Nile + Villiers, Sunniside, Sunderland

Air quality assessment

11021.1

22nd September 2023

Revision A

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1 Contents

2 Summary

2.1 This report has been prepared to accompany a planning application for a proposed mixed-use development entitled Nile + Villiers, at Sunniside, Sunderland. The development consists of circa 80 no. residential dwellings and 400 m^2 of commercial space.

2.2 An air quality assessment has been undertaken in order to determine baseline conditions, consider site suitability for the proposed end-use and assess potential impacts as a result of the scheme.

2.3 Potential construction phase air quality impacts from fugitive dust emissions have been assessed as a result of earthworks, construction and trackout activities. Suitable mitigation measures have been identified for inclusion in a Construction Environmental Management Plan (CEMP) or similar (for example Dust Management Plan (DMP), if deemed required). It is considered that the use of these good practice control measures will ensure impacts are minimised throughout construction and controlled to an acceptable level.

2.4 During the operational phase of the development there is the potential for air quality impacts as a result of traffic exhaust emissions associated with vehicle movements generated by future occupants. These were assessed against the relevant screening criteria. Due to the scale and nature of the proposal, an assessment of the operational phase has been scoped out.

2.5 Based on the assessment results, air quality issues are not considered a constraint to planning consent for the development.

3 Introduction

3.1 **Background**

3.2 This report has been prepared to accompany a planning application for a proposed mixed-use development entitled Nile + Villiers, at Sunniside, Sunderland.

3.3 There is the potential for the development to expose future occupants to poor air quality, and to result in adverse impacts on existing sensitive receptors during construction and operation. As such, an air quality assessment is required to determine baseline conditions at the site, consider location suitability for the proposed end-use and assess potential effects associated with the scheme.

3.4 **Site Location and Context**

3.5 The site is located in the district of Sunniside, Sunderland, at approximate National Grid Reference (NGR): 440052, 557114. Reference should be made to Figure 1 for a map of the site and surrounding area.

3.6 It is proposed to build circa. 80 no. residential dwellings and 400 m^2 of commercial space on the site.

3.7 The development has the potential to cause air quality impacts at existing sensitive receptor locations. These may include fugitive dust emissions associated with construction works and road traffic exhaust emissions from vehicles travelling to and from the development during the operational phase, as well as the introduction of future occupants to any existing air quality issues at the site. An Air Quality Assessment has therefore been undertaken in order to determine baseline conditions and consider potential effects as a result of the proposals. This is detailed in the following report.

