Air & Acoustic Consultants

The Arch Company Properties Limited

Castle Mews, Camden

Air Quality Assessment

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Executive Summary

This Air Quality Assessment (AQA) has been produced in support of a planning application for a proposed arch refurbishment at Castle Mews, Camden, London, NW1 8SU.

The application site is located within the Camden Air Quality Management Area (AQMA), declared for exceedances of the NO_2 annual mean objective, as well as the PM_{10} 24-hour mean objective. Furthermore, the application site is located within 60 m of the 'Camden High Street from Mornington Cresent to Chalk Farm and Camden Road' Air Quality Focus Area (AQFA). A review of the Camden Council air quality monitoring carried out closest to the application site shows a compliance of the NO_2 annual mean and 1-hour objectives from 2019 - 2023. Additionally, the London Atmospheric Emissions Inventory (LAEI) modelled concentrations at the application site suggest compliance with the PM_{10} annual mean objective, PM_{10} 24-hour mean objective and the $PM_{2.5}$ annual mean limit.

The dust risk assessment has classified the application site as 'Medium Risk.' Following the successful implementation of the suggested mitigation measures (set out in Section 8 and Appendix B), the residual effects of dust and emissions resulting from the demolition and construction activities upon the local area and sensitive receptors, although adverse, will be temporary and 'not significant.'

The AQA demonstrates that the air quality impacts associated with the proposed development are considered to be '**insignificant**'. Furthermore, the AQA has highlighted that the proposed development is indicatively anticipated to be '**air quality neutral**' in terms of both building emissions and transport emissions.

The proposed development is therefore expected to comply with all relevant national, regional and local air quality policy.

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1.1 Brief

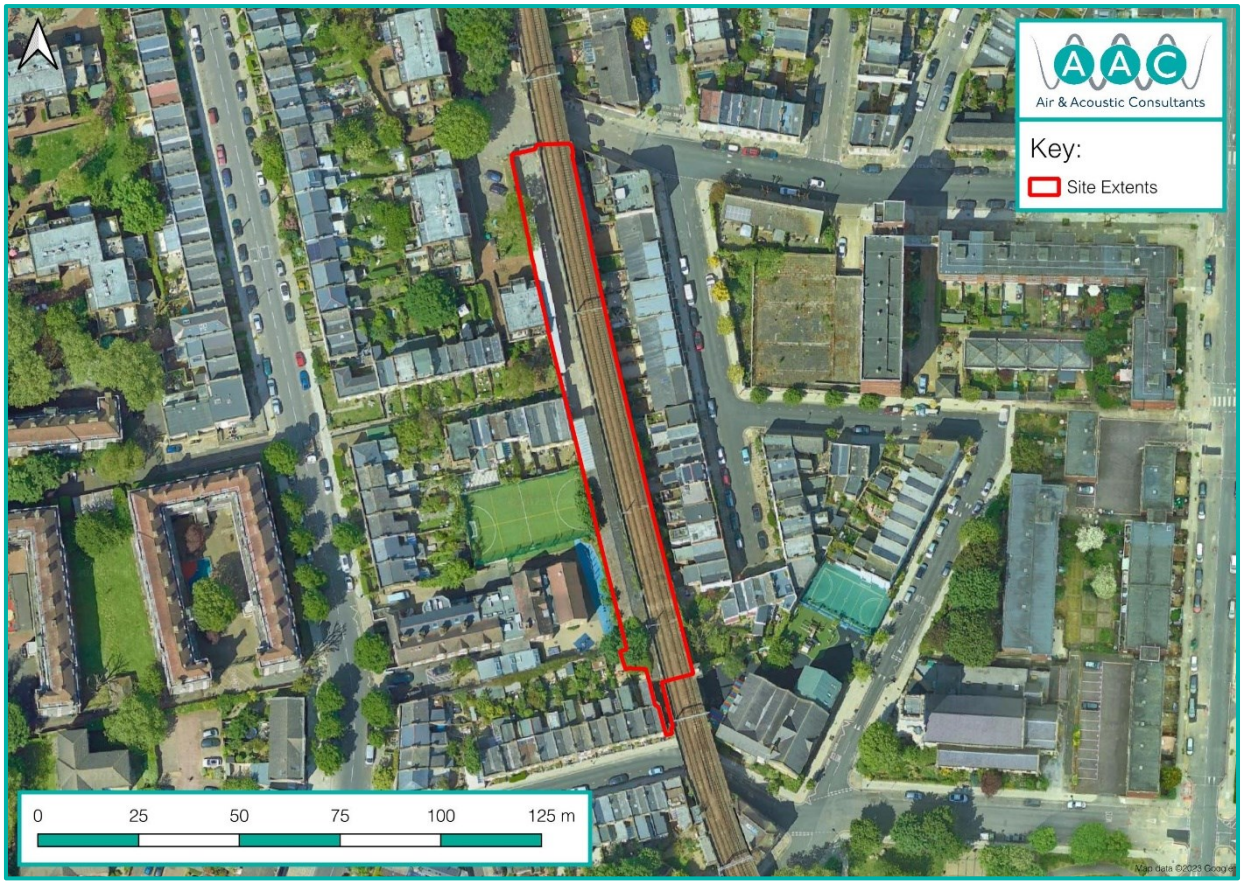
1.1.1 Air & Acoustic Consultants Limited have been commissioned by The Arch Company Properties Limited to undertake an AQA in support of a planning application for the proposed external alterations of 13 arches (Arches 29 to 41) with adjoining warehouse at Castle Mews, Camden. Additionally, the application seeks to add use classes B8 and E(g)(iii) to improve the quality of employment floorspace at the Site, enhancing the future letting prospects of the unit.

