

7 – 9 PICCADILLY, MANCHESTER

Proposed Office Re-Development

Air Quality Assessment

Prepared for: Thackeray Investments

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1.0 INTRODUCTION

The report has been prepared by SLR Consulting Ltd (SLR) on behalf of its client, Thackeray Investments (the 'Applicant') to accompany a full planning application for the proposed redevelopment ('Proposed Development') of the property at 7-9 Piccadilly, Manchester City Centre (the 'Site').

The development to which this report relates comprises the retention of the commercial unit on the ground floor. With the conversion of the upper floors into high quality Grade A office accommodation, including the sensitive introduction of a third, fourth and fifth floor onto Piccadilly Gardens/Back Piccadilly with a sixth floor set back to provide the opportunity for an attractive roof terrace. In terms of access, the proposal include for a main entrance to the proposed offices from Back Piccadilly.

The Site is located at the approximate National Grid Reference (NGR): x384320, y398375, and is bounded by:

- Piccadilly Gardens to the south, comprising commercial, office and outdoor space;
- Back Piccadilly to the north, beyond which is commercial and office space;
- commercial and office space associated with Manchester City Centre to the east and west, including Market Street and the Arndale Centre; and
- the Manchester Metrolink tram line runs immediately to the south and the Market Street and Piccadilly stops are located 70m west and 150m southeast, respectively.

1.1 Scope of Assessment

It is understood that an air quality assessment is required to assess potential air quality effects associated with the construction and operation of the Proposed Development.

Consultation with the Environment Health Officer (EHO) at Manchester City Council (MCC – the Council)¹ was undertaken to agree upon the extent and methodology of the air quality assessment. The following scope of work, as agreed upon by MCC, has been undertaken:

- Baseline Evaluation;
- Construction Phase Assessment;
- Operational Phase Assessment; and
- Mitigation Measures.

The Proposed Development does not include the provision of any gas-fired appliances (including boilers) for space heating and hot water generation. Therefore, as there will be no associated direct / site-specific combustion emission to atmosphere from the operation of the Site, assessment of building emissions is not required.

¹ Consultation e-mail received from Rebecca Twigg-Purcell, Environmental Health, Manchester City Council, dated 29th June 2021.

2.0 RELEVANT AIR QUALITY LEGISLATION AND GUIDANCE

2.1 Legislative Context

2.1.1 Air Quality Standards

The Air Quality Standards Regulations 2010² (AQSR) transpose both the EU Ambient Air Quality Directive (2008/50/EC)³, and the Fourth Daughter Directive (2004/107/EC)⁴ within UK legislation, in order to align and bring together in one statutory instrument the Government's obligations. The AQSR includes Limit Values, Target Values, Objectives, Critical Levels and Exposure Reduction Targets for the protection of human health and the environment. Limit values are legally binding and are considered to apply everywhere with the exception of the carriageway and central reservation of roads and any location where the public do not have access (e.g. industrial sites). Compliance is regulated at a national level (based upon a series of zones/agglomerations).

The UK nationally has failed to meet the Limit Values, as outlined in the Ambient Air Quality Directive (2008/50/EC), for nitrogen dioxide (NO₂) by the 2010 target date. As a result, the Government has had to submit time extension applications for compliance with the EU Limit Values, which has since passed and its continued failure to achieve these limits is currently giving rise to infraction procedures being implemented. In July 2017, the Government published its plan for tackling roadside NO₂ concentrations⁵, to achieve compliance with EU Limit Values. This sets out Government policies for bringing NO₂ concentrations within statutory limits in the shortest time period possible.

In the interim period the UK has formally left the EU, however despite this, EU rules and regulations referred above have subsequently been written into UK law and are thus still of relevance.

2.1.2 Greater Manchester Combined Authority Air Quality Direction 2019

In response to this Government-led plan, the Greater Manchester Combined Authority (GMCA), which includes MCC, was identified by the Pollution Climate Mapping (PCM) national model to have persistent (post-2021) long term exceedences of the annual mean NO₂ EU Limit Value, at roadside locations. As such, the GMCA was issued with Air Quality Direction by the Secretary of State under the Environment Act (1995)⁶, to develop a Local NO₂ Plan to identify and implement measures that could bring forward compliance with EU Limit Values within the shortest possible time, and by 2024 at the latest.

In response, MCC submitted a 'local plan for NO₂ compliance' means a detailed scheme of charging measures (Class C CAZ) to achieve the legal limit value for NO₂ in the shortest possible time and by 2024 at the latest. The GMCA CAZ is set to launch on 30th May 2022.

