



Environmental Associates

Air Quality Assessment

764-786 Stockport Road, Manchester

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VIEWS (Holdings) Limited



Air Quality Assessment

764-786 Stockport Road, Manchester

Client: VIEWS (Holdings) Limited

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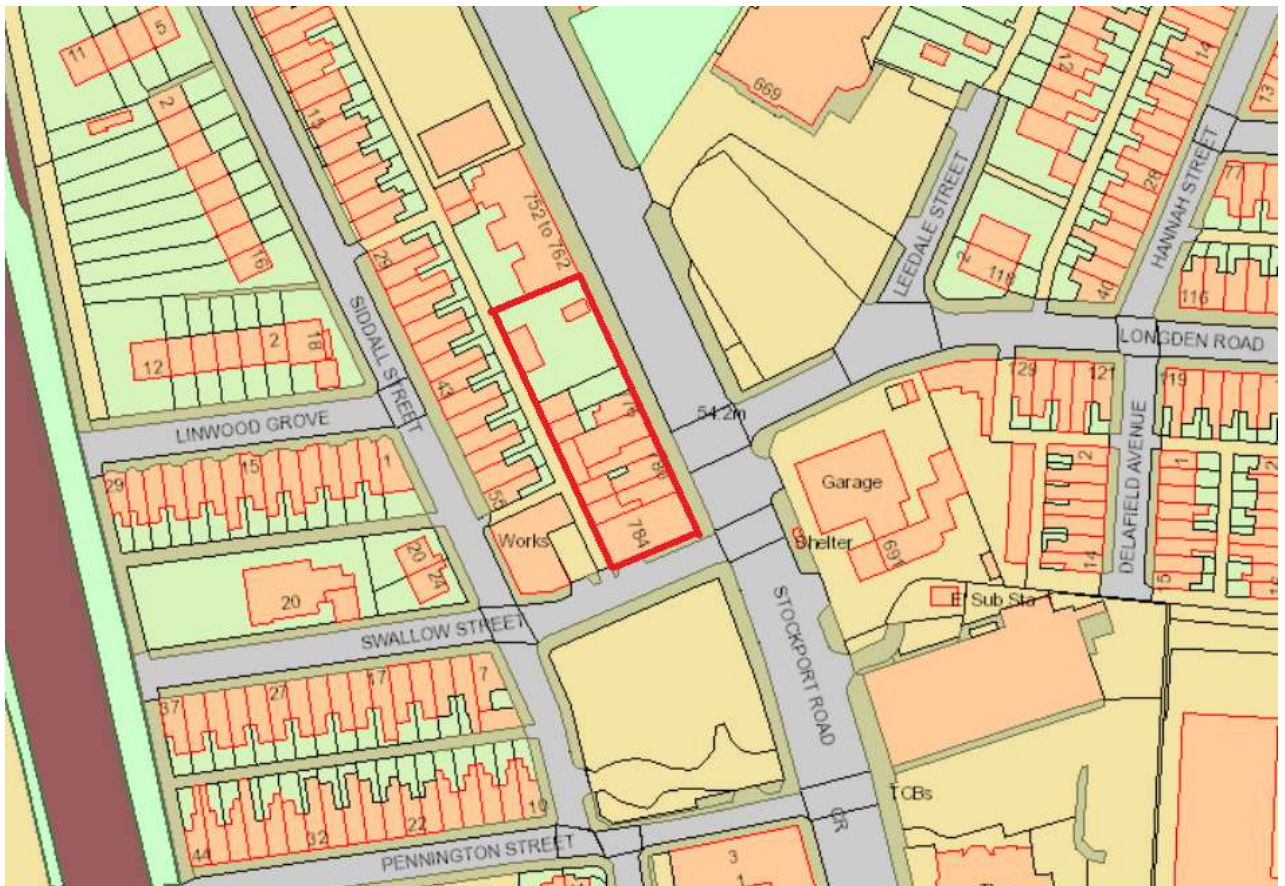
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1 INTRODUCTION

1.1 Background

1.1.1 NJD Environmental Associates was instructed by VIEWS (Holdings) Limited to undertake an air quality assessment in support of a mixed use residential and commercial development at 764-786 Stockport Road.

1.1.2 The site location is provided below in Drawing 1.



Drawing 1: Site Location

1.1.3 The proposed scheme is as follows:

- 30 apartments – on 3 upper floors; and
- 9 ground floor retail units.

