AIR QUALITY IMPACT ASSESSMENT

Change of use: Residential

REPORT DETAILS

Report Title	Residential: Residential Development
Site Address	Chutney Mahal, Folly Hall, Huddersfield, HD1 3PA
Project No.	NALPRO230424.01b
Consultant Contact	jonathan@noiseassessments.co.uk

QUALITY ASSURANCE

Issue No.	Status	Issue Date	Comments	Author	Approved
1	Final	09/05/24	-	J Mape BSc (Hons) PgDip **Consultant**	D Warren **Director**

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Noise Assessments Limited – Companies House Registered No. 12207511

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Assessment Summary

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Planning permission is being sort from Kirklees Council (KC) and following consultations; an air quality assessment has been requested to demonstrate current air quality from the nearby A616 does not impact future residents in the new dwellings.

Air emissions associated with traffic along the A616 have the potential to cause impacts at sensitive locations. An Air Quality Assessment was therefore undertaken to consider effects in the vicinity of the site.

The site is not within an Air Quality Management Area (AQMA), the nearest AQMA boundary is 250m north of the site.

The risk of potential impact was assessed using a standard industry method. This involved consideration of several factors relating to the A616, including the scale and nature of the potential emissions, location of the proposed receptors, and the prevailing meteorological conditions. The results of the assessment indicated the predicted effect as not significant at the sensitive receptor location.

Following review of the relevant factors, overall effects because of current and future emissions from the A616 are predicted to be not significant. As such, potential air quality issues are not considered to represent a constraint to planning consent for the proposal.

1. Proposal

1.1 Noise Assessments Ltd was commissioned to assess the potential impact of vehicle pollution on up to 32 student bedsits at first, second, third and fourth floors with shared living facilities for a change of use from a former restaurant and to have the ground floor as commercial at Chutney Mahal, Folly Hall, Huddersfield, HD1 3PA.

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1.3 Air emissions associated with traffic along the A616 have the potential to cause impacts at sensitive locations. An Air Quality Assessment was therefore undertaken to consider effects in the vicinity of the site.

1.4 The site is not within an Air Quality Management Area (AQMA), the nearest AQMA is 250m north of the site.

2. Existing Context

2.1 The site is on an existing disused former restaurant and covers ground to 4th floors. The site is within an urban area with mainly commercial units around the site, adjacent to the A616.

3. Policy and Guidance

European Directives

3.1 European Union (EU) air quality legislation is provided within Directive 2008/50/EC, which came into force on 11 June 2008. This Directive consolidated previous legislation which was designed to deal with specific pollutants in a consistent manner and provided new Air Quality Limit Values (AQLVs) for particulate matter with an aerodynamic diameter of less than 2.5 µm. The consolidated Directives include:

- Directive 99/30/EC - the First Air Quality "Daughter" Directive - sets ambient AQLVs for NO2, oxides of nitrogen (NOx), sulphur dioxide, lead and particulate matter with an aerodynamic diameter of less than 10 µm;
- Directive 2000/69/EC - the Second Air Quality "Daughter" Directive - sets ambient AQLVs for benzene and carbon monoxide; and
- Directive 2002/3/EC - the Third Air Quality "Daughter" Directive - seeks to establish long-term objectives, target values, an alert threshold and an information threshold for concentrations of ozone in ambient air.
- The fourth daughter Directive was not included within the consolidation and is described as:
- Directive 2004/107/EC - sets health-based limits on polycyclic aromatic hydrocarbons, cadmium, arsenic, nickel and mercury, for which there is a requirement to reduce exposure to as low as reasonably achievable.

UK Legislation

3.2 The Air Quality Standards Regulations (2010) came into force on 11 June 2010 and transpose EU Directive 2008/50/EC into UK law. AQLVs were published in these regulations for seven pollutants, as well as Target Values for an additional five pollutants.

3.3 Part IV of the Environment Act (1995) requires UK government to produce a national Air Quality Strategy (AQS) which contains standards, objectives and measures for improving ambient air quality. The most recent AQS was produced by the Department for Environment, Food and Rural Affairs (DEFRA) and published in July 2007. The AQS sets out AQOs that are maximum ambient pollutant concentrations that are not to be exceeded either without exception or with a permitted number of exceedances over a specified timescale. These are generally in line with the Air Quality Limit Values (AQLVs), although the requirements for the determination of compliance vary.

