



Air Quality Assessment

Macdonald Manchester Hotel

February 2018

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Air Quality Assessment

February 2018

Macdonald Hotels and Resorts Limited

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1. Introduction

- 1.1 Phlorum Ltd has been commissioned by Macdonald Hotels and Resorts Limited to undertake an air quality assessment for a proposed development at Macdonald Manchester Hotel, London Road, Manchester, M1 2PG. The National Grid Reference for the centre of the site is 384845, 397630. A site location plan is included in Figure 1.
- 1.2 The proposals are for the construction of a ground floor extension to extend the existing reception area, construction of a terrace for use as an external seating area and remodelling of the existing main entrance with the addition of a new porte-cochère entrance.
- 1.3 The application site is located approximately 100m to the south of Manchester Piccadilly Train Station and approximately 100m to the east of the University of Manchester. It is bound by residential dwellings to the east, the A57(M) Mancunian Way to the south and the A6 London Road to the west. The surrounding land use is predominately industrial with residential dwellings interspersed.
- 1.4 The main pollution sources in the area are vehicles travelling on the local road network, particularly the A6 London Road and the A57(M) Mancunian Way.
- 1.5 Manchester City Council (MCC) has declared one Air Quality Management Area (AQMA) in the city due to elevated concentrations of nitrogen dioxide (NO₂) and fine particulate matter (PM₁₀). It covers Manchester City Centre, the area around Manchester Airport and the main arterial traffic routes in the city. The application site is located within this AQMA.

2. Policy Context

The UK Air Quality Strategy (UKAQS)

- 2.1 The UKAQS¹ sets a number of “standard” (AQS) concentrations for a number of key pollutants that are to be achieved at sensitive receptor locations across the UK by various “objective” dates. The sensitive locations at which the standards and objectives apply are places where the population is expected to be exposed to the various pollutants over the particular averaging period. Thus for those objectives to which an annual mean standard applies, the most common sensitive receptor locations used to measure concentrations against the set standards are areas of residential housing, since it is reasonable to expect that people living in their homes could be exposed to pollutants over such a period of time. Schools and children’s playgrounds are also often used as sensitive locations for comparison with annual mean objectives due to the increased sensitivity of young people to the effects of pollution (regardless of whether or not their exposure to the pollution could be over an annual period). For shorter averaging periods of between 15 minutes, 1 hour or 1 day, the sensitive receptor location can be anywhere where the public could be exposed to the pollutant over these shorter periods of time.
- 2.2 The objectives adopted in the UK are based on the Air Quality (England) Regulations 2000², as amended, for the purpose of Local Air Quality Management. These Air Quality Regulations have been adopted into UK law from the limit values required by European Union Daughter Directives on air quality.
- 2.3 Obligations under the Environment Act 1995 require local authorities to declare an AQMA at sensitive receptor locations where an objective concentration has been predicted to be exceeded. In setting an AQMA, the local authority must then formulate an Air Quality Action Plan (AQAP) to seek to reduce pollution concentrations to values below the objective levels.
- 2.4 MCC continues to produce annual Review and Assessment reports under the Local Air Quality Management (LAQM) regime, informed by the requirements of the Environment Act 1995. The council has declared one AQMA in the city due to elevated concentrations of NO₂ and PM₁₀.

¹ Air Quality Strategy for England, Scotland, Wales and Northern Ireland (Volumes 1 and 2) July 2007.

² The Air Quality (England) (Amendment) Regulations 2002 - Statutory Instrument 2002 No.3043.

National Planning Policy Framework (NPPF)

- 2.5 The NPPF, which was published in March 2012, sets out the Government's planning policy for England. At its heart is an intention to promote more sustainable development. A core principle in the NPPF that relates to air quality effects from development is that planning should *"contribute to conserving and enhancing the natural environment and reduce pollution"*. In achieving this, it states in paragraph 109 that:

"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 [...]".

- 2.6 With regard to assessing cumulative effects the NPPF states the following at paragraph 120:

"To prevent unacceptable risks from pollution and land instability, planning policies and decisions should ensure that new development is appropriate for its location. The effects (including cumulative effects) of pollution on health, the natural environment or general amenity, and the potential sensitivity of the area or Proposed Development to adverse effects from pollution, should be taken into account".

