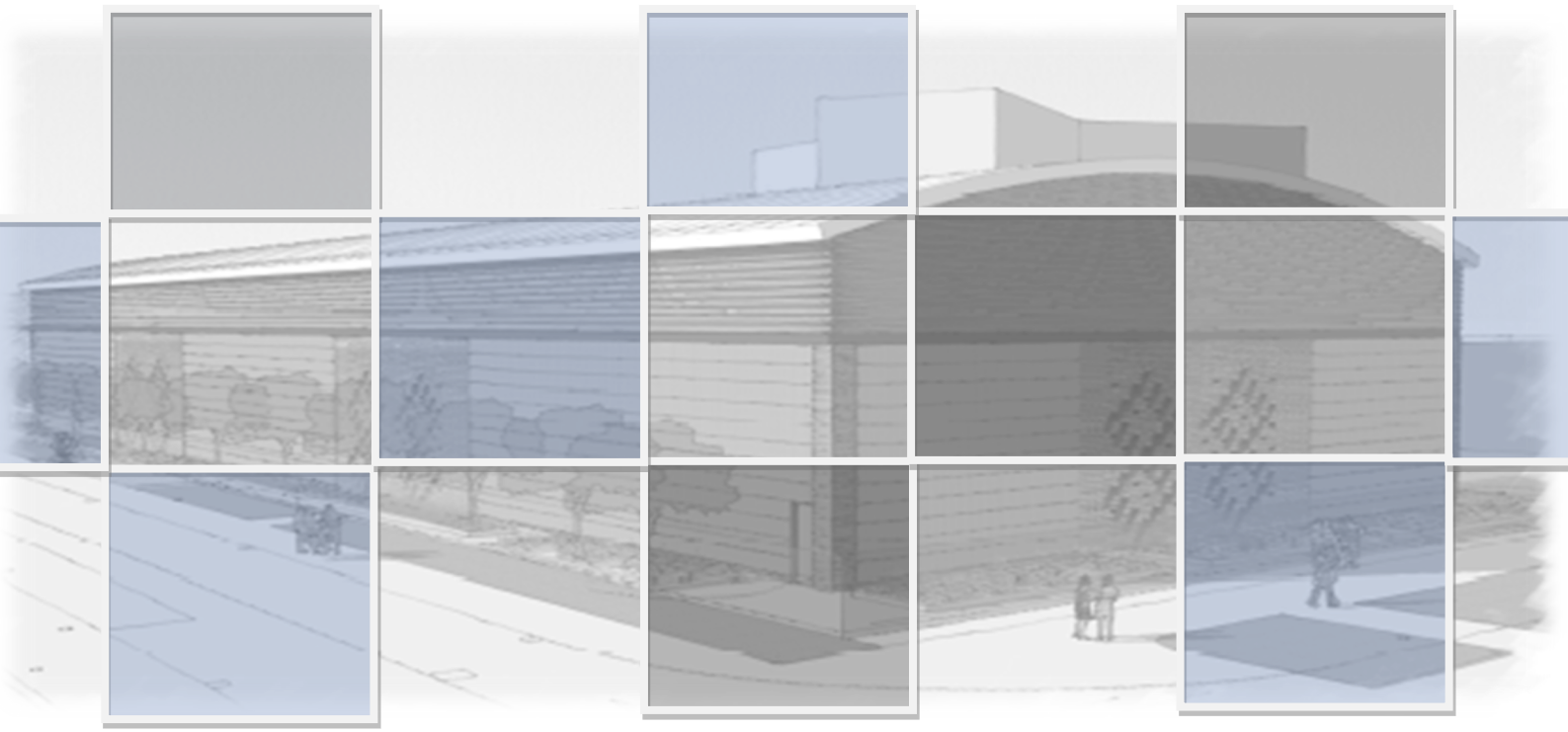
Air Quality Assessment
Simon House, Brownley Road
Manchester M22 5RA



Submitted to

Keysource

Submitted By

PJD CONSULTANTS LTD

REPORT ISSUE FORM

Client Name	**Keysource Ltd**		
Project Name	**Simon House, Brownley Road Manchester**		
Report Title	**Air quality Impact Assessment**		
Document Status & Issue No.	**FINAL**	Issue No.	**01**
Issue Date	**20th August 2023**		
Document Reference	**1750120**	**R2023/002**	
Author	**Paul Day**	 Signature	

DISCLAIMER

This report was prepared exclusively for the client above by PJD Consultants Ltd (PJDC). The quality of information, conclusions and estimates contained herein are consistent with the level of effort involved in PJDC's services and based on: i) information available at the time of preparation, ii) data supplied by outside sources and iii) the assumptions, conditions and qualifications set forth in this report. This report is intended for use by the above client subject to the terms and conditions of its contract with PJDC. Any other use of, or reliance on, this report by any third party is at that party's sole risk.

CONTENTS

1.0 INTRODUCTION....1-1

2.0 LEGISLATION, POLICY AND GUIDANCE....2-1
2.1 Air Quality Legislation and Policy....2-1
2.1.1 UK Air Quality Strategy....2-1
2.1.2 Air Quality Regulations....2-2
2.1.3 Environment Act 1995....2-2
2.2 Planning Policy....2-3
2.2.1 National Planning Policy....2-3
2.2.2 Local Planning Policy....2-5
2.2.3 Local Air Quality Management....2-5
2.3 Guidance....2-6

3.0 SCOPE AND METHODOLOGY....3-8
3.1 Scope....3-8
3.2 Methodology....3-8
3.2.1 Construction Phase....3-8
3.2.2 Operational Phase....3-9
3.2.3 Assessment criteria....3-12
3.3 Assessment of Significance....3-12
3.3.1 Construction Phase....3-12
3.3.2 Operational Phase....3-13
3.4 Site Location and Sensitive Receptors....3-13
3.4.1 Site location....3-13
3.4.2 Sensitive Receptors....3-15

4.0 EXISTING CONDITIONS....4-19
4.1 Local Emissions Sources....4-19
4.2 Local Authority Air Quality Monitoring Data....4-19
4.3 Background Air Quality Data....4-20
4.4 Meteorological Data....4-21

5.0 ASSESSMENT OF IMPACTS....5-1
5.1 Construction Impacts....5-1
5.1.1 Construction sources of Dust and Fine Particles....5-1
5.1.2 Construction Vehicles and Plant....5-4
5.2 Operational Phase....5-5
5.2.1 Impacts of existing sources in the local area on users of the development....5-5
5.2.2 Impact of the development on local air quality....5-5

6.0 MITIGATION....6-1
6.1 Construction Phase....6-1
6.2 Operational Phase....6-3

7.0 SUMMARY AND CONCLUSIONS....7-1

LIST OF FIGURES

Figure 1: Greater Manchester AQMA

Figure 2: Location of Application Site

Figure 3: Application Site Layout Plan

Figure 4: Potentially Dust Sensitive Land Uses within 350m of the Application Site

Figure 5: Windrose for Manchester Ringway

LIST OF TABLES

Table 1: Air Quality Screening - Stage 1 Criteria

Table 2: Indicative Stage 2 criteria for requiring an air quality assessment

Table 3: Air Quality Standards and Guidelines Applicable to the Assessment

Table 4: Summary of receptor sensitivity to construction phase impacts

Table 5: Local Authority monitoring in the surrounding area

Table 6: 2023 and 2022 Estimated background concentrations for the Application Site

Table 7: Potential Dust Emission Magnitude

Table 8: Sensitivity of the Study Area

Table 9: Summary Dust Risk Table to Define Site-Specific Mitigation

Table 10: Emissions data for the size generators proposed for the data centre

Table 11: Mitigation measures for construction phase (Medium Risk Site)

APPENDICES

Appendix A Air Quality Glossary of Terms

Appendix B Air Quality Standards and Objectives

Appendix C Summary of IAQM Construction Phase Impact Assessment Procedure

1.0 INTRODUCTION

PJD Consultants Ltd has been commissioned by Keysource Ltd to carry out an assessment of the potential air quality impacts arising from the proposed demolition of Simon House and construction and operation of data centre on the site in Brownley Road, Wythenshaw, Manchester M22 5RA. This report supports the planning application for the proposed development.

The proposed development comprises the demolition of the existing Simon House and the construction of a new two-storey data centre and associated plant, together with the reconfiguration of access arrangements and parking layout, new landscaping, and associated works. Emissions to air will occur during the demolition and construction phases of the proposed development. These emissions are associated with dust and fine particle generation and release, on-site internal combustion powered construction plant, and construction traffic moving to and from the site. The data centre will incorporate a bank of three diesel/HVO[1] powered emergency backup generators to provide power if supply through the national grid is interrupted. These generators will release emissions to air during operation under emergency conditions, and regular intervals during scheduled testing and maintenance required to ensure effective and efficient performance of the units is maintained. Operation of the generators for scheduled testing and maintenance would amount to less than 50 hours per year for each of generators.

This report considers the potential impacts on local air quality of emissions during demolition/construction and operational phases of the proposed data centre.

A glossary of terms used is provided in **Appendix A.**

[1] HVO – Hydrogenated vegetable oil.

2.0 LEGISLATION, POLICY AND GUIDANCE

2.1 Air Quality Legislation and Policy

A summary of the relevant air quality legislation and policy is provided below.

2.1.1 UK Air Quality Strategy

The Government's policy on air quality within the UK is set out in the Air Quality Strategy for England, Scotland, Wales and Northern Ireland (UK AQS) published in July 2007[2]. The AQS provides a framework for reducing air pollution in the UK with the aim of meeting the requirements of European Union legislation and international commitments.

The UK AQS also sets standards and objectives for nine key air pollutants to protect health, vegetation, and ecosystems. These are benzene (C_6H_6), 1,3-butadiene (C_4H_6), carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), particulate matter (PM_{10} and $PM_{2.5}$), sulphur dioxide (SO_2), ozone (O_3), and polycyclic aromatic hydrocarbons (PAHs). The standards and objectives for the pollutants considered in this assessment are given in **Appendix B**.

The air quality standards are levels recommended by the Expert Panel on Air Quality Standards (EPAQS) and the World Health Organisation (WHO) with regards to current scientific knowledge about the effects of each pollutant on health and the environment.

The air quality objectives are medium-term policy-based targets set by the Government which take into account economic efficiency, practicability, technical feasibility, and timescale. Some objectives are equal to the EPAQS recommended standards or WHO guideline limits, whereas others involve a margin of tolerance, i.e., a limited number of permitted exceedances of the standard over a given period.

For some pollutants, (e.g., NO_2), there is both a long-term (annual mean) standard and a short-term standard. In the case of NO_2, the short-term standard is for a 1-hour averaging period, whereas for PM_{10} it is for a 24-hour averaging period. These periods reflect the varying impacts on health of differing exposures to pollutants, for example temporary exposure on the pavement adjacent to a busy road, compared with the exposure of residential properties adjacent to a road.

The UK AQS contains a framework for considering the effects of a finer group of particles known as '$PM_{2.5}$' as there is increasing evidence that this size of particles can be more closely associated with observed adverse health effects than PM_{10}.

Local authorities monitoring and assessing air quality have found that, where road traffic is the dominant source of air pollution, the annual objective for NO_2 is likely to be the most difficult to achieve. It is also generally considered that, where concentrations of NO_2 meet their respective objectives, and there are no other local sources of air pollution,

[2] Department for Environment, Food and Rural Affairs (DEFRA) and the Devolved Administrations (2007). The Air Quality Strategy for England, Scotland, Wales, and Northern Ireland (Volumes 1 and 2)

such as from industrial processes, objectives for the other pollutants included in the regulations will also be achieved.

