

**AIR QUALITY SCREENING ASSESSMENT
27-29 TRENCHARD DRIVE, MOSS NOOK,
MANCHESTER**

REC REFERENCE: AQ108891

REPORT PREPARED FOR: KANSHO PROPERTY LIMITED

DATE: FEBRUARY 2020



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Issue/revision	Issue 1	Revision 1	Revision 2	Revision 3
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EXECUTIVE SUMMARY

Resource and Environmental Consultants Limited was commissioned by Kansho Property Limited to undertake an Air Quality Screening Assessment in support of a proposed residential development at 27-29, Trenchard Drive, Moss Nook, Manchester.

It is understood that the proposals comprise the redevelopment of the site to construct 5 residential units, alongside parking and associated infrastructure. The proposed development is located close to an area identified by Manchester City Council as experiencing elevated pollutant concentrations. As such, there is potential for the development to introduce future residents to area of poor air quality, as well as to cause impacts at existing sensitive receptors during the construction and operational phases.

An Air Quality Screening Assessment was therefore produced in order to provide considerations to existing baseline conditions, quantify the significance of associated impacts and assess site suitability for the proposed end-use in accordance with the requirements of the National Planning Policy Framework.

Based on the screening results, both air quality exposure and associated impacts are considered **not significant** and should not form a constraint to planning consent for the proposed development. It is therefore considered that no further assessment is necessary.



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1. INTRODUCTION

Resource and Environmental Consultants (REC) Limited (Ltd) was commissioned by Kansho Property Ltd to undertake an Air Quality Screening Assessment in support of a proposed residential development at 27-29 Trenchard Drive, Moss Nook, Manchester.

1.1 Site Location and Context

The site is located at 27-29 Trenchard Drive, Moss Nook, Manchester at the approximate National Grid Reference (NGR): 383890, 385460. Reference should be made to Figure 1 within Appendix I for a location plan.

It is understood that the proposals comprise the redevelopment of the site to provide 5 residential dwellings. The proposed development is located in close proximity to an Air Quality Management Area (AQMA), declared by Manchester City Council (MCC) for exceedances of the annual mean Air Quality Objective (AQO) for Nitrogen Dioxide (NO₂). Subsequently, there is potential for the development to introduce future residents to area of elevated concentrations as well as to cause impacts at existing sensitive receptors during the construction and operational phases.

An Air Quality Screening Assessment is therefore required in order to determine baseline conditions at the site, assess site suitability for the proposed end-use and assess the potential impacts as a result of the proposed development in accordance with the requirements of the National Planning Policy Framework (NPPF) and the relevant EPUK and IAQM guidance¹.

1.2 Limitations

This report has been produced in accordance with REC's standard terms of engagement. REC has prepared this report solely for the use of the Client and those parties with whom a warranty agreement has been executed, or with whom an assignment has been agreed. Should any third party wish to use or rely upon the contents of the report, written approval must be sought from REC; a charge may be levied against such approval.

¹ Land-Use Planning and Development Control: Planning for Air Quality, Environmental Protection UK and Institute of Air Quality Management, 2017.



2. LEGISLATION AND POLICY

The following legislation, guidance and policy will be considered and adhered to during the preparation of the Air Quality Assessment:

- ▶ European Union (EU) Directive 2008/50/EC;
- ▶ The National Planning Policy Framework (NPPF), updated on 19th February 2019;
- ▶ The National Planning Practice Guidance (NPPG), relevant chapters updated on 1st November 2019;
- ▶ Section 82 of the Environment Act (1995) (Part IV);
- ▶ The Air Quality Standards (Amendment) Regulations (2016).
- ▶ Department for Environment, Food and Rural Affairs (DEFRA) guidance Local Air Quality Management Technical Guidance (TG16), 2018;
- ▶ Guidance on the Assessment of Dust from Demolition and Construction, Institute of Air Quality Management (IAQM), v1.1, June 2016; and
- ▶ Land-Use Planning and Development Control: Planning for Air Quality, Environmental Protection United Kingdom (EPUK) and IAQM, January 2017.

2.1 UK Legislation

The Air Quality Standards (Amendment) Regulations (2016) came into force on 31st December 2016. These Regulations amend the Air Quality Standards Regulations 2010 and transpose the EU Directive 2008/50/EC into UK law. Air Quality Limit Values (AQLVs) were published in these regulations for 7 pollutants, as well as Target Values for an additional 6 pollutants.

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 2007². 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 AQLVs, although the requirements for compliance vary slightly.

Table 1 presents the AQOs for pollutants considered within this assessment.

Table 1 Air Quality Objectives

Pollutant	Air Quality Objective	
	Concentration ($\mu\text{g}/\text{m}^3$)	Averaging Period
NO ₂	40	Annual mean
	200	1-hour mean; not to be exceeded more than 18 times a year
PM ₁₀	40	Annual mean
	50	24-hour mean; not to be exceeded more than 35 times a year
PM _{2.5}	25	Annual mean

² The Air Quality Strategy for England, Scotland, Wales and Northern Ireland, DEFRA, 2007.



Table 2 summarises the advice provided in DEFRA guidance LAQM (TG16)³ on where the AQOs for pollutants considered within this report apply.

Table 2 Examples of Where the Air Quality Objectives Apply

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 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
24-hour mean	All locations where the annual mean objective would apply, together with hotels. 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-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

2.2 Local Planning Policy

The Manchester Local Development Framework (LDF) Core Strategy⁴ was formally adopted in 2012 and provides a framework for development within the city. The LDF comprises a number of documents which set out Manchester City Council's (MCC's) spatial policy framework for delivering a number of policies contained within the Core Strategy which have been saved in accordance with the Planning and Compulsory Purchase Act (2004) and therefore provide the basis for the determination of planning applications prior to the finalisation of the local development framework.

A review of the Core Strategy indicated the following policy in relation to air quality that relevant to this assessment:

³ Local Air Quality Management Technical Guidance 2016 LAQM (TG16), DEFRA, 2016.

⁴ Manchester's Local Development Framework, Core Strategy Development Plan Document, Manchester City Council, July 2010



"Policy EN16 - Air Quality

The Council will seek to improve the air quality within Manchester, and particularly within Air Quality Management Areas, located along Manchester's principal traffic routes and at Manchester Airport. Developers will be expected to take measures to minimise and mitigate the local impact of emissions from traffic generated by the development, as well as emissions created by the use of the development itself, including from Combined Heat and Power and biomass plant.

When assessing the appropriateness of locations for new development the Council will consider the impacts on air quality, alongside other plan objectives. This includes cumulative impacts, particularly in Air Quality Management Areas."

"Policy DM1 - Development Management

All development should have regard to the following specific issues for which more detailed guidance may be given within a supplementary planning document:

Effects on amenity, including privacy, light, noise, vibration, air quality, odours, litter, vermin, birds, road safety and traffic generation. This could also include proposals which would be sensitive to existing environmental conditions, such as noise."

Reference has been made to these policies during the preparation of this Air Quality Assessment by assessing pollutant concentrations across the site and determining potential air quality impacts as a result of the proposed development.

2.3 Greater Manchester Air Quality Action Plan

The Greater Manchester Air Quality Action Plan (AQAP)⁵ has involved a review of the strategies, policies and plans which tackle or are in some way related to air quality, to develop a clear, robust and meaningful set of actions which will deliver real changes in terms of air quality, whilst supporting the sustainable economic growth of the region.

The primary objectives of the AQAP are to improve air quality across Greater Manchester and to embed low-emission behaviours into the culture of our organisations and lifestyles by 2025, whilst supporting the UK Government in meeting all EU thresholds for key air pollutants. The Plan identifies 'Key Priority Areas' which are generally locations near to major roads and heavily trafficked areas in Manchester city centre, and other major urban centres across the other nine districts.

