



TRAFALGAR LEISURE LIMITED

PICCADILLY GARDENS, MANCHESTER

AIR QUALITY ASSESSMENT

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AIR QUALITY ASSESSMENT

DECEMBER 2020

PREPARED BY:

R Faulkner

Associate Director (Air
Quality)

APPROVED BY:

C M Dawson

Technical Director

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EXECUTIVE SUMMARY

An air quality assessment has been undertaken to accompany a planning application for a proposed hotel development at Piccadilly Gardens in Manchester city centre. The hotel comprises approximately 129 guest bedrooms over twelve floors, with retail uses proposed at basement and ground floor levels, and a restaurant on the first floor level. No car parking is proposed at the site.

The assessment considers the potential air quality effects associated with both the construction and operational phases of the development.

Dust soiling and human health effects, as a result of fine particulate matter (PM₁₀), have been considered during the demolition and construction phase. With site specific mitigation measures in place, the significance of dust effects for demolition, earthworks, construction and the trackout of dirt and mud onto the public highway are considered to be not significant.

During the operational phase, it is not considered likely that the development will have a significant effect on air quality. No car parking is proposed at the site, and the development is well located in relation to public transport links. In addition, no Combined Heat and Power (CHP) plant is proposed at the site.

With regard to the site's suitability for the development, the site is largely surrounded by minor roads and roads with restricted usage. In addition, given the proposed use which involves only short-term accommodation, the annual mean air quality objectives are not applicable at the site. It is considered extremely unlikely that pollutant concentrations will be sufficiently elevated to lead to exceedances of the short-term objectives. Finally, all guest bedroom windows will be sealed. The site is therefore considered to be suitable for the proposed use.

1 INTRODUCTION

1.1 Background

- 1.1.1 This report details an air quality assessment undertaken for a proposed development at Piccadilly Gardens in Manchester city centre.
- 1.1.2 The development comprises a hotel, with approximately 129 guest bedrooms, set out over twelve floors. Retail uses are proposed on the basement and ground floor levels, along with the hotel lobby, and a restaurant on the first floor level. Guest bedrooms will be located at second floor level and above. No car parking is proposed.
- 1.1.3 The site is located at the eastern corner of Piccadilly Gardens. The proposed development site is bordered by Lever Street to the north west and west, Piccadilly to the south, an existing building to the east (which currently houses a public house with office uses above) and Back Piccadilly to the north.
- 1.1.4 A qualitative assessment has been undertaken to consider the construction and operational phases of the development. The potential effects of dust and fine particulate matter are considered during the construction phase, and on-site air quality is considered during the operational phase.

2 LEGISLATION AND POLICY CONTEXT

2.1 European Legislation

A.1 The European Union (EU) Ambient Air Quality Directive 2008/50/EC¹ (i.e. the CAFE Directive) came into force in June 2008. This EU Directive consolidates previous air quality legislation, with the exception of the 4th daughter Directive², and sets air quality limit values for seven pollutants. The Directive also provides a regulatory framework for fine particulate matter smaller than 2.5µm in diameter (PM_{2.5}).

2.1.1 EU Directive 2008/50/EC was transposed into legislation in the UK on 11th June 2010 as The Air Quality Standards Regulations 2010³.

2.2 National Legislation

2.2.1 The Environment Act 1995 requires the UK government to prepare a national Air Quality Strategy. The first UK strategy was published in March 1997, setting out policies for the management of ambient air quality. This was subsequently updated in 2007⁴.

2.2.2 The 2007 strategy establishes the framework for air quality management in England, Scotland, Wales and Northern Ireland. Air quality standards and objectives are set out for eight pollutants which may potentially occur at levels that give cause for concern. The strategy also provides details of the role that local authorities are required to take in working towards improvements in air quality, known as the Local Air Quality Management (LAQM) regime.

2.3 Air Quality Standards and Objectives

2.3.1 Air quality standards and objectives are set out in the strategy for the following pollutants: nitrogen dioxide (NO₂), sulphur dioxide (SO₂), carbon monoxide (CO), lead (Pb), fine particulate matter (PM₁₀), benzene (C₆H₆), 1, 3-butadiene (C₄H₆) and ozone (O₃).

