Average Daily Traffic of more than 100 light duty vehicle flows or 25 heavy duty vehicle flows within or adjacent to an Air Quality Management Area, or a change of more than 500 light duty vehicle flows or 100 heavy duty vehicle flows elsewhere. The change in vehicle flows would therefore be below the Environmental Protection UK and Institute of Air Quality Management (EPUK/IAQM) guidance criteria. In addition, the development would not include any centralised combustion plant, and therefore would not give rise to any significant adverse air quality impacts.

Based on the low trip generation and absence of a centralised combustion plant, according to the EPUK/IAQM guidance, the Development is not expected to give rise to air quality impacts. As such the likely effect of the operational Development on local air quality would not be significant.

A review of the local monitoring data, and Defra background maps, conclude future concentrations for users of the Development would be not significant.

1. INTRODUCTION

Overview

- 1.1. Waterman Infrastructure & Environment Limited ('Waterman') has been instructed by Aspect (Eastleigh) Ltd to support a planning application for the development of land located on the corner of Derby Road and Chamberlayne Road, Eastleigh, Hampshire, hereafter referred to as 'the Site'. The Site falls within the Eastleigh Borough Council (EBC).

- 1.2. The description of development is as follows:

"Construction of 12no. dwellings comprising of 9no. apartments and 3no. houses, with associated landscaping, parking and access from Derby Road", hereafter referred to as the Development.

Context

- 1.3. EBC has declared four Air Quality Management Areas (AQMAs) for exceedances of the annual mean NO₂ Air Quality Strategy (AQS) objective. Eastleigh AQMA No.1 (A335) is the closest to the Site, located approximately 370m to the east.
- 1.4. The most significant pollutant during construction relates to the creation of nuisance dust and emissions from construction vehicles and construction plant. A qualitative assessment has been undertaken based on relevant air quality guidance.
- 1.5. With regards to the operational phase, the Environmental Protection UK and Institute of Air Quality Management planning development guidance (EPUK/IAQM guidance)¹, summarised in **Appendix A**, sets out criteria for when an air quality assessment is required to accompany a planning application.
- 1.6. The guidance states an air quality assessment is required if there is a change of:
- more than 100 Light Duty Vehicle (LDV) flows in Annual Average Daily Traffic (AADT) within or adjacent to an AQMA or more than 500 AADT elsewhere; or
 - more than 25 Heavy Duty Vehicle (HDV) flows AADT within or adjacent to an AQMA or more than 100 AADT elsewhere; or
 - combustion plant where the single or combined NO_x emission rate exceeds 5 mg/sec.
- 1.7. The transport consultants, Paul Basham Associates, have confirmed the vehicle flows generated by the Development would not result in a change of more than 100 LDVs or 25 HDVs AADT on local roads with relevant receptors and would therefore be below the EPUK/IAQM guidance criteria for when an air quality assessment is required. Additionally, the Development would not include any centralised combustion plant. The Development would therefore not give rise to any significant adverse air quality impacts.
- 1.8. Based on the low trip generation and the absence of any centralised combustion plant, according to the EPUK/IAQM guidance, the Development is not expected to give rise to air quality impacts. As such the likely effect of the operational Development on the local air quality would be not significant.
- 1.9. Given the above, the purpose of the air quality assessment is to assess the potential effect of the Development on local air quality during construction and to qualitatively consider the potential air quality concentrations future users of the Development would be exposed to.

¹ Environmental Protection UK & Institute of Air Quality Management (2017), 'Land-Use Planning & Development Control: Planning for Air Quality', EPUK & IAQM, London

Report Structure

1.10. Following this Introduction, the report is structured as follows:

- Section 2 – Legislation, Planning Policy and Guidance;
- Section 3 – Baseline Conditions;
- Section 4 – Construction Phase Qualitative Assessment;
- Section 5 – Operational Development; and
- Section 6 – Summary and Conclusions.

1.11. The air quality assessment is supported by:

- Appendix A: Summary of Relevant Legislation, Planning Policy and Guidance; and
- Appendix B: Assessor Experience.

2. LEGISLATION, PLANNING POLICY & GUIDANCE

General

- 2.1. The following legislation, planning policy and guidance are considered relevant to this air quality assessment. A summary of these documents is provided in **Appendix A**:

Legislation

- EU Framework Directive 2008/50/EC, 2008²;
- Air Quality Standards Regulations, 2010³;
- The UK Air Quality Strategy, 2007⁴;
- The Environment Act 1995⁵;

Planning Policy

- National Planning Policy Framework, 2021⁶; and
- Eastleigh Borough Local Plan (2016-2036)⁷; and

Guidance

- Department for Environment, Food and Rural Affairs, Clean Air Strategy, 2019⁸;
- Improving Air Quality in the UK: Tackling Nitrogen Dioxide in our Towns and Cities. UK Air Quality Plan for Tackling Nitrogen Dioxide, 2017⁹;
- Environmental Protection UK & Institute of Air Quality Management Guidance; Land-Use Planning & Development Control: Planning for Air Quality, 2017¹⁰;
- Planning Practice Guidance: Air Quality¹¹;
- Local Air Quality Management Policy Guidance, 2022¹²;
- Institute of Air Quality Management: Guidance on the Assessment of Dust from Demolition and Construction, 2014¹³; and
- Eastleigh Borough Council Air Quality Action Plan, 2020¹⁴.