The AQAP comprises a single document including actions that will be ratified by Transport for Greater Manchester (TfGM) and district authorities to tackle air quality in Key Priority Areas, whilst supporting the sustainable economic growth of the region. This plan will allow councils to carry out their statutory duties under Part IV of the Environment Act 1995, as its implementation will help mandatory EU limit values to be met. Consideration to the action plan has been made throughout the preparation assessment. Reference has been made to the AQAP during the undertaking of this Air Quality Assessment.

Reference has been made to this policy during the undertaking of this Air Quality Assessment by assessing pollutant concentrations across the development site.

⁵ Greater Manchester Air Quality Action Plan 2016–2021



3. METHODOLOGY

3.1 Construction Phase Assessment

The screening assessment has taken into account the IAQM document 'Guidance on the Assessment of Dust from Demolition and Construction'⁶. Activities on the proposed construction site have been divided into four types to reflect their different potential impacts. These are:

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

The potential for dust emissions was assessed for each activity that is likely to take place and considered three separate dust effects:

- ▶ Annoyance due to dust soiling;
- ▶ Harm to ecological receptors; and
- ▶ The risk of health effects due to a significant increase in exposure to PM₁₀ and PM_{2.5}.

The assessment steps are detailed below.

3.1.1 Step 1

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

Should sensitive receptors not be present within the relevant distances then negligible impacts would be expected and further assessment is not necessary.

3.1.2 Step 2

Step 2 assesses the risk of potential dust impacts. The risk category based on two factors:

- ▶ The scale and nature of the works, which determines the magnitude of dust arising as: small, medium or large (Step 2A); and
- ▶ The sensitivity of the area to dust impacts, which can be defined as low, medium or high sensitivity (Step 2B).
- ▶ The two factors are combined in Step 2C to determine the risk of dust impacts without the application of best practice mitigation measures.

3.1.3 Step 3

Step 3 requires the identification of site-specific mitigation measures within the IAQM guidance⁶ to reduce potential dust impacts based upon the relevant risk categories identified in Step 2. For sites with negligible risk, mitigation measures beyond those required by legislation are not required. However, additional controls may be applied as part of good practice.

⁶ Guidance on the Assessment of Dust from Demolition and Construction, Institute of Air Quality Management, v1.1 2016.



3.1.4 Step 4

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'.

The determination of significance relies on professional judgement and reasoning should be provided as far as practicable. This has been considered throughout the assessment when defining predicted impacts. The IAQM guidance⁶ suggests the provision of details of the assessor's qualifications and experience. These are provided in Appendix II.

The relevant construction phase assessment criteria are provided in Appendix I, which detail the magnitude of dust emissions, as well as the sensitivity of the surrounding area with regards to dust soiling and to human health impacts. The guidance also suggests the provision of details of the assessor's qualifications and experience. These are provided in Appendix II.

3.2 Operational Phase Assessment

3.2.1 Future Exposure

The suitability of the site with regards to future pollutant exposure will be determined by a review of the latest air quality monitoring data detailed within the MCC Annual Status Report⁷ (ASR), predicted background pollutant concentrations produced by DEFRA⁸, location of AQMAs and consultation with the MCC's air quality officer.

3.2.2 Road Traffic Exhaust and Combustion Emission Impacts

The development may have the potential to impact on existing air quality as a result of road traffic exhaust emissions associated with vehicles travelling to and from the site. A screening assessment was therefore undertaken using the criteria contained within EPUK and IAQM guidance¹ to determine the potential for trips generated by the development to affect local air quality.

The EPUK and IAQM guidance¹ document states the following indicative criteria to help establish when an air quality assessment is likely to be considered necessary:

- ▶ Proposals that will cause a change in Light Duty Vehicle (LDV) flows of more than 100 AADT within or adjacent to an AQMA or more than 500 elsewhere;
- ▶ Proposals that will cause a change in HDV flows of more than 25 AADT within or adjacent to an AQMA or more than 100 elsewhere;
- ▶ Proposals which include either a centralised plant using biofuel, a combustion plant with single or thermal input >300KWh or a standby emergency generator associated with a centralised energy centre; and,
- ▶ Proposals which include combustion processes of any size.

Should the above criteria not be met, the EPUK and IAQM guidance¹ document considers air quality impacts associated with the scheme to be **not significant** and no further assessment is required. Conversely, should the criterion be exceeded it may be deemed necessary that further assessment is required.

⁷ Greater Manchester Combined Authority - 2018 Air Quality Annual Status Report (ASR). June 2019.

⁸ <https://uk-air.defra.gov.uk/data/laqm-background-maps?year=2017>



4. BASELINE CONDITIONS

Existing local air quality conditions were identified in order to provide a baseline for assessment. These are detailed in the following sections.

4.1 Local Air Quality Management

As required by the Environment Act (1995), MCC has undertaken Review and Assessment of air quality within their area of administration. This process has indicated that concentrations of NO₂ are above the AQO within the district. As such, one AQMA has been declared:

- ▶ *"Greater Manchester AQMA – A new single AQMA covering all 10 Local authorities in Greater Manchester. These are Manchester, Salford, Stockport, Tameside, Oldham, Bury, Bolton, Wigan, Rochdale and Trafford. The AQMA is declared on all areas exceeding the annual mean of 35ug/m³ incl.*

The application site is located approximately 150m south of the Greater Manchester AQMA, and subsequently, there is potential for the development to introduce future residents to an area experiencing elevated pollutant concentrations, as well as to cause impacts to air quality within this sensitive area. This has been considered within the assessment and detailed further in Section 5.

4.2 Air Quality Monitoring

Monitoring of pollutant concentrations is undertaken by MCC using continuous and periodic methods in accordance with the LAQM process. A review of the most recent Air Quality Status Report⁷ indicated that there are no automatic analysers operated by MCC, within the vicinity of the application site.

MCC also utilise passive diffusion tubes to monitor NO₂ concentrations throughout the district. A review of the most recent monitoring data available provided in the 2018 ASR Report⁷ indicated that there are three diffusion tubes located within 700m of the application site. Recent monitoring results from these locations are shown in Table 3. Exceedance of the relevant AQO are highlighted in **bold**.

Table 3 Diffusion Tube Monitoring Results

SDC ID	Site Name	Type	NGR (m)		Distance to Site (m)	Annual Mean Concentration (µg/m ³)		
			X	Y		2016	2017	2018
MA90BNO	Manchester 90	Suburban	384179	386086	692	23.0	22.2	20.4
MA91BNO	Manchester 91	Suburban	384179	386086	692	22.2	22.6	19.7
MA92BNO	Manchester 92	Suburban	384179	386086	692	22.3	21.9	20.1

As indicated in Table 3, the annual mean AQO for NO₂ was not exceeded at any monitoring locations in recent years.

Reference should be made to Figure 2 within Appendix I for a graphical representation of the monitoring locations.



4.3 Background Pollutant Concentrations

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 grid square NGR: 382500, 391500. Data for this location was downloaded from the DEFRA website⁸ for the purpose of this assessment and is summarised in Table 4 for the baseline year (2018).

Table 4 Background Pollutant Concentrations

Proposed Development NGR	2020 Predicted Background Concentration ($\mu\text{g}/\text{m}^3$)		
	NO ₂	PM ₁₀	PM _{2.5}
382500, 391500	17.76	9.84	6.84

As shown in Table 4, background concentrations of NO₂ and particulate matter (PM) are well below the relevant annual mean AQOs.

4.4 Sensitive Receptors

A sensitive receptor is defined as any location which may be affected by changes in air quality as a result of a development. These have been defined for construction dust impacts in the following Sections.

4.4.1 Construction Phase Sensitive Receptors

There are no nationally or European designated ecological receptors within 50m of the Site boundary, or within 50m from a route used by construction vehicles on the public highway (up to 500m from the Site entrance). Therefore, the risk of dust effects at a nationally or European designated ecological receptor site from construction impacts is not considered further in this assessment.

Receptors sensitive to potential dust impacts during earthworks and construction were identified from a desk-top study of the area up to 350m from the development boundary. These are summarised in Table 5.