- 2.7 The NPPF offers a broad framework, but does not afford a detailed methodology for assessments. Specific guidance for air quality continues to be provided by organisations such as the Department for Environment, Food and Rural Affairs (Defra), Environmental Protection UK (EPUK) and the Institute of Air Quality Management (IAQM).

National Planning Practice Guidance (PPG)

- 2.8 Reference ID 32 (Air Quality) of the National Planning Practice Guidance (PPG)³, which was updated in March 2014, provides guiding principles on how planning can take account of the impact of new development on air quality. The PPG summarises the importance of air quality in planning and the key legislation relating to it.
- 2.9 As well as describing the importance of International, National and Local Policies (detailed elsewhere in this report), it summarises the key sources of air quality information. It also explains when air quality is likely to be relevant to a planning decision:

“Whether or not air quality is relevant to a planning decision will depend on the proposed development and its location. Concerns could arise if the development is likely to generate air quality impact in an area where air quality is known to be poor. They could also arise where the development is likely to adversely impact upon the implementation of air quality strategies and action plans and/or, in particular, lead to a breach of EU legislation (including that applicable to wildlife) [...]

When deciding whether air quality is relevant to a planning application, considerations could include whether the development would:

-  *Significantly affect traffic in the immediate vicinity of the proposed development site or further afield. This could be by generating or increasing traffic congestion; significantly changing traffic volumes, vehicle speed or both; or significantly altering the traffic composition on local roads. Other matters to consider include whether the proposal involves the development of a bus station, coach or lorry park; adds to turnover in a large car park; or result in construction sites that would generate Heavy Goods Vehicle flows over a period of a year or more.*

³ Planning Practice Guidance (PPG) 32. (2014). Air Quality.
<http://planningguidance.planningportal.gov.uk/blog/guidance/air-quality/>.

- ☞ *Introduce new point sources of air pollution. This could include furnaces which require prior notification to local authorities; or extraction systems (including chimneys) which require approval under pollution control legislation or biomass boilers or biomass-fuelled CHP plant; centralised boilers or CHP plant burning other fuels within or close to an air quality management area or introduce relevant combustion within a Smoke Control Area.*
- ☞ *Expose people to existing sources of air pollutants. This could be by building new homes, workplaces or other development in places with poor air quality.*
- ☞ *Give rise to potentially unacceptable impact (such as dust) during construction for nearby sensitive locations.*
- ☞ *Affect biodiversity. In particular, this is likely to result in deposition or concentration of pollutants that significantly affect a European-designated wildlife site, and is not directly connected with or necessary to the management of the site, or does it otherwise affect biodiversity, particularly designated wildlife sites."*

2.10 Details are also provided of what should be included within an air quality assessment. Key considerations include:

- ☞ Baseline local air quality;
- ☞ Whether the proposed development could significantly affect local air quality during construction/operation; and
- ☞ Whether the development is likely to expose more people to poor air quality.

2.11 Examples of potential air quality mitigation measures are also provided in the PPG.

Local Planning Policy

- 2.12 Manchester's Core Strategy⁴ was adopted in July 2012 and is the key document in the Manchester Local Plan. 'Policy EN 16 Air Quality' is somewhat relevant to this assessment; however, it primarily focuses on operational phase impacts. It states:

"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."

- 2.13 The Greater Manchester Low-Emission Strategy (2016)⁵ takes a long-term approach to carbon emissions and air quality, aiming to reduce emissions from transport and encourage sustainable travel including public transport, cycling and walking. The Low-Emission Strategy gives a framework for policies and measures to:

"reduce air pollution as a contributor to ill-health in Greater Manchester; support the UK Government in meeting EU air quality thresholds; help reduce Greater Manchester's carbon footprint; and encourage a low-emission culture."

- 2.14 The Greater Manchester Air Quality Action Plan (2016)⁶ sets out measures which will reduce air pollution while supporting the sustainable economic growth of the region. In its plan 'Key Priority Areas' have been identified which are locations with the highest levels of air pollution near major roads and areas with heavy traffic in towns and cities.

4 Manchester City Council. (2012). Manchester Core Strategy 2012 – 2027.

5 Greater Manchester Combined Authority. (2016). Greater Manchester Low-Emission Strategy.

6 Greater Manchester Combined Authority. (2016). Greater Manchester Air Quality Action Plan 2016-2021.

- 2.15 The AQAP includes Actions on Development management and planning regulation; including standardisation of regulation and policy across Greater Manchester. The AQAP includes guidance on Construction Management (section 6.1) stating:

“Emissions associated with construction sites include dust and particulates due to site preparation, demolition and construction, and exhaust emissions from non-road mobile machinery and generators or other static plant. Impacts may also occur where there are a large number of HGV movements to and from a site, and disruption to normal traffic flows due to road closures, etc.”