¹ Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe

² Directive 2004/107/EC of the European Parliament and the Council of 15th December 2004 relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air

³ The Air Quality Standards Regulations 2010

⁴ Department of Environment, Food and Rural Affairs, The Air Quality Strategy for England, Scotland, Wales and Northern Ireland. July 2007

A.2 Objectives for each pollutant, except O₃, were first given statutory status in the Air Quality (England) Regulations 2000⁵ and Air Quality (England) (Amendment) Regulations 2002⁶. These objectives are defined in the strategy as:

2.3.2 *“the maximum ambient concentration not to be exceeded, either without exception or with a permitted number of exceedances, within a specified timescale.”*

2.3.3 The EU Limit Values, transposed into UK legislation as The Air Quality Standards Regulations 2010, are mostly the same as the air quality objectives in terms of concentrations; however, there are differences in determining how compliance is achieved.

2.3.4 Whilst there is no specific objective for PM_{2.5} in England, a limit value of 25µg/m³ is referred to in the regulations, which has been adopted for use in this assessment (as recommended by the LAQM Helpdesk). An objective has been set for PM_{2.5} in Scotland since early 2016.

2.3.5 The objectives and limit values relevant to this assessment are included in Table 1.

Table 1: Air Quality Objectives Relevant to the Assessment ^a			
Pollutant	Objective/Limit Value	Averaging Period	Obligation
Nitrogen Dioxide (NO ₂)	200µg/m ³ , not to be exceeded more than 18 times a year	1-hour mean	All local authorities
	40µg/m ³	Annual mean	All local authorities
Carbon monoxide (CO)	10mg/m ³	Maximum daily running 8-hour mean	England, Wales and Northern Ireland only
^a In accordance with the Air Quality Standards Regulations 2010			

2.3.6 Examples of where these objectives and limit values apply are detailed in the Defra LAQM Technical Guidance document LAQM.TG(16)⁷ and are included in Table 2, overleaf.

⁵ The Air Quality (England) Regulations 2000. SI No 928

⁶ The Air Quality (Amendment) Regulations 2002

⁷ Department for Environment, Food and Rural Affairs, Local Air Quality Management Technical Guidance LAQM.TG(16), February 2018

Table 2: Examples of Where the Air Quality Objectives Should Apply		
Averaging Period	Objectives Should Apply at:	Objectives Should Generally Not Apply at:
Annual mean	All locations where members of the public might be regularly exposed. Building façades of residential properties, schools, hospitals, care homes, etc.	Building facades of offices or other places of work where members of the public do not have regular access. Hotels, unless people live there as their permanent residence. Gardens of residential properties. Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short term
24-hour mean and 8-hour mean	All locations where the annual mean objectives would apply, together with hotels. Gardens of residential properties ^a	Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short term
1-hour mean	All locations where the annual mean and 24 and 8-hour objectives apply. Kerbside sites (e.g. pavements of busy shopping streets). Those parts of car parks and railway stations etc. which are not fully enclosed, where members of the public might reasonably be expected to spend one hour or more. Any outdoor locations to which the public might reasonably be expected to spend one hour or longer	Kerbside sites where public would not be expected to have regular access
15-minute mean	All locations where members of the public might reasonably be exposed for a period of 15 minutes or longer	
^a Such locations should represent parts of the garden where relevant public exposure is likely, for example where there is seating or play areas. It is unlikely that relevant public exposure to pollutants would occur at the extremities of the garden boundary, or in front gardens, although local judgement should always be applied		

2.4 Local Air Quality Management

- 2.4.1 LAQM legislation in the Environment Act 1995 requires local authorities to conduct the periodic review and assessments of air quality. These aim to identify all those areas where the objectives are being, or are likely to be, exceeded. Where exceedances are likely to occur, local authorities are required to declare an Air Quality Management Area (AQMA).
- 2.4.2 LAQM.TG(16) presents a streamlined approach for LAQM in England and Scotland; however, Northern Ireland is still considering changes to LAQM and therefore works according to the previous regime.
- 2.4.3 The Welsh Government amended the LAQM regime in Wales in 2017 by issuing new statutory policy guidance in order to bring the system into line with the Well-being of Future Generations (Wales) Act 2015⁸. This aims to achieve compliance with the national air quality objectives in specific hotspots and to reduce exposure to pollution more widely, so as to achieve the greatest public health benefit.
- 2.4.4 Local authorities in England are required to produce Annual Status Reports (ASRs), and in Scotland and Wales, Annual Progress Reports (APRs). These replace all other reports which previously had to be submitted including Updating and Screening Assessments, Progress Reports and Detailed Assessments (which would be produced to assist with an AQMA declaration).
- 2.4.5 Local authorities now have the option of a fast track AQMA declaration option. This allows more expert judgement to be used and removes the need for a Detailed Assessment where a local authority is confident of the outcome. Detailed Assessments should however still be used if there is any doubt.
- 2.4.6 As part of the UK Government's requirement to improve air quality, selected local authorities in England are also currently investigating the feasibility of setting up Clean Air Zones (CAZs). These are areas where targeted action and co-ordinated resources aim to improve air quality within an urban setting, in order to achieve compliance with the EU Limit Values within the shortest possible time.