Table 5 Demolition, Earthworks and Construction Dust Sensitive Receptors

Distance from Site Boundary (m)	Approximate Number of Human Receptors
Less than 20	1 - 10
20 - 50	10 - 100
50 - 100	10 - 100
100 - 350	More than 100

Reference should be made to Figure 3 within Appendix I for a graphical representation of demolition, earthworks and construction dust buffer zones.

Receptors sensitive to potential dust impacts from trackout were identified from a desk-top study of the area up to 50m from the road network within 500m of the site access route. These are summarised in Table 6. The construction vehicle access route will be onto Trenchard Drive.



Table 6 Trackout Dust Sensitive Receptors

Distance from Site Access Route (m)	Approximate Number of Residential Receptors
Less than 20	10 - 100
20 - 50	10 - 100

Reference should be made to Figure 4 within Appendix I for a graphical representation of trackout dust buffer zones. A number of additional factors have been considered when determining the sensitivity of the surrounding area. These are summarised in Table 7.

Table 7 Additional Area Sensitivity Factors

Guidance	Comment
Whether there is any history of dust generating activities in the area	The site is located in a residential and commercial location. There is likely to have been a history of dust generating activities due to commuting and regeneration in the locality.
The likelihood of concurrent dust generating activity on nearby sites.	A review of the MCC planning portal indicated that there are no large-scale planning applications within the vicinity of the site. There is therefore low risk of concurrent dust emissions.
Pre-existing screening between the source and the receptors	There is vegetation present along the northern boundaries of the site. If retained, this could provide minimal natural protective screening to receptors in these directions.
Conclusions drawn from analysing local meteorological data which accurately represent the area: and if relevant the season during which works will take place	The wind direction is predominantly from the south of the development as seen in Figure 5. As such, properties to the north of the site would be most affected by dust emissions.
Conclusions drawn from local topography	The topography of the application site appears predominately flat. As such, there are no constraints to dust dispersion
Duration of the potential impact, as a receptor may become more sensitive over time	Currently the duration of the construction phase is unknown. However, given the size of the development, it is unlikely to last more than 12 months.
Any known specific receptor sensitivities which go beyond the classifications given in the document.	No specific receptor sensitivities identified during the baseline

4.4.2 Operational Phase Sensitive Receptors

4.4.2.1 Human Sensitive Receptors

A desk top study was undertaken to identify the closest receptor locations to the application site. This indicated residential locations adjacent to the site on the south border, with further residential receptors located in the surrounding area. There are no educational or medical facility in immediate vicinity of the application site, with the nearest school (Heald Green Methodist Pre-School) and medical centre (Tregenna Group Practice) located approximately 950m northeast and 1km northwest of the site, respectively.



5. POTENTIAL IMPACTS

5.1 Construction Phase

5.1.1 Step 1 – Screening

The undertaking of activities such as excavation, ground works, cutting, construction, concrete batching and storage of materials has the potential to result in fugitive dust emissions throughout the construction phase. Vehicle movements both on-site and on the local road network also have the potential to result in the re-suspension of dust from haul road and highway surfaces.

The desk-study detailed in Section 4.4.1 identified a number of highly sensitive receptors within 350m of the site boundary, and within 50m of the anticipated trackout routes. As such, a detailed assessment of potential dust impacts was required, and summarised in the below sections.

Reference should be made to Appendix III for details of the relevant IAQM⁶ construction phase assessment criteria, which were utilised in conjunction with site specific information.

5.1.2 Step 2A – Magnitude

The scale and nature of the works was determined to assess the magnitude of dust arising from each construction phase activity. The determination of magnitude was based upon the criteria detailed in Appendix IV, with the outcome of Step 2A is summarised below in Table 9.

Demolition

The proposed development will include the demolition of existing property and associated outbuildings. The volume of buildings to be demolished is likely to be less than 20,000m³. With this considered, the magnitude of potential dust emissions related to demolition activities is **small**.

Earthworks

The proposed development site is estimated to cover a total area less than 2,500m². Based on this information the magnitude of potential dust emissions related to earthwork activities is therefore considered **small**.

Construction

The total building volume is likely to be less than 25,000m³ the magnitude of potential dust emissions related to construction activities is therefore considered **small**.

Trackout

Information on the number of HDV trips to be generated during the construction phase of the development was not available at the time of assessment. Based on the site area, it is anticipated that the unpaved road length is likely to be less than 50m. The magnitude of potential dust emissions from trackout is therefore **small**.



Table 8 Dust Emission Magnitude

Magnitude of Activities			
Demolition	Earthworks	Construction	Trackout
Small	Small	Small	Small

5.1.3 Step 2B – Sensitivity

The next step (Step 2B) is to determine the sensitivity of the surrounding area.

Dust Soiling

As shown in Table 5 and Table 6, the desk top study indicated that there are approximately **1 - 10** highly sensitive dwellings within 20m of the proposed development, and **10 - 100** within 20m of the anticipated trackout routes. Based on the criteria detailed in Appendix IV, the sensitivity of the receiving environment to potential dust soiling impacts was considered to be **high** for trackout activities and **medium** for earthworks, construction and demolition activities. This is because users would expect to enjoy a reasonable level of amenity and residents would be expected to be present for extended periods of time.

Human Health

The annual mean concentration of PM₁₀ is less than 24 µg/m³. Given the presence of **1 - 10** highly sensitive dwellings within 20m of the proposed development, and **10 - 100** within 20m of the anticipated trackout routes, the area is considered to be of **low** sensitivity for all construction phase activities.

The sensitivity of the receiving environment to specific potential dust impacts, based on the criteria detailed in Appendix II is summarised in Table 10

Table 9 Sensitivity of the Surrounding Area

Potential Impact	Sensitivity of the Surrounding Area			
	Demolition	Earthworks	Construction	Trackout
Dust Soiling	Medium	Medium	Medium	High
Human Health	Low	Low	Low	Low

5.1.4 Step 2C – Risk

Both the magnitude and sensitivity factors are combined in Step 2C to determine the risk of dust impacts without the application of best practice mitigation measures

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. A summary of the risk from each dust generating activity is provided in Table 10.



Table 10 Summary of Potential Unmitigated Dust Risks

Potential Impact	Risk			
	Demolition	Earthworks	Construction	Trackout
Dust Soiling	Low	Low	Low	Low
Human Health	Negligible	Negligible	Negligible	Negligible

5.1.5 Step 3 – Mitigation

The IAQM guidance⁶ provides a number of potential mitigation measures to reduce impacts during the construction phase. These measures have been adapted for the development site as summarised in Table 11. The mitigation measures outlined in Table 11 can be reviewed prior to the commencement of construction works incorporated into the existing strategies as applicable.

Table 11 Fugitive Dust Mitigation Measures

Issue	Control Measure
Communications	• Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary • Display the head or regional office contact information • Develop and implement a Dust Management Plan (DMP), which may include measures to control other emissions, approved by the LA
Site Management	• Record all dusty and air quality complaints and make the complaints log available to the LA when asked • Record any exceptional incidents that cause dust/or air emissions, and the action taken to resolve the situation • Make complaints log available to Local Authority when asked
Monitoring	• Undertake daily on-site and off-site inspection where receptors are nearby to monitor dust • Carry out regular site inspections to monitor compliance with the DMP • Increase frequency of site inspections when activities with a high potential to produce dust are being carried out
Preparing and Maintaining the Site	• Plan site layout so that machinery and dust causing activities are located away from receptors • 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 as 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 a potential to produce dust from site as soon as possible • Cover, seed or fence stockpiles to prevent wind whipping Use water as dust suppressant where applicable



Issue	Control Measure
Operating Vehicle/ Machinery and Sustainable Travel	• All vehicles to switch off engines - no idling vehicles • Avoid the use of diesel or petrol-powered generators where practicable
Operations	• Cutting equipment to use water as dust suppressant or suitable local extract ventilation • Ensure adequate water supply on the site for effective dust/particulate matter suppression/mitigation • Use enclosed chutes and covered skips • Minimise drop heights • Ensure equipment is readily available on site to clean any spillages
Waste Management	• No bonfires
Demolition	• 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 effective water suppression is used during demolition operations. Hand held sprays are more effective than hoses attached to equipment as the water can be directed to where it is needed. In addition, high volume water suppression systems, manually controlled, can produce fine water droplets that effectively bring the dust particles to the ground. • Bag and remove any biological debris or damp down such material before demolition
Earthworks and Construction	• Avoid scabbling (roughening of concrete surfaces) • Ensure sand and other aggregates are stored and not able to dry out, unless it is required for a specific process
Trackout	• Use water-assisted dust sweeper on the access and local roads • Avoid dry sweeping of large areas • Ensure vehicles entering and leaving sites are covered to prevent escape of materials • Record all inspections of haul routes and any subsequent action in a site log book • Implement a wheel washing system at a suitable location near site exit

5.1.6 Step 4 – Residual Impacts

Assuming the relevant mitigation measures outlined in Table 11 are implemented, the residual effect from all dust generating activities is predicted to be **negligible**, in accordance with the IAQM guidance⁶.