- 2.16 Therefore, all Greater Manchester councils have adopted the Institute of Air Quality Management (2014) Guidance on the Assessment of Dust from Demolition and Construction. This is to be used in order to properly assess potential impacts from construction activity and implement appropriate mitigation controls consistently.

3. Baseline and Potential Impacts

Guidance

- 3.1 The Institute of Air Quality Management (IAQM) has produced guidance for the assessment of dust impacts during the various stages of construction⁷. This document has been referred to in the compilation of this document.
- 3.2 The IAQM has also produced Guidance on Air Quality Monitoring in the Vicinity of Demolition and Construction Sites⁸, which describes the recognised approaches available for monitoring dust, how they may be implemented and reporting/response requirements.

Potential Impacts

- 3.3 As detailed in the IAQM construction guidance, the main air quality impacts associated with demolition and construction activities are:
 - ☞ dust deposition, resulting in the soiling of surfaces;
 - ☞ visible dust plumes, which are evidence of dust emissions;
 - ☞ elevated PM₁₀ concentrations; and
 - ☞ an increase in concentrations of airborne pollution concentrations (including PM₁₀) from the exhausts of vehicles and plant both on and accessing the site.
- 3.4 The effects of dust are linked to particle size. Fine particles, i.e. those with a diameter of less than 10µm, or 2.5µm (PM₁₀ and PM_{2.5} respectively), remain suspended in the air for long periods and may be inhaled, potentially impacting on human health. Larger particulates (>10µm in diameter) fall out of the air relatively quickly and can soil surfaces (e.g. cars, laundry and window sills) as nuisance dust.

⁷ IAQM. (2014). *Guidance on the assessment of dust from demolition and construction*.

⁸ IAQM. (2012). *Guidance on Air Quality Monitoring in the Vicinity of Demolition and Construction Sites*

Baseline Conditions

- 3.5 In order to understand the local air quality impacts of the development it is necessary to evaluate existing baseline air quality in the vicinity of the development site.
- 3.6 For nuisance dust specifically, there has not been any site-specific monitoring to date. As detailed above, PM₁₀ tends to be dispersed more widely as it is less readily deposited. However, PM₁₀ concentrations can give a good indication of local air quality generally.
- 3.7 Defra provides estimated background concentrations of key pollutants identified in the UK Air Quality Strategy, including PM₁₀, at the UK Air Information Resource (UK-AIR) website (www.uk-air.defra.gov.uk). These estimates are produced using detailed modelling tools and are presented as concentrations at central 1km² National Grid square locations across the UK. These were updated in November 2017 and are based on monitoring data from 2015.
- 3.8 The predicted background pollution concentrations for PM₁₀ for 2016 to 2018 are presented in Table 3.1. The data for the closest UK-AIR central grid square location (i.e. grid reference: 384500, 397500) have been included.

Table 3.1: 2016 to 2018 background concentrations of pollutants at the application site

Pollutant	Predicted background concentration (µg.m ⁻³)			Averaging period	Air quality standard concentration (µg.m ⁻³)	Objective: to achieve the standard by
	2016	2017	2018			
PM ₁₀ *	16.2	16.1	15.9	(gravimetric) annual mean	40	31 December 2004

*Proposed PM₁₀ objectives for 2010 were dropped in the 2007 Air Quality Strategy (there is no AQS for PM_{2.5} in England, however local authorities are required to work towards reducing concentrations).

- 3.9 The data in Table 3.1 show that annual mean background concentrations of PM₁₀ at the site from 2016 to 2018 are predicted to be well below the 40µg.m⁻³ AQS limit. The concentration is predicted to decline each year. Improvements are predicted by Defra as a result of the gradual renewal of the UK vehicle fleet with cleaner-engined vehicles. However, such improvements have not been universally realised. The data shows that in 2018, background PM₁₀ concentrations are expected to be 60% below the AQS.
- 3.10 Automatic monitoring of PM₁₀ is also undertaken by the Greater Manchester Combined Authority at 14 locations. The latest available data from these monitors, as indicated in Figure 1, are included in Table 3.2 below.