- 1.1.4 There are no car parking spaces provided as part of this application. The proposed development itself will therefore not have a significant impact on local road traffic. The project team's transport consultant, Curtins, have confirmed that development flows will be well below the annual average daily traffic (AADT) of 100 within 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 IAQM document 'Land-Use Planning and Development Control: Planning for Air Quality' (2017).
- 1.1.5 This report provides an air quality assessment of the construction phase and also considers the site suitability for the residential element, with reference to recent detailed air quality modelling undertaken in support of a planning submission at a site directly to the south, also adjacent to Stockport Road (planning reference 128698/FO/2020).

2 LEGISLATION AND POLICY

2.1 Air Quality Standards Regulations (2010)

- 2.1.1 The Air Quality Standards Regulations (2010) provides air quality limit values for seven pollutants and target values for an additional five pollutants, based on the requirements of the EU Directive 2008/50/EC.
- 2.1.2 Part IV of the Environment Act (1995) requires the UK Government to produce a national air quality strategy containing standards, objectives and measures for improving ambient air quality and to keep these policies under review.
- 2.1.3 The latest air quality strategy sets out air quality objectives (AQOs), which are maximum concentrations not to be exceeded. Table 1 provides the objective levels of the pollutants considered within the site suitability assessment.

Table 1 Air Quality Objectives (AQOs)		
Pollutant	Concentration ($\mu\text{g}/\text{m}^3$)	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}	25	Annual mean

2.2 Local Air Quality Management

2.2.1 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 Air Quality Management Area (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.

2.3 National Planning Policy Framework (NPPF)

2.3.1 The revised National Planning Policy Framework (NPPF), dated July 2018, sets out the Government's core policies and principles with respect to land use planning, including air quality. The document includes the following considerations which are relevant to the proposed development:

"170. The planning system 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."*

"181. 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."

- 2.3.2 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).

3 ASSESSMENT METHODOLOGY

3.1 Construction Phase

- 3.1.1 The IAQM 'Guidance on the assessment of dust from demolition and construction', 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 PM₁₀; and
- Harm to ecological receptors.

Assessment procedure

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

Step 1

3.1.5 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.

3.1.6 For human receptors, these distances are specified as 350m from the site boundary or 50m from the construction vehicle route within 500m of the site entrance. Should any ecological receptors also be present within 50m of the construction vehicle route within 500m 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

3.1.7 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.

3.1.8 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

3.1.9 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.

3.1.10 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

- 3.1.11 This step determines the significance of the effect after considering the construction activity with mitigation.
- 3.1.12 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'.

4 BASELINE

4.1 Local Air Quality

- 4.1.1 The site is partially located within the Greater Manchester Air Quality Management Area (AQMA).
- 4.1.2 Manchester City Council (MCC) undertakes monitoring of air quality, with the closest diffusion tube location adjacent to the A6 Stockport Road (Tube ID MA75NO). The bias-adjusted NO₂ concentration at this location in 2019 was reported to be 47.0µg/m³, i.e., above the annual air quality objective level for NO₂.

4.2 Background Concentrations

- 4.2.1 Background concentrations of PM₁₀ and PM_{2.5} have been obtained from the 2018 based default concentration maps provided by Defra for the relevant grid square containing the site. The background concentration of NO₂ has been derived from the urban background monitoring site operated by MCC (Tube ID MAN81). These are provided below in Table 2.

Table 2 Background concentrations for 2020			
Grid square	NO ₂ (µg/m ³)	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)
387500, 394500	22.10	13.50	9.40

- 4.2.2 The background concentrations are well below the national air quality objective levels of 40µg/m³ for PM₁₀ and 25µg/m³ for PM_{2.5}.

4.3 Existing Sensitive Receptors – Construction Phase

- 4.3.1 Human receptors within 350m of the site boundary or within 50m of the construction vehicle route up to 500m from the site entrance need to be considered. Due to the site location, within a built-up urban area, it is assumed that there are more than 100 receptors located within each of the distance categories provided at Table A4 of Appendix 1, as taken from the IAQM Guidance.
- 4.3.2 When considering the sensitivity of the area to dust soiling effects based on the criteria contained within Table A4, due to the distances to existing receptors, the sensitivity is deemed to be **high** at worst.
- 4.3.3 When considering the sensitivity of the area to human health effects based on the criteria contained within Table A5, the sensitivity is deemed to be **low**.