2.1.3 Air Quality Strategy

Irrespective of the above, the UK Government and the devolved administrations are required under the Environment Act 1995 to produce a national air quality strategy to improve air quality. The latest Air Quality Strategy (AQS) for England, Scotland, Wales and Northern Ireland was published in 2007⁷. The AQS provides the over-arching strategic framework for air quality management in the UK and contains national air quality standards and objectives established by the UK Government and Devolved Administrations for the protection of public health and the environment. There is no legal requirement to meet these objectives except where they mirror an

² The Air Quality Standards Regulations (England) 2010, Statutory Instrument No 1001, The Stationary Office Limited.

³ 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.

⁴ Directive 2004/107/EC of the European Parliament and of the Council of 15 December 2004.

⁵ Defra, DfT (2017), UK plan for tackling roadside nitrogen dioxide concentrations.

⁶ Environment Act 1995 (Greater Manchester) Air Quality Direction 2019.

⁷ The Air Quality Strategy for England, Scotland, Wales and Northern Ireland, Defra. July 2007.

equivalent legally binding Limit Value as prescribed within EU legislation, however compliance is regulated at a local level by local planning authorities.

The AQS objectives apply at locations outside buildings or other natural or man-made structures above or below ground, where members of the public are regularly present and might reasonably be expected to be exposed to pollutant concentrations over the relevant averaging period – herein referred to as ‘relevant exposure’. Table 2-2 provides an indication of those locations.

The ambient air quality standards of relevance to human receptors in this assessment (collectively termed Air Quality Assessment Levels (AQALs) throughout this report) are provided in Table 2-1.

Table 2-1
Relevant Ambient AQALs

Pollutant	AQAL ($\mu\text{g}/\text{m}^3$)	Averaging Period
NO ₂	40	Annual mean
	200	1-hour mean (not to be exceeded on more than 18 occasions per annum)
Particles (PM ₁₀)	40	Annual mean
	50	24-hour mean (not to be exceeded on more than 35 occasions per annum)
Particles (PM _{2.5})	25	Annual mean

Table 2-2
Human Health Relevant Exposure

AQAL Averaging Period	AQALs should apply at	AQALs should not apply at
Annual Mean	Building facades of residential properties, schools, hospitals etc.	Facades of offices Hotels Gardens of residences Kerbside sites
24-hour mean	As above together with hotels and gardens of residential properties	Kerbside sites where public exposure is expected to be short term
1-hour mean	As above together with kerbside sites of regular access, car parks, bus stations etc.	Kerbside sites where public would not be expected to have regular access

2.2 Local Air Quality Management

As reinforced within the AQS, Part IV of the Environment Act 1995 induces a statutory duty for local authorities to undergo a process of Local Air Quality Management (LAQM). This requires local authorities to Review and Assess air quality within their boundaries to determinedly the likeliness of compliance, regularly and systematically.

Where any of the prescribed AQS objectives are not likely to be achieved, the authority must designate an Air Quality Management Area (AQMA). For each AQMA, the local authority is required to prepare an Air Quality Action Plan (AQAP), which details measures the authority intends to introduce to deliver improvements in local air quality in pursuit of the objective. AQMAs can give rise to potential constraints to development, or at least a higher degree of scrutiny to air quality assessment work. Local authorities therefore have formal powers to control air quality through a combination of LAQM and through application of wider planning policies.

2.3 Clean Air Strategy

The Clean Air Strategy (CAS)⁸, published in 2019, sets out the Government's proposals aimed at delivering cleaner air in England, and also indicates how devolved administrations intend to make emissions reductions. It sets out the comprehensive action that is required from across all parts of government and society to deliver clean air.

2.4 General Nuisance Legislation

Part III of the Environmental Protection Act (EPA) 1990 (as amended) contains the main legislation on Statutory Nuisance and allows local authorities and individuals to take action to prevent a statutory nuisance. Section 79 of the EPA defines, amongst other things, smoke, fumes, dust and smells emitted from industrial, trade or business premises so as to be prejudicial to health or a nuisance, as a potential Statutory Nuisance.

Fractions of dust greater than 10µm (i.e. greater than PM₁₀) in diameter typically relate to nuisance effects as opposed to potential health effects and therefore are not covered within the UK AQS. In legislation there are currently no numerical limits in terms of what level of dust deposition constitutes a nuisance.

2.5 Planning Policy

The following policies have been considered within this assessment.

2.5.1 National Policy

The 2021 update to the National Planning Policy Framework⁹ (NPPF) sets out planning policy for England. The NPPF states that the planning system should contribute to and enhance the natural and local environment, by preventing new development from contributing to or being adversely affected by unacceptable concentrations of air pollution and development should, wherever possible, help to improve local environmental conditions such as air quality.

In specific relation to air quality policy, the document states:

Chapter 15 - Conserving and Enhancing the Natural Environment

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

The NPPF is accompanied by web based supporting Planning Practice Guidance (PPG) which includes guiding principles on how planning can take account of the impacts of new development on air quality. In regard to air quality, the PPG states:

"Defra carries out an annual national assessment of air quality using modelling and monitoring to determine compliance with EU Limit Values [...] It is important that the potential impact of new development on air quality is taken into account [...] where the national assessment indicates that relevant limits have been exceeded or are near the limit."