5.2 Operational Phase

5.2.1 Future Exposure

A review of existing air quality data has been undertaken, in accordance with relevant guidance, to assess the probability for future exposure to elevated NO₂ and PM₁₀ concentrations during the occupation of the proposed development.

The latest MCC monitoring data, as well as predicted background concentrations provided by DEFRA, were assessed. The review process indicated that the most representative monitored NO₂ concentrations were monitored at 20.4ug/m³ (MA90BNO) and 19.7ug/m³ (MA91BNO) and 20.1ug/m³ (MA92BNO). Predicted background pollutant concentrations provided by DEFRA are also not likely to exceed the relevant AQOs across the development site. As indicated in Table 4, the predicted background concentrations are well below 65% of the AQO for all referenced pollutant species. Given these results and considerable set back distance from notable pollutant sources, namely the B5166 (Styal Road), it is not expected that unacceptable pollutant exposure would be present during occupation.

In light of the baseline information, it is concluded that air quality at the proposed development is unlikely to exceed any AQOs and as such, there is low potential for existing residents to be exposed unacceptable pollutant concentrations and that a detailed assessment is not required.

5.2.2 Road Traffic Exhaust Impacts

Any additional vehicle movements associated with the proposed development will generate exhaust emissions, such as NO₂, PM₁₀ and PM_{2.5} on the local and regional road networks.

The Proposed Development would add an additional 3 dwellings with 3 additional car parking spaces to the current use. It is therefore not anticipated that the operational phase of the site would result in a change of AADT flows of more than 100, produce over 25 HDV movements per day or significantly affect average speeds on the local road network.

Subsequently, potential air quality impacts associated with operational phase road vehicle exhaust emissions are predicted to be **not significant** in accordance the EPUK and IAQM¹ screening criteria shown in Section 3.2.2.

5.2.3 Combustion Plant Impacts

There is no scope within the development to provide any form of combustion plant. As such, potential air quality impacts associated with operational phase combustion emissions are therefore predicted to be **not significant**.



6. CONCLUSION

REC Ltd was commissioned by Kansho Property Ltd to undertake an Air Quality Screening Assessment in support of a proposed residential development at 27-29 Trenchard Drive, Moss Nook, Manchester.

The proposed development may have the potential to introduce future occupants to elevated NO₂ and PM₁₀ concentrations and cause air quality impacts at sensitive human receptor locations as a result of the operational and construction phases. As such, an Air Quality Screening Assessment was produced to consider potential impacts associated with the development.

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 potential air quality impacts from dust generated by demolition, earthworks, construction and trackout activities was predicted to be **not significant**.

A screening assessment was undertaken, in accordance with relevant EPUK and IAQM guidance, to consider the potential for air quality impacts associated with the operational phase of the proposed development. This screening assessment demonstrated that associated impacts upon existing human receptors were deemed **not significant** given that the anticipated development traffic generation falls below the relevant assessment thresholds. Subsequently, a detailed assessment to quantify operational impacts is not deemed necessary.

A review of available monitoring data from the most representative monitoring locations provided by MCC indicated that NO₂ concentrations were well below the relevant AQOs at roadside locations in close proximity to the application site. A further review of the DEFRA pollutant background maps indicated that the existing levels at the development site are well below 65% the relevant AQOs. When assessing the existing background levels in the vicinity of the site, distance to specific monitoring locations, and significant setback distance from pollutant sources, it is considered that future site users would not be exposed to unacceptable air pollution concentrations.

Based on the assessment results, it can be advised with confidence that the future exposure and potential impacts during the operation phase can be expected to be **not significant**.

It is therefore considered that no further assessment is necessary, and furthermore Air Quality should not be viewed as a constraint to planning approval.