2.1.2 Air Quality Regulations

Many of the objectives in the AQS have been made statutory in England with the Air Quality (England) Regulations 2000[3] and the Air Quality (England) (Amendment) Regulations 2002[4] for the purpose of Local Air Quality Management (LAQM).

These Regulations require that likely exceedances of the AQS objectives are assessed in relation to:

> *"…the quality of air at locations which are situated outside of buildings or other natural or man-made structures, above or below ground, and where members of the public are regularly present…"*

The Air Quality Standards Regulations 2010[5] transpose the European Union Ambient Air Quality Directive (2008/50/EC)[6] into law in England. This Directive sets legally binding limit values for concentrations in outdoor air of major air pollutants that impact public health such as PM_{10}, $PM_{2.5}$ and NO_2. The limit values for NO_2 are the same concentration levels as the AQS objectives but applied from 2010. The limit values for PM_{10} and $PM_{2.5}$ are also the same concentration levels as the AQS objectives but apply from 2005 for PM_{10} and will apply from 2015 for $PM_{2.5}$. It should be noted that currently there is no requirement for local authorities to assess $PM_{2.5}$ concentrations as part of their statutory obligations; however, $PM_{2.5}$ concentrations are now commonly monitored by many local authorities.

2.1.3 Environment Act 1995

Under Part IV of the Environment Act 1995, local authorities must review and document local air quality within their area by way of staged appraisals and respond accordingly, with the aim of meeting the air quality objectives defined in the Regulations. Where the objectives are not likely to be achieved, an authority is required to designate an Air Quality Management Area (AQMA). For each AQMA the local authority is required to draw up an Air Quality Action Plan (AQAP) to secure improvements in air quality and show how it intends to work towards achieving air quality standards in the future. Further details of the AQMAs declared by Manchester City Council (MCC) and actions to improve air quality are provided below in *Section 2.2.3*.

[3] The Air Quality (England) Regulations 2000 - Statutory Instrument 2000 No.928
[4] The Air Quality (England) (Amendment) Regulations 2002- Statutory Instrument 2002 No.3043
[5] The Air Quality Standards Regulations 2010 - Statutory Instrument 2010 No. 1001
[6] 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

2.2 Planning Policy

A summary of the relevant national, regional, and local planning policy relevant to the Proposed Development and air quality is provided below.

2.2.1 National Planning Policy

National Planning Policy Framework (July 2021)

The Government's overall planning policies for England are described in the National Planning Policy Framework (NPPF)[7]. This document also outlines how Government intends to apply these policies at various levels to achieve its aim of contributing to sustainable development. The Framework acknowledges the importance of appropriate and robust planning at a local level and thus promotes opportunities for communities to engage in plan making at a neighbourhood level. The core underpinning principle of the framework is the presumption in favour of sustainable development, defined as:

> *'Development that meets the needs of the present without compromising the ability of future generations to meet their own needs'*

The NPPF is currently being reviewed to improve its ability to deliver housing to meet demand and meet national housing targets. Any reform of the NPPF is unlikely to significantly alter the provisions to protect and enhance air quality. In relation to air quality, the following paragraphs in the existing framework are relevant:

- Paragraph 174, which states 'The planning policies and decisions should contribute to and enhance the natural and local environment by:… preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans.';
- Paragraph 185, which states 'Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development';
- Paragraph 186, which states '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

[7] National Planning Policy Framework. Ministry of Housing, Communities and Local Government (July 2021).

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; and

- Paragraph 55, which states 'Local Planning authorities should consider where otherwise unacceptable development could be made acceptable though the use of conditions or planning obligations. Planning Obligations should only be used where it is not possible to address unacceptable impacts through a planning condition.'

National Planning Practice Guidance (June 2021)

The National Planning Practice Guidance (NPPG) was issued on-line in March 2014 and is updated periodically by government as a live document. The Air Quality section of the NPPG (most recent update was November 2019) describes the circumstances when air quality, odour and dust can be a planning concern, requiring assessment.

The NPPG advises that whether 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).

The NPPG states that when deciding whether air quality is relevant to a planning application, considerations could include whether the development would:

- "Lead to changes (including any potential reductions) in vehicle-related emissions in the immediate vicinity of the proposed development or further afield. This could be through the provision of electric vehicle charging infrastructure; altering the level of traffic congestion; significantly changing traffic volumes, vehicle speeds 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; could add to turnover in a large car park; or involve construction sites that would generate large Heavy Goods Vehicle flows over a period of a year or more;
- Introduce new point sources of air pollution. This could include furnaces which require prior notification to local authorities; biomass boilers or biomass-fuelled Combined Heat and Power plant; centralised boilers or plant burning other fuels within or close to an air quality management area or introduce relevant combustion within a Smoke Control Area; or extraction systems (including chimneys) which require approval or permits under pollution control legislation;
- Expose people to harmful concentrations of air pollutants, including dust. This could be by building new homes, schools, 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;

- Have a potential adverse effect on biodiversity, especially where it would affect sites designated for their biodiversity value."

The NPPG provides advice on how air quality impacts can be mitigated and notes:

> "Mitigation options will need to be locationally specific, will depend on the proposed development and need to be proportionate to the likely impact. It is important that local planning authorities work with applicants to consider appropriate mitigation so as to ensure new development is appropriate for its location and unacceptable risks are prevented. Planning conditions and obligations can be used to secure mitigation where the relevant tests are met."

2.2.2 Local Planning Policy

Manchester City Council Core Strategy (2012 to 2027)

The Core Strategy Development Plan Document 2012 -2027 ("the Core Strategy") was adopted by the City Council on 11th July 2012. It is the key document in Manchester's Local Development Framework. The Core Strategy replaced significant elements of the Unitary Development Plan (UDP) as the document that sets out the long-term strategic planning policies for Manchester's future development.

Policy EN16 Air Quality 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 (CHP) 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.*

2.2.3 Local Air Quality Management

As referred to above, the Environment Act 1995 requires that Local Authorities undertake a tiered appraisal of air quality within their area to establish compliance or non-compliance with the targets established in the UK National Air Quality Strategy, and, if it is unlikely that the objective values will be met in the given timescale, they must designate an AQMA and prepare an AQAP with the aim of achieving the objective values. The boundary of an AQMA is set by the governing local authority to define the geographical area that is to be subject to the management measures to be set out in a subsequent AQAP. Consequently, it is not unusual for an AQMA to include within it relevant locations where air quality is not at risk of exceeding an air quality objective.

AQMAs for the administrative areas in the Greater Manchester region were originally declared in 2001-2002 for both annual mean NO_2 and PM_{10}. The AQMAs were amended between 2004-2006 and they were also revoked for PM_{10}. Ten AQMAs were subsequently declared between 2005-2006 for the whole of Greater Manchester based on the modelled 35µg/m^3 isopleths for annual mean NO_2, which, considering the EU Limit is 40µg/m^3, acknowledged the uncertainties of modelling and could be viewed as being cautious. Recent modelling has shown an improvement in NO_x emissions and that the AQMA has reduced in size. A new single AQMA has been declared for Greater Manchester and was published on 1 May 2016. The extent of the new AQMA is shown in **Figure 1**.

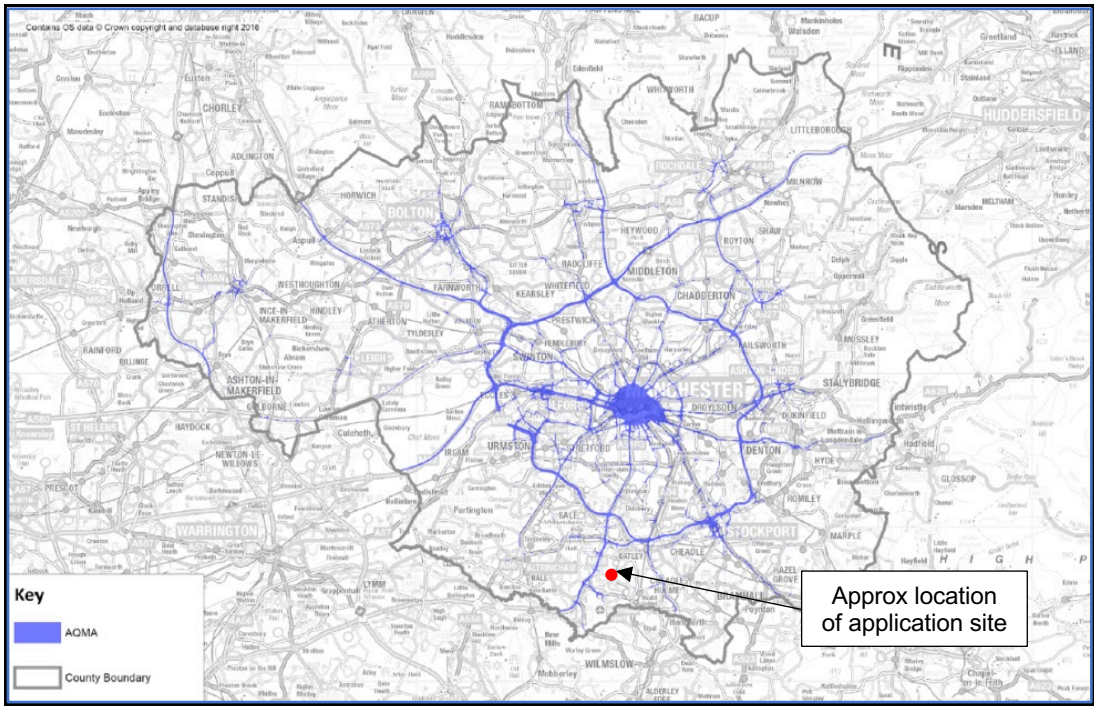


Figure 1: Greater Manchester AQMA

2.3 Guidance

A summary of the publications referred to in the undertaking of this assessment is provided below.

Guidance on the assessment of dust from demolition and construction

This air quality guidance produced by the Institute of Air Quality Management (IAQM)[8] provides guidance on potential Impacts, determining the need for a detailed assessment, assessing the risk of dust impacts arising, site-specific mitigation and determine significant effects. The emphasis in this document is therefore on classifying the risk of

[8] Holman *et al* (2014). IAQM Guidance on the assessment of dust from demolition and construction, Institute of Air Quality Management, London. www.iaqm.co.uk/text/guidance/construction-dust-2014.pdf.

dust impacts from a site, which will then allow appropriate mitigation measures to be identified.

Land Use Planning and Development Control: Planning for Air Quality

This air quality guidance produced by Environmental Protection UK (EPUK) and the IAQM[9] offers comprehensive advice on: when an air quality assessment may be required; what should be included in an assessment; how to determine the significance of any air quality impacts associated with a development; and the possible mitigation measures which may be implemented to minimise these impacts.

Local Air Quality Management Review and Assessment Technical Guidance

The Department for Environment, Food and Rural Affairs (DEFRA) has published technical guidance for use by local authorities' air quality management[10]. This guidance, referred to in this document as LAQM.TG(22), has been used where appropriate in the assessment presented herein.

[9] Moorcroft and Barrowcliffe. *et al*. (2017) Land-use Planning & Development Control: Planning for Air Quality. v1.2. Institute of Air Quality Management, London.