"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

⁸ The Clean Air Strategy, Defra. January 2019.

⁹ National Planning Policy Framework (2021). Available at: <https://www.gov.uk/government/publications/national-planning-policy-framework--2>

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)."

The PPG sets out the information that may be required within the context of a supporting air quality assessment, stating that *"assessments should be proportional to the nature and scale of development proposed and the level of concern about air quality [...] Mitigation options where necessary, will depend on the proposed development and should be proportionate to the likely impact"*.

2.5.2 Local Policy

The Manchester Local Development Framework, including the Core Strategy Development Plan Document¹⁰ was adopted by MCC on 11th July 2012. The following policies relate to air quality:

"Policy EN 16 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 CC 5 Transport

The Transport Strategy for Manchester City Centre will be delivered to ensure that transport is managed in a way which supports the projected growth of the City Centre.

Developers should work with public transport providers to ensure that all users are able to access development by sustainable means, especially taking account of times when developments are likely to be busiest.

Proposals will be supported that improve pedestrian safety, improve air quality and increase the scope for accessible public realm improvements, for example improvements to:

- *remove buses and private cars from St Peter's Square*
- *create a new pedestrian priority zone initially the area bounded by Deansgate, Peter Street / Oxford Street, Portland Street, Piccadilly North, Manchester Arndale, Corporation Street and Exchange Square*
- *close Victoria Street in the Medieval Quarter to traffic and create a new public realm around the Cathedral and Chethams.*

The Council will seek to ensure that development includes adequate parking provision for cars and bicycles."

2.6 Assessment Guidance

The air quality assessment has been carried out in accordance with the following principles contained within the guidance documents below.

¹⁰ Manchester City Council, Manchester's Local Development Framework, Core Strategy, Development Plan Document, Adopted 11th July 2012.

- Department of Environment Food and Rural Affairs (Defra): Local Air Quality Management Technical Guidance (LAQM.TG(16))¹¹;
- Defra: COVID-19: Supplementary Guidance. Local Air Quality Management Reporting in 2021¹²;
- Environmental Protection UK (EPUK) and the Institute of Air Quality Management (IAQM): Land-Use Planning and Development Control: Planning for Air Quality¹³; and
- IAQM: Guidance on the Assessment Dust from Demolition and Construction¹⁴.

¹¹ Local Air Quality Management Technical Guidance 16, Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland. April 2021.

¹² Defra and the Greater London Authority, COVID-19: Supplementary Guidance. Local Air Quality Management Reporting in 2021. April 2021.

¹³ EPUK and IAQM, Land-Use Planning and Development Control: Planning for Air Quality, v1.2 2017.

¹⁴ IAQM, Guidance on the Assessment Dust from Demolition and Construction, v1.1 2016.

3.0 ASSESSMENT METHODOLOGY

3.1 Construction Phase

A construction dust assessment has been undertaken with reference to IAQM guidance. The assessment of risk is determined by considering the risk of dust effects arising from four activities in the absence of mitigation:

- demolition;
- earthworks;
- construction; and
- track-out.

The assessment methodology considers three separate dust impacts with account being taken of the sensitivity of the area that may experience these effects:

- annoyance due to dust soiling;
- the risk of health effects due to an increase in exposure to PM₁₀; and
- harm to ecological receptors.

The first stage of the assessment involves a screening to determine if there are sensitive receptors within threshold distances of the site activities associated with the construction phase of the scheme. A detailed assessment is required where a:

- human receptor is located within 350m of the Site, and/or within 50m of routes used by construction vehicles, up to 500m from the site entrance(s); and/or
- ecological receptor is located within 50m of the Site, and/or within 50m of routes used by construction vehicles, up to 500m from the site entrance(s).

The dust emission class (or magnitude) for each activity is determined on the basis of the guidance, indicative thresholds and professional judgement. The risk of dust effects arising is based upon the relationship between the dust emission magnitude and the sensitivity of the area. The risk of impact is then used to determine the appropriate mitigation requirements, whereby through effective application, residual effects are considered to be 'not significant'.

Given the short-term nature of the construction phase and the comparatively low volume of vehicle movements that will likely arise (when compared to the operational phase, for which a full assessment has been undertaken), it is unlikely that significant air quality effects from development related road traffic emissions during the construction phase will arise. Such potential effects have therefore been scoped out from requiring detailed assessment based on their assumed insignificant impact.

3.2 Operational Phase Road Traffic Emission Screening

The assessment of air quality effects in relation to the Proposed Development's operational phase has been undertaken qualitatively, in accordance with EPUK/IAQM guidance.