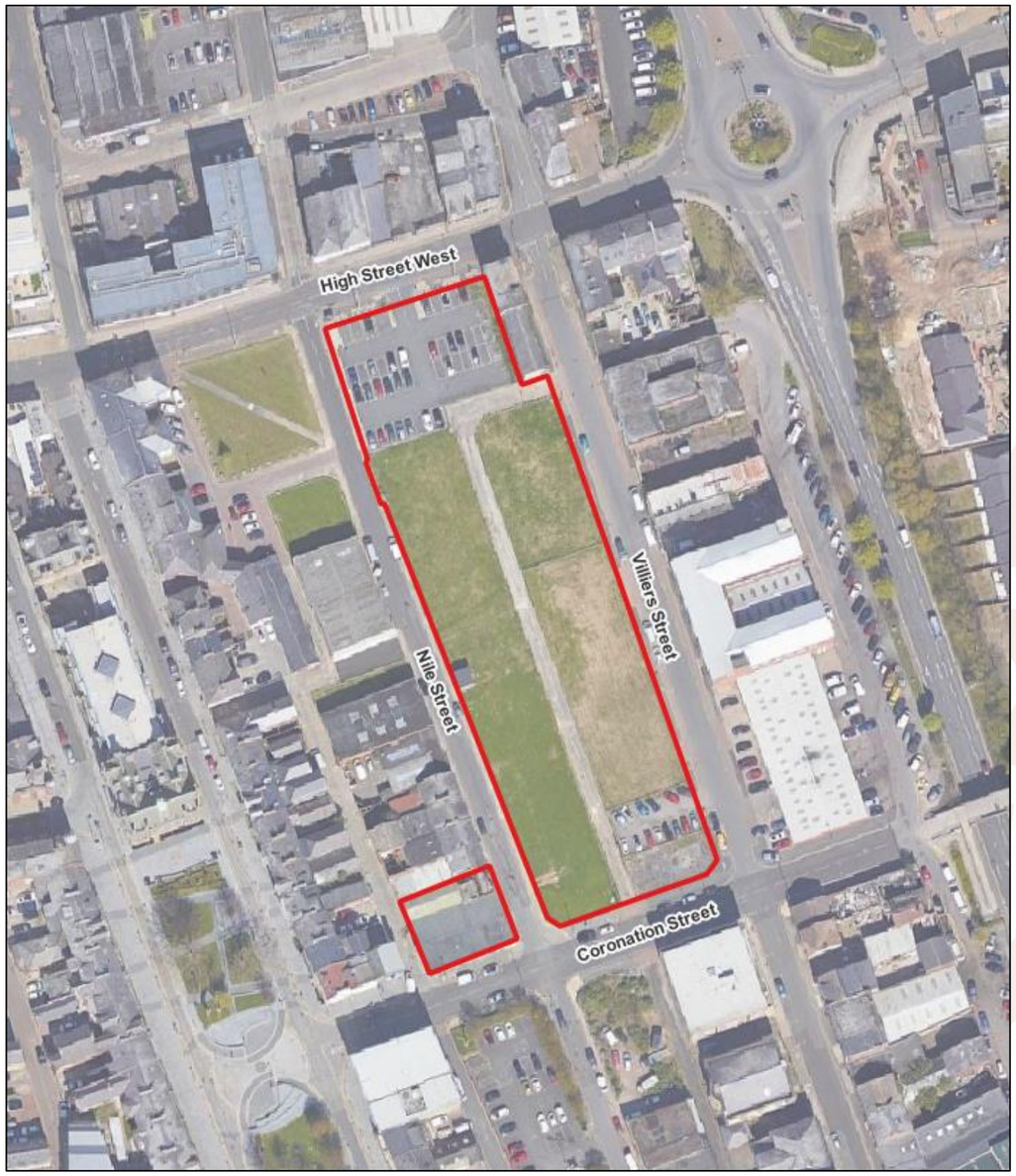

Figure 1: Site Location Plan

4 Legislation and Policy

4.1 Legislation and Guidance

4.2 The air quality assessment has been undertaken in accordance with the following legislation and guidance, further details of which can be found in Appendix A:

- The Air Quality Standards Regulations 2010;
- Institute of Air Quality Management (IAQM) Guidance on the Assessment of Dust from Demolition and Construction, February 2014;
- Environmental Protection UK (EPUK) & IAQM Land-Use Planning & Development Control: Planning For Air Quality, January 2017;
- The Environment Act 2021;
- Ministry of Housing, Communities and Local Government, National Planning Policy Framework, July 2021;
- Department for Communities and Local Government, Planning Practice Guidance: Air Quality, June 2021;
- Department for Environment, Food and Rural Affairs (DEFRA), Local Air Quality Management Technical Guidance LAQM.TG(22), August 2022; and
- Department of Environment, Food and Rural Affairs, The Air Quality Strategy for England, April 2023.

4.3 **Assessment Criteria**

4.4 Table 1 presents the Air Quality Objectives (AQOs) and Interim Target for pollutants considered within this assessment.

Pollutant	Air Quality Objective	
	Concentration (µg/m³)	Averaging Period
NO_2	40	Annual mean
	200	1-hour mean, 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
$PM_{2.5}$	12[(a)]	Annual Mean

Table 1: Air Quality Objectives/ Interim Target

Note: (a) Interim Target to be achieved by end of January 2028. A target of 10 µg/m³ is required to be achieved by the end of 2040

5 Methodology

5.1 The assessment has been undertaken in accordance with the legislation and guidance detailed in Section 4 of this report.

5.2 The methodology is provided in Table 2.

Assessment Stage	Consideration	Proposed Method
Construction phase assessment	Dust and fine particulate matter (PM_{10})	Assessment in accordance with IAQM Guidance, Reference 1
Operational phase assessment	Nitrogen dioxide (NO_2) and fine particulate matter (PM_{10} and $PM_{2.5}$)	Assessment in accordance with EPUK & IAQM Guidance, Reference 2. The proposed development would generate negative vehicle trips, as the existing car parks on site would be removed, and the development itself would have no parking provision. The development would therefore not meet the AADT criterion for a detailed assessment (as detailed in the EPUK Guidance). Background pollutant concentrations are below the relevant air quality objectives. A detailed assessment is therefore screened out.

Table 2: Summary of Methodology

5.3 **Construction Phase Assessment**

5.4 To assess the impacts associated with dust and fine particulate matter released during construction activities, the IAQM guidance has been followed. Further details of the assessment, and the criteria to assess the impact, are provided in Appendix B of this report.

5.5 The closest human receptors to where construction activities would occur are detailed in Table 3.

Receptor	Sensitivity	Direction from Site	Distance from Site Boundary
Commercial/first floor residential premises off High Street West	Medium/High	North	Approximately 15m at closest point
Commercial premises off Villiers Street	Medium	East	Approximately 12m at closest point
Biscop House	High	South	Approximately 15m at closest point
Commercial/first floor residential premises off Nile Street	Medium/High	West	Adjacent

Table 3: Existing Sensitive Receptors Considered in the Construction Phase Assessment

5.6 Operational Phase Assessment

5.7 A qualitative screening assessment has been undertaken of the impacts of NO_2 and fine particulate matter, as these are the pollutants considered most likely to exceed the objectives and limit values.

6 Baseline

6.1 Existing air quality conditions in the vicinity of the proposed development site have been identified in order to provide a baseline for assessment. These are detailed in the following Sections.

6.2 **Local Air Quality Management**

6.3 As required by the Environment Act 2021, Sunderland City Council (SCC) has undertaken Review and Assessment of air quality within their area of jurisdiction. This process has indicated no exceedance of an air quality objective, and therefore no Air Quality Management Areas (AQMAs) being declared.

6.4 **Air Quality Monitoring**

6.5 Monitoring of pollutant concentrations is undertaken by SCC throughout their area of jurisdiction. Recent results recorded in the vicinity of the development are shown in Table 4, with their locations shown on Figure 2.