⁸ Well-being of Future Generations (Wales) Act 2015 (anaw 2)

- 2.4.7 Five local authorities outside of London were initially selected to implement a CAZ by 2020 (Birmingham, Leeds, Nottingham, Derby and Southampton). A further 23 local authorities were subsequently chosen to investigate the feasibility of establishing a CAZ, and 33 local authorities may potentially have to proceed to this stage where compliance is not achieved.

2.5 National Planning Policy and Guidance

- 2.5.1 The National Planning Policy Framework⁹, introduced in March 2012 and updated in June 2019, requires that planning policies should sustain compliance with and contribute towards EU limit values or national objectives for pollutants, taking into account the presence of AQMAs and the cumulative impacts on air quality from individual sites in local areas.
- 2.5.2 Planning decisions should ensure that any new development in AQMAs is consistent with the local air quality action plan.
- 2.5.3 The Planning Practice Guidance¹⁰, introduced in March 2014 and updated in November 2019, states that 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 impacts in an area where air quality is known to be poor. They could also arise where the development is likely to adversely impact upon the implementation of air quality strategies and action plans and/or, in particular, lead to a breach of EU legislation (including that applicable to wildlife).
- 2.5.4 Assessments need to be proportionate to the nature and scale of the proposed development and the potential impacts it may bring about, whilst also taking into consideration the existing air quality conditions.
- 2.5.5 Where a proposed development is anticipated to give rise to concerns about air quality an appropriate assessment needs to be carried out. Where the assessment concludes that the proposed development (including mitigation) will not lead to an unacceptable risk from air pollution, prevent sustained compliance with national objectives or fail to comply with the requirements of the Habitats Regulations, then the local authority should proceed to decision with appropriate planning conditions and/or obligations.

⁹ Department for Communities and Local Government, National Planning Policy Framework, March 2012

¹⁰ Department for Communities and Local Government, Planning Practice Guidance: Air Quality, March 2014

3 ASSESSMENT METHODOLOGY

3.1 Consultation and Scope of Assessment

- 3.1.1 A methodology was provided by email to Manchester City Council (MCC) on 16th November 2020. At the time of the assessment, no response had been received.

3.2 Construction Phase Assessment

- 3.2.1 To assess the impacts associated with dust and PM₁₀ releases, during the demolition and construction phase, an assessment has been undertaken in accordance with IAQM guidance¹¹.

Step 1

- 3.2.2 Step 1 of the assessment is to screen the requirement for a more detailed assessment.
- 3.2.3 The guidance states that an assessment will normally be required where there are existing human sensitive receptors within 350m of the site boundary and/or within 50m of the route(s) used by construction vehicles on the public highway, up to 500m from the site entrance(s).
- 3.2.4 With regards to ecological receptors, the guidance states that an assessment will normally be required where there are existing ecological receptors within 50m of the site boundary and/or within 50m of the route(s) used by construction vehicles on the public highway, up to 500m from the site entrance(s).
- 3.2.5 Where there are existing sensitive receptors locations within 350m of the site boundary, it is necessary to proceed to Step 2 of the assessment.

Step 2

- 3.2.6 Step 2 of the assessment determines the potential risk of dust and PM₁₀ arising in sufficient quantities to cause annoyance and/or health and/or ecological impacts. The risk is related to:
- The activities being undertaken (demolition, number of vehicles and plant etc);
 - The duration of these activities;
 - The size of the site;
 - The meteorological conditions (wind speed, direction and rainfall);

¹¹ Institute of Air Quality Management, Guidance on the Assessment of Dust from Demolition and Construction v1.1, June 2016

- The proximity of receptors to the activity;
- The adequacy of the mitigation measures applied to reduce or eliminate dust; and
- The sensitivity of receptors to dust.