3.4 Table presents the AQOs for pollutants considered within this assessment.

Air Quality Objectives

Pollutant	Air Quality Objective	
	Concentration (µg/m3)	Averaging Period
NO2	40	Annual Mean
	200	1-hour, not to be exceeded on more than 18 occasions per annum
Particulate matter (PM10)	50 µg/m3 Not to be exceeded more than 35 times per year 40 µg/m3	1 hour mean Annual mean

3.5 Table summarises the advice provided in DEFRA guidance on where the AQOs for pollutants considered within this assessment apply.

Examples of Where the Air Quality Objectives Apply

Averaging Period	Objective Should Apply At	Objective 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 façades 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.
1-hour mean	All locations where the annual mean and 24 and 8-hour mean objectives apply. Kerbside sites (for example, pavements of busy shopping streets). Those parts of car parks, bus stations 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 where members of the public might reasonably be expected to spend one hour or longer.	Kerbside sites where the public would not be expected to have regular access.

National Planning Policy

3.6 The revised NPPF was updated on 5 September 2023 and 19 December 2023 and sets out the government's planning policies for England and how these are expected to be applied. This document replaces the first NPPF published in March 2012 and includes minor clarifications to the revised version published in July 2018, February 2019, July 2021. The document includes the following considerations which are relevant to the site:

"The planning system should contribute to and enhance the natural and local environment by preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability."

"Planning policies should sustain compliance with and contribute towards EU limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and the cumulative impacts on air quality from individual sites in local areas."

"Planning decisions should ensure that any new development in Air Quality Management Areas is consistent with the local air quality action plan."

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

National Planning Practice Guidance

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

- Why should planning be concerned about air quality?
- What is the role of Local Plans with regard to air quality?
- Are air quality concerns relevant to neighbourhood planning?
- What information is available about air quality?
- When could air quality be relevant to a planning decision?
- Where to start if bringing forward a proposal where air quality could be a concern?
- How detailed does an air quality assessment need to be?
- How can an impact on air quality be mitigated?
- How do considerations about air quality fit into the development management process?

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

Air Quality Legislative Framework
Local Air Quality Management

3.10 Under Section 82 of the Environment Act (1995) (Part IV) LAs are required to periodically review and assess air quality within their area of jurisdiction under the system of LAQM. This review and assessment of air quality involves assessing present and likely future air quality against the AQO levels. If it is predicted that levels at the façade of buildings where members of the public are regularly present (normally residential properties) 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 (AQAP), the objective of which is to reduce pollutant concentrations in pursuit of the AQOs.

3.11 The site is not located within an Air Quality Management Area (AQMA), the nearest AQMA boundary is 250M north of the site.

4. Nearest Sensitive Receptor Locations

4.1 The nearest sensitive receptor (NSRs) has been identified as the proposed residential property within 5m of the A616 and the AQMA boundary 250m north of the site.

5. Baseline

Introduction

5.1 Existing conditions in the vicinity of the site were identified to provide a baseline for assessment. These are detailed in the following Sections.

Site Description

5.2 The proposed site is surrounded by roads and commercial.

5.3 The monitoring of pollutant concentrations is undertaken by the KC throughout their area of jurisdiction. Results from a location in the vicinity of the Site (Easting 414483, Northing 417726) are shown below. Exceedances of the relevant AQO are shown in **Bold**.

Monitoring Results for NO_2

Location	Annual Mean Pollutant Concentrations (µg/m^3)		
	2019	2020	2022
K45 (roadside)	36.4	25.1*	34.3

*COVID Pandemic year

Monitoring Results for PM_{10}

Location	Annual Mean Pollutant Concentrations (µg/m^3)		
	2019	2020	2022
na	na	na	na

na: not applicable as no monitoring undertaken.

5.4 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 Local Authorities (LAs) in their review and assessment of air quality. The site is in grid square 53.63, -1.78. Data for this location was downloaded from the DEFRA website for the purpose of the assessment and is summarised in the tables below.