5 IMPACT ASSESSMENT

5.1 Construction Phase

Step 1

- 5.1.1 The desk study undertaken as part of the baseline considerations identified human receptors within 350m of the site boundary. It is therefore necessary to proceed to Step 2 of the assessment and undertake a detailed assessment.

Step 2

Earthworks

- 5.1.2 Earthworks involve excavating material, haulage, tipping and stockpiling. There may also be levelling of the site and landscaping. As the total site area is <2,500m², the potential dust emission magnitude associated with earthworks is **small**, as taken from the IAQM guidance criteria provided at Table A1 of Appendix 1.
- 5.1.3 As the sensitivity of the area to dust soiling effects is **high**, in accordance with Table A7 of Appendix 1, the risk of dust impact during earthworks is **low**.

Construction

- 5.1.4 The key issues when determining the potential dust emission magnitude from the construction phase include the size of the buildings, method of construction, construction materials and duration of build. The potential dust emission magnitude associated with construction is **medium**, as taken from the IAQM guidance criteria provided at Table A1 of Appendix 1.
- 5.1.5 As the sensitivity of the area to dust soiling effects is **high**, in accordance with Table A7 of Appendix 1, the risk of dust impact during construction is **medium**.

Trackout

- 5.1.6 At this stage there is no information regarding the number of HDV vehicles or the proposed construction routes. Given the size of the site, it has been assumed that unpaved road lengths within the site will be less than 50m in length. The potential dust emission magnitude associated with trackout is **small**, as taken from the IAQM guidance criteria provided at Table A1 of Appendix 1.
- 5.1.7 As the sensitivity of the area to dust soiling effects is **high**, in accordance with Table A8 of Appendix 1, the risk of dust impact associated with trackout is **low**.

Summary

- 5.1.8 The risk from each dust generating activity is summarised in Table 3.

Table 3 Summary of risk prior to mitigation			
Potential Impact	Risk		
	Earthworks	Construction	Trackout
Dust Soiling	Low	Medium	Low
Human Health Effects	Low	Low	Low

Step 3

- 5.1.9 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 below Table 4 and can be included in the Construction Environmental Management Plan.

Table 4 Dust emissions mitigation measures

Issue	Control measure
Communication	• Develop and implement a stakeholder communications plan that includes community engagement before work commences on site. • Display the name and contact details of person(s) accountable for dust issues on the site boundary. • Display the head or regional office contact information. • Develop and implement a Dust Management Plan (DMP) which may be incorporated into the overall Construction Environmental Management Plan
Site management	• Record all dust complaints, identify causes(s), take appropriate measures to reduce emissions in a timely manner and record the measures taken. • Make the complaints log available to the Local Authority when asked. • Record any exceptional incidents that cause dust emissions either on or off-site and the action taken to resolve the situation in the log book.
Monitoring	• Carry out regular site inspections to monitor compliance, record inspection results and make an inspection log available to the Local Authority when asked. • Increase the frequency of site inspections when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.
Preparing and maintaining the site	• Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible. • Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site. • Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period. • Avoid site runoff of water or mud. • Keep site fencing, barriers and scaffolding clean using wet methods. • Remove materials that have the 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. • Cover, seed or fence stockpiles to prevent wind whipping.

Operations	• Only use cutting, grinding or sawing equipment fitter or in conjunction with suitable dust suppression techniques such as water sprays or local extraction. • Ensure an adequate water supply on the site for effective dust suppression using non-potable water where possible and appropriate. • Use enclosed chutes and conveyors and covered skips. • Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate. • Ensure equipment is readily available on site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.
Waste management	• Avoid bonfires and burning of waste materials.

Step 4

5.1.10 Providing the mitigation measures as summarised in Table 4 are implemented, the residual effect is deemed to be **not significant** in accordance with the IAQM guidance.

5.2 Site Suitability

5.2.1 In order to consider the site suitability for the residential element, a review of recent planning applications in the locality has been undertaken. It is noted that detailed air quality modelling has recently been undertaken in support of planning application reference 128698/FO/2020, to the south of the site and also directly adjacent to Stockport Road.

5.2.2 The detailed air quality model provided within the air quality assessment predicted the following concentrations for the year 2023 at the façade directly adjacent to the west of Stockport Road:

- NO₂: Ground Floor = 33.2µg/m³
First Floor = 31.2 µg/m³
- PM₁₀: Ground Floor = 16.9 µg/m³
First Floor = 16.2 µg/m³

5.2.3 As the predicted concentrations of NO₂ and PM₁₀ are below the relevant AQOs, the site is considered suitable for residential development.