[10] DEFRA (2016) Part IV The Environment Act 1995 and Environment (Northern Ireland) Order 2002 Part III, Local Air Quality Management Technical Guidance LAQM.TG(22) (v1.0, August 2022)

3.0 SCOPE AND METHODOLOGY

3.1 Scope

The scope of the assessment was determined in the following way:

- Guidance from Institute of Air Quality Management and EP UK relating to air quality and planning, and air quality impacts during construction;
- Consultation with the environmental health department of MCC;
- Review of available information on the demolition and construction works required for the project;
- review of the emissions data for the diesel-powered generators proposed for the site;
- review of the most recently available local air quality monitoring data from the Manchester City Council (MCC) air quality monitoring programme and estimated background data for the site and surrounding area from the DEFRA website[11];
- review of the most recent MCC Air Quality Annual Status Reports; and
- desk study to confirm the location of existing receptors that may be sensitive to changes in local air quality.

3.2 Methodology

3.2.1 Construction Phase

To assess the potential impacts associated with dust and PM_{10} releases during the construction phase and to determine any necessary mitigation measures, an assessment based on the latest guidance from the Institute of Air Quality Management (IAQM)[8] has been undertaken.

The IAQM assessment is undertaken where there are: 'human receptors' within 350m of the site boundary, or within 50m of the route(s) used by construction vehicles on the public highway, up to 500m from the site entrance(s); and/or 'ecological receptors' within 50m of the site boundary, or within 50m of the route(s) used by construction vehicles on the public highway, up to 500m from the site entrance(s). It is within these distances that the impacts of dust soiling and increased PM_{10} in the ambient air will have the greatest impact on local air quality at sensitive receptors.

The IAQM methodology assesses the risk of potential dust and PM_{10} impacts from the following four sources:

- Demolition;
- Earthworks;

[11] https://uk-air.defra.gov.uk/data/laqm-background-home

- Construction; and
- Track-out.

The assessment methodology then considers three separate dust effects:

- Annoyance due to dust soiling;
- The risk of health effects due to a significant increase in exposure to PM_{10}; and
- Harm to ecological receptors.

The assessment of the risk of dust effects is determined by the scale and nature of the works, which determine the risk of dust arising; and the proximity of sensitive receptors to the site.

In addition to impacts on local air quality due to on-site construction activities, exhaust emissions from construction vehicles and plant may have an impact on local air quality adjacent to the routes used by these vehicles to access the site and in the vicinity of the site itself. As detailed information on the number of vehicles and plant associated with the construction phase is not available at the time of writing, a qualitative assessment of their impact on local air quality has been undertaken using professional judgement and by considering the following:

- the number and type of construction traffic and plant likely to be generated by this phase of the project;
- the number and proximity of sensitive receptors to the site and along the likely routes to be used by construction vehicles; and
- the likely duration of the construction phase and the nature of the construction activities undertaken.

Risks are described in terms of there being a negligible, low, medium, or high risk of dust effects for each of the four separate potential activities. This assessment is based on both IAQM criteria and professional judgement.

Mitigation measures are identified where necessary, and significance of dust effects determined following such mitigation. A summary of the IAQM assessment methodology is provided in **Appendix C**.

3.2.2 Operational Phase

Guidance on planning and air quality published by the Institute of Air Quality Management (IAQM) and Environment Protection UK (EPUK)[9] provide significance criteria for determining the need for an air quality assessment, as well as significance criteria for undertaking detailed air quality assessments. The guidance states that an air quality assessment is likely to be needed where there is the risk of a significant air quality effect.

The criteria provided in the IAQM guidance as a guide for establishing the need for an assessment separately consider the following:

- the impacts of existing sources in the local area on the development; and
- the impacts of the development on the local area.

To assess the exposure that residents or users of the proposed development might experience, the following should be considered:

- the background and future baseline air quality and whether this will be likely to approach or exceed the values set by air quality objectives;
- the presence and location of AQMAs as an indicator of local hotspots where the air quality objectives may be exceeded;
- the presence of a heavily trafficked road, with emissions that could give rise to sufficiently high concentrations of pollutants (particularly NO_2), that would cause unacceptably high exposure for users of the new development; and
- the presence of a source of odour and/or dust that may affect amenity for future occupants of the development.

When considering the impacts of a development on local air quality, a two-stage approach is suggested in the guidance. The first stage is intended to screen out smaller development and/or developments where impacts can be considered to have insignificant effects. The second stage considers specific details regarding the proposed development and the likelihood of air quality impacts. The criteria for the first and second stages are set out in **Table 1** and **Table 2**.

Table 1: Air Quality Screening - Stage 1 Criteria

Criteria to Proceed to Stage 2
A. If any of the following apply: • 10 or more residential units or a site area of more than 0.5ha • more than 1,000 m^2 of floor space for all other uses or a site area greater than 1ha
B. Coupled with any of the following: • the development has more than 10 parking spaces • the development will have a centralised energy facility of other centralised combustion process

Table 2: Indicative Stage 2 criteria for requiring an air quality assessment

The development will:	Indicative criteria to proceed to an Air Quality Assessment
1. Cause a significant change in Light Duty Vehicle (LDV) traffic flows on local roads with relevant receptors.	A change of LDV flows of: • more than 100 AADT within or adjacent to an AQMA • more than 500 AADT elsewhere
2. Cause a significant change in Heavy Duty Vehicle (HDV) flows on local roads with relevant receptors.	A change of HDV flows of: • more than 25 AADT within or adjacent to an AQMA • more than 100 AADT elsewhere.
3. Realign roads, i.e., changing the proximity of receptors to traffic lanes.	Where the change is 5m or more and the road is within an AQMA.
4. Introduce a new junction or remove an existing junction near to relevant receptors.	Applies to junctions that cause traffic to significantly change vehicle accelerate/decelerate, e.g., traffic lights, or roundabouts.
5. Introduce or change a bus station.	Where bus flows will change by: • more than 25 AADT within or adjacent to an AQMA • more than 100 AADT elsewhere.
6. Have an underground car park with extraction system.	The ventilation extract for the car park will be within 20 m of a relevant receptor. Coupled with the car park having more than 100 movements per day (total in and out).
7. Have one or more substantial combustion processes, where there is a risk of impacts at relevant receptors. Note: this includes combustion plant associated with standby emergency generators (typically associated with centralised energy centres) and shipping.	Typically, any combustion plant where the single or combined NO_x emission rate is less than 5 mg/s [(a)] is unlikely to give rise to impacts, provided that the emissions are released from a vent or stack in a location and at a height that provides adequate dispersion. In situations where the emissions are released close to buildings with relevant receptors, or where the dispersion of the plume may be adversely affected by the size and/or height of adjacent buildings (including situations where the stack height is lower than the receptor) then consideration will need to be given to potential impacts at much lower emission rates. Conversely, where existing NO_2 concentrations are low, and where the dispersion conditions are favourable, a much higher emission rate may be acceptable.

(a) As a guide, the 5 mg/s criterion equates to a 450 kW ultra-low NO_x gas boiler or a 30kW CHP unit operating at <95mg/Nm^3. The NO_x mass emission rate from the proposed plant should be calculated, based on manufacturers' specifications and operational conditions.

The proposed development would have a floor space of greater than 1,000m^2 and the development will have a centralised combustion process for emergency power generation. Therefore, the proposed development cannot be screened out and an air quality assessment is required.

Where an air quality assessment is identified as being required, this may be either a Simple or a Detailed Assessment. A Simple Assessment is one relying on already published information and without quantification of impacts, in contrast to a Detailed Assessment that is completed with the aid of a predictive technique, such as a dispersion model. A Simple Assessment will be appropriate where it can provide this evidence to allow a conclusion on the significance of effects on local air quality to be reached.

3.2.3 Assessment criteria

Air quality standards and objectives have been established by the Government to protect human health. The 'standards' are concentrations below which health effects are unlikely even in sensitive population groups, or below which risks to public health would be extremely small. They are based purely upon the scientific and medical evidence of the effects of an individual pollutant. The 'objectives' reflect the extent to which the Government expects the standards to be achieved by dates set out in the relevant statutory documents. The objectives take account of economic factors, practicability, technical feasibility, and timescale. The objectives for use by local authorities are prescribed within the Air Quality (England) Regulations, 2000, Statutory Instrument 928 (2000) and the Air Quality (England) (Amendment) Regulations 2002, Statutory Instrument 3043 (2002). For NO_2, there are both annual and 1-hour mean objectives in the regulations. For PM_{10}, there are 24-hour mean and annual mean objectives. The relevant air quality criteria for this assessment are provided in **Table 3**.

Table 3: Air Quality Standards and Guidelines Applicable to the Assessment

Pollutant	Averaging Period	Objective/Environmental Assessment Level
Nitrogen Dioxide	1-hour Mean	200µg/m^3, not to be exceeded more than 18 times per year
	Annual Mean	40µg/m^3
PM_{10}	24-hour Mean	50, not to be exceeded more than 35 times per year
	Annual Mean	40

3.3 Assessment of Significance

3.3.1 Construction Phase

The IAQM assessment methodology recommends that significance criteria are only assigned to the identified risk of dust impacts occurring from a construction activity with appropriate mitigation measures in place. For almost all construction activities, the application of effective mitigation should prevent any significant effects occurring to sensitive receptors and therefore the residual effect will normally be negligible. For the assessment of the impact of emissions from plant and construction vehicles accessing

and leaving the site on local air quality, the significance of the emissions has been determined using professional judgement and the criteria described below for operational phase impacts.

3.3.2 Operational Phase

The assessment of significance for the operational phase impacts is based on the likely impacts on local air quality associated with the proposed development. This considers the existing air quality in the area, the magnitude of emissions associated with the operational phase of the development and the proximity of sensitive receptors and the likelihood any impacts from emissions generated by the proposed development will have a significant effect at these locations. This takes into account the air quality standards provided in **Table 3**.

3.4 Site Location and Sensitive Receptors

3.4.1 Site location

The Application Site is located on the corner of Wavell Road and Brownley Road in Wythenshawe. It consists of Simon House, a vacant two storey flat roof building and Delta House, an 8-storey building to the north, as shown in **Figure 2** and **Figure 3** below. The site lies to the east of the town centre, within a commercial park. The surrounding area is largely commercial/retail in nature with Brownley Road running past the eastern boundary of the site.

A two-storey building occupied by a children's nursery lies directly to the north of Simon House and east of Delta House. The closest residential properties lie approximately 70m north of the site, on the west side of Brownley Road. Other residential areas lie to the east, being approximately 75m at the closest property on the corner of Brownley Road and Rosslare Rd, and 80m to Clifden Drive.

The emergency backup generators would be housed in the western end of the proposed data centre building on the site. The layout of the proposed data centre building is shown in **Figure 3**. The emergency backup generators are located on the ground floor at the western end of the proposed building.