Background Annual NO2 Concentration Predictions

Pollutant	Predicted Annual Background Pollutant Concentrations (µg/m^3)		
	2019	2024	2030
NO2	10.5	8.9	7.9

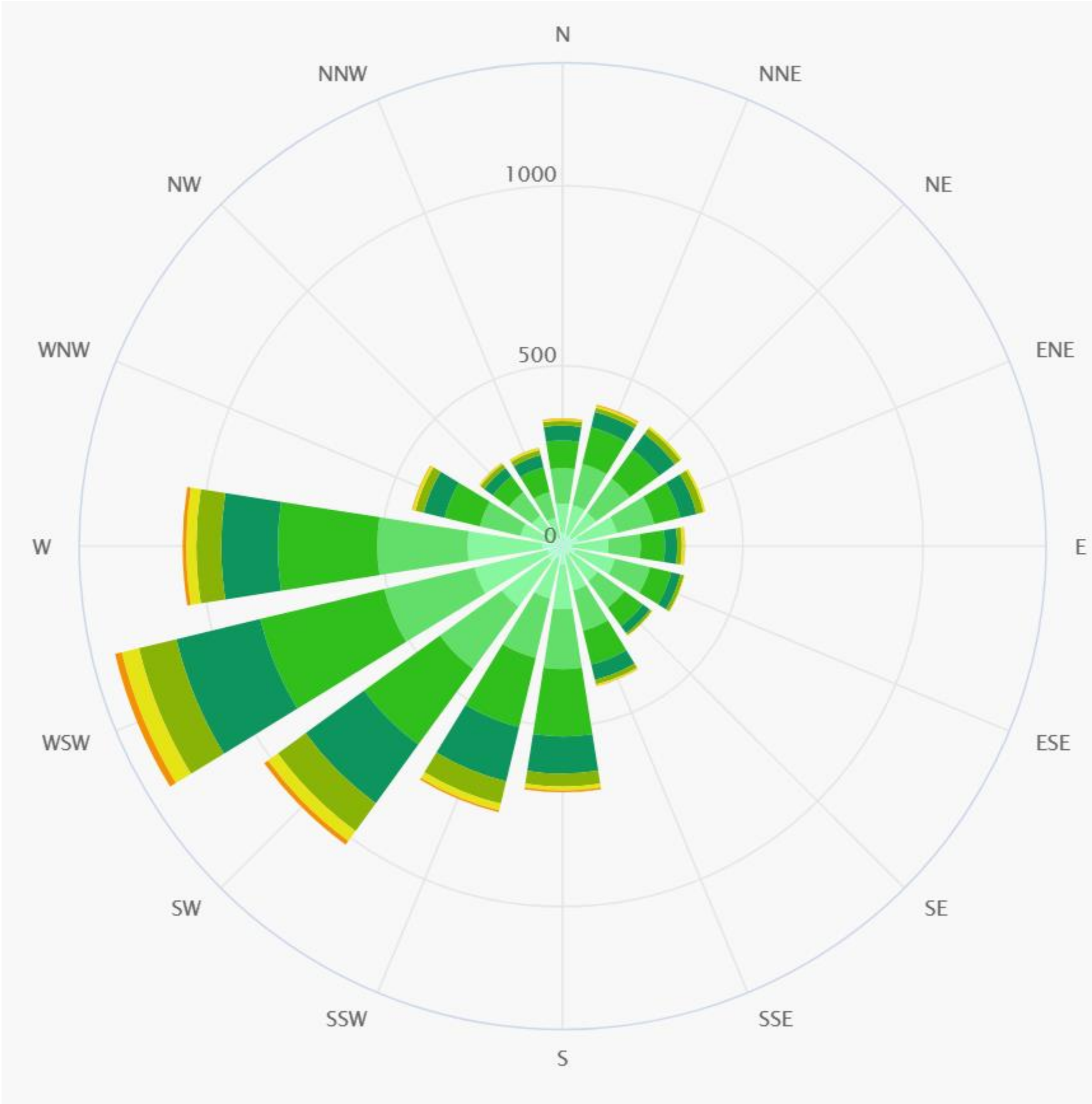
Background Annual Particulate Matter (PM10) Concentration Predictions

Pollutant	Predicted Annual Background Pollutant Concentrations (µg/m^3)		
	2019	2024	2030
Particulates as PM10	10.4	9.8	9.7

5.5 The NO_2 and PM_{10} identified in the tables above are less than the AQO of 40 µg/m^3 and 40 µg/m^3 respectively.

Meteorological Conditions

5.6 The potential for poor air quality to impact at sensitive locations depends significantly on the meteorology, particularly wind direction, during emissions. In order to consider prevailing conditions at the site review of historical weather data was undertaken. It is considered that conditions are likely to be reasonably similar over a distance of this magnitude and the information is a suitable source of data for an assessment of this nature.



Huddersfield Wind Rose

5.7 The wind rose for Huddersfield shows how many hours per year the wind blows from the indicated direction. Wind is blowing from South-West (SW) to North-East (NE). Winds from the north and east are relatively infrequent, which is indicative of conditions throughout most of the UK.