The EPUK/IAQM guidance provides a series of indicative screening criteria where if exceeded, may consequently require a detailed assessment. If the Proposed Development is found not to exceed any of the relevant indicative criteria presented, then a detailed impact assessment is consequently not required. Effects can therefore be considered to be insignificant.

The indicative screening criteria relevant for this assessment is as follows (specific to a development located within an AQMA):

- a change of Light-Duty vehicle (LDV) flows of more than 100 Annual Average Daily Traffic (AADT); and
- a change of Heavy-Duty vehicle (HDV) flows of more than 25 AADT.

4.0 BASELINE ENVIRONMENT

4.1 Baseline Air Quality

Monitoring data collected prior to the COVID-19 pandemic (i.e. pre-2020) has been used to characterise the baseline environment, as pollutant concentrations monitored during 2020 and 2021 are expected to be atypical, and not representative of the local environment and have therefore not been considered, in line with Defra's supplementary guidance.

4.1.1 LAQM Review and Assessment

The Site is located within the jurisdiction of MCC, within the GMCA comprising the ten Greater Manchester metropolitan boroughs. The latest publicly available LAQM report for GMCA (with monitored concentration data which is not impacted by the COVID-19 pandemic i.e. pre-2020) at the time of writing is the 2019 Annual Status Report¹⁵ (ASR).

GMCA in fulfilment of statutory requirements, has conducted an on-going exercise to review and assess air quality within their administrative area. GMCA has declared one regional AQMA for the exceedence of the annual mean NO₂ AQAL at locations of relevant exposure, named the 'GMCA AQMA', amalgamating all previous borough specific AQMAs. Specifically, for MCC, the GMCA AQMA encompasses the entire city centre and arterial routes. The Site is therefore located within the GMCA AQMA. As such, existing air quality conditions at and within the immediate proximity of the Site are considered to be sensitive to NO₂ annual mean concentrations.

4.1.2 Review of Air Quality Monitoring

Automatic Air Quality Monitoring

Following a review of both national and local monitoring networks, the closest most representative site is the Manchester Piccadilly monitor (NGR: x384311, y398337) associated with the automatic urban and rural network (AURN). Manchester Piccadilly is classified as an 'urban background' site and located approximately 30m south of the Site. Given the proximity to the Site, the Manchester Piccadilly AURN is considered representative of air quality conditions anticipated at the Site.

Details and relevant 2015-2019 concentrations monitored at the Manchester Piccadilly AURN are presented in Table 4-1 to Table 4-4, whilst the location relative to the Site is illustrated in Figure 4-1.

Table 4-1
Automatic Monitor: 2015-2019 Annual Mean NO₂ Results

Site ID	2019 Data Capture %	Annual Mean NO ₂ Concentration (µg/m ³)				
		2015	2016	2017	2018	2019
Manchester Piccadilly	98.9	39	40	36	35	36

¹⁵ GMCA, 2019 Air Quality Annual Status Report, June 2020.

Table 4-2
Automatic Monitor: 2015-2019 Number of NO₂ Hourly Mean Exceedences

Site ID	2019 Data Capture %	Hourly NO ₂ Means in Excess of 200µg/m ³				
		2015	2016	2017	2018	2019
Manchester Piccadilly	98.9	1	0	1	0	0

Table 4-3
Automatic Monitor: 2015-2019 Annual Mean PM₁₀ Results

Site ID	2019 Data Capture %	Annual Mean PM ₁₀ Concentration (µg/m ³)				
		2015	2016	2017	2018	2019
Manchester Piccadilly	95.9	20	20	20	21	20

Table 4-4
Automatic Monitor: 2015-2019 Number of PM₁₀ Daily Mean Exceedences

Site ID	2019 Data Capture %	Daily PM ₁₀ Means in Excess of 50µg/m ³				
		2015	2016	2017	2018	2019
Manchester Piccadilly	95.9	3	3	3	2	7

Table 4-5
Automatic Monitor: 2015-2019 Annual Mean PM_{2.5} Results

Site ID	2019 Data Capture %	Annual Mean PM _{2.5} Concentration (µg/m ³)				
		2015	2016	2017	2018	2019
Manchester Piccadilly	92.2	10	10	8	11	12

For the period assessed (2015-2019), all pollutant concentrations monitored were below the relevant annual mean and short term (1-hour and 24-hour) AQALs with the exception of the annual mean NO₂ concentration in 2016. However, the annual mean NO₂ concentration has been within 10% of the AQAL in four of the five years monitored.

There has been a slight long term downward trend in annual mean NO₂ concentrations demonstrating local improvements at key locations.

Passive Diffusion Tube Monitoring

Passive NO₂ diffusion tube monitoring is currently undertaken by MCC within the development locale, at numerous locations, in fulfilment of their statutory LAQM obligations.

The details and results of the monitoring locations of relevance to the Site are presented in Table 4-6 and Table 4-7 respectively, whilst their locations are illustrated in Figure 4-1. All monitoring data presented has been ratified and adjusted (where necessary) by MCC.