3.2.7 The risk of dust and PM₁₀ effects is determined using four risk categories: negligible, low, medium and high risk. A site is allocated to a risk category based upon two factors:

- **Step 2A** – the scale and nature of the works which determines the potential dust emission magnitude as small, medium or large; and
- **Step 2B** – the sensitivity of the area to dust impacts which is defined as low, medium or high sensitivity.

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

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

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

Step 3

3.2.10 Step 3 of the assessment determines the site-specific mitigation required for each of the activities, based on the risk determined in Step 2. Mitigation measures are detailed in guidance published by the Greater London Authority¹², recommended for use outside the capital by LAQM guidance, and the IAQM guidance document itself. If the risk is classed as negligible, no mitigation measures beyond those required by legislation will be necessary.

¹² Greater London Authority, The Control of Dust and Emissions from Construction and Demolition: Best Practice Guidance, 2006

Step 4

3.2.11 Step 4 assesses the residual effect, with mitigation measures in place, to determine whether or not these are significant.

Existing Sensitive Human Receptors

3.2.12 The closest existing sensitive receptor locations to the proposed development are generally offices and commercial premises and are detailed in Table 3.

Table 3: Existing Dust Sensitive Receptors Considered in Demolition and Construction Phase Assessment		
Receptor	Direction from the Site	Approximate Distance from the Site Boundary
Public house and office uses in Piccadilly House	South East	<20m
Office and restaurant premises in One Piccadilly Gardens	South West	45m
Office and commercial premises in Wellington House	North West	<20m
Office premises on Lever Street	North East	<20m
Rental apartments on Back Piccadilly	North East	<20m

Existing Sensitive Ecological Receptors

3.2.13 There are no designated statutory ecological receptors located within 50m of the site boundary and/or within 50m of the route(s) used by construction vehicles on the public highway, up to 500m from the site entrance(s).

3.2.14 It is not therefore necessary to consider the potential for ecological effects in this assessment.

4 ASSESSMENT OF SIGNIFICANCE

4.1 Construction Phase Assessment

- 4.1.1 The IAQM guidance details criteria for assessing the sensitivity of an area to dust soiling and the health effects of PM₁₀, as summarised in Tables 4 to 6 below.
- 4.1.2 The guidance then goes on to provide significance criteria for the classification of dust soiling and human health effects from demolition, earthworks, construction activities and trackout, as summarised in Tables 7 to 9 below.

Sensitivity of the Area

- 4.1.3 The sensitivity categories for different types of receptors, to both dust soiling effects and the health effects of PM₁₀, are described in Table 4.

Table 4: Sensitivity Categories for Human Receptors		
Sensitivity Category	Dust Soiling Effects	Health effects of PM ₁₀
High	Users can reasonably expect to enjoy a high level of amenity; Appearance, aesthetics or value of a property would be diminished; Examples include dwellings, museums and other culturally important collections, medium and long term car parks and car show rooms.	Locations where members of the public are exposed over a period of time relevant to the air quality objective for PM ₁₀ ; Examples include residential properties, hospitals, schools, and residential care homes.
Medium	Users would expect to enjoy a reasonable level of amenity, but would not reasonably expect to enjoy the same level of amenity as in their home; The appearance, aesthetics or value of their property could be diminished; People or property wouldn't reasonably be expected to be continuously present or regularly for extended periods of time; Examples include parks and places of work.	Locations where people are exposed as workers and exposure is over a period of time relevant to the air quality objective for PM ₁₀ ; Examples include office and shop workers but will generally not include workers occupationally exposed to PM ₁₀ .

Table 4: Sensitivity Categories for Human Receptors		
Sensitivity Category	Dust Soiling Effects	Health effects of PM ₁₀
Low	Enjoyment of amenity would not reasonably be expected; Property would not be diminished in appearance, aesthetics or value; People or property would expected to be present only for limited periods of time; Examples include playing fields, farmland (unless commercially-sensitive horticultural), footpaths, short term car parks and roads.	Locations where human exposure is transient; Examples include public footpaths, playing fields, parks and shopping streets.

4.1.4 Based upon the category of receptor sensitivity, the sensitivity of the area to dust soiling effects is determined using the criteria detailed in Table 5.

Table 5: Sensitivity of the Area to Dust Soiling Effects on People and Property					
Receptor Sensitivity	Number of Receptors	Distance from Source (m)			
		<20m	<50m	<100m	<350m
High	>100	High	High	Medium	Low
	10-100	High	Medium	Low	Low
	1-10	Medium	Low	Low	Low
Medium	>1	Medium	Low	Low	Low
Low	>1	Low	Low	Low	Low

4.1.5 Based upon the category of receptor sensitivity, the sensitivity of the area to the health effects of PM₁₀ is determined using the criteria detailed in Table 6.