Assessment

6. Construction Impacts on Local Air Quality

6.1 During the construction phase there will be several activities undertaken which have the potential to generate and/or re-suspend dust. Such activities including preparation, storage of materials, laying of hard surfaces and landscaping.

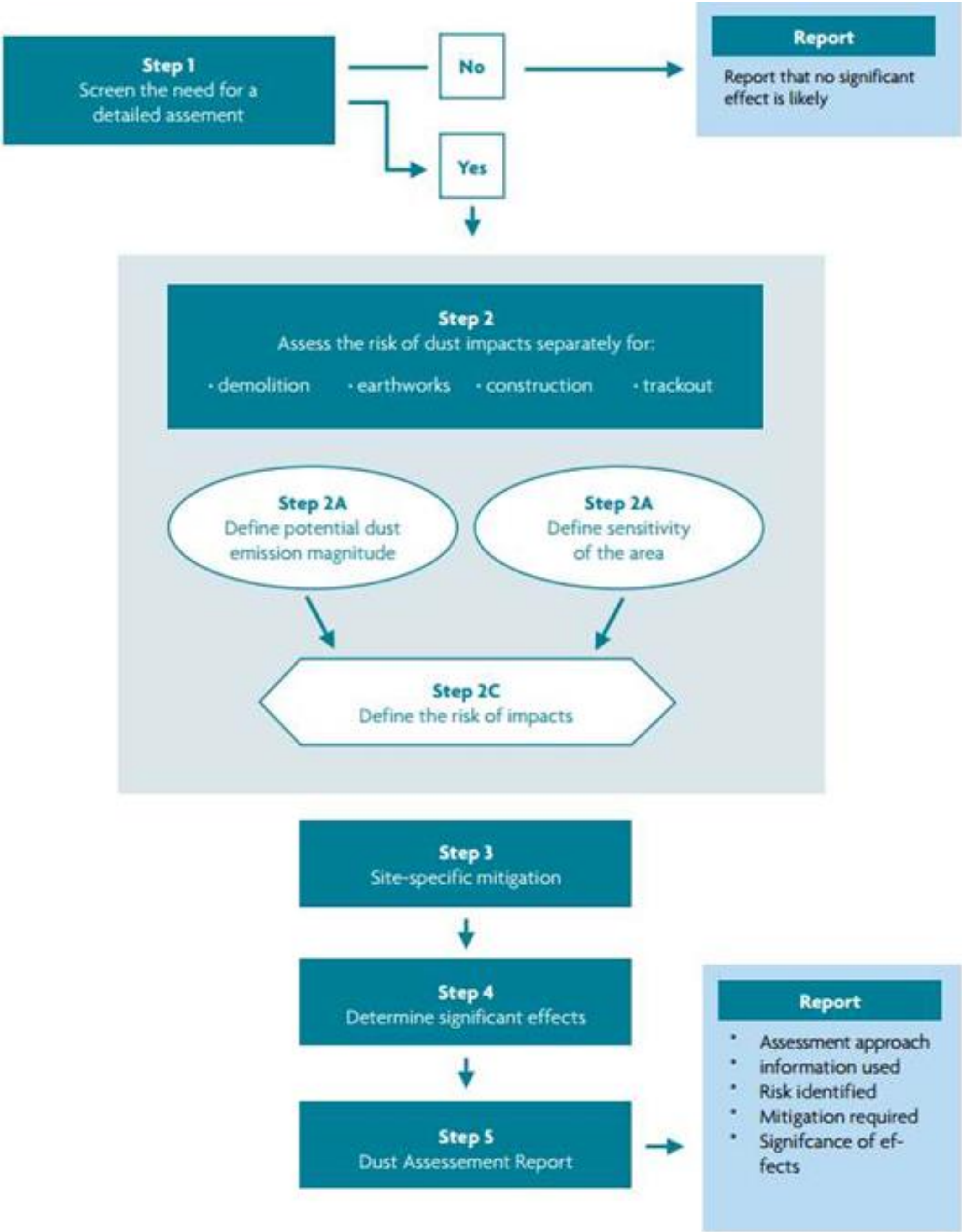
6.2 Dust comprises particles typically in the size range 10-75 micrometres in aerodynamic diameter and is created through the action of crushing and abrasive forces on materials. Due to its relatively large size dust is usually only resident in the air for a short period of time after initial release and falls out of suspension fairly quickly. Dust is therefore unlikely to cause long-term or wide spread changes to the air quality of the area; however its deposition on property and cars can cause soiling and discoloration resulting in nuisance complaints from surrounding properties.

