



## Air Quality Assessment

### Land at Jack Lawson Terrace, Wheatley Hill

**Client:** Gleeson

**Report Reference:** NJD23-0222-001R

Report Version	Prepared By	Reviewed By
Final	NJD-B	NJD-B

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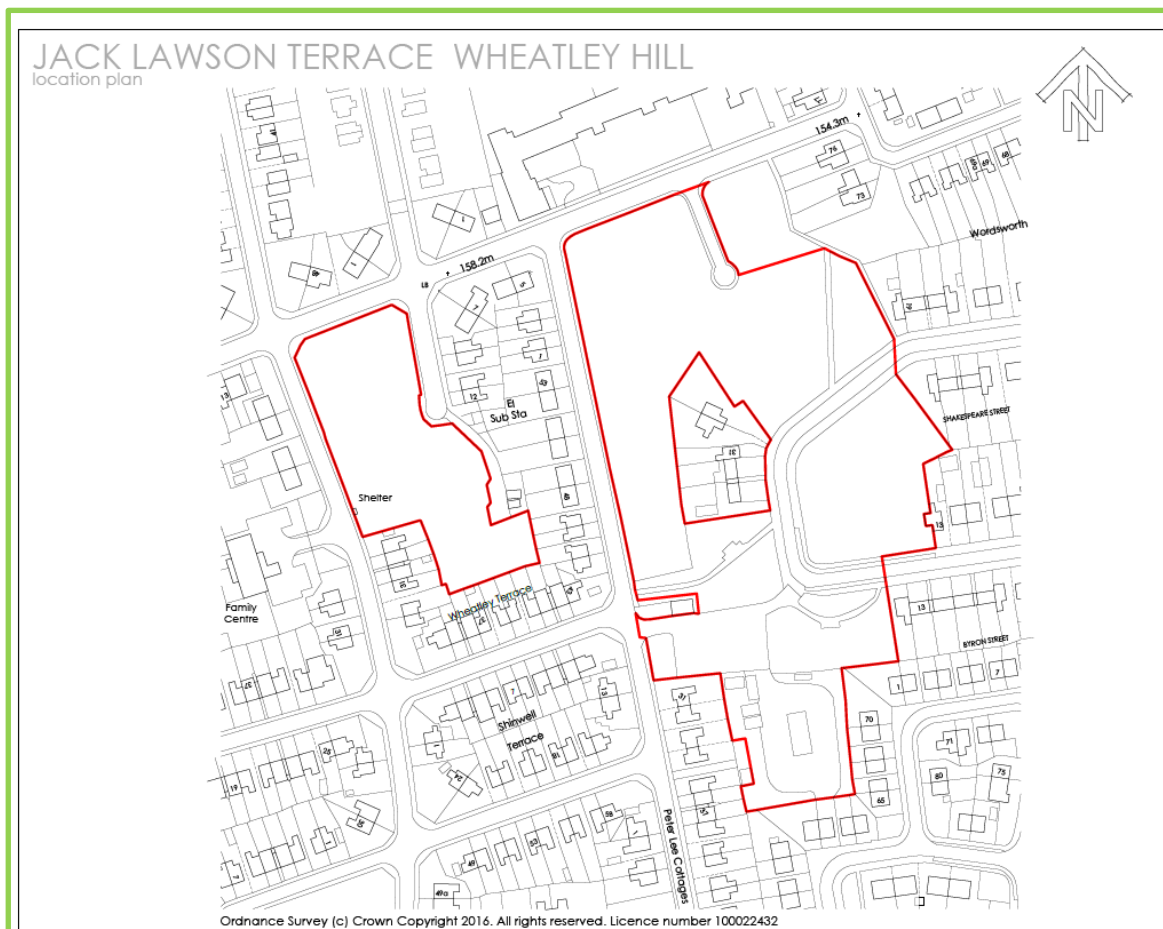
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## 1 INTRODUCTION

- 1.1.1 NJD Environmental Associates Ltd was instructed by Gleeson to prepare an Air Quality Assessment, to inform a planning application for a proposed residential scheme comprising 78no. dwellings (the 'Proposed Development'), located on land at Jack Lawson Terrace in Wheatley Hill, County Durham (the 'Site').
- 1.1.2 The Site is located in an area where air quality is mainly influenced by road traffic emissions along the local road network. The site location is provided at Drawing 1 below.



**Drawing 1: Site boundary**

- 1.1.3 The Proposed Development itself will not have a significant impact on local road traffic. The development flows are anticipated to be below an annual average daily traffic (AADT) of 500 once distributed on the local road network, indicating that an Air Quality Assessment of vehicle emissions is not required, in accordance with the Environmental Protection UK (EPUK) and Institute of Air Quality (IAQM) document '*Land-Use Planning and Development Control: Planning for Air Quality*' (2017).

- 1.1.4 This report therefore considers existing baseline conditions in the vicinity of the Site, provides an assessment of the construction phase and considers the potential local air quality effects associated with traffic generated by the Proposed Development during the operational phase.