1.2 Application Site

1.2.1 The application site consists of 13 railway arches located under the North London Line at Castle Mews, Camden and was until recently operated by 'Buttles' as a timber and builders' merchants. The surrounding area is urban in nature and consists predominantly of residential properties. The "Tapping the Admiral" public house and the "Vibe"n"Go" Caribbean restaurant lie to the east of the site, while the "Camden Centre for Learning - Special School" lies to the southwest of the site. The Kentish Town West train station is to the north of the site.

1.2.2 The National Grid Reference for the centre of the site is, TQ 28641 84506 (British National Grid Coordinates E: 528641, N: 184506). The site location and surrounding area are shown in Figure 1.1.

Figure 1.1: Site Location



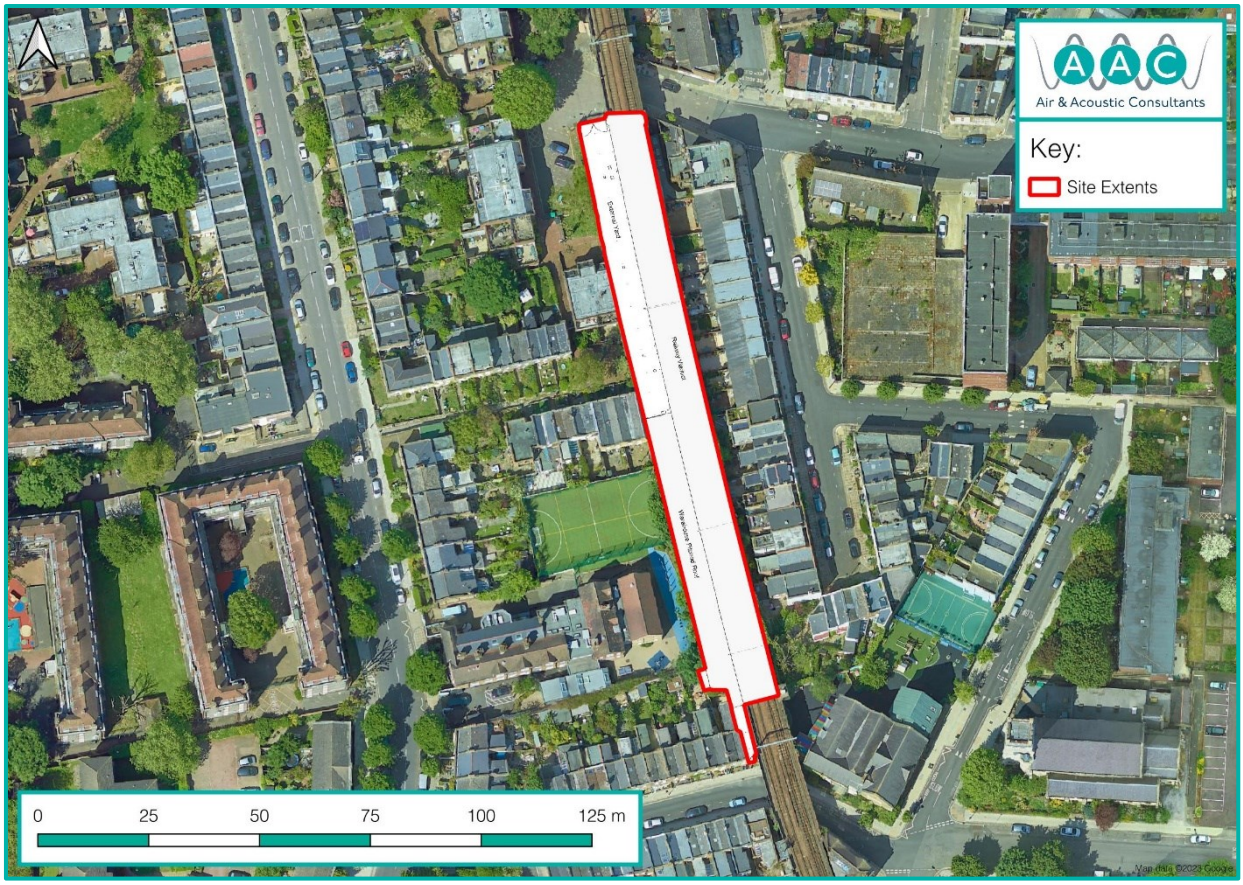
1.3 Development Proposals

1.3.1 The planning application seeks permission for the partial demolition of the existing warehouse, construction of a new warehouse, and external alterations to the existing railway arches. Arches 38 to 41 are planned to be open arches with no infills. Arch 37 is planned to be the ancillary office within the site. A new warehouse is proposed adjoining and including arches 29 to 36.