2 Council Directive 2008/50/EC of 21 May 2008 on ambient air quality and cleaner air for Europe.

3 Defra, (2010) The Air Quality Standards (England) Regulations.

4 Department of the Environment, Food and Rural Affairs (Defra), (2007). 'The Air Quality Strategy for England, Scotland, Wales & Northern Ireland'

5 Office of the Deputy Prime Minister (ODPM), 1995, 'The Environment Act' 1995.

6 Department for Communities and Local Government, 2021, 'National Planning Policy Framework'. DCLG, London.

7 Eastleigh Borough Local Plan (2016-2036), April 2022

8 Defra (2019) Clean Air Strategy, 2019

9 Defra (2017) Improving Air Quality in the UK: Tackling nitrogen dioxide in our towns and cities. Draft UK Air Quality Plan for Tackling Nitrogen Dioxide (Consultation Document)

10 Environmental Protection UK & Institute of Air Quality Management (2017), 'Land-Use Planning & Development Control: Planning for Air Quality', EPUK & IAQM, London.

11 DCLG (2019), 'Planning Practice Guidance: Air Quality (01 November 2019).

12 Defra (2016), 'Local Air Quality Management (LAQM) Policy guidance 2022(LAQM.PG (22))', DEFRA, London

13 Institute of Air Quality Management, 2014, 'Guidance on the Assessment of dust from demolition and construction.

14 Eastleigh Borough Council Air Quality Action Plan, 2020-2025, February 2020

3. BASELINE CONDITIONS

Eastleigh Borough Council's Review and Assessment Process

- 3.1. In 2005, EBC declared an AQMA for exceedances of the annual mean NO₂. In 2006, EBC declared two more AQMA's also for exceedances of the annual mean NO₂. A final AQMA was declared in 2011 for exceedances of the annual mean NO₂. Details of the AQMA's with regard to their location in relation to the Site are:
- Eastleigh AQMA No.1 (A335), located approximately 370m east of the Site;
 - Eastleigh AQMA No.2 (M3), located approximately 1.5km west of the Site;
 - High Street Botley AQMA, located approximately 7.1km south-east of the Site; and
 - Hamble Lane Area AQMA, located approximately 7.9km south of the Site.
- 3.2. The Site is not located within an AQMA.
- 3.3. The latest review of local air quality is presented in the EBC 2020 Air Quality Annual Status Report (ASR)¹⁵. The 2020 ASR concludes that NO₂ levels are decreasing for the majority of the monitors.

Eastleigh's Local Monitoring

- 3.4. Due to Covid-19, 2020 and 2021 monitoring data was not considered representative of air quality concentrations in the area. 2020 and 2021 monitoring data has therefore not been considered within this report.
- 3.5. EBC currently undertakes monitoring of NO₂ and particulate matter (PM₁₀¹⁶) at three automatic monitors. Details of these are:
- Southampton Road (ES1): a roadside monitor located approximately 0.4km south-east of the Site, measuring NO₂ and PM₁₀;
 - The Point (ES3): a roadside monitor located approximately 0.7km north of the Site, measuring NO₂; and
 - Steele Close (ES2): an urban background monitor located approximately 1.7km north-west of the Site, measuring NO₂.
- 3.6. Monitored concentrations from the three closest automatic monitors are presented in **Table 1** below.

¹⁵ Eastleigh Borough Council, 2020, Air Quality Annual Status Report (ASR)

¹⁶ Particulate matter with a mean aerodynamic diameter less than 10 microns (or micrometres – µm)

Table 1: Measured Concentrations at the three EBC Automatic Monitor's closest to the Site

ID	Pollutant	Averaging Period	AQS Objective	2016	2017	2018	2019
ES1	NO ₂	Annual Mean (µg/m ³)	40µg/m ³	40.8	37.4	37.8	34.1
		1-Hour Mean (No. of Hours)	200µg/m ³ not to be exceeded more than 18 times a year	4	0	0	0
	PM ₁₀	Annual Mean (µg/m ³)	40µg/m ³	22.2	20.9	22.5	21.1
		24-Hour Mean (No. of Days)	50µg/m ³ not to be exceeded more than 35 times a year	7	7	0	4
ES3	NO ₂	Annual Mean (µg/m ³)	40µg/m ³	37.0	33.0	31.0	25.6
		1-Hour Mean (No. of Hours)	200µg/m ³ not to be exceeded more than 18 times a year	0	0	0	0
ES2	NO ₂	Annual Mean (µg/m ³)	40µg/m ³	29.3	27.0	28.5	26.1
		1-Hour Mean (No. of Hours)	200µg/m ³ not to be exceeded more than 18 times a year	0	0	0	0

Source: Data obtained from the EBC Air Quality Annual Status Report, June 2020
Exceedances of the AQS objectives shown in **bold**

- 3.7. The monitoring results in **Table 1** show that all AQS objectives were met at all monitors in 2019.
- 3.8. EBC also measures NO₂ at 53 locations using diffusion tubes. The 2016-2019 monitoring results for the eight NO₂ diffusion tubes within 1km of the Site are presented in **Table 2**.

