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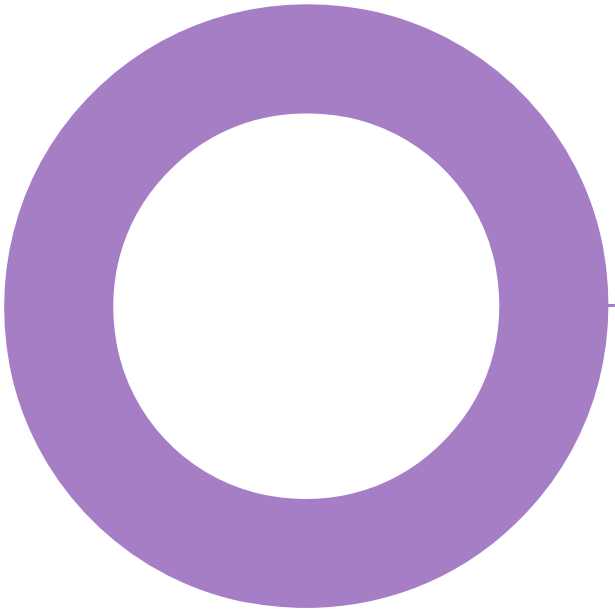
AIR QUALITY

AIR QUALITY ASSESSMENT

REVISION 01 – 28 FEBRUARY 2020



Audit sheet.

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Contents.

Executive Summary.

Hoare Lea have been commissioned by The London Irish Centre to undertake an Air Quality Assessment to support the planning application for the proposed redevelopment of the London Irish Centre at 50-52 Camden Square, London, NW1 9XB (the 'Application Site').

The Proposed Development consists of the demolition of two buildings on Murray Street and the construction of a new 4-storey building with basement. Other buildings on site will be refurbished and renovated, and the main entrance will be moved from facing Camden Square to Murray Street. The Proposed Development will be used for mixed-use community education and events, charity offices and ancillary residential accommodation.

The baseline assessment shows that the annual mean NO_2 objective is widely exceeded at the roadside diffusion tube and automatic monitoring sites within Camden but not at the urban background sites. The Greater London Authority (GLA) modelling data indicates that the annual mean NO_2 objective at the Application Site will be exceeded in 2016 but comply in 2020. Additionally, within Camden there have been exceedances of the 1-hour mean NO_2 objective at the roadside automatic monitoring site in the past five years but not at the urban background automatic monitoring site.

The automatic monitoring sites and GLA modelling data show that the air quality objectives for PM_{10} and $PM_{2.5}$ have not been exceeded in the vicinity of the Application Site.

The site suitability assessment indicates that the annual mean NO_2, PM_{10} and $PM_{2.5}$, the 1-hour mean NO_2 and 24-hour mean PM_{10} concentrations are not expected to exceed the relevant objectives based on local monitoring data, local background concentrations and London Atmospheric Emissions Inventory (LAEI) modelled data. Therefore, the Application Site is considered suitable for redevelopment without mitigation.

The impacts of the construction work on dust and ambient PM_{10} concentrations have been assessed and the risk of dust causing a loss of local amenity and increased exposure to PM_{10} concentrations has been used to identify appropriate mitigation measures. Provided these are implemented and included within a dust management plan, for example through a planning condition, the residual impacts are considered to be not significant.

As the Application is for the re-development of the exiting London Irish Centre , it has been indicated by Caneparo Associates that the traffic generated will be similar to the existing and as such below the criteria set in the Environmental Protection United Kingdom (EPUK) and Institute of Air Quality Management (IAQM) planning guidance. Consequently the impact of additional traffic on local air quality is considered insignificant and a detailed assessment is not required.

The energy provision for the Proposed Development will be met by Air Source Heat Pumps (ASHPs) for the hot water system and photovoltaic panels which do not release any emissions. Natural gas will only be used for the kitchen appliances. As the only gas use is for the kitchen appliances, the proposed emission rate for this plant is expected to be below the criteria set out in the EPUK/IAQM guidance. As such the impact from combustion plant will be negligible and no mitigation is required.

Based on the assessment results, the Application Site is considered suitable for the Proposed Development without the inclusion of mitigation and air quality should not be considered as a constraint to the planning consent.

1. Introduction.

Hoare Lea are commissioned by The London Irish Centre to undertake an Air Quality Assessment to support the planning application for the proposed redevelopment of the London Irish Centre at 50-52 Camden Square, London, NW1 9XB (the 'Application Site').

1.1 Proposed Development.

The Proposed Development consists of the demolition of two buildings on Murray Street and the construction of a new 4-storey building with a basement. Other buildings on site will be refurbished and renovated, and the main entrance will be moved from facing Camden Square to Murray Street. The Proposed Development will be used for mixed-use community education and events, charity offices and ancillary residential accommodation.

1.2 Application Site Description and Location.

The Application Site is located within LBoC's administrative area at the approximate National Grid Reference (NGR): X 529600, Y 184420.

The Application Site is currently bounded by Camden Square Park to the north, residential properties to the north east, east, south and south west, commercial properties to the south and north west and railway lines to the south east.

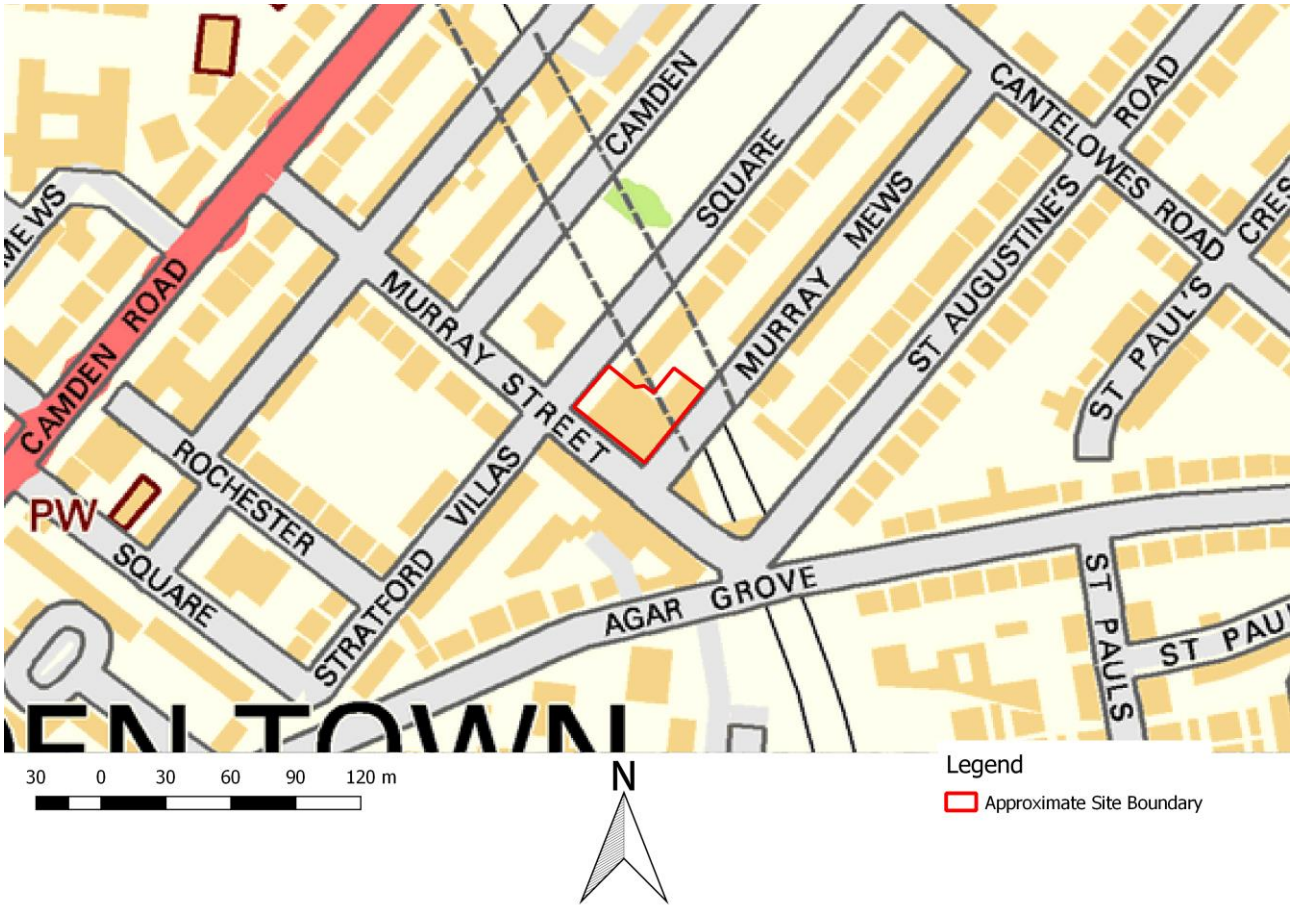

Figure 1 Location of the Application Site. Contains OS Data © Crown Copyright and Database rights 2020.

1.3 Scope of Assessment.

An email detailing the proposed methodology for the Air Quality Assessment was provided to Tom Parkes at LBoC on 18/02/2020. An email was subsequently sent on 27/02/2020 to follow up the previous email. A response was then received from Tom Parkes on 27/02/2020. This response included information on the WHO Guideline Values for Air Quality which LBoC have been targeting. A response was sent back to LBoC on 28/02/2020 seeking further clarification on the policy which introduces the WHO Guidelines in LBoC. A copy of the correspondence with LBoC has been included in Appendix 1.

A summary of the scope of the assessment includes:

- Determination of baseline scenario, using LBoC monitoring data;
- Assessment of potential air quality impacts during the construction phase;
- Assessment of potential air quality impacts during the operational phase;
- Air quality neutral assessment.

Since the first email was sent on 18/02/2020, the design of the Proposed Development has evolved, and an air quality neutral assessment is no longer required in line with the London Plan as there will be only one residential unit comprised of nine bedrooms and 883 m^2 of non-residential construction.

2. Legislation, Policy and Guidance Documents.

2.1 Air Quality Strategy and Local Air Quality Management

The Environment Act 1995 (Part IV)[1] requires the Secretary of State to publish an air quality strategy and local authorities to review and assess the quality of air within their boundaries. The latter has become known as Local Air Quality Management (LAQM).

The Air Quality Strategy[2] provides the policy framework for local air quality management and assessment in the UK. It sets out air quality standards and objectives for key air pollutants. These standards and objectives are designed to protect human health and the environment. The Strategy also sets out how the different sectors of industry, transport and local government, can contribute to achieving these air quality objectives.

Local authorities are required to identify whether the objectives have been, or will be, achieved at relevant locations, by the applicable date. If the objectives are not achieved, the authority must declare an AQMA and should prepare an action plan within 12 months. An action plan must identify appropriate measures and policies that can be introduced in order to work towards achieving the objective(s).

The air quality objectives set out the extent to which the Government expects the standards to be achieved by a certain date. They take account of economic efficiency, practicability, technical feasibility and timescale. The objectives for use by local authorities are prescribed within the Air Quality (England) Regulations 2000[3], and the Air Quality (England) (Amendment) Regulations 2002[4].

The objectives for NO_2 and particulate matter (PM_{10} and $PM_{2.5}$) are set out in Table 1. The objectives for NO_2 and PM_{10} were to have been achieved by 2005 and 2004 respectively and continue to apply in all future years thereafter. The $PM_{2.5}$ objective is to be achieved by 2020. It should be noted that local authorities in England have a flexible role in working towards reducing emissions and concentrations of $PM_{2.5}$.

Table 1 Air Quality Objectives for NO_2, PM_{10} and $PM_{2.5}$

Pollutant	Time Period	Objective
Nitrogen Dioxide (NO_2)	1-hour Mean	200 µg/m^3 Not to be exceeded more than 18 times a year
	Annual Mean	40 µg/m^3
Fine Particles (PM_{10})	24-hour Mean	50 µg/m^3 Not to be exceeded more than 35 times a year
	Annual Mean	40 µg/m^3
Fine Particles ($PM_{2.5}$) *	Annual Mean	25 µg/m^3

*The time period in LLAQM.TG19 states "Work towards reducing emissions/concentrations of fine particulate matter (PM2.5)"

The objectives apply at locations where members of the public are likely to be regularly present and exposed over the averaging period of the objective. Examples of where the annual mean objectives should apply are provided in LLAQM.TG19, and include: building facades of residential properties, schools, hospitals. The annual mean objectives are not relevant for the building facades of offices or other places of work where members of the public do not have regular access, kerbsides or gardens.

