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Air Quality Assessment

Padnell Grange, Waterlooville

Air Quality Assessment

Project: PADNELL GRANGE, WATERLOOVILLE

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1. EXECUTIVE SUMMARY

- 1.1 Cass Allen has been instructed by Stonebond Properties (Guildford) Ltd and the Borrow Foundation to assess the potential air quality effects associated with a proposed residential development at Padnell Grange, Waterlooville in Hampshire. The assessment was carried out referencing relevant local and national planning policy and guidance.
- 1.2 The site is not located within or near an Air Quality Management Area (AQMA), indicating that air quality in the vicinity is generally acceptable. Pollutant concentrations at the site are primarily influenced by vehicle emissions along the local road network.
- 1.3 Potential construction phase dust soiling and particulate matter (PM: PM₁₀) health effects were assessed qualitatively, resulting in Medium and Low Risk levels being identified, respectively, in the absence of mitigation. Suitable best practice mitigation measures have been recommended, and no significant residual air quality impacts are expected.
- 1.4 An appraisal of the potential exposure of future residents to elevated concentrations of nitrogen dioxide (NO₂) and PM (PM₁₀ and PM_{2.5}) was undertaken and pollutant concentrations across the site are expected to be below the relevant air quality objectives (AQOs) when operational. Furthermore, no significant impacts on local air quality are anticipated as a result of vehicle trips associated with the development, with no requirement for additional assessment or mitigation.
- 1.5 In summary, it is our view that the site is suitable for the development in terms of air quality and that there are no air quality constraints with respect to planning consent.

2. INTRODUCTION

- 2.1 Cass Allen has been instructed by Stonebond Properties (Guildford) Ltd and the Borrow Foundation to assess the potential air quality effects associated with a proposed residential development at Padnell Grange, Waterlooville in Hampshire. The assessment has been carried out referencing relevant local and national planning policy and guidance.
- 2.2 The site is allocated within the Havant Borough Council (HBC) 'Local Plan Allocations' (2014) document, under reference W126, for 84 dwellings. A previous planning application (reference: APP/19/00224) was submitted in 2019 on behalf of Bellway Homes, for the *Demolition of existing Padnell Grange and ancillary structures and erection of 86 dwellings with associated parking, landscaping, SUDS and other drainage works and the removal of 3No. TPO Oak trees*, and subsequently withdrawn in 2024, for reasons unrelated to air quality.
- 2.3 This Air Quality Assessment has been produced to inform a full planning application for a revised scheme comprising 90 dwellings. The aim of the assessment is to consider air quality conditions, and their potential to influence the development in terms of its design, scale and layout, taking into account the following aspects:
- Dust and PM emissions generated by construction phase activities;
 - Exhaust emissions from construction plant and traffic;
 - The exposure of new sensitive receptors to elevated pollutant concentrations; and
 - Emissions from traffic generated by the operation of the development.
- 2.4 Subsequently, where required, appropriate measures are identified to minimise the impacts.
- 2.5 This report contains technical terminology; a glossary of terms can be found at www.cassallen.co.uk/glossary.

3. PROJECT DESCRIPTION AND SITE CONTEXT

- 3.1 The proposal comprises a *full planning application for the demolition of existing buildings and the erection of 90 residential dwellings with upgraded access to Padnell Road, associated landscaping and other works.*
- 3.2 The 2.82ha site currently contains Padnell Grange farmhouse, a series of converted farm buildings which are being utilised as office space, and remaining buildings used for storage. The plot is not located within or near an AQMA, indicating that air quality in the vicinity is generally acceptable. Pollutant concentrations at the site are primarily influenced by vehicle emissions along the local road network.
- 3.3 The site is bound to the south and to the west by residential properties, to the north by Padnell Cut Woods and the east by Waterloooville Golf Course, all of which have the potential to be affected by emissions associated with both the construction and operational phases of the development.
- 3.4 The site location is shown in Figure 1.