## 2 LEGISLATION, POLICY AND GUIDANCE

### 2.1 Air Quality Legislation

#### ***Air Quality Strategy (2023)***

- 2.1.1 The Air Quality Strategy for England is a strategic framework that fulfils the statutory requirement of the Environment Act 1995, as amended by the Environment Act 2021. The Strategy is aimed at local authorities, giving them a heightened level of responsibility to improve air quality in their areas of jurisdiction. The Strategy requires them to actively consider potential air quality implications of any new proposed development, with a focus on pollution prevention and improvement of local air quality throughout the planning process.
- 2.1.2 The Air Quality Strategy contains standards, objectives and measures for improving ambient air quality, including the ambitious new targets for fine particulate matter (PM<sub>2.5</sub>) set out in the Environment Act 2021.

#### ***Air Quality Standards Regulations (2016)***

- 2.1.3 The Air Quality Standards (Amendment) Regulations 2016 amend the Air Quality Standards Regulations 2010 that transpose the European Union Ambient Air Quality Directive (2008/50/EC) into law in England. The regulations aim to protect human health and the environment by providing air quality limit values for seven pollutants and target values for an additional five pollutants.
- 2.1.4 Table 1 provides the air quality objectives (AQOs) for the pollutants considered within the assessment.

Table 1 - Air Quality Objectives		
Pollutant	Concentration (µg/m <sup>3</sup> )	Averaging Period
NO <sub>2</sub>	40	Annual mean
	200	1-hour, not to be exceeded on more than 18 occasions per annum
PM <sub>10</sub>	40	Annual mean
	50	24-hour mean, not to be exceeded on more than 35 occasions per annum
PM <sub>2.5</sub>	20	Annual mean

## 2.2 National Planning Policy

### **National Planning Policy Framework**

2.2.1 The revised National Planning Policy Framework (NPPF), dated December 2023, sets out the Government's core policies and principles with respect to land use planning, including air quality.

2.2.2 The purpose of the planning system is to contribute to the achievement of sustainable development. In order to achieve this, the NPPF recognises three overarching objectives, including the following of relevance to air quality:

*"c) An environmental objective - to contribute to protecting and enhance our natural, built and historic environment; including making effective use of land, improving biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy."*

2.2.3 The NPPF also includes the following considerations which are relevant to the Proposed Development:

*"109. [...] 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. [...]"*

*"180. Planning policies and decisions should contribute to and enhance the natural and local environment by: [...]"*

- Preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. [...]"*

*"191. 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."*

*"192. 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."*

*"194. 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."*

- 2.2.4 The National Planning Practice Guidance (NPPG) states that whether or not air quality is relevant to a planning decision will depend on the proposed development air quality impacts in an area where air quality is known to be poor. They could also arise where the development is likely to adversely impact upon the implementation of air quality strategies and action plans and/or, in particular, lead to a breach of EU legislation (including that applicable to wildlife).

## **2.3 Local Planning Policy**

### **County Durham Plan (2020)**

- 2.3.1 The 'County Durham Plan' was adopted in October 2020, and seeks to guide future development to improve the lives of the local community. The plan presents a vision for potential housing, jobs and the environment until 2035, as well as all infrastructure required to support it. A review of the plan has identified the following policy relevant to air quality:

*"Policy 31 - Amenity and Pollution*

*Development will be permitted where it can be demonstrated that there will be no unacceptable impact, either individually or cumulatively, on health, living or working conditions or the natural environment and that can be integrated effectively with any existing business and community facilities.*

*The proposal will also need to demonstrate that future occupiers of the proposed development will have acceptable living and/or working conditions. [...]*



*Development which has the potential to lead to, or be affected by, unacceptable levels of air quality, inappropriate odours, noise and vibration or other sources of pollution, either individually or cumulatively, will not be permitted including where any identified mitigation cannot reduce the impact on the environment, amenity of people or human health to an acceptable level. [...]"*

2.3.2 The above policy related to air quality has been considered within this report.

## **2.4 Guidance**

### **Local Air Quality Management**

2.4.1 Under Section 82 of the Environment Act (1995) (Part IV) Local Authorities (LAs) are required to periodically review and assess air quality within their area of jurisdiction under the system of Local Air Quality Management (LAQM). This review and assessment of air quality involves comparing present and likely future pollutant concentrations against the AQOs. If it is predicted that levels at locations of relevant exposure, as summarised in Table 1, are likely to be exceeded, the LA is required to declare an AQMA. For each AQMA the LA is required to produce an Air Quality Action Plan, the objective of which is to reduce pollutant concentrations in pursuit of the AQOs.

2.4.2 The Department for Environment, Food and Rural Affairs (Defra) has published technical guidance for use by LAs in their review and assessment work. This guidance, referred to in this document as LAQM.TG22, has been used where appropriate in the assessment.

### 3 ASSESSMENT METHODOLOGY

#### 3.1 Construction Phase

3.1.1 The IAQM 'Guidance on the assessment of dust from demolition and construction' (2024), provides a methodology to determine the potential air quality impacts associated with demolition and construction activity. The emphasis of the guidance document is to classify the risk of dust impacts from a site from which then to identify appropriate mitigation measures commensurate with the risk.

3.1.2 The underlying concept of Source-Pathway-Receptor is the basis of the guidance, with four main types of construction activity required to be considered as follows:

- Demolition;
- Earthworks;
- Construction; and
- Trackout.