Source: Google Earth (sourced July 2023)

Figure 2: Location of Application Site

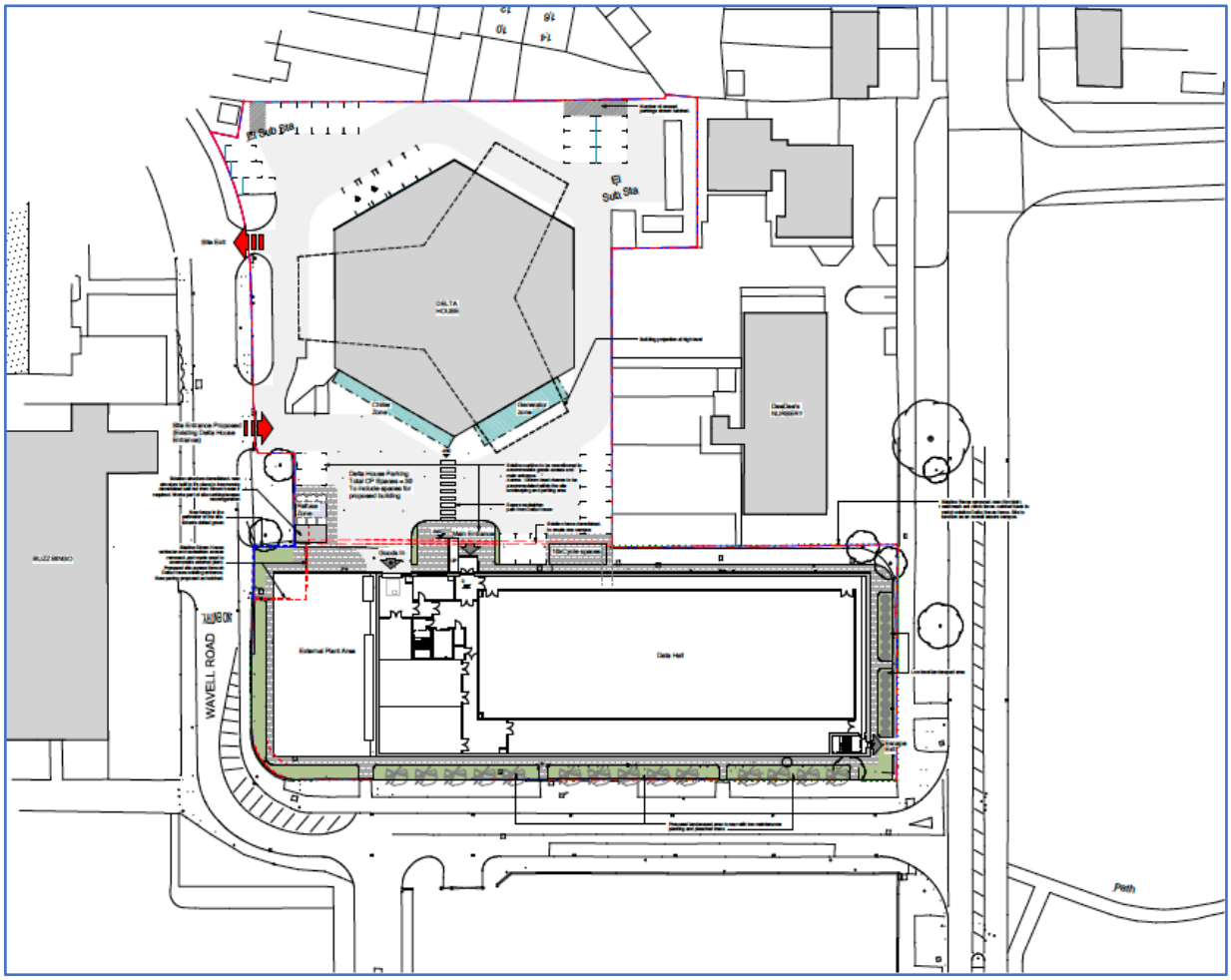


Figure 3: Application Site Proposed Layout Plan

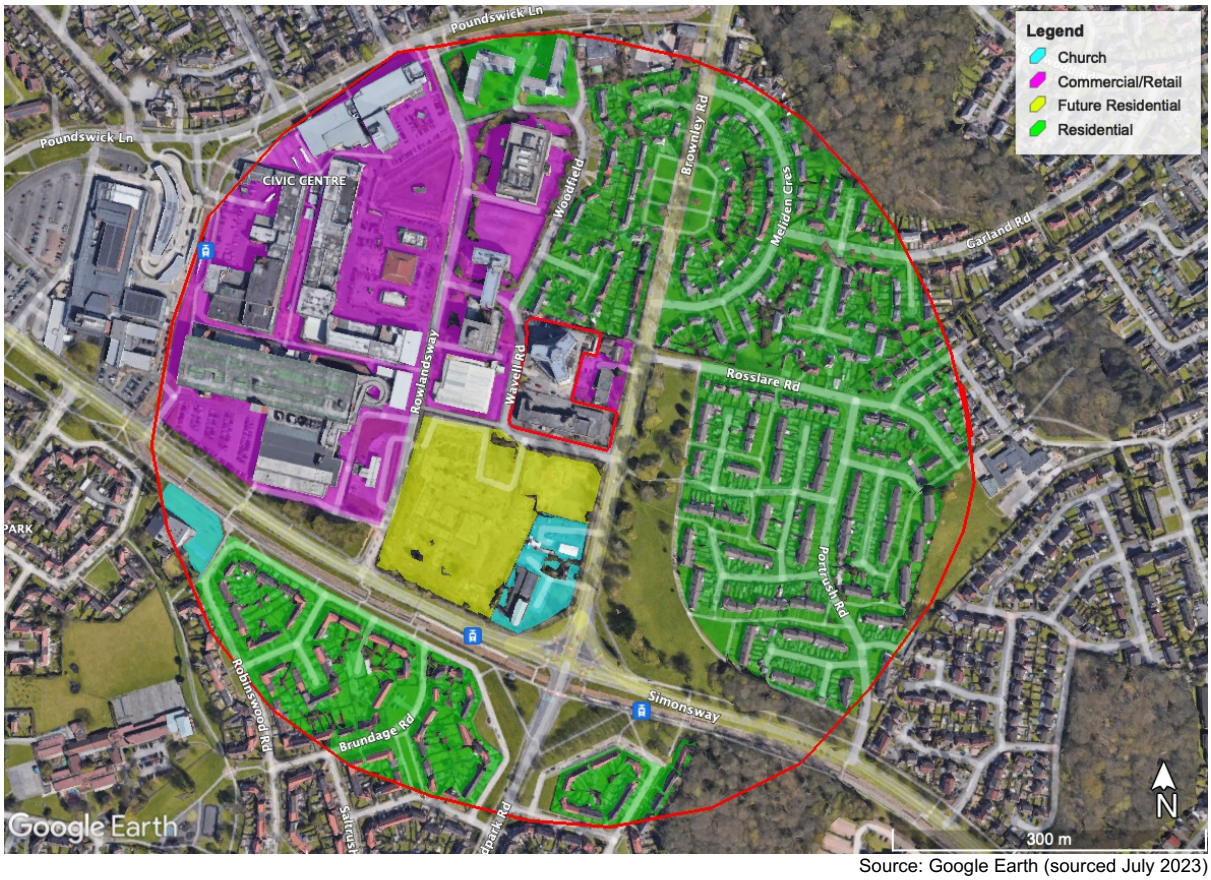
3.4.2 Sensitive Receptors

Sensitive locations are those where members of the public or ecological habitats may be exposed to pollutants arising from the construction and/or operation of the proposed development. These will include locations sensitive to an increase in dust deposition and PM_{10} concentrations as a result of on-site construction activities, and locations alongside the roads which are predicted to experience a change in traffic flows (and therefore air quality) as a result of the construction and/or operation of the proposed development.

Figure 4 (overleaf) shows the general land use around the Application Site which are potentially sensitive to changes in air quality resulting from either the construction activities or the operation of the proposed development.

There are several sensitive receptor locations (including residential properties) within 350m of the site boundary and within 500m either side of the proposed site access. It is these areas that are likely to be affected by dust and emissions from the construction site activities and traffic and which have been considered in the assessment.

There are no ecological receptors within the immediate vicinity of the Application Site or alongside roads where a change in traffic flows may occur because of the construction and/or operation of the proposed development.



Source: Google Earth (sourced July 2023)

Figure 4: Potentially Dust Sensitive Land Uses within 350m of the Application Site

In terms of locations that are sensitive to gaseous pollutants emitted from engine exhausts (road vehicles and construction plant), these will include places where members of the public are likely to be regularly present over the period prescribed in the AQS.

Construction Phase

Examples of receptor sensitivity to dust and particulate matter generated by construction activities are shown in **Table 4**, which is based on a table of examples provided in the guidance published by the IAQM[8].

The area surrounding the Application Site is occupied by primarily residential and commercial/retail land uses, but also community uses (e.g., churches and open areas), all within 350m of the site. The residential development is generally. There is an area to the south that has been cleared for future residential development, however, no planning approval has been issued for the site. Most land uses referred to above will be sensitive to increases in dust deposition to some extent. No areas of ecological significance have

been identified in the area surrounding the site where dust emissions from the construction of the hospital may impact.

Receptors which are potentially sensitive to the impacts of exhaust emissions associated with construction traffic and non-road machinery during the construction phase of the development will generally be the same as those sensitive to the emissions associated with the site generated traffic once the data centre is operational. That is, receptors located adjacent to the roads most affected by the construction or operational traffic. However, emissions from on-site machinery and vehicle movements within the site during the construction phase may impact sensitive locations closest the site boundary, but which are not necessarily also located adjacent to main roadway that is affected by construction traffic moving to and from the site.

The construction traffic is anticipated to approach the site from the north, from via the M56, down Brownley Road and Wavell Road. Construction traffic leaving the site will follow a route along Wavell Road northwards, onto Rowlandsway, then Poundswick Lane and then Brownley Road to the M56. The construction contractor will be required to develop a traffic management plan that ensures construction traffic routed away from local residential access roads and sensitive residential areas as far as practicable.

Table 4: Summary of receptor sensitivity to construction phase impacts

Sensitivity of Receptor	Human Receptors	
	Dust Principles	**Health Effects of PM_{10}**
High	**General Principles:** • users can reasonably expect enjoyment of a high level of amenity; or • the appearance, aesthetics or value of their property would be diminished by soiling; and people or property would reasonably be expected to be present continuously, or at least regularly for extended periods, as part of the normal pattern of use of the land. Indicative examples include dwellings, museums, and other culturally important collections, medium- and long-term car parks and car showrooms.	**General Principles:** • locations where members of the public are exposed over a time relevant to the air quality objective for PM_{10} (in the case of the 24-hour objectives, a relevant location would be one where individuals may be exposed for eight hours or more in a day). Indicative examples include residential properties. Hospitals, schools, and residential care homes should also be considered as having equal sensitivity to residential areas for the purposes of this assessment.
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; or • the appearance, aesthetics or value of their property could be diminished by soiling; or	• Locations where the people exposed are workers, and exposure is over a time relevant to the air quality objective for PM_{10} (in the case of the 24-hour objectives, a relevant location would be one where individuals may be exposed for eight hours or more in a day). Indicative examples include office and shop workers but will generally not include workers

Sensitivity of Receptor	Human Receptors	
	Dust Principles	**Health Effects of PM_{10}**
	• the people or property wouldn't reasonably be expected to be present here continuously or regularly for extended periods as part of the normal pattern of use of the land. Indicative examples include parks and places of work.	occupationally exposed to PM_{10}, as protection is likely to be covered by Occupational Health and Safety legislation.
Low	• The enjoyment of amenity would not reasonably be expected; or • property would not reasonably be expected to be diminished in appearance, aesthetics, or value by soiling; or • there is transient exposure, where the people or property would reasonably be expected to be present only for limited periods of time as part of the normal pattern of use of the land. Indicative examples include playing fields, farmland (unless commercially sensitive horticultural), footpaths, short term car parks and roads.	• Locations where human exposure is transient. Indicative examples include public footpaths, playing fields, parks, and shopping streets.