Table 2: Measured NO₂ Concentrations at 8 EBC Diffusion Tubes within 1km of Site

ID	Site	Classification	Distance to Site (km)	Annual Mean NO ₂ Concentration (µg/m ³)			
				2016	2017	2018	2019
CA(15)	Chestnut Avenue (15)	Roadside	0.4	28.6	24.5	25.8	23.9
SRAN(17)	Southampton Road Analyser (17)	Roadside	0.4	-	-	-	-
SR1	Southampton Road 1	Roadside	0.4	47.3	44.7	45.7	43.6
SR2	Southampton Road 3	Roadside	0.6	-	-	42.7	37.6
CR	Campbell Road	Industrial	0.7	33.0	35.0	35.1	32.3
TP	The Point (A)	Roadside	0.7	27.9	25.6	26.0	23.0
LRPR	Leigh Road / Pluto Road	Roadside	0.8	32.4	31.9	32.9	31.6
PA	Passfield Avenue	Roadside	0.8	31.5	27.5	30.0	26.1

Notes: Data obtained from the EBC Air Quality Annual Status Report, June 2020
Exceedances of the AQS objectives shown in **bold**

- 3.9. The results in **Table 2** show the annual mean NO₂ AQS objective of 40µg/m³ was exceeded in 2019 at the Southampton Road (SR1) diffusion tube. The annual mean NO₂ objective was met at all other diffusion tubes closest to the Site in 2019.
- 3.10. In addition to the monitoring undertaken by EBC, background concentrations of NO_x, NO₂, PM₁₀ and PM_{2.5}¹⁷ are available from the Defra Air Quality Archive for 1x1km grid squares for assessment years between 2018 and 2030. **Table 3** presents the Defra background concentrations for the grid square the Site is located within (445500, 118500).

Table 3: Defra Background Maps in 2019 and for the Grid Square of the Site

Pollutant	AQS Objective	2019 Annual Mean Concentration (µg/m ³)
NO _x	-	23.8
NO ₂	40µg/m ³	17.0
PM ₁₀	40µg/m ³	15.1
PM _{2.5}	25µg/m ³	10.7

Data Source: <http://uk-air.defra.gov.uk>

- 3.11. The data in **Table 3** shows that all pollutants are below the respective AQS objectives.

¹⁷ Particulate matter with a mean aerodynamic diameter less than 2.5 microns

4. CONSTRUCTION PHASE QUALITATIVE ASSESSMENT

Assessment Methodology

Dust Emissions

- 4.1. The assessment of the effects from the construction activities in relation to dust has been based on the IAQM's Guidance on the Assessment of Dust from Demolition and Construction, 2014¹⁸ (IAQM Construction guidance) and the following:
 - Consideration of planned construction activities and their phasing; and
 - A review of the location (and distance) of sensitive uses surrounding the Site.
- 4.2. Following the IAQM Construction guidance, construction works were divided into the following four distinct activities.
 - Demolition – any activity involved in the removal of an existing building;
 - Earthworks – the excavation, haulage, tipping and stockpiling of material, but may also involve levelling the site and landscaping;
 - Construction – any activity involved with the provision of a new structure; and
 - Trackout – the movement of vehicles from unpaved ground on a site, where they can accumulate mud and dirt, onto the public road network where the dust might be deposited.
- 4.3. IAQM Construction guidance considers the effects of dust, as follows:
 - Annoyance due to dust soiling;
 - Potential effects on human health due to significant increase in exposure to PM₁₀; and
 - Harm to ecological receptors.
- 4.4. A summary of the four-step process, which was undertaken for the dust of construction activities as set out in the IAQM Construction guidance, is presented in **Table 4**.

Table 4: Summary of the IAQM Construction guidance for Undertaking a Construction Dust Assessment

Step	Description
1 Screen the Need for a Detailed Assessment	Simple distance-based criteria are used to determine the requirement for a detailed dust assessment. An assessment will normally be required where there are 'human receptors' within 350m of the boundary of the site and / or within 50m of the route(s) used by construction vehicles on public highway, up to 500m from the site entrance or 'ecological receptors' within 50m of the boundary of the site and/or within 50m of the route(s) used by construction vehicles on public highway, up to 500m from the site entrance.
2 Assess the Risk of Dust Effects	The risk of dust arising in sufficient quantities to cause annoyance and/or health or ecological effects should be determined using three risk categories: low, medium and high based on the following factors: • the scale and nature of the works, which determines the risk of dust arising (i.e. the magnitude of potential dust emissions) classed as small, medium or large; and

¹⁸ Institute of Air Quality Management, 2014, 'Guidance on the Assessment of dust from demolition and construction.