3.1.3 The potential for dust emissions is assessed for each of these activities, taking into consideration three separate dust impacts:

- Annoyance due to dust soiling;
- The risk of health effects due to an increase in exposure to PM<sub>10</sub>; and
- Harm to ecological receptors.

#### **Assessment Procedure**

The assessment steps provided within the IAQM guidance are summarised below.

##### Step 1

3.1.4 This step screens the requirement for a more detailed assessment. If there are no receptors within a certain distance then no further assessment is required.

3.1.5 For human receptors, these distances are specified as 250m from the site boundary or 50m from the construction vehicle route within 250m of the site entrance. Should any ecological receptors also be present within 50m of the site boundary or 50m of the construction vehicle route within 250m of the site entrance, these will require consideration. The assessment proceeds to Step 2 if any receptors are identified within these specified distances.

### Step 2

- 3.1.6 This step assesses the risk of the dust impact for each of the four types of activity provided at paragraph 3.1.2, taking account of the scale and nature of the works to determine the dust magnitude (Step 2A) and the sensitivity of the area (Step 2B). Step 2C is then undertaken, considering these factors to provide the risk of dust impacts.
- 3.1.7 The criteria used during Step 2 of the assessment, as contained within the IAQM guidance, is summarised and provided at Appendix 1 of this report.

### Step 3

- 3.1.8 Step 3 defines the site-specific mitigation measures to be adopted, based on the dust risk categories for each of the four activities undertaken at Step 2C.
- 3.1.9 Where the risk during Step 2C is defined as negligible, no mitigation measures beyond those required by legislation are required. However, control measures may be adopted as part of best practice.

### Step 4

- 3.1.10 This step determines the significance of the effect after considering the construction activity with mitigation.
- 3.1.11 As recognised within the IAQM guidance, for almost all construction activity, the aim should be to prevent significant effects through the use of effective mitigation. Hence the residual effect will normally be 'not significant'.

## **3.2 Operational Phase**

- 3.2.1 In accordance with the EPUK and IAQM document '*Land-Use Planning and Development Control: Planning for Air Quality*' (2017), a significant change would be described as a change in Light Duty Vehicle (LDV) flows of 500 Annual Average Daily Traffic (AADT) and/or Heavy-Duty Vehicle (HDV) flows of 100 AADT or more, along road links where sensitive receptors are located. Alternatively, a change in LDV flows of 100 AADT and/or HDV flows of 25 AADT or more on routes through an AQMA would also be considered a significant change in accordance with the guidance. Where these thresholds are not exceeded, a detailed assessment of air quality is not normally required.
- 3.2.2 Traffic generated by the Proposed Development is therefore, assessed against the above criteria in order to identify potential significant effects associated with the operational phase of the Site.

## **4 BASELINE**

### **4.1 Introduction**

4.1.1 A desk-top baseline review of existing air quality conditions in the vicinity of the Site has been undertaken. This is detailed in the following sections.

### **4.2 Local Emission Sources**

4.2.1 The Site is located in an area where air quality is mainly influenced by road traffic emissions along the local road network. There are no combustion sources identified within the vicinity of the Site that would influence local air quality.

### **4.3 Local Air Quality Management**

4.3.1 The Site is located within Durham County Council (DCC). According to the latest available Air Quality Annual Status Report (ASR), dated June 2023, DCC currently has one declared AQMA, the Durham City AQMA. The Site is located approximately 10.5km south-east of this AQMA, and therefore, due to the distance away from the Site, sensitive receptors have not been considered within this area.

### **4.4 Air Quality Monitoring**

4.4.1 DCC currently monitor at one continuous monitoring station and 48 diffusion tube sites. The closest monitoring locations, diffusion tubes 'Durham 150' and 'Durham 150', are located approximately 6.5km south west of the Site in Bowburn, in close proximity to the A1 and therefore not considered representative of the proposed development site. Recent mean NO<sub>2</sub> concentrations at these locations did not exceed the relevant AQO during the three most recent monitoring years.

4.4.2 No monitoring of PM<sub>10</sub> or PM<sub>2.5</sub> is undertaken in the vicinity of the Site.

### **4.5 Background Concentrations**

4.5.1 In addition to the review of NO<sub>2</sub>, PM<sub>10</sub> or PM<sub>2.5</sub> monitoring undertaken in the vicinity of the Site, background concentrations for the current assessment year of 2024 have been obtained from the 2018 based default concentration maps provided by Department for Environment, Food & Rural Affairs (Defra) for the relevant grid square where the Site is located. These data are provided below in Table 2.

**Table 2 - Predicted Background Pollutant Concentrations (2024)**

OS Grid Square (X, Y; m)	NO <sub>2</sub> (µg/m <sup>3</sup> )	NO <sub>x</sub> (µg/m <sup>3</sup> )	PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )
437500, 538500	6.41	8.14	10.79	6.30

4.5.2 As shown in Table 2, predicted background concentrations are well below the national AQOs of 40µg/m<sup>3</sup> for NO<sub>2</sub> and PM<sub>10</sub> and 20µg/m<sup>3</sup> for PM<sub>2.5</sub>. For PM<sub>2.5</sub>, the predicted background concentration is also below the target exposure level of 10µg/m<sup>3</sup>, implemented at the end of January 2023 under the Environment Act 2021. Therefore, there is no predicted risk of the Proposed Development exposing sensitive receptors to elevated pollutant concentrations.

