

# Hawkins environmental

Air Quality Assessment:

Bryanston Road, Southampton

Doswell Projects

20<sup>th</sup> June 2023

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*This report has been prepared by Hawkins Environmental Limited for the sole purpose of assisting in gaining planning consent for the proposed development described in the introduction of this report.*

*This report has been prepared by Hawkins Environmental Limited with all reasonable skill, care and diligence, and taking account of the manpower and resources devoted to it by agreement with the client. Information reported herein is based on the interpretation of data collected and has been accepted in good faith as being accurate and valid.*

*This assessment takes into account the prevailing conditions at the time of the report and assesses the impact of the development (if applicable) using data provided to Hawkins Environmental Limited by third parties. The report is designed to assist the developer in refining the designs for the proposed development and to demonstrate to agents of the Local Planning Authority that the proposed development is suited to its location. This should be viewed as a risk assessment and does not infer any guarantee that the site will remain suitable in future, nor that there will not be any complaints either from users of the development or from impacts emanating from the development site itself.*

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## 1. INTRODUCTION

### 1.1. Overview

Hawkins Environmental Limited has been instructed by Doswell Projects to undertake an air quality assessment for the proposed redevelopment of land at Bryanston Road, situated in on the east bank of the River Itchen in the City of Southampton.

During the planning process, it has been identified that the site may require an air quality assessment to determine whether the site is suitable for residential use, and to determine whether the proposed development would have an adverse impact on the surrounding environment. Consequently, this assessment has been completed in order to determine whether the proposed development achieves compliance with the National Air Quality Objectives, as well as national, regional and local planning policy.

This assessment has been undertaken in accordance with the Department of Environment, Food and Rural Affairs' (Defra) current *Technical Guidance on Local Air Quality Management (LAQM) (TG22)* (April 2021) and the Institute for Air Quality Management and Environmental Protection UK's *Land-Use Planning & Development Control: Planning for Air Quality* (January 2017).

The assessment addresses the effects of air pollutant emissions from traffic using the adjacent roads and emissions associated with the development of the site. In addition, a risk-based assessment of the likely impact of construction on the air quality of the local environment has been conducted in accordance with the Institute of Air Quality Management's 2014 edition of the *Guidance on the assessment of dust from demolition and construction*.

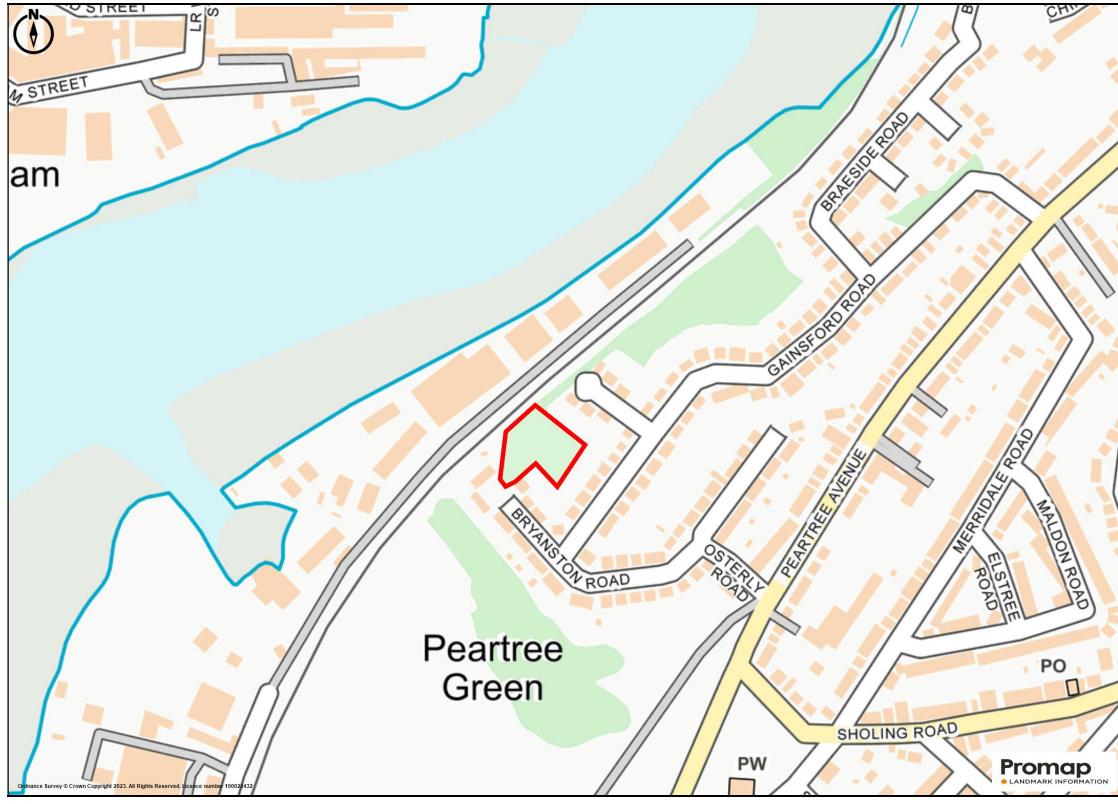
This report assesses the overall levels of nitrogen dioxide (NO<sub>2</sub>) and particulates (PM<sub>10</sub> and PM<sub>2.5</sub>) in the vicinity of the site. A glossary of terms is detailed in **Appendix 1**. The constraints which existing air quality may have on the proposed development have been considered and forms part of this assessment. However, the impacts of the development on the air quality of surrounding properties have also been considered.

### 1.2. Site Description

The proposed development site is situated on a parcel of land bound by properties on the residential streets of Bryanston Road to the southwest, Gainsford Road to the southeast and Ashburnham Close to the northeast, and the train line from Bitterne to Woolston to the northwest. To the other side of the train line lies Hazel Road and a narrow light industrial estate and the River Itchen beyond.

The site is currently undeveloped land. The proposed development will see the construction of eight new residential dwellings with associated car parking and landscaping. A location plan of the proposed site can be seen in **Figure 1.1**.

Figure 1.1: Site Location Plan



## 2. LEGISLATION, PLANNING POLICY & GUIDANCE

### 2.1. National Legislation

Part IV of the Environment Act (1995), requires the UK government to produce a national Air Quality Strategy which contains standards, objectives and measures for improving ambient air quality. The National Air Quality Strategy sets out National Air Quality Objectives (NAQOs) 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.

The Clean Air for Europe (CAFE) programme revisited the management of Air Quality within the EU and replaced the EU Framework Directive 96/62/EC, its associated Daughter Directives 1999/30/EC, 2000/69/EC, 2002/3/EC, and the Council Decision 97/101/EC, with a single legal act, the Ambient Air Quality and Cleaner Air for Europe Directive 2008/50/EC.

Directive 2008/50/EC is currently transcribed into UK legislation by the Air Quality Standards Regulations 2010, which came into force on 11<sup>th</sup> June 2010. These limit values are binding on the UK and have been set with the aim of avoiding, preventing or reducing harmful effects on human health and on the environment as a whole. These limit values are the basis of the NAQOs.

The National Air Quality Objectives (NAQOs) and their Limit Values will form the basis of this air quality assessment of the proposed development. The NAQOs are based on an assessment of the effects of each pollutant on public health. Therefore, they are a good indicator in assessing whether, under normal circumstances, the air quality in the vicinity of a development is likely to be detrimental to human health. In determining whether air pollutant levels may constrain development, the results of studies are compared against the acceptability criteria. The Air Quality Standards are displayed in **Table 2.1**.



**Table 2.1: Air Quality Standards**

Pollutant	Average Period	NAQO Limit Value
Sulphur Dioxide	One Hour	350 µg/m <sup>3</sup> Not to be exceeded more than 24 times per calendar year
	One Day	150 µg/m <sup>3</sup> Not to be exceeded more than 3 times per calendar year
Nitrogen Dioxide	One Hour	200 µg/m <sup>3</sup> Not to be exceeded more than 18 times per calendar year
	Calendar Year	40 µg/m <sup>3</sup>
Benzene	Calendar Year	5 µg/m <sup>3</sup>



Pollutant	Average Period	NAQO Limit Value
Lead	Calendar Year	0.5 µg/m <sup>3</sup>
PM <sub>10</sub>	One Day	50 µg/m <sup>3</sup> Not to be exceeded more than 35 times per calendar year
	Calendar Year	40 µg/m <sup>3</sup>
PM <sub>2.5</sub>	Calendar Year	25 µg/m <sup>3</sup>
Carbon Monoxide	Maximum daily running 8-hour mean	10 mg/m <sup>3</sup>

## 2.2. Clean Air Strategy (2019)

The Government's Clean Air Strategy was launched on the 14<sup>th</sup> January 2019 and sets out a range of initiatives that will help reduce air pollution, providing healthier air to breathe, enhancing the economy and protecting nature.