Step	Description
	the sensitivity of the area to dust effects, considered separately for ecological and human receptors (i.e. the potential for effects) defined as low, medium or high.
3 Site Specific Mitigation	Determine the site-specific measures to be adopted at the site based on the risk categories determined in Step 2 for the four activities. For the cases where the risk is 'negligible' no mitigation measures beyond those required by legislation are required. Where a local authority has issued guidance on measures to be adopted these should be taken into account.
4 Determine Significant Effects	Following Steps 2 and 3, the significance of the potential dust effects should be determined, using professional judgement, taking into account the factors that define the sensitivity of the surrounding area and the overall pattern of potential risks.

Construction Vehicle and Construction Plant Exhaust Emissions

4.5. The IAQM Construction guidance states:

"Experience of assessing the exhaust emissions from on-site plant (also known as non-road mobile machinery or NRMM) and site traffic suggests that they are unlikely to make a significant effect on local air quality, and in the vast majority of cases they will not need to be quantitatively assessed. For site plant and on-site traffic, consideration should be given to the number of plant/vehicles and their operating hours and locations to assess whether a significant effect is likely to occur. For site traffic on the public highway, if it cannot be scoped out, then it should be assessed using the same methodology and significance criteria as operational traffic impacts".

4.6. In accordance with the IAQM Construction guidance, it is considered that a quantitative assessment of the exhaust emissions from construction traffic and construction plant is not required. Accordingly, qualitative assessments are deemed appropriate and provided in this report.

Determining Significance of Effects

Dust Emissions

- 4.7. The potential impacts of construction activities on local air quality were based on professional judgement and with reference to the criteria set out in IAQM Construction guidance. Appropriate mitigation that would be implemented to minimise any adverse impacts on air quality have also been considered. Details of the assessors' experience and competence to undertake the dust assessment is provided in **Appendix B**.
- 4.8. The assessment of the risk of dust impacts arising from the likely construction activities, as identified by the IAQM Construction guidance, is based on the magnitude of potential dust emissions and the sensitivity of the area. The risk category matrix for construction activity types, taken from the IAQM guidance, are presented in **Table 5** to **Table 8**.

Table 5: Risk Category from Demolition Activities

Sensitivity of 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 6: Risk Category from Earthworks Activities

Sensitivity of 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: Risk Category from Construction Activities

Sensitivity of 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 8: Risk Category from Trackout Activities

Sensitivity of 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

- 4.9. The risk category determined for each construction activity type is used to define the appropriate mitigation measures that should be applied.

Construction Effects

Nuisance Dust

- 4.10. Construction activities of the Development have the potential to affect local air quality through Demolition, Earthworks, Construction and Trackout activities, as described above.

- 4.11. The Site is in a predominantly residential area. The nearest sensitive receptors are residential receptors within 20m south, north and west of the Site on Chamberlayne Road, Derby Road and Hardy Road.
- 4.12. Additionally, Eastleigh College is located approximately 130m south of the Site. Cherbourg Primary School and Cherbourg's Little Stars Preschool are located approximately 160m and 200m south-east of the Site respectively.
- 4.13. There are no ecological receptors within 50m of the Site boundary or the routes used by construction vehicles up to 500m from the Site entrance(s). Ecological effects have therefore not been considered further.

Demolition

- 4.14. Demolition has already taken place and has therefore not been considered further.

Earthworks

- 4.15. The Site area is approximately 0.10 hectares (1,000m²). Based on the criteria in step 2A of the IAQM Construction guidance, the potential dust emissions during earthworks activities could be of **small** magnitude.

Construction

- 4.16. The total volume of buildings to be constructed would be less than 25,000m³. Based on the criteria in step 2A of the IAQM Construction guidance, the potential dust emissions during construction activities would be of **small** magnitude.

Trackout

- 4.17. It is estimated the number of HDV trips leaving the Site would be below 10 HDV outward movements in any one day. Based on this and considering the criteria in step 2A of the IAQM guidance, the potential for dust emissions due to trackout activities would be of **small** magnitude.

Sensitivity of the Area

- 4.18. The sensitivity of the area to each main activity has been assessed based on the number and distance of the nearest sensitive receptors to the activity, and the sensitivity of these receptors to dust soiling and human health.

Sensitivities of People to Dust Soiling Effects

- 4.19. There are estimated to be between 10 and 100 high sensitive receptors within 20m of the Site boundary. On this basis, as set out in Table 2 of the IAQM Construction guidance, the sensitivity of the area to dust soiling is **high**.

Sensitivities of People to the Health Effects of PM₁₀

- 4.20. The DEFRA background map PM₁₀ concentration was estimated to be 15.1µg/m³ in 2019 (see **Table 3**). There are between 10 and 100 high sensitivity receptors within 20m of the Site boundary. On this basis, as set out in Table 4 of the IAQM guidance, the sensitivity of the area to human

health is **low**.