1.3.2 Currently the site has an established Sui Generis use. The application seeks to retain this use while adding B8, and E(g)(iii) to improve the quality of employment floorspace at the site, enhancing the future letting prospects of the units. The project will target a single occupier, likely to be a builder's merchant, industrial fabricator or small distribution operator.

1.3.3 The proposed site layout can be seen below in Figure 1.2.

Figure 1.2: Site Layout



1.4 Assessment Scope

1.4.1 This assessment has been undertaken to assess if the proposed development is likely to give rise to any significant air quality impacts, and to establish the magnitude and the significance of such impacts caused as a result of the proposed development in respect to the prevailing environmental conditions.

2 Legislation and Policy Context

2.1 European Legislation

2.1.1 Air pollutants at high concentrations can give rise to adverse effects upon the health of both humans and ecosystems. The European Union (EU) legislation on air quality forms the basis for the national UK legislation and policy.

2.1.2 The EU Framework Directive 2008/50/EC came into force in May 2008 and sets out legally binding limits for concentrations of the major air pollutants that can impact on public health. This Directive came into force in England in June 2010[1]. Amendments to this Directive were made following amendments to the 2008/50/EC and 1004/107/EC on air quality made by Directive 2015/1480/EC. The updated Directive, The Air Quality Standards (Amendment) Regulations 2016, came into force on 31st December 2016[2].