The 24-hour objective for PM_{10} is considered to apply at the same locations as the annual mean objective, as well as in gardens of residential properties and at hotels.

The 1-hour objective for NO_2 also applies wherever members of the public might regularly spend 1-hour or more, including outdoor eating locations, pavements of busy shopping streets, carparks and bus stations which are not fully enclosed. The 1-hour objective does not apply at kerbside sites where the public do not have regular access.

2.2 EU Limit Values

The European Union has also set limit values for NO_2, PM_{10} and $PM_{2.5}$; these are legally binding and have been implemented into English legislation by The Air Quality Standards Regulations 2010[5].

The limit values for NO_2, PM_{10} and $PM_{2.5}$ are the same as the English objectives (Table 1), but applied from 2010 for NO_2, 2005 for PM_{10} and 2015 for $PM_{2.5}$. The limit values apply at all locations (apart from where the public does not have access, where health and safety at work provisions apply and on the road carriageway).

2.3 General Nuisance Legislation

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

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

2.4 Clean Air Strategy

The Clean Air Strategy (CAS)[6], published in 2019, sets out the Government's proposals aimed at delivering cleaner air in England, and also indicates how devolved administrations intend to make emissions reductions. It sets out the comprehensive action that is required from across all parts of government and society to deliver clean air.

2.5 Planning Policy

2.5.1 National Planning Policy Framework

The National Planning Policy Framework (NPPF) 2019 sets out planning policy for England. It includes advice on when air quality should be a material consideration in development control decisions. Relevant sections are set out below:

> Paragraph 170: "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"
>
> Paragraph 180: "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 181: "Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan."
>
> Paragraph 183: "The focus of planning policies and decisions should be on whether proposed development is an acceptable use of land, rather than the control of processes or emissions (where these are subject to separate pollution control regimes). Planning decisions should assume that these regimes will operate effectively. Equally, where a planning decision has been made on a particular development,

the planning issues should not be revisited through the permitting regimes operated by pollution control authorities."

Paragraph 54: "Local planning authorities should consider whether otherwise unacceptable development could be made acceptable through 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."

The NPPF is supported by Planning Practice Guidance (PPG)[7].

The PPG states that:

Paragraph 001 (Reference ID: 32-001-20191101): "Defra carries out an annual national assessment of air quality using modelling and monitoring to determine compliance relevant Limit Values. It is important that the potential impact of new development on air quality is taken into account in planning where the national assessment indicates that relevant limits have been exceeded or are near the limit or where the need for emissions reductions has been identified."

Paragraph 002 (Reference ID: 32-002-20191101): Plans may need to consider ways in which the development could be made appropriate in locations where air quality is or is likely to be a concern, and not give rise to unacceptable risks from pollution. This could, for example entail identifying measures for offsetting the impact on air quality arising from new development including supporting measures in an air quality action plan or low emissions strategy where applicable".

Paragraph 005 (Reference ID: 32-005-20191101): "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 have an adverse effect on air quality in areas where it is already known to be poor, particularly if it could affect the implementation of air quality strategies and action plans and / or breach legal obligations (including those relating to the conversation of habitats and species). Air quality may also be a material consideration if the proposed development would be particularly sensitive to poor air quality in its vicinity.

The PPG also sets out the information that may be required in an air quality assessment, stating that:

Paragraph 007 (Reference ID: 32-007-20191101): "Assessments need to be proportional to the nature and scale of development proposed and the potential impacts (taking into account existing air quality conditions), and because of this are likely to be locationally specific. The scope and content of supporting information is best discussed and agreed between the local planning authority and applicant before it is commissioned".

It also provides guidance on options for mitigating air quality impacts, and makes clear that:

Paragraph 008 (Reference ID: 32-008-20191101): "Mitigation options will need to be locationally specific, will depend on the proposed development and need to be proportionate to the likely impact."

2.6 Local Policy

2.6.1 London Plan 2016

The London Plan Consolidated with Alterations since 2011[8] sets out the spatial development strategy for London. The London Plan sets out an integrated economic, environmental, transport and social framework for the development of London over the next 20–25 years (to the period 2036) and contains policies which are harmonious to those of Development Plan Documents to the 32 London Boroughs.

The following policy relating to air quality is contained within the London Plan:

"Policy 7.14 Improving air quality

Strategic

The Mayor recognises the importance of tackling air pollution and improving air quality to London's development and the health and well-being of its people. He will work with strategic partners to ensure that the spatial, climate change, transport and design policies of this plan support

implementation of his Air Quality and Transport strategies to achieve reductions in pollutant emissions and minimise public exposure to pollution.

Planning Decision Development proposals should:

a) minimise increased exposure to existing poor air quality and make provision to address local problems of air quality (particularly within Air Quality Management Areas (AQMAs) and where development is likely to be used by large numbers of those particularly vulnerable to poor air quality, such as children or older people) such as by design solutions, buffer zones or steps to promote greater use of sustainable transport modes through travel plans (see Policy 6.3)

b) promote sustainable design and construction to reduce emissions from the demolition and construction of buildings following the best practice guidance in the GLA and London Councils' 'The control of dust and emissions from construction and demolition'

c) be at least 'air quality neutral' and not lead to further deterioration of existing poor air quality (such as areas designated as Air Quality Management Areas (AQMAs).

d) ensure that where provision needs to be made to reduce emissions from a development, this is usually made on-site. Where it can be demonstrated that on-site provision is impractical or inappropriate, and that it is possible to put in place measures having clearly demonstrated equivalent air quality benefits, planning obligations or planning conditions should be used as appropriate to ensure this, whether on a scheme by scheme basis or through joint area-based approaches.

e) where the development requires a detailed air quality assessment and biomass boilers are included, the assessment should forecast pollutant concentrations. Permission should only be granted if no adverse air quality impacts from the biomass boiler are identified. LDF preparation Boroughs should have policies that: a) seek reductions in levels of pollutants referred to in the Government's National Air Quality Strategy having regard to the Mayor's Air Quality Strategy. b) take account of the findings of their Air Quality Review and Assessments and Action Plans, in particular where Air Quality Management Areas have been designated."

2.6.2 Intend to Publish London Plan 2019

The Examination in Public on the London Plan was held between 15th January and 22nd May 2019. The Panel of Inspectors appointed by the Secretary of State issued their report and recommendations to the Mayor of London on 8th October 2019. The Mayor of London considered these recommendations and on 9th December 2019, issued to the Secretary of State his intention to publish the London Plan along with a clean and tracked version of the Intend to Publish London Plan[9] , a statement of reasons for any of the Inspectors' recommendations that the Mayor does not wish to accept and a note that sets out a range of interventions that will help achieve the housing delivery set out in the Plan.

The following policy relating to air quality is contained within the Intend to Publish London Plan:

"Policy SI1 Improving air quality

A London's air quality should be significantly improved and exposure to poor air quality, especially for vulnerable people, should be reduced:

1) Development proposals should not:

a) lead to further deterioration of existing poor air quality

b) create any new areas that exceed air quality limits, or delay the date at which compliance will be achieved in areas that are currently in exceedance of legal limits

c) reduce air quality benefits that result from the Mayor's or boroughs' activities to improve air quality

d) create unacceptable risk of high levels of exposure to poor air quality.

2) Development proposals should use design solutions to prevent or minimise increased exposure to existing air pollution and make provision to address local problems of air quality. Particular care should

be taken with developments that are in Air Quality Focus Areas or that are likely to be used by large numbers of people particularly vulnerable to poor air quality, such as children or older people.

3) Masterplans and development briefs for large-scale development proposals subject to an Environmental Impact Assessment should propose methods of achieving an Air Quality Positive approach through the new development.

3A) Major development proposals must be at least air quality neutral and be submitted with an Air Quality Assessment.

4) Development proposals must demonstrate how they plan to comply with the Non-Road Mobile Machinery Low Emission Zone and reduce emissions from the demolition and construction of buildings following best practice guidance.

6) Development proposals should ensure that where emissions need to be reduced, this is done onsite. Where it can be demonstrated that on-site provision is impractical or inappropriate, off-site measures to improve local air quality may be acceptable, provided that equivalent air quality benefits can be demonstrated."

2.6.3 The London Environment Strategy

The London Environment strategy (LES), published in May 2018[10], supersedes the previous Mayor's Air Quality Strategy (MAQS) for London, published in December 2010. The LES strategy aims to reduce pollution concentrations in London to achieve compliance within the EU limit values as soon as possible. The LES commits to the continuation of measures identified in the 2002 and 2010 MAQS and sets out a series of additional measures.

Proposal 4.3.3.a states that the London Strategy provides policies in which all new large-scale developments can not only become 'Air Quality Positive', but also maintain Air Quality Neutral requirements for all other developments. Within the planning guidance for building operations and transport emissions, information about emission benchmarks for 'Air Quality Neutral' developments are set out. Any development that either meets or exceeds the benchmarks is considered Air Quality Neutral as they avoid any increase in PM and NO_x emissions. In order for the benchmarks to remain relevant, the Mayor will continue to review them. To ensure that the requirements are met, execution of the Air Quality Neutral policy will be monitored by utilising both the London Local Air Quality Management (LLAQM) and the London Plan monitoring report.

The following proposed policies relate to the planning process with regards to improving air quality:

Policy 4.2.2: "Reduce emissions from non-road transport sources, including by phasing out fossil fuels;"

Policy 4.2.3: "Reduce emissions from non-transport sources, including by phasing out fossil fuels;"

Policy 4.2.4: "The Mayor will work with the government, the London boroughs and other partners to accelerate the achievement of legal limits in Greater London and improve air quality;"

Policy 4.2.5: "The Mayor will work with other cities (here and internationally), global city and industry networks to share best practice, lead action and support evidence-based steps to improve air quality;"

Policy 4.3.1: "The Mayor will establish new targets for $PM_{2.5}$ and other pollutants where needed. The Mayor will seek to meet these targets as soon as possible, working with government and other partners;"

Policy 4.3.2: "The Mayor will encourage the take up of ultra-low and zero emission technologies to make sure London's entire transport system is zero emission by 2050 to further reduce levels of pollution and achieve WHO air quality guidelines;"

Policy 4.3.3: "Phase out the use of fossil fuels to heat, cool and maintain London's buildings, homes and urban spaces, and reduce the impact of building emissions on air quality;"

Policy 4.3.4: "Work to reduce exposure to indoor air pollutants in the home, schools, workplace and other enclosed spaces."

Furthermore, the strategy outlines that negative consequences that can occur from developing air quality and climate policies in isolation, particularly with regards to energy and planning policy. Instead, integrated policy design can lead to benefits such as reducing carbon emissions by switching to zero emission vehicles simultaneously.

The Strategy also includes the focus on the 187 Air Quality Focus Areas (AQFA) declared by the GLA. Focus Areas are defined to address concerns raised by boroughs within the LAQM review process and forecasted air pollution trends. These are locations that not only exceed the EU annual mean limit value for NO_2 but are also locations with high human exposure. This is not an exhaustive list of London's hotspot locations, but where the GLA believe the problem to be most acute.

2.6.4 Camden Local Plan

The Camden Local Plan is the key strategic document in the London Borough of Camden's (LBoC) development plan. It sets out the vision for shaping the future LBoC and contains policies for guiding planning decisions. It was adopted by the Council on 3 July 2017, replacing the Core Strategy and Development Policies planning documents (adopted in 2010). The Local Plan will cover the period from 2016-2031.

The following policy relating to air quality is contained within the Local Plan:

Policy CC4 Air quality-

"The Council will ensure that the impact of development on air quality is mitigated and ensure that exposure to poor air quality is reduced in the borough.

The Council will take into account the impact of air quality when assessing development proposals, through the consideration of both the exposure of occupants to air pollution and the effect of the development on air quality. Consideration must be taken to the actions identified in the Council's Air Quality Action Plan.