Dust Risk Summary

- 4.21. The dust risk categories, based on the potential magnitude of dust emissions and the sensitivity of the area to dust, are presented in **Table 9**.

Table 9: Summary of Risk

Receptor Sensitivity	Sensitivity of the Surrounding Area		
	Earthworks	Construction	Trackout
Dust Soiling	Low Risk	Low Risk	Low Risk
Human Health	Negligible	Negligible	Negligible

- 4.22. The Site is considered **low risk** to dust soiling impacts consequently, mitigation would be required to ensure that adverse impacts be minimised, reduced and, where possible, eliminated.

Construction Vehicle and Construction Plant Exhaust Emissions

- 4.23. Given the Development proposals it is estimated the number of HDVs would be below 10 HDV outward movements in any one day. On the A335, east of the Site, there were 16,569 daily vehicles including 3.0% HDVs counted in 2019¹⁹.
- 4.24. Considering the sensitivity of the surrounding residential area, it is considered the potential impact of construction vehicles on air quality would be in the worst-case, result in a **temporary, local, adverse effect of minor significance** during the construction period.
- 4.25. Any emissions from plant operating on the Site would be very small in comparison to the emissions from traffic movements on the roads adjacent to the Site. It is therefore considered that even in the absence of mitigation, their likely effect on local air quality would be **not significant**.

Construction Mitigation Measures and Residual Effects

Dust Emissions

- 4.26. The Site is a low-risk site in relation to nuisance dust emissions (referred to earlier in this report). Consequently, a range of environmental management controls would be developed with reference to the IAQM Construction guidance for low-risk sites. The mitigation measures would be included within a Construction Environmental Management Plan and implemented to prevent the release of dust entering the atmosphere and being deposited on nearby receptors.
- 4.27. Mitigation measures are routinely and successfully applied to construction projects throughout the UK and are proven to significantly reduce the potential for adverse nuisance dust effects associated with the various stages of the construction work. It is considered that with mitigation measures in place, the residual effects would be **not significant**.

Construction Vehicle and Construction Plant Exhaust Emissions

- 4.28. All construction traffic logistics would be agreed with EBC. Consideration would also be given to the avoidance, or limited use, of traffic routes in proximity to sensitive uses and the avoidance, or limited use, of roads during peak hours, where practicable. The likely residual effect of construction vehicles entering and egressing the Site to air quality would be **not significant**.

¹⁹ Road traffic statistics - Manual count point: 6932 (dft.gov.uk)

- 4.29. Even in the absence of mitigation, the likely effect of any emissions from plant operation on the Site would be **not significant**. This would therefore remain the likely residual effect.

5. OPERATIONAL DEVELOPMENT

Effects of the Development on Local Air Quality

- 5.1 The Development would not result in a change in AADT of more than 100 light duty vehicle flows or 25 heavy duty vehicle flows within or adjacent to an AQMA. The change in vehicle trips would be below the EPUK / IAQM guidance criteria for developments within an AQMA.
- 5.2 Additionally, the Development would not include a centralised combustion plant or other sources that would generate significant pollutant emissions. Considering the low trip generation rate and the absence of combustion plant, according to the EPUK / IAQM guidance, the Development would not be expected to give rise to significant air quality impacts.
- 5.3 The effect of the Development on local air quality was therefore considered to be **not significant**.

Predicted Future Exposure

- 5.4 The Chestnut Avenue (CA15) diffusion tube is the closest to the Site located approximately 0.4km south-east in a residential area. Given the proximity to the Site and location in a residential area, Chestnut Avenue (CA15) diffusion tube is considered representative of annual mean NO₂ concentrations the Site. The 2019 monitored concentration at the Chestnut Avenue (CA15) diffusion tube of 23.9 µg/m³ are significantly below the annual mean NO₂ AQS objective of 40µg/m³.
- 5.5 The Southampton Road (ES1) roadside automatic monitor is located approximately 0.4km south-east of the Site, measuring NO₂ and PM₁₀. Given the proximity of the automatic monitor to the Site it is considered a conservative representation of PM₁₀ concentrations future users of the Development would be exposed to. The 2019 monitored annual and 24-Hour Mean PM₁₀ concentrations at the Southampton Road (ES1) roadside automatic monitor were below the respective AQS objectives.
- 5.6 The Defra background maps were considered representative of PM_{2.5} concentrations at the Site. The 2019 concentrations were below the PM_{2.5} AQS objective.
- 5.7 Based on the pollutant concentrations shown in **Tables 1, 2 and 3**, it is considered the AQS objectives are likely to be met for future users of the Site. The effect of the Development on future users of the Development would therefore be **not significant**.