Table 6: Sensitivity of the Area to Human Health Impacts							
Receptor Sensitivity	Annual Mean PM ₁₀ Concentration	Number of Receptors	Distance from Source (m)				
			<20m	<50m	<100m	<200m	<350m
High	>32µg/m ³	>100	High	High	High	Medium	Low
		10-100	High	High	Medium	Low	Low
		1-10	High	Medium	Low	Low	Low

Table 6: Sensitivity of the Area to Human Health Impacts							
Receptor Sensitivity	Annual Mean PM ₁₀ Concentration	Number of Receptors	Distance from Source (m)				
			<20m	<50m	<100m	<200m	<350m
	28-32µg/m ³	>100	High	High	Medium	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	High	Medium	Low	Low	Low
	24-28µg/m ³	>100	High	Medium	Low	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	Medium	Low	Low	Low	Low
	<24µg/m ³	>100	Medium	Low	Low	Low	Low
		10-100	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
Medium	>32µg/m ³	>10	High	Medium	Low	Low	Low
		1-10	Medium	Low	Low	Low	Low
	28-32µg/m ³	>10	Medium	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
	24-28µg/m ³	>10	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
	<24µg/m ³	>10	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
Low	-	>1	Low	Low	Low	Low	Low

Risk of Dust Impacts

- 4.1.6 The risk of dust being generated by demolition activities at the site is determined using the criteria in Table 7, overleaf.

Table 7: Risk of Dust Impacts - Demolition			
Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Medium Risk
Medium	High Risk	Medium Risk	Low Risk
Low	Medium Risk	Low Risk	Negligible

4.1.7 The risk of dust being generated by earthworks and construction activities at the site is determined using the criteria in Table 8.

Table 8: Risk of Dust Impacts – Earthworks and Construction			
Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible

4.1.8 The risk of dust being generated by trackout from the site is determined using the criteria in Table 9.

Table 9: Risk of Dust Impacts – Trackout			
Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Low Risk	Negligible
Low	Low Risk	Low Risk	Negligible

5 BASELINE SITUATION

5.1 Manchester City Council Local Air Quality Management Review and Assessment

- 5.1.1 Manchester City Council (MCC) is responsible for the management of air quality at the proposed development site and in the local area. MCC is part of the Greater Manchester Combined Authority (GMCA) which oversees the management of local air quality across Greater Manchester as a whole.
- 5.1.2 GMCA has declared an Air Quality Management Area (AQMA) which covers busy main roads (including arterial routes) and district centres within Greater Manchester, as well as the airport.
- 5.1.3 The proposed development is located within the Greater Manchester AQMA. Therefore, the development is located in an area of known poor air quality.
- 5.1.4 A review of the 2019 Air Quality Annual Status Report (ASR) for GMCA¹³ (the latest report available) includes details of numerous air quality monitoring locations within Manchester city centre.
- 5.1.5 The closest monitoring locations to the proposed development site, for which data is available, are the urban centre automatic monitoring site at Piccadilly Gardens (MAN3) and three co-located diffusion tubes (MA59NO, MA60NO and MA61NO). These are located approximately 150m to the north west of the site.
- 5.1.6 In 2019, the automatic location measured an annual mean NO₂ concentration of 36µg/m³. The diffusion tubes measured between 31.6 and 33.1µg/m³.

5.2 Background Air Pollutant Concentrations

- 5.2.1 As previously discussed, the closest MCC operated air quality monitoring locations to the proposed development site are at Piccadilly Gardens. In 2019, these measured annual mean NO₂ concentrations of between 31.6 and 36.0µg/m³.
- 5.2.2 For comparison purposes, background NO_x, NO₂, PM₁₀ and PM_{2.5} concentrations have also been obtained from the 2018-based Defra default concentration maps for the 1km x 1km grid square which covers the proposed development site. The maps are available on the Defra website¹⁴.

¹³ Greater Manchester Combined Authority, 2019 Air Quality Annual Status Report, June 2020

¹⁴ Defra Local Air Quality Management webpages (<https://uk-air.defra.gov.uk/data/lqm-background-maps?year=2017>)

5.2.3 The 2020 background pollutant concentrations for the grid square in which the proposed development site is located are detailed in Table 10.