Table 4-6
Local LAQM NO₂ Passive Diffusion Tube Monitoring Sites: Details

Site ID	Site Type	NGR (m)		Height (m)	Within AQMA	Distance to Site (m)
		X	Y			
MA59NO	Urban Background	384310	398337	4.0	Yes	30
MA60NO						
MA61NO						
MA9ANO	Kerbside	384601	398303	3.0	Yes	270
MA24NO	Kerbside	383954	398060	3.0	Yes	470

Table 4-7
Local LAQM NO₂ Passive Diffusion Tube Monitoring Sites: Results

Site ID	2019 Data Capture %	Annual Mean NO ₂ Concentration (µg/m ³)				
		2015	2016	2017	2018	2019
MA59NO	100	35.9	38.5	35.9	32.2	33.1
MA60NO	100	35.8	40.8	35.7	31.6	32.6
MA61NO	100	34.9	38.0	36.3	32.1	31.6
MA9ANO	100	55.9	51.9	51.1	45.8	44.9
MA24NO	100	55.2	45.3	44.7	40.3	40.8

As shown in Table 4-7, monitoring locations MA9ANO and MA24NO recorded annual mean NO₂ concentrations above the AQAL (40µg/m³) for the period assessed. These locations are situated within the GMCA AQMA and at kerbside locations demonstrating road traffic to be the key contributor in the local setting and monitored concentrations.

The other three monitoring locations presented (IDs: MA59NO, MA60NO and MA61NO) are all co-located with the AURN automatic monitor. MA60NO recorded an annual mean NO₂ concentration above the AQAL (40µg/m³) during 2016. However across all other years, all three locations recorded concentrations below the relevant AQAL. This location is situated within the GMCA AQMA but at an urban background location greater than 10m away from road traffic.

Since 2015, all diffusion tube sites presented have largely demonstrated a reduction in annual mean NO₂ concentrations, demonstrating local improvements at key locations, correlating to national projections – however, they remain in excess of the AQAL at MA9ANO. The ASR states “Long term trends show that there has been an improvement in air quality, but areas still remain above the annual mean air quality objective for Nitrogen Dioxide (NO₂)”.

The empirical relationship given in LAQM.TG(16) states that exceedences of the 1-hour mean AQAL for NO₂ is unlikely to occur where annual mean concentrations are <60µg/m³. This indicates that an exceedence of the 1-hour mean AQAL is unlikely to have occurred at any of the monitoring sites between 2015 and 2019.