Operational Phase

Sensitive receptors relevant to the operational phase of the proposed development are locations where members of the public or sensitive ecological habitats may be exposed to pollutants emitted traffic directly associated with the site and exhaust emissions from emergency backup diesel generators. These are primarily the residential, commercial, retail, and recreational (park) locations adjacent to the roads most affected by the additional traffic associated with the proposed development but may also include any off-site receptors that could be affected by point source emissions at the site, but that are not located near an affected road. This would only relate to the closest residential properties located on local access roads. The operational phase of the proposed data centre will generate very low levels of traffic.

There are designated ecological sites in the wider area which are potentially sensitive to emissions associated with the emergency generators. These include Cotteril Clough (SSSI), which is located 3.2km from site; Rostheme Mere (Ramsar), 8.5km from the site; and Midland Meres and Mosses Phase 1 (Ramsar), 9.6km from the site. The distance of these ecological receptors from the site, combined with the short-term nature of the generators' operation for the testing and maintenance across a year mean the impact of emissions from this source on annual mean NO_x concentrations at these ecological receptors would be insignificant (i.e., less than 1% of the AQS). Therefore, these receptors are not considered further in the assessment.

4.0 EXISTING CONDITIONS

4.1 Local Emissions Sources

The site location is described in *Section 3.4.1*. The primary source of NO_x emissions in the area surrounding the Application Site is traffic using the local road network, particularly Brownley Road and, to a lesser extent, Simonsway (due to the separation distance of approximately 200m. There are four existing emergency generators associated with Delta House, which are a similar capacity to those proposed for the new data centre. There may also be small emission sources within the Wythenshawe Civic Centre area associated with heating, as well as domestic heating sources in the surrounding area. However, there are no significant continuous combustion point sources within the surrounding area. Emission sources such as described and traffic emissions from roads are accounted for within the DEFRA estimated backgrounds and air quality monitoring data collected by MCC; therefore, the impact on ambient NO_2 concentrations of existing diffuse sources in the area are accounted for within the background concentrations shown in the table below.

4.2 Local Authority Air Quality Monitoring Data

The Council monitors NO_2 concentrations at many locations across its administrative area using automatic analysers and diffusion tubes. Most of these sites are roadside or kerbside monitoring sites where there are existing concerns regarding air quality; however, there are urban background and suburban monitoring locations in the vicinity of the site which are likely to be reasonably representative of the air quality at the Application Site. The closest of these is a continuous monitoring station located approximately 1.4km east southeast of the site (Manchester Sharston). There are also several diffusion tube monitoring locations in the vicinity of the site. The most recent available data from the diffusion tube monitoring locations closest to the Application Site, together with data from the automatic monitoring station are shown in **Table 5**.

Table 5: Local Authority monitoring in the surrounding area

Site Location (Council ID)	Site Type	OS Coordinates		Annual Mean Pollutant Concentrations (µg/m³) or No. of Exceedances				
		Easting	Northing	2018	2019	2020	2021	2022
Continuous Monitoring Location – Manchester Sharston (AURN)								
Annual Mean NO_2	Suburban	384202	386121	24	23	14	16	15
No. exceedances of 200µg/m³				0	0	0	0	0
Annual Mean PM_{10}				14	14	12	12	13
No. exceedances of 50µg/m³				0	3	0	0	1

Site Location (Council ID)	Site Type	OS Coordinates		Annual Mean Pollutant Concentrations (µg/m³) or No. of Exceedances				
		Easting	Northing	2018	2019	2020	2021	2022
Annual Mean $PM_{2.5}$				ND	ND	ND	6	7
NO_2 Diffusion Tubes (Council ID)								
Manchester 8A – St Pauls School (MA8ANO)	Urban Background	381398	387501	27	28	18	21	24
Manchester 92 – Sharston (MA92BNO)	Suburban	384202	386121	20	19	14	14	15
Manchester 94 - Greenwood Rd (MA94BNO)	Roadside	382072	388388	ND	32.1	25	26	28
Stockport 2 – A34 Kingsway (ST2NO)	Roadside	385047	388339	37	39	26	28	30
Stockport 13 – Prospect Vale (ST13NO)	Urban Background	384675	386295	18	19	12	14	13

The results show that concentration at the roadside monitoring locations closest to the site comply with the standard for annual mean NO_2 concentrations, including MA94BNO, which is adjacent to the M56 (around 1.7km northwest of the site, within the AQMA). The concentrations at the background/suburban monitoring locations are well below the air quality standard (<40% of the AQS). In addition, no exceedances of the short-term air quality objective for 1-hour mean NO_2 were recorded at the nearby continuous monitoring station. The impact on pollutant concentrations due to reduced traffic during the Covid-19 lockdown periods can be clearly seen in the data, with concentrations generally showing an upward trend for 2021 and 2022.

There were no exceedances of the AQOs for particulate matter (PM_{10}). Concentrations of PM_{10} and $PM_{2.5}$ relatively constant over the 5-year period shown at the suburban automatic monitoring site. The data indicate that the air quality in the vicinity of the site is likely to be good, with pollutant levels well below the air quality objectives at receptor locations closest to the site (being remote from heavily trafficked roads) and higher concentrations at locations close to roads within and near the AQMAs.

4.3 Background Air Quality Data

Estimated background concentrations from DEFRA's website (published 2018) have been obtained for review. Background concentrations for the pollutants included in the AQS have been mapped at a grid resolution of 1x1km grid squares for the whole of the UK up to 2030. **Table 6** shows the estimated 2022 and 2023 background concentrations

of NO_2, PM_{10} and $PM_{2.5}$ for the grid square within which the proposed development site is located.

Table 6: 2022 and 2023 Estimated background concentrations for the Application Site and Receptor Locations

Grid Square Centre (OS Coordinates)		Year	Annual Pollutant Concentration (µg/m^3)		
Easting	Northing		NO_2	PM_{10}	$PM_{2.5}$
382500	386500	2022	17.4	11.1	7.6
		2023	16.9	11.0	7.5

The data presented in **Table 6** shows that the estimated background concentrations are all well below the air quality standards for annual mean NO_2, PM_{10} and $PM_{2.5}$. The estimated NO_2 concentrations are higher than the concentrations measured at the urban background/suburban diffusion tube monitoring locations shown in **Table 5**. This further indicates that the air quality at the Application Site and surrounding receptor locations is likely to be good, with pollutant levels below the relevant AQS. Receptor locations closer to busy roads are likely to experience higher NO_2 concentrations as indicated by the Council's roadside monitoring locations, but unlikely to exceed the AQS for annual mean NO_2 concentrations.

4.4 Meteorological Data

Meteorological conditions, primarily windspeed and direction, are fundamental in the dispersion of pollutants, particularly dust and fine particles from construction activities. Prevailing wind directions and frequency of higher windspeeds (i.e., above 5m/s) provides an indication of the likelihood dust emissions, should they arise, affecting surrounding sensitive receptor locations (source-pathway-receptor). Windspeed and direction data has been obtained from Manchester Ringway Airport, which is the closest observing station to the site, located approximately 2km to the south. The wind rose for 2013 to 2022 is shown in **Figure 5**.

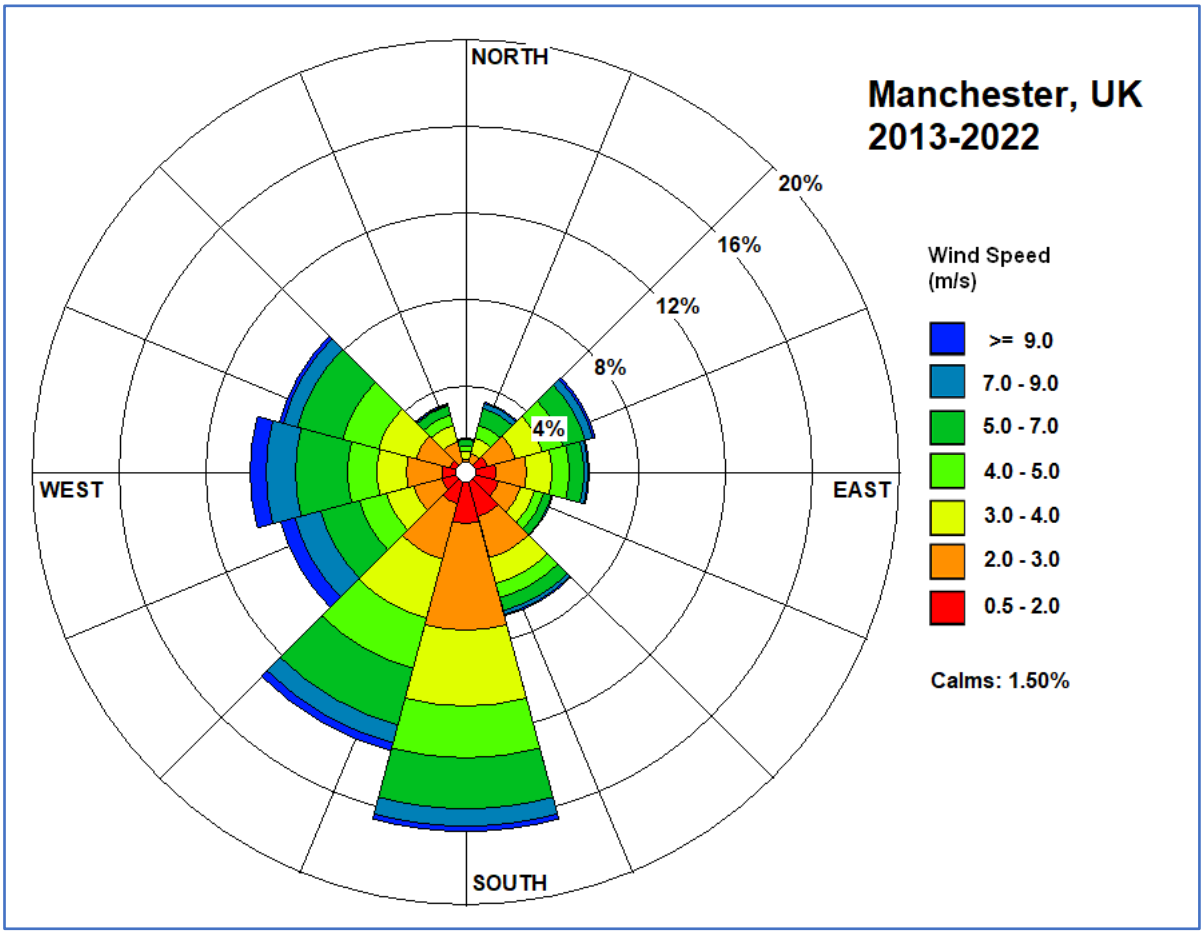


Figure 5: Windrose for Manchester Ringway

The data illustrates that the strongly prevailing wind is from the south (17% of the time), followed by south southwest (13% of the time). Winds from the westerly quarter also occur relatively often (approx. 27% of the time for the three directions). Higher windspeeds (>5m/s) tend to generate dust emissions through dust entrainment, and these occur for approximately 25% of the time for all wind directions.

5.0 ASSESSMENT OF IMPACTS

5.1 Construction Impacts

An assessment of the likely significant impacts on local air quality due to the generation and dispersion of dust and PM_{10} during the construction phase has been undertaken using the relevant assessment methodology published by the IAQM, available information for this phase of the proposed development provided by the Client and Project Team, and professional judgement.