2.1.3 Following the UK's departure from the EU and the Brexit transition period the previous EU Legislation has been retained in the United Kingdom. The following text is taken from the legislation.gov.uk[3] website, setting out details of the retention:

> *"The UK is no longer a member of the European Union. EU legislation as it applied to the UK on 31 December 2020 is now a part of UK domestic legislation, under the control of the UK's Parliaments and Assemblies, and is published on legislation.gov.uk.*
>
> *[…]*
>
> *EU legislation which applied directly or indirectly to the UK before 11.00 p.m. on 31 December 2020 has been retained in UK law as a form of domestic legislation known as 'retained EU legislation'. This is set out in sections 2 and 3 of the European Union (Withdrawal) Act 2018 (c. 16)."*

2.2 National Legislation, Policy and Strategy

2.2.1 Part IV of the Environment Act 1995[4] requires local authorities to review and assess the air quality within their boundaries. As a result, the Air Quality Strategy was adopted in 1997[5], with national health-based standards and objectives set out for the, then, eight key air pollutants including benzene, 1-3 butadiene, carbon monoxide, lead, nitrogen dioxide (NO_2), ozone, particulate matter (PM) and sulphur dioxide.

2.2.2 Part IV of the Environment Act 2021[6] amends both the Environment Act 1995 and the Clean Air Act 1993[7]. It builds on the foundations provided by Part IV of the Environment Act 1995 and strengthens the local air quality management framework. The act allows the Secretary of State to make provisions for, about or connect with the recall of relevant products that do not meet relevant environmental standards.

2.2.3 The government has resisted calls for the adoption of the recently updated World Health Organisation (WHO) air quality guidelines, specifically targeting particulate matter pollution. The act does introduce a duty on the government to bring forward at least two air quality targets by October 2022 for consultation

[1] Statutory Instrument, 2010. *The Air Quality Standards Regulations,' No. 1001.*
[2] Statutory Instrument, 2016. *The Air Quality Standards Regulations,' No. 1184.*
[3] EU legislation and UK law. Accessible at: https://www.legislation.gov.uk/eu-legislation-and-uk-law
[4] Parliament of the United Kingdom, 1995. *Environmental Act 1995,* Chapter 25.
[5] Department for Environment Food and Rural Affairs, 1997. *The United Kingdom National Air Quality Strategy*, Cm 3587.
[6] UK Public General Acts, 2021. *Environmental Act 2021*, *Chapter 30.*
[7] UK Public General Acts, 1993. *Clean Air Act 1993, Chapter 11.*

that will be set in secondary legislation, which, after a delay[8], has now been introduced in secondary legislation. The first aim of the legislation is to reduce the annual average level of fine particulate matter ($PM_{2.5}$) in ambient air. The second aim is to set a long-term target (set a minimum of 15 years in the future), which the government says, *"will encourage long-term investment and provide certainty for businesses and other stakeholders."*

England Air Quality Standards

2.2.4 The Air Quality Strategy[9] sets out air quality objectives and policy options to further improve air quality in the UK from today into the long term. The Air Quality Strategy has since been updated[10] and includes a range of actions, for both local authorities and the UK government, to improve air quality across the UK. Examples of actions set out in the Air Quality Strategy include tighter emissions standards for vehicles and machinery, greater use of low-emission vehicles, and new rules on burning solid fuels, as well as local action to support the delivery of the recently implemented $PM_{2.5}$ targets.

2.2.5 The pollutant standards relate to ambient pollutant concentrations in air, set on the basis of medical and scientific evidence regarding how each pollutant affects human health. Pollutant objectives are the future dates by which each standard is to be achieved, considering economic considerations, practical and technical feasibility.