#### 4.6 Construction Phase

4.6.1 Human receptors within 250m of the site boundary or within 50m of the construction vehicle route up to 250m from the site entrance, need to be considered during the construction phase assessment.

4.6.2 A review of the Site location has indicated that with the closest sensitive receptors being residential, to the north, east, south and west, there is between 10 and 100 receptors located <20 from the Site boundary, at worst. When considering the sensitivity of the area to dust soiling effects based on the criteria contained within Table A1.4 of Appendix 1, due to the number and distance to existing **high sensitivity** receptors, the sensitivity of the area is deemed to be **high**, at worst.

4.6.3 When considering the sensitivity of the area to human health effects based on the criteria contained within Table A1.5 of Appendix 1 alongside the annual mean background PM<sub>10</sub> concentrations at the Site presented in Table 2, the sensitivity is deemed to be **low**.

4.6.4 There are no ecological receptors located within 50m of the Site or within 50m of the assumed route that construction vehicles would take upon departure.

## 4.7 Meteorological Data

- 4.7.1 The potential for dust and particulate matter to impact sensitive locations depends significantly on meteorology, particularly wind direction and wind speed, during emissions. To consider the prevailing conditions at the Site, a review of historical weather data has been undertaken.
- 4.7.2 The closest observation station is Durham Tees Valley Airport approximately 25km south. It is anticipated that meteorological conditions would be reasonably similar over a distance of this magnitude. Reference should be made to Appendix 2 for a summary of the wind data from this station.
- 4.7.3 A review of the wind rose has shown that any receptors located to the north of the Site through to the east of the Site have the greatest potential to be affected by dust and particulate matter emitted and re-suspended during the construction phase, as a result of the prevailing wind direction. However, under low wind speed conditions, it is likely that the majority of dust would be deposited in the area immediately surrounding the source.

## 5 IMPACT ASSESSMENT

### 5.1 Construction Phase

#### **Step 1**

- 5.1.1 A baseline review of the Site and surrounding area has identified human receptors within 250m of the Site boundary, and therefore, a detailed assessment has been undertaken.
- 5.1.2 There are no ecological receptors within the relevant screening distances of the Site or the local road network and as such, these effects are not considered further within the assessment. It is therefore concluded that, the level of risk for ecological receptors is **negligible**.

#### **Step 2**

- 5.1.3 The IAQM assessment methodology has been used to determine the potential dust emission magnitude for the following four dust and PM<sub>10</sub> sources: demolition, earthworks, construction and trackout. The findings are presented below, with detailed descriptors for each magnitude presented in Table A1.1 of Appendix 1.

#### Demolition

- 5.1.4 The key factors when determining the potential dust emission magnitude for the demolition element include the volume and height of the buildings being demolished and the type of materials present.
- 5.1.5 The Site is currently vacant and as such, the associated demolition activities are not considered further within this assessment.

#### Earthworks

- 5.1.6 Earthworks involve excavating material, haulage, tipping and stockpiling. There may also be levelling of the Site and landscaping.
- 5.1.7 The exact number of heavy earth-moving vehicles active on the Site at any one time is unknown, however, as the total Site area is less than 18,000m<sup>2</sup>, the potential dust emission magnitude associated with earthworks is considered to be **small**.
- 5.1.8 As the sensitivity of the area to dust soiling effects is **high** at worst, in accordance with Table A1.7 of Appendix 1, the risk of dust impact during earthworks, with a **small** dust emission magnitude, is **low risk**.

Construction

- 5.1.9 The key factors when determining the potential dust emission magnitude for the construction element include the size of the buildings, method of construction and the construction materials used.
- 5.1.10 The total volume of buildings to be constructed on the Site is assumed to be between 12,000m<sup>3</sup> and 75,000m<sup>3</sup>, with potentially dusty construction material, i.e. concrete. Therefore, the potential dust emission magnitude associated with construction is considered to be **medium**.
- 5.1.11 As the sensitivity of the area to dust soiling effects is **high** at worst, in accordance with Table A1.7 of Appendix 1, the risk of dust impact during construction, with a **medium** dust emission magnitude, is **medium risk**.

Trackout

- 5.1.12 Trackout is the term given to the transport of dust and dirt from the Site on vehicle tyres, deposited on the local road network that may later become suspended in the air as a result of vehicle movements.
- 5.1.13 At this stage, there is no information available regarding the number of HDVs or the proposed construction routes, and therefore, professional judgement has been used. The unpaved road length within the Site boundary will likely be between 50m - 100m based on the size of the Site and as such, it is considered that the potential dust emission magnitude associated with trackout is **medium**.
- 5.1.14 As the sensitivity of the area to dust soiling effects is **high** at worst, in accordance with Table A1.7 of Appendix 1, the risk of dust impact associated with trackout, with a **medium** dust emission magnitude, is **medium risk**.

Summary

- 5.1.15 The predicted dust emission magnitude has been combined with the defined sensitivity of the area (presented in Section 4.6) to determine the risk of dust impacts during the construction phase of the Proposed Development. A summary of the dust risk for each phase is provided in Table 3.

Table 3 - Summary of Dust Risk Prior to Mitigation				
Potential Impact	Risk			
	Demolition	Earthworks	Construction	Trackout
Dust Soiling	N/A	Low Risk	Medium Risk	Medium Risk
Human Health	N/A	Negligible Risk	Negligible Risk	Negligible Risk
Ecological	N/A	N/A	N/A	N/A



### Step 3

5.1.16 Appropriate, site-specific mitigation is to be adopted based on the dust risk categories determined above. The IAQM guidance provides examples of mitigation to reduce dust impact which are summarised in Appendix 3, and can be included in the Construction Environmental Management Plan for the scheme.

### Step 4

5.1.17 Providing the mitigation measures summarised in Appendix 3 are implemented, the residual effect is considered to be **not significant** in accordance with the IAQM guidance.

## 5.2 Operational Phase

5.2.1 The Proposed Development newly generated traffic flows will be below the EPUK/IAQM criteria of 500 AADT, being located outside of an AQMA. This was confirmed by the Project Transport Consultant, based on the number of proposed dwellings.

5.2.2 Furthermore, the background pollutant concentrations at the Site, as provided in Table 2, are below the relevant annual mean AQOs and target value. When taking this into consideration alongside the anticipated development flows, the Proposed Development will result in a **negligible** impact associated with the operational phase traffic on the closest sensitive receptors.

5.2.3 Based on professional judgement, the AQOs will not be approached or exceeded at existing receptor locations, as a result of the Proposed Development. As such, in accordance with the IAQM guidance, the effect can therefore be described as **not significant**.

5.2.4 Increases in pollutant concentrations as a result of exhaust emissions arising from traffic generated by the Proposed Development, once operational, are therefore, not considered further within this report.

## 6 MITIGATION AND RESIDUAL EFFECTS

### 6.1 Construction Phase

6.1.1 Based on the assessment results, mitigation will be required during the construction phase of the Proposed Development, commensurate with a **medium risk** site, which is the highest risk category identified in Section 5.1.

6.1.2 The full suite of IAQM mitigation measures are detailed in Appendix 3, with those relevant to the scheme suitable for inclusion within the Construction Environmental Management Plan for the scheme.

#### ***Residual Effects***

6.1.3 Following the application of the mitigation measures detailed in Appendix 3, and good site practice, the residual effects of dust and PM<sub>10</sub> generated by construction activities are considered to be **not significant**.

6.1.4 The residual effects of emissions to air from construction vehicles and plant on local air quality are considered to be **not significant**.

### 6.2 Operational Phase

6.2.1 The Proposed Development is expected to result in AADT flows below the EPUK/IAQM Air Quality criteria and would result in a **negligible** impact associated with the operational phase traffic on nearby receptors. As such, no significant effects on air quality are anticipated at existing receptors and mitigation is not required.

#### ***Residual Effects***

6.2.2 The residual effects of the Proposed Development on air quality are considered to be **not significant** for NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub>, according to the EPUK/IAQM assessment criteria.

## 7 CONCLUSION

- 7.1.1 NJD Environmental Associates Ltd was instructed by Gleeson to prepare an Air Quality Assessment, to inform a planning application for a proposed residential scheme, located on land at Jack Lawson Terrace in Wheatley Hill, County Durham
- 7.1.2 A qualitative assessment of the potential impacts on local air quality from construction phase activities has been undertaken, in accordance with the relevant guidance document. This identified that there is a **low to medium risk** of dust soiling impacts and a **negligible risk** of increases in particulate matter concentrations, due to unmitigated construction activities. However, through good site practice and the implementation of the recommended mitigation measures, the effects of dust and PM<sub>10</sub> releases would be significantly reduced. The residual effects of dust and PM<sub>10</sub> generated by construction activities on air quality are therefore, considered to be **not significant**.
- 7.1.3 Based on the development traffic flows predicted to be less than 500 AADT once distributed on the local road network and low background concentrations, the Proposed Development itself will have a **not significant** impact on local air quality.
- 7.1.4 The review of available monitored pollutant concentrations within the vicinity of the Site, and mapped background pollutant concentrations, at representative locations within the vicinity of the Site, indicated that all pollutants considered are below the relevant AQOs and target value, without the risk of exceedance.
- 7.1.5 The residual effect of the Proposed Development on air quality is therefore, judged to be **not significant** for NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub>, according to the EPUK/IAQM assessment criteria. As such, the implementation of additional mitigation measures is not required.
- 7.1.6 There is no requirement for further assessment of potential air quality effects associated with the Proposed Development.
- 7.1.7 Based on the results of this assessment, it is concluded that air quality should not be a prohibitive factor in the determination of this planning application.

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**APPENDICES**

## Appendix 1 - IAQM Construction Phase Assessment Criteria

**Table A1.1 - Potential Dust Emission Magnitude**

Magnitude	Activity	IAQM Criteria
Large	Demolition	<ul style="list-style-type: none"> <li>&gt;75,000m<sup>3</sup> building demolished</li> <li>Potentially dusty material (e.g., concrete)</li> <li>On-site crushing/screening</li> <li>Demolition &gt;12m above ground level</li> </ul>
	Earthworks	<ul style="list-style-type: none"> <li>Total site area &gt;110,000m<sup>2</sup></li> <li>Potentially dusty soil type, e.g., clay</li> <li>&gt;10 heavy earth moving vehicles active at any one time</li> <li>Formation of bunds &gt;6m in height</li> </ul>
	Construction	<ul style="list-style-type: none"> <li>Total building volume &gt;75,000m<sup>3</sup></li> <li>On site concrete batching</li> <li>Sandblasting</li> </ul>
	Trackout	<ul style="list-style-type: none"> <li>&gt;50 HDV (&gt;3.5t) outward movements in any one day</li> <li>Potentially dusty surface material, e.g., high clay content</li> <li>Unpaved road length &gt;100m</li> </ul>
Medium	Demolition	<ul style="list-style-type: none"> <li>12,000 - 75,000m<sup>3</sup> building demolished</li> <li>Potentially dusty material (e.g., concrete)</li> <li>Demolition 6-12m above ground level</li> </ul>
	Earthworks	<ul style="list-style-type: none"> <li>Total site area 18,000m<sup>2</sup> - 110,000m<sup>2</sup></li> <li>Moderately dusty soil type, e.g., silt</li> <li>5-10 heavy earth moving vehicles active at any one time</li> <li>Formation of bunds 3m-6m in height</li> </ul>
	Construction	<ul style="list-style-type: none"> <li>Total building volume 12,000m<sup>3</sup> - 75,000m<sup>3</sup></li> <li>Potentially dusty construction material, e.g., concrete</li> <li>On site concrete batching</li> </ul>
	Trackout	<ul style="list-style-type: none"> <li>20-50 HDV (&gt;3.5t) outward movements in any one day</li> <li>Moderately dusty surface material, e.g., high clay content</li> <li>Unpaved road length 50m - 100m</li> </ul>
Small	Demolition	<ul style="list-style-type: none"> <li>&lt;12,000m<sup>3</sup> building demolished</li> <li>Non-dusty material (e.g metal cladding)</li> <li>Demolition &lt;6m above ground level</li> <li>Work during wetter months</li> </ul>
	Earthworks	<ul style="list-style-type: none"> <li>Total site area &lt;18,000m<sup>2</sup></li> <li>Soil type with large grain size, e.g., sand</li> <li>&lt;5 heavy earth moving vehicles active at any one time</li> <li>Formation of bunds &lt;3m in height</li> </ul>
	Construction	<ul style="list-style-type: none"> <li>Total building volume &lt;12,000 m<sup>3</sup></li> <li>Construction material with low potential for dust release, e.g., metal cladding or timber</li> </ul>
	Trackout	<ul style="list-style-type: none"> <li>&lt;20 HDV (&gt;3.5t) outward movements in any one day</li> <li>Surface material with low potential for dust release</li> <li>Unpaved road length &lt;50m</li> </ul>

**Table A1.2 - Factors to Consider - Sensitivity of the Area to Dust Soiling Effects**

Receptor Sensitivity	Human Receptors	Ecological Receptors
High	<ul style="list-style-type: none"> <li>• Users can expect enjoyment of a high level of amenity</li> <li>• The appearance, aesthetics or value of their property would be diminished by soiling</li> <li>• People or property reasonably expected to be present continuously, or at least regularly for extended periods, as part of the normal use of the land</li> <li>• Indicative examples include dwellings, museums, medium and long-term car parks and car showrooms</li> </ul>	<ul style="list-style-type: none"> <li>• Locations with an international or national designation and the designated features may be affected by dust soiling</li> <li>• Locations where there is a community of particularly dust sensitive species such as vascular species included in the Red Data List for Great Britain</li> <li>• Indicative examples include a Special Area of Conservation (SAC) designated for acid heathlands or a local site designated for lichens adjacent to the demolition of a large site containing concrete (alkali) buildings</li> </ul>
Medium	<ul style="list-style-type: none"> <li>• Users would expect to enjoy a reasonable level of amenity, but would not reasonably expect to enjoy the same level of amenity as in their home</li> <li>• The appearance, aesthetics or value of their property could be diminished by soiling</li> <li>• The people or property wouldn't reasonably be expected to be present here continuously or regularly for extended periods as part of the normal use of the land</li> <li>• Indicative examples include parks and places of work</li> </ul>	<ul style="list-style-type: none"> <li>• Location where there is a particularly important plant species, where its dust sensitivity is uncertain or unknown</li> <li>• Locations with a national designation where the features may be affected by dust deposition</li> <li>• Indicative examples are a Site of Special Scientific Interest (SSSI) with dust sensitive features</li> </ul>
Low	<ul style="list-style-type: none"> <li>• The enjoyment of amenity would not reasonably be expected</li> <li>• Property would not reasonably be expected to be diminished in appearance, aesthetics or value by soiling</li> <li>• There is a transient exposure, where the people or property would reasonably be expected to be present only for limited periods of time as part of the normal pattern of use of the land</li> <li>• Indicative examples include playing fields, farmland (unless commercially sensitive horticultural), footpaths, short term car parks and roads</li> </ul>	<ul style="list-style-type: none"> <li>• Locations with a local designation where the features may be affected by dust deposition</li> <li>• Indicative example is a local nature reserve with dust sensitive features</li> </ul>

**Table A1.3 - Factors to Consider - Sensitivity of People to Health Effects of PM<sub>10</sub>**

Receptor Sensitivity	Human Receptors
High	<ul style="list-style-type: none"> <li>Locations where members of the public are exposed over a time period relevant to the air quality objective for PM<sub>10</sub> (in the case of the 24-hour objectives, a relevant location would be one where individuals may be exposed for 8 hours or more in a day).</li> <li>Indicative examples include residential properties. Hospitals and schools should also be considered as have equal sensitivity to residential areas for the purposes of this assessment.</li> </ul>
Medium	<ul style="list-style-type: none"> <li>Locations where the people exposed are workers and exposure is over a time period relevant to the air quality objective for PM<sub>10</sub> (in the case of the 24-hour objectives, a relevant location would be one where individuals may be exposed for 8 hours or more in a day).</li> <li>Indicative examples include office and shop workers, but will generally not include workers occupationally exposed to PM<sub>10</sub>, as protection is covered by Health and Safety at Work legislation.</li> </ul>
Low	<ul style="list-style-type: none"> <li>Locations where human exposure is transient.</li> <li>Indicative examples include public footpaths, playing fields, parks and shopping streets.</li> </ul>

**TABLE A1.4 - Sensitivity of the Area to Dust Soiling Effects on People and Property**

Receptor Sensitivity	Number of Receptors	Distance from the Source (m)			
		<20	<50	<100	<250
High	>100	High	High	Medium	Low
	10-100	High	Medium	Low	Low
	1-10	Medium	Low	Low	Low
Medium	>1	Medium	Low	Low	Low
Low	>1	Low	Low	Low	Low

**TABLE A1.5 - Sensitivity of the Area to Human Health Impacts**

Receptor Sensitivity	Annual Mean PM <sub>10</sub> Concentrations	Number of Receptors	Distance from the Source (m)			
			<20	<50	<100	<250
High	>32µg/m <sup>3</sup> (>18 µg/m <sup>3</sup> in Scotland)	>100	High	High	High	Medium
		10-100	High	High	Medium	Low
		1-10	High	Medium	Low	Low

Receptor Sensitivity	Annual Mean PM <sub>10</sub> Concentrations	Number of Receptors	Distance from the Source (m)			
			<20	<50	<100	<250
High	28-32µg/m <sup>3</sup> (16-18 µg/m <sup>3</sup> in Scotland)	>100	High	High	Medium	Low
		10-100	High	Medium	Low	Low
		1-10	High	Medium	Low	Low
	24-28µg/m <sup>3</sup> (14-16 µg/m <sup>3</sup> in Scotland)	>100	High	Medium	Low	Low
		10-100	High	Medium	Low	Low
		1-10	Medium	Low	Low	Low
	<24µg/m <sup>3</sup> (<14 µg/m <sup>3</sup> in Scotland)	>100	Medium	Low	Low	Low
		10-100	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
Medium	>32µg/m <sup>3</sup> (>18 µg/m <sup>3</sup> in Scotland)	>10	High	Medium	Low	Low
		1-10	Medium	Low	Low	Low
	28-32µg/m <sup>3</sup> (16-18µg/m <sup>3</sup> in Scotland)	>10	Medium	Low	Low	Low
		1-10	Low	Low	Low	Low
	24-28µg/m <sup>3</sup> (14-16µg/m <sup>3</sup> in Scotland)	>10	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
	<24µg/m <sup>3</sup> (<14µg/m <sup>3</sup> in Scotland)	>10	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
Low	-	≥1	Low	Low	Low	Low