Monitoring Site		Monitored NO_2 Concentration (µg/m^3)		
		2019	2020	2021
117	3 Holmeside (Baker's Oven)	28.6	24.5	22.8
118	27 Bridge Street	23.0	17.8	26.8
119	4 Atheneum Street	23.6	17.4	19.6
120	Gillespie's	23.8	16.7	20.1
128	Echo Building (lamp post)	18.1	14.7	23.0
129	West Sunniside (lamp post)	22.1	17.6	14.9
130	St Mary's Car Park, Matlock Street	37.8	33.0	20.5

Table 4: Monitoring Results

6.6 As shown in Table 4, annual mean NO_2 concentrations are below the relevant AQO at all monitors in recent years. Of note, monitoring data from 2020 and 2021 is during the period of the COVID-19 pandemic. Therefore, reductions in pollutant concentrations from 2019 are expected, and the results from 2019 should be considered to be more realistic for air pollutant concentrations today.

6.7 SCC do not undertake PM_{10} or $PM_{2.5}$ monitoring within the vicinity of the site.

Figure 2: Monitoring Locations

6.8 **Background Pollutant Concentrations**

6.9 Predictions of background pollutant concentrations on a 1km by 1km grid basis have been produced by DEFRA for the entire of the UK to assist LAs in their Review and Assessment of air quality. The proposed development site is located in grid square: 440500, 557500. Data for this location was downloaded from the DEFRA website, Reference 3, for the purpose of the assessment and is summarised in Table 5.

Pollutant	Predicted Background Concentration (µg/m³)
	2023
NO_2	17.30
PM_{10}	9.71
$PM_{2.5}$	6.17

Table 5: Background Pollutant Concentrations

6.10 As shown in Table 5, predicted background NO_2, PM_{10} and $PM_{2.5}$ concentrations are below the relevant AQOs at the development site.

7 Assessment

7.1 Introduction

7.2 There is the potential for air quality impacts as a result of the construction and operation of the proposed development. These are assessed in the following Sections.

7.3 Construction Phase Fugitive Dust Emissions

7.4 *Step 2- Impact Assessment*

7.5 In accordance with the IAQM guidance, the main activities to be considered during the construction phase of the proposed development are demolition, earthworks, construction and trackout.

7.6 Earthworks covers the processes of soil-stripping, ground-levelling, excavation and landscaping. Construction activities will focus on the proposed buildings and car parking areas. Trackout is defined as the transport of dust and dirt by vehicles travelling from a construction site on to the public road network. This may occur through the spillage of dusty materials onto road surfaces or through the transportation of dirt by vehicles that have travelled over muddy ground on the site. This dust and dirt can then be deposited and resuspended by other vehicles.

Step 2A

7.7 Step 2A of the assessment defines the potential dust emission magnitude from demolition, earthworks, construction and trackout in the absence of site-specific mitigation.

7.8 Examples of the criteria for the dust emission classes are detailed in Appendix B. The results of this step are detailed in Table 6.

	Activity			
	Demolition	**Earthworks**	**Construction**	**Trackout**
Dust Emission Magnitude	Small[a]	Medium[b]	Medium[c]	Medium[d]

a. Total building volume less than 20,000m^3, demolition less than 10m above ground
b. Total site area estimated to be between 2,500 and 10,000m^2
c. Total building volume estimated to be between 25,000 and 100,000m^3, with potentially dusty construction materials
d. Number of construction phase vehicles estimated to be between 10 and 50 movements per day

Table 6: Dust Emission Magnitude Classifications

7.9 *Step 2B*

7.10 Step 2B of the construction phase dust assessment defines the sensitivity of the area, taking into account the significance criteria detailed in Appendix B, for demolition, earthworks, construction and trackout. The sensitivity of the area to each activity is assessed for potential dust soiling, human health effects and ecological effects (where applicable).

7.11 It is understood that there are no demolition works proposed at this site. Should any occur, there are currently 10 – 100 receptors within 20m of where these activities will occur.

7.12 For earthworks and construction, there are currently 10 – 100 receptors within 20m of where these activities may take place, which is assumed to be the site boundary for the purposes of this assessment.

7.13 The routing of construction vehicles is currently unknown. It is assumed vehicles would travel on the A1018, and then towards the A1231. With this assumption, for trackout, there are between 10 – 100 receptors within 50m of where trackout may occur, for a distance of up to 200m from the site entrance.

7.14 There are no ecological receptors within 50m of the development boundary or the access route within 200m of the site entrance. As such, ecological impacts have not been assessed further within this report.

7.15 A number of additional factors have been considered when determining the sensitivity of the surrounding area. These are summarised in Table 7.