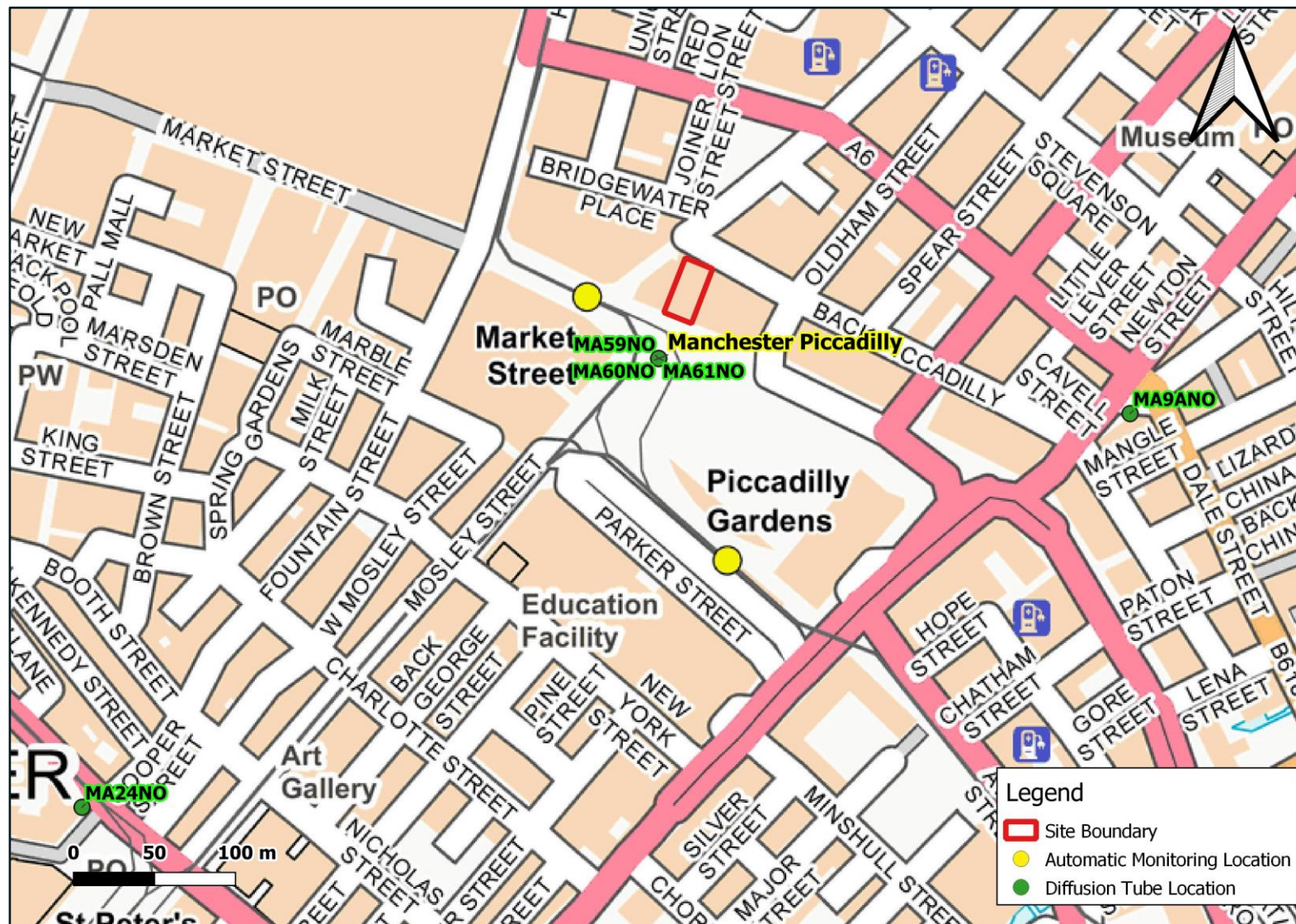


Figure 4-1
Site Location and Local Monitoring Locations

4.1.3 Defra Mapped Background Concentrations

Defra maintains a nationwide model of existing and future background air quality concentrations at a 1km grid square resolution which is routinely used to support LAQM requirements and air quality assessments. The data sets include annual average concentration estimates for NO₂, PM₁₀ and PM_{2.5} using a base year of 2018 (the year in which comparisons between modelled and monitoring are made).

The Defra mapped annual mean background concentrations of NO₂, PM₁₀ and PM_{2.5} for a base year of 2019 are presented Table 4-8.

All of the mapped background concentrations presented are well below the respective annual mean AQALs.

Table 4-8
Defra Mapped Background Concentrations

Grid Square (X, Y) (m)	Year	Annual Mean Background Concentration (µg/m ³)		
		NO ₂	PM ₁₀	PM _{2.5}
384500, 398500	2019	29.3	13.6	8.8

5.0 CONSTRUCTION PHASE ASSESSMENT

This section presents the potential air quality impacts and effects associated with the construction of the Proposed Development.

5.1 Construction Dust Assessment

Where figures relating to area and volume of the Site, approximate number of construction vehicles or distances to receptors are given, these relate to thresholds as defined in the IAQM guidance to guide the assessor to define the dust emissions magnitude and sensitivity of the area.

5.1.1 Assessment Screening

There are 'human receptors' within 350m of the Site but no designated habitat sites within 50m of the Site boundary or up to 500m of the Site entrance(s) / 50m of the roads anticipated to witness construction traffic movements. Therefore, an assessment of construction dust on human receptors is only required.

5.1.2 Potential Dust Emissions Magnitude

Demolition

The Site is currently a commercial building. The Proposed Development comprises the retention and redevelopment of the current storeys, with the addition of new storeys. As such, no demolition activities are required, and impacts associated with demolition have been scoped out.

Earthworks

Limited earthworks are required as the ground floor is being retained. As such, the dust emission magnitude for earthworks is therefore conservatively considered to be 'small'.

Construction

The Proposed Development involves the construction of 4 additional storeys to the existing building. The total building volume associated with the Proposed Development is predicted to be <25,000m³. As such, the dust emission magnitude for construction is therefore initially considered to be 'small'.

Trackout

Construction vehicles are expected to access the Site off Back Piccadilly. No details are available at the time of assessment on the number of additional HDV movements associated with construction works. However, given the scale and nature of works required, it is considered likely that <10 heavy goods vehicle (HGV) outward movements will occur in any worst-case day. In addition, the unpaved road length is likely to be <50m at any one time due to the size of the development. The dust emission magnitude for trackout is therefore initially considered to be 'small'.

Table 5-1
Potential Dust Emission Magnitude

Activity	Dust Emission Magnitude
Earthworks	Small
Construction	Small
Trackout	Small

5.1.3 Sensitivity of the Area

Dust Soiling Impacts

Overall, there are anticipated to be <100 existing residential properties (highly sensitive receptors) within 100m of the Site. In addition, there are believed to be >10 residential receptors within 20m of sections of Site accesses within 50m (commensurate of a small site¹⁶) of the Site entrance.

The sensitivity of the area with respect to dust soiling effects on people and property in relation to earthworks and construction is considered to be 'low' and in relation to trackout activities is therefore considered to be 'high'.