6 CONCLUSION

- 6.1.1 NJD Environmental Associates was instructed by VIEWS (Holdings) Limited to undertake an air quality assessment in support of a mixed use residential and commercial development at 764-786 Stockport Road, Manchester.
- 6.1.2 An assessment has been undertaken in accordance with IAQM Guidance for the construction phase of the proposed development, with site suitability for residential use also considered.
- 6.1.3 During the construction phase, there is the potential for dust soiling effects associated with fugitive emissions from the site. Assuming good practice control measures are implemented, the residual effect associated with dust soiling during the construction phase is deemed to be **not significant**.
- 6.1.4 No car parking provision is to be provided and the proposed development itself will not have a significant impact on local air quality as confirmed by the project team's transport consultant.
- 6.1.5 With reference to detailed air quality modelling undertaken at an adjacent site to the south, the predicted concentrations of NO₂ and PM₁₀ are below the relevant AQOS and therefore the site is considered suitable for residential development.

APPENDIX 1 – IAQM Assessment Criteria

Table A1: Potential Dust Emission Magnitude

Magnitude	Activity	IAQM Criteria
Large	Earthworks	- Total site area >10,000m² - Potentially dusty soil type, e.g. clay >10 heavy earth moving vehicles active at any one time - Formation of bunds >8m in height - Total material moved >100,000 tonnes
	Construction	- Total building volume >100,000m³ - 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	Earthworks	- Total site area 2,500m² – 10,000m² - Moderately dusty soil type, e.g. silt 5-10 heavy earth moving vehicles active at any one time - Formation of bunds 4m-8m in height - Total material moved 20,000 tonnes – 100,000 tonnes
	Construction	- Total building volume 25,000m³ – 100,000m³ - Potentially dusty construction material, e.g. concrete - On site concrete batching
	Trackout	10-50 HDV (>3.5t) outward movements in any one day - Moderately dusty surface material, e.g. high clay content - Unpaved road length 50m – 100m
Small	Earthworks	- Total site area <2,500m² - Soil type with large grain size, e.g. sand <5 heavy earth moving vehicles active at any one time - Formation of bunds <4m in height - Total material moved <20,000t - Earthworks during wetter months
	Construction	- Total building volume <25,000 m³ - Construction material with low potential for dust release, e.g. metal cladding or timber
	Trackout	<10 HDV (>3.5t) outward movements in any one day - Surface material with low potential for dust release - Unpaved road length <50m

Table A2: 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 is 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	• 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

Receptor Sensitivity	Human Receptors	Ecological Receptors
	Indicative examples include playing fields, farmland (unless commercially sensitive horticultural), footpaths, short term car parks and roads	

Table A3: Factors to consider – Sensitivity of People to Health Effects of PM₁₀

Receptor Sensitivity	Human Receptors
High	• Locations where members of the public are exposed over a time period relevant to the air quality objective for PM₁₀ (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 PM₁₀ (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 PM₁₀, 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 A4: 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	<350
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 A5: 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	<200	<350
High	>32µg/m ³ (>18 µg/m ³ in Scotland)	>100	High	High	High	Medium	Low
		10-100	High	High	Medium	Low	Low
		1-10	High	Medium	Low	Low	Low
	28-32µg/m ³ (16-18 µg/m ³ in Scotland)	>100	High	High	Medium	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	High	Medium	Low	Low	Low
	24-28µg/m ³ (14-16 µg/m ³ in Scotland)	>100	High	Medium	Low	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	Medium	Low	Low	Low	Low
	<24µg/m ³ (<14 µg/m ³ in Scotland)	>100	Medium	Low	Low	Low	Low
		10-100	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
Medium	>32µg/m ³ (>18 µg/m ³ in Scotland)	>10	High	Medium	Low	Low	Low
		1-10	Medium	Low	Low	Low	Low
	28-32µg/m ³ (16-18 µg/m ³ in Scotland)	>10	Medium	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
	24-28µg/m ³ (14-16 µg/m ³ in Scotland)	>10	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
	<24µg/m ³ (<14 µg/m ³ in Scotland)	>10	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
Low	-	≥1	Low	Low	Low	Low	Low

Table A6: 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 A7: Risk of Dust Impacts – Earthworks and Construction

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible

Table A8: Risk of Dust Impacts – Trackout

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Low Risk	Negligible
Low	Low Risk	Low Risk	Negligible



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