Guidance	Comment
Whether there is any history of dust generating activities in the area	The baseline study indicated no new developments have recently been constructed in the vicinity of the site. As such, it is unlikely there has been a history of dust generating activities in the area.
The likelihood of concurrent dust generating activity on nearby sites	A review of the planning portal indicates no developments within proximity to the site. Therefore it is unlikely concurrent dust generation would occur.
Pre-existing screening between the source and the receptors	There is no pre-existing screening between the site and surrounding receptors
Conclusions drawn from analysing local meteorological data which accurately represent the area: and if relevant the season during which works will take place	Winds are predominantly west and south westerly. As such, receptors to the east and north east of the development are most likely to be affected by dust releases
Conclusions drawn from local topography	There are no significant topographical constraints to dust dispersion
Duration of the potential impact, as a receptor may become more sensitive over time	Currently it is unclear as to the duration of the construction phase. However, it is likely that it will extend over one year
Any known specific receptor sensitivities which go beyond the classifications given in the document	No specific receptor sensitivities identified during the baseline assessment

Table 7: Additional Area Sensitivity Factors to Potential Dust Impacts

7.16 *Step 2C*

7.17 Step 2C of the construction phase dust assessment defines the risk of impacts from each activity, by combining the dust emission magnitude with the sensitivity of the surrounding area.

7.18 The risk of dust impacts from each activity, with no mitigation in place, has been assessed in accordance with the criteria detailed in Appendix B. The results of this step are detailed in Table 8.

	Activity			
	Demolition[a]	**Earthworks**	**Construction**	**Trackout**
Step 2A				
Dust Emission Magnitude	Small	Medium	Medium	Medium
Step 2B				
Sensitivity of Closest Receptors	High	High	High	High
Sensitivity of Area to Dust Soiling Effects	High	High	High	Medium
Sensitivity of Area to Human Health Effects	Low[b]	Low[b]	Low[b]	Low[b]
Step 2C				
Dust Risk: Dust Soiling	Medium Risk	Medium Risk	Medium Risk	Low Risk
Dust Risk: Human Health	Negligible Risk	Low Risk	Low Risk	Low Risk

a. Should this occur at this development
b. Background annual mean PM_{10} concentration is taken from the LAQM Defra default concentration maps, for the appropriate grid square for 2023

Table 8: Construction Phase Dust Assessment for Human Receptors

7.19 As indicated in Table 8, the potential risk of dust soiling is **medium** from demolition, earthworks and construction and **low** from trackout. The potential risk of human health impacts is **negligible** from demolition, and **low** from earthworks, construction and trackout.

7.20 It should be noted that the potential for impacts depends significantly on the distance between the dust generating activity and receptor location. Risk was predicted based on a worst-case scenario of works being undertaken at the site boundary closest to each sensitive area. Therefore, actual risk is likely to be lower than that predicted during the majority of the construction phase.

7.21 *Step 3*

7.22 The IAQM guidance provides potential mitigation measures to reduce impacts as a result of fugitive dust emissions during the construction phase, these have been included below These may be reviewed prior to the commencement of construction

works and incorporated into a CEMP if required by the LA. A DMP also be prepared, providing site specific measures for control of dust.

7.23 Mitigation measures could include:

- Site management - 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.
- Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.
- Cover, seed or fence stockpiles to prevent wind whipping.
- Ensure all vehicles switch off engines when stationary - no idling vehicles.
- Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.
- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.
- Soft strip inside buildings before demolition (retaining walls and windows in the rest of the building where possible, to provide a screen against dust).
- 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.
- Implement a wheel washing system.
- Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site.

7.24 *Step 4*

7.25 Assuming relevant mitigation measures (such as those outlined above) are implemented, the residual impact from all dust generating activities is predicted to be **not significant**, in accordance with the IAQM guidance.

7.26 **Operational Phase**

7.27 Guidance prepared by EPUK/IAQMprovides criteria for when a detailed air quality assessment may be required. The relevant criteria for a proposed development comprise:

- A change in Light Duty Vehicles (LDVs) of more than 500 AADT (or 100 AADT within/adjacent to an AQMA);
- A change in Heavy Duty Vehicles (HDVs) of more than 100 AADT (or 25 AADT within/adjacent to an AQMA);
- The realignment of existing roads near to receptors, with a change of more than 5m when the road is within an AQMA; and
- The introduction of a new junction, or removal of an existing junction, leading to a significant change in vehicle acceleration/deceleration (e.g. through the introduction of traffic lights or a roundabout) near to receptors.

7.28 The proposals are for circa. 80 no. residential dwellings and 400 m^2 of commercial space. The development will not provide any car parking spaces, instead removing the existing two car parks currently occupying the site. Through consultation with the appointed transport consultant, Civic Engineers, it was confirmed due to the removal of the existing car parks, and with no parking provided for the proposed development, the development would in essence result in negative trips, removing those to the existing car parks on site.

7.29 As the development would remove vehicle trips from the road network in the area, the criteria for a detailed assessment (500 AADT due to the site being located outside of an AQMA) would not be met. A detailed assessment is therefore screened out.

7.30 Furthermore, background pollutant concentrations at the site (as detailed in Table 5) are well below the relevant mean air quality objectives.

7.31 *Proposed Sensitive Human Receptors*

7.32 We have also reviewed the current land uses surrounding the proposed development site. It is considered that there will be no other significant air quality,

dust or odour issues for future residents of the development, associated with the land uses surrounding the site.

7.33 **Assessment of Significance for Human Receptors**

7.34 The significance of the overall effects of the proposed development has been assessed in accordance with the EPUK/IAQM guidance. This assessment is based on professional judgement and details of the assessors' experience is included in Appendix C.