Air Quality Assessments (AQAs) are required where development is likely to expose residents to high levels of air pollution. Where the AQA shows that a development would cause harm to air quality, the Council will not grant planning permission unless measures are adopted to mitigate the impact. Similarly, developments that introduce sensitive receptors (i.e. housing, schools) in locations of poor air quality will not be acceptable unless designed to mitigate the impact.

Development that involves significant demolition, construction or earthworks will also be required to assess the risk of dust and emissions impacts in an AQA and include appropriate mitigation measures to be secured in a Construction Management Plan."

2.6.5 Local Air Quality Management in Camden.

The whole of Camden has been designated as an Air Quality Management Area (AQMA) for exceedances of the annual mean NO_2 and 24-hour mean PM_{10} objectives. Camden's Clean Air Action Plan[11] has been produced as part of LBoC's duty to London Local Air Quality Management. It outlines the actions that will be taken to improve air quality in Camden between 2019 and 2022.

The key priorities of the Clean Air Action Plan are:

- Reducing building emissions
- Reducing construction emissions
- Reducing transport emissions
- Supporting communities and schools
- Reducing emissions from delivery, servicing and freight
- Continuing public health and awareness raising
- Lobbying

A number of Council plans and strategies support the Clean Air Action Plan:

- Camden 2025
- Our Camden Plan
- Green Action for Change 2010-2020
- Camden's Parking and Enforcement Plan
- Camden's Transport Strategy 2019-2041
- Joint Strategic Needs Assessment

2.7 Assessment Guidance.

The primary guidance documents consulted in undertaking this assessment are detailed below.

2.7.1 Mayor of London, London Local Air Quality Management Technical Guidance

The Mayor of London's London Local Air Quality Management Technical Guidance (LLAQM.TG(19))[12] was published for use by local authorities in their LAQM review and assessment work. The document provides key guidance in aspects of air quality assessment, including screening, use of monitoring data, and use of background data that are applicable to all air quality assessments.

2.7.2 EPUK-IAQM 'Air Quality Guidance for Planning'

Environmental Protection UK (EPUK) and the Institute of Air Quality Management (IAQM) have together published guidance[13] to help ensure that air quality is properly accounted for in the development control process. It clarifies when an air quality assessment should be undertaken, what it should contain, and how impacts should be described and assessed including guidelines for assessing the significance of impacts.

2.7.3 GLA 'Construction and Demolition Dust Guidance'

Guidance on the assessment of dust from demolition and construction has been published by the GLA[14]. The guidance provides a methodology to determine the dust emission magnitude and provides a series of matrices to determine the risk magnitude of potential dust sources associated with construction activities. This allows for the identification of appropriate mitigation measures that are defined within further IAQM guidance.

2.7.4 Camden Air Quality CPG

The Council has prepared the Camden Planning Guidance (CPG) on air quality to provide information on key air quality issues within the borough and to support the policies in the Camden Local Plan 2017. This guidance is therefore consistent with the Local Plan and forms a Supplementary Planning Document (SPD) which is an additional "material consideration" in planning decisions. The Council adopted this CPG on Air Quality in March 2019.

3. Methodology of Assessment.

3.1 Consultation.

The approach to the assessment, as described in section 1.3, was provided to the LBoC for review. A response was received, as shown in Appendix 1.

3.2 Existing Air Quality in the Study Area.

A baseline air quality review was undertaken to determine the existing air quality in the vicinity of the Application Site.

This desk-top study was undertaken using the following sources:

- Air quality data for LBoC, including a review of the LBoC's air quality reports[15] and local monitoring data;
- Background pollution maps from Defra's Local Air Quality Management (LAQM) website[16];
- LAEI modelled annual mean concentrations from the GLA;
- Pollution Inventory from the Environment Agency[17]
- The UK Ambient Air Quality Interactive Map[18];
- Aerial photography from Google Maps.

3.3 Construction Phase Impacts.

3.3.1 Construction Dust Assessment

The assessment of construction dust impacts has been undertaken in line with the GLA methodology. Activities on the proposed construction site have been divided into four types to reflect their different potential impacts. These are:

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

The risk of dust emissions was assessed for each activity with respect to:

- Potential loss of amenity due to dust soiling; and
- The risk of health effects due to a significant increase in exposure to PM_{10}.

The first stage of the assessment involves screening to determine whether there are any sensitive receptors within the threshold distances defined by the GLA guidance. A detailed assessment of the impact of dust from construction sites will be required where:

- A 'human receptor' is located within 350 m of the boundary of the Site or within 50 m of the route(s) used by construction vehicles on the public highway, up to 500 m from the Site entrance;
- An 'ecological receptor' is located within 50 m of the boundary of the Site or within 50 m of the route(s) used by construction vehicles on the public highway, up to 500 m from the Site entrance.

The magnitude of dust emission for each activity is determined on the basis of the guidance, indicative thresholds, information available relating to the project and expert judgement. The risk of dust effects arising is based upon the relationship between the dust emission magnitude and the sensitivity of the area. The risk of impact is then used to determine the mitigation requirements.

Descriptors for magnitude of impact and impact significance used in this assessment of construction phase dust are reproduced in Appendix 3.

3.3.2 Construction Traffic

3.3.2.1 Construction Traffic Emissions Screening

The screening assessment has been undertaken with reference to the following EPUK and IAQM guidance indicative criteria:

- a change of LDV flows of more than 100 AADT (within an AQMA); and/or
- a change of HDV flows of more than 25 AADT (within an AQMA).

3.3.2.2 NRMM Emissions Screening

Non-Road Mobile Machinery (NRMM) refers to mobile machines, transportable industrial equipment or vehicles which are fitted with an internal combustion engine and not intended for transporting goods or passengers on roads. NRMM emissions have been screened following IAQM guidance[19].

3.4 Operational Phase Impacts.

3.4.1 Road Traffic Impacts

The screening assessment has been undertaken with reference to the following documents:

- EPUK and IAQM guidance indicative criteria, i.e.:
  - a change of LDV flows of more than 100 AADT (within an AQMA); and/or
  - a change of HDV flows of more than 25 AADT (within an AQMA).

Where these criteria are exceeded, a detailed assessment is required, although the guidance advises that "the criteria provided are precautionary and should be treated as indicative", and "it may be appropriate to amend them on the basis of professional judgement".

Where impacts can be screened out there is no need to progress to a more detailed assessment.

3.4.2 Combustion Plant Screening of Impacts

The assessment has been undertaken with reference to the EPUK and IAQM Guidance indicative criteria, i.e.:

- Combustion plant where the single or combined NOx emission rate is less than 5 mg/sec
- 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.

This screening approach requires professional judgement, and the experience of the consultants preparing the assessment is set out in Appendix 4.

3.4.3 Site Suitability

A qualitative assessment has been undertaken to consider the Site Suitability which refers to the exposure of future occupants of the Proposed Development to existing air quality.

The railway lines to the south east of the Application Site are not expected to have a significant effect on local air quality. The line is fully electrified and therefore there will not be any exhaust emissions associated with rail traffic on the railway line to the south east of the Application Site.

The assessment of Site Suitability will be assessed qualitatively using background monitoring data from Defra, LAEI data from GLA and local monitoring data from LBoC.

3.4.4 Camden Air Quality CPG

Following the criteria of assessment triggers in Table 1 of the Camden Air Quality CPG, it has been determined that a detailed air quality assessment is not required and that a screening assessment should be undertaken based on the scale of the Proposed Development and the sensitivity of the area. This screening assessment will determine the significance of air quality impacts arising from the operation of the Proposed Development.

3.5 Assessment of Significance.

3.5.1 Construction Dust

The GLA guidance[20] on the assessment of dust from demolition and construction states that the primary aim of the risk assessment is to identify site specific mitigation that, once implemented, should ensure that there will be no significant effect. Therefore, the assessment has been used to determine an appropriate level of mitigation for the construction phase.

The determination of which mitigation measures are recommended include elements of professional judgement and the professional experience of the consultants preparing this report is set out in Appendix 4.

3.5.2 Operational Impacts

The EPUK and IAQM guidance[13] has been used to assess the potential for significant impacts as a result of vehicle emissions from traffic associated with the Proposed Development. The focus of the guidance is to assess traffic emission impacts and advises on how to describe the air quality impacts and their significance.

3.5.3 Significance of Effect – Site Suitability Assessment

To determine the significance of predicted air quality impacts based upon a site suitability assessment, the EPUK/IAQM guidance states:

"Where the air quality is such that an air quality objective at the building façade is not met, the effect on residents or occupants will be judged as significant, unless provision is made to reduce their exposure by some means."

4. Baseline Environment.

This section sets out the available information on air quality in the vicinity of the Application Site.

4.1 Site Setting.

The Application Site is located within LBoC's area of administration at approximate NGR: X 529600, Y 184420. The Application Site is currently bounded by:

- Camden Square Park on Camden Square to the north;
- Residential properties and Revelation Church on Camden Square to the north east;
- Residential properties on Murray Mews to the east;
- Commercial and residential properties on Murray Street to the south;
- Railway lines to the south east;
- Residential properties on Stratford Villas to the south west; and
- Camden Play Centre on Camden Square and commercial properties on Murray Street to the north west.

The Application Site is currently occupied by The London Irish Centre.

4.2 Local Air Quality Management Review and Assessment.

The Application Site is located within Camden's AQMA declared by LBoC for exceedances of the annual mean NO_2 and annual mean and 24-hour mean PM_{10} objectives. Based on a review of the most recent Annual Status Report (ASR) published in July 2019, NO_2 concentrations continue to gradually decrease across Camden, however exceedances of the annual and hourly mean objectives are still recorded at multiple sites. PM_{10} and $PM_{2.5}$ concentrations also continue to decline across Camden and did not exceed the annual mean PM_{10} and $PM_{2.5}$ objectives or the 24-hour mean PM_{10} objective between 2014 and 2018.

4.3 Local Air Quality Monitoring.

LBoC operate three automatic monitoring stations, with the closest sites being Euston Road and London Bloomsbury, located approximately 1.8 km and 2.4 km south of the Application Site respectively. The third automatic monitoring site is located approximately 3 km away and therefore is considered not to be representative of the air quality conditions experienced at the Application Site.

Recent monitoring data for the automatic monitoring sites is detailed in Table 2 and a visual representation of the locations of the automatic monitoring sites is shown in Figure 2.

Table 2: Automatic monitoring locations within 2.5 km of the Application Site. Figures in **bold** have exceeded the relevant objective.

Monitoring site and distance (m) from site boundary (approx.)	Objective	2014	2015	2016	2017	2018
NO_2						
Euston Road, 1780 m, Roadside	Annual mean (µg/m^3)	**90**	**87**	**83**	**93**	**69**
	Number of hours with concentrations >200 µg/m^3	**221**	**54**	**39**	**25**	18
London Bloomsbury, 2430 m, Urban Background	Annual mean (µg/m^3)	**45**	**48**	**42**	38	36
	Number of hours with concentrations >200 µg/m^3	0	0	0	0	0
PM_{10}						
Euston Road, 1780 m, Roadside	Annual mean (µg/m^3)	29	18	24	20	23
	Number of days with concentrations > 50 µg/m^3	5	5	10	3	2

Monitoring site and distance (m) from site boundary (approx.)	Objective	2014	2015	2016	2017	2018
London Bloomsbury, 2430 m, Urban Background	Annual mean (µg/m^3)	20	22	20	19	17
	Number of days with concentrations > 50 µg/m^3	11	6	9	6	1
$PM_{2.5}$						
Euston Road, 1780 m, Roadside	Annual mean (µg/m^3)	N/A	17	17	14	16
London Bloomsbury, 2430 m, Urban Background	Annual mean (µg/m^3)	N/A	11	12	13	10

Euston Road automatic monitoring station is at a roadside location and has exceeded the NO_2 annual mean objective in every year between 2014 and 2018. London Bloomsbury automatic monitoring station is in an urban background location has not exceeded the objective since 2016.

Additionally, between 2014 and 2018, the NO_2 hourly objective has been exceeded at Euston Road in every year between 2014 and 2017. However, there have not been any exceedances of the NO_2 hourly objective at the London Bloomsbury automatic monitoring site between 2014 and 2018.

Further to this, there have not been any exceedances of the annual mean and 24-hour mean PM_{10} objectives or the annual mean $PM_{2.5}$ objective at either monitoring sites.