5.1.1 Construction sources of Dust and Fine Particles

The main sources of dust associated with the construction activities for the Project will include:

- Site clearance (e.g., demolition of the existing structure, concrete crushing activities and handling of demolition materials);
- Any excavation required for building foundations and utilities, installation (e.g., utilities), filling and levelling;
- Construction processes;
- Materials handling, storage, stockpiling, spillage, and disposal;
- Site preparation and restoration after completion;
- Movement of vehicles and construction traffic within the operational site where construction works are taking (including excavators, dump trucks and transports)

The duration of the demolition works is estimated at 3 months, with the construction phase estimated to take 10 months. Most of the releases are likely to occur during the 'working week'. However, for some potential release sources, e.g., exposed stockpiles of potentially dusty material, in the absence of dust control mitigation measures, dust generation has the potential to occur 24 hours per day over the period during which such activities are to take place.

Equipment used for the demolition phase is anticipated to be a 22-ton excavator and grab attachment, a Doosan 16 tonne with grab, and a hydraulic pulveriser. For the construction works, the anticipated vehicle types include, medium and small tipper lorries, concrete trucks, flat-bed trucks, skip lorries and LDVs. Works will essentially occur across the entire site; however, demolition and construction activities will be staged and progress across the site, such that the potential for impacts at any individual receptor location will vary throughout the duration of construction phase as activities move location around the site.

Assessment of Potential Dust Magnitude

The IAQM assessment methodology has been used to determine the potential dust emission magnitude for the following four different dust and PM_{10} sources: demolition; earthworks (including excavations, site preparation, levelling etc.); construction; and track-out. The findings of the assessment are presented below. For first step in the assessment process requires the site's potential dust magnitude, based on the scale of the anticipated works, and should be classified as small, medium, or large. The indicative criteria for assessing the potential magnitude are shown in **Appendix C**.

Demolition of existing structures will be required for the preparation of the site, though this will be less than 20,000m^3 building volume to demolish, but does include materials with potential to release dust (e.g., concrete). Demolition activities would be below 10m above the ground. Some earthworks may be needed to clear the site of any debris and levelling the construction areas. Excavations will be required for laying building foundations and installing utilities. Compaction of foundations will be required prior to backfilling.

Concrete construction works will be required for the construction of foundations and components of the building; however, no concrete batching will occur on-site. The total build volume will be approximately 40,000m^3. Exposure of soils on site will not be extensive and are unlikely to be particularly friable; Construction materials will be stored on site, some of which may have potential to release dust in the absence of dust control measures; however, the construction works will not require extensive stockpiling of potentially friable material. Therefore, it is unlikely excavations or stockpiling have the potential for significant fine particle emissions during any earthworks or construction.

As referred to above, detail information on the number of construction vehicles required for proposed development is not currently available; however, it has been estimated by the developer that during the peak period of the construction that there will be approximately 10 vehicle movements at the site in any one day, and that this would be 80 to 100% HGVs, and there would not be any unpaved haul roads on the site. Parking will not be provided for the workforce, as the site is well served by alternative modes of transport; therefore, there will be negligible levels of traffic generated by workers attending and leaving the site.

The basis of the above information, the dust magnitude has been determined for each of the activities referred to in the IAQM Guidance and these are presented in **Table 7**.

Table 7: Potential Dust Emission Magnitude

Activity	Dust Emission Magnitude
Demolition	Medium
Earthworks	Small
Construction Activities	Small
Track-out	Small

Assessment of Sensitivity of the Study Area

A 10-year average wind rose for Manchester Ringway is shown in **Figure 5**. This shows that the prevailing wind direction is from the south, followed by strong south-southwest winds. There is also a reasonable westerly component to the wind rose. Therefore, receptors located to north and northeast and, to a lesser extent, east of the site are the most likely to be affected by dust and particulate matter emitted and re-suspended during the construction phase.

Figure 4 shows the land uses around the construction site. A nursery is located to the north, less than 10m from the boundary of the construction site, with offices located to the north beyond the nursery, approximately 50m from the construction site boundary. The closest residential properties are approximately 70m north of the site, on the eastern side of Brownley Road. Land immediately south of the south is vacant, having been cleared for future residential development; however, no residential development will be completed before the construction of the data centre building.

Around 70m south of the construction site is a church carpark, with the church and associated buildings approximately 120m south of the construction site. There are also residential areas to the east and northeast of the construction, with the closest property approximately 75m from the site boundary. Commercial and retail areas lie to the west and northwest of the site. There are approximately 400 residential dwellings within 350m of the construction site; however, guidance indicates that areas within 100m of a construction site are where potentially significant impacts are most likely to occur if appropriate mitigation measures are not in place. Approximately 30 - 40 dwellings are within 100m of the construction site.

PM_{10} concentrations are monitored at the Sharston monitoring station, and data from this location indicate that background PM_{10} concentrations for the area are likely to be less than 20µg/m^3, i.e., well below the objective.

Taking the above into account and following the IAQM assessment methodology, the sensitivity of the area to changes in dust and PM_{10} has been derived for each of the construction activities considered. The results are shown in **Table 8**. No ecological

receptors are located within 50m of the construction site; therefore, no assessment of ecological receptors has been included in **Table 8.**

Table 8: Sensitivity of the Study Area

Potential Impact	Sensitivity of the Surrounding Area			
	Demolition	Earthworks	Construction	Track-out
Dust Soiling	High	Medium	High	Medium
Human Health	Low	Low	Low	Low
Ecological	NA	NA	NA	NA
Note: Demolition and construction are both classified as high due the proximity of the nursery to the boundary of the construction site. For the closest residential areas, the sensitivity would be Low because there are less than 100 receptors within 100m and none within 50m.				

Risk of Impact

The predicted dust emission magnitude has been combined with the defined sensitivity of the area to determine the risk of impacts during the construction phase, prior to mitigation. **Table 9** provides a summary of the risk of dust impacts for the construction of the data centre. The risk category identified for each activity of the construction phase has been used to determine the level of mitigation required.

Table 9: Summary Dust Risk Table to Define Site-Specific Mitigation

Potential Impact	Risk			
	Demolition	Earthworks	Construction	Track-out
Dust Soiling	Medium	Low	Medium	Negligible
Human Health	Negligible	Negligible	Negligible	Negligible
Ecological	N/A	N/A	N/A	N/A

5.1.2 Construction Vehicles and Plant

The impact on air quality from traffic and plant associated with this phase of the proposed road construction will be in the areas immediately adjacent to the principal means of site access for construction traffic. Based on the current local air quality in these areas and the likely volume of construction traffic, the impacts are therefore considered to be temporary, short-medium term, local and of **negligible** significance based on the IAQM significance criteria.

5.2 Operational Phase

5.2.1 Impacts of existing sources in the local area on users of the development

The roads surrounding the site are not heavily trafficked and would not give rise to sufficiently high emissions that would cause unacceptably high exposure to the workforce using the development. Data presented in **Table 5** indicate that background air quality in the area is likely to be relatively good, with existing and future concentrations of NO_2 and PM_{10} likely to be well below the he respective air quality objectives. Therefore, the effect of any impacts from existing local emission sources on the proposed development would not be significant.

5.2.2 Impact of the development on local air quality

Once the construction of the data centre is complete, emissions from the traffic using the surrounding road network to access the new building will have some level of impact on air quality in the areas closest to the road network around the Project Site. This includes areas adjacent to roads which may be used by pedestrians and cyclists and any permanent residential development in areas near Project Site. Due to the nature of data centres, there will be limited vehicle movements associated with the operational phase. This is estimated to be 14 two-way vehicle movements per day associated with the staff at the data centre and two delivery/service visits per day. This traffic would be confined to light vehicles movements only (cars and LGVs). Comparison of this level of traffic with the criteria in **Table 2** indicates that impacts will not be significant and further assessment of emissions from operational traffic is not necessary.

The proposed data centre will also include three 2.2MW emergency backup diesel generators to provide power to the data centre in the event of a power failure. These generators could potentially have an impact on local air quality during emergency operation and during the regular testing, which is required for the generators to confirm correct backup operation.

Information supplied by Teledata on the operation of emergency generators at other data centres indicates that, typically, the generators run for an average of 10 hours each per year. This includes both testing, maintenance, and emergency use, and is based on ten-year site data.

There will be three types of tests required for the generators across a year, during which the generator being tested would be run for less than an hour. The testing regime is as follows:

1. Monthly On Load Tests:

    - Tested once per month (10 months of the year).
    - Tested against the site load only, which is 2/3 maximum load.
    - Testing of the generator sets will be staggered so that only one generator operates operating at a time.

2. Annual Load Bank Tests

- Tested once per year (alternate month of year to monthly On Load Testing).
- Tested against load bank, which will be up to 100% of set standby rating.
- Testing of the generator sets will be staggered so that only one generator operates operating at a time.

3. Annual Black Building Test

- Test undertaken twice per year.
- All three generator sets tested at once.
- Tested against the site load only, which is 2/3 maximum load.

All regular testing will be undertaken outside of the adjacent nursery operating hours, and outside of periods of time when background NO_2 levels are typically higher (e.g., during rush hour traffic. This is consistent with the requirements specified by the Environment Agency for testing emergency backup generators[12].

In addition, generator maintenance will also involve testing the engines:

- Generators to be run up off load twice per year to coincide with maintenance.
- Maintenance will be undertaken in a staggered fashion so only one generator is tested during maintenance at any one time.
- Maintenance is during normal weekday working hours

The exhaust flues will be installed according to good engineering practice for clearance of the roofline (the roofline is proposed to 13.5m above the ground), e.g., 1 to 2m above the roofline which will provide a good level of dispersion of the exhaust emissions. The flues will also be located at the western end of the proposed building, thereby maximising the distance from the closest sensitive receptors.

Emissions data for the capacity of generators that would be installed at data centre operating on diesel has been supplied by the manufacturers/suppliers[13]. The emissions data is shown in **Table 10**. This includes data for generators at 100% load, 75% load and 50% load. Emissions during most of the testing would lies between that shown for 75% load and 50% load, because the generators would be run at two thirds (66%) load.

Table 10: Emissions data for the size generators proposed for the data centre

Parameter	50% Load	75% Load	100% Load
Electrical Power (kWe)	1100	1650	2200
Exhaust Gas Temperature (°C)	428	446	475

[12] https://www.gov.uk/guidance/specified-generator-when-you-need-a-permit.
[13] The data is for generators utilising Cummins engines operating in emergency standby power mode.

Exhaust Gas Flow (m^3/s) @ Exhaust Temp	4.63	5.77	6.38
Exhaust Gas Flow (Nm^3/s) @ 273K, 101.3 kPa	1.81	2.19	2.33
Exhaust Gas Flow (Nm^3/s) @ 273K, 101.3 kPa, dry gas, 15% oxygen[(b)]	2.79	3.39	3.60
NO_x Concentration (mg/Nm^3)[(a)]	510	704	1,172
NO_x Mass emission rate (g/s)	1.4	2.4	4.2

(a) Measured data was not available for the water (%) and oxygen (%) at actual exhaust temperature; therefore, in order to calculate the mass emission rate, the exhaust flow rate has been corrected assuming typical levels for both parameters of 8.5% water and 10% oxygen at actual exhaust temperature. These are typical levels for these types of generators.

(b) Nm^3 Reference conditions: 273K, 101.3kPa, dry gas, 15% O_2.