Mitigation Measures

- 5.8 As identified above, even in the absence of mitigation, the effect of the Development on local air quality would be **not significant**. Accordingly, mitigation measures would not be required, and residual effects would also be **not significant**. Despite this, measures have been included as part of the Development, which are likely to have a benefit to air quality. **Table 10** presents the inherent design measures likely to benefit air quality.

Table 10: Summary of Mitigation Measures included as part of the Development

Phase	Mitigation Measures
	Provision of cycle storage at all houses.

Phase	Mitigation Measures
Inherent – Measures included in the design of the Development	All parking spaces will have electric vehicle charging points available. Provision of 11 car parking spaces.
Operational Development	The proposed development is predicted to generate 174 fewer vehicle trips over a 12-hour period.

6. SUMMARY & CONCLUSIONS

- 6.1. A qualitative assessment of dust effects during the construction phase has been carried out using the IAQM guidance. The implementation of a range of appropriate site management practices to control dust emissions would significantly reduce the potential for adverse nuisance dust effects associated with the various stages of the works. It is considered that likely residual effects due to nuisance dust emissions would be **not significant**.
- 6.2. It is anticipated that after management measures have been implemented, the effect of construction vehicles entering and egressing the Site during the construction phase would be **not significant**.
- 6.3. Any emissions from plant operating on the Site would be very small in comparison to the emissions from traffic movements on the roads adjacent to the Site. It is therefore considered the effect on local air quality would be **not significant**.
- 6.4. The transport consultants, Paul Basham Associates, have confirmed the trips generated by the Development would not result in a change of more than 100 LDVs or 25 HDVs AADT on local roads with relevant receptors and would therefore be below the EPUK/IAQM guidance for when an air quality assessment is required. Additionally, the Development would not include a centralised combustion plant. The Development would therefore not give rise to any significant adverse air quality impacts.
- 6.5. Based on the low trip generation and the absence of a centralised combustion plant, according to the EPUK/ IAQM guidance, the Development is not expected to give rise to significant air quality impacts. As such the likely effect of the operational Development on local air quality would be **not significant**.
- 6.6. A review of the EBC monitoring data and Defra background maps, indicates the pollutant concentrations for users of the Development would be **not significant**.

APPENDICES

A. Summary of Relevant Legislation, Planning Policy and Guidance

Appendix A: Summary of Relevant Legislation, Planning Policy and Guidance

Legislation

EU Framework Directive 2008/50/EC, 2008

Air pollutants at high concentrations can have adverse effects on the health of humans and ecosystems. European Union (EU) legislation on air quality forms the basis for UK legislation and policy on air quality.

The EU Framework Directive 2008/50/EC on ambient air quality assessment and management came into force in May 2008 and was implemented by Member States, including the UK, by June 2010. The Directive aims to protect human health and the environment by avoiding, reducing or preventing harmful concentrations of air pollutants.

Air Quality Standards Regulations, 2010

The Air Quality Standards Regulations implement Limit Values prescribed by the EU Framework Directive 2008/50/EC. The Limit Values are legally binding and the Secretary of State, on behalf of the UK Government, is responsible for their implementation.

The UK Air Quality Strategy, 2007

The current UK Air Quality Strategy (UK AQS) was published in July 2007 sets out the objectives for Local Planning Authorities (LPA) in undertaking their Local Air Quality Management (LAQM) duties. The 2007 UK AQS introduced a national level policy framework for exposure reduction for fine particulate matter. Objectives in the UK AQS are in some cases more onerous than the Limit Values set out within the relevant EU Directives and the Air Quality Standards Regulations 2010. In addition, objectives have been established for a wider range of pollutants.

The UK AQS objectives of air pollutants relevant to this assessment are summarised in Table A1.

Table A1: Summary of Relevant UK AQS Objectives

Pollutant	Objective		Date by which Objective to be Met
	Concentration	Measured as	
Nitrogen Dioxide (NO ₂)	200µg/m ³	1 hour mean not to be exceeded more than 18 times per year	31/12/2005
	40µg/m ³	Annual Mean	31/12/2005
Particulate Matter (PM ₁₀) ^(a)	50µg/m ³	24 hour mean not to be exceeded more than 35 times per year	31/12/2004
	40µg/m ³	Annual Mean	31/12/2004
Particulate Matter (PM _{2.5}) ^(b)	Target of 15% reduction in concentrations at urban background locations	Annual Mean	Between 2010 and 2020
	25µg/m ³	Annual Mean	01/01/2020

Note: (a) Particulate matter with a mean aerodynamic diameter less than 10 microns (or micrometres – µm)
(b) Particulate matter with a mean aerodynamic diameter less than 2.5 microns

The Environment Act, 1995

In a parallel process, the Environment Act 1995 required the preparation of a national air quality strategy setting health-based air quality objectives for specified pollutants and outlining measures to be taken by LPAs in relation to meeting these objectives (the LAQM system).

Part IV of the Environment Act 1995 provides a system of LAQM under which LPAs are required to review and assess the future quality of the air in their area by way of a staged process. Should this process suggest that any of the AQS objectives will not be met by the target dates, the LPA must consider the declaration of an Air Quality Management Area (AQMA) and the subsequent preparation of an Air Quality Action Plan (AQAP) to improve the air quality in that area in pursuit of the AQS objectives.