2.2.6 The air quality standards are managed through the Local Air Quality Management (LAQM) regime, which is defined within the Air Quality (England) Regulations 2000, (SI 928) and the Air Quality (England) (Amendment) Regulations 2002, (SI 3043). Table 2.1 lists the National Air Quality Standards that are relevant to this AQA.

Table 2.1: Air Quality Standards (England)

Pollutants	Air Quality Standards		
	Average Period	Standard	Percentile Equivalent
Nitrogen Dioxide (NO_2)	Annual Mean	40 µg/m³ [A]	-
	1-hour Mean	200 µg/m³ not to be exceeded more than 18 times a year. [A]	99.79
Particulate Matter (PM_{10})	Annual Mean	40 µg/m³	-
	24-hour Mean	50 µg/m³ not to be exceeded more than 35 times a year	90.41
$PM_{2.5}$	Annual Mean	25 µg/m³ - Stage 1 limit value pre 2020	-
		20 µg/m³ - Indicative Stage 2 limit value post 2020. 15% reduction in background to be achieved between 2010 & 2020 at Urban Background sites. [B]	-
	Annual Mean	12 µg/m³ - Target to be achieved by 2028. [C]	-
	Annual Mean	10 µg/m³ - Target to be achieved by	-

[8] UK Government, Update on Progress on Environmental Targets. Accessible at: https://www.gov.uk/government/news/update-on-progress-on-environmental-targets
[9] Department for Environment Food and Rural Affairs, 2007. *The Air Quality Strategy for England, Scotland, Wales and Northern Ireland*, Cm 7169, Department for Environment Food and Rural Affairs.
[10] Department for Environment Food and Rural Affairs, 2023. *Air quality strategy: framework for local authority delivery.*

Pollutants	Air Quality Standards		
	Average Period	Standard	Percentile Equivalent
		2040. [C]	

Notes:

[A] Annual mean value of 60 µg/m^3 used to assess whether the NO_2 1-hour mean objective will be exceeded. A study carried out on behalf of DEFRA and the Devolved Administrations identified that exceedances of the NO_2 1-hour mean are unlikely to occur where the annual mean is below this concentration.

[B] Current UK limit value.

[C] As set out in the Environmental Improvement Plan (2023). These targets will help drive reductions in the worst $PM_{2.5}$ hotspots across the country, whilst ensuring nationwide action to improve air quality for everyone.

2.2.7 To note, the $PM_{2.5}$ targets are central government targets primarily focussed on tackling emissions, rather than requiring local authorities to assess concentrations against these new $PM_{2.5}$ targets. In March 2023, the Department for Levelling-Up, Housing and Communities (DLUHC) wrote to all Chief Planning Officers[11] in England advising that guidance was progressing on how these new targets should be integrated into the planning system. At the time of writing, interim guidance has been produced by DEFRA[12] which states:

> *The purpose of the targets is to improve air quality by reducing levels of $PM_{2.5}$ across the country, therefore improving public health. While achievement of the targets will be assessed at relevant monitoring sites, the targets apply to ambient (outdoor) air throughout England. Applicants and Local Planning Authorities should therefore consider the impact of developments on air quality in all ambient air, whether a monitor is present or not.*
>
> *These targets require a different approach to that used by applicants and Local Authorities in response to existing air quality legislation.*
>
> *The new approach moves away from a requirement to assess solely whether a scheme is likely to lead to an exceedance of a legal limit and instead ensures that appropriate mitigation measures are implemented from the design stage, streamlining the process for planning and ensuring the minimum amount of pollution is emitted and that exposure is minimised.*
>
> *Pending publication of the new guidance, applicants are advised to provide evidence in their planning applications that they have identified key sources of air pollution within their schemes and taken appropriate action to minimise emissions of $PM_{2.5}$ and its precursors as far as is reasonably practicable. If quantitative evidence is not available, a qualitative approach can be taken. This applies to all developments which would normally require an air quality assessment. More detailed assessments are expected for developments which are closer to populations, and those which are likely to have higher emissions. This guidance is separate to how $PM_{2.5}$ should be considered within environmental permitting."*

2.2.8 While planning reforms are discussed in the Air Quality Strategy[13] (2023), it is still unclear how the $PM_{2.5}$ targets will be implemented at a local level in the future. Therefore, this AQA has only considered the Defra (2024) interim guidance.