In addition to automatic monitoring stations, LBoC currently monitor annual mean NO_2 concentrations across their borough at 14 passive diffusion tube locations. The annual mean concentrations for those located within approximately 2 km of the Proposed Development (see Figure 2) are shown in Table 3.

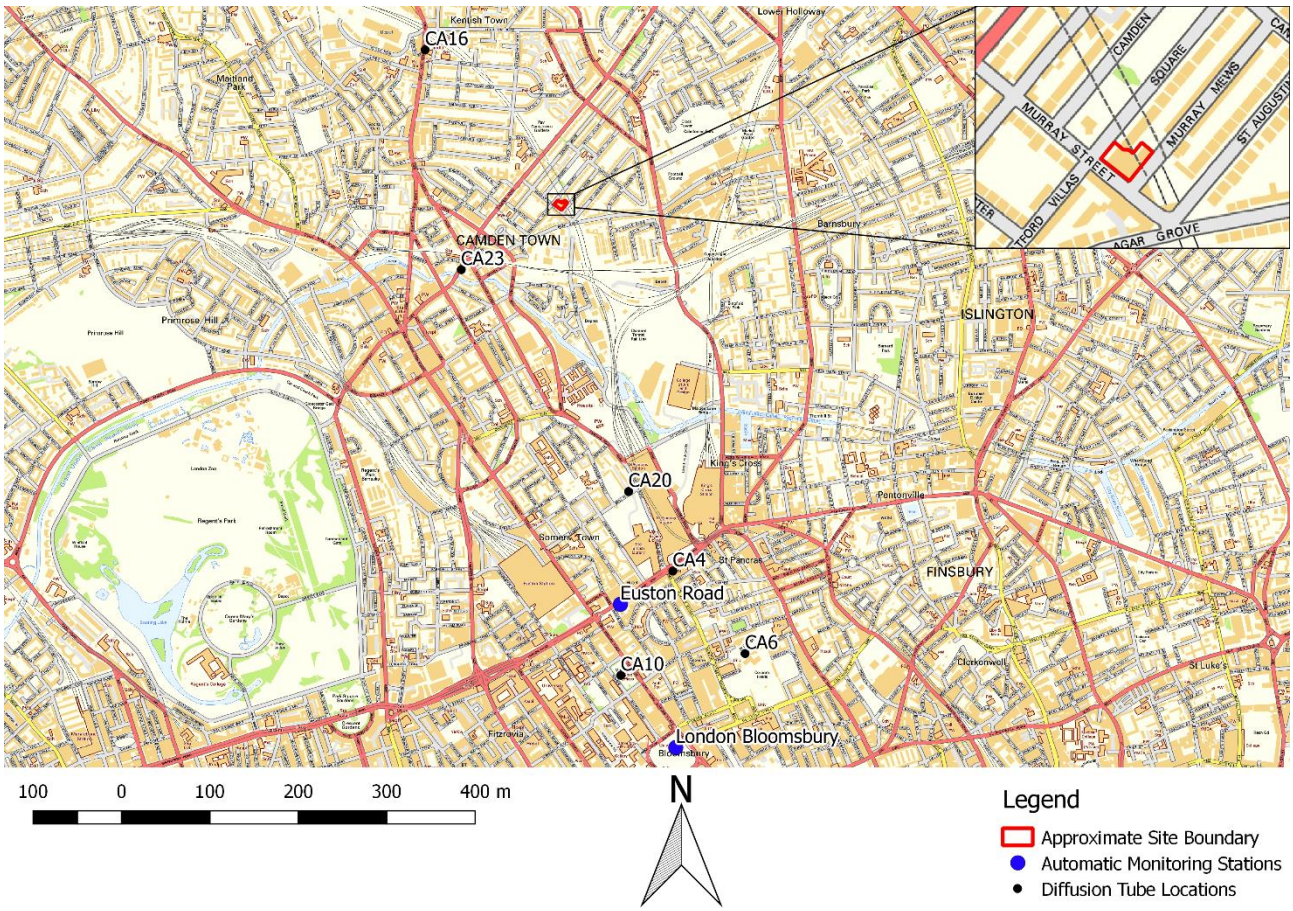

Figure 2 Automatic and diffusion tube monitoring locations in the vicinity of the Application Site. Contains OS Data © Crown Copyright and Database rights 2020.

Table 3: Passive diffusion tube monitoring data for diffusion tubes located within approximately 2 km from the Application Site. Figures in bold have exceeded the annual mean objective.

Site ID	Site Type	Site Name	Distance (m) from site (approx.)	Annual Mean NO_2 Concentration (µg/m^3)				
				2014	2015	2016	2017	2018
CA23	Roadside	Camden Road	500	**72**	**63**	**62**	**75**	**56**
CA16	Roadside	Kentish Town Road	890	**58**	**64**	**58**	**75**	**55**
CA20	Roadside	Brill Place	1280	**52**	**49**	**48**	**57**	**41**
CA4	Roadside	Euston road	1670	**90**	**87**	**83**	**93**	**69**
CA10	Urban Background	Tavistock Garden	2080	**47**	**45**	40	N/A	35
CA6	Urban Background	Wakefield Gardens	2130	36	36	31	N/A	27

*N/A means not available

The annual mean NO_2 objective has been exceeded at all four roadside passive diffusion tube sites in every year between 2014 and 2018. There have not been any exceedances of the annual mean NO_2 objective at urban background sites in the most recent years.

On average, there has been a decline in annual mean NO_2 concentrations at four of the five diffusion tube monitoring sites between 2014 and 2018 at the locations with five years of data.

4.4 Industrial Pollution.

A desk-based review of potential industrial sources using the UK Environment Agency Pollution Inventory[17] did not identify any significant industrial or waste management sources of air pollution that are likely to affect the Application Site with regard to air quality.

4.5 Defra Predicted Concentrations.

The background concentrations have been obtained from the national maps published by Defra[16]. These estimated concentrations are produced on a 1 km by 1 km grid basis for the whole of the UK. The Application Site falls into grid square X 529500 Y 184500 and the predicted concentrations for this grid square for NO_2, PM_{10} and $PM_{2.5}$ are provided in Table 4 for 2017 (baseline year), 2020 (current year) and 2021 (expected opening year of the Proposed Development).

Table 4: Defra predicted Background Concentrations

Year	Predicted Background Concentration (µg/m^3)		
	NO_2	PM_{10}	$PM_{2.5}$
2017	33.5	19.1	12.9
2020	27.8	18.2	12.2
2021	27.0	18.0	12.1

As shown in Table 4, background concentrations are below the relevant air quality objectives for NO_2, PM_{10} and $PM_{2.5}$ in all three years.

4.6 Greater London Authority

4.6.1 Air Quality Focus Areas

Air Quality Focus Areas (AQFAs) are locations that not only exceed the EU annual mean limit value for NO_2 but are also locations with high human exposure. There is one AQFA within in the vicinity of the Proposed Development as illustrated in Figure 3 located approximately 330 m to the south west.

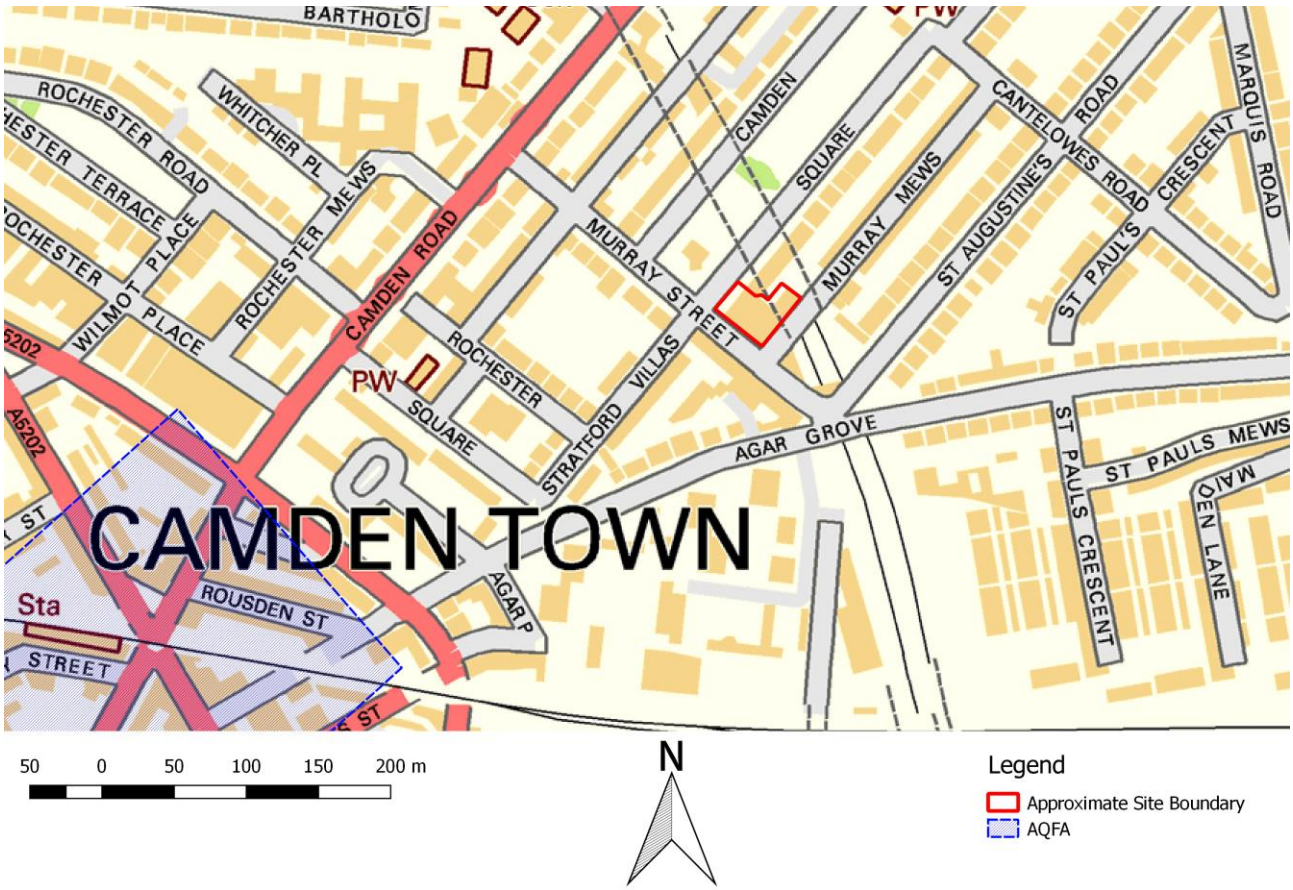

Figure 3 Air Quality Focus Area and location of the Application Site in Camden. Contains OS Data © Crown Copyright and Database rights 2020.

4.6.2 Pollution Maps

The GLA produce annual mean concentration maps for the whole of London on a 20 m by 20 m grid for a historic year (2016) and future years (2020, 2025 and 2030) which are based on a baseline year of 2013. Figure 4 and Figure 5 illustrate the annual mean NO_2 and PM_{10} concentrations in the immediate area of the Application Site for 2020.

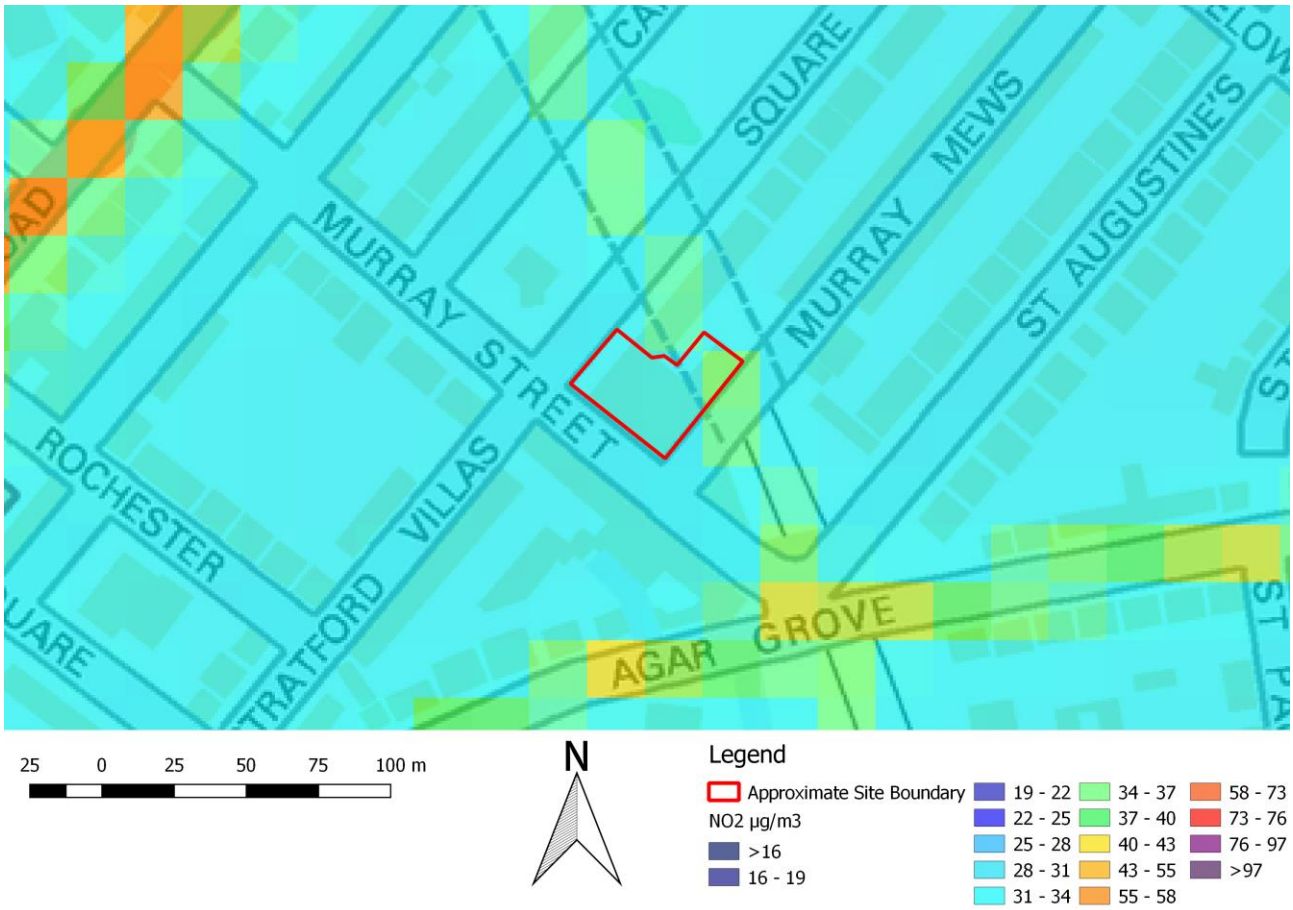

Figure 4 Modelled 2020 annual mean NO_2 concentrations (GLA, 2013), with red outline indicating the Application Site. Contains OS Data © Crown Copyright and Database rights 2020.

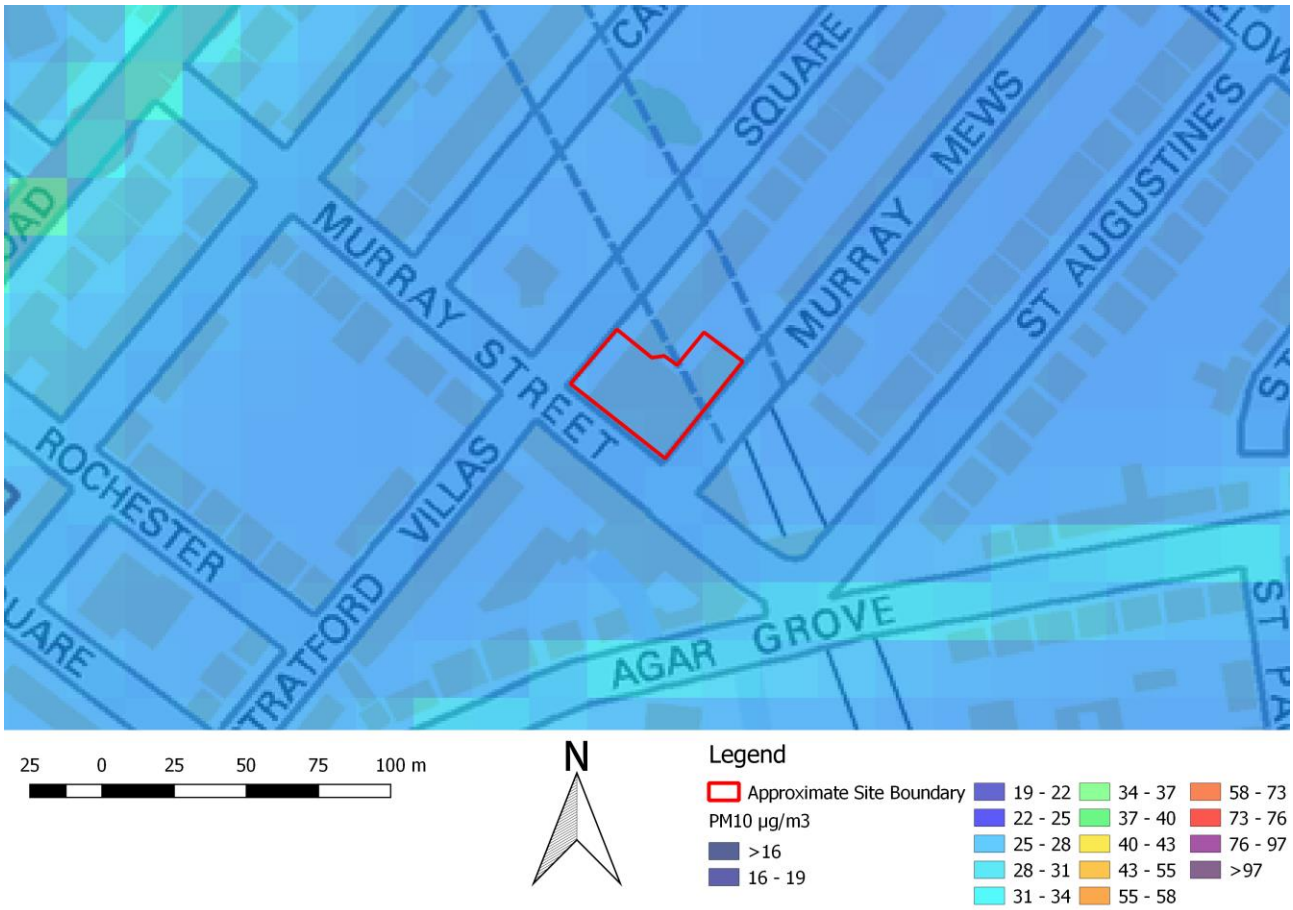

Figure 5 Modelled 2020 annual mean PM_{10} concentrations (GLA, 2013), with red outline indicating approximate Proposed Development location OS Data © Crown Copyright and Database rights 2020.

The concentrations of key pollutants in 2016 and 2020 are shown in Table 5 for the coordinates of the Application Site. The annual mean NO_2 objective is predicted to be exceeded in 2016 but not in 2020.

Table 5 Annual mean concentrations of NOx, NO_2, PM_{10} and $PM_{2.5}$ (grid reference X 529600, Y 184420) (GLA, 2017).

Year	Pollutant Concentration - (µg/m³)		
	NO_2	PM_{10}	$PM_{2.5}$
2016	42.6	23.6	14.3
2020	30.2	24.4	15.0

4.7 Summary of Background Data.

In summary, the baseline assessment has shown that the annual mean NO_2 objective is widely exceeded at the roadside diffusion tube and automatic monitoring sites but not at the urban background sites. The GLA modelling data for the Application Site also indicates that the annual mean NO_2 objective will be exceeded in 2016 but comply in 2020.

Additionally, there have been exceedances of the 1-hour mean NO_2 objective at the roadside automatic monitoring site in the past five years but not at the urban background automatic monitoring site.

The automatic monitoring sites and GLA modelling data also show that neither of the air quality objectives for PM_{10} and $PM_{2.5}$ have been exceeded in the vicinity of the Application Site.

Furthermore, Defra predicted background concentrations are below the relevant air quality objectives for all pollutants.

The railway line, located to the south east of the Application Site, is not expected to have a significant impact on local air quality surrounding the Application Site as it is fully electrified.

5. Construction Phase Assessment.

The potential for air quality impacts during the construction of the Proposed Development are assessed in this section.

5.1 Construction Phase Dust Assessment.

The risk of dust impacts is based on the potential dust emissions magnitude and the sensitivity of the area. These two factors are then combined to determine the risk of dust impacts with no mitigation applied. In the absence of any site-specific information, a higher risk category has been applied to represent a worst-case scenario.

5.1.1 Assessment Screening

There are 'human receptors' within 350 m of the Application Site but no designated habitat sites within 50 m of the Application Site boundary or within 50 m of the route(s) used by construction vehicles on the public highway, up to 500 m from the Application Site entrance.

Therefore, an assessment of construction dust on ecological receptors can be screened out from this assessment but an assessment of construction dust at human receptors is required.

5.1.2 Potential Dust Emission Magnitude

The potential magnitude of dust emissions from demolition, earthworks, construction and trackout have been assessed, as identified in Table 6.

Table 6: Predicted Magnitude of Dust Emissions

Activity	Magnitude	Justification
Demolition	Small	The Application Site has a demolition volume of approximately 7,600 m^3. Some demolition may occur at a height of above 20 m above ground level. The potential dust emissions magnitude from demolition is considered small.
Earthworks	Small	The soil at the Application Site is loamy and clayey[21] and therefore there is a potential for high dust emissions during dry conditions. As part of the Proposed Development there will be a basement included which is likely to require some earthworks. However, the total area of the Application Site is small at approximately 1,300 m^2. Overall, the potential dust emissions magnitude from earthworks is considered to be small.
Construction	Small	It is expected that concrete will be used as a construction material, which has a high potential for dust generation. However, the total building volume is small at approximately 12,700 m^3. In accordance with the IAQM criteria, the potential dust emission magnitude from construction based on this detail would be small.
Trackout	Small	Due to the size of the Application Site, the unpaved road length is likely to be below 50 m in length. The soil at the Application Site is loamy and clayey and therefore there is a potential for high dust emissions during dry conditions. Therefore, the potential dust emissions magnitude from trackout is considered to be small overall.

5.1.3 Sensitivity of the Study Area

The sensitivity of the area takes into account the following factors:

- The specific sensitivities of receptors in the area;
- The proximity and number of those receptors;
- In the case of PM_{10}, the local background concentration; and
- Site-specific factors, such as whether there are natural shelters, such as trees or other vegetation, to reduce the risk of wind-blown dust.

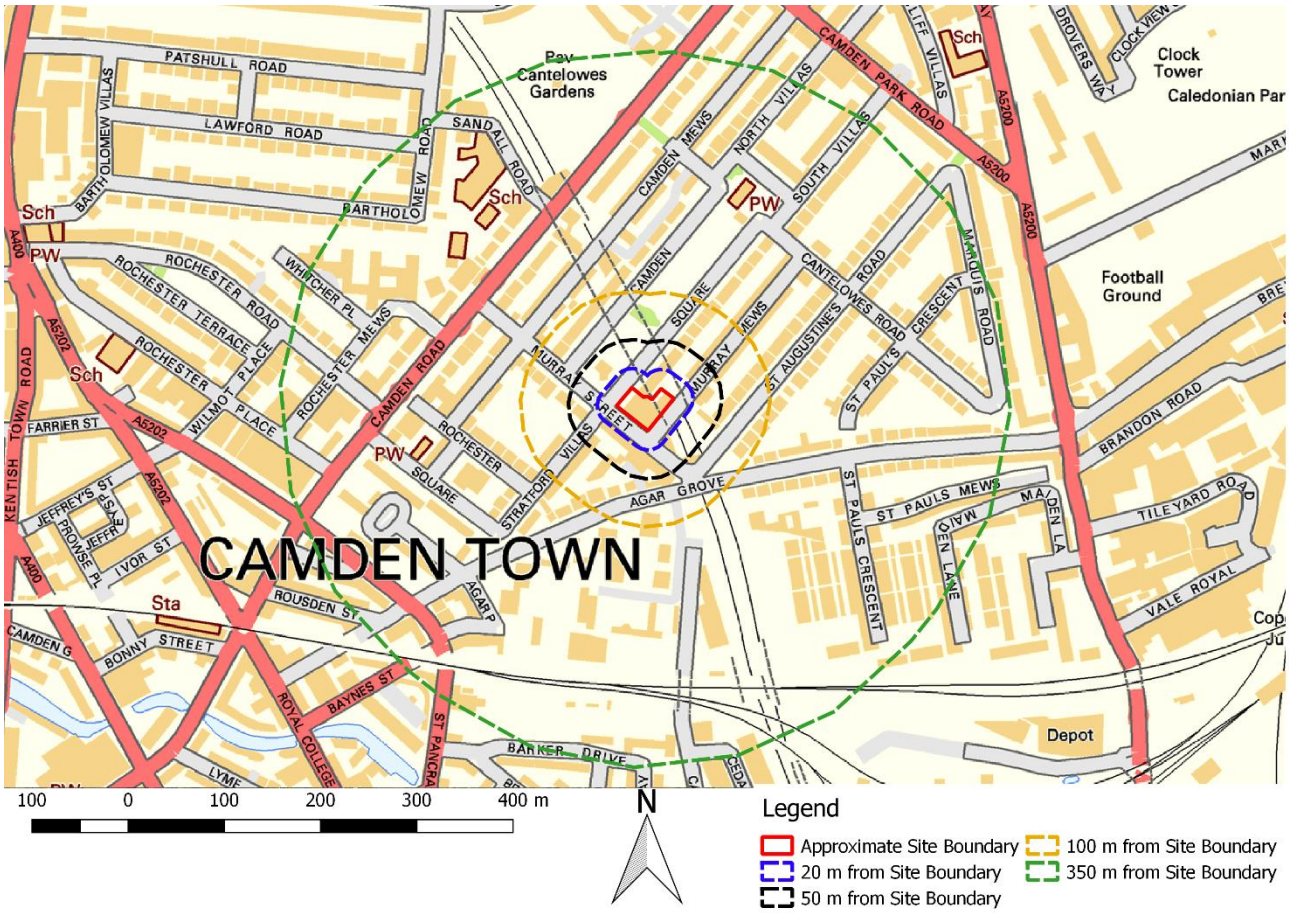

Figure 6 GLA distance criteria from Application Site boundary. Contains Ordnance Survey Data © Crown Copyright 2020.

The sensitivity of the area and the factors considered are detailed in Table 7.

Table 7: Sensitivity of the Area

Sensitivity Type	Factors	Sensitivity of Area	
		On – Site	Trackout
Dust Soiling	Residential areas are considered to be highly sensitive to dust soiling. There are between 10 and 100 residential receptors within 20 m of the Proposed Development to the south and north east. There are over 100 more residential properties between 20 m and 350 m of the Proposed Development. Therefore, the area surrounding the Application Site is considered to be of high sensitivity. Commercial properties within 350 m of the Proposed Development have also been considered. For trackout, the distances are measured from the side of the roads used by construction traffic. There are between 10 and 100 high sensitivity receptors located within 50 m of the Proposed Development based on the anticipated route used by construction traffic. Therefore, the sensitivity of the area surrounding the Application Site has also been classified as high to dust soiling for trackout.	High	High
Human Health	The LAEI modelled annual mean PM_{10} concentration at the Application Site is predicted to be 24.4 µg/m^3 in 2020. There are between 10 and 100 high sensitivity receptors within 20 m of the Proposed Development and the road used by construction traffic. Therefore, as the PM_{10} concentration is between 24 µg/m^3 and 28 µg/m^3, the sensitivity of the area to human health impacts is considered to be high.	High	High

5.1.4 Risk of Dust Impacts

The outcomes of the assessments of potential magnitude of dust emissions and the sensitivity of the area are combined to determine the risk of impact. This risk is then used to inform the selection of appropriate mitigation. Table 8 details the risk of dust impacts for Demolition, earthworks, construction and trackout activities.

Table 8: Summary of Potential Unmitigated Dust Risks

Potential Impact	Sensitivity	Demolition	Earthworks	Construction	Trackout
Magnitude		Small	Small	Small	Small
Dust Soiling Impacts	High	Medium Risk	Low Risk	Low Risk	Low Risk
Human Health Impacts	High	Medium Risk	Low Risk	Low Risk	Low Risk

5.2 Construction Phase – Vehicular Pollutants.

The Application Site is located within LBoC AQMA and therefore the lower screening criterion (i.e. 100 LDV and 25 HDV) would apply.

Information on traffic movements anticipated during construction works was unavailable for the completion of the Air Quality Assessment. However, the development quantum is not anticipated to result in a significant increase in movements above the EPUK and IAQM criterion. The duration of movements will be short-term in nature and are not considered further within the context of this assessment. Therefore, in accordance with the criterion presented within EPUK and IAQM guidance, additional road vehicle trips during the construction phase of the Proposed Development "can be considered to have insignificant effects" on air quality.

5.3 Construction Phase – Non-road Mobile Machinery.

Pollutants emitted by NRMM that may have the most significant potential effects on local air quality are particulate matter (PM_{10} and $PM_{2.5}$), and NOx/NO_2. Typically, NRMM is associated with construction sites and, therefore there is a potential for NRMM emissions to adversely affect local air quality as a result of the Proposed Development. Within London the London Environment Strategy guidance[22] states that "Emissions from NRMM construction and maintenance activities will, where appropriate, meet or exceed the standards set out by the NRMM Low Emission Zone" as such emission from NRMM will be controlled at this Application Site.

However, IAQM guidance states that "Experience of assessing the exhaust emissions from on-site plant (also known as non-road mobile machinery or NRMM) and site traffic suggests that they are unlikely to make a significant impact on local air quality, and in the vast majority of cases they will not need to be quantitatively assessed."

6. Operational Phase Assessment.

6.1 Road Traffic Emissions Screening Assessment.

As the Proposed Development is a redevelopment of the existing site use it has been confirmed by Caneparo Associates that the traffic generated will be similar to the existing and thus below the criteria set in the EPUK/IAQM planning guidance of a change of more than 100 AADT LDV and 25 AADT HDV. Therefore , the impacts on air quality from operational phase traffic generation are considered to be not significant and no further assessment is required.

6.2 Combustion Plant Screening Assessment.

Energy provision for the Proposed Development will be sourced from ASHPs and photovoltaic panels installed on the third floor to the roof. ASHPs and photovoltaic panels do not include any combustion processes and therefore do not release any combustion emissions.

Gas fired kitchen appliances will be utilised. As natural gas will only be required for the kitchen appliances, it is expected that it will be below the screening criteria in Environmental Protection UK (EPUK) and Institute of Air Quality Management (IAQM) guidance on Land-Use Planning & Development Control: Planning for Air Quality. A detailed assessment of the air quality impacts arising from combustion plant has therefore not been included within this assessment.

6.3 Site Suitability.

This section presents a review of LBoC monitoring data in the vicinity of the Application Site, for the purpose of identifying the suitability of the Application Site for its mixed-use community education and events, charity offices and ancillary residential accommodation and identifying any requirements for potential mitigation to be embedded into the Proposed Developments design.

There is considered to be no significant impact of this railway line on the Proposed Development and therefore assessment of the impact from the railway line has not been undertaken.

As presented in Section 2 in line LLAQM.TG(19), the annual mean NO_2, PM_{10} and $PM_{2.5}$, 24-hour mean PM_{10}, and 1-hour mean NO_2 air quality objectives apply to the Proposed Development due to its proposed mixed-use community education and events, charity offices and ancillary residential accommodation. As such, this section considers the annual mean NO_2, PM_{10} and $PM_{2.5}$, 24-hour mean PM_{10}, and 1-hour mean NO_2 pollutant concentrations at the Application Site.

6.3.1 Predicted NO_2 Concentrations

A review of the annual mean NO_2 concentrations has been completed as part of the baseline review with recent monitoring results, presented in Table 3, Table 4 and Table 5.

The Application Site is located in a residential area on a minor road 170 m away from the nearest main road, Camden Road (A503). Therefore, urban background sites can be considered most representative of the conditions experienced at the Application Site.

The two urban background sites located within approximately 2 km of the Application are diffusion tube monitoring sites CA10 on Tavistock Garden and CA6 on Wakefield Garden. Monitoring site CA10 is located approximately 40 m from Tavistock Road (A4200) whilst monitoring site CA6 is located 230 m away on Grays Inn Road (A5200). Annual mean NO_2 concentrations at these sites were below the relevant objective in 2018, with the concentrations being 35 $\mu g/m^3$ at site CA10 and 27 $\mu g/m^3$ at site CA6.

The Defra background NO_2 concentration in the anticipated opening year of the Proposed Development (2021) is 27.0 g/m^3. The highest onsite concentrations recorded using the LAEI mapping is 30.2 $\mu g/m^3$ in 2020.

An annual mean concentration of 60 $\mu g/m^3$ or above is often used to indicate a possible exceedance of the hourly mean NO_2 objective. All of the NO_2 concentrations at the diffusion monitoring site CA20 on Brill Place are below this value between 2014 and 2018 indicating that there are no exceedances of the hourly mean NO_2 objective.

Therefore, NO_2 concentrations in the locale of the Proposed Development are considered to below the annual mean and 1-hour mean air quality objectives and the Application Site is considered suitable for its mixed-use community education and events, charity offices and ancillary residential accommodation.

6.3.2 Predicted PM_{10} Concentrations

A review of the annual mean PM_{10} concentrations has been completed as part of the baseline review with recent monitoring results.

The annual mean PM_{10} concentration at the roadside automatic monitoring station Euston Road can be viewed as the worst-case scenario as it is on a main road and is heavily trafficked. Euston Road carries approximately 57,000 vehicles daily[23]. The annual mean PM_{10} concentration at this monitoring site is 23 $\mu g/m^3$ in 2018 which below the relevant objective.

The three roads surrounding the Application Site, Camden Square, Murray Street and Murray Mews, are not heavily trafficked. Therefore, annual mean PM_{10} concentrations are expected to be below the annual mean PM_{10} objective at the Application Site.

Furthermore, the 24-hour mean PM_{10} concentrations at the Euston Road automatic monitoring site did not exceed the relevant objective between 2014 and 2018. As the monitoring site is considered to be the worst-case scenario, this indicates that the 24-hour mean PM_{10} concentrations at the Application Site are not expected to exceed the objective either.

Therefore, the Application Site is considered suitable for its mixed-use community education and events, charity offices and ancillary residential accommodation.

6.3.3 Predicted $PM_{2.5}$ Concentrations.

A review of the annual mean $PM_{2.5}$ concentrations has been completed as part of the baseline review with recent monitoring results.

The annual mean $PM_{2.5}$ concentration at the roadside automatic monitoring station Euston Road is 16 $\mu g/m^3$, which is considered to be a worst-case scenario. Therefore, annual mean $PM_{2.5}$ concentrations at the Application Site, which is not heavily trafficked, are expected to be below the annual mean air quality objective. Therefore, the Application Site is considered suitable for its mixed-use community education and events, charity offices and ancillary residential accommodation.

6.3.4 Significance of Air Quality Impacts

To determine the significance of predicted air quality impacts based upon a site-suitability assessment, such as that undertaken as part of this assessment, the EPUK & IAQM guidance states:

> "Where the air quality is such that an air quality objective at the building façade is not met, the effect on residents or occupants will be judged as significant, unless provision is made to reduce their exposure by some means."

With regards to the Proposed Development, the unmitigated impact significance associated with the Proposed Development has been predicted in accordance with the stated assessment methodology. The following factors have been considered when providing justification:

- The Proposed Development will not introduce any new receptor into an area of exceedance of the annual or 1-hour mean NO_2 air quality objective based upon a review of NO_2 monitoring data within the development locale; and
- The Proposed Development will not introduce any new receptor exposure into an area of exceedance of the annual or 24-hour mean PM_{10} air quality objectives based upon a review of PM_{10} monitoring data within the development locale.
- The Proposed Development will not introduce any new receptor exposure into an area of exceedance of the annual mean $PM_{2.5}$ air quality objectives based upon a review of $PM_{2.5}$ monitoring data within the development locale.

As no exceedances of the considered air quality objectives are predicted, mitigation measures are not required for the operational phase of the Proposed Development. As such, the overall effect is considered to be 'not significant'.

7. Mitigation.

7.1 Construction Phase.

To mitigate the potential impacts during the construction phase it is recommended that mitigation measures as detailed in the GLA guidance are implemented. These mitigation measures have been carefully selected for the Proposed Development and are based upon the dust risk categories outlined in Table 8 of this report.

It is recommended that the LBoC approve an Air Quality Dust Management Plan (AQDMP) prior to works commencing on site, and that this is implemented using an appropriately worded planning condition. Table 9 below details the measures that should be incorporated in the AQDMP.

Table 9: Mitigation Measures

Issue	Mitigation Measure
Site Management	Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.
	Develop a Dust Management Plan.
	Display the name and contact details of person(s) accountable for air quality pollutant emissions and dust issues on the site boundary.
	Display the head or regional office contact information.
	Record and respond to all dust and air quality pollutant emissions complaints
	Make a complaints log available to the local authority when asked.
	Carry out regular site inspections to monitor compliance with air quality and dust control procedures, record inspection results, and make an inspection log available to the local authority when asked.
	Record any exceptional incidents that cause dust and air quality pollutant emissions, either on or off the site, and the action taken to resolve the situation is recorded in the log book.
	Increase the frequency of site inspections by those accountable for dust and air quality pollutant emissions issues when activities with a high potential to produce dust and emissions and dust are being carried out, and during prolonged dry or windy conditions
Preparing and maintaining the site	Plan site layout: machinery and dust causing activities should be located away from receptors
	Erect solid screens or barriers around dust activities or the site boundary that are, at least, as high as any stockpiles on site.
	Fully enclosure site or specific operations where there is a high potential for dust production and the site is active for an extensive period.
	Avoid site runoff of water or mud.
	Install green walls, screens or other green infrastructure to minimise the impact of dust and pollution.
	Keep site fencing, barriers and scaffolding clean using wet methods.
	Remove materials from site as soon as possible.
	Cover, seed or fence stockpiles to prevent wind whipping.

Issue	Mitigation Measure
	Carry out regular dust soiling checks of buildings within 100m of site boundary and cleaning to be provided if necessary
	Agree monitoring locations with the Local Authority.
	Where possible, commence baseline monitoring at least three months before phase begins.
	Put in place real-time dust and air quality pollutant monitors across the site and ensure they are checked regularly.
Operating vehicle/ machinery and	Ensure all on-road vehicles comply with the requirements of the London Low Emission Zone
	Ensure all non-road mobile machinery (NRMM) comply with the standards set within this guidance.
	Ensure all vehicles switch off engines when stationary – no idling vehicles.
	Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where possible.
	Impose and signpost a maximum-speed-limit of 10mph on surfaced haul routes and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate).
	Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials.
	Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing).
Operations	Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems.
	Ensure an adequate water supply on the site for effective dust/particulate matter mitigation (using recycled water where possible).
	Use enclosed chutes, conveyors and covered skips
	Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.
	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.
Waste management	Avoid bonfires and burning of waste materials.
	Reuse and recycle waste to reduce dust from waste materials
Demolition	Soft strip inside buildings before demolition (retaining walls and windows in the rest of the building where possible, to provide a screen against dust).

Issue	Mitigation Measure
	Ensure water suppression is used during demolition operations.
	Avoid explosive blasting, using appropriate manual or mechanical alternatives
	Bag and remove any biological debris or damp down such material before demolition.
Construction	Avoid scabbling (roughening of concrete surfaces) if possible.
	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.
Trackout	Regularly use a water-assisted dust sweeper on the access and local roads, as necessary, to remove any material tracked out of the site.
	Avoid dry sweeping of large areas.
	Ensure vehicles entering and leaving sites are securely covered to prevent escape of materials during transport.
	Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).

Potential dust effects during the construction phase are considered to be temporary in nature. The impacts are determined to be temporary as they will only potentially occur throughout the construction phase and short-term because these will only arise at particular times when certain activities and meteorological conditions for creating the level of magnitude predicted combine.

However, with the application of the above dust control and mitigation measures, it is considered that impacts at all receptors will be 'not significant' in accordance with the IAQM guidance.

7.1.1 Construction Phase Road Traffic Emissions

Potential air quality impacts associated with construction phase road traffic emissions, principally HDV movements, have been screened out for further assessment with associated impacts on air quality predicted to result in an 'insignificant' effect. Therefore, mitigation measures are not considered to be required.

7.1.2 Construction Phase NRMM Emissions

In accordance with Part 4 of the IAQM Control of Dust and Emissions guidance, all NRMM would need to adhere to the emissions standards for NO_2 and PM_{10} set out for NRMM. It is therefore considered the likely effects of construction plant on local air quality would be insignificant.

7.2 Operational Phase.

7.2.1 Road Traffic Emissions

Potential air quality impacts associated with operational phase development trips have been screened out from further assessment as 'the impacts [on air quality from operational phase movements] can be considered to have insignificant effects' in accordance with the EPUK and IAQM Guidance. Therefore, mitigation measures are not considered to be required.

7.2.2 Baseline Site Suitability Review

A review of LBoC monitoring data in consideration of the Application Site, and concentrations from Defra and GLA in the locale of the Application Site, indicates no likely exceedance of the annual and 1-hour mean NO_2, annual and 24-hour mean PM_{10} or annual mean $PM_{2.5}$ air quality objectives.

As no exceedances of any considered air quality objective are predicted, this follows the 1st hierarchy principle of the IAQM guidance to 'prevent and avoid' exposure[24]. Therefore, no embedded mitigation into the Proposed Development design is required.

8. Summary and Conclusions.

This report details the potential air quality impacts associated with the construction and operation of a development for mixed-use community education and events, charity offices and ancillary residential accommodation development at 50-52 Camden Square, London, NW1 9XB (the 'Application Site').

The findings of the assessment are as follows:

- A qualitative assessment of the potential dust impacts during the construction of the Proposed Development has been undertaken. Through good practice and implementation of appropriate mitigation measures, it is expected that the release of dust would be effectively controlled and mitigated, with resulting impacts considered to be 'not significant'. All dust impacts are considered to be temporary and short-term in nature;
- The air quality impacts of traffic generated by the Proposed Development has been assessed qualitatively and the effects are not predicted to be significant, and further assessment is not required;
- The energy provision for the Proposed Development will be met by ASHPs and photovoltaic panels which do not release any emissions, along with gas fired kitchen appliances. The air quality effects will therefore not be significant, and further assessment is not required; and
- A baseline site suitability review has been undertaken to assess the suitability of the Application Site for the proposed mixed-use community education and events, charity offices and ancillary residential accommodation. The results indicate no likely exceedance of the 1-hour and annual mean NO_2 objectives or 24-hour and annual mean PM_{10} and annual mean $PM_{2.5}$ air quality objectives at the Application Site. Therefore, no embedded mitigation into the Proposed Development design is required.

Based on the information above, it is considered that air quality should not be viewed as a constraint to planning and the Proposed Development conforms to the principles of National Planning Policy Framework and the LBoC Local Plan.

9. Glossary of Terms.

AADT	Annual Average Daily Traffic
AQDMP	Air Quality Dust Management Plan
AQMA	Air Quality Management Area
AQO	Air Quality Objective
ASR	Annual Status Report
Defra	Department for Environment, Food and Rural Affairs
DMP	Dust Management Plan
EPUK	Environmental Protection UK
HDV	Heavy Duty Vehicles (> 3.5 tonnes gross vehicle weight)
HGV	Heavy Goods Vehicle
IAQM	Institute of Air Quality Management
LAQM	Local Air Quality Management
LBoC	London Borough of Camden
LDV	Light Duty Vehicles (≤3.5 tonnes gross vehicle weight)
µg/m^3	Micrograms per cubic metre
NO_2	Nitrogen dioxide
NO_x	Nitrogen oxides (taken to be NO_2 + NO)
NPPF	National Planning Policy Framework
NRMM	Non-Road Mobile Machinery
Objectives	A nationally defined set of health-based concentrations for nine pollutants, seven of which are incorporated in Regulations, setting out the extent to which the standards should be achieved by a defined date. There are also vegetation-based objectives for sulphur dioxide and nitrogen oxides
PM_{10}	Particulate matter with an aerodynamic diameter less than 10 micrometres
$PM_{2.5}$	Particulate matter with an aerodynamic diameter less than 2.5 micrometres
PPG	Planning Practice Guidance
SPG	Supplementary Planning Guidance
Standards	A nationally defined set of concentrations for nine pollutants below which health effects do not occur or are minimal
Trackout	The transport of dust and dirt from the construction / demolition site onto the public road network, where it may be deposited and then re-suspended by vehicles using the network. This arises when heavy duty vehicles (HDVs) leave the construction / demolition site with dusty materials, which may then spill onto the road, and/or when HDVs transfer dust and dirt onto the road having travelled over muddy ground on site

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Appendix 1 - EHO Consultation.

From: Hannah Whalley

Sent: 28 February 2020 11:21

To: 'Parkes, Tom'

Cc: Andy Day

Subject: RE: Air Quality Assessment- London Irish Centre

Hi Tom,

Thank you for your email.

Please could you let us know which policy the WHO Guideline Values for Air Quality have been adopted by in LBoC?

And as such if these have been translated into local LBoC policy?

We need to reference how you have included the WHO guidelines in your local legislation to the council and as such have to reference these rather than UK law.

Many thanks,

Hannah

Hannah Whalley
Graduate Air Quality Consultant

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Tel +44 20 3668 7100
Email hannahwhalley@hoarelea.com

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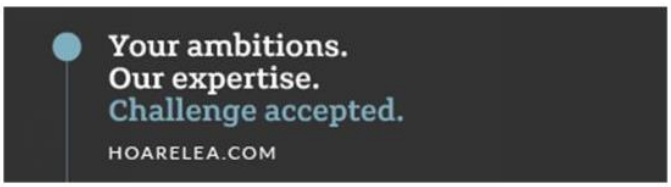

From: Parkes, Tom <Tom.Parkes@camden.gov.uk>
Sent: 27 February 2020 18:18
To: Hannah Whalley <HannahWhalley@hoarelea.com>
Cc: Andy Day <AndyDay@hoarelea.com>
Subject: RE: Air Quality Assessment- London Irish Centre

[External email]

Hi Hannah,

We don't typically provide pre-application advice other than through the formal channel, see here: https://www.camden.gov.uk/pre-planning-application-advice

Please also review our Camden Planning Guidance: Air Quality, which contains a flow diagram/table to illustrate when and what type of air quality assessment would be required depending upon the nature of the development and the circumstances of the location (i.e. is it in an area of poor air quality).

It is important to note that we are working with the 'intend-to-publish' version of the London Plan which uses the WHO $PM_{2.5}$ guideline standard as an indicator of poor air quality. You can use the mapping on the London Air website to determine whether this level is exceeded at the location of the development in question, but I suspect it will be.

As a final point we don't accept future projections of air quality in AQAs as it's important to use a worst-case situation informed by the most recent measured data and Defra background factors.

Hope this helps.

Kind regards,

Tom

Tom Parkes
Senior Air Quality Officer

Telephone: 020 7974 4887

From: Hannah Whalley <HannahWhalley@hoarelea.com>
Sent: 27 February 2020 14:10
To: Parkes, Tom <Tom.Parkes@camden.gov.uk>

Cc: Andy Day <AndyDay@hoarelea.com>
Subject: RE: Air Quality Assessment- London Irish Centre

Hello Tom,

Could you please provide us with an update on the below?

Many thanks,

Hannah Whalley
Graduate Air Quality Consultant

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Email hannahwhalley@hoarelea.com

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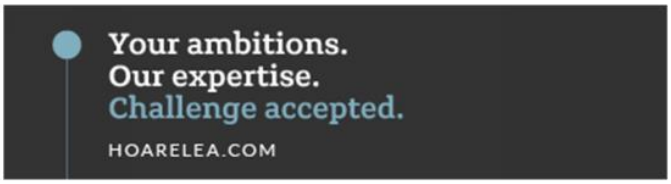
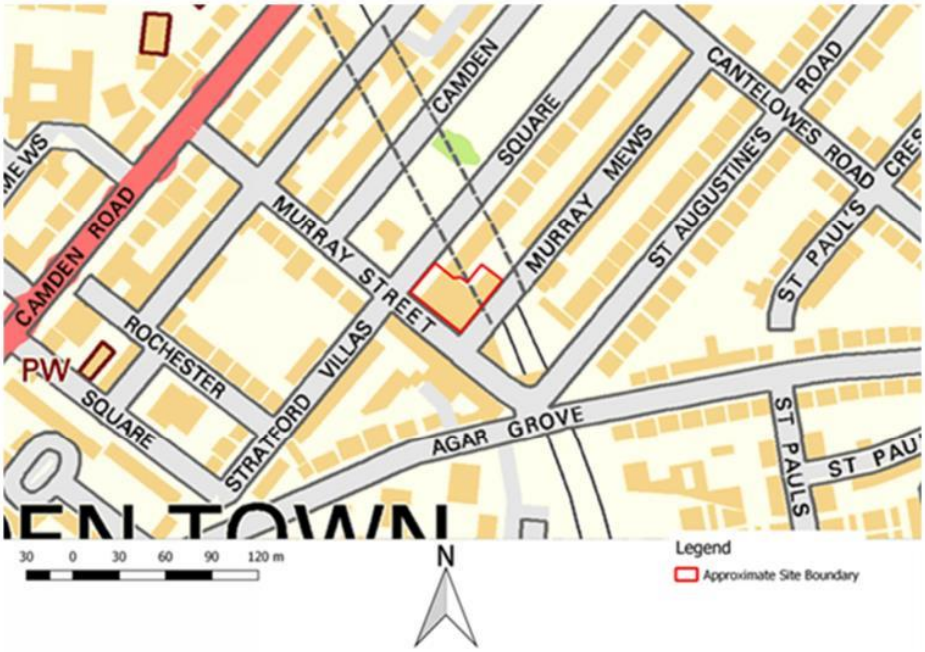


From: Hannah Whalley
Sent: 18 February 2020 11:58
To: tom.parkes@camden.gov.uk
Cc: Andy Day <AndyDay@hoarelea.com>
Subject: Air Quality Assessment- London Irish Centre

Hello Tom,

Hoare Lea have been instructed to undertake an Air Quality Assessment to support the planning application for the proposed redevelopment of the London Irish Centre at 50-52 Camden Square, London, NW1 9XB.

I have set out our proposed assessment approach below and would invite any comments or local air quality considerations you may have. The site is located at the below location (red outline):



The proposed redevelopment of the London Irish Centre consists of the demolition of two buildings on Murray Street and the construction of a new 4-storey building with a basement. Other buildings on site will also be refurbished. The London Irish Centre will be used for events, office and residential use.

Hoare Lea propose to undertake the assessment using the following methodology:

- A baseline assessment will be undertaken using data from London Borough of Camden's most recent Annual Status Report and LAEI pollutant concentration maps.
- DEFRA's background pollution maps will be used to establish background concentrations in the area.
- An assessment of the construction impacts on air quality and dust using the EPUK/IAQM methodology, in compliance with London's SPG on 'The Control of Dust and Emissions During Construction and Demolition'.
- It is not known if there will be significant traffic generated by the development at this stage (i.e. more than 100 AADT LDV or 25 HDV AADT). If the traffic generation exceeds either criteria, the effect of road traffic generated by the development will be modelled and assessed in line with the guidance set out in the EPUK/IAQM document 'Land-Use Planning & Development Control: Planning for Air Quality' January 2017.
- An assessment of site suitability will be undertaken qualitatively with a desk-based review of the existing baseline air quality undertaken to inform the exposure of future users of the development. Local air quality monitoring and the GLA air quality pollution maps will be used to understand concentrations at the Application Site.
- An air quality neutral assessment will be carried out in line with the criteria as set out in the document produced by Air Quality Consultants Ltd, in association with ENVIRON UK Ltd "Air Quality Neutral Planning Support Update: GLA 80371" April 2017.
- The energy provision for the Proposed Development will be met by Air Source Heat Pumps (ASHPs) and photovoltaic panels, which do not release any emissions, and gas fired energy for kitchen appliances. As gas fired energy will only be required for the kitchen appliances, the proposed energy plant is likely to be minimal and the emission rate from this plant is expected to

be below the criteria set out in the EPUK/IAQM guidance. As such the impact from combustion plant will be negligible and no mitigation is required.

I would be grateful if you could please confirm your acceptance of the proposed methodology and provide me with any comments you may have. However, if you would like to discuss further, please do not hesitate to contact me on the number below.

Many thanks,

Hannah Whalley
Graduate Air Quality Consultant

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Email hannahwhalley@hoarelea.com

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Appendix 2 – Proposed Development Plans.

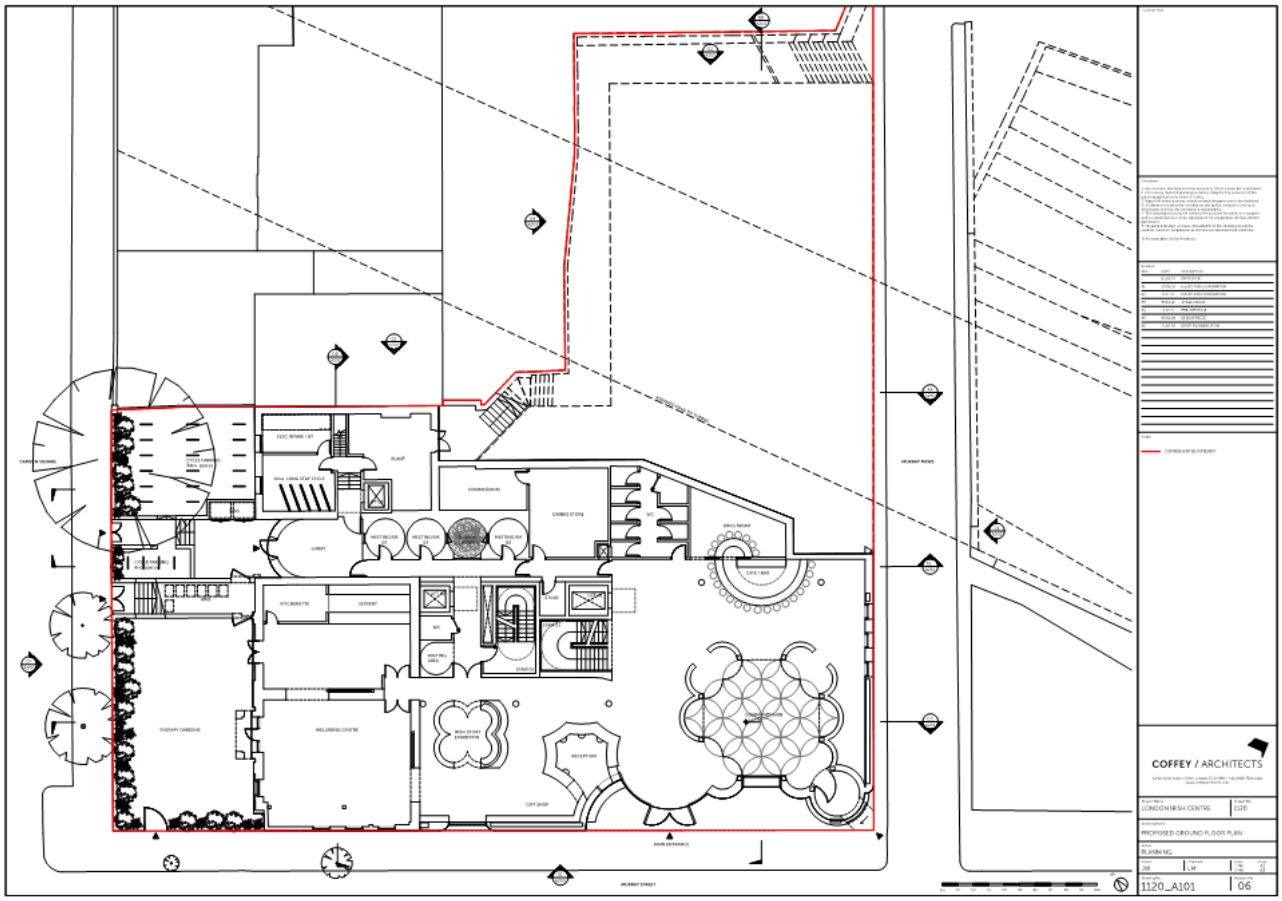

Figure 7 Proposed Site Plan (indicative only) Ground Floor Plan- Source document: Coffey Architects. Drawing No.: 1120_A101. Rev.: 06

Appendix 3 - GLA Construction Phase Methodology.

The following tables have been taken from the GLA guidance document 'Guidance on the Assessment of Dust from Demolition and Construction'[20] and have been utilised to determine the sensitivity of the area and consider the risk of fugitive emissions as a result of construction activities.

Table AII-1 to Table AII-2 illustrate how the sensitivity of the area may be determined for dust soiling and human health, respectively. It should be noted that the highest level of sensitivity from each table should be considered, as recommended by the IAQM.

Table AII-1: Sensitivity of the Area to Dust Soiling Effects on People and Property

Receptor Sensitivity	Number of Receptors	Distance from 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 AII-2: Sensitivity of the Area to Human Health Effects

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

Medium	-	>10	High	Medium	Low	Low	Low
	-	1 – 10	Medium	Low	Low	Low	Low
Low	-	1	Low	Low	Low	Low	Low

Table AII-3 to Table AII-6 illustrate how the dust emission magnitude should be combined with the sensitivity of the area to determine the risk of impacts with no mitigation measures applied.

Table AII-3: Risk of Dust Impacts – Demolition

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

Table AII-4: Risk of Dust Impacts – Earthworks

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

Table AII-5: Risk of Dust Impacts – Construction

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

Table AII-6: Risk of Dust Impacts – Trackout

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

Appendix 4 - Professional Experience.

Kathryn Woolley (Hoare Lea), BSc (Hons), AMIEnvSc, MIAQM

Kathryn is a Principal Air Quality Consultant with Hoare Lea. She's is an associate Member of the Institution of Environmental Sciences and a Full Member of the Institute of Air Quality Management.

She has a diverse portfolio of experience and has worked on a range of projects from initial site feasibility, through planning and development to construction and operation. Kathryn's expertise covers planning, and air quality, specifically in relation to residential developments, industrial fixed installations such as district heating networks. Kathryn has completed over 30 EIA in the past 6 years throughout the UK and abroad including; St Johns Masterplan in Manchester (residential led), Leicester City Football club training facility north of Leister (sports use), 1-5 Grosvenor Place, Westminster (mixed use residential, retail and hotel site), and Chestnut Avenue in Eastleigh (residential and community use).

Andy Day (Hoare Lea), BSc (Hons), MSc, AMIEnvSc, AMIAQM

Andy is an Air Quality Consultant with Hoare Lea. He is an Associate Member of the Institute of Environmental Sciences and an Associate Member of the Institute of Air Quality Management. He is a chemistry graduate with a Master's specialising in the catalysed removal of harmful volatile organic compounds (VOCs) often generated from the combustion of fuel in car engines.

Andy has worked on a range of projects of varying size across a number of different sectors. His experience focusses on work up to and through planning for air quality assessments and environmental impact assessments. Andy also has experience in detailed dispersion modelling of road traffic and energy combustion plant, emission mitigation statements, damage cost calculations, indoor and outdoor air quality monitoring and assessing the air quality impact at ecologically sensitive sites.

Andy has a particular interest in reducing emissions for the benefit of human health and the environment through the life cycle of a building.

Hannah Whalley (Hoare Lea), BSc (Hons), MSc, AMIEnvSc, AMIAQM

Hannah is a Graduate Air Quality Consultant with Hoare Lea. She is a BSc Geography Graduate with a MSc in Integrated Environmental Studies from the University of Southampton. During her MSc, Hannah further developed her skills in GIS and gained experience in methodologies of EIAs. She also acquired an in-depth understanding of environmental law and ways to measure, monitor and remediate air pollution. Within air quality, Hannah's interests lie in air pollution monitoring and management.

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