7.35 In accordance with the EPUK/IAQM guidance, the air quality effect of the proposed development is considered to be **not significant.**

7.36 **Recommendations for Mitigation**

7.37 The impact of the proposed development is predicted to be not significant. However, mitigation measures will assist in reducing any potential impact and general best practice measures in relation to air quality could be implemented. This could include measures such as low NO_x boilers and promotion of sustainable travel.

8 Conclusion

8.1 This report has been prepared to accompany a planning application for a proposed mixed-use development entitled Nile + Villiers, at Sunniside, Sunderland. The development consists of circa. 80 no. residential dwellings and 400 m^2 of commercial space.

8.2 The proposed development has the potential to expose future occupants to elevated pollution levels and cause air quality impacts during the construction and operational phases. As such, an Air Quality Assessment was undertaken in order to determine baseline conditions at the site, consider its suitability for the proposed end-use and assess potential air quality effects as a result of the scheme.

8.3 During the construction phase of the development there is the potential for air quality impacts as a result of fugitive dust emissions from the site. These were assessed in accordance with the IAQM methodology. Assuming good practice dust control measures are implemented, the residual significance of potential air quality impacts from dust generated by construction and trackout activities was predicted to be **not significant**.

8.4 Following a review of local air quality, in accordance with guidance from EPUK/IAQM, the impact of the operational phase of the development can be described as 'not significant'.

8.5 **Recommendations for Mitigation**

8.6 The impact of the proposed development is predicted to be not significant. However, mitigation measures will assist in reducing any potential impact and general best practice measures in relation to air quality could be implemented. This could include measures such as low NO_x boilers and promotion of sustainable travel.

8.7 **Summary**

8.8 The assessment demonstrates that the proposed development will accord with national planning policy and will not lead to an unacceptable risk from air pollution. There are no material reasons in relation to air quality why the proposed scheme should not proceed, subject to appropriate planning conditions.

9 References

1 Institute of Air Quality Management (IAQM) Guidance on the Assessment of Dust from Demolition and Construction, February 2014

2 Environmental Protection UK (EPUK) & IAQM Land-Use Planning & Development Control: Planning For Air Quality, January 2017Local Air Quality Management Technical Guidance (TG22), DEFRA, 2022

3 Defra Local Air Quality Management webpages (http://laqm.defra.gov.uk/review-and-assessment/tools/background-maps.html)

4 Department for Environment, Food and Rural Affairs, Local Air Quality Management Technical Guidance LAQM.TG(22), August 2022

5 Greater London Authority, The Control of Dust and Emissions from Construction and Demolition: Supplementary Planning Guidance, 2014

Appendix A Air Quality Legislation and Guidance

A.1 National Air Quality Strategy

A.2 The Environment Act 2021 is the UK's latest framework of environmental protection, amending the Environment Act 1995. The Act requires the UK government to publish a national Air Quality Strategy (AQS).

A.3 The AQS published by DEFRA, most recently in April 2023, sets out a framework to enable local authorities to deliver to the air quality standards and Air Quality Objectives (AQOs), and includes measures for improving ambient air quality. Air quality standards and objectives are set out for eight pollutants which may potentially occur at levels that give cause for concern. The 2023 AQS provides the most ambitious targets for $PM_{2.5}$ to date. The AQS also provides details of the role that local authorities are required to take in working towards improvements in air quality, known as the Local Air Quality Management (LAQM) regime.

A.4 Air Quality Standards and Objectives

A.5 The Air Quality Standards Regulations (2010) and subsequent amendments include Air Quality Limit Values (AQLVs) for the following pollutants:

- Nitrogen dioxide (NO_2);
- Sulphur dioxide;
- Lead;
- Particulate matter with an aerodynamic diameter of less than 10µm (PM_{10});
- Particulate matter with an aerodynamic diameter of less than 2.5µm ($PM_{2.5}$);
- Benzene; and,
- Carbon monoxide.

A.6 Air Quality Target Values have also been provided for several additional pollutants. It should be noted that the AQLV for $PM_{2.5}$ stated in the Air Quality Standards Regulations (2010) is superseded by that within The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023.

A.7 Examples of where these objectives and limit values apply are detailed in the Defra LAQM Technical Guidance document LAQM.TG(22), Reference 4, and are included in Table 9.

Averaging Period	Objectives Should Apply At	Objectives Should Not Apply At
Annual mean	All locations where members of the public might be regularly exposed. Building façades of residential properties, schools, hospitals, care homes, etc.	Building facades of offices or other places of work where members of the public do not have regular access. Hotels, unless people live there as their permanent residence. Gardens of residential properties. Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short term
24-hour mean and 8-hour mean	All locations where the annual mean objectives would apply, together with hotels. Gardens of residential properties[a]	Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short term
1-hour mean	All locations where the annual mean and 24 and 8-hour objectives apply. Kerbside sites (e.g. pavements of busy shopping streets). Those parts of car parks and railway stations etc. which are not fully enclosed, where members of the public might reasonably be expected to spend one hour or more. Any outdoor locations to which the public might reasonably be expected to spend one hour or longer	Kerbside sites where public would not be expected to have regular access
15-minute mean	All locations where members of the public might reasonably be exposed for a period of 15 minutes or longer	

[a] Such locations should represent parts of the garden where relevant public exposure is likely, for example where there is seating or play areas. It is unlikely that relevant public exposure to pollutants would occur at the extremities of the garden boundary, or in front gardens, although local judgement should always be applied

Table 9: Examples of Where the Air Quality Objectives Should Apply

A.8 Local Air Quality Management

A.9 LAQM legislation in the Environment Act 2021 requires local authorities (LA) to conduct the periodic review and assessments of air quality, comparing present and likely future pollutant concentrations against the AQOs. If it is predicted that levels at locations of relevant exposure 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.