The data in **Table 10** shows that the NO_x emission rate for the generators are higher than the threshold shown in **Table 2**. However, this threshold emission rate applies to continuous operation of the combustion plant, rather than the intermittent, short-term operation of the generators for testing. It should also be noted that it is intended to run the generators on HVO. This fuel, besides having considerable advantages from a CO_2 emissions standpoint, is estimated to reduce NO_x emissions by 5% compared to diesel fuel.

The regular testing of the three emergency generators will occur for a total annual test duration of less than 50 hours (typically less than 10 hours total per year per generator). This would ensure that the impact on annual mean NO_2 concentrations at long-term (i.e., residential) receptor locations closest to the data centre would not be significant. This conclusion is supported by the existence of an exemption for emergency backup generators (which are tested for less than 50 hours per year) from the environmental permitting requirements for specified generators. An exemption also applies to such emergency backup generator plants used at data centres for transmission frequency stabilisation,

Testing would be undertaken in accordance with the requirements specified by the Environment Agency for emergency backup generator plants[12] (see below). The testing of each generator would be undertaken for periods of less than an hour, which would minimise any potential for the emissions to give rise to 1-hour mean NO_2 concentrations that could exceed the air quality objective for this averaging period at relevant receptor locations in the vicinity of the data centre.

Therefore, the impact of the emissions associated with the operation of the emergency generators at the proposed data centre would not have a significant effect on air quality at sensitive receptor locations in the area surrounding the site.

6.0 MITIGATION

6.1 Construction Phase

An outline Construction Method Statement (CMS) has been prepared for the construction phase of the proposed development[14]. The CMS will be updated and expanded when the main contractor has been selected. **Table 11** presents the recommended mitigation measures that will form the basis of a more comprehensive method statement. The mitigation methods are drawn from the IAQM guidance and are identified as 'highly recommended' (H) or 'desirable' (D) based on the risk assessed in *Section 5.1.1*.

Table 11: Mitigation measures for construction phase (Medium Risk Site)

Mitigation Measure	Highly Recommended (H) or Desirable (D)
Communications	
1. Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.	H
2. 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.	H
3. Display the head or regional office contact information.	H
Dust Management	
4. Develop and implement a Dust Management Plan (DMP), which may include measures to control other emissions, approved by the Local Authority. The level of detail will depend on the risk and should include as a minimum the highly recommended measures in this document. The desirable measures should be included as appropriate for the site.	H
Site Management 5. 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.	H
6. Make the complaints log available to the local authority when asked.	H
7. 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.	H
Monitoring 8. Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars, and windowsills within 100 m of site boundary, with cleaning to be provided if necessary.	D

[14] Construction Method Statement for Proposed Datacentre – Simon House, Wavell Road, Wythenshawe, M22 5RA. On behalf of Keysource Ltd. Reference: 2023/7192/CMS01.

Mitigation Measure	Highly Recommended (H) or Desirable (D)
9. 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	H
10. 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.	H
Preparing and maintaining the site 11. Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.	H
12. Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.	H
13. Fully enclose site or specific operations where there is a high potential for dust production and the site is actives for an extensive period	H
14. Avoid site runoff of water or mud.	H
15. Keep site fencing, barriers and scaffolding clean using wet methods.	H
16. Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below	H
17. Cover or fence stockpiles to prevent wind whipping.	H
Operating vehicle/machinery and sustainable travel 18. Ensure all vehicles switch off engines when stationary - no idling vehicles.	H
19. Avoid the use of diesel- or petrol-powered generators and use mains electricity or battery powered equipment where practicable.	H
20. Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials.	H
Operations 21. 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.	H
22. Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.	H
23. Use covered skips	H
24. Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate	H
25. Ensure equipment is readily available on site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.	H
Demolition	
26. Soft strip inside buildings before demolition (retaining walls and windows in the rest of the building where possible, to provide a screen against dust).	D

Mitigation Measure	Highly Recommended (H) or Desirable (D)
27. Ensure effective water suppression is used during demolition operations.	H
28. Bag and remove any biological debris or damp down such material before demolition.	H
Construction	
29. Ensure 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 ensure that appropriate additional control measures are in place.	H
30. For smaller supplies of fine power materials ensure bags are sealed after use and stored appropriately to prevent dust.	D
Track-out	
31. 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.	H
32. Avoid dry sweeping of large areas.	H
33. Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.	H
34. Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.	H
35. Record all inspections of haul routes and any subsequent action in a site logbook.	H
36. Ensure there is an adequate area of hard surfaced road leading to the site exit, where site size and layout permits.	H
37. Access gates to be located at least 10 m from receptors where possible	H

Effective implementation and monitoring of the above mitigation measures should ensure that significant impacts are prevented from occurring at sensitive receptor locations. Therefore, it is considered that any residual effect of the construction phase will not be significant at receptor location.

6.2 Operational Phase

The engines will be subject to a programme of regular inspection and maintenance and, when necessary, repaired to ensure the engines operate as efficiently as possible. This will ensure pollutant concentrations in the exhaust emissions from the engine units will be minimised during operational periods.

In addition to staggering the testing of the generators so that only one generator operates at once[15], the testing schedule will be structured so that the testing would be undertaken outside of the operating hours of the adjacent nursery, and at times that avoid periods when background NO_x levels are typically higher (i.e., during morning or evening rush hour). These measures are consistent with Environment Agency guidance on testing

[15] Except for the twice annual 'Black Buidling' testing that requires all three generators to operate concurrently.

emergency backup generators and will mitigate any residual impacts of emissions on local air quality when the generators are operating.

7.0 SUMMARY AND CONCLUSIONS

A qualitative assessment of the potential impacts on local air quality from construction activities associated with the proposed data centre has been carried out based on the available information on this phase of the proposed development and the IAQM construction assessment procedure. This showed that the proposed development is considered to have **Medium** to **Small** dust and PM_{10} emission magnitude overall for demolition, earthworks, general construction activities and track-out. Through good site practice and the implementation of the mitigation measures described in this report, the impact of dust and PM_{10} releases will be reduced, and significant impacts prevented. Therefore, the any residual effects of dust and fine particle emissions from the constriction would not be significant, provided effective implementation and monitoring of the recommended mitigations measures.

A qualitative assessment of the potential impacts during the operational phase has also been undertaken based on information on the anticipated traffic generation for the proposed development, together with information on the location, testing schedule and emissions data for the proposed emergency generators. This showed that:

- existing NO_2 concentrations in the area were well below the air quality standard; and
- level of traffic generated by the operation of the proposed data centre would be low.

Therefore, the effect of development related traffic emissions from traffic would not be significant at sensitive receptor locations.

For NO_x emissions associated with the scheduled testing and maintenance of the emergency generators, the assessment showed that the short test periods, low total number of annual testing hours, staggered test operation, scheduling of the testing and height of discharge would ensure that the effect of the emissions at sensitive receptor locations would not be significant.

Appendix A Air Quality Glossary of Terms

The table below contains a glossary of terms used in air quality assessments.

Term	Definition
Air quality objective (AQO)	Policy targets generally expressed as a maximum ambient concentration to be achieved, either without exception or with a permitted number of exceedances within a specific timescale (see also air quality standard).
Air quality standard (AQS)	The concentrations of pollutants in the atmosphere which can broadly be taken to achieve a certain level of environmental quality. The standards are based on the assessment of the effects of each pollutant on human health including the effects on sensitive sub-groups (see also air quality objective).
Annual mean	The average (mean) of the concentrations measured for each pollutant for one year. Usually this is for a calendar year, but some species are reported for the period April to March, known as a pollution year. This period avoids splitting winter season between 2 years, which is useful for pollutants that have higher concentrations during the winter months.
AQMA	Air Quality Management Area. An area declared by a local authority under the Environment Act 1995 where air quality does not meet one or more air quality standards as determined by monitoring or dispersion modelling.
DEFRA	Department for Environment, Food and Rural Affairs.
EA	Environment Agency (of England and Wales)
EPUK	Environment Protection UK
Exceedance	A period where the concentration of a pollutant is greater than, or equal to, the appropriate air quality standard or objective.
HGV	Heavy Duty Vehicle. This includes goods vehicles + buses >3.5t gross vehicle weight.
1-Hour mean	The average (mean) of the concentrations measured for a pollutant over one hour. Concentrations measured by automatic or continuous analysers generally take a measurement every few minutes (often every 3 minutes) and 1-hour mean is the average of these readings for a given hour.
IAQM	Institute of Air Quality Management
LAQM	Local Air Quality Management.
LGV	Light Duty Vehicle. This includes cars and small vans <3.5t gross vehicle weight.
µg/m^3 - micrograms per cubic metre	A measure of concentration in terms of mass per unit volume. A concentration of 1µg/m^3 means that one cubic metre of air contains one microgram (millionth of a gram) of pollutant.
mg/m^3 – milligrams per cubic metre	A measure of concentration in terms of mass per unit volume. A concentration of 1mg/m^3 means that one cubic metre of air contains one milligram (thousandth of a gram) of pollutant.
NO_x	Nitrogen oxides. Total of NO (innocuous gas with no air quality standards or objectives) + NO_2.
NO_2	Nitrogen dioxide. Pollutant for which air quality standards and objectives exist in the UK due to potential adverse health effects.
PM_{10}	Particulate matter with an aerodynamic diameter of less than 10 micrometers. Pollutant for which air quality standards and objectives exist in the UK due to potential adverse health effects.
$PM_{2.5}$	Particulate matter with an aerodynamic diameter of less than 2.5 micrometers. Pollutant for which an air quality objective exists in the UK, together with a reduction exposure target to reduce exposure across the board, due to potential adverse health effects.

Appendix B Air Quality Standards and Objectives

A summary of the current air quality objectives for the seven pollutants detailed in *Air Quality Standards (Wales) Regulations 2010* for the purpose of Local Air Quality Management is provided below.