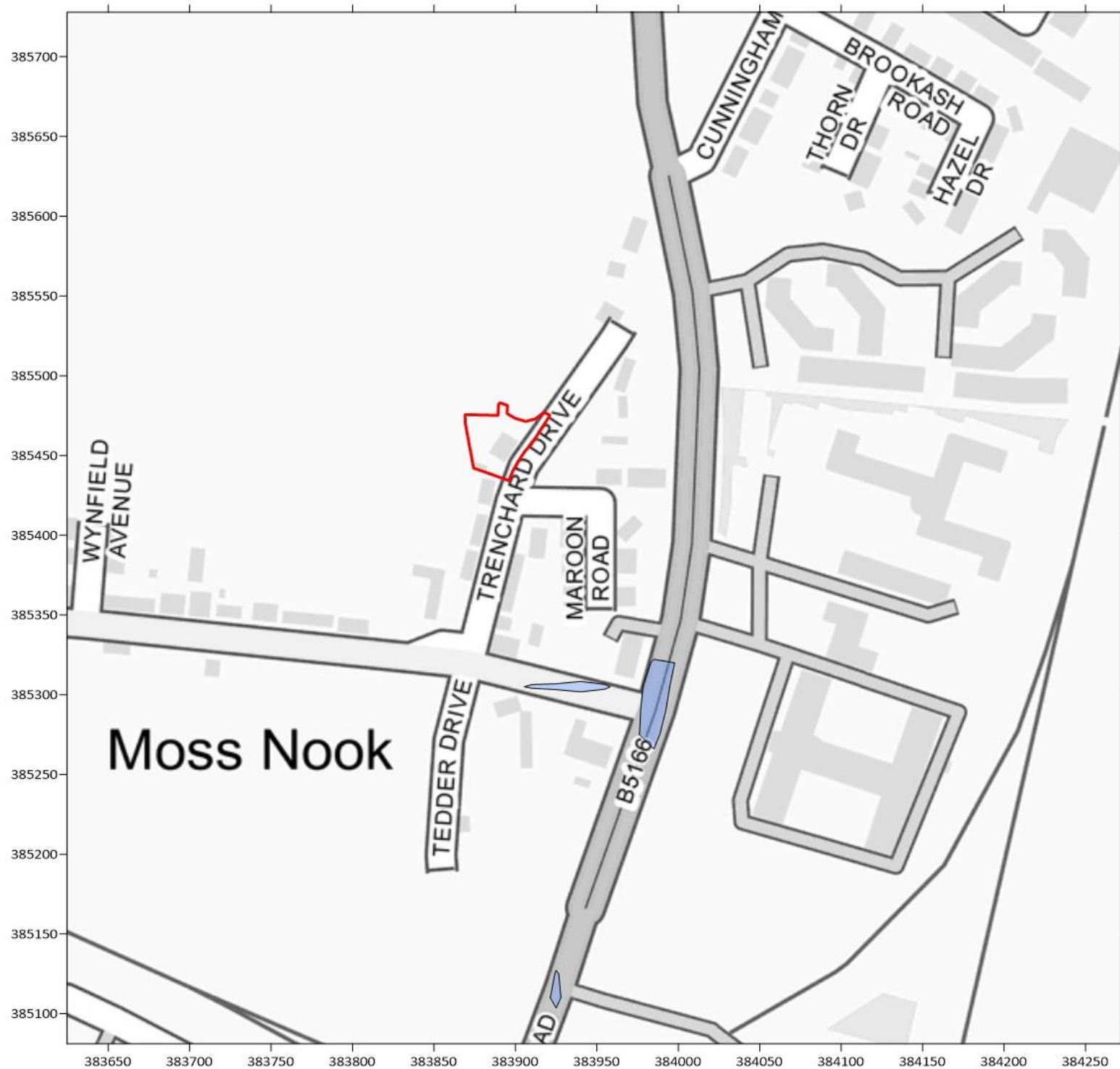


7. ABBREVIATIONS

AQLV	Air Quality Limit Value
AQMA	Air Quality Management Area
AQO	Air Quality Objectives
AQS	Air Quality Strategy
ASR	Annual Status Report
DEFRA	Department for Environment, Food and Rural Affairs
EPUK	Environmental Protection UK
EU	European Union
IAQM	Institute of Air Quality Management
LAQM	Local Air Quality Management
Ltd	Limited
MCC	Manchester City Council
NGR	National Grid Reference
NO ₂	Nitrogen dioxide
NO _x	Oxides of nitrogen
NPPF	National Planning Policy Framework
NPPG	National Planning Policy Guidance
PM	Particulate matter
PM ₁₀	Particulate matter with an aerodynamic diameter of less than 10µm
PM _{2.5}	Particulate matter with an aerodynamic diameter of less than 2.5µm
REC	Resource and Environmental Consultants



APPENDIX I FIGURES



Legend

-  Site Boundary
-  Air Quality Management Area

Title

Figure 1
Site Location and Surrounding Context

Project

Air Quality Screening Assessment
27-29 Trenchard Drive, Moss Nook,
Manchester

Project Number

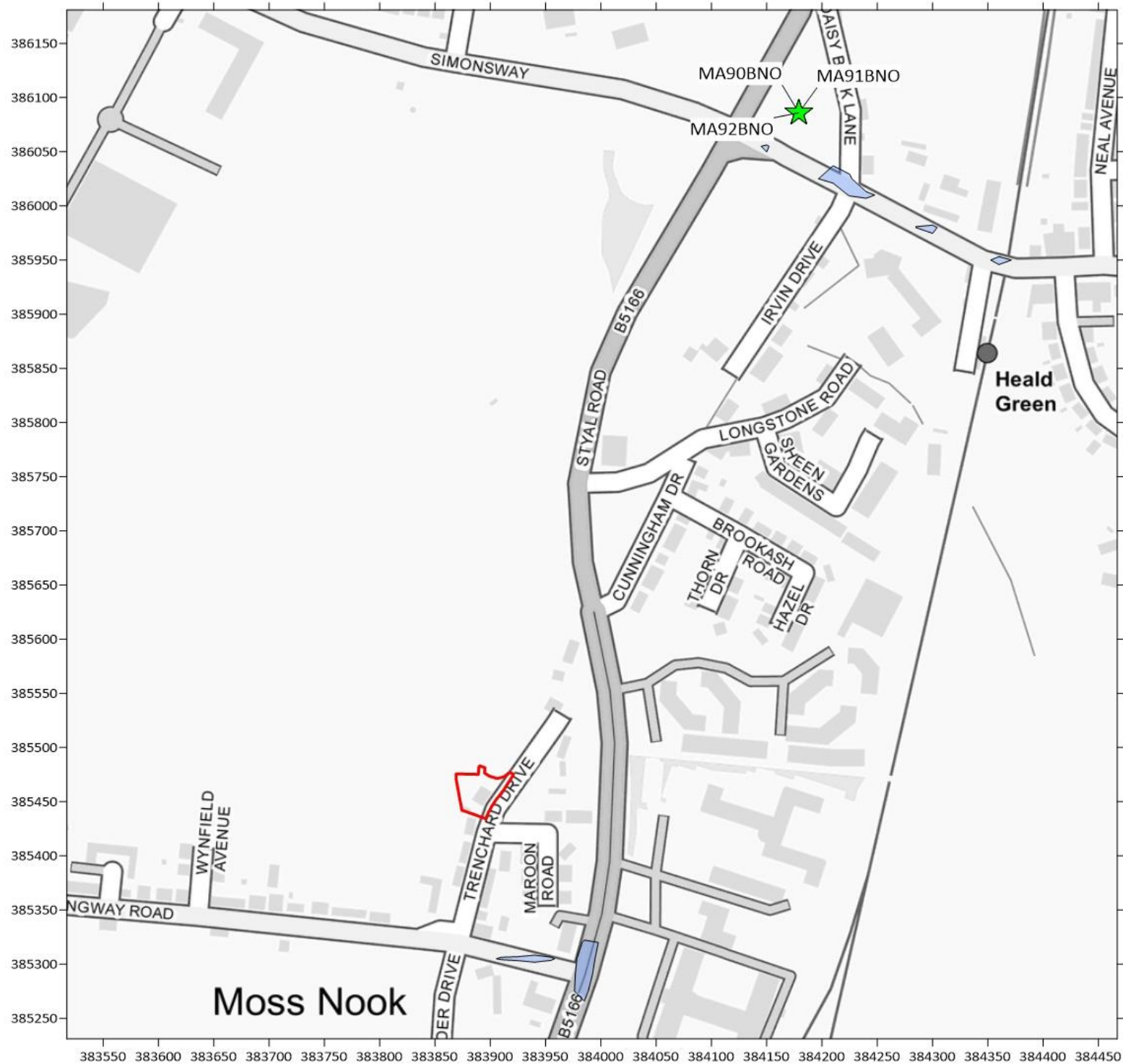
AQ108891

Client

Kansho Property Ltd

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Resource and Environmental Consultants Ltd
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Tel - 0161 868 1300 Fax - 0161 868 1301
www.recitd.co.uk