A.10 LAQM.TG(22) presents a streamlined approach for LAQM in England and Scotland; however, Northern Ireland is still considering changes to LAQM and therefore works according to the previous regime.

A.11 The Welsh Government amended the LAQM regime in Wales in 2017 by issuing new statutory policy guidance in order to bring the system into line with the Well-being of Future Generations (Wales) Act 2015. This aims to achieve compliance with the national air quality objectives in specific hotspots and to reduce exposure to pollution more widely, so as to achieve the greatest public health benefit.

A.12 Local authorities in England are required to produce Annual Status Reports (ASRs), and in Scotland and Wales, Annual Progress Reports (APRs). These replace all other reports which previously had to be submitted including Updating and Screening Assessments, Progress Reports and Detailed Assessments (which would be produced to assist with an AQMA declaration).

A.13 Local authorities now have the option of a fast track AQMA declaration option. This allows more expert judgement to be used and removes the need for a Detailed Assessment where a local authority is confident of the outcome. Detailed Assessments should however still be used if there is any doubt.

A.14 As part of the UK Government's requirement to improve air quality, selected local authorities in England are also currently investigating the feasibility of setting up Clean Air Zones (CAZs). These are areas where targeted action and co-ordinated resources aim to improve air quality within an urban setting, in order to achieve compliance with the EU limit values within the shortest possible time. Charges apply to certain types of vehicles travelling within these areas, including buses, coaches, taxis, private hire vehicles and heavy-duty vehicles (HDVs).

A.15 CAZs are currently operational in Bath, Birmingham, Bradford, Bristol, Portsmouth, Sheffield and Tyneside (Newcastle and Gateshead). It was proposed to operate a CAZ in the Greater Manchester area, however this has now been revised, with the aim to implement a Clean Air Plan without the inclusion of a charging CAZ. In addition, in London a Ultra Low Emission Zone (ULEZ) is operated, covering all areas within the North and South Circular roads.

A.16 National Planning Policy Framework

A.17 The revised National Planning Policy Framework (NPPF) was published in July 2021 and sets out the Government's planning policies for England and how these are expected to be applied.

A.18 The purpose of the planning system is to contribute to the achievement of sustainable development. In order to ensure this, the NPPF recognises three overarching objectives including the following of relevance to air quality:

"c. An environmental objective - to protect 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."

A.19 Chapter 15 of the NPPF details objectives in relation to conserving and enhancing the natural environment. It states that:

"Planning policies and decisions should contribute to and enhance the natural and local environment by:

[…]

e) Preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by; unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality […]"

A.20 The NPPF specifically recognises air quality as part of delivering sustainable development and states that:

"Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan."

A.21 The implications of the NPPF have been considered throughout this assessment.

A.22 Planning Practice Guidance

A.23 The National Planning Practice Guidance (NPPG) web-based resource was launched by the Department for Communities and Local Government on 6th March 2014 and updated on 1st November 2019 to support the NPPF and make it more accessible. The air quality pages are summarised under the following headings:

1. What air quality considerations does planning need to address?
2. What is the role of plan-making with regard to air quality?
3. Are air quality concerns relevant to neighbourhood planning?
4. What information is available about air quality?
5. When could air quality considerations be relevant to the development management process?
6. What specific issues may need to be considered when assessing air quality impacts?
7. How detailed does an air quality assessment need to be?
8. How can an impact on air quality be mitigated?

A.24 These were reviewed and the relevant guidance considered as necessary throughout the undertaking of this assessment.

A.25 Dust

A.26 The main requirements with respect to dust control from industrial or trade premises not regulated under the Environmental Permitting (England and Wales) Regulations (2016) and subsequent amendments, such as construction sites, is that provided in Section 79 of Part III of the Environmental Protection Act (1990). The Act defines nuisance as:

"any dust, steam, smell or other effluvia arising on industrial, trade or business premises and being prejudicial to health or a nuisance."

A.27 Enforcement of the Act, in regard to nuisance, is currently under the jurisdiction of the local Environmental Health Department, whose officers are deemed to provide an independent evaluation of nuisance. If the LA is satisfied that a statutory nuisance exists, or is likely to occur or happen again, it must serve an Abatement Notice under Part III of the Environmental Protection Act (1990). The only defence is to show that the process to which the nuisance has been attributed and its operation are being controlled according to best practicable means.

Appendix B Methodology for Construction Phase Assessment

B.1 Institute of Air Quality Management Guidance

B.2 The methodology for the construction phase dust assessment is set out in guidance from the IAQM.