The Clean Air Strategy highlights action to be taken to reduce emissions across all sectors, including transport, the home, farming, and industrial sources. This includes actions to reduce particulate matter from domestic emissions, by introducing new legislation to prohibit the sales of the most polluting fuels and ensuring only the cleanest stoves are available for sale by 2022.

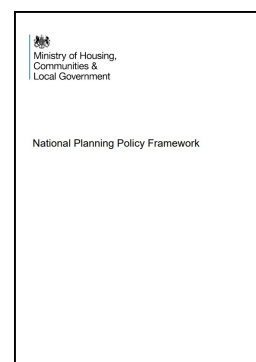
In addition, the Clean Air Strategy sets out proposals to halve the population living in areas with concentrations of fine particulate matter (PM<sub>2.5</sub>) above the World Health Organisation (WHO) guideline levels of 10 µg/m<sup>3</sup> by 2025. Since the publication of the Clean Air Strategy, the WHO has further reduced its guideline level for PM<sub>2.5</sub> to 5 µg/m<sup>3</sup>.



## 2.3. National Planning Policy Framework (2021)

The National Planning Policy Framework (NPPF) was first published in March 2012 and revised in July 2018, February 2019 and most recently July 2021. The NPPF outlines the Government's environmental, economic and social policies for England. The NPPF sets out a presumption in favour of sustainable development which should be delivered with three main dimensions: economic; social and environmental (Paragraphs 7, 8 10 and 11). The NPPF aims to enable local people and their councils to produce their own distinctive local and neighbourhood plans, which should be interpreted and applied in order to meet the needs and priorities of their communities.

The NPPF states that in the planning system *"Planning policies and decisions should contribute to and enhance the natural and local environment by... e) 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 174).

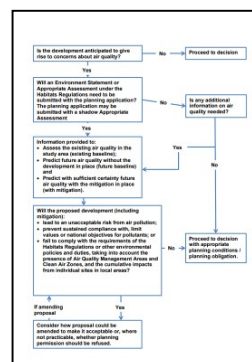
The NPPF also states that “Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual 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” (Paragraph 186).

## 2.4. Planning Practice Guidance (2019)

The Planning Practice Guidance (PPG) was launched on 6<sup>th</sup> March 2014 and has undergone regular revision, with the most recent changes to Air Quality in November 2019. It provides additional guidance and interpretation to the Government’s strategic policies, outlined within the NPPF, in a web-based resource. This is updated regularly.

Matters of relevance to the air quality assessment include:

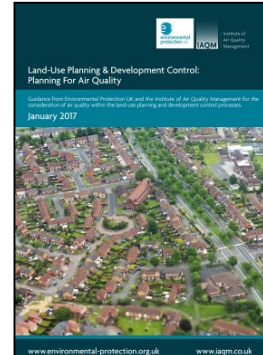
- The provision of “guidance on how planning can take account of the impact of new development on air quality”. The PPG provides signposts as to how to address air quality in planning applications and highlights the importance of local plans.
- The statement that “The Department for Environment, Food and Rural Affairs carries out an annual national assessment of air quality using modelling and monitoring to determine compliance with relevant Limit Values” and “It is important that the potential impact of new development on air quality is taken into account where the national assessment indicates that relevant limits have been exceeded or are near the limit” (Reference ID: 32-001-20191101). The PPG goes on to say that “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)” (Reference ID: 32-005-20191101).
- The identification of the content of an air quality assessment, stating clearly that “Assessments need to be proportionate to the nature and scale of development proposed and the potential impacts (taking into account existing air quality conditions), and because of this are likely to be locationally specific” (Reference ID: 32-007-20191101).



## 2.5. Land-Use Planning & Development Control: Planning for Air Quality (2017)

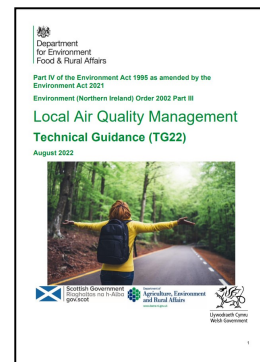
Land-Use Planning & Development Control: Planning for Air Quality, jointly published by the Institute of Air Quality Management (IAQM) and Environmental Protection UK (EPUK) in May 2015 and updated in January 2017, provides general guidance on air quality and planning.

Specifically, the guidance provides details on the scoping of effects, how to assess the impacts in relation to air quality, as well as details on how to assess the significance of impacts.



## 2.6. Local Air Quality Management Technical Guidance TG22 - (2022)

Specifically designed to provide technical guidance to Local Planning Authorities (LPAs) in relation to their review and assessment of air quality, TG(22) provides useful guidance in relation to the appropriate methods of air quality modelling and monitoring, which can be as equally useful to the assessment of air quality impacts.



## 2.7. Guidance on the Assessment of Dust from Demolition and Construction (2014)

Published in 2014, the IAQM's Guidance on the Assessment of Dust from Demolition and Construction provides guidance on preparing an Air Quality Statement for construction and demolition activities, specifically in relation to dust risk assessments, as well as providing details on how best to mitigate the impacts of construction dust. Much of the detail within the IAQM's Guidance was adopted within the Control of Dust and Emissions from Construction and Demolition SPG.



## 2.8. World Health Organization Air Quality Guidelines (2021)

The WHO Air Quality Guidelines propose threshold limits for key air pollutants that pose health risks. The guidelines cover a range of pollutants and suggest threshold levels at which health effects are unlikely to occur, based on the latest scientific evidence. For a number of pollutants, the WHO levels are equivalent to the levels determined by the EU, which were then exacted into the National Air Quality Objectives in the UK; however, the guidelines offer recommended exposure levels for particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>) which are lower than the National Air Quality Objectives as set out in the Air Quality Standards Regulations 2010. The WHO Guidelines also provides interim targets for areas of high air pollution.



Since WHO's last 2005 global update, there has been a marked increase of evidence that shows how air pollution affects different aspects of health. For that reason, and after a systematic review of the accumulated evidence, WHO has adjusted almost all the AQGs levels downwards in 2021.

**Table 2.2** summarises the WHO Guideline values.

**Table 2.2: WHO Air Quality Guidelines**

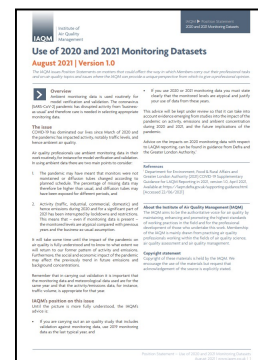
Pollutant	Average Period	WHO Guideline Value
Nitrogen Dioxide	One Day	25 µg/m <sup>3</sup>
	Calendar Year	10 µg/m <sup>3</sup>
PM <sub>10</sub>	One Day	45 µg/m <sup>3</sup> (99 <sup>th</sup> Percentile)
	Calendar Year	15 µg/m <sup>3</sup>
PM <sub>2.5</sub>	One Day	15 µg/m <sup>3</sup> (99 <sup>th</sup> Percentile)
	Calendar Year	5 µg/m <sup>3</sup>

## 2.9. Use of 2020 and 2021 Monitoring Datasets (2021)

Published in 2021 by the IAQM, *Use of 2020 and 2021 Monitoring Datasets* provides guidance relating to the use of datasets effected by the COVID-19 pandemic when validating air quality models. As noted by the IAQM, “*Ambient monitoring data is used routinely for model verification and validation. The coronavirus (SARS-CoV-2) pandemic has disrupted activity from ‘business-as-usual’ and therefore care is needed in selecting appropriate monitoring data.*”.

The two main points to consider when considering datasets from 2020 and 2021 are:

- The pandemic may have meant that monitors were not maintained, or diffusion tubes changed according to planned schedule. The percentage of



missing data may therefore be higher than usual, and diffusion tubes may have been exposed for different periods, and

- Activity (traffic, industrial, commercial, domestic) and hence emissions during 2020 and for a significant part of 2021 has been interrupted by lockdowns and restrictions. This means that – even if monitoring data is present – the monitored levels are atypical compared with previous years and the business-as-usual assumption.

It is also noted that the social and economic impact of the pandemic may affect the previous trend in future emissions and background concentrations.

The IAQM position based on the above is that “If you are carrying out an air quality study that includes validation against monitoring data, use 2019 monitoring data as the last typical year.”

## 2.10. Approach to Advising Competent Authorities on the Assessment of Road Traffic Emissions under the Habitats Regulations (2018)

Published in 2018, *Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations* provides guidance on preparing air quality assessments with regards to the *Conservation of Habitats and Species Regulations 2017* (the Habitats Regulations). The document covers primarily the screening stage which determines the need for a more detailed “appropriate assessment” that forms the second stage of the process, based on road traffic emissions that may affect European sites (Special Areas of Conservation (SACs), candidate SACs, Special Protection Areas (SPAs), Sites of Community Importance (SCIs), potential SPAs, possible SACs, listed or proposed Ramsar sites and sites identified, or required, as compensatory measures for adverse effects on these European sites.



## 2.11. A Guide to the Assessment of Air Quality Impacts on Designated Nature Conservation Sites (2019)

The Institute of Air Quality Management's (IAQM) *Guide to the Assessment of Air Quality Impacts on Designated Nature Conservation Sites*, published in June 2019, provides more detailed guidance on the assessment of the ecological impacts of air pollution.

The guide compliments Natural England's guidance, which mainly covers the screening stage of the process and provides more details on how to conduct a more detailed assessment of the impacts, if the effects cannot be screened out.





## 3. ASSESSMENT METHODOLOGY

### 3.1. Methodology Overview

The assessment of air quality considered several different areas, specifically:

1. The constraints that the existing air quality has on the Proposed Development;
2. The impact of the changes in road traffic flows on air pollutant concentrations, at nearby sensitive receptors;
3. The impact of construction and demolition dust at nearby sensitive receptors.

Land-Use Planning & Development Control: Planning for Air Quality states with respect to the identification of local receptors, they should include “residential and other properties close to and within the proposed development, as well as alongside roads significantly affected by the development, even if well away from the development site, and especially if within AQMAs. These receptors will represent locations where people are likely to be exposed for the appropriate averaging time (dependent on the air quality objective being assessed against)”. The last point is critical as this identifies that sensitivity in relation to air quality is directly related to the amount of time one spends in a location. For example, when considering annual mean objectives (such as that of NO<sub>2</sub>), any area where one might spend large parts of the year might be considered a sensitive receptor. An example could be a dwelling, where one might expect to spend at least half of their time during one day. Health centres, hospitals, schools and nurseries could all expect to be considered sensitive receptors, partially due to the length of exposure spent in these locations, but also due to vulnerable members of society (e.g. the very young, the very old, or the ill) spending significant amounts of time at these locations. Offices would not normally be considered to be a highly sensitive receptor since most visitors would be healthy adults and would only spend around 8 hours per day, 5 days per week there (i.e. less than 25% of the year), whereas people could spend over 50% of their time within a dwelling. Hotels would not be considered sensitive receptors in terms of the annual mean since residents would only normally expect to spend a small number of nights in that location; however, hostels, sheltered accommodation and student accommodation would be considered as sensitive as dwellings, as residents could be expected to stay for several months.

The baseline scenario will consider 2019 conditions (the latest year for which a full year of pre-COVID affected data is available).

To determine the baseline conditions, the following was undertaken:

- A review of the most recent progress reports on air quality carried out by the local planning authority, as submitted to the Department for the Environment, Food and Rural Affairs (Defra);
- Determination of whether the site is situated within a designated Air Quality Management Area (AQMA);
- A review of local air quality monitoring within the area of the site;
- A review of the Environment Agency’s register of industrial sites under the EC Integrated Pollution Prevention and Control Directive (IPPC) to determine whether industrial sources of air pollution could be affecting the site;

- Review of the list of registered Part A2 and Part B permitted premises under the IPPC Regulations to determine whether any other sources of air pollution could be affecting the site;
- Using the methodology described in the ADMS-Roads Detailed Dispersion Model (details of which can be seen in **Appendix 2**, utilising data described in **Appendix 3**), predict concentrations of air pollutants on-site within the current baseline year and the future baseline year.

### 3.2. Methodology for Determining Demolition and Construction Effects

The determination of demolition and construction effects of the Proposed Development was based on the IAQM's Guidance on the Assessment of Dust from Demolition and Construction, which provides a risk-based assessment methodology to determine the significance of an air quality impact arising from the construction of a new development, based on the magnitude of change. The methodology provides a five-step approach to determining the significance:

*“STEP 1 is to screen the requirement for a more detailed assessment. No further assessment is required if there are no receptors within a certain distance of the works.*

*STEP 2 is to assess the risk of dust impacts. This is done separately for each of the four activities (demolition; earthworks; construction; and trackout) and takes account of:*

*the scale and nature of the works, which determines the potential dust emission magnitude (STEP 2A); and the sensitivity of the area (STEP 2B).*

*These factors are combined in STEP 2C to give the risk of dust impacts.*

*Risks are described in terms of there being a low, medium or high risk of dust impacts for each of the four separate potential activities. Where there are low, medium or high risks of an impact, then site-specific mitigation will be required, proportionate to the level of risk.*

*Based on the threshold criteria and professional judgement one or more of the groups of activities may be assigned a 'negligible' risk. Such cases could arise, for example, because the scale is very small and there are no receptors near to the activity.*

*STEP 3 is to determine the site-specific mitigation for each of the four potential activities in STEP 2. This will be based on the risk of dust impacts identified in STEP 2. Where a local authority has issued guidance on measures to be adopted at demolition/construction sites, these should also be taken into account.*

*STEP 4 is to examine the residual effects and to determine whether or not these are significant.*

*STEP 5 is to prepare the dust assessment report.”*

### 3.3. Methodology for Determining Operational Effects

To determine the operational effects of the Proposed Development, the change in traffic flow at sensitive receptors in the future opening year of the proposed development, both with and without development related traffic, was modelled using the methodology described in the ADMS-Roads Detailed Dispersion Model (details of which can be seen in **Appendix 2**, utilising data described in **Appendix 3**).

To determine the impact of the proposed development on surrounding local sensitive receptors, the impact magnitude has been derived from Land-Use Planning & Development Control: Planning for Air Quality, jointly published by the IAQM and EPUK. **Table 3.1** identifies the advice given in the IAQM / EPUK Guidance regarding impact descriptors upon individual receptors.

**Table 3.1: Impact Descriptors for Individual Receptors**

Long-Term Average Concentration at Receptor in Assessment Year	% Change in Concentrations Relative to Air Quality Assessment Level (AQAL)			
	1	2-5	6-10	>10
75% or less of AQAL	Negligible	Negligible	Slight	Moderate
76-94% of AQAL	Negligible	Slight	Moderate	Moderate
95-102% of AQAL	Slight	Moderate	Moderate	Substantial
103-109% of AQAL	Moderate	Moderate	Substantial	Substantial
110% or more of AQAL	Moderate	Substantial	Substantial	Substantial

Source: Table 6.3 of the IAQM Guidance

The guidance goes on to offer the following explanation (taken from the footnotes of Table 6.3 of the IAQM Guidance):

“AQAL = Air Quality Assessment Level, which may be an air quality objective, EU limit or target value, or an Environment Agency ‘Environmental Assessment Level (EAL)’.

The Table is intended to be used by rounding the change in percentage pollutant concentration to whole numbers, which then makes it clearer which cell the impact falls within. The user is encouraged to treat the numbers with recognition of their likely accuracy and not assume a false level of precision. Changes of 0%, i.e., less than 0.5% will be described as Negligible.

The Table is only designed to be used with annual mean concentrations.

Descriptors for individual receptors only; the overall significance is determined using professional judgement (see Chapter 7). For example, a ‘moderate’ adverse impact at one receptor may not mean that the overall impact has a significant effect. Other factors need to be considered.

When defining the concentration as a percentage of the AQAL, use the ‘without scheme’ concentration where there is a decrease in pollutant concentration and the ‘with scheme;’ concentration for an increase.

The total concentration categories reflect the degree of potential harm by reference to the AQAL value. At exposure less than 75% of this value, i.e. well below, the degree of harm is likely to be small. As the exposure approaches and exceeds the AQAL, the degree of harm increases. This change naturally becomes more important when the result is an exposure that is approximately equal to, or greater than the AQAL.



*It is unwise to ascribe too much accuracy to incremental changes or background concentrations, and this is especially important when total concentrations are close to the AQAL. For a given year in the future, it is impossible to define the new total concentration without recognising the inherent uncertainty, which is why there is a category that has a range around the AQAL, rather than being exactly equal to it."*

### 3.4. Significance Criteria

Land-Use Planning & Development Control: Planning for Air Quality provides a framework to assess significance in air quality assessments. As described in the guidance, the "assessment framework for describing impacts can be used as a starting point to make a judgement on significance of effect, but there will be other influences that might need to be accounted for. The impact descriptors set out in Table 6.3 [Replicated in Table 3.1 of this chapter] are not, of themselves, a clear and unambiguous guide to reaching a conclusion on significance. These impact descriptors are intended for application at a series of individual receptors. Whilst it may be that there are 'slight', 'moderate' or 'substantial' impacts at one or more receptors, the overall effect may not necessarily be judged as being significant in some circumstances (Paragraph 7.4)".

The Land-Use Planning & Development Control guidance goes on to state that any significance needs to be assessed using a certain amount of professional judgement and should take into account "the existing and future air quality in the absence of the development; the extent of current and future population exposure to the impacts; and the influence and validity of any assumptions adopted when undertaking the prediction of impacts" (Paragraph 7.7). For example, for a large development, a major adverse impact on a single dwelling might be considered insignificant; however, a minor impact to 100,000 dwellings might be considered to be highly significant. Furthermore, the absolute level of pollutant concentrations are also important in determining significance; for example, a moderate impact to a small group of dwellings might be considered highly significant if the concentrations of NO<sub>2</sub> were well in excess of the NAQO level, however, that same moderate impact might be considered insignificant if concentrations were well below the NAQO.

## 4. SCOPING

### 4.1. Overview

The National Planning Practice Guidance on Air Quality is explicit in stating that "Assessments need to be proportionate to the nature and scale of development proposed and the potential impacts (taking into account existing air quality conditions), and because of this are likely to be locationally specific" (Reference ID: 32-007-20191101). This is reiterated in *Land-Use Planning & Development Control: Planning for Air Quality*, jointly published by the Institute of Air Quality Management (IAQM) and Environmental Protection UK (EPUK) in May 2015 and updated in January 2017, which provided guidance on screening as to whether an air quality assessment is required and what needs to be assessed.

### 4.2. Impacts of the Local Area on the Development

The IAQM/EPUK Guidance suggests that whether an assessment of the impacts of the local area on the proposed development is required is a matter of judgement, but should take into account:

- "the background and future baseline air quality and whether this will be likely to approach or exceed the values set by air quality objectives;
- the presence and location of Air Quality Management Areas as an indicator of local hotspots where the air quality objectives may be exceeded;
- the presence of a heavily trafficked road, with emissions that could give rise to sufficiently high concentrations of pollutants (in particular NO<sub>2</sub>), that would cause unacceptably high exposure for users of the new development; and
- the presence of a source of odour and/or dust that may affect amenity for future occupants of the development."

### 4.3. Impacts of the Development on the Local Area

To determine whether an assessment of the impacts of the development on the local environment is required, the IAQM/EPUK Guidance suggests a two-stage approach. The guidance states that "The **first stage** is intended to screen out smaller development and/or developments where impacts can be considered to have insignificant effects. The **second stage** relates to specific details regarding the proposed development and the likelihood of air quality impacts."

**Figure 4.1** reproduces Stage 1 of the IAQM/EPUK Guidance' two-stage approach. In order to proceed to Stage 2, development needs to meet both one of the criteria in "A", and one of the criteria in "B". If the development fails to meet these criteria, then an air quality assessment looking at the impacts of the development on the local area will not be required.

**Figure 4.2** reproduces Stage 2 of the IAQM/EPUK Guidance' two-stage approach. If the development meets the criteria contained within Stage 1, "more specific guidance as to when an air quality assessment is likely to be required to assess the impacts of the proposed development on the local area." If the development then meets any of the eight criteria in Stage 2, an assessment of the impacts of the proposed development on the surrounding environment will be required.

Figure 4.1: IAQM/EPUK Guidance – Stage 1 Criteria

**Criteria to Proceed to Stage 2**

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A. If any of the following apply:

- 10 or more residential units or a site area of more than 0.5ha
- more than 1,000 m<sup>2</sup> of floor space for all other uses or a site area greater than 1ha

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B. Coupled with any of the following:

- the development has more than 10 parking spaces
- the development will have a centralised energy facility or other centralised combustion process

**Note:** Consideration should still be given to the potential impacts of neighbouring sources on the site, even if an assessment of impacts of the development on the surrounding area is screened out.

Figure 4.2: IAQM/EPUK Guidance – Stage 2 Criteria

The development will:	Indicative Criteria to Proceed to an Air Quality Assessment <sup>a</sup>
1. Cause a significant change in Light Duty Vehicle (LDV) traffic flows on local roads with relevant receptors. (LDV = cars and small vans <3.5t gross vehicle weight).	A change of LDV flows of: - more than 100 AADT within or adjacent to an AQMA - more than 500 AADT elsewhere.
2. Cause a significant change in Heavy Duty Vehicle (HDV) flows on local roads with relevant receptors. (HDV = goods vehicles + buses >3.5t gross vehicle weight).	A change of HDV flows of: - more than 25 AADT within or adjacent to an AQMA - more than 100 AADT elsewhere.
3. Realign roads, i.e. changing the proximity of receptors to traffic lanes.	Where the change is 5m or more and the road is within an AQMA.
4. Introduce a new junction or remove an existing junction near to relevant receptors.	Applies to junctions that cause traffic to significantly change vehicle accelerate/decelerate, e.g. traffic lights, or roundabouts.
5. Introduce or change a bus station.	Where bus flows will change by: - more than 25 AADT within or adjacent to an AQMA - more than 100 AADT elsewhere.
6. Have an underground car park with extraction system.	The ventilation extract for the car park will be within 20 m of a relevant receptor. Coupled with the car park having more than 100 movements per day (total in and out).
7. Have one or more substantial combustion processes, where there is a risk of impacts at relevant receptors.  NB. this includes combustion plant associated with standby emergency generators (typically associated with centralised energy centres) and shipping.	Typically, any combustion plant where the single or combined NO <sub>x</sub> emission rate is less than 5 mg/sec <sup>a</sup> is unlikely to give rise to impacts, provided that the emissions are released from a vent or stack in a location and at a height that provides adequate dispersion.  In situations where the emissions are released close to buildings with relevant receptors, or where the dispersion of the plume may be adversely affected by the size and/or height of adjacent buildings (including situations where the stack height is lower than the receptor) then consideration will need to be given to potential impacts at much lower emission rates.  Conversely, where existing nitrogen dioxide concentrations are low, and where the dispersion conditions are favourable, a much higher emission rate may be acceptable.

<sup>a</sup>As a guide, the 5 mg/s criterion equates to a 450 kW ultra low NO<sub>x</sub> gas boiler or a 30kW CHP unit operating at <95mg/Nm<sup>3</sup>. Users of this guidance should quantify the NO<sub>x</sub> mass emission rate from the proposed plant, based on manufacturers' specifications and operational conditions.

## 4.4. Site Specific Scoping Assessment

### 4.4.1. Modelling of Impacts of the Local Area on the Proposed Development

The proposed development is not located in an Air Quality Management Area and is located nearly 1 km from the nearest A-road. Additionally, the baseline study (see **Section 5**) shows that conditions on site do not indicate any issues with regards to air quality, therefore **an assessment of the impacts of the local area on the development is not required.**

### 4.4.2. Modelling of Impacts of the Proposed Development on the Local Area

The proposed development consists of eight new dwellings, therefore Stage 1 “A” criteria are not met. Additionally, trip generation data has been compiled by Paul Basham Associates which considers that the total trip generation as a result of the proposed development will not exceed 50 AADT. Therefore, **an assessment of the impacts of the development on the local area is not required.**

### 4.4.3. Other Assessments

A qualitative construction dust risk assessment has been included as standard practice which will recommend mitigation measures for the construction phase that can be incorporated into a dust management plan.

Consideration has been given to the nearby Southampton & Solent Water Ramsar Site/Special Area of Protection with regards to air pollution under The Habitats Regulations.

## 5. BASELINE CONDITIONS

### 5.1. Air Quality Review and Assessment

Local Authorities have been required to carry out a review of local air quality within their boundaries to assess areas that may fail to achieve the NAQOs. Where these objectives are unlikely to be achieved, local authorities must designate these areas as Air Quality Management Areas (AQMAs) and prepare a written action plan to achieve the NAQOs.

The review of air quality takes on several prescribed stages, of which each stage is reported. The review of historic Air Quality Annual Status Reports published by Southampton City Council indicates that exceedances of the annual mean objective for NO<sub>2</sub> have been experienced across the Borough, primarily centred on the main roads, and these exceedances are predicted to continue. It is understood that exceedances of the annual mean objectives for both PM<sub>10</sub> and PM<sub>2.5</sub> are not expected within the Borough in future years.

As a consequence of the exceedances of the NAQOs, Southampton City Council have declared 11 Air Quality Management Areas (AQMAs) throughout the City, mainly centred on narrow stretches of main roads and junctions and the properties immediately fronting them. None of these AQMAs are within 1 km of the proposed development by road or in a straight line.

Concentrations of SO<sub>2</sub>, Benzene, Lead and CO are not considered to be significant within the Borough. Consequently, no further consideration is given to these pollutants as it is highly unlikely that they would be of concern on the proposed development site.

### 5.2. Local Air Quality Monitoring

Southampton City Council has an extensive air quality monitoring programme, including 4 automatic continuous monitoring stations and a network of 89 passive NO<sub>2</sub> diffusion tubes during 2019, the last year for which a full years worth of data not affected by the COVID-19 lockdowns is available.

Of these 93 air quality monitors, the annual objective of 40 µg/m<sup>3</sup> NO<sub>2</sub> was exceeded at 11 sites. When distance corrected to relevant exposure, i.e., adjusting the concentration measured at the location (often at kerbside street furniture) to that which would be predicted at the nearest residential receptor, this number fell to four exceedances, all of which were in areas already designated as AQMAs.

The nearest AQMA to the proposed development site (AQMA 11 – Victoria Road) is approximately 1 km to the south and encompasses Victoria Road, a small High Street in Woolston. There are several diffusion tube locations within the AQMA as well as one of the automatic monitoring stations. No exceedances of the NO<sub>2</sub> NAQO were monitored during 2019.

Local Air Quality Monitoring suggests that given the low number of exceedances across the City, particularly in congested areas already designated as AQMAs, it is unlikely that the proposed development would experience exceedances, particularly given its more remote location with respect to main roads.

### 5.3. Industrial Emissions

Permitted industrial processes are split into three categories. Category A1 is made up of the largest processes such as refineries, factories and heavy manufacturing sites and the permitting for these is the responsibility of



the Environment Agency. The Environment Agency’s register of these processes indicates eight such processes in the City of Southampton. All are at least 2 km away from the proposed development, primarily in the port area west of the city centre.

Part A2 processes are smaller installations than Part A1 processes and the permitting for such processes is the responsibility of the local authority. The public register of Part A2 processes in the City of Southampton indicates one such facility, a plastics printing facility on Hazel Road, which runs parallel to the site boundary beyond the train line (see **Figure 1.1**).

Part B processes are typically even smaller installations that may still have emissions to the air. Part B processes can include coating processes, concrete batching, petrol stations and dry cleaners. The public register of Part B processes in the City of Southampton indicates 34 such facilities. One of these is in proximity to the proposed development, a concrete batching facility also on Hazel Road.

Concrete batching in particular can have concerns with regards to air pollution, although the permit granted to such a site would carry the condition of mitigation (often through the housing of dusty processes in sealed facilities), for which a source-pathway-receptor model is often used when determining the risks. The fact that the facilities on Hazel Road are permitted despite the presence of existing residential dwellings in the Bryanston Road area (closer to the permitted installations than the proposed development) indicates that adequate mitigation is in place and that the processes are not considered detrimental to the air quality at the nearby sensitive receptors around the proposed development site.

#### 5.4. Local Background Concentrations

Air pollution background maps are published by Defra primarily to assist local authorities in carrying out Review and Assessment of local air quality as part of their duties under the Environmental Act 1995 as amended by the Environment Act 2021.

The main purpose of the background maps is to provide estimates of background concentrations for specific pollutants. These can then be used in air quality assessments to better understand the contribution of local sources to total pollutant concentrations.

The background maps contain estimations of pollutant concentrations at 1 km<sup>2</sup> resolution across the whole of the UK. The estimated background concentrations at the proposed development site (grid square centred at 443500 112500) for 2023 are shown in the table below.

**Table 5.1: Estimated Background Concentrations**

Grid Square	Estimated 2023 Background Concentration (µg/m <sup>3</sup> )		
	NO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
443500 112500	21.78	14.70	10.37
<b>Annual NAQO</b>	<b>40</b>	<b>40</b>	<b>25</b>

As can be seen from **Table 4.1**, estimated background concentrations are considerably below the annual NAQOs. It is generally considered when modelling that local sources within 200 m of a receptor (in this case the proposed development site) should be added to the background concentrations to give a total estimation of pollutant concentrations. Given the location of the proposed development, in a residential area away from any main roads, it is considered that contributions from these local sources would not be sufficient given the background concentrations to bring total pollutant concentrations towards the NAQO levels.

## 5.5. Overview

As a result of the findings of **Sections 5.1-5.4** above, it is considered that baseline pollutant concentrations at the proposed development are likely to be considerably below the NAQOs at present, supporting the scoping assessment in **Section 4** that a modelled assessment of the impact of the local area on the development is not required at this site.



## 6. IMPACTS OF THE LOCAL AREA ON THE DEVELOPMENT

The scoping assessment contained within **Section 4** of this report identifies that the impact of the local area on the proposed development is likely to be insignificant and therefore no further assessment is required. Consideration of current conditions at the proposed development has been given in **Section 5**.

## 7. IMPACTS OF THE DEVELOPMENT ON THE LOCAL AREA

The scoping assessment contained within **Section 4** of this report identifies that the impact of the proposed development on the local environment is likely to be insignificant and therefore no further assessment is required.

## 8. CONSTRUCTION DUST IMPACT ASSESSMENT

### 8.1. Overview

The main air quality impacts that may arise during construction activities are:

- Dust deposition, resulting in the soiling of surfaces;
- Visible dust plumes; and
- An increase in concentrations of airborne particles (e.g. PM<sub>10</sub>, PM<sub>2.5</sub>) and nitrogen dioxide due to exhaust emissions from site plant and traffic that can impact adversely on human health.

The most common impacts are dust soiling and increased ambient PM<sub>10</sub> concentrations due to dust arising from the site. Most of this PM<sub>10</sub> is likely to be in the PM<sub>2.5-10</sub> fraction, known as coarse particles.

It is very difficult to quantify emissions of dust from construction activities. It is, therefore, common practice to provide a qualitative assessment of potential impacts. The Institute of Air Quality Management's *Guidance on the assessment of dust from demolition and construction (February 2014)* contains a complex methodology for determining the significance of construction impacts on air quality. The following sections outline the steps outlined in the IAQM methodology.

### 8.2. Step 1 – Screening the Need for a Detailed Assessment

The IAQM guidance states that:

*“An assessment will normally be required where there is:*

- a ‘human receptor’ within:
  - 350 m of the boundary of the site; or
  - 50 m of the route(s) used by construction vehicles on the public highway, up to 500 m from the site entrance(s).
- an ‘ecological receptor’ within:
  - 50 m of the boundary of the site; or
  - 50 m of the route(s) used by construction vehicles on the public highway, up to 500 m from the site entrance(s).”

There are existing receptors within 350m of the boundary of the development site and within 50m of the route used by construction vehicles on the public highway. Therefore, a detailed assessment is required to determine potential dust impacts.

**Step 1 Summary:**

*A detailed assessment is required to determine potential dust impacts.*

### 8.3. Step 2 – Assess the Risks of Dust Impacts

The IAQM guidance states that:

*“The risk of dust arising in sufficient quantities to cause annoyance and/or health and/or ecological impacts should be determined using four risk categories: negligible, low, medium and high risk.*

*A site is allocated to a risk category based on two factors:*

- *the scale and nature of the works, which determines the potential dust emission magnitude as small, medium or large (STEP 2A); and*
- *the sensitivity of the area to dust impacts (STEP 2B), which is defined as low, medium or high sensitivity.*

*These two factors are combined in STEP 2C to determine the risk of dust impacts with no mitigation applied. The risk category assigned to the site can be different for each of the four potential activities (demolition, earthworks, construction and trackout). More than one of these activities may occur on a site at any one time.”*

#### 8.3.1. Step 2a – Dust Emission Magnitude

The first step (Step 2a) is therefore to assess the magnitude of the anticipated works. **Table 8.1** summarises the dust emission magnitude for each activity.

**Table 8.1: Dust Emission Magnitude**

Activity	Dust Emission Magnitude	Justification
Demolition	N/A	None required.
Earthworks	Medium	Site area ~3,800 m <sup>3</sup> , some soil clay content identified, possible piling.
Construction	Small	Building volume will be less than 25,000 m <sup>3</sup> with no higher risk processes indicated.
Trackout	Small	Less than 10 outward HGV movements per day are expected (1) and the sections of unpaved roads will be less than 50 m.

#### 8.3.2. Step 2b – Sensitivity of the Area

The next step (Step 2b) is therefore to assess the sensitivity of the area that could be affected by the anticipated works. **Figure 8.1** shows the distance bands into which receptors fall as described in the guidance, both from the site (20, 50, 100 and 350 metres) and **Figure 8.2** shows the relevant bands for the associated haul routes (20 and 50 metres).

Figure 8.1: Receptor distance bands from proposed development site

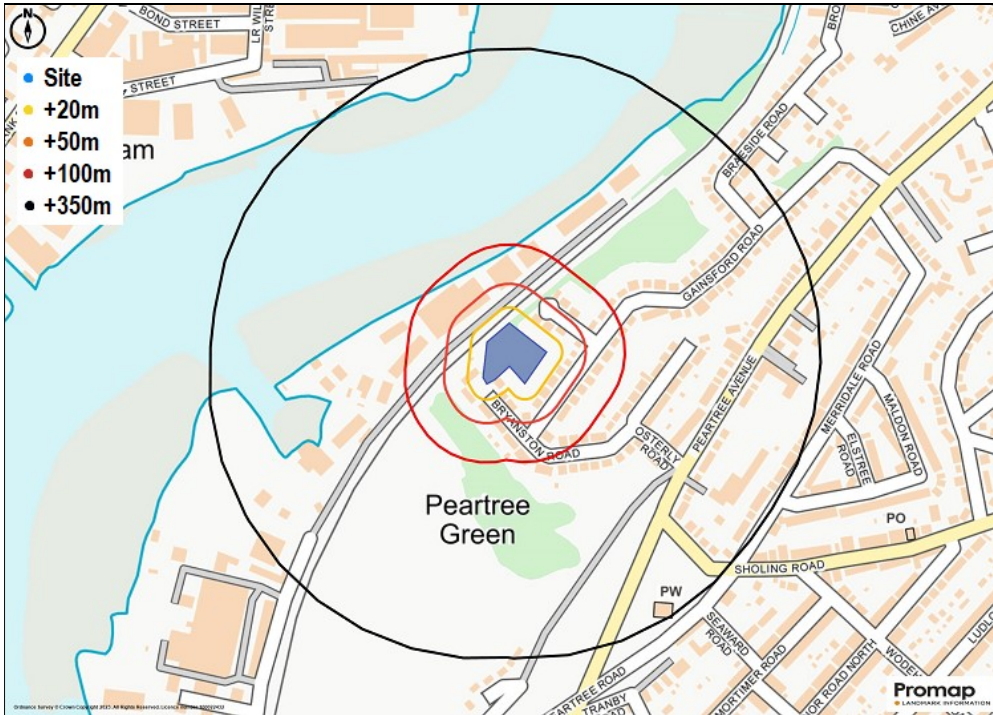
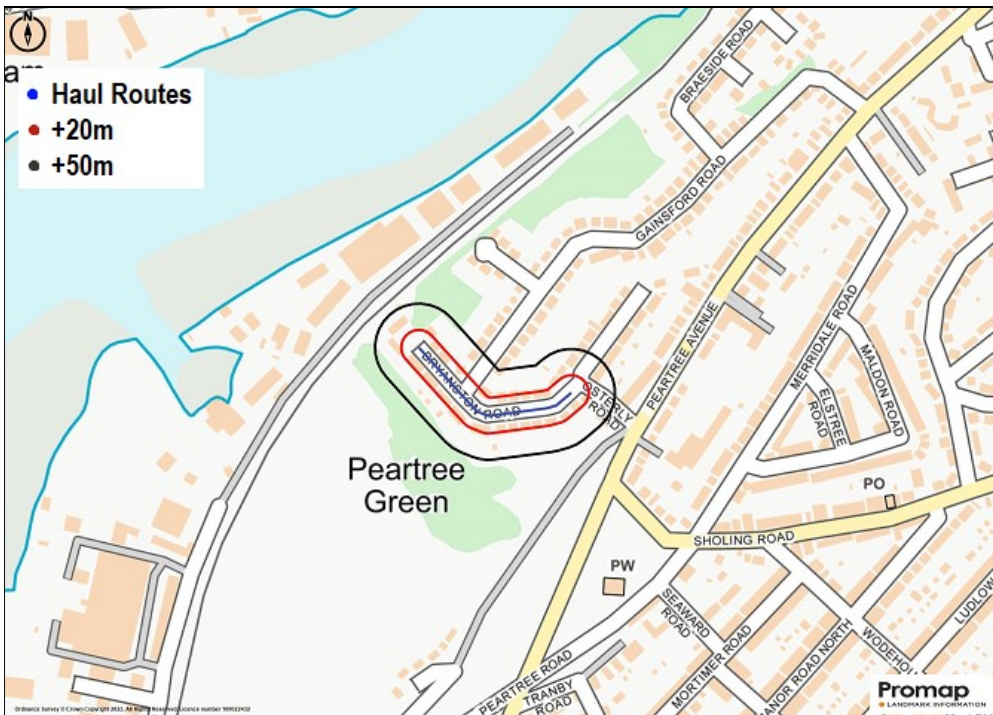


Figure 8.2: Receptor distance bands from proposed haul routes



There are a number of existing dwellings in the area that are considered to be high sensitivity receptors. There are between 10 and 100 high sensitivity receptors within 20 m of the site boundary and its haul routes; therefore, the sensitivity to dust soiling effects on people and property is “high” for all activities.

The annual mean concentration of PM<sub>10</sub> is less than 24 µg/m<sup>3</sup>; despite the number of high sensitivity receptors outlined above, this results in a “low” sensitivity of the area to human health impacts for all activities.

There are no ecological receptors that are considered to be anything greater than low sensitivity receptors within 50 m of the site (the Solent & Southampton Water Ramsar/SPA is ~80 m from the site boundary); this results in a “low” sensitivity of the area to ecological impacts for all activities.

**Table 8.2** summarises the sensitivity of the area for each activity.

**Table 8.2: Outcome of Defining the Sensitivity of the Area**

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

### 8.3.3. Step 2c – Define the Risks

The next step (Step 2c) is to assign the level of risk for each activity, based on the receptor sensitivity and the dust emission magnitude. **Table 8.3** summarises the dust risk for each activity.

**Table 8.3: Summary Dust Risk Table to Define Site-Specific Mitigation**

Potential Impact	Risk			
	Demolition	Earthworks	Construction	Trackout
Dust Soiling	N/A	Medium	Low	Low
Human Health	N/A	Low	Negligible	Negligible
Ecological	N/A	Low	Negligible	Negligible

**Step 2 Summary:**

- Dust Emission Magnitude is “Medium” for earthworks and “Small” for construction and trackout.
- The Sensitivity of the area of is “High” for dust soiling and “Low” for human health and ecological impacts.
- The site is considered a “Medium Risk Site” in respect of earthworks and a “Low Risk Site” in



*respect of construction and trackout. It is therefore considered a “Low Risk Site” overall.*

#### 8.4. Step 3 – Site Specific Mitigation

Stage 2 determines that the site is considered a “Medium Risk Site” in respect of earthworks and a “Low Risk Site” in respect of construction and trackout. It is therefore considered a “Medium Risk Site” overall.

The IAQM guidance provides a list of potential mitigation measures and suggests where these measures are highly recommended, desirable or not required based upon the risk of the site. For all sites that are a “Medium Risk Site” or higher, a Dust Management Plan is highly recommended and should incorporate the mitigation measures recommended based on the site risk.

The IAQM’s Guidance states that the following measures are highly recommended or desirable as mitigation for all Medium risk sites:

- Communications: Develop and implement a stakeholder communications plan that includes community engagement before work commences – *Highly Recommended*.
- Communications: Display the name and contact details of person(s) accountable for air quality and dust issues on the Site boundary – *Highly Recommended*.
- Communications: Display the head or regional office contact information – *Highly Recommended*.
- Communications: Develop and implement a Dust Management Plan (DMP), which may include measures to control other emissions, approved by the LPA. The level of detail will depend on the risk and should include as a minimum the highly recommended measures in this document. The desirable measures should be included as appropriate for the Site. In London, additional measures may be required to ensure compliance with the Mayor of London’s guidance. The DMP may include monitoring of dust deposition, dust flux, real-time PM<sub>10</sub> continuous monitoring and/or visual inspections – *Highly Recommended*.
- Site management: Record all dust and air quality complaints, identify the cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken – *Highly Recommended*.
- Site management: Make the complaints log available to the local authority when asked – *Highly Recommended*.
- Site management: Record any exceptional incidents that cause dust and/or air emissions, either on- or off-site, and the action taken to resolve the situation in the log book – *Highly Recommended*.
- Monitoring: Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the LPA when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100m of Site boundary, with cleaning to be provided if necessary - *Desirable*.
- Monitoring: Carry out regular Site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the local authority when asked– *Highly Recommended*.

- Monitoring: Increase the frequency of Site inspections by the person accountable for air quality and dust issues on-site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions – *Highly Recommended*.
- Monitoring: Agree on dust deposition, dust flux, or real-time PM<sub>10</sub> continuous monitoring locations with the Local Authority. Where possible commence baseline monitoring at least three months before work commences on-site or, if it a large site, before work on a phase commences. Further guidance is provided by IAQM on monitoring during demolition, earthworks and construction. – *Highly Recommended*.
- Preparing and maintaining the Site: Plan Site layout so that machinery and dust causing activities are located away from receptors, as far as is possible – *Highly Recommended*.
- Preparing and maintaining the Site: Erect solid screens or barriers around dusty activities (or the Site boundary) that are at least as high as any stockpiles on-site – *Highly Recommended*.
- Preparing and maintaining the Site: Fully enclose Site or specific operations where there is a high potential for dust production and the Site is active for an extensive period– *Highly Recommended*.
- Preparing and maintaining the Site: Avoid Site runoff of water or mud– *Highly Recommended*..
- Preparing and maintaining the Site: Keep Site fencing, barriers and scaffolding clean using wet methods – *Highly Recommended*.
- Preparing and maintaining the Site: Remove materials that have a potential to produce dust from Site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below – *Highly Recommended*.
- Preparing and maintaining the Site: Cover, seed or fence stockpiles to prevent wind whipping – *Highly Recommended*.
- Operating vehicle/machinery and sustainable travel: Ensure all on-road vehicles comply with the requirements of the London Low Emission Zone and the London NRMM standards, where applicable– *Highly Recommended*.
- Operating vehicle/machinery and sustainable travel: Ensure all vehicles switch off engines when stationary - no idling vehicles – *Highly Recommended*.
- Operating vehicle/machinery and sustainable travel: Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable – *Highly Recommended*.
- Operating vehicle / machinery and sustainable travel: Impose and signpost a maximum-speed-limit of 15 mph on surfaced and 10 mph on unsurfaced haul roads and work areas (if long-haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate) - *Desirable*.



- Operating vehicle/machinery and sustainable travel: Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials – *Highly Recommended*.
- Operating vehicle/machinery and sustainable travel: Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing) – *Desirable*.
- Operations: Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation system – *Highly Recommended*.
- Operations: Ensure an adequate water supply on the Site for effective dust / particulate matter suppression/mitigation, using non-potable water where possible and appropriate – *Highly Recommended*.
- Operations: Use enclosed chutes and conveyors and covered skips – *Highly Recommended*.
- Operations: Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate – *Highly Recommended*.
- Operations: Ensure equipment is readily available on site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods – *Highly Recommended*.
- Waste management: Avoid bonfires and burning of waste materials – *Highly Recommended*.

The IAQM's Guidance states that the following measures are highly recommended or desirable as mitigation for all Medium risk sites in relation to earthworks:

- Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable - *Desirable*.
- Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable - *Desirable*.
- Only remove the cover in small areas during work and not all at once - *Desirable*.

The IAQM's Guidance states that the following measures are highly recommended or desirable as mitigation for all Low risk sites in relation to construction:

- Avoid scabbing (roughening of concrete surfaces) if possible - *Desirable*.
- Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place – *Desirable*.

The IAQM's Guidance states that the following measures are highly recommended or desirable as mitigation for all Low risk sites in relation to trackout:

- Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use – *Desirable*.

- Avoid dry sweeping of large areas – *Desirable*.
- Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport – *Desirable*.
- Record all inspections of haul routes and any subsequent action in a site log book – *Desirable*.
- Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable) – *Desirable*.

**Step 3 Summary:**

*The site is considered a “Medium Risk Site” overall and a Dust Management Plan is recommended incorporating a number of specific mitigation measures based on the site-specific risks.*

### 8.5. Step 4 – Determining Significant Effects

The site is considered a “Medium Risk Site” overall and if appropriate mitigation measures are put in place, as identified in Step 3, significant effects on receptors are unlikely to occur. Considering both the construction details and the specific characteristics of the site, it is anticipated that effective mitigation will be possible and residual effects will not be considered significant.

**Step 4 Summary:**

*With risk appropriate mitigation, residual effects will not be considered significant.*

### 8.6. Step 5 – Dust Assessment Report

**Step 5 Summary:**

*Dust and other pollutant emissions from the construction, demolition, earthworks and trackout phases of the construction of the proposed development will see the site designated a “Medium Risk Site”. However, with risk-appropriate mitigation, residual effects will not be considered significant.*

## 9. HABITAT REGULATIONS ASSESSMENT

### 9.1. Overview

Natural England provides guidelines that advise on the assessment of the impacts of road traffic emissions of proposed developments (referred to as “plans and projects”) on protected European habitat sites in its guidance *Natural England’s approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations*.

The guidance covers primarily the screening stage that initially identifies the risk of the possibility of significant adverse effects on a European site which could undermine the achievement of its conservation objectives and which therefore would require further detailed examination through an “appropriate assessment”. If risks which might undermine a site’s conservation objectives can clearly be ruled out (based on the consideration of objective information), a proposal will have no likely significant effect and no appropriate assessment will be needed.

### 9.2. Advice on Screening

The advice on screening the need for an appropriate assessment is set out in 4 steps, as described below. If the proposal does not meet the criteria of one of the steps, there is no need to progress to the next step:

- Step 1: Does the proposal give rise to emissions which are likely to reach a European Site?
  - Any emissions from road traffic associated with a specific proposal and the proximity to European sites should be considered.
- Step 2: Are the qualifying features of the sites within 200m of a road sensitive to air pollution?
  - Distance-based criteria have been established for several sectors to identify consultations requiring consideration for potential effects from air pollution.
  - With regard to potential risks from road traffic emissions, Natural England and Highways England are in agreement that protected sites falling within 200 meters of the edge of a road affected by a plan or project need to be considered further.
- Step 3: Could the sensitive qualifying features of the site be exposed to emissions?
  - “Qualifying features” of a site can be identified by reference to Natural England’s formal advice on their conservation objectives, which include a definitive list of legally-qualifying features.
  - There are several ways to establish whether qualifying feature is sensitive to the type of air emissions expected from a proposal, ranging from broad, internationally agreed pollution benchmarks (critical loads and levels) to site specific information such as survey data.
- Step 4: Application of screening thresholds: (a) alone; (b) in-combination with emissions from other road traffic plans and projects; and (c) in-combination with emissions from other non-road plans and projects.

- Established guideline thresholds that determine whether a change is likely to be significant are used and applied to the development.
- The parameters used as thresholds are a change in AADT of 1,000 or more (or 200 of more AADT HGV) or 1% of the critical load or critical level for emissions.
- These thresholds do not themselves imply any intrinsic environmental effects and are used solely as a trigger for further investigation.

### 9.3. Site Specific Screening (Steps 1-4a)

Approximately 100 m northwest of the proposed development lies a portion of the Solent & Southampton Water Special Protection Area/Ramsar Site.

A site-specific screening assessment has been carried out to determine whether an Appropriate Assessment under the Habitat Regulations is required. **Table 9.1** summarizes this screening assessment.

**Table 9.1: Site Specific Screening Steps for a Road Traffic Assessment under the Habitats Regulations**

Step	Outcome	Justification
<b>Step 1: Does the proposal give rise to emissions which are likely to reach a European Site?</b>	<b>Yes</b>	<i>An increase in traffic generation of 37 AADT is expected from the site, which falls within 200 m of the proposed development.</i>
<b>Step 2: Are the qualifying features of the sites within 200 m of a road sensitive to air pollution?</b>	<b>Potentially</b>	<i>The features within the site and their sensitivities to air pollution. It is therefore considered as a precaution that they are so.</i>
<b>Step 3: Could the sensitive qualifying features of the site be exposed to emissions?</b>	<b>Potentially</b>	<i>The distribution of the qualifying features within Solent &amp; Southampton Water Special Protection Area/Ramsar Site cannot be determined, so it is assumed that they may be present at the boundaries that are within 200 metres of the roads mentioned above.</i>
<b>Step 4a: Do the emissions from this proposal alone exceed screening thresholds?</b>	<b>No</b>	<i>Even if qualifying features are present within 200 m of the proposed development site and they are sensitive to air pollution, the limited number of trips generated falls considerably short of the threshold for requiring an Appropriate Assessment, and would be within the limits of normal daily traffic level fluctuations.</i>

### 9.4. In-Combination Effects (Steps 4b and 4c)

Steps 4b and 4c of the guidance are to apply the threshold value not only to the traffic flows generated by the site alone (as in step 4a) but also to those of the site in combination with those from other projects and

proposals that have the potential to affect the site of interest. Step 4b guides for the application of the threshold to emissions in combination with those from other road traffic plans and projects; while Step 4c guides for the application of the thresholds to emissions in combination with those from other non-road plans and projects, for example ammonia emissions from a farm source.

These steps have been explicitly included in the updated guidance since June 2018 to reflect the requirements of the Habitats Regulations in response to recent clarification provided by the Wealden Judgement (February 2017). This ruled in favour of Wealden District Council that a neighbouring Local Authority had failed to take into account in-combination effects from developments in the protection of the Ashdown Forest Special Area of Conservation in the development of its Local Plan.

Notwithstanding the above, it should be considered in the case of this site that although the total AADT expected to be generated by the proposed development is 37 vehicles per day, which falls well below the 1000 AADT threshold for an Appropriate Assessment. Such an amount would be considered well within normal daily fluctuations on the roads considered that may impact on the Solent & Southampton Water site.

Whilst it is important to take account of in-combination effects in relation to SSSI/SACs and similar sites, it can be deemed that the number of trips from this development that would contribute to any effects would be so infinitesimally small as to be unnoteworthy. Whilst it is possible that the in-combination effects of all of the major proposed developments in the area may exceed the 1000 AADT threshold for a more detailed assessment, given that the contribution from this specific development is expected to be very small, it is not considered appropriate to consider the in-combination effects of all of the proposed developments in the area within the scope of this report.

## 10. MITIGATION

As a consequence of the proposed development, there will not be a significant increase in pollutant concentrations and therefore mitigation is not seen to be necessary, other than those routinely used to control construction dust, as detailed in the previous section.

Similarly, concentrations of all pollutants are below the National Air Quality Objectives at the development site and therefore it is not necessary to implement mitigation to reduce the exposure from NO<sub>2</sub> or any other pollutant to future occupiers of the proposed development.

## 11. CONCLUSIONS & SUMMARY

An air quality assessment has been undertaken in accordance with the Department of Environment, Food and Rural Affairs' (Defra) current *Technical Guidance on Local Air Quality Management (LAQM) (TG22)* and addresses the effects of air pollutant emissions from traffic using the adjacent roads, and emissions associated with the development of the site. In addition, a risk-based assessment of the likely impact of construction on the air quality of the local environment has been conducted in accordance with the Institute of Air Quality Management's 2014 edition of the *Guidance on the assessment of dust from demolition and construction*.

Baseline pollutant concentrations on site have been investigated using a desktop study based around existing monitoring data. Concentrations of all pollutants are considered to be below the Air Quality Objectives, both at current and in the opening year of the proposed development.

In order to assess the impact of the proposed development on local air quality, the IAQM/EPUK Guidance *Land-Use Planning & Development Control: Planning for Air Quality* has been utilised. The scoping stage has determined that due to the size of the development, a full assessment of the impacts of the proposed development on local air quality is not required.

With regards to the impacts of construction on air quality, dust and other pollutant emissions from the construction and demolition phases of the construction of the proposed development, the site is designated as a "Medium Risk Site". However, with risk-appropriate mitigation, residual effects will not be considered significant.

A Screening Assessment has indicated that the level of traffic generated by the proposed development falls considerably short of the threshold for an Appropriate Assessment of impacts with regards to the nearby Southampton & Solent Water Ramsar Site/SPA.

Since it has been shown that the proposed development meets the guidance contained within *Technical Guidance on Local Air Quality Management (LAQM) (TG22)*, IAQM/EPUK's *Land-Use Planning & Development Control: Planning for Air Quality* and IAQM's *Guidance on the assessment of dust from demolition and construction*, it is considered that the proposed development adheres to the principles of the National Planning Policy Framework since the new development will not be "put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution". Since it has been shown that in terms of air quality, the proposals adhere to local and national planning policy, it is considered that air pollution should not be a constraint on the proposed residential development.

## Appendix 1 Glossary of Terms



## Appendix 1: Glossary of Terms

**National Air Quality Standard/National Air Quality Objective (NAQO):** The concentrations of pollutants in the atmosphere, which can broadly be taken to achieve a certain level of environmental quality. The standards are based on an assessment of the effects of each pollutant on human health including the effects on sensitive subgroups.

**Annual mean:** The average of the concentrations measured for each pollutant for one year. In the case of the Air Quality Objectives, this is for a calendar year.

**Air Quality Management Area (AQMA):** An area that a local authority has designated for action, based upon predicted exceedances of Air Quality Objectives.

**Concentration:** The amount of a (polluting) substance in a volume (of air), typically expressed as a mass of pollutant per unit volume of air (for example, microgrammes per cubic metre,  $\mu\text{g}/\text{m}^3$ ) or a volume of gaseous pollutant per unit volume of air (parts per million, ppm).

**Exceedance:** A period of time where the concentration of a pollutant is greater than the appropriate Air Quality Objective.

**Nitrogen Oxides:** Nitric oxide (NO) is mainly derived from road transport emissions and other combustion processes such as the electricity supply industry. NO is not considered to be harmful to health. However, once released into the atmosphere, NO is usually very rapidly oxidised to nitrogen dioxide (NO<sub>2</sub>), which is harmful to health. NO<sub>2</sub> and NO are both oxides of nitrogen and together are referred to as nitrogen oxides (NO<sub>x</sub>).

**Particulate Matter:** Fine Particles are composed of a wide range of materials arising from a variety of sources including combustion sources (mainly road traffic), and coarse particles, suspended soils and dust from construction work. Particles are measured in a number of different size fractions according to their mean aerodynamic diameter. Most monitoring is currently focused on PM<sub>10</sub> (less than 10 microns in diameter), but the finer fractions such as PM<sub>2.5</sub> (less than 2.5 microns in diameter) is becoming of increasing interest in terms of health effects.

**$\mu\text{g}/\text{m}^3$  microgrammes per cubic metre of air:** A measure of concentration in terms of mass per unit volume. A concentration of 1  $\mu\text{g}/\text{m}^3$  means that one cubic metre of air contains one microgram (millionth of a gram) of pollutant.