Table 10: 2020 Background Pollutant Concentrations for the Proposed Development Site (Grid Square: 384500, 398500)	
Pollutant	Pollutant Concentrations ($\mu\text{g}/\text{m}^3$)
Oxides of Nitrogen (NO_x)	44.37
Nitrogen Dioxide (NO_2)	28.07
Fine Particulate Matter (PM_{10})	13.27
Fine Particulate Matter ($\text{PM}_{2.5}$)	8.56

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6 IMPACT ASSESSMENT

6.1 Construction Phase Assessment

Step 2 – Impact Assessment

- 6.1.1 In accordance with the IAQM guidance, the main activities to be considered during the construction phase of the proposed development are demolition, earthworks, construction and trackout.
- 6.1.2 Demolition covers the removal of the existing on-site building, although the Back Piccadilly façade and a portion of the building fronting onto Piccadilly will be retained. Earthworks covers the processes of soil-stripping, ground-levelling, excavation and landscaping. Construction activities will focus on the proposed building and repairs to the existing pavement on Lever Street. Trackout is defined as the transport of dust and dirt by vehicles travelling from a construction site on to the public road network. This may occur through the spillage of dusty materials onto road surfaces or through the transportation of dirt by vehicles that have travelled over muddy ground on the site. This dust and dirt can then be deposited and re-suspended by other vehicles.

Step 2A

- 6.1.3 Step 2A of the assessment defines the potential dust emission magnitude from demolition, earthworks, construction and trackout in the absence of site-specific mitigation. Examples of the magnitude categories are detailed in the IAQM guidance. The results of this step are detailed in Table 11.

Step 2B

- 6.1.4 Step 2B of the construction phase dust assessment defines the sensitivity of the area, taking into account the significance criteria detailed in section 4 of this report, for demolition, earthworks, construction and trackout. The sensitivity of the area to each activity is assessed for potential dust soiling, human health effects and ecological effects (as required).
- 6.1.5 For demolition, earthworks and construction, there are currently between 10 and 100 receptors (office and commercial) within 20m of where these activities may take place, which is assumed to be the site boundary for the purposes of this assessment.
- 6.1.6 The routing of construction vehicles is unknown at this stage. Therefore, for the purposes of this assessment, worst case routing scenarios have been assumed for assessment of potential trackout impacts at nearby receptors.

6.1.7 As a result, for trackout, there are more than 100 receptors (office and commercial) within 20m of where trackout may occur, for a distance of up to 500m from the site entrance (assuming construction vehicles travel to and from the site via Lever Street).

Step 2C

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

6.1.9 The risk of dust impacts from each activity, with no mitigation in place, has been assessed in accordance with the criteria detailed in section 4 of this report. The results of this step are detailed in Table 11.

Summary of Step 2

6.1.10 Table 11 details the results of Step 2 of the construction phase assessment for sensitive human receptors.

Table 11: Construction Phase Dust Assessment for Human Receptors				
	Activity			
	Demolition	Earthworks	Construction	Trackout
Step 2A				
Dust Emission Magnitude	Medium ^a	Small ^b	Medium ^c	Small ^d
Step 2B				
Sensitivity of Closest Receptors	Medium	Medium	Medium	Medium
Sensitivity of Area to Dust Soiling Effects	Medium	Medium	Medium	Medium
Sensitivity of Area to Human Health Effects	Low ^e	Low ^e	Low ^e	Low ^e
Step 2C				
Dust Risk: Dust Soiling	Medium Risk	Low Risk	Medium Risk	Negligible Risk
Dust Risk: Human Health	Low Risk	Negligible Risk	Low Risk	Negligible Risk
<i>a. Potentially dusty materials involved and demolition activities taking place between 10 and 20m above the ground</i> <i>b. Total site area estimated to be less than 2,500m²</i>				

Table 11: Construction Phase Dust Assessment for Human Receptors

	Activity			
	Demolition	Earthworks	Construction	Trackout
<i>c. Total building volume estimated to be between 25,000 and 100,000m³, with potentially dusty construction materials</i>				
<i>d. Number of construction phase vehicles estimated to be fewer than 10 per day and no on-site unpaved roads</i>				
<i>e. Based on the worst-case background data from the Manchester Piccadilly urban centre monitoring location, which measured a background PM₁₀ concentration of 20µg/m³ in 2019</i>				