B.3 Step 1

B.4 Step 1 screens the requirement for a more detailed assessment. Should human receptors be identified within 350m of the boundary or 50m from the construction vehicle route up to 500m from the site entrance, then the assessment proceeds to Step 2. Additionally, should ecological receptors be identified within 50m of the site or the construction vehicle route, then the assessment also proceeds to Step 2.

B.5 Step 2

B.6 Step 2 determines the potential risk of dust arising in sufficient quantities to cause annoyance and/or health or ecological impacts. The risk is related to:

- The activities being undertaken (demolition, number of vehicles and plant etc);
- The duration of these activities;
- The size of the site;
- The meteorological conditions (wind speed, direction and rainfall);
- The proximity of receptors to the activity;
- The adequacy of the mitigation measures applied to reduce or eliminate dust; and
- The sensitivity of receptors to dust.

B.7 **Step 2A** assesses the scale and nature of the works which determines the potential dust emission magnitude as small, medium or large. Examples of how the magnitude may be defined are included in Table 10.

Activity	Dust Emission Class		
	Large	Medium	Small
Demolition	Total building volume >50,000m^3; Potentially dusty construction material (e.g. concrete); On-site crushing and screening; Demolition activities >20m above ground level	Total building volume 20,000-50,000m^3; Potentially dusty construction material; Demolition activities 10-20m above ground level	Total building volume <20,000m^3; Construction material with low potential for dust release (e.g. metal cladding or timber)
Earthworks	Total site area >10,000m^2; Potentially dusty soil type (e.g. clay, which will be prone to suspension when dry due to small particle size); >10 heavy earth moving vehicles active at any one time; Formation of bunds >8m in height; Total material moved >100,000 tonnes	Total site area 2,500-10,000m^2; Moderately dusty soil type (e.g. silt); 5-10 heavy earth moving vehicles active at any one time; Formation of bunds 4-8m in height; Total material moved 20,000-100,000 tonnes	Total site area <2,500m^2; 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 <20,000 tonnes; Earthworks during wetter months
Construction	Total building volume >100,000m^3; On-site concrete batching; Sandblasting	Total building volume 25,000-100,000m^3; Potentially dusty construction material (e.g. concrete); On-site batching	Total building volume <25,000m^3; Construction material with a low potential for dust release (e.g. metal cladding or timber)
Trackout	>50 HDV (>3.5t) outward movements[a] in any one day[b]; Potentially dusty surface material (e.g. high clay content); Unpaved road length >100m	10-50 HDV (>3,5t) outward movements[a] in any one day[b]; Moderately dusty surface material (e.g. high clay content); Unpaved road length 50-100m	<10 HDV (>3.5t) outward movements[a] in any one day[b]; Surface material with low potential for dust release; Unpaved road length <50m

Activity	Dust Emission Class		
	Large	Medium	Small
a. A vehicle movement is a one way journey i.e. from A to B, and excludes the return journey *b. HDV movements during a construction project may vary over its lifetime, and the number of movements is the maximum not the average*			

Table 10: Determining the Dust Emission Magnitude of Construction Phase Activities

B.8 **Step 2B** considers the sensitivity of the area to dust impacts which is defined as low, medium or high. The sensitivity categories for different types of receptors are described in Table 11.

Sensitivity Category	Dust Soiling Effects	Health effects of PM_{10}	Ecological Effects
High	Users can reasonably expect to enjoy a high level of amenity; Appearance, aesthetics or value of a property would be diminished; Examples include dwellings, museums and other culturally important collections, medium and long term car parks and car show rooms	Locations where members of the public are exposed over a period of time relevant to the air quality objective for PM_{10}; Examples include residential properties, hospitals, schools, and residential care homes	Locations with an international or national designation and the designated features may be affected by dust soiling; Locations where there is a community of a particularly dust sensitive species; Examples include a Special Area of Conservation with dust sensitive features
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; People or property wouldn't reasonably be expected to be continuously present or regularly for extended periods of time; Examples include parks and places of work	Locations where people are exposed as workers and exposure is over a period of time relevant to the air quality objective for PM_{10}; Examples include office and shop workers but will generally not include workers occupationally exposed to PM_{10}	Locations 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; Examples include a Site of Special Scientific Interest with dust sensitive features
Low	Enjoyment of amenity would not reasonably be expected; Property would not be diminished in appearance, aesthetics or value; People or property would be expected to be present only for limited periods of time; Examples include playing fields, farmland (unless commercially-sensitive horticultural), footpaths, short term car parks and roads	Locations where human exposure is transient; Examples include public footpaths, playing fields, parks and shopping streets	Locations with a local designation where the features may be affected by dust deposition; Examples include a Local Nature Reserve with dust sensitive features

Table 11: Sensitivity Categories for Dust Soiling, Human Health and Ecological Effects

B.9 Based on the sensitivity of individual receptors, the overall sensitivity of the area to dust soiling, human health and ecological effects is then determined using the criteria detailed in Table 12Table 14 respectively.

Receptor Sensitivity	Number of Receptors	Distance from Source (m)[c]			
		<20m	<50m	<100m	<350m
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

a. The sensitivity to the area should be derived for each of the four activities
b. Estimate the total number of receptors within the stated distance. Only the highest level of sensitivity from the table needs to be considered
c. For trackout, distances should be measured from the side of the roads used by construction traffic. Without site specific mitigation, trackout may occur for up to 500m from large sites, 200m from medium sites and 50m from small sites, measured from the site exit. The impact declines with distance from the site and it is only necessary to consider trackout impacts up to 50m from the edge of the road

Table 12: Sensitivity of the Area to Dust Soiling Effects on People and Property[ab]

Receptor Sensitivity	Annual Mean PM_{10} Concentration[c]	Number of Receptors[d]	Distance from Source (m)[e]				
			<20m	<50m	<100m	<200m	<350m
High	>32µg/m³	>100	High	High	High	Medium	Low
		10-100	High	High	Medium	Low	Low
		1-10	High	Medium	Low	Low	Low
	28-32µg/m³	>100	High	High	Medium	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	High	Medium	Low	Low	Low
	24-28µg/m³	>100	High	Medium	Low	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	Medium	Low	Low	Low	Low
	<24µg/m³	>100	Medium	Low	Low	Low	Low
		10-100	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
Medium	>32µg/m³	>10	High	Medium	Low	Low	Low
		1-10	Medium	Low	Low	Low	Low
	28-32µg/m³	>10	Medium	Low	Low	Low	Low

Receptor Sensitivity	Annual Mean PM_{10} Concentration[c]	Number of Receptors[d]	Distance from Source (m)[e]				
			<20m	<50m	<100m	<200m	<350m
		1-10	Low	Low	Low	Low	Low
	24-28µg/m³	>10	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
	<24µg/m³	>10	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
Low	-	>1	Low	Low	Low	Low	Low

a. *The sensitivity to the area should be derived for each of the four activities*
b. Estimate the total number of receptors within the stated distance. Only the highest level of sensitivity from the table needs to be considered
c. Most straightforwardly taken from the national background maps, but should also take account of local sources. The values are based on 32µg/m³ being the annual mean concentration at which an exceedance of the 24-hour mean objective is likely in England, Wales and Northern Ireland. In Scotland, there is an annual mean objective of 18µg/m³
d. In the case of high sensitivity receptors with high occupancy (such as schools or hospitals) approximate the number of people likely to be present. In the case of residential dwellings, just include the number of properties
e. For trackout, distances should be measured from the side of the roads used by construction traffic

Table 13: Sensitivity of the Area to Human Health Impacts[ab]

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

a. *The sensitivity to the area should be derived for each of the four activities*
b. Only the highest level of sensitivity from the table needs to be considered
c. For trackout, distances should be measured from the side of the roads used by construction traffic

Table 14: Sensitivity of the Area to Ecological Impacts[ab]

B.10 These two factors are combined in **Step 2C** to determine the risk of dust impacts with no mitigation applied.

B.11 The risk of dust effects is determined for four types of construction phase activities, with each activity being considered separately. If a construction phase activity is not taking place on the site, then it does not need to be assessed. The four types of activities to be considered are:

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

B.12 The risk of dust being generated by demolition activities at the site is determined using the criteria in Table 15.

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

Table 15: Risk of Dust Impacts for Demolition

B.13 The risk of dust being generated by earthworks and construction at the site is determined using the criteria in Table 16.

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 16: Risk of Dust Impacts for Earthworks and Construction

B.14 The risk of dust being generated by trackout at the site is determined using the criteria in Table 17.

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

Table 17: Risk of Dust Impacts for Trackout

B.15 Step 3

B.16 Step 3 of the assessment determines the site-specific mitigation required for each of the activities, based on the risk determined in Step 2. Mitigation measures are detailed in guidance published by the Greater London Authority, Reference 5, recommended for use outside the capital by LAQM guidance, and the IAQM guidance document itself. Professional judgement should be used to determine the type and scale of mitigation measures required.

B.17 If the risk is classed as negligible, no mitigation measures beyond those required by legislation will be necessary.

B.18 Step 4

B.19 Once the risk of dust impacts has been determined and the appropriate mitigation measures identified, the final step is to determine the significance of any residual impacts. For almost all construction activity, the aim should be to control effects through the use of effective mitigation. Experience shows that this is normally possible. Hence the residual effect will normally be **not significant**.

B.20 Professional Judgement

B.21 The IAQM guidance makes reference to the use of professional judgement when assessing the risks of dust and fine particulate matter from demolition and construction sites. Details of the experience of the personnel involved with the project are provided in Appendix C.

Appendix C Professional Experience of Assessor

C.1 The assessment of air quality impacts, and the significance of the associated effects, takes into account the professional judgement of the assessor. Details of the experience of the personnel involved with the project are provided below:

Emily Forster **Senior Consultant**
BSc, AIAQM, AMIEnvSc, TechIOA

Emily has been working in consultancy for six years and joined Apex Acoustics in 2023. Over the last six years Emily has diversely expanded her knowledge of assessments for air quality and acoustics and has experience of working with maps and geographic information using the software ArcGIS and AutoCAD. Emily has experience of carrying out air quality assessments for a variety of developments, including residential, commercial, industrial and quarry applications. She is involved in all aspects of the assessment, from carrying out air quality monitoring studies to analysing data, modelling and writing technical reports or chapters as part of an Environmental Statement. Emily also carries out odour assessments, again being involved in all aspects of the assessment.