Figure 1 Site Location and Surrounding Area



4. LEGISLATION, PLANNING POLICY AND GUIDANCE

Air Quality Legislation

- 4.1 The wider air quality legislation underpinning national, regional and local planning policy, is summarised in Appendix 1.
- 4.2 The National AQOs and Air Quality Standards Regulations limit and target values for the UK are summarised in the Air Quality Strategy. These limits, for ten key air pollutants, are based on both European Union directives and World Health Organization (WHO) guidelines. They are periodically updated, informed by the latest scientific evidence, to protect public health, vegetation and ecosystems. The Local Air Quality Management (LAQM) regime requires local authorities to regularly evaluate the air quality in their areas based on these AQOs.
- 4.3 As a regional pollutant, many sources of PM_{2.5} are beyond local authority control therefore, it does not form part of the LAQM regime. However, long-term (2040) targets for ambient PM_{2.5} concentrations are set in 'The Environmental Targets (Fine Particulate Matter) (England) Regulations' (2023), and an interim (2028) target is published in the 'Environmental Improvement Plan' (2023). PM_{2.5} is a key air pollutant for health impacts, and local authorities must monitor progress towards meeting these reduced levels.
- 4.4 The National AQOs for the pollutants most associated with vehicle emissions, and therefore applicable to this assessment, are detailed in Table 1.

Table 1 UK National Air Quality Objectives

Pollutant	Objective	Averaging Period
Nitrogen Dioxide (NO ₂)	40µg/m ³	Annual mean
	200µg/m ³ not to be exceeded more than 18 times per year	1-hour mean
Particulate Matter (PM ₁₀)	40µg/m ³	Annual mean
	50µg/m ³ not to be exceeded more than 35 times per year	24-hour mean
Particulate Matter (PM _{2.5})	20µg/m ³	Annual mean

- 4.5 The above AQOs are typically applied where there is 'relevant exposure', i.e., where members of the public are likely to be present for the relevant averaging periods, or regularly exposed, and not in workplaces where relevant provisions concerning health and safety at work apply.

National Policy

- 4.6 Outline guidance for the assessment of air quality affecting new developments is given in the 'National Planning Policy Framework' (NPPF) (December 2024; as amended February 2025). Relevant sections in this case are included in Appendix 1.

Local Policy

- 4.7 Relevant HBC local planning policy is included in Appendix 1.
- 4.8 To address the requirements of the national and local policies and guidance, the following key air quality matters have been considered:
- Construction phase fugitive emissions of dust and PM impacts at existing receptors;
 - Construction phase plant and vehicle emissions impacts at existing receptors;
 - Operational phase vehicle emissions exposure at proposed receptors; and
 - Operational phase vehicle emissions impacts at existing receptors.

5. ASSESSMENT METHODOLOGY

- 5.1 The scope and methodology for this assessment have been determined with regard to:
- Defra 'LAQM Technical Guidance' (May 2025) (LAQM.TG22); and
 - Environmental Protection UK (EPUK) & Institute of Air Quality Management (IAQM), 'Land Use Planning & Development Control: Planning for Air Quality' (January 2017) (LUPDC).
- 5.2 Reference has also been made to other relevant technical guidance, where applicable. Given the scale of the development, this assessment has used a high-level approach to consider relevant changes to baseline conditions, policy and guidance, where applicable.

Construction Phase

- 5.3 The assessment of potential air quality impacts during the construction phase has focused on the generation and dispersion of dust and PM₁₀, following the IAQM 'Guidance on the Assessment of Dust from Demolition and Construction' (January 2024) methodology, summarised as follows:
- Step 1 – screen the need for an assessment: consider impacts to sensitive human and ecological receptors within 250m or 50m of the site boundary, respectively (indicated on Figure 2), and within 50m of a route used by construction vehicles up to 250m from the site entrance.
 - Step 2A – estimate the dust emission magnitude for each of the main construction activities – demolition, earthworks, general construction, and trackout.
 - Step 2B – determine the sensitivity of the receiving environment, through consideration of factors such as meteorological conditions, the number of nearby receptors, their proximity and their sensitivity. Other factors to consider are detailed in Box 9 of the guidance. A wind rose for Thorney Island meteorological station is shown in Appendix 2.
 - Step 2C – define the risk of impacts.
 - Step 3 – identify site-specific mitigation requirements (in addition to basic project controls).
- 5.4 The IAQM methodology has been used to assess the potential impact of dust and PM₁₀ arising from on-site activities. As indicated within the guidance, the use of professional judgment is necessary, due to the diverse range of projects that are subject to dust impact assessment, meaning that it is not possible to be prescriptive as to how to assess the impacts.
- 5.5 A review of the Multi-Agency Geographic Information for the Countryside (MAGIC) website did not identify any statutory designated ecological sites within the relevant screening distances, and therefore these have been excluded from the construction phase assessment.
- 5.6 In addition, exhaust emissions from construction vehicles and plant may impact local air quality. The potential for significant effects resulting from these emissions has also been considered with reference to screening and significance criteria in LUPDC.