6.3 Small particles of dust are known as particulate matter (PM10/PM2.5) and are small enough to be drawn into the lungs of people during breathing, which may have adverse reactions to sensitive members of the public. As a result of the potential impacts on health objectives for PM10 have been defined in the Air Quality Strategy and Regulations.

6.4 There is also the potential for traffic associated with the construction activities on the site to have an effect on local pollution concentrations, in particular NOx/NO_2 and PM_{10} levels. The potential for construction traffic emissions to be a significant issue will be dependent on existing and likely future concentrations in the vicinity of the proposed development and the anticipated magnitude of the construction traffic.

7. Assessment of Risk

7.1 The IAQM guidance 'Guidance on the assessment of dust from demolition and construction 2014, IAQM' details a 5-stage process for assessing the impacts from the construction phase of the development, as depicted in the chart below.



The Five Stage Process

7.2 The IAQM guidance considers the magnitude of potential dust emissions from four distinct activities during the construction phase. These are Demolition, Earthworks, Construction and Trackout, and the magnitude is rated as either large, medium or small for each activity.

7.3 There are no demolition works required for this site.

7.4 Sensitivity of the receptors is assessed based on the type of receptor, the number and distance from the site and for three different affects, dust soiling, human health impacts and ecology. In this case the receptors have been identified as having a medium sensitivity, with the ecological receptor as low.

7.5 Four distances are recommended, <20m, <50m, <100m, and <350m. The following tables are used within the guidance document to assess the sensitivity of the receptors to dust soiling, human health and ecology.

Sensitivity of the Area to Dust Soiling Effects on People and Property

Receptor Sensitivity	Number of Receptors	Distance from the Source (m)[c]			
		<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

[a] The sensitivity of the area should be derived for each of the four activities: demolition, construction, earthworks and trackout. See **STEP 2B**, **Box 6** and **Box 9**.

[b] Estimate the total number of receptors within the stated distance. Only the *highest level* of area sensitivity from the table needs to be considered. For example, if there are 7 high sensitivity receptors < 20m of the source and 95 high sensitivity receptors between 20 and 50 m, then the total of number of receptors < 50 m is 102. The sensitivity of the area in this case would be high.

[c] For trackout, the distances should be measured from the side of the roads used by construction traffic. Without site-specific mitigation, trackout may occur from roads up to 500 m from large sites, 200 m from medium sites and 50 m from small sites, as 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.

Sensitivity of the Area to Ecological Impacts

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

[a] The sensitivity of the area should be derived for each of the four activities: demolition, construction, earthworks and trackout and for each designated site. See **STEP 2B**, **Box 8** and **Box 9**.

[b] Only the highest level of area sensitivity from the table needs to be considered.

[c] For trackout, the distances should be measured from the side of the roads used by construction traffic. Without site-specific mitigation, trackout may occur from roads up to 500 m from large sites, 200 m from medium sites and 50 m from small sites, as measured from the site exit. The impact declines with distance from the site.

7.6 The guidance then considers the dust emission magnitude of the four activities and the sensitivity of the area for the 4 impact scenarios.

7.7 It is considered that the main source of emissions during the construction phase of dust and PM10 will include:

- Transportation and storage of materials
- Materials handling
- Cut and processing materials
- Exhaust emissions from site off-road machinery
- Emissions from construction vehicles

7.8 The majority of releases are likely to occur during the 'working week' but there is some potential for releases to occur 24 hours a day from material storage and exposed soil unless these are suitably managed and controlled.

7.9 Given the current background pollutant levels and traffic flow in the area it is unlikely that the construction traffic will have anything other than a negligible impact on the NO_2 and PM_{10} levels at relevant receptors.

7.10 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 Local Authorities (LAs) in their review and assessment of air quality. 2024 background levels give annual PM10 levels at 9.8µg/m^3 and NO_2 levels at 8.8 µg/m^3.

7.11 The nearest monitoring by the local authority has been for NO_2 only. The coordinates are Eastings 414483, Northing 417726 roadside.

Background Measured Annual NO_2 Concentration

Pollutant	Annual Background Pollutant Concentrations (µg/m3)		
	2018	2019	2022
NO2	36.3	36.4	34.3

Phase 1

7.12 As identified by the IAQM guidance document the development site is located within 55m of a suitable receptor, namely the adjacent residential properties to the West.

Phase 2

7.13 No demolition works are to be undertaken.

7.14 For the earthworks assessment the site lies within the smallest class of sites being <20,000m2 and therefore a small magnitude for potential dust emissions.