Human Health Impacts

The maximum 2019 mapped background PM₁₀ concentration (2018 base year) for the 1km² grid square centred on the Site is estimated to be 13.2µg/m³ (i.e. falls into the <24µg/m³ class). As discussed in Section 4.1.3, the automatic monitoring location 'Manchester Piccadilly AURN' recorded a 2019 annual mean PM₁₀ concentration of 20µg/m³ (i.e. falls into the <24µg/m³ class).

Given the above information regarding the number of residential receptors within 100m of the Site and within 50m from the Site entrance on access roads, the sensitivity of the area with respect to human health impacts in relation to earthworks, construction and trackout is therefore considered to be 'low'.

Table 5-2
Sensitivity of the Area

Potential Impact	Sensitivity of Surrounding Area		
	Earthworks	Construction	Trackout
Dust Soiling Impacts	Low	Low	High
Human Health Impacts	Low	Low	Low

5.1.4 Risk of Impacts (Unmitigated)

The outcome of the assessment of the potential 'magnitude of dust emissions', and the 'sensitivity of the area' are combined in Table 5-3 below to determine the risk of impact which is used to inform the selection of appropriate mitigation.

Table 5-3
Risk of Dust Impacts

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

5.1.5 Mitigation

Following the construction dust assessment, the Site is found to be at worst 'Low Risk' in relation to dust soiling effects on people and property and 'Negligible' in relation to human health impacts (Table 5-3). However, potential dust effects during the construction phase are considered to be temporary in nature and may only arise at particular times (i.e. certain activities and/or meteorological conditions).

¹⁶ As per the IAQM's 'Guidance on the Assessment of Dust from Demolition and Construction', without site-specific mitigation, trackout may occur along the public highway up to 500m from large sites, 200m from medium sites and 50m from small sites (determined by the calculated trackout dust emission magnitude), as measured from the site exit.

Nonetheless, commensurate with the above designation of dust risk, mitigation measures, as identified by IAQM guidance are required to ensure that any potential impacts arising from the construction phase of the Proposed Development are reduced and, where possible, completely removed. In accordance with IAQM guidance, providing effective mitigation measures are implemented, such as those outlined in Section 7.0, construction dust effects are considered to be ‘not significant’.