6.2 Operational Phase Assessment

- 6.2.1 It is not considered necessary to undertake an assessment of the impact of road traffic emissions associated with the proposed development as there is no car parking associated with the scheme. Given the city centre location of the site, close to existing amenities and public transport links, it is expected that the majority of employees and guests will travel to and from the site using other means of transport.
- 6.2.2 In addition, no Combined Heat and Power (CHP) plant is proposed as part of the development. It has been confirmed by Thornley and Lumb, the M&E engineer for the project, that all hot water will be supplied by an Air Source Heat Pump (ASHP), with gas fired hot water heaters as back-up only.
- 6.2.3 This assessment therefore focuses upon ambient air quality at the site, to determine its suitability for the proposed use. A number of factors have been taken into account as part of the assessment.
- 6.2.4 In the first instance, a review has been undertaken of the site location and setting. The proposed development site is in a city centre location and is surrounded by roads on three sides. However, the minor road to the north (Back Piccadilly) is likely to experience a low volume of traffic, as it is a narrow one-way lane. The site is also set back approximately 4-5m from Piccadilly, which lies to the south and appears to be a one-way route for buses, taxis and bikes access only. Although the site is bordered by Lever Street to the west, this is also understood to be a one-way route with a limitation on the vehicles allowed to access it.
- 6.2.5 In addition, it should be noted that the proposals are for a hotel, rather than for residential uses with full time, permanent occupancy. In accordance with the Defra technical guidance document LAQM.TG(16), the annual mean air quality objectives do

not apply at a hotel unless anyone will permanently reside there. In this case, it can be confirmed that there will be no permanent residents at the hotel and therefore the annual mean objectives will not apply.

- 6.2.6 Given that guest bedrooms will be located at second floor level and above, it is considered unlikely that pollutant concentrations at the area where the most sensitive uses are proposed would be elevated enough for exceedance of short term objectives (i.e. the 1-hour or 24-hour mean objectives). In particular, for nitrogen dioxide (NO₂), which is considered to be the main pollutant of concern due to the AQMA declaration, LAQM.TG(16) states that an exceedance of the 1-hour objective could be expected when annual mean concentrations are in excess of 60µg/m³. Based on our previous experience of carrying out air quality assessments in the city centre (including near to major A-roads such as Great Ancoats Street), this is considered unlikely.
- 6.2.7 Finally, it has been confirmed by Thornley and Lumb that all guest bedrooms, including those facing onto Lever Street to the west, will have sealed windows.
- 6.2.8 Based on these factors, the site is considered to be suitable for the proposed use.

7 MITIGATION MEASURES

7.1 Construction Phase Assessment

Step 3

7.1.1 During the construction phase the implementation of effective mitigation measures will substantially reduce the potential for nuisance dust and PM₁₀ to be generated.

7.1.2 Step 2C of the construction phase assessment identified that:

- The risk of dust soiling effects is classed as medium for demolition and construction, low for earthworks and negligible for trackout; and
- The risk of human health effects is classed as low for demolition and construction, and negligible for earthworks and trackout.

7.1.3 This assumes that no mitigation measures are applied, except those required by legislation. Site specific mitigation measures do not need to be recommended if the risk category is negligible.

7.1.4 As the risk categories for the majority of on-site activities are not negligible, site specific mitigation measures will need to be implemented to ensure that dust and PM₁₀ effects will not be significant.

7.1.5 A best practice dust mitigation plan will be written and implemented for the site. This will set out the practical measures that could be incorporated as part of a best working practice scheme. This will take into account the recommendations included within the IAQM guidance, which may include:

- Ensuring effective water suppression is used during demolition operations;
- Avoiding explosive blasting, using appropriate manual or mechanical alternatives;
- Ensuring sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensuring that appropriate additional control measures are in place;
- Ensuring bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery;

- Using water-assisted dust sweeper(s) on local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use; and
- Ensuring vehicles accessing the site are covered to prevent escape of materials during transport.

7.1.6 It is recognised that the final design solutions will be developed with the input of the Contractor to maximise construction efficiencies, to use modern construction techniques and sustainable materials, and to incorporate the particular skills and experience offered by the successful contractor.

Step 4

7.1.7 Step 4 of the demolition and construction phase dust assessment has been undertaken to determine the significance of the dust and PM₁₀ effects arising from demolition, earthworks, construction and trackout associated with the proposed development.

7.1.8 The implementation of effective mitigation measures during the demolition and construction phase, such as those detailed in Step 3, will substantially reduce the potential for nuisance dust and PM₁₀ to be generated, and any residual impact should not be significant.