Planning Policy

National Planning Policy

National Planning Policy Framework, 2021

The National Planning Policy Framework (NPPF), published in July 2021 sets out the Government's planning policies for England and how these should be applied.

Paragraph 105 states *"The planning system should actively manage patterns of growth in support of these objectives. Significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes. This can help to reduce congestion and emissions and improve air quality and public health. However, opportunities to maximise sustainable transport solutions will vary between urban and rural areas, and this should be taken into account in both plan-making and decision-making."*

Paragraph 174 states *"Planning policies and decisions should contribute to and enhance the natural and local environment by: ... preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans"*

Paragraph 185 states *"Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development."*

Paragraph 186 states *"Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan."*

Local Planning Policy

Eastleigh Borough Local Plan (2016-2036)

The Eastleigh Borough Local Plan 2016-2036 sets out the policies and plans to guide future development to 2036.

There are no policies that directly correlate to air quality in the Local Plan. However, there are air quality policies corresponding to detailed site allocations. The Site is not located within a site allocation..

Guidance

Department for Environment, Food and Rural Affairs, Clean Air Strategy, 2019

Published in January 2019 the Clean Air Strategy sets out a coherent framework and national action to improve air quality throughout the UK.

The Strategy is underpinned by new national powers to control major sources of air pollution, in line with the risk they pose to public health and the environment, plus new local powers to act in areas with an air pollution problem. The Strategy also supports the creation of Clean Air Zones to lower emissions from all sources of air pollution, backed up with clear enforcement mechanisms.

Improving Air Quality in the UK: Tackling Nitrogen Dioxide in our Towns and Cities. UK Air Quality Plan for Tackling Nitrogen Dioxide, 2017

The UK Government was required by the High Court to release an Air Quality Plan to meet the NO₂ Limit Value in the shortest timescale as possible. This document was adopted on 26th July 2017.

The plan focuses on reducing concentrations of NO_x and NO₂ around road vehicle emissions within the shortest possible time. With the principal aims to:

- a. reduce emissions of NO_x from the current road vehicle fleet in problem locations now; and*
- b. accelerate road vehicle fleet turnover to cleaner vehicles to ensure that the problem remains addressed and does not move to other locations.*

The other aims include reducing background concentrations of NO_x from:

- Other forms of transport such as rail, aviation and shipping;
- Industry and non-road mobile machinery; and
- Buildings, both commercial and domestic, and other stationary sources.

The Plan provides measures to reduce NO_x and NO₂ concentrations in the UK, such measures include:

- Mandate local authorities to implement Clean Air Zones within the shortest possible time;
- Consultation on proposal for a Clean Air Zone Framework for Wales;
- Consultation on a draft National Low Emission Framework for Scotland;
- Commitment to establishing a Low Emission Zone for Scotland by 2018;
- Tackling air pollution on the English Road network;
- New real driving emissions requirement to address real world NO_x emissions;

- Additional funding to accelerate uptake of hydrogen vehicles and infrastructure;
- Additional funding to accelerate the uptake of electric taxis;
- Further investment in retrofitting alongside additional support of low emission buses and taxis;
- Regulatory changes to support the take up of alternatively fuelled light commercial vehicles;
- Exploring the appropriate tax treatment for diesel vehicles;
- Call for evidence on updating the existing HGV Road User Levy;
- Call for evidence on use of red diesel;
- Ensure wider environmental performance is apparent to consumers when purchasing cars;
- Updating Government procurement policy;
- New emissions standards for non-road mobile machinery;
- New measures to tackle NOx emissions from Medium Combustion Plants; and
- New measures to tackle NOx emissions from generators.

The above measures do not provide any actions which are relevant to the operation or design of the Development.

A High Court ruling¹ on 21st February 2018, stated the UK Governments air quality improvement plan adopted on 31st July 2017 was unlawful as *'it does not contain measures sufficient to ensure substantive compliance with the 2008 Directive and the English Regulations'*. The UK Government *'must ensure steps are taken to achieve compliance as soon as possible, by the quickest route possible and by a means that makes that outcome likely'*.

The judgement stated that the UK Government must produce a supplementary plan, setting out requirements for feasibility studies to be undertaken in the 33 Local Authority Areas. EBC is not considered within this judgement.

In May 2018, it was announced the European Union (EU) was going to take the UK to the European Commission over failure to meet the Limit Values for NO₂.

Environmental Protection UK & Institute of Air Quality Management Guidance; Land-Use Planning & Development Control: Planning for Air Quality, 2017

Environmental Protection UK (EPUK) and the Institute of Air Quality Management (IAQM) provide guidance for air quality considerations within the local development control processes, promoting a consistent approach to the treatment of air quality issues.