Table 3.2: PM₁₀ monitoring data from MCC automatic monitors

Monitor	Type	Distance from the application site (km)	PM ₁₀ annual mean concentration (µg.m ⁻³)		
			2013	2014	2015
MAN1 – Manchester Oxford Rd	UT	0.7	31	28	28
MAN3 – Manchester Piccadilly	UB	0.9	22	20	20
BUR2 – Bury Prestwich	UT	6.5	23	23	20
TRF2 – Trafford A56	UT	6.5	20	20	18
TRAF – Trafford	UB	6.7	15	17	15
ECCL – Salford Eccles	UI	7.0	19	18	18
TAME – Tameside Two Trees Sch	UB	9.2	18	17	14
BURY – Bury Whitefield	UT	10.3	-	-	17
M60 – Salford M60	UT	10.6	26	24	19
MAN8 – Manchester South	SB	11.8	15	16	15
BUR1 – Bury Radcliffe	UT	11.9	23	22	18
STK5 – Stockport Hazel Grv	UT	12.0	23	22	18
CW – Oldham Crompton Way	UT	14.7	-	-	19
TAM1 – Tameside Mottram M'r	UT	15.0	23	23	18
WIG5 – Wigan Centre	UB	28.2	19	18	18

Note: "UT" = Urban Traffic; "UB" = Urban Background; "SB" = Suburban Background; "UI" = Urban Industrial.

- 3.11 The data in Table 3.2 show that annual mean concentrations of PM₁₀ were consistently well below the 40µg.m⁻³ AQS at all monitors between 2013 and 2015. Concentrations were recorded at 23% or more below the AQS.
- 3.12 At the closest background monitor, Manchester Piccadilly (MAN3), concentrations were recorded between 45% and 50% below the AQS, which is comparable to, though slightly higher than, the UK-AIR data in Table 3.1.

Discussion

- 3.13 As background concentrations of PM₁₀ are low, dust deposition is the primary concern for the construction phase of the development. There is not expected to be a significant risk of health impacts from suspended particles at receptors as a result of the development.

4. Assessment Methodology

Construction Phase

- 4.1 The construction phase of the proposed development will involve a number of activities that could produce polluting emissions to air. Predominantly, these will be emissions of dust. However, they could also include releases of odours and/or more harmful gases and particles.
- 4.2 The IAQM's guidance to assess the impacts of construction on human and ecological receptors has been followed in carrying out this air quality assessment. The guidance suggests that where a receptor is located within 350m of a site boundary and/or 100m of a route used by construction vehicles, up to 500m from the site entrance, a dust assessment should be undertaken. High sensitivity receptors are considered particularly sensitive when located within 20m of a works area. Figure 2 shows receptors that could be sensitive to dust that are located within 350m of the boundaries of the site.
- 4.3 Review of the Multi Agency Geographic Information for the Countryside (MAGIC) website⁹, which incorporates Natural England's interactive maps, has not identified any ecological sensitive receptors within 1km of the application site. As such, there has been no further assessment in this report of impacts on ecological sites.
- 4.4 The annual mean concentration of PM₁₀ is well below the AQS, according to local monitoring and the UK-AIR background maps. This provides a good indication that PM₁₀ concentrations for both annual mean and daily mean concentrations are likely to be below the respective AQSs at the application site and adjacent uses.
- 4.5 The IAQM guidance suggests that Demolition, Earthworks, Construction and Trackout should all be assessed individually to determine the overall significance of the construction phase.

⁹ Natural England and MAGIC partnership organisations. Multi Agency Geographic Information for the Countryside. <http://www.magic.gov.uk/> (accessed 17/01/2018).

Construction Significance

- 4.6 In the IAQM dust guidance, the first step in assessing the risk of impacts is to define the potential dust emission magnitude. This can be considered 'Negligible', 'Small', 'Medium' or 'Large' for each of the construction stages. Whilst the IAQM provides examples of criteria that may be used to assess these magnitudes, the vast number of potential variables mean that every site is different and therefore professional judgement must be applied by what the IAQM refer to as a "technically competent assessor". The construction phase assessment therefore relies on the experience of the appraiser.
- 4.7 As such, attempts to define precisely what constitutes a negligible, small, medium or large dust emission magnitude should be treated with caution. Factors such as the scale of the work, both in terms of size and time, the construction materials and the plant to be used must be considered.
- 4.8 The second step is to define the sensitivity of the area around the construction site. As stated in the IAQM guidance:

"the sensitivity of the area takes into account a number of factors:

- ☞ the specific sensitivities of receptors in the area;*
- ☞ the proximity and number of those receptors;*
- ☞ in the case of PM₁₀, the local background concentrations; and*
- ☞ site-specific factors, such as whether there are natural shelters, such as trees, to reduce the risk of wind-blown dust."*

- 4.9 Based on these factors, the area is categorised as being of 'Low', 'Medium' or 'High' sensitivity.
- 4.10 When dust emission magnitudes for each stage and the sensitivity of the area have been defined, the risk of dust impacts can be determined. The IAQM provides a risk of impacts matrix for each construction stage. The overall significance for the construction phase can then be judged from the stages assessed. Again, this is subject to professional judgement.

5. Construction Phase Impacts

- 5.1 The construction phase of the proposed development will involve a number of activities that could produce polluting emissions to air. Predominantly, these will be emissions of dust.
- 5.2 The estimates for the dust emission magnitude for demolition, earthworks, construction and trackout below are, where appropriate, based on the construction information provided by the client.

Dust Emission Magnitude

Demolition

- 5.3 The total volume of structures to be demolished is equal to 110m³, which is well below the IAQM's 20,000m³ 'Small' threshold. Demolition activities are expected to occur <10m above ground level. Overall, dust emission magnitude for demolition is considered to be *Small*.

Earthworks

- 5.4 The total site area is approximately 1,493m², which is considered 'Small', with reference to the IAQM guidance. It is understood that relatively little earth movement will be required and few earth moving vehicles are likely to be present at any one time. No bunds are to be formed on site. Overall, the dust emission magnitude for earthworks is considered to be *Small*.

Construction

- 5.5 During construction, activities that have the potential to cause emissions of dust may include concrete batching, sandblasting and piling. At this stage, it is not thought that any of these activities will take place during construction. Stockpiling and the general handling of construction materials also have the potential to lead to dust emissions, particularly during dry, windy conditions.
- 5.6 The prospective building materials for the construction are concrete, zinc cladding and glazing, which have a low to moderate potential for dust emission.
- 5.7 The volume of the proposed extension is expected to be below the IAQM's 25,000m³ 'Small' threshold. Therefore, the overall dust emission magnitude for the construction stage is considered to be *Small*.

Trackout

- 5.8 Construction traffic, when travelling over soiled road surfaces, has the potential to generate dust emissions and to also add soil to the local road network. During dry weather, soiled roads can lead to dust being emitted due to physical and turbulent effects of vehicles. It is understood no unpaved roads will be used.
- 5.9 As well as the type of road surface, the number of daily heavy duty vehicles (HDVs) accessing the site is used to determine dust emission magnitude during construction: <10 Small; 10-50 Medium; and >50 Large. The number of HDVs accessing the site is expected to be <10, falling into the 'small' IAQM category. Overall the dust emission magnitude for the trackout phase is considered to be *Small*.

Emission Magnitude Summary

- 5.10 A summary of the dust emission magnitude as a result of the activities of Demolition, Earthworks, Construction and Trackout as specified in the IAQM guidance, and discussed above, are listed in Table 5.1 below. Overall, the dust emission magnitude is considered to be *Small*.

Table 5.1: Dust Emission Magnitude for the construction activities, based on the IAQM's guidance

Activity	Dust Emission Magnitude
Demolition	Small
Earthworks	Small
Construction	Small
Trackout	Small

Sensitivity of the Area

- 5.11 Having established the emission magnitude for dust, above, the sensitivity of the area must be considered to establish the significance of effects. The effect of dust emissions depends on the sensitivity of each receptor. High sensitivity human receptors include residential dwellings, schools and hospitals.
- 5.12 The impacts of dust emissions from the sources discussed above have the potential to cause an annoyance to human receptors living in the local area. Within distances of 20m of the site boundary there is a high risk of dust impacts, regardless of the prevailing wind direction. Up to 100m from the construction site, there may still be a high risk, particularly if the receptor is downwind of the dust source.