7.2 Operational Phase Assessment

7.2.1 From a review of the site, the local setting and the development proposals, it is not considered likely that there will be any significant air quality issues for future users of the scheme. As a result, it is not necessary to recommend any specific measures to mitigate air quality within the site.

8 CONCLUSIONS

8.1 Construction Phase Assessment

- 8.1.1 The demolition and construction phase assessment has been undertaken to determine the risk and significance of dust and PM₁₀ effects from demolition, earthworks, construction and trackout from the proposed development, in accordance with the guidance from the IAQM.
- 8.1.2 The risk of dust soiling effects is classed as medium for demolition and construction, low for earthworks and negligible for trackout. The risk of human health effects is classed as low for demolition and construction, and negligible for earthworks and trackout. Site specific mitigation measures will therefore need to be implemented at the site.
- 8.1.3 With site specific mitigation measures in place, as detailed in Section 7 of this report, the significance of dust effects for demolition, earthworks, construction and trackout are considered to be not significant.

8.2 Operational Phase Assessment

- 8.2.1 A qualitative operational phase assessment has been undertaken to consider ambient air quality at the proposed development site. It is not considered necessary to undertake an assessment of the impact of road traffic emissions associated with the proposed development, as there will be no car parking. In addition, no CHP is proposed at the site.
- 8.2.2 From a review of the site, the local setting and the development proposals, it is not considered likely that there will be any significant air quality issues for future users of the scheme.
- 8.2.3 The site is largely surrounded by minor roads and roads with restricted usage. In addition, given the proposed use, the annual mean air quality objectives are not applicable at the site. It is considered extremely unlikely that pollutant concentrations will be sufficiently elevated to lead to exceedances of the short-term objectives. Finally, all guest bedroom windows will be sealed.
- 8.2.4 As a result, it is not necessary to recommend any specific measures to mitigate air quality within the site.

8.3 Summary

- 8.3.1 The assessment has demonstrated that the proposed development will not lead to an unacceptable risk from air pollution, or to any breach in national objectives and is in accordance with all relevant national policy. There are no material reasons in relation to air quality why the proposed scheme should not proceed, subject to appropriate planning conditions.

DRAFT

STOKE-ON-TRENT

Sir Henry Doulton House
Forge Lane
Etruria
Stoke-on-Trent
ST1 5BD
Tel: +44 (0)1782 276 700

BIRMINGHAM

Two Devon Way
Longbridge Technology Park
Longbridge
Birmingham
B31 2TS
Tel: +44 (0)121 580 0909

BOLTON

41-50 Futura Park
Aspinall Way
Middlebrook
Bolton
BL6 6SU
Tel: +44 (0)1204 227 227

BURY ST EDMUNDS

6 Brunel Business Court
Eastern Way
Bury St Edmunds
Suffolk
IP32 7AJ
Tel: +44 (0)1284 765 210

CARDIFF

Tudor House
16 Cathedral Road
Cardiff
CF11 9LJ
Tel: +44 (0)292 072 9191

CARLISLE

Marconi Road
Burgh Road Industrial
Estate Carlisle
Cumbria
CA2 7NA
Tel: +44 (0)1228 550 575

EDINBURGH

Great Michael House
14 Links Place
Edinburgh
EH6 7EZ
Tel: +44 (0)131 555 3311

GLASGOW

2 West Regent Street
Glasgow
G2 1RW
Tel: +44 (0)141 433 7210

LEEDS

36 Park Row
Leeds
LS1 5JL
Tel: +44 (0)113 831 5533

LONDON

Third Floor
46 Chancery Lane
London
WC2A 1JE
Tel: +44 (0)207 242 3243

NEWCASTLE UPON TYNE

City Quadrant
11 Waterloo Square
Newcastle upon Tyne
NE1 4DP
Tel: +44 (0)191 232 0943

SHEFFORD

PI House
R/O 23 Clifton Road
Shefford
Bedfordshire
SG17 5AF
Tel: +44 (0)1462 850 483

TRURO

Baldhu House
Wheal Jane Earth Science Park
Baldhu
Truro
TR3 6EH
Tel: +44 (0)187 256 0738

International offices:

ALMATY

29/6 Satpaev Avenue Regency
Hotel
Office Tower
Almaty
Kazakhstan
050040
Tel: +7(727) 334 1310

MOSCOW

21/5 Kuznetskiy Most St.
Moscow
Russia
Tel: +7(495) 626 07 67