Legend

-  Site Boundary
-  Diffusion Tube Monitoring Locations

Title

Figure 2
Diffusion Tube Monitoring Locations

Project

Air Quality Screening Assessment
27-29 Trenchard Drive, Moss Nook,
Manchester

Project Number

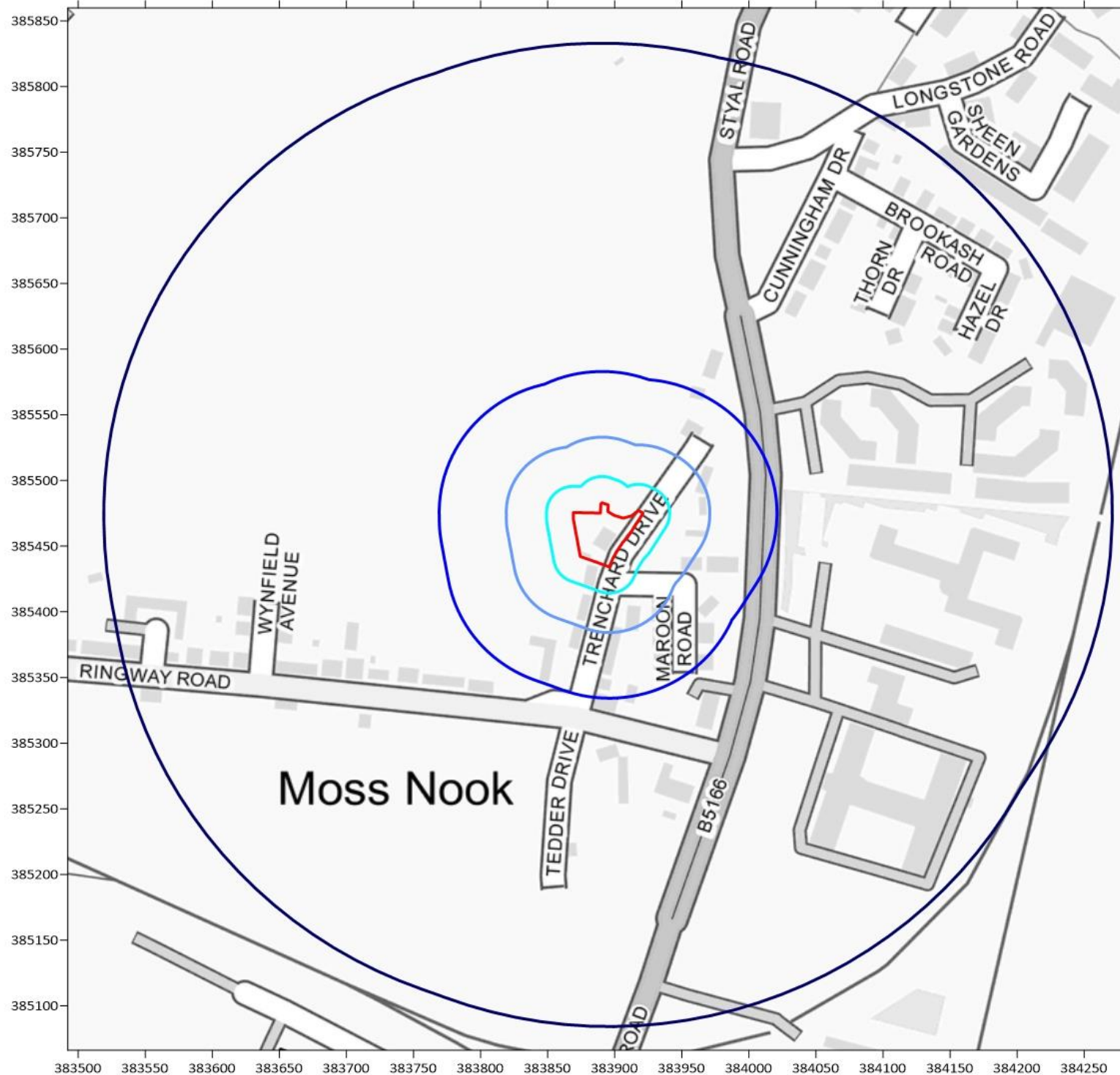
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Legend

-  Site Boundary
-  20m from Site Boundary
-  50m from Site Boundary
-  100m from Site Boundary
-  350m from Site Boundary

Title

Figure 3
Demolition, Earthworks and Construction
Dust Buffer Zones

Project

Air Quality Screening Assessment
27-29 Trenchard Drive, Moss Nook,
Manchester

Project Number

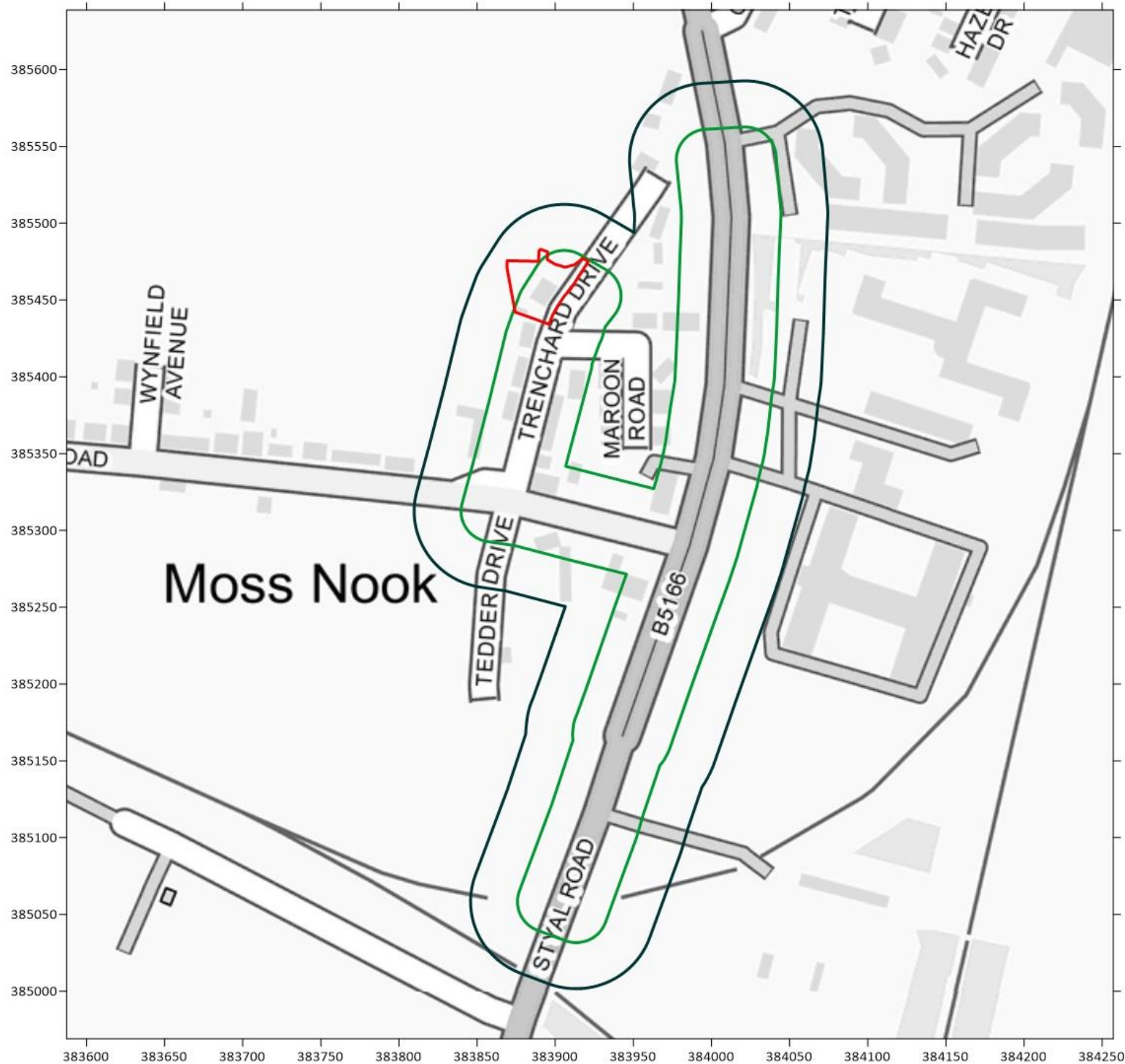
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Legend

-  Site Boundary
-  20m from Site Access Route
-  50m from Site Access Route

Title

Figure 4
Trackout Dust Buffer Zones

Project

Air Quality Screening Assessment
27-29 Trenchard Drive, Moss Nook,
Manchester

Project Number

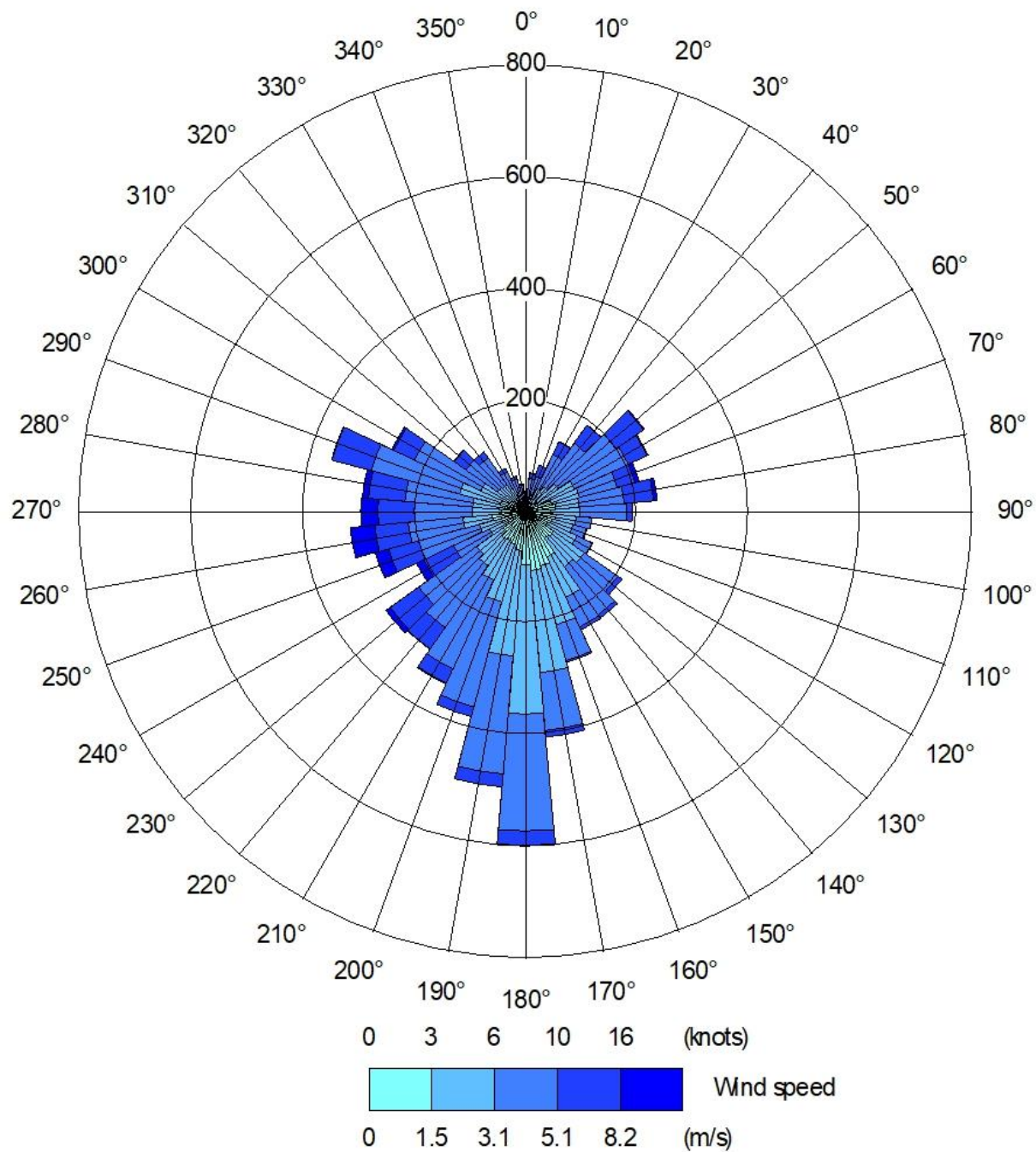
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Title
Figure 5
2018 Wind Rose
Manchester Ringway Meteorological Station

Project
Air Quality Screening Assessment
27-29 Trenchard Drive, Moss Nook,
Manchester

Project Number
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APPENDIX II CONSTRUCTION PHASE ASSESSMENT CRITERIA



CONSTRUCTION PHASE METHODOLOGY

There is the potential for fugitive dust emissions to occur as a result of construction phase activities. These have been assessed in accordance with the methodology outlined within the Institute of Air Quality Management (IAQM) document 'Guidance on the Assessment of Dust from Demolition and Construction'⁶.

Activities on the proposed construction site have been divided into four types to reflect their different potential impacts. These are:

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

The potential for dust emissions was assessed for each activity that is likely to take place and considered three separate dust effects:

- ▶ Annoyance due to dust soiling;
- ▶ Harm to ecological receptors; and
- ▶ The risk of health effects due to a significant increase in exposure to PM₁₀ and PM_{2.5}.

The assessment steps are detailed below.

Step 1

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

Should sensitive receptors not be present within the relevant distances then negligible impacts would be expected and further assessment is not necessary.

Step 2

Step 2 assesses the risk of potential dust impacts. A site is allocated to a risk category based on two factors:

- ▶ The scale and nature of the works, which determines the magnitude of dust arising as: small, medium or large (Step 2A); and
- ▶ The sensitivity of the area to dust impacts, which can be defined as low, medium or high sensitivity (Step 2B).

The two factors are combined in Step 2C to determine the risk of dust impacts without mitigation applied.

Step 2A defines the potential magnitude of dust emission through the construction phase. The relevant criteria are summarised in Table AIII.1.



Table AIII.1 Construction Dust - Magnitude of Emission

Magnitude	Activity	Criteria
Large	Demolition	- Total building volume greater than 50,000m³ - Potentially dusty construction material (e.g. concrete) - On-site crushing and screening - Demolition activities greater than 20m above ground level
	Earthworks	- Total site area greater than 10,000m² - Potentially dusty soil type (e.g. clay, which will be prone to suspension when dry due to small particle size) - More than 10 heavy earth moving vehicles active at any one time - Formation of bunds greater than 8m in height - More than 100,000 tonnes of material moved
	Construction	- Total building volume greater than 100,000m³ - On site concrete batching - Sandblasting
	Trackout	- More than 50 Heavy Duty Vehicle (HDV) trips per day - Potentially dusty surface material (e.g. high clay content) - Unpaved road length greater than 100m
Medium	Demolition	- Total building volume 20,000m³ to 50,000m³ - Potentially dusty construction material - Demolition activities 10m to 20m above ground level
	Earthworks	- Total site area 2,500m² to 10,000m² - Moderately dusty soil type (e.g. silt) 5 to 10 heavy earth moving vehicles active at any one time - Formation of bunds 4m to 8m in height - Total material moved 20,000 tonnes to 100,000 tonnes
	Construction	- Total building volume 25,000m³ to 100,000m³ - Potentially dusty construction material (e.g. concrete) - On site concrete batching
	Trackout	10 to 50 HDV trips per day - Moderately dusty surface material (e.g. high clay content) - Unpaved road length 50m to 100m
Small	Demolition	- Total building volume under 20,000m³ - Construction material with low potential for dust release (e.g. metal cladding or timber) - Demolition activities less than 10m above ground level - Demolition during wetter months



Magnitude	Activity	Criteria
	Earthworks	- Total site area less than 2,500m² - Soil type with large grain size (e.g. sand) - Less than 5 heavy earth moving vehicles active at any one time - Formation of bunds less than 4m in height - Total material moved less than 20,000 tonnes - Earthworks during wetter months
	Construction	- Total building volume less than 25,000m³ - Construction material with low potential for dust release (e.g. metal cladding or timber)
	Trackout	- Less than 10 HDV trips per day - Surface material with low potential for dust release - Unpaved road length less than 50m

Step 2B defines the sensitivity of the area around the development site for construction, earthworks and trackout. The factors influencing the sensitivity of the area are shown in Table AIII.2.

Table AIII.2 Examples of Factors Defining Sensitivity of an Area

Sensitivity	Examples	
	Human Receptors	Ecological Receptors
High	- Users expect of high levels of amenity - High aesthetic or value property - People expected to be present continuously for extended periods of time - Locations where members of the public are exposed over a time period relevant to the AQO for PM₁₀ e.g. residential properties, hospitals, schools and residential care homes	Internationally or nationally designated site e.g. Special Area of Conservation
Medium	- Users would expect to enjoy a reasonable level of amenity - Aesthetics or value of their property could be diminished by soiling - People or property wouldn't reasonably be expected to be present here continuously or regularly for extended periods as part of the normal pattern of use of the land e.g. parks and places of work	Nationally designated site e.g. Sites of Special Scientific Interest



Sensitivity	Examples	
	Human Receptors	Ecological Receptors
Low	• Enjoyment of amenity would not reasonably be expected • Property would not be expected to be diminished in appearance • Transient exposure, where people would only be expected to be present for limited periods. e.g. public footpaths, playing fields, shopping streets, playing fields, farmland, footpaths, short term car park and roads	• Locally designated site e.g. Local Nature Reserve

The guidance also provides the following factors to consider when determining the sensitivity of an area to potential dust impacts during the construction phase:

- ▶ Any history of dust generating activities in the area;
- ▶ The likelihood of concurrent dust generating activity on nearby sites;
- ▶ Any pre-existing screening between the source and the receptors;
- ▶ Any conclusions drawn from analysing local meteorological data which accurately represent the area; and if relevant the season during which works will take place;
- ▶ Any conclusions drawn from local topography;
- ▶ Duration of the potential impact, as a receptor may become more sensitive over time; and
- ▶ Any known specific receptor sensitivities which go beyond the classifications given in the document.

These factors were considered in the undertaking of this assessment.

The sensitivity of the area to dust soiling effects on people and property is shown in Table AIII.3.

Table AIII.3 Sensitivity of the Area to Dust Soiling Effects on People and Property

Receptor Sensitivity	Number of Receptors	Distance from the Source (m)			
		Less than 20	Less than 50	Less than 100	Less than 350
High	More than 100	High	High	Medium	Low
	10 - 100	High	Medium	Low	Low
	1 - 10	Medium	Low	Low	Low
Medium	More than 1	Medium	Low	Low	Low
Low	More than 1	Low	Low	Low	Low

Table AIII.4 outlines the sensitivity of the area to human health impacts.



Table AIII.4 Sensitivity of the Area to Human Health Impacts

Receptor Sensitivity	Annual Mean PM ₁₀ Concentration	Number of Receptors	Distance from the Source (m)				
			Less than 20	Less than 50	Less than 100	Less than 200	Less than 350
High	Greater than 32µg/m ³	More than 100	High	High	High	Medium	Low
		10 - 100	High	High	Medium	Low	Low
		1 - 10	High	Medium	Low	Low	Low
	28 - 32µg/m ³	More than 100	High	High	Medium	Low	Low
		10 - 100	High	Medium	Low	Low	Low
		1 - 10	High	Medium	Low	Low	Low
	24 - 28µg/m ³	More than 100	High	Medium	Low	Low	Low
		10 - 100	High	Medium	Low	Low	Low
		1 - 10	Medium	Low	Low	Low	Low
	Less than 24µg/m ³	More than 100	Medium	Low	Low	Low	Low
		10 - 100	Low	Low	Low	Low	Low
		1 - 10	Low	Low	Low	Low	Low
Medium	Greater than 32µg/m ³	More than 10	High	Medium	Low	Low	Low
		1 - 10	Medium	Low	Low	Low	Low
	28 - 32µg/m ³	More than 10	Medium	Low	Low	Low	Low
		1 - 10	Low	Low	Low	Low	Low
	24 - 28µg/m ³	More than 10	Low	Low	Low	Low	Low
		1 - 10	Low	Low	Low	Low	Low
	Less than 24µg/m ³	More than 10	Low	Low	Low	Low	Low
		1 - 10	Low	Low	Low	Low	Low
Low	-	More than 1	Low	Low	Low	Low	Low

Table AIII.5 outlines the sensitivity of the area to ecological impacts.

Table AIII.5 Sensitivity of the Area to Ecological Impacts

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



Receptor Sensitivity	Distance from the Source (m)	
	Less than 20	Less than 50
Low	Low	Low

Step 2C combines the dust emission magnitude with the sensitivity of the area to determine the risk of unmitigated impacts. Table AIII.6 outlines the risk category from demolition activities

Table AIII.6 Dust Risk Category from Demolition

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

Table AIII.7 outlines the risk category from earthworks and construction activities.

Table AIII.7 Dust Risk Category from Earthworks and Construction

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

Table AIII.8 outlines the risk category from trackout.

Table AIII.8 Dust Risk Category from Trackout

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

Step 3

Step 3 requires the identification of site-specific mitigation measures within the IAQM guidance to reduce potential dust impacts based upon the relevant risk categories identified in Step 2. For sites with **negligible** risk, mitigation measures beyond those required by legislation are not required. However, additional controls may be applied as part of good practice.



Step 4

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'.



APPENDIX II ASSESSORS CURRICULUM VITAE



JOSHUA DAVIES

Senior Air Quality Consultant

BSc (Hons) AMIEnvSci

KEY EXPERIENCE:

Josh is an Environmental Consultant with specialist experience in the air quality sector. His key capabilities include:

- ▶ Production of Air Quality Assessments to the Department for Environment, Food and Rural Affairs (DEFRA), Environment Agency and Environmental Protection UK (EPUK) methodologies for clients from the residential, retail and commercial sectors.
- ▶ Detailed dispersion modelling of road vehicle emissions using ADMS-Roads. Studies have included impact assessment of pollutant concentrations at various floor levels and assessment of suitability of development sites for proposed end-use.
- ▶ Assessment of road vehicle exhaust emissions using the Design Manual for Roads and Bridges (DMRB) calculation spreadsheet.
- ▶ Assessment of dust impacts from construction sites to the Institute of Air Quality Management (IAQM) methodology.
- ▶ Assessment of Odour Impact from commercial and industrial processes in line with Environment Agency (EA) and IAQM methodologies and guidance
- ▶ Quantification of Ecological Impacts associated with Nitrogen and Acid Deposition from industrial processes
- ▶ Production of air quality mitigation strategies for developments throughout the UK.
- ▶ Management of Environmental Permit Applications primarily for the Medium Combustion Plant Directive (MCDP)

QUALIFICATIONS:

- ▶ Bachelor of Science
- ▶ Member of the Institute of Environmental Science (IES)
- ▶ Odour Acuity Certified

SELECT PROJECTS SUMMARY:

Back Lane, Congleton - a residential development of 140 dwellings.

Imperial War Museum, Duxford – Air Quality screening assessment associated with dust and odour as a result of proposed restoration activities

London South Bank University -AQA for redevelopment of the campus, with associated energy centre

Scunthorpe United Football Stadium - AQA for new sports stadium and commercial and retail park

Heineken UK, Manchester – Production of various AQAs for the expansion of the Manchester Brewery site.

Cricklewood Freight Terminal – AQA for an aggregate freight terminal in Brent. Dust and HGV impact assessment and mitigation strategy

Llay Wrexham – AQ associated with a Short-Term Reserve Operation site in line with the Medium Combustion Plant Directive (MCPD)

ES Chapters

Great Jackson Street Framework - Production of a number of ES chapters for large-scale mixed use multi storey buildings

Keele University – Road and Energy Assessment for the proposed re-development of the student campus

Newton Farm, Perth - EIA for a medium scale residential development in close vicinity to the A9.

Odour Assessments

Clipsone House Farm – Quantitative odour and ammonia assessment in support of a proposed extension to a large-scale poultry farm.

Chatteris AD Plant - Quantitative odour modelling and sniff tests to discharge condition on an existing anaerobic digestion plant

Jennychem, Snodland - Risk Assessment and Best Practice Statement in support of the proposed car repairs facility spray booth

SELECT PROJECTS SUMMARY:

London Borough of Southwark Experience

Camberwell Road, Southwark - Exposure assessment for a proposed gym within an AQMA, 24 hour and 1 hour mean AQOs assessed.

Pelier Street- AQA for a residential development located within the Southwark AQMA

Haddonfield Estate - AQA for a residential development located within the Southwark AQMA

Lavington Street - AQA for mixed use scheme in AQMA in Southwark, including an AQN assessment.

Daniels Road - AQA for a residential development within the Southwark AQMA

Educational Developments

Brinsworth Comprehensive School, Rotherham - Baseline and Construction phase assessment for the proposed extension and new Sports Hall. Site suitability due to the Schools close proximity to the M1 Motorway.

Ashton House, Waterloo Street, Bolton – Exposure and impact assessment related to a proposed expansion of the existing site located within the Greater Manchester AQMA

St Marys and Johns CE School, Barnet AQA for the refurbishment of the existing school and the construction of a 3-storey classroom block, within the borough wide Barnet AQMA.

St Peters Catholic School, Guildford - AQA for the redevelopment of the existing site, and the construction of a two-storey classroom block.

Monitoring & Surveying Experience

Co-ordination and management of NO₂ diffusion tube monitoring surveys in accordance with DEFRA guidance.

Odour Acuity certified, undertaken numerous site sniff tests