- 5.13 With the exponential decline in dust with distance from dust generating activities, it is considered that for receptors more than 350m from the site boundary, the risk is negligible. Furthermore, the risks at over 100m only have the potential to be significant in certain weather conditions, e.g. downwind of the source during dry periods.
- 5.14 The approximate number of high sensitivity human receptors in the vicinity of the application site is detailed in Table 5.2 below, with distance contours shown in Figure 2. The application site is located adjacent to student accommodation. It is these receptors that will be most vulnerable to construction generated dust.

Table 5.2: Approximate number of High Sensitivity Human Receptors close to the application site

Distance to site (m)	Approximate number of receptors	Details
<20	8	Residential dwellings on Buxton Street
20-100	150	Residential dwellings on Buxton Street and Berry Street
100-350	335*	Residential dwellings, Echos Day Nursery

*Includes pupils at Echos Day Nursery

- 5.15 The prevailing wind in Manchester is from the south. The majority of receptors detailed in Table 5.2 are to the south and south-east of the application site, and would therefore be upwind of the prevailing wind.
- 5.16 There are a number of high sensitivity receptors within close proximity of the application site including several residential dwellings within 20m of the site boundaries. As such, the sensitivity of the area to nuisance dust impacts is considered to be *High*.

Risk of Impacts

- 5.17 Having established the likely dust emission magnitudes and sensitivity of the area, the risk of impacts can be determined in accordance with the IAQM guidance. These are summarised in Table 5.3.

Table 5.3: Summary of Impact Risk by Construction Stage based on the IAQM's dust guidance

Stage	Impact Risk		
	Nuisance Dust	Ecology	PM ₁₀
Demolition	Medium Risk	Negligible	Low Risk
Earthworks	Low Risk	Negligible	Low Risk
Construction	Low Risk	Negligible	Low Risk
Trackout	Low Risk	Negligible	Low Risk

- 5.18 Overall, and using professional judgement, the development is considered to be *Low Risk* for both nuisance dust soiling effects and PM₁₀ health effects, in the absence of mitigation.

Site Specific Mitigation

- 5.19 The IAQM lists recommended mitigation measures for low, medium and high Dust Impact Risks. Those highly recommended mitigation measures for Low Risk sites are included in Appendix A of this report.
- 5.20 Where dust generation cannot be avoided in areas close to neighbouring properties, additional mitigation measures should be put in place, such as windbreaks, sprinklers, and/or time/weather condition limits on the operation of some items of plant or the carrying out of activities that are likely to generate a particularly significant amount of dust.

Residual Effects

- 5.21 After the implementation of the mitigation measures listed above and in Appendix A, the impact risk for each stage of the construction programme will be reduced and the residual significance of impact for the construction phase is expected to be *Negligible*.

6. Discussion and Conclusions

- 6.1 This report has assessed the potential for construction phase impacts during the construction of a proposed extension to Macdonald Manchester Hotel. Dust emissions and associated concentrations of finer particulate matter were identified as being the primary concern during construction.
- 6.2 Site-specific background UK-AIR data and monitoring results from elsewhere in the town indicate that PM₁₀ concentrations are generally well below the relevant UK Air Quality Strategy Standard concentrations.
- 6.3 During construction, with the adoption of appropriate mitigation measures, as detailed in Appendix A, dust emissions should not cause any significant off-site effects.
- 6.4 Considering the above, the proposed development has been determined to be acceptable in terms of its impact on, and sensitivity to, local air quality.
- 6.5 The proposed development complies with all relevant air quality policy. Air quality should not, therefore, pose any obstacles to the planning process.

Figures and Appendices

Figure 1: Site Location Plan



Figure 1: Site Location Plan

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Figure 2: Construction Phase Receptors

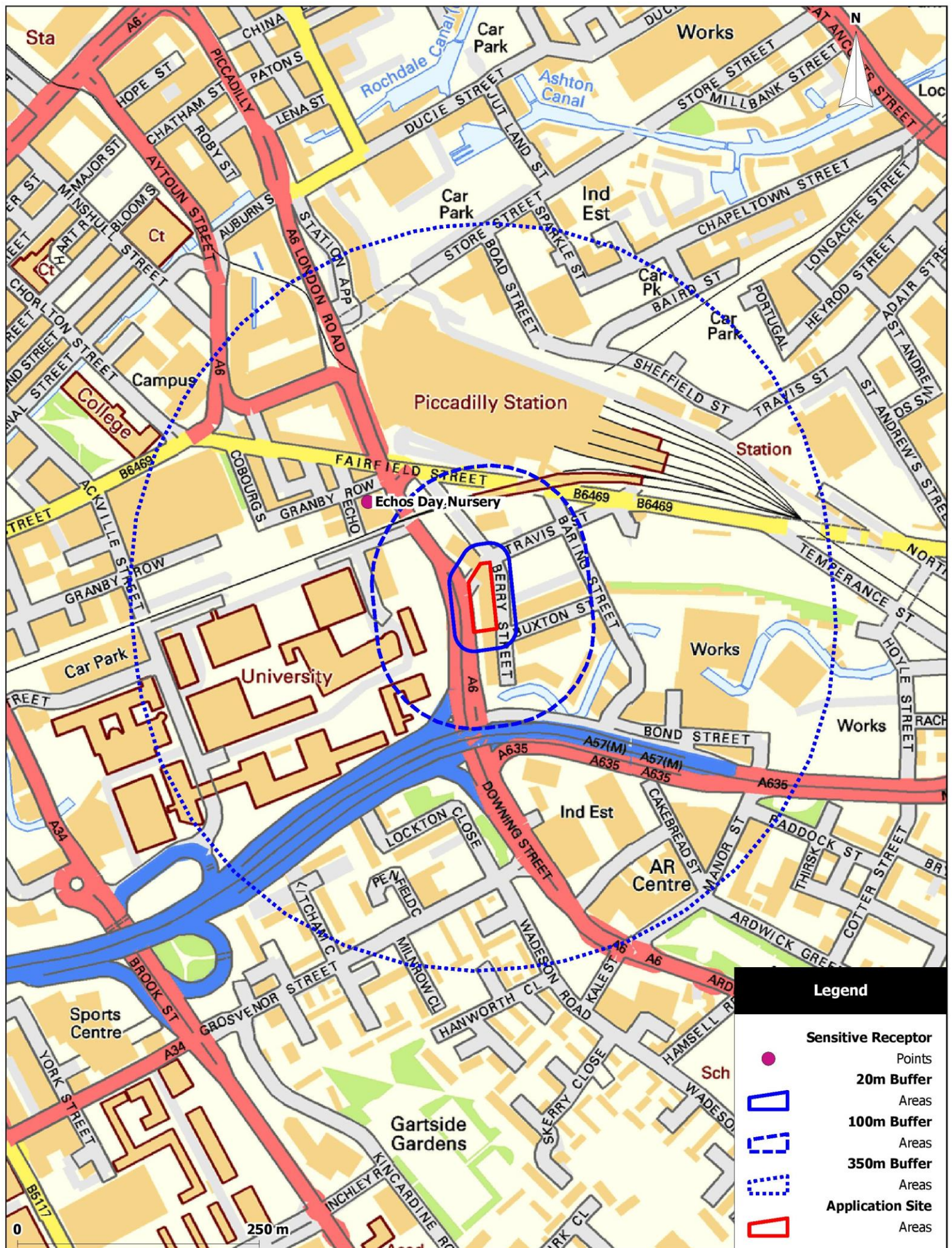


Figure 2: Construction Phase Receptors

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Appendix A: Relevant IAQM Highly Recommended Mitigation Measures

IAQM Highly Recommended Mitigation Measures for sites with a Low Risk of Dust Impacts

Please refer to the IAQM's Construction Dust Guidance for further, "desirable", mitigation measures.

Communications

- Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager.
- Display the head or regional office contact information.

Site Management

- Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken.
- Make the complaints log available to the local authority when asked.
- Record any exception incidents that cause dust and/or air emissions, either on- or off-site, and the action taken to resolve the situation in the log book.

Monitoring

- Carry out regular site inspections to monitor compliance with the Dust Management Plan, record inspection results, and make an inspection log available to the local authority when asked.
- Increase the frequency of inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.

Preparing and Maintaining the Site

- Plan site layout so that machinery and dust causing activities are located away from receptors, as far as possible.
- Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.
- Avoid site runoff of water or mud.

Operating Vehicle/Machinery and Sustainable Travel

- Ensure all vehicles switch off engines when stationary – no idling vehicles.
- Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable.

Operations

- Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems.
- Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.
- Use enclosed chutes and conveyors and covered skips.
- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on equipment wherever appropriate.

Waste Management

- Avoid bonfires and burning of waste materials.

Demolition

- 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.
- Avoid explosive blasting, using appropriate manual or mechanical alternatives.
- Bag and remove any biological debris or damp down such material before demolition.



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