[11] Department for Levelling Up, Housing & Communities, 2023. *Planning Newsletter – 3rd March 2023.*

[12] Department for Environment Food & Rural Affairs (2024) *$PM_{2.5}$ Targets: Interim Planning Guidance*, available at: https://uk-air.defra.gov.uk/pm25targets/planning
Levelling Up, Housing & Communities, 2023. *Planning Newsletter – 3rd March 2023.*

[13] Department for Environment, Food & Rural Affairs, 2023. *Air Quality Strategy for England.*

2.2.9 To note, the Defra (2024) interim guidance also provides considerations applicants have to make in terms of impacts and exposure (which also aligns with the mitigation hierarchy set out within the Institute of Air Quality Management (IAQM) (2018) Mitigation of Development Air Quality Impacts Statement[14]). World Health Organisation Guidelines.

World Health Organisation Guidelines

2.2.10 The WHO produced updated air quality guidelines in September 2021[15], and are a set of evidence-based recommendations of limit values for specific air pollutants developed to help countries achieve air quality that protects public health. They are significantly lower than the current levels legislated within the Air Quality Objectives / Limits (as set out in Table 2.1). The WHO guideline levels are set out in Table 2.2 below.

Table 2.2: WHO Air Quality Guidelines

Pollutants	Air Quality Guidelines	
	Concentration	Measured as
Nitrogen Dioxide (NO_2)	25 µg/m^3	24-hour mean (99th percentile)
	10 µg/m^3	Annual mean
Particulate Matter (PM_{10})	45 µg/m^3	24-hour mean (99th percentile)
	15 µg/m^3	Annual mean
$PM_{2.5}$	15 µg/m^3	24-hour mean (99th percentile)
	5 µg/m^3	Annual mean

2.2.11 The Committee on the Medical Effects of Air Pollutants (COMEAP)[16] has concluded the following:

> *"The WHO's revised AQGs for pollutants in outdoor air are suitable as long-term targets to inform policy development. We stress that the AQG values should not be regarded as thresholds below which there are no impacts on health - the current evidence has not identified thresholds for effect at the population level, meaning that even low concentrations of pollutants are likely to be associated with adverse effects on health. Therefore, continued reductions, even where concentrations are below the AQGs, are also likely to be beneficial to health."*

2.2.12 However, this AQA has considered the current legislation, and therefore the objectives / limits set out in Table 2.1 have been used to inform this AQA.

Statutory Nuisance

2.2.13 Under Part III of the Environmental Protection Act (1990)[17], it is the duty of the local authorities to take steps as reasonably practical to investigate issues that could be a 'statutory nuisance'. Potential causes of statutory nuisance include:

- Any premises in such a state as to be prejudicial to health or a nuisance;
- Smoke emitted from premises so as to be prejudicial to health or a nuisance;

[14] Institute of Air Quality Management, 2018. *Mitigation of Development Air Quality Impacts (v1.1).'*
[15] World Health Organization, 2021. *WHO global air quality guidelines.*
[16] Committee on the Medical Effects of Air Pollutants (COMEAP), 2022. *COMEAP statement: response to publication of the World Health Organization Air quality guidelines 2021*
[17] UK Public General Acts, 1990. *Environmental Protection Act 1990, Chapter 43.*

- Fumes or gases emitted from premises so as to be prejudicial to health or a nuisance;
- Any dust, steam, smell or other effluvia arising on industrial, trade or business premises and being prejudicial to health or a nuisance; or
- Any accumulation or deposit which is prejudicial to health or a nuisance.

2.2.14 The local authority may serve an abatement notice on the person, premises owner or occupier if it is satisfied of the existence or likely existence of a statutory nuisance(s). Should the abatement notice not be complied with, penalties such as a fine or prosecution could occur. However, it is considered as a defence if the best practicable means to stop or reduce a nuisance are employed.

2.2.15 The most likely cause of a statutory nuisance associated with this AQA is dust. Dust is the generic term used in the British Standard document BS 6069 (Part Two)[18], to describe particulate matter in the size range 1–75 µm (micrometres) in diameter. This document has been withdrawn and has been replaced with the BS ISO 4225:2020[19] document. Dust nuisance is the result of the perception of the soiling of surfaces by excessive rates of dust deposition.

National Planning Policy

2.2.16 The National Planning Policy Framework (NPPF)[20] (2024) sets out the planning policy for England, to help achieve sustainable development within the planning sector, and that the planning system has three overarching objectives, one of which (Paragraph 8c) is an environmental objective:

> *"to protect and enhance our natural, built and historic environment; including making effective use of land, improving biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy."*

2.2.17 Paragraph 110 states:

> *"The planning system should actively manage patterns of growth in support of these objectives. Significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes. This can help to reduce congestion and emissions, and improve air quality and public health. However, opportunities to maximise sustainable transport solutions will vary between urban and rural areas, and this should be taken into account in both plan-making and decision-making."*

2.2.18 Paragraph 187 states:

> *"Planning policies and decisions should contribute to and enhance the natural and local environment by:*
>
> *[...]*
>
> *e) 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*

[18] The British Standards Institution, 1994. *BS6069-2:1994 - Characterization of air quality.*
[19] The British Standards Institution, 2020. *BS ISO 4225:2020 - Air quality.*
[20] Ministry of Housing, Communities & Local Government , 2024. *National Planning Policy Framework.*

environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans;

[...]"

2.2.19 Paragraph 198 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."*

2.2.20 Paragraph 199 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 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."*

2.2.21 Paragraph 201 states:

> *"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."*

2.2.22 The NPPF also sets out the national planning policy on biodiversity and conservation. This emphasises that the planning system should seek to minimise effects on and provide net gains in biodiversity, wherever possible, as part of the Government's commitment to halting decline and establishing coherent and resilient ecological networks.

Planning Practice Guidance

2.2.23 The NPPF is supported by Planning Practice Guidance (PPG)[21] (DCLG, 2023), which sets out the principles on how planning can take account of the impacts of new developments on air quality.

2.2.24 Paragraph 001 Reference ID: 32-001-20191101 states:

> *"The 2008 Ambient Air Quality Directive sets legally binding limits for concentrations in outdoor air of major air pollutants that affect public health such as particulate matter (PM_{10} and $PM_{2.5}$) and nitrogen dioxide (NO_2).*

[21] Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities and Local Government. Planning Practice Guidance. Accessible at: http://planningguidance.planningportal.gov.uk/

The UK also has national emission reduction commitments for overall UK emissions of 5 damaging air pollutants:

- *fine particulate matter ($PM_{2.5}$)*
- *ammonia (NH_3)*
- *nitrogen oxides (NO_x)*
- *sulphur dioxide (SO_2)*
- *non-methane volatile organic compounds (NMVOCs)*

As well as having direct effects on public health, habitats and biodiversity, these pollutants can combine in the atmosphere to form ozone, a harmful air pollutant (and potent greenhouse gas) which can be transported great distances by weather systems. Odour and dust can also be a planning concern, for example, because of the effect on local amenity."

2.2.25 Paragraph: 005 Reference ID: 32-005-20191101 states:

"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 conservation 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.

Where air quality is a relevant consideration the local planning authority may need to establish:

- *The 'baseline' local air quality, including what would happen to air quality in the absence of the development;*
- *whether the proposed development could significantly change air quality during the construction and operational phases (and the consequences of this for public health and biodiversity); and*
- *whether occupiers or users of the development could experience poor living conditions or health due to poor air quality."*

Environmental Improvement Plan

2.2.26 The Environmental Improvement Plan 2023 (as previously referenced with relation to Table 2.1) is the first revision of the 25 year Environment Plan[22], and sets out how the 25 Year Environmental Plan goals, Environment Act targets, and other commitments that have been made domestically and internationally will combine to drive specific improvements in the natural environment. This is to be reviewed every five years, with the next review due in 2028.

2.2.27 Goal 2 – Clean Air sets out what the government has achieved since 2018, which includes publishing the Clean Air Strategy[23] in 2019, reducing pollution from domestic burning and publishing the Transport Decarbonisation Plan[24], all of which aim to improve air quality.

[22] Department for Environment, Food and Rural Affairs, 2018. A Green Future: Our 25 Year Plan to Improve the Environment.
[23] Department for Environment, Food and Rural Affairs, 2019. Clean Air Strategy 2019.
[24] Department for Transport, 2021. Decarbonising Transport. A Better, Greener Britain.

2.2.28 The Environmental Improvement Plan sets out targets and commitments to be implemented in order to tackle poor air pollution. In addition to the $PM_{2.5}$ long-term and interim targets, the following legal emission reduction targets for five damaging pollutants also apply (to be achieved by 2030 relative to 2005 levels):

- Reduce emissions of nitrogen oxides by 73%.
- Reduce emissions of sulphur dioxide by 88%.
- Reduce emission of $PM_{2.5}$ by 46%.
- Reduce emissions of ammonia by 16%.
- Reduce emissions of non-methane volatile organic compounds by 39%.

2.2.29 These measures will be monitored through the Annual Progress Report and the Outcome Indicator Framework.

National Clean Air Strategy

2.2.30 The Clean Air Strategy[25] was published in January 2019 and sets out how the government will improve air quality nationally. The document aims to tackle the issue of air quality across all parts of government and society to protect public health and the environment and identifies what needs to be done to achieve this. The document complements the Industrial Strategy (archived), the Clean Growth Strategy[26] and the 25 Year Environment Plan and is a key part of delivering the government's 25 Year Environmental Plan.

2.2.31 The document has adopted international targets to reduce emissions of fine particulate matter, ammonia, nitrogen oxides, sulphur dioxide and non-methane volatile organic compounds by 2020 and 2030. The document proposes tougher goals to cut public exposure to particulate matter pollution, as recommended by the WHO.

2.2.32 The strategy not only targets the reduction of emissions, but also a reduction in exposure.

Reducing Emissions from Road Transport: Road to Zero Strategy

2.2.33 The Reducing emissions from road transport: Road to Zero Strategy[27] (2018) document produced by the Office for Low Emission Vehicles (OLEV), Office for Zero Emission Vehicles (OZEV) and the Department for Transport (DfT) sets out how the government aims to end the sale of new conventional petrol and diesel cars and vans by 2040, with almost every car and van having zero emissions by 2050. Furthermore, the aim of the government is to see at least 50%, and as many as 70%, of new car sales being ultra-low emission by 2030 (and up to 40% of new van sales).

2.2.34 A number of measures have been set out in the document which outline how the government will support this gradual transition, some of which are consumer incentives, research and development and innovation support based.

2.2.35 Since this document was released, the then Prime Minister has announced that, as part of the Ten Point Plan for a Green Industrial Revolution (2020)[28], the government will end the sale of new petrol and diesel cars and vans from 2030, 10 years earlier than set out in the document above. This has since been

[25] Department for Environment, Food and Rural Affairs, 2019. *Clean Air Strategy 2019.*
[26] Department for Business, Energy and Industrial Strategy, 2017. *The Clean Growth Strategy.*
[27] Department for Transport, Office for Low Emission vehicