Environmental Associates

Air Quality Assessment

Mill Lane, Whitburn

December 2025

Story Homes

Air Quality Assessment

Mill Lane, Whitburn

Client: **Story Homes**

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Report Version	Prepared By	Reviewed By
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APPENDICES

1 INTRODUCTION

1.1.1 NJD Environmental Associates Ltd was instructed by Story Homes to prepare an Air Quality Assessment, to inform the planning application for a proposed residential development on land off Mill Lane, Whitburn.

1.1.2 The site location is shown below in Drawing 1.

Drawing 1: Site location

1.1.3 The Proposed Development itself will not have a significant impact on local road traffic. Based on the scale of the development, associated traffic flows will be below an annual average daily traffic (AADT) of 500 LDV and 100 HDV once distributed on the local road network, being located outside of an Air Quality Management Area (AQMA), 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 across and in the vicinity of the Site and determines its suitability for the proposed end use. Furthermore, the report 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.

1.1.5 In addition, consideration has been given to the potential for dust emissions associated with Marsden Quarry to the north, to give rise to dust disamenity issues at the Proposed Development.

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 ($PM_{2.5}$) set out in the Environment Act 2021.

2.1.3 The Environmental Improvement Plan, released in January 2023, outlines both long-term and interim objectives aimed at minimising public exposure to $PM_{2.5}$. Following this, the 2040 concentration goal was established within the Environmental Targets (Fine Particulate Matter) Regulations (2023).

Air Quality Standards Regulations (2016)

2.1.4 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.

2.1.5 Table 1 provides the air quality objectives (AQOs) for the pollutants considered within the assessment.

Table 1 - Air Quality Objectives		
Pollutant	**Concentration (µg/m³)**	**Averaging Period**
NO_2	40	Annual mean
	200	1-hour, not to be exceeded on more than 18 occasions per annum
PM_{10}	40	Annual mean
	50	24-hour mean, not to be exceeded on more than 35 occasions per annum
$PM_{2.5}$	20(12*)	Annual mean
*Interim target to be achieved by end of January 2028		

2.2 National Planning Policy

National Planning Policy Framework

2.2.1 The revised National Planning Policy Framework (NPPF), dated December 2024, 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, provided at paragraph 8:

> *"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:

> *"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 soil, air, water or noise pollution or land instability. […]"*

"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."

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 Dust Emissions

2.3.1 'Dust' is a generic term and has no universally recognised definition. However, the Department of the Environment Minerals Division, December 1995 described 'dust' as comprising organic or inorganic particles in the size range of 1-75µm. Dust particles with an aerodynamic diameter between 1 and 10µm are classed as particulate matter and those between 10 and 75µm are simply termed dust.

2.3.2 Air quality legislation recognises PM_{10} (10µm) and $PM_{2.5}$ (2.5µm) are important particle sizes in relation to public health. Particles less than 1µm behave more like gases than solids and are generally referred to as 'fume', whereas particles larger than 75µm are termed 'grit'.

2.3.3 Research commissioned by the Department of the Environment and reported in the Digest of Environmental Pollution Statistics No. 2 1979, has shown that dust particles, greater than 30µm (large particles), make up the greatest proportion (c.95%) of mineral dusts. It is generally accepted that the greatest dust impacts and deposition will be within 100m of a source and this includes both large (>30 µm) and small dust particles.

2.3.4 The potential impact on the local community of large and intermediate dust particles dispersing from the site is principally its potential to cause annoyance or nuisance. The IAQM refers to these effects as 'disamenity dust'.

2.3.5 Dust complaints are usually associated with periods of peak deposition, occurring during particular weather conditions. When the rate of disamenity dust exceeds the 'norm' and accumulates on surfaces such as vehicles or window ledges, a nuisance may be perceived by the sensitive receptor. There is a 'normal' level of dust deposition in every community and only when dust deposition rates increase or fluctuate from the 'norm' can complaints become more likely.

2.3.6 However, nuisance is subjective and is difficult to determine accurately as, in part, it depends upon the perceptions of individual residents or households and complaints may not always be received. The effect of dust on a community can be determined by five main factors:

- the location of the potential dust source relative to the community;
- the duration of the site activities that contribute to dust;
- the short-term dustiness during periods of dry weather (climatic factors);
- the frequency or regularity with which these occur; and
- the effectiveness of dust control measures adopted by the site operator.

2.4 Local Planning Policy

South Tyneside Core Strategy (2007)

2.4.1 Core Strategy EA5 (Environmental Protection) affirms that to complement the regeneration of the Borough, the Council will control development so that it acts to reduce environmental risk and ensures that the individual and cumulative effects of development do not breach pollution limits.

South Tyneside Development Management Policies (2011)

2.4.2 Development Management Policy DM1 further sets out that in determining applications under the Planning Acts, the Council will make sure that, where relevant, development does not impact upon air pollution levels in any designated area where air quality objectives are not met or likely to be met in the foreseeable future or as a result of the proposed development.

South Tyneside Draft Local Plan (2021-2039)

2.4.3 The '*South Tyneside Draft Local Plan 2021-2039*' is a planning framework designed to guide decisions and shape development in the borough until 2039, and is currently is being reviewed following a period of consultation during the summer of 2022. A review of the plan has identified the following policies relevant to air quality:

"Policy 2 - Air Quality

1. *Development should contribute to the improvement of air quality.*
2. *Where significant air quality impacts are likely to be generated by the development, an appropriate air quality assessment will be required. Development that would result in exposure to air pollution that exceeds national air quality objectives will only be approved where satisfactory mitigation measures can be implemented."*

"Policy 3 - Pollution

1. Development that may cause pollution of water, soil, or air through noise, vibration, odour, light, fumes, dust, or other pollutants, either individually or cumulatively, shall incorporate measures to prevent or reduce pollution to an acceptable standard to avoid negative impacts on people, the environment or biodiversity
2. Potentially polluting development will only be permitted where satisfactory mitigation measures can be demonstrated

3. Development which could lead to significant pollution, either individually or cumulatively, shall be accompanied by a detailed assessment of the likely impacts. Development proposals where pollution levels are assessed as being unacceptable will only be permitted where mitigation measures can be introduced to provide an acceptable living or working environment in relation to all existing or potential future occupants of the land."

2.4.4 The above policies related to air quality have been considered within this report.

2.5 Guidance

Local Air Quality Management

2.5.1 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.

2.5.2 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.

$PM_{2.5}$ Targets: Interim Planning Guidance, Defra

2.5.3 The proposed development has been assessed in accordance with the UK Government's '*$PM_{2.5}$ Targets: Interim Planning Guidance*', published by Defra on 4 October 2024. This guidance supports the delivery of legally binding air quality targets under the Environment Act 2021 and sets out clear expectations for planning and development.

"Developments should be designed and operated in a way that minimises emissions of $PM_{2.5}$ and its precursors as far as possible, through the use of low-emission technologies, operational efficiencies, and proactive planning decisions."

This principle applies across all development types and highlights the importance of early-stage mitigation, with a preference for emission prevention over offsetting.

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_{10}; 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

Development Traffic

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.

Marsden Quarry

3.2.3 Marsden Quarry is located to the north of the Site, within 250m of the Site boundary. This is an active quarry extracting limestone and dolomite and also operates a permitted inert waste landfill site as part of the long-term Quarry Restoration Scheme approved by South Tyneside Council Mineral Planning Authority in December 2004. Inert materials are used to refill the quarry and reform the landscape, in accordance with the approved contours and landform of the restoration scheme. Typically, this waste material will include builder's rubble, stone, sub soil and clay and as a result, can give rise to fugitive dust emissions.

3.2.4 A desk-based risk assessment has therefore been undertaken, which takes into consideration the source, pathway and receptor links in accordance with the Institute of Air Quality Management (IAQM) document '*Guidance on the Assessment of Mineral Dust Impacts for Planning*', this being the most relevant guidance.

3.2.5 In accordance with the guidance, a disamenity dust impact assessment is likely to be required if there are relevant human receptors within 250m or 400m (depending on the rock type). Marsden Quarry is a hard rock quarry.

3.2.6 The dust impact risk at the sensitive receptor is determined with the use of Table 2 of the guidance, provided below at Table 2 of this report for reference.

Table 2: Estimation of Dust Impact Risk			
Pathway Effectiveness	**Residual Source Emissions**		
	Small	**Medium**	**Large**
Highly Effective	Low Risk	Medium Risk	High Risk
Moderately Effective	Negligible Risk	Low Risk	Medium Risk
Ineffective	Negligible Risk	Negligible Risk	Low Risk

3.2.7 The likely dust impact risk is then considered alongside receptor sensitivity, to give the likely magnitude of the effect as provided in Table 3 below.

Table 3: Descriptors for Magnitude of Dust Effects			
Dust Impact Risk	**Receptor Sensitivity**		
	Low	**Medium**	**High**
High Risk	Slight Adverse Effect	Moderate Adverse Effect	Substantial Adverse Effect
Medium Risk	Negligible Effect	Slight Adverse Effect	Moderate Adverse Effect
Low Risk	Negligible Effect	Negligible Effect	Slight Adverse Effect
Negligible Risk	Negligible Effect	Negligible Effect	Negligible Effect

3.2.8 In accordance with the guidance, a conclusion must then be reached. This is a binary judgement, either it is 'significant' or 'not significant'. This stage requires professional judgement, as well as taking account of the degree to which disamenity effects will be experienced at the receptor locations.

4 BASELINE

4.1 Local Air Quality Management

4.1.1 The Site is located within South Tyneside Council (STC). According to the latest available Air Quality Annual Status Report (ASR), dated June 2025, STC currently has no declared Air Quality Management Area (AQMAs).

4.2 Air Quality Monitoring

4.2.1 STC currently monitor at three automatic (continuous) monitoring stations and 41 non-automatic (passive) diffusion tube sites.

4.2.2 The most recent monitoring results recorded closest to the Site are shown in Table 4.

Table 4 - Monitoring Results

Monitoring Site			Monitored NO_2 Concentration ($\mu g/m^3$)		
ID	**Location**	**Type**	**2022**	**2023**	**2024**
DT33	Sunderland Road, next to the Cranny	Kerbside	27.4	34.1	29.9
DT32	King George Road	Kerbside	27.7	28.6	23.9
DT2	Sunderland Road - Cleadon	Roadside	26.8	28.2	30.2
DT3	Front Street Cleadon - Café	Roadside	16.3	18.9	18.4
DT1	Sunderland Road Jolly Sailor - Whitburn	Roadside	22.1	23.6	25.3
DT44	Imeary Street	Roadside	23.4	23.5	25.8

4.2.3 As shown in Table 4, measured roadside concentrations at the closest monitoring locations are below the national AQO of 40µg/m^3 for NO_2.

4.2.4 There is no publicly available monitoring data for PM_{10} or $PM_{2.5}$ in the vicinity of the Site.

4.3 Background Concentrations

4.3.1 Background concentrations for 2025 have been obtained from the 2021 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 5.

Table 5 - Predicted Background Pollutant Concentrations (2025)

OS Grid Square (X, Y; m)	NO_2 ($\mu g/m^3$)	NO_x ($\mu g/m^3$)	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)
439500, 564500	7.42	9.46	10.73	6.10

4.3.2 As shown in Table 5, predicted background concentrations are well below the national AQOs of 40µg/m^3 for NO_2 and PM_{10} and 20µg/m^3 for $PM_{2.5}$. For $PM_{2.5}$, the predicted background concentration is also below the target exposure level of 10µg/m^3, implemented at the end of January 2023 under the Environment Act 2021.

4.4 Construction Phase

4.4.1 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.

4.4.2 A review of the Site location has indicated that with the closest sensitive receptors to the north, east and south, there are 10-100 receptors located <20m, at worst, including Marsden Primary School. With the closest receptors being residential and a school, the receptor sensitivity is considered to be **high**, at worst.

4.4.3 When considering the sensitivity of the area to dust soiling effects based on the criteria contained within Table A1.4 of Appendix 1, the sensitivity of the receiving environment to potential dust soiling impacts is considered to be **high** for all construction phase activities.

4.4.4 When considering the sensitivity of the area to human health effects based on the criteria contained within Table A1.5 of Appendix 1, due to the number and distance to existing **high sensitivity** receptors, and considering the annual mean background PM_{10} concentrations at the Site presented in Table 3, the sensitivity is deemed to be **low**.

4.4.5 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.

4.5 Meteorological Data

4.5.1 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.

4.5.2 The closest observation station with a suitable dataset is Newcastle International Airport. Reference should be made to Appendix 2 for a wind rose of these data.

4.5.3 A review of the wind rose has shown that any receptors located 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.

4.5.4 Dust emissions from Marsden Quarrry to the north, are likely to be directed away from the Proposed Development for the majority of the time.

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_{10} 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 > 110,000m^2, the potential dust emission magnitude associated with earthworks is considered to be **large.**

5.1.8 As the sensitivity of the area to dust soiling effects is **high**, in accordance with Table A1.7 of Appendix 1, the risk of dust impact during earthworks, with a **large** dust emission magnitude, is **high.**

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 building to be constructed on the Site is assumed to be greater than 75,000m^3. Therefore, the potential dust emission magnitude associated with construction is considered to be **large.**

5.1.11 As the sensitivity of the area to dust soiling effects is **high**, in accordance with Table A1.7 of Appendix 1, the risk of dust impact during construction, with a **large** dust emission magnitude, is **high**.

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 is likely to be >100m, based on the scale of the Proposed Development and as such, it is considered that the potential dust emission magnitude associated with trackout is **large**.

5.1.14 As the sensitivity of the area to dust soiling effects is **high** in accordance with Table A1.7 of Appendix 1, the risk of dust impact associated with trackout, with a **large** dust emission magnitude, is **high**.

Summary

5.1.15 The predicted dust emission magnitude has been combined with the defined sensitivity of the area (presented in Section 4.4) 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 6.

Table 6 - Summary of Dust Risk Prior to Mitigation

Potential Impact	**Risk**			
	Demolition	**Earthworks**	**Construction**	**Trackout**
Dust Soiling	N/A	High Risk	High Risk	High Risk
Human Health	N/A	Low Risk	Low Risk	Low 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 should be included in the overall Construction Management Plan (CMP) for the scheme.

Step 4

5.1.17 With the implementation of the control measures outlined, the residual effect is considered to be **not significant** in accordance with the IAQM guidance.

Construction Traffic

5.1.18 At the planning stage, construction traffic figures are not known, however are unlikely to exceed 100 AADT for HDV.

5.1.19 It is therefore considered that no significant effects on air quality are likely to occur as a result of construction traffic. No further assessment of air quality is therefore required, in accordance with the guidance.

5.1.20 Once the final contractor is appointed, should permission be granted and if construction traffic flows are likely to exceed the above criteria, a detailed assessment can be provided.

5.2 Operational Phase

Development Traffic

5.2.1 The development traffic flows generated by the Proposed Development will be below the EPUK/IAQM criteria once distributed on the local road network, based on the scale of the proposals. The overall development AADT has been provided by Eddisons as 466.

5.2.2 Given that the measured roadside and mapped background pollutant concentrations as provided in Tables 4 and 5, are also 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.

5.2.3 Based on professional judgement, the AQOs will not be approached or exceeded at existing and proposed 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**. 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.

Marsden Quarry

5.2.4 A review of the planning portal has been undertaken to determine whether any live or recent planning submissions for the quarry operations have been lodged, which may be of relevance and that may provide additional information in relation to the operations undertaken.

5.2.5 A request for an Environmental Impact Assessment (EIA) Scoping Opinion, relating to a proposed extension of time for extraction and extension of time for restoration was submitted in May 2025 (planning reference 250336).

5.2.6 The Scoping Report dated May 2025 has been reviewed. The extant permission at the quarry, reference ST/01369/2//DM, permits mineral extraction, landfilling and all restoration works to be completed by the end of December 2027. The proposed extension comprises a time extension of five years for extraction and seven years for restoration.

5.2.7 No changes are proposed to the current processing plant and the existing site access would continue to be used. Transport movements and hours of operation would also remain consistent with that already approved.

5.2.8 Reference is also made within the Scoping Report to existing sensitive receptors. There are three properties in close vicinity of the quarry (assessed as being within 25m), including Whitburn Golf Course Clubhouse and adjacent private property (Toll Cottage) on the west site boundary and a private property (Hill House) located on the eastern site boundary. A stables facility is located immediately to the south of the quarry. There are therefore closer existing sensitive receptors than the Proposed Development.

5.2.9 It is proposed that the quarry would continue to be worked as per the current scheme of works, with phased infilling from the north and extraction in the south.

The mineral would be extracted at the same rate as currently permitted, 125,000 tonnes per annum.

Estimation of Residual Source Emissions

5.2.10 Residual dust source emissions from the main operational activities are assumed to be **large**, given the scale of the quarry and the operations being currently undertaken. This assumption is considered to be robust given the lack of specific information in relation to each of the operations undertaken at the quarry.

Estimation of Pathway Effectiveness

5.2.11 The site-specific factors that need to be considered are the distance and direction of receptors relative to the prevailing wind direction. The Proposed Development is located approximately 170m to the south, from the quarry site boundary as a worst-case assumption. In accordance with the IAQM guidance, this distance is deemed to be **intermediate.**

5.2.12 The prevailing wind direction is from the west and will therefore direct any dust, should emissions arise from the quarry, away from the Proposed Development for the majority of time. The IAQM guidance provides at Table A3-2, categories depending on frequency of potentially dusty winds, for wind speeds of >5m/s. The wind rose provided at Appendix 2 does include a detailed frequency analysis at differing wind speeds, however the proposed development site is downwind of the quarry when winds are from NNW and N.

5.2.13 Based on the wind rose provided, downwind conditions at the Proposed Development are likely to be **infrequent.**

5.2.14 Based on the above, a pathway effectiveness of **ineffective** is assumed for the purposes of the risk assessment, in accordance with the IAQM guidance.

Estimation of Dust Impact Risk

5.2.15 The dust impact risk is determined using the criteria provided in Table 2, derived from the outcome of the estimations of residual source emissions and pathway effectiveness.

5.2.16 In accordance with the IAQM guidance, the dust impact risk is therefore deemed to be **low risk.**

Magnitude of Dust Effect

5.2.17 The final stage is determining the magnitude of disamenity dust effects by taking into consideration the dust risk impact and the receptor sensitivity, which is deemed to be **high** for the Proposed Development.

5.2.18 A low-risk dust impact combined with a high receptor sensitivity, results in a **slight adverse** effect at worst, as provided within Table 3. This is based on the shortest distance between the quarry site boundary and the Proposed Development, in order to provide a robust assessment. In reality, site operations will be undertaken further north, within the quarry site working area and voids, increasing the separation distance.

5.2.19 In addition, as there are closer existing sensitive receptors, quarry operations will implement control measures to reduce dust emissions outside of the Site boundary, thus residual dust emissions are likely to be less than assumed.

5.2.1 Based on a **slight adverse** effect at worst, the overall significance of potential fugitive dust emission effects is concluded to be **not significant**, in accordance with the IAQM methodology.

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 **high-risk** site, identified in Section 5.1.

6.1.2 The full suite of IAQM mitigation measures is detailed in Appendix 3, with those relevant to the scheme to be included within the overall CMP.

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_{10} 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 anticipated to 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 and proposed receptors.

6.2.2 To comply with the Defra $PM_{2.5}$ Interim Planning Guidance, the proposed development should consider the following design and mitigation measures to minimise $PM_{2.5}$ emissions during operation:

- Include electric vehicle (EV) charging infrastructure and promote active travel;
- Include vegetative barriers, such as hedges, trees, and green walls along the adjacent roads; and
- Opt for low-emission heating systems, i.e. air-source heat pumps.

6.2.3 These measures are consistent with the principle of early-stage emission prevention, as set out in the national $PM_{2.5}$ guidance. They contribute to the minimisation of local and cumulative exposure to fine particulate matter.

Residual Effects

6.2.4 The residual effects of the Proposed Development on air quality are considered to be **not significant** for NO_2, PM_{10} and $PM_{2.5}$, according to the EPUK/IAQM assessment criteria.

7 CONCLUSION

7.1.1 NJD Environmental Associates Ltd was instructed by Story Homes to prepare an Air Quality Assessment, to inform the planning application for a proposed residential development on land off Mill Lane, Whitburn.

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 **high risk** of dust soiling impacts and a **low 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 which should be included within the overall CMP, the effects of dust and PM_{10} releases would be significantly reduced. The residual effects of dust and PM_{10} generated by construction activities on air quality are therefore, considered to be **not significant**.

7.1.3 Based on the scale of the Proposed Development, development traffic flows will have a **not significant** impact on local air quality.

7.1.4 The review of available measured roadside and mapped background pollutant concentrations, 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_2, PM_{10} and $PM_{2.5}$, according to the EPUK/IAQM assessment criteria.

7.1.6 With regards Marsden Quarry, overall, the risk assessment demonstrates that the risk of a disamenity dust effect at the Proposed Development is slight adverse at worst, based on robust assumptions. This is considered to be **not significant** in accordance with the IAQM guidance.

7.1.7 The Site is therefore considered to be suitable for the intended end-use and there is no requirement for further assessment of potential air quality effects associated with the Proposed Development.

7.1.8 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.

APPENDICES

Appendix 1 - IAQM Construction Phase Assessment Criteria

Table A1.1 - Potential Dust Emission Magnitude

Magnitude	Activity	IAQM Criteria
Large	Demolition	• >75,000m^3 building demolished • Potentially dusty material (e.g., concrete) • On-site crushing/screening • Demolition >12m above ground level
	Earthworks	• Total site area >110,000m^2 • Potentially dusty soil type, e.g., clay • >10 heavy earth moving vehicles active at any one time • Formation of bunds >6m in height
	Construction	• Total building volume >75,000m^3 • On site concrete batching • Sandblasting
	Trackout	• >50 HDV (>3.5t) outward movements in any one day • Potentially dusty surface material, e.g., high clay content • Unpaved road length >100m
Medium	Demolition	• 12,000 - 75,000m^3 building demolished • Potentially dusty material (e.g., concrete) • Demolition 6-12m above ground level
	Earthworks	• Total site area 18,000m^2 - 110,000m^2 • Moderately dusty soil type, e.g., silt • 5-10 heavy earth moving vehicles active at any one time • Formation of bunds 3m-6m in height
	Construction	• Total building volume 12,000m^3 - 75,000m^3 • Potentially dusty construction material, e.g., concrete • On site concrete batching
	Trackout	• 20-50 HDV(>3.5t) outward movements in any one day • Moderately dusty surface material, e.g., high clay content • Unpaved road length 50m - 100m
Small	Demolition	• <12,000m^3 building demolished • Non-dusty material (e.g metal cladding) • Demolition <6m above ground level • Work during wetter months
	Earthworks	• Total site area <18,000m^2 • Soil type with large grain size, e.g., sand • <5 heavy earth moving vehicles active at any one time • Formation of bunds <3m in height
	Construction	• Total building volume <12,000 m^3 • Construction material with low potential for dust release, e.g., metal cladding or timber
	Trackout	• <20 HDV (>3.5t) outward movements in any one day • Surface material with low potential for dust release • Unpaved road length <50m

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

Receptor Sensitivity	Human Receptors	Ecological Receptors
High	• Users can expect enjoyment of a high level of amenity • The appearance, aesthetics or value of their property would be diminished by soiling • 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 • Indicative examples include dwellings, museums, medium and long-term car parks and car showrooms	• Locations with an international or national designation and the designated features may be affected by dust soiling • Locations where there is a community of particularly dust sensitive species such as vascular species included in the Red Data List for Great Britain • 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
Medium	• 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 • The appearance, aesthetics or value of their property could be diminished by soiling • 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 • Indicative examples include parks and places of work	• Location where there is a particularly important plant species, where its dust sensitivity is uncertain or unknown • Locations with a national designation where the features may be affected by dust deposition • Indicative examples are a Site of Special Scientific Interest (SSSI) with dust sensitive features
Low	• The enjoyment of amenity would not reasonably be expected • Property would not reasonably be expected to be diminished in appearance, aesthetics or value by soiling • 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 • Indicative examples include playing fields, farmland (unless commercially sensitive horticultural), footpaths, short term car parks and roads	• Locations with a local designation where the features may be affected by dust deposition • Indicative example is a local nature reserve with dust sensitive features

Table A1.3 - Factors to Consider - Sensitivity of People to Health Effects of PM_{10}

Receptor Sensitivity	Human Receptors
High	• Locations where members of the public are exposed over a time period relevant to the air quality objective for PM_{10} (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). • 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.
Medium	• Locations where the people exposed are workers and exposure is over a time period relevant to the air quality objective for PM_{10} (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). • Indicative examples include office and shop workers, but will generally not include workers occupationally exposed to PM_{10}, as protection is covered by Health and Safety at Work legislation.
Low	• Locations where human exposure is transient. • Indicative examples include public footpaths, playing fields, parks and shopping streets.

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_{10} Concentrations	Number of Receptors	Distance from the Source (m)			
			<20	<50	<100	<250
High	>32µg/m^3 (>18 µg/m^3 in Scotland)	>100	High	High	High	Medium
		10-100	High	High	Medium	Low
		1-10	High	Medium	Low	Low

Receptor Sensitivity	Annual Mean PM_{10} Concentrations	Number of Receptors	Distance from the Source (m)			
			<20	<50	<100	<250
High	28-32µg/m³ (16-18 µg/m³ in Scotland	>100	High	High	Medium	Low
		10-100	High	Medium	Low	Low
		1-10	High	Medium	Low	Low
	24-28µg/m³ (14-16 µg/m³ in Scotland	>100	High	Medium	Low	Low
		10-100	High	Medium	Low	Low
		1-10	Medium	Low	Low	Low
	<24µg/m³ (<14 µg/m³ in Scotland	>100	Medium	Low	Low	Low
		10-100	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
Medium	>32µg/m³ (>18 µg/m³ in Scotland)	>10	High	Medium	Low	Low
		1-10	Medium	Low	Low	Low
	28-32µg/m³ (16-18µg/m³ in Scotland)	>10	Medium	Low	Low	Low
		1-10	Low	Low	Low	Low
	24-28µg/m³ (14-16µg/m³ in Scotland)	>10	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
	<24µg/m³ (<14µg/m³ in Scotland)	>10	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
Low	-	≥1	Low	Low	Low	Low

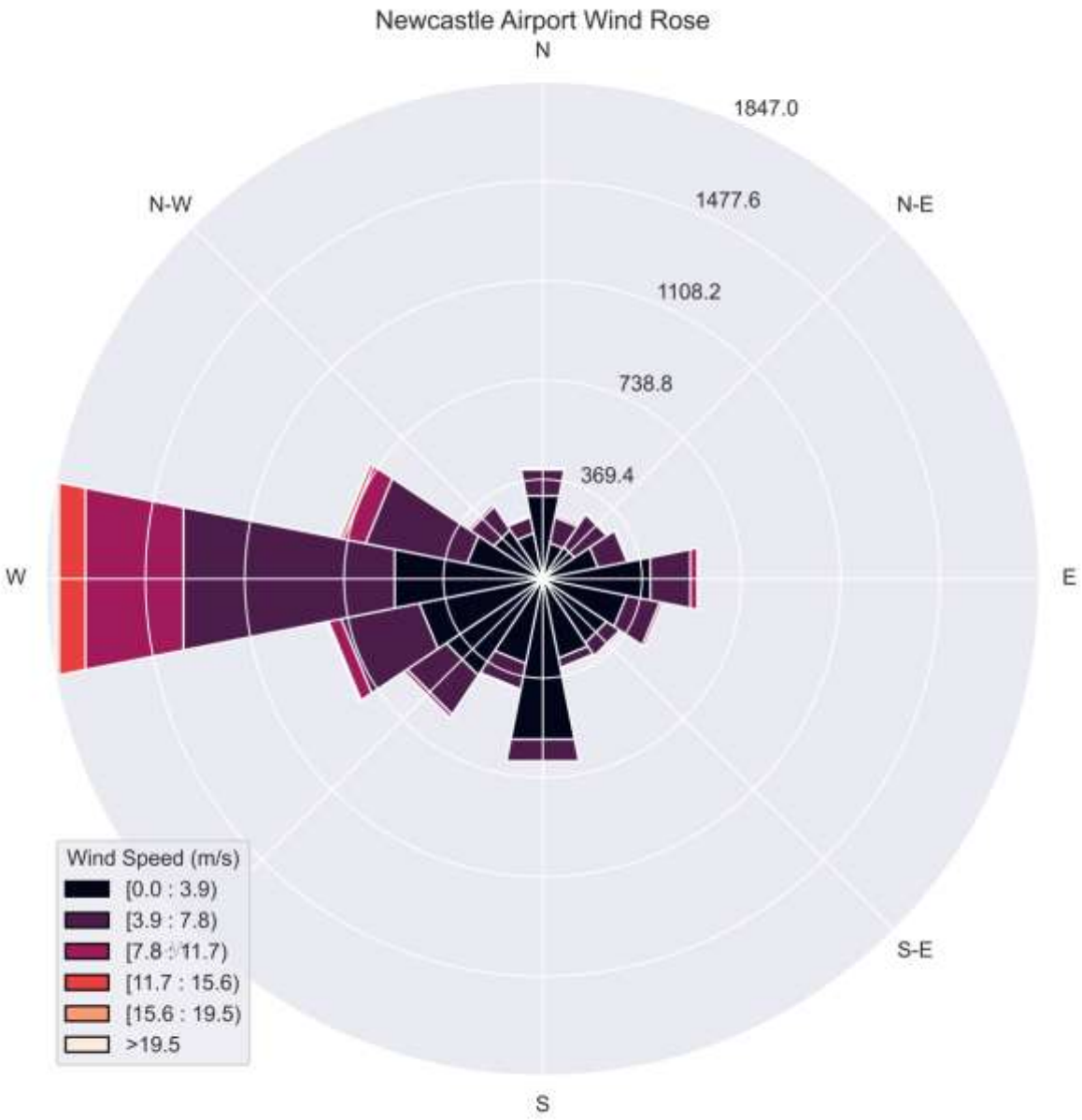
Table A1.6 - Factors to Consider - Sensitivity of the Area to Ecological Impacts

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**
Demolition			
High	High Risk	Medium Risk	Medium Risk
Medium	High Risk	Medium Risk	Low Risk
Low	Medium Risk	Low Risk	Negligible
Earthworks and Construction			
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible
Trackout			
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible

Appendix 2 - Wind Rose for Newcastle International Airport



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, however, all of those recommended by the IAQM have been provided for completeness. Professional judgement should therefore be used, taking into consideration the site location, scale and nature of the proposed works.

Based on the assessment results, mitigation will be required during the construction phase of the Proposed Development, commensurate with a **high 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
Communication			
1. Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.	N	H	**H**
2. 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**
3. Display the head or regional office contact information.	H	H	**H**
4. 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 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, realtime PM_{10} continuous monitoring and/or visual inspections.	D	H	**H**

Mitigation Measure	Low Risk	Medium Risk	High Risk
Site Management			
5. 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**
6. Make the complaints log available to the local authority when asked.	H	H	**H**
7. 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**
8. Hold regular liaison meetings with other high risk construction sites within 500m of the site boundary, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. It is important to understand the interactions of the off-site transport/deliveries which might be using the same strategic road network routes.	N	N	**H**
Monitoring			
9. 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 local authority 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.	D	D	**H**
10. 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.	H	H	**H**
11. 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**
12. Agree dust deposition, dust flux, or real-time PM_{10} 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.	H	H	**H**
Preparing and Maintaining the Site			
13. Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.	H	H	**H**
14. Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.	H	H	**H**
15. Fully enclose site or specific operations where there is a high potential for dust production and the site is actives for an extensive period.	D	H	**H**
16. Avoid site runoff of water or mud.	H	H	**H**
17. Keep site fencing, barriers and scaffolding clean using wet methods.	D	H	**H**
18. 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**
19. Cover, seed or fence stockpiles to prevent wind whipping.	D	H	**H**
Operating Vehicle/Machinery and Sustainable Travel			
20. Ensure all on-road vehicles comply with the requirements of the London Low Emission Zone and the London NRMM standards, where applicable.	H	H	**H**
21. Ensure all vehicles switch off engines when stationary - no idling vehicles.	H	H	**H**
22. Avoid the use of diesel- or petrol-powered generators and use mains electricity or battery powered equipment where practicable.	H	H	**H**

Mitigation Measure	Low Risk	Medium Risk	High Risk
23. 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
24. Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials.	N	N	**H**
25. Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing).	N	D	**H**
Operations			
26. 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**
27. 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**
28. Use enclosed chutes and conveyors and covered skips.	H	H	**H**
29. Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.	H	H	**H**
30. 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.	D	H	**H**
Waste Management			
31. Avoid bonfires and burning of waste materials.	H	H	**H**
Measures Specific to Demolition			
32. Soft strip inside buildings before demolition (retaining walls and windows in the rest of the building where possible, to provide a screen against dust).	D	D	H
33. Ensure effective water suppression is used during demolition operations. Hand held 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.	H	H	H
34. Avoid explosive blasting, using appropriate manual or mechanical alternatives.	H	H	H
35. Bag and remove any biological debris or damp down such material before demolition	H	H	H
Measures Specific to Earthworks			
36. Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.	N	D	**H**
37. Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable.	N	D	**H**
38. Only remove the cover in small areas during work and not all at once.	N	D	**H**
Measures Specific to Construction			
39. Avoid scabbling (roughening of concrete surfaces) if possible.	D	D	**H**
40. 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**

Mitigation Measure	Low Risk	Medium Risk	High Risk
41. 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**
42. For smaller supplies of fine power materials ensure bags are sealed after use and stored appropriately to prevent dust.	N	D	D
Measures Specific to Trackout			
43. 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**
44. Avoid dry sweeping of large areas.	D	H	**H**
45. Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.	D	H	**H**
46. Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.	N	H	**H**
47. Record all inspections of haul routes and any subsequent action in a site log book.	D	H	**H**
48. 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**
49. 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**
50. 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**
51. Access gates to be located at least 10m from receptors where possible.	N	H	**H**