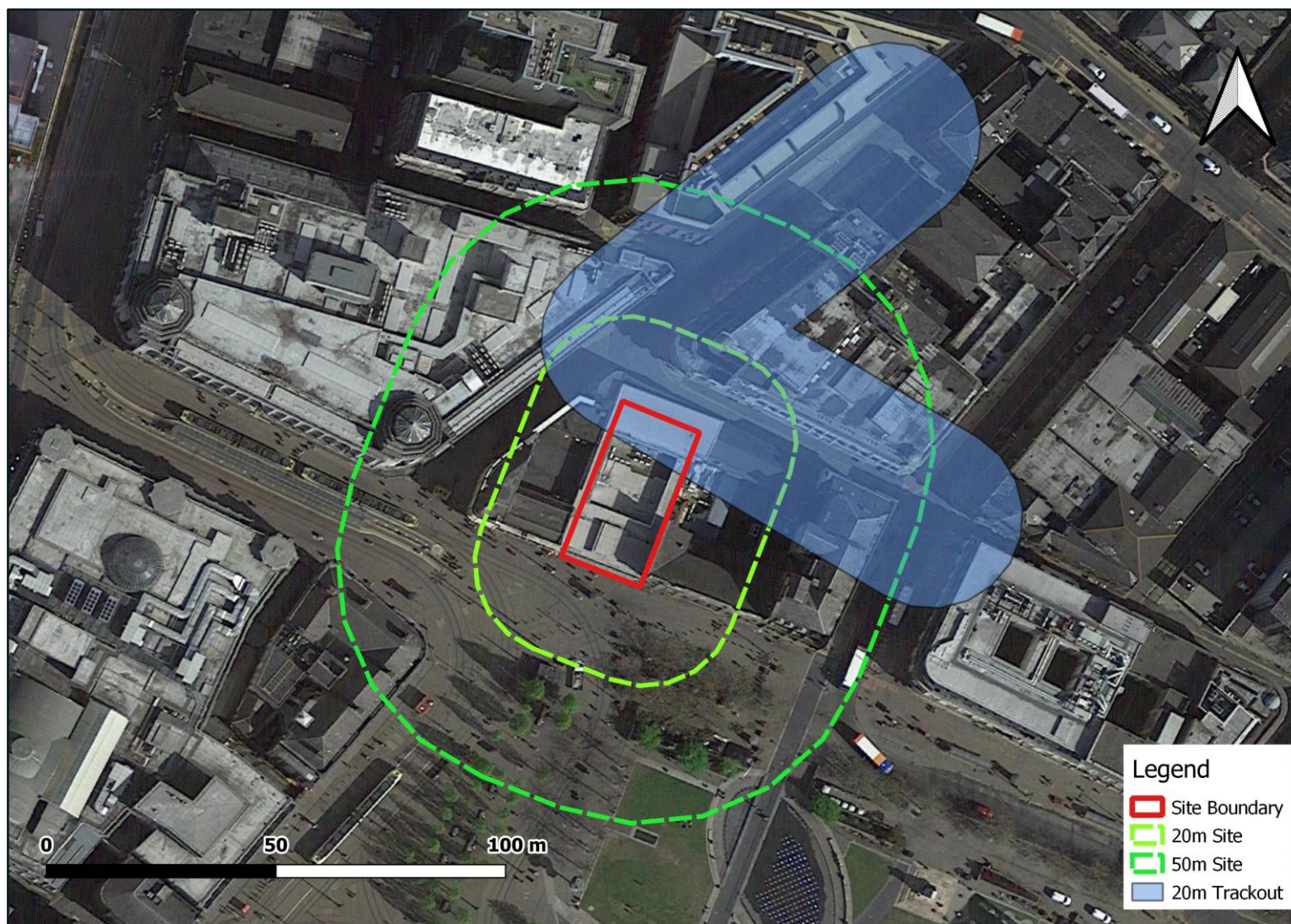


Figure 5-1
Construction Dust Assessment Buffers

6.0 OPERATIONAL PHASE ASSESSMENT

This section presents the potential air quality effects associated with the operational phase of the development.

6.1 Road Traffic Emission Screening Assessment

As confirmed by Mode Transport Planning - the appointed transport consultant, the Proposed Development will not provide any on-site parking provision, with any private vehicle trips expected to utilise existing car parks available throughout the city centre. Furthermore air quality impacts associated with these trips will have previously been assessed and understood as part of the capacity analysis undertaken in support of each respective car park.

It should be noted the Site is strategically located next to Piccadilly Gardens with sustainable local bus, Metrolink tram and train services at Piccadilly railway station services likely forming the predominant transport means.

Given that no on-site parking is associated with the Proposed Development, trips generated at the Site are therefore not predicted to exceed the relevant screening thresholds. Effects associated with the operation of the Proposed Development can therefore be considered as insignificant and require no further consideration.

7.0 MITIGATION MEASURES

This section presents any proportionate mitigation measures required during the construction and operational phases of the Proposed Development.

7.1 Construction Dust

As discussed in Section 5.0, construction impacts associated to the Proposed Development would result in the generation of dust and PM₁₀.

IAQM guidance outlines a number of Site-specific mitigation measures based on the assessed risk. The measures are grouped into those which are highly recommended and those which are desirable. With the effective application of the dust mitigation measures, as detailed in Table 7-1, residual effects will be 'not significant'.

Table 7-1
Construction Dust Mitigation Measures

Site Application	Mitigation Measures
Highly Recommended	
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.
Monitoring	Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the local authority when asked.
	Increase the frequency of site 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.
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 such equipment wherever appropriate.
Preparing and Maintaining the Site	Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.
	Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.
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.

Site Application	Mitigation Measures
	Record any exceptional incidents that cause dust and/or air emissions, either on- or offsite, and the action taken to resolve the situation in the logbook.
Trackout	Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use.
	Avoid dry sweeping of large areas.
	Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.
	Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).

7.2 Operational Phase

In accordance with EPUK/IAQM guidance, road traffic impacts associated with the operation of the Site can be considered as having an insignificant effect on local air quality. As such, long-term scheme-specific mitigation measures in relation to operational effects arising from road traffic emissions are therefore not considered to be necessary.

8.0 CONCLUSIONS

The report has been prepared by SLR Consulting Ltd on behalf of its client, Thackeray Investments to accompany a full planning application for the proposed redevelopment of the property at 7-9 Piccadilly, Manchester City Centre.

An air quality assessment has been undertaken to assess the potential air quality effects associated with the construction and operation of the Proposed Development.

8.1 Construction Phase

A qualitative assessment of the potential dust impacts during the construction of the Proposed Development has been undertaken following IAQM guidance.

Following the construction dust assessment, the Site is found to be at worst 'Low Risk' in relation to dust soiling effects on people and property, and 'Negligible' human health impacts. Providing effective mitigation measures are implemented, such as those outlined in Section 7.1 of this report, residual impacts from dust emissions during the construction phase would be 'not significant'.

Given the short-term nature of the construction phase, there is predicted to be an insignificant effect on air quality from construction-generated vehicle emissions.

8.2 Operational Phase

The Proposed Development will not provide any on-site parking provision and is therefore expected to generate road traffic volumes below the relevant indicative EPUK/IAQM screening criteria at the Site. As such, road traffic impacts associated with the operation of the Site can be considered as having an insignificant effect on local air quality.

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