7.15 For the construction phase the guidance indicates that the magnitude of potential dust emissions is small, (<25,000m2).

7.16 Finally for the potential dust emissions for 'trackout' the magnitude is small.

7.17 Based on the sensitivity tables within the guidance document for Dust Soiling, human health impacts and ecology the resulting sensitivity impacts of the development have been assessed as medium for dust soiling and low for human health and ecological sensitivity.

7.18 Based on the above information in line with the IAQM guidance the impact risk of each of the three activities has been assessed with a resulting low impact risk for dust soiling during earthworks, construction and trackout. For human health and ecological impacts, the risk is low for each activity.

Phase 3

7.19 Given the low impact risk associated with earthworks and construction activities it is recommended that the following site-specific mitigation measures are followed. These have been identified from the IAQM guidance.

Mitigation

7.20 Where reasonable, appropriate and practicable the contactor should:

- No burning on site
- Consider weather conditions prior to potential dusty works.
- Consider the provision of wheel washing facilities to prevent material being carried off site on to the public highway.
- Operate construction plant in accordance with the manufacturer's written recommendations
- Switch off vehicles and plant when not in use
- Keep movements of construction traffic on site to a minimum
- Keep roads and accesses clean
- Where available use ultra-low sulphur tax-exempt fuel for all non-road mobile machinery.
- No site run-off of water
- Keep stockpiles and mounds away from sensitive receptors and site them taking account of the predominant wind direction
- Store fine dry material inside or under cover
- Keep the number of handling operations for materials to a minimum
- Ensure vehicles entering and leaving the site are covered
- Strip topsoil as close as reasonably practicable to the period of excavation or other earthworks to avoid or minimise dust generation
- Keep drop heights from excavators to a minimum

Phase 4

7.21 The inclusion of the above mitigation measures as appropriate will help to maintain low levels of dust generation and therefore dust emissions off-site.

7.22 With the implementation of the above recommended mitigation measures the formation of dust and harmful emissions from the construction phase will be minimised as much as practicable.

8. Operational Phase on Local Air Quality

8.1 The Proposed residential development is not within an AQMA.

8.2 The proposed development will not create car parking spaces. There may be occasional student drop off, pick up at the start and end of term.

8.3 As the Proposed Development is not within an AQMA, with the nearest boundary 250m north of the site, together with future predictions of air quality below the current AQO limits, air quality impacts to the residents living at the Proposed Development are expected to be low.

9. Summary

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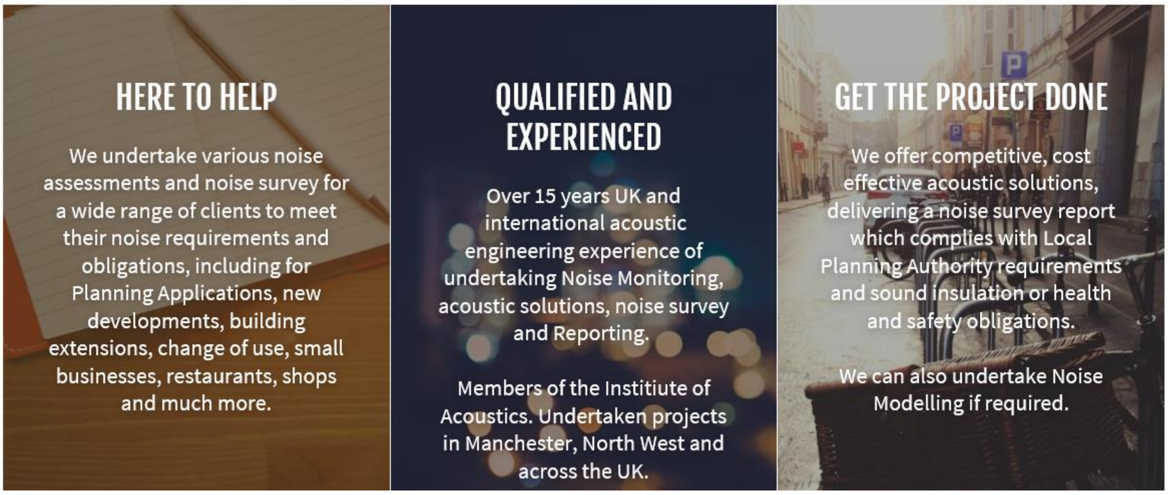
Appendices

APPENDIX A – Site Location

Proposed residential location

ABOUT US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