**Table A1.6 - Factors to Consider - Sensitivity of the Area to Ecological Impacts**

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

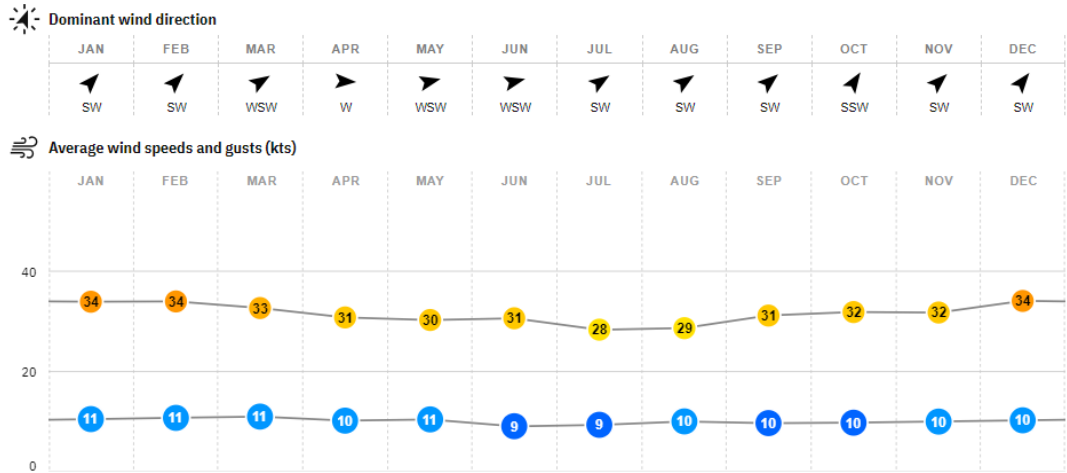


**Table A1.7 - Risk of Dust Impacts**

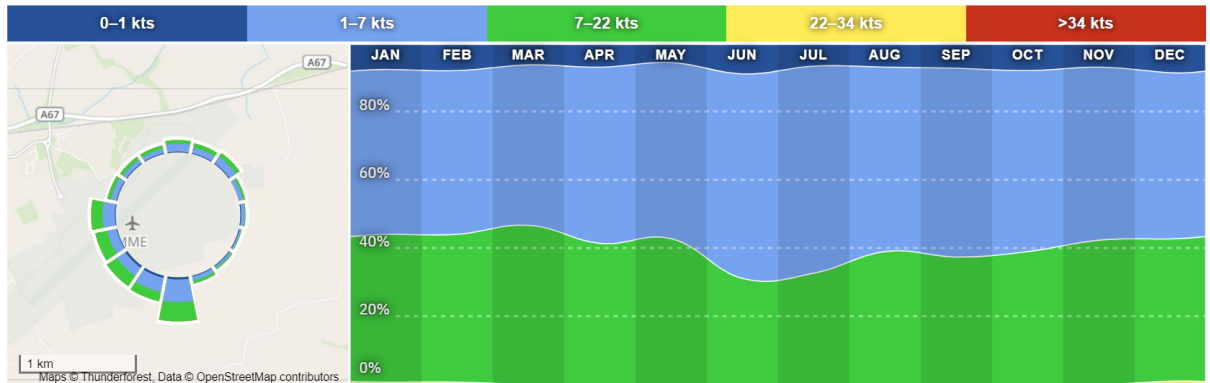
Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
<b><u>Demolition</u></b>			
High	High Risk	Medium Risk	Medium Risk
Medium	High Risk	Medium Risk	Low Risk
Low	Medium Risk	Low Risk	Negligible
<b><u>Earthworks and Construction</u></b>			
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible
<b><u>Trackout</u></b>			
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible

## Appendix 2 - Wind Statistics Durham Tees Valley Airport

### Monthly wind speed statistics and directions for Durham Tees Valley Airport



### Monthly wind direction and strength distribution



\* <https://www.windfinder.com/windstatistics/teesside>

### Appendix 3 - IAQM Construction Phase Mitigation Measures

The mitigation measures have been divided into general measures applicable to all sites and measures applicable specifically to demolition, earthworks, construction and trackout, for consistency with the IAQM assessment methodology.

The following table details the mitigation required for high, medium and low risk sites.

It is noted that not all mitigation measures will be applicable to every site and development. Professional judgement should therefore be used, taking into consideration the site location, scale and nature of the proposed works.

The dust control measures will be included within a Construction Environmental Management Plan.

Based on the assessment results, mitigation will be required during the construction phase of the Proposed Development, commensurate with a **medium risk** site, which is the highest risk category identified in Section 5.1. This column has therefore been highlighted for ease.

#### Key to Table:

- H Highly Recommended
- D Desirable
- N Not Required

**Table A3.1 - IAQM Construction Phase Mitigation Measures**

Mitigation Measure	Low Risk	Medium Risk	High Risk
<b>Communication</b>			
Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.	N	H	H
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.	H	H	H
Display the head or regional office contact information.	H	H	H
<b>Site Management</b>			
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.	H	H	H
Make the complaints log available to the local authority when asked.	H	H	H
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.	H	H	H

Mitigation Measure	Low Risk	Medium Risk	High Risk
<b>Monitoring</b>			
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.	H	H	H
<b>Preparing and Maintaining the Site</b>			
Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.	H	H	H
Avoid site runoff of water or mud.	H	H	H
Keep site fencing, barriers and scaffolding clean using wet methods.	D	H	H
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.	D	H	H
<b>Operating Vehicle/Machinery and Sustainable Travel</b>			
Ensure all vehicles switch off engines when stationary - no idling vehicles.	H	H	H
Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable.	H	H	H
Impose and signpost a maximum-speed-limit of 15mph on surfaced and 10mph 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).	D	D	H
<b>Operations</b>			
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.	H	H	H
Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate	H	H	H
<b>Waste Management</b>			
Avoid bonfires and burning of waste materials.	H	H	H
<b>Measures Specific to Earthworks</b>			
Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.	N	D	H
Only remove the cover in small areas during work and not all at once.	N	D	H
<b>Measures Specific to Construction</b>			
Avoid scabbling (roughening of concrete surfaces) if possible.	D	D	H
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.	D	H	H
Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.	N	D	H
For smaller supplies of fine power materials ensure bags are sealed after use and stored appropriately to prevent dust.	N	D	D
<b>Measures Specific to Trackout</b>			

Mitigation Measure	Low Risk	Medium Risk	High 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.	D	H	H
Avoid dry sweeping of large areas.	D	H	H
Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.	D	H	H
Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.	N	H	H
Record all inspections of haul routes and any subsequent action in a site log book.	D	H	H
Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.	N	H	H
Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).	D	H	H
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.	N	H	H
Access gates to be located at least 10m from receptors where possible.	N	H	H

# njd

## Environmental Associates

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