The EPUK and IAQM guidance explains how development proposals can adopt good design principles to reduce emissions and contribute to better air quality. The guidance also provides a method for screening the need for an air quality assessment and a consistent approach for describing the impacts at individual receptors. The EPUK and IAQM Guidance, advises that:

"In arriving at a decision about a specific proposed development the local planning authority is required to achieve a balance between economic, social and environmental considerations. For this reason, appropriate consideration of issues such as air quality, noise and visual amenity is necessary. In terms of air quality, particular attention should be paid to:

- *Compliance with national air quality objectives and of EU Limit Values;*

1 <https://www.judiciary.gov.uk/judgments/the-queen-on-the-application-of-clientearth-no-3-claimant-v-secretary-of-state-for-environment-food-and-rural-affairs-and-others/>

- *Whether the development will materially affect any air quality action plan or strategy;*
- *The overall degradation (or improvement) in local air quality; or*
- *Whether the development will introduce new public exposure into an area of existing poor air quality".*

Planning Practice Guidance: Air Quality, 2019

The Government's online Planning Practice Guidance (PPG) states that all development plans can influence air quality in several ways including the development proposals, location and any provision made for sustainable transport. Consideration of air quality issues at the plan-making stage can ensure a strategic approach to air quality and help secure net improvements in overall air quality where possible.

Whether air quality is relevant to a planning decision will depend on the proposed development and its location. Concerns could arise if the development is likely to have an adverse effect on air quality in areas where it is already known to be poor, particularly if it could affect the implementation of air quality strategies and action plans and/or breach legal obligations (including those relating to the conservation of habitats and species). Air quality may also be a material consideration if the proposed development would be particularly sensitive to poor air quality in its vicinity.

Where air quality is a relevant consideration the local planning authority may need to establish:

- the 'baseline' local air quality, including what would happen to air quality in the absence of the development;
- whether the proposed development could significantly change air quality during the construction and operational phases (and the consequences of this for public health and biodiversity); and
- whether occupiers or users of the development could experience poor living conditions or health due to poor air quality.

Local Air Quality Management Policy Guidance, 2022

The Local Air Quality Management Policy Guidance LAQM.PG(22) provides guidance to improve local air quality using available levers, including planning, public health and transport responsibilities. LAQM.PG(22) describes how power stations, motor vehicles, industrial and domestic combustion processes all contribute to local air pollution. Transport initiatives are set out to illustrate how transport measures may bring improvements in air quality.

Institute of Air Quality Management: Guidance on the Assessment of Dust from Demolition and Construction, 2014

The IAQM Construction Dust Guidance provides guidance to consultants and Environmental Health Officers on how to assess air quality impacts from construction related activities. The guidance provides a risk-based approach based on the potential dust emission magnitude of the site (small, medium or large) and the sensitivity of the area to dust impacts. The importance of professional judgement is noted throughout the guidance. The guidance recommends that once the risk class of the site has been identified, the appropriate level of mitigation measures are implemented to ensure that the construction activities have no significant impacts.

Eastleigh Borough Council Air Quality Action Plan

The Eastleigh Borough Council Air Quality Action Plan details actions aimed at improving air quality in Eastleigh upto 2025.

The plan includes a wide range of activities including overarching Borough-wide actions together with targeted actions for individual locations, aimed at reducing vehicle emissions and encouraging other modes of travel.

Actions in the plan include:

- Increasing the availability of electric vehicles and charging points;
- Improving and extending the walking and cycling network;
- Partnership working to improve public transport services; and
- Working with schools and local businesses.

B. Assessor Experience

Appendix B: Assessor Experience

Name: Ben Squire

Years of Experience: <1

Qualifications:

- A Level Geography A
- A Level Biology B
- A Level History B
- BSc (Hons) Environmental Management (ongoing)

Ben Squire is an Environmental Practitioner Apprentice currently assisting the Air Quality team.

Name: Andy Fowler

Years of Experience: 11

Qualifications:

- CEnv
- BSc (Hons)
- Member of the IAQM
- Full Member of the Institution of Environmental Sciences (IES)

Andy has been responsible for the technical delivery of a wide range of air quality projects for a variety of clients in both the public and private sector. These projects include consideration of emissions from both transportation and industrial sources, through both monitoring and modelling, and therefore he has an in depth understanding of the regulatory requirements for these sources and the published technical guidance for their assessment.

Our vision

“Engineering a better environment for people and the planet”

Our mission

“To solve complex problems for the benefit of clients, communities and the climate”

Our values

People orientated

Individually and collectively, people are our business.
We strive to create environments for everyone to flourish and thrive.

Flexible

Pragmatic by nature and dedicated to getting the job done to the highest possible standard.

Professional

Operating at pace with integrity to deliver technical and robust solutions.

Environmentally aware

We understand our responsibility to the environment, it shapes our decision making and informs our practice.

Innovative

Our forensic questioning provides the ability to deliver appropriate innovations at every stage on every project.

Relationship focused

We value individuality and the benefits of working collaboratively to achieve positive outcomes for all.