Operational Phase

- 5.7 Concentrations of NO₂, PM₁₀ and PM_{2.5} have been considered in the operational phase assessment as road traffic is a major source of these pollutants and their concentrations are often close to, or in exceedance of, the relevant AQOs in urban locations.

Air Quality Impacts

- 5.8 The LUPDC guidance indicates the magnitude of change in traffic flows that is potentially significant, and therefore likely to require further assessment, as follows:
- 5.9 For roads distant from an AQMA:
- Light Duty Vehicle (LDV) flows of >500 Annual Average Daily Traffic (AADT); and/or
 - Heavy Duty Vehicle (HDV) flows of >100 AADT.
- 5.10 The development has therefore been screened against these criteria. Where these thresholds are not exceeded, a detailed assessment of air quality impacts is not normally required, and the resulting effect can be considered 'not significant'.

Site Suitability

- 5.11 The development also has the potential to expose future users to elevated pollutant concentrations. As such, an appraisal of exposure is required to address planning requirements.

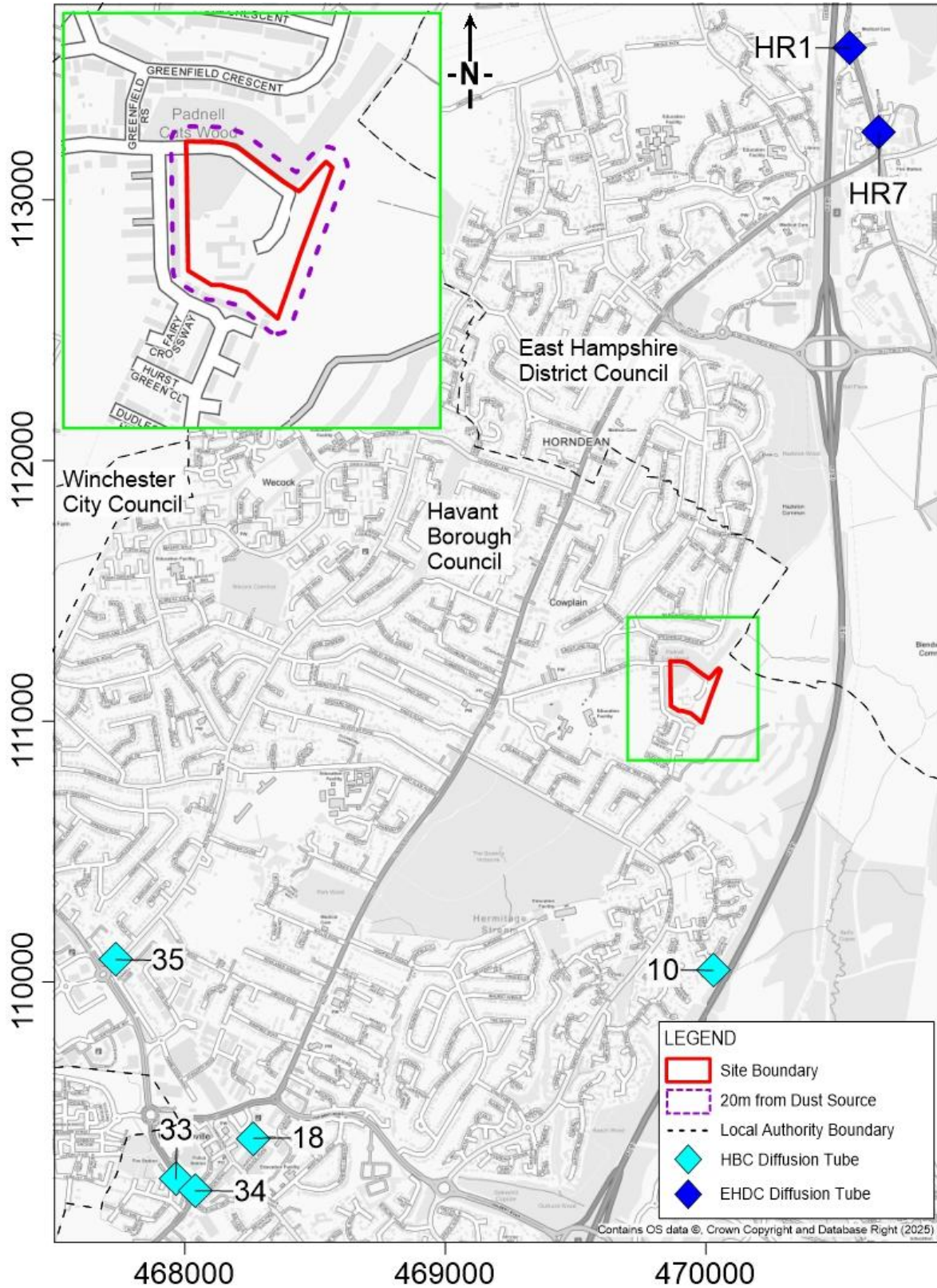
PM_{2.5} Targets

- 5.12 Additionally, Defra's 'PM_{2.5} Targets: Interim Planning Guidance' (October 2024), prompts developers to consider:
1. *How has exposure to PM_{2.5} been considered when selecting the development site?*
 2. *What actions and/or mitigations have been considered to reduce PM_{2.5} exposure for development users and nearby receptors (houses, hospitals, schools etc.) and to reduce emissions of PM_{2.5} and its precursors?*
- 5.13 Accordingly, these aspects are also considered in the operational phase assessment.

Assessment Criteria

- 5.14 For proposed receptors, nearby monitored pollutant concentrations have been compared to the relevant AQOs to determine the potential for exceedance, and therefore, the suitability of the site for the proposed use.

Figure 2 Study Area



6. BASELINE CONDITIONS

- 6.1 Air quality conditions in the vicinity of the site have been reviewed to provide a baseline for consideration. The closest collected data are included in the tables below and were obtained from HBC, neighbouring East Hampshire District Council (EHDC), and Defra. Monitoring locations are indicated on Figure 2.

Table 2 Monitored Concentrations Across Study Area – NO₂

ID	Location	Type	Distance to site (km)	Monitored Annual Mean (µg/m³)				
				2020	2021	2022	2023	2024
Havant Borough Council								
10	Ramblers Way	Suburban	0.96	15.0	16.6	16.2	14.4	13.3
18	Waterlooville Precinct	Urban Background	2.30	13.3	15.1	14.1	13.0	11.8
33	Maurepas Way	Roadside	2.62	19.9	22.6	21.6	19.4	17.5
34	Swiss Road	Urban Centre	2.60	17.2	18.3	17.8	16.5	15.5
35	Milton Road	Kerbside	2.34	25.0	27.1	26.7	24.4	23.1
East Hampshire District Council								
HR1	Horndean – London Road	Roadside	2.45	23.3	24.4	23.1	21.8	20.5
HR7	Horndean – Gales Brewery	Roadside	2.16	20.4	23.1	24.2	21.0	19.5

Note: Data obtained from HBC 2025 Air Quality Annual Status Report (ASR) (2025) and EHDC 2025 Air Quality ASR (2025). 2020 / 2021 results are likely to be atypical due to COVID-19 travel restrictions.

- 6.2 As indicated in Table 2 above, annual mean NO₂ concentrations across all monitoring locations nearest to the site were ‘well below’ (defined by the IAQM as <75% of) the 40µg/m³ AQO during the five most recent monitoring years. Concentrations recorded at these diffusion tubes indicate that local air quality is improving with time, and this downward trend is illustrated in Figure A.1 of the EHDC Air Quality ASR (2025).

Table 3 2026 Background Annual Mean Concentrations Across Study Area (µg/m³)

NO ₂	PM ₁₀	PM _{2.5}
9.0 - 10.4	11.2 - 11.8	6.8 - 7.2

Note: Data obtained from <https://uk-air.defra.gov.uk/data/iaqm-background-home>. A range is given as the study area spans multiple grid squares.

- 6.3 No monitoring of PM₁₀ or PM_{2.5} is undertaken in the vicinity of the site. However, Defra-predicted annual mean background concentrations for the current year (2026) are well below the relevant AQOs and are expected to reduce further in future years. Further discussion regarding the implications of baseline conditions to the development is provided in Section 8.

7. CONSTRUCTION PHASE ASSESSMENT

- 7.1 As sensitive receptors were identified within the relevant IAQM screening distances, the assessment progressed to Step 2, which has been summarised in the tables below.

Table 4 Step 2A – Dust Emission Magnitude for Construction Activities

Activity	Magnitude	Explanation
Demolition	Small	Total building volume <12,000m ³ , construction material with low potential for dust release, demolition activities <6m above ground.
Earthworks	Medium	Total site area 18,000m ² - 110,000m ² , 5-10 heavy earth-moving vehicles active at any one time.
Construction	Medium	Total building volume 12,000m ³ - 75,000m ³ .
Trackout	Medium	20-50 HDV (>3.5t) outward movements in any one day, moderately dusty surface material, unpaved road length 50m - 100m.

Table 5 Step 2B – Sensitivity of the Area

Potential Impact	Details	Construction Activity			
		Demolition	Earthworks	Construction	Trackout
Dust Soiling: Amenities	10-100 high sensitivity receptors within 20m of site boundary	High	High	High	High
PM ₁₀ : Health	As above and low background PM ₁₀ concentration	Low	Low	Low	Low

Table 6 Step 2C – Summary of Impact Risks to Define Site-Specific Mitigation

Potential Impact	Construction Activity			
	Demolition	Earthworks	Construction	Trackout
Dust Soiling	Medium	Medium	Medium	Medium
Human Health	Negligible	Low	Low	Low

- 7.2 It should be noted that the prevailing winds are south-westerly (as shown in Appendix 2) and thus, locations to the north-east, downwind of the site, are most at risk of construction dust impacts. Overall, the development is considered Medium Risk for dust soiling effects and Low Risk for PM₁₀ health effects, in the absence of mitigation. Following implementation of the recommended mitigation measures for the relevant activities' risk levels in Appendix 3, it is anticipated that the residual effect of the construction phase will be not significant.
- 7.3 With regard to construction traffic, the construction phase flows are not expected to exceed the criteria detailed in paragraph 5.9 and therefore, significant residual effects are not anticipated.

8. OPERATIONAL PHASE APPRAISAL

Site Suitability

- 8.1 As detailed in Section 6, annual mean NO₂ concentrations measured at diffusion tubes in the vicinity were below the relevant AQO during the last five monitoring years (2020-2024) and display a downward trend, indicating an improvement with time. Most of these tubes are located at the roadside of significant roads, thus are not considered to be particularly representative of the site.
- 8.2 Diffusion tube 10 is situated in a 'suburban' area, similar to that of the site, and measured an annual mean NO₂ concentration of 13.3µg/m³ during 2024. In addition to this, it is located approximately 50m west of the A3(M), which is considerably closer to this pollution source than the site, which sits approximately 475m to the west of the A3(M) at its closest point.
- 8.3 Additionally, diffusion tube 18 is situated in the town centre, in a 'urban background' location, which is expected to be exposed to more traffic-generated pollution than the site. Nonetheless, this tube measured an annual mean NO₂ concentration of 11.8µg/m³ during 2024. Whereas, the site lies on the outskirts of Waterloooville, where pollutant contributions from traffic are anticipated to be less.
- 8.4 As such, recently monitored NO₂ concentrations at the most representative locations are well below the annual mean AQO, and are expected to be higher than at the site, given their proximity to more significant sources. As such, annual mean NO₂ concentrations at the façades of proposed buildings within the development are expected to be lower still, with no risk of exceedance of the AQO.
- 8.5 Equally, regarding PM₁₀ and PM_{2.5}, the Defra background concentrations for 2026 are predicted to be well below the respective annual mean AQOs. Given that these pollutants are largely influenced by regional sources, concentrations at the site are expected to be approaching background levels and any local contributions from road vehicle emissions are not likely to lead to exceedances.
- 8.6 With recently monitored local annual mean NO₂ concentrations below 60µg/m³, a breach of the hourly mean AQO for NO₂ is unlikely (as indicated in LAQM.TG22). Equally, exceedances of the 24-hour mean AQO for PM₁₀ are not anticipated, as Defra-predicted annual mean concentrations are below the 32µg/m³ proxy value.
- 8.7 Accordingly, the development is not expected to expose future users to unacceptable air quality, and the site is considered suitable for the proposed residential use, without requirement for additional assessment or mitigation.
- 8.8 Nonetheless, Defra guidance requires consideration of how a development will reduce exposure to PM_{2.5}. In terms of selecting this development site, which is in an area where PM_{2.5} concentrations are expected to be well below the AQO and where there is no requirement to reduce exposure further, exposure to PM_{2.5} has been considered.

Vehicle Emissions Impacts

- 8.9 The project's Transport Consultant (Alan Conisbee & Associates Limited) has indicated that the development is predicted to generate 404 AADT (0.5% HDV), which is below the relevant LUPDC screening criteria (detailed in paragraph 5.9). Therefore, the effect of the development's operational phase vehicle trip generation on existing sensitive receptors in the vicinity is expected to be not significant, with no requirement for further assessment of operational phase impacts.
- 8.10 Based on the nature of the development and baseline air quality conditions in the vicinity of the site, no significant operational phase air quality impacts are anticipated.
- 8.11 Additionally, Defra guidance requires consideration of how a development will reduce emissions of PM_{2.5}. The site benefits from access to public transport, with the closest bus stops being Hazleton Way, situated 340m west of the site access, and Greenfield Crescent, situated 300m northwest of the site access, both of which provide services for the no.37 route between Havant Bus Station and Petersfield Station. These options offer residents practical alternatives to private car use, thereby helping to limit associated emissions of PM_{2.5}.

9. CONCLUSIONS

- 9.1 Cass Allen was instructed by Stonebond Properties (Guildford) Ltd and the Borrow Foundation to assess the potential air quality effects associated with a proposed residential development at Padnell Grange, Waterloooville in Hampshire. The assessment was carried out referencing relevant local and national planning policy and guidance.
- 9.2 Potential construction phase dust soiling and PM₁₀ health effects were assessed qualitatively, resulting in Medium and Low Risk levels being identified, respectively, in the absence of mitigation. Suitable best practice mitigation measures have been recommended, and no significant residual air quality impacts are expected.
- 9.3 An appraisal of the potential exposure of future residents to elevated concentrations of NO₂, PM₁₀ and PM_{2.5} was undertaken and pollutant concentrations across the site are expected to be below the relevant AQOs when operational. Furthermore, no significant impacts on local air quality are anticipated as a result of vehicle trips associated with the development, with no requirement for additional assessment or mitigation.
- 9.4 In summary, it is our view that the site is suitable for the development in terms of air quality and that there are no air quality constraints with respect to planning consent.

Appendix 1 Air Quality Legislation and Policy

Legislation

Defra and the Devolved Administrations (2007) - The Air Quality Strategy for England, Scotland, Wales and Northern Ireland (Volumes 1 and 2):

The Air Quality Strategy provides a framework for reducing air pollution in the UK, with the aim of meeting the requirements of European Union (EU) legislation. This has been brought into UK law via the EU (Withdrawal) Act 2018 (as amended) and is referred to as 'retained EU law'.

The air quality standards set within the Air Quality Strategy are recommended by the Expert Panel on Air Quality Standards (EPAQS) and the World Health Organisation (WHO), based on current scientific knowledge regarding the effects of each pollutant on health and the environment.

The AQOs are medium-term policy-based targets set by the government, taking into account economic efficiency, practicability, feasibility and timescales. Whilst some of the AQOs correspond with the EPAQS / WHO limits, others have a margin of tolerance, by specifying a number of permitted exceedances of the standard over a given period.

Many of the AQOs in the Air Quality Strategy have been made statutory in England via The Air Quality (England) Regulations, 2000, The Air Quality (England) Amendment Regulations, 2002 and The Air Quality Standards (Amendment) Regulations, 2016 – Statutory Instrument 2016 No. 1184.

Environmental Protection Act (1990):

Section 79 of the Environmental Protection Act 1990 defines statutory nuisance relevant to dust and particles as:

'Any dust, steam, smell or other effluvia arising from industrial, trade or business premises or smoke, fumes or gases emitted from premises so as to be prejudicial to health or a nuisance'; and

'Any accumulation or deposit which is prejudicial to health or a nuisance'.

Furthermore, Section 80 states that where a statutory nuisance is shown to exist, the Local Authority must serve an abatement notice. Failure to comply with an abatement notice is an offence and if necessary, the Local Authority may abate the nuisance and recover expenses. However, there are no statutory limit values for dust deposition above which 'nuisance' is deemed to exist and nuisance is a subjective concept, its perception being highly dependent upon the existing conditions and the change which has occurred.

Environment Act (2021):

The Act mandates that local authorities review and document local air quality within their jurisdiction by way of staged appraisals and respond accordingly, with the aim of meeting the AQOs defined in the Regulations. There is a requirement for local authorities to identify relevant sources of emissions that are likely to be responsible for any failure to achieve the AQOs, or to identify relevant sources within neighbouring authorities' areas. Where the objective(s) are not likely to be achieved within the relevant period(s), the authority is required to designate an AQMA. For each AQMA the Local Authority is required to draw up an Air Quality Action Plan (AQAP) to secure improvements in air quality, in order to work towards achieving air quality standards in the future.

Defra (2019) Clean Air Strategy:

The UK Government's Clean Air Strategy sets out the comprehensive actions required to improve air quality, required from all parts of government and society.

The primary focus of previous iterations of the Clean Air Strategy has been NO₂, and its principal source – road traffic. The 2019 Strategy broadens the focus into other areas, including actions on clean growth and pollutant emissions from other sources such as industry, agriculture, and domestic wood-burning stoves.

National Policy

NPPF sections relevant to air quality are stated below for planning policy context:

110. ...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.

187. 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 ... air ... pollution. Development should, wherever possible, help to improve local environmental conditions such as air ... quality.

198. 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.

199. 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.

201. The focus of planning policies and decisions should be on whether proposed development is an acceptable use of land, rather than the control of processes or emissions (where these are subject to separate pollution control regimes). Planning decisions should assume that these regimes will operate effectively. Equally, where a planning decision has been made on a particular development, the planning issues should not be revisited through the permitting regimes operated by pollution control authorities.

Local Policy

The Havant Borough Core Strategy (2011) document sets out the current planning policy framework for the borough. The below policies are considered relevant to air quality:

DM10 Pollution

Development that may cause pollution of ... air ... pollution through ... smell, smoke, fumes, gases, steam, dust, ... and other pollutants will only be permitted where all of the following relevant criteria can be met:

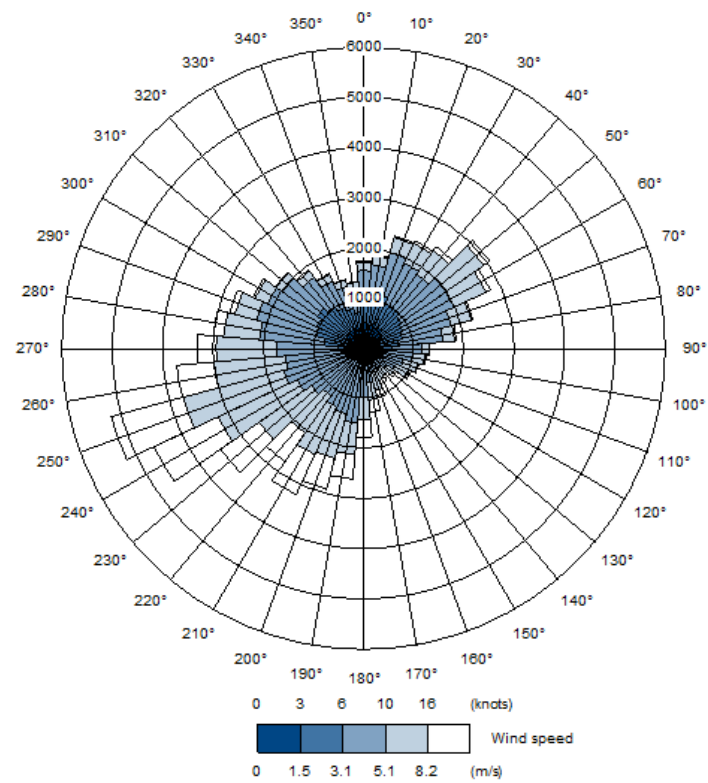
- 1. The health and safety of existing and future users of the site, or nearby occupiers and residents is not put at risk.*
- 2. National air quality standards or objectives would not be breached.*

DM12 Mitigating the Impacts of Travel

New developments will be required to mitigate their travel impact, including the environmental impacts of travel (such as ... air ... pollution).

The Havant Borough Local Plan (Allocations) (2014) follows on from the adopted Havant Borough Core Strategy and includes the site itself (reference W126), allocated for 84 dwellings. It is also included for allocation within the emerging Local Plan (Allocation 19). Air Quality is not highlighted as a known constraint to development in this location.

Appendix 2 Wind Rose for Thorney Island (2016-2025)



Appendix 3 Recommended Construction Phase Mitigation

Recommended Mitigation Measures for Medium-Risk Sites

Communications

- Develop and implement a stakeholder communications plan that includes community engagement before work commences onsite.
- Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager.
- Display the head or regional office contact information, where applicable.
- Develop and implement a Dust Management Plan (DMP), which may include measures to control other emissions, approved by the Local Authority. The level of detail will depend on the risk and should include as a minimum the highly recommended measures in this Appendix. Further, 'desirable' measures from IAQM guidance should be included as appropriate for the site. The DMP may include monitoring of dust deposition, dust flux, real-time PM₁₀ continuous monitoring and/or visual inspections.

Site Management

- Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner and record the measures taken.
- Make complaints log available to the Local Authority when asked.
- Record any exceptional incidents that cause dust and/or air emissions, either on or offsite should be recorded, and the action taken to resolve the situation, in the logbook.

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.
- Increase the frequency of site inspections by the person accountable for air quality and dust issues onsite when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.
- Agree dust deposition, dust flux, or real-time PM₁₀ continuous monitoring locations with the Local Authority. Where possible commence baseline monitoring at least three months before work commences onsite 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.

Preparing and Maintaining the Site

- Plan the site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.
- Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles onsite.
- Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period.
- Avoid site runoff of water or mud.
- Keep site fencing, barriers and scaffolding clean using wet methods.
- Remove materials that have a potential to produce dust from site as soon as possible, unless being reused onsite. If they are being reused onsite cover as described below.
- Cover, seed or fence stockpiles to prevent wind whipping.

Operating Vehicle/Machinery and Sustainable Travel

- Ensure all vehicle operators switch off engines when stationary – no idling vehicles.
- Avoid the use of diesel- or petrol-powered generators and use mains electricity or battery powered equipment where practicable.

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 systems.

- Ensure an adequate water supply is available on the site for effective dust/PM suppression/mitigation, using non-potable water where possible and appropriate.
- Use enclosed chutes/conveyors and covered skips.
- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.
- Ensure equipment is readily available onsite to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.

Waste Management

- Avoid bonfires and burning of waste materials.

Measures Specific to Demolition (Medium Risk)

- Ensure effective water suppression is used during demolition operations. Handheld sprays are more effective than hoses attached to equipment as the water can be directed to where it is needed. In addition, high volume water suppression systems, manually controlled, can produce fine water droplets that effectively bring the dust particles to the ground.
- Avoid explosive blasting, using appropriate manual or mechanical alternatives.
- Bag and remove any biological debris or damp down such material before demolition.

Measures Specific to Construction (Medium Risk)

- 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 make sure that that appropriate additional control measures are in place.

Measures Specific to Trackout (Medium Risk)

- 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.
- Avoid dry sweeping of large areas.
- Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.
- Inspect onsite haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.
- Record all inspections of haul routes and any subsequent action in a site logbook.
- Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.
- Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).
- Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits.
- Access gates to be located at least 10m from receptors, where possible.



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