Air Quality Objectives currently included in the Air Quality Standards (Wales) Regulations 2010 for the purpose of Local Air Quality Management (LAQM)					
Pollutant	**Standard**		**Objective**		**EU AQ Daughter Directive**
	Concentration	*Measured as*	*Annual exceedances allowed*	Target date	
Benzene (C_6H_6)	5µg/m^3	annual mean		31.12.2010	As standard. target: 01.01.2010
1,3-Butadiene (C_4H_6)	2.25µg/m^3	running annual mean		31.12.2003	
Carbon monoxide (CO)	10mg/m^3	maximum daily running 8 hour mean		31.12.2003	As standard. target: 01.01.2005
Lead (Pb)	0.5µg/m^3	annual mean		31.12.2004	As standard. target: 01.01.2005[8]
Nitrogen dioxide (NO_2)	200µg/m^3	1 hour mean	18	31.12.2005	As objective. target: 01.01.2010
	40µg/m^3	annual mean		31.12.2005	As standard. target: 01.01.2010
Particulate Matter (PM_{10}) (gravimetric)[1]	40µg/m^3	annual mean		31.12.2004	As standard. target: 01.01.2005
	50µg/m^3	24 hour mean	35	31.12.2004	As objective. target: 01.01.2005
Sulphur dioxide (SO_2)	350µg/m^3	1 hour mean	24	31.12.2004	As objective. target: 01.01.2005
	125µg/m^3	24 hour mean	3	31.12.2004	As objective. target: 01.01.2005

Pollutant Applies to	Standard		Objective		EU AQ Daughter Directive
	Concentration	*Measured as*	*Annual exceedances allowed*	Target date	
Polycyclic aromatic hydrocarbons (PAHs)[2]	0.25ng/m^3 B[a]P[3]	annual mean		31.12.2010	
Particulate Matter ($PM_{2.5}$) (gravimetric)[1,2]	25µg/m^3	annual mean	-	20% margin of tolerance on 11 June 2008, decreasing on next 1 January and every 12 months thereafter by equal annual percentages to reach 0% by 1 January	As standard Target 2010

Pollutant Applies to	Standard		Objective		EU AQ Daughter Directive
	Concentration	*Measured as*	*Annual exceedances allowed*	Target date	
For the protection of human health					
Ozone (O_3)[4]	125µg/m^3	maximum daily running 8 hour mean	Not to be exceeded on more than 25 days per calendar year averaged over three years		As objective; but 25 annual exceedances target: 01.01.2010
For the protection of vegetation and ecosystems[5]					
Nitrogen oxides (NO_X)[6]	30µg/m^3	annual mean		31.12.2000[7]	As standard. target: 19.07.2001
Sulphur dioxide (SO_2)	20µg/m^3	annual mean		31.12.2000[7]	As standard. target: 19.07.2001
	20µg/m^3	winter mean (1 October to 31 March)		31.12.2000[7]	As standard. target: 19.07.2001

Explanation:

ng/m^3 = nanograms per cubic metre;

µg/m^3 = micrograms per cubic metre;

mg/m^3 = milligrams per cubic metre (i.e., micrograms per cubic meter x 1,000);

1 Measured using the European gravimetric transfer sampler or equivalent.

2 Objective to be set in regulations in the future.

3 Concentration of Benzo[a]pyrene (B[a]P) to be measured as a marker for the total mixture of PAHs.

4 The objective for this pollutant is provisional and must be tackled at a national level due to its transboundary nature.

5 Only applies to those parts of Wales > 20km from an agglomeration; and > 5km from Part A processes, motorways, and built-up areas of > 5,000 people.

6 Assuming NO_X is taken as NO_2.

7 These objectives have successfully been achieved.

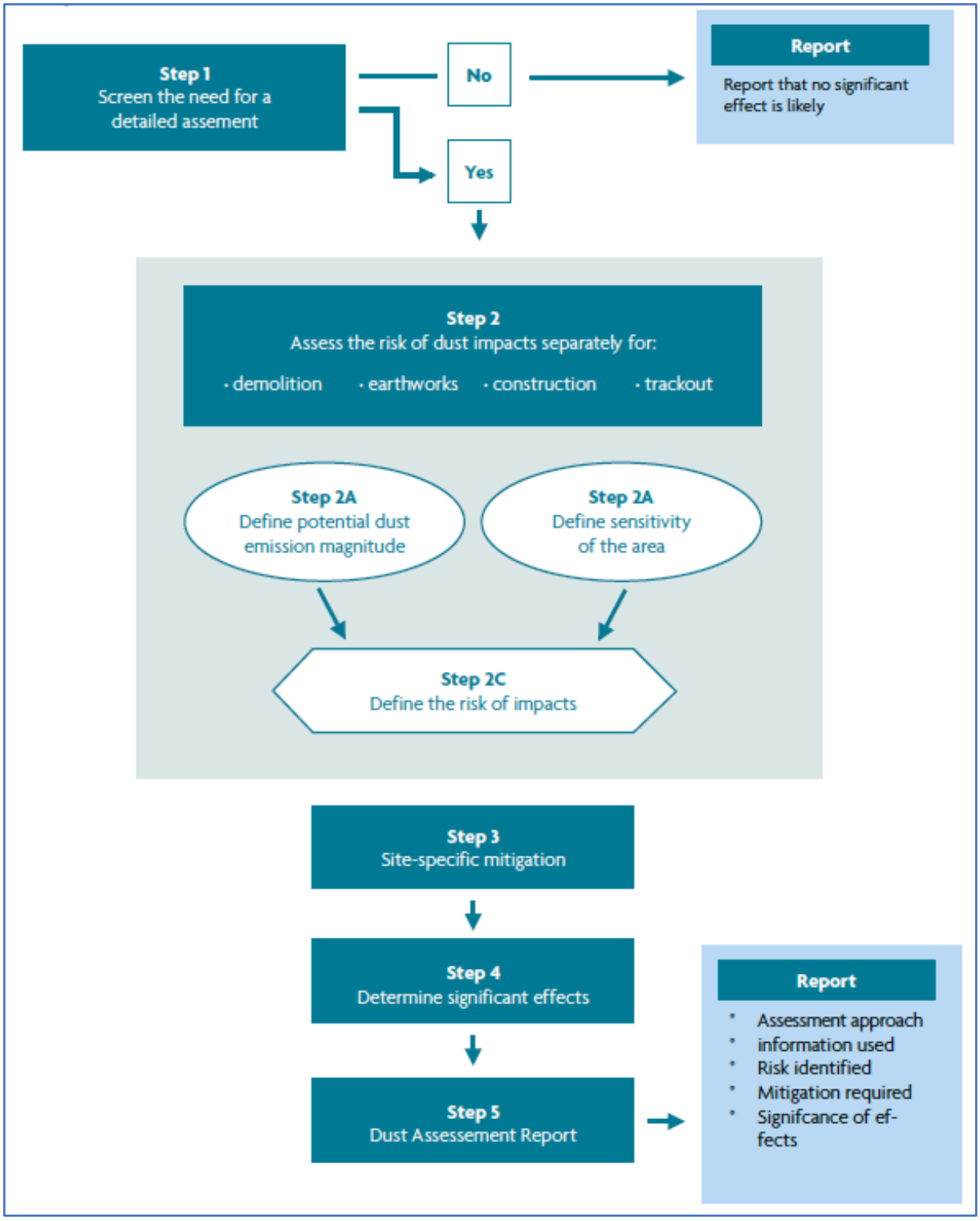
8 Also, an EU AQ Directive Limit Value of 1µg/m^3 to be achieved by 01.01.2010 in the immediate vicinity (1000 m) of certain named industrial sources situated on sites contaminated by decades of industrial activities.

Appendix C Summary of IAQM Construction Phase Impact Assessment Procedure

Summary of IAQM Construction Phase Impact Assessment Procedure

A flow chart is provided in Figure C1 which shows the steps which are required when undertaking a dust assessment in accordance with the IAQM guidance.

Figure C1: Steps to Perform a Dust Assessment



Step 1 – Screen the need for a Detailed Assessment

An assessment will normally be required where there are 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). Where the need for a more detailed assessment is screened out, it can be concluded that the level of risk is "negligible".

Step 2A – Define the Potential Dust Emission Magnitude

The following are examples of how the potential dust emission magnitude for different activities can be defined. (Note that not all the criteria need to be met for a particular class).

1) Demolition

- Large: Total building volume >50 000 m^3 potentially dusty construction material (e.g., concrete), on-site crushing and screening, demolition activities >20 m above ground level;
- Medium: Total building volume 20 000 m^3 – 50 000m^3, potentially dusty construction material, demolition activities 10-20 m above ground level; and
- Small: Total building volume <20 000 m^3, construction material with low potential for dust release (e.g., metal cladding or timber), demolition activities <10m above ground, demolition during wetter months.

2) Earthworks

- Large: Total site area >10 000 m^2, potentially dusty soil type (e.g., clay, which will be prone to suspension when dry due to small particle size), >10 heavy earth moving vehicles active at any one time, formation of bunds >8 m in height, total material moved >100 000 tonnes;
- Medium: Total site area 2 500 m^2 – 10 000 m^2, moderately dusty soil type (e.g., silt), 5-10 heavy earth moving vehicles active at any one time, formation of bunds 4 m - 8 m in height, total material moved 20 000 tonnes – 100 000 tonnes; and,
- Small: Total site area <2 500 m^2, soil type with large grain size (e.g., sand), <5 heavy earth moving vehicles active at any one time, formation of bunds <4 m in height, total material moved <10 000 tonnes, earthworks during wetter months.

3) Construction Activities

- Large: Total building volume >100 000 m^3, on site concrete batching, sandblasting
- Medium: Total building volume 25 000 m^3 – 100 000 m^3, potentially dusty construction material (e.g., concrete), on site concrete batching; and
- Small: Total building volume <25 000 m^3, construction material with low potential for dust release (e.g., metal cladding or timber).

4) Track-out

- Large: >50 HDV (>3.5t) outward movements in any one day, potentially dusty surface material (e.g., high clay content), unpaved road length >100m;

- Medium: 10-50 HDV (>3.5t) outward movements in any one day, moderately dusty surface material (e.g., high clay content), unpaved road length 50m – 100m; and
- Small / Medium: <10 HDV (>3.5t) outward movements in any one day, surface material with low potential for dust release, unpaved road length <50m.

Step 2B – Define the Sensitivity of the Area

The tables below present the IAQM assessment methodology determines the sensitivity of the area can be determined for dust soiling, human health, and ecological impacts respectively. The IAQM guidance also provides examples of the sensitivity of different types of receptors to dust soiling, health effects and PM_{10} effects to help with determining the area sensitivity to construction phase impacts.

Table 2B-1: Sensitivity of the Area to Dust Soiling Effects

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

Table 2B-2: Sensitivity of the Area to Human Health Impacts

Receptor Sensitivity	Annual Mean PM_{10} Concentration ($\mu g/m^3$)	Number of Receptors	Distance from the Source (m)				
			<20	<50	<100	<200	<350
High	>32	>100	High	High	High	Medium	Low
		10-100	High	High	Medium	Low	Low
		1-10	High	Medium	Low	Low	Low
	28-32	>100	High	High	Medium	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	High	Medium	Low	Low	Low
	24-28	>100	High	Medium	Low	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	Medium	Low	Low	Low	Low

	<24	>100	Medium	Low	Low	Low	Low
		10-100	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
Medium	-	>10	High	Medium	Low	Low	Low
		1-10	Medium	Low	Low	Low	Low
Low	-	>10	Low	Low	Low	Low	Low
	-	1-10	Low	Low	Low	Low	Low

Table 2B-3: Sensitivity of the Area to Ecological Impacts

Receptor Sensitivity	Distance from the Sources (m)	
	<20	<50
High	High	Medium
Medium	Medium	Low
Low	Low	Low

Step 2C – Define the Risk of Impacts

The dust emissions magnitude determined at Step 2A should be combined with the sensitivity of the area determined at Step 2B to determine the risk of impacts with no mitigation applied. For those cases where the risk category is 'negligible' no mitigation measures beyond those required by legislation will be required.

Table 2C-1: Risk of Dust Impacts – Demolition

Sensitivity of surrounding 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

Table 2C-2: Risk of Dust Impacts – Earthworks

Sensitivity of surrounding 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

Table 2C-3: Risk of Dust Impacts – Construction

Sensitivity of surrounding 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

Table 2C-4: Risk of Dust Impacts – Track-out

Sensitivity of surrounding 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

Step 3 –Site Specific Mitigation

Having determined the risk categories for each of the four activities it is possible to determine the site-specific measures to be adopted. These measures will be related to whether the site is considered to be a low, medium, or high-risk site. The IAQM guidance details the mitigation measures required for high, medium, and low risk sites as determined in Step 2C.

Step 4 – Determine Significant Effects

Once the risk of dust impacts has been determined in Step 2C and the appropriate dust mitigation measures identified in Step 3, the final step is to determine whether there are significant effects arising from the construction phase.

Step 5 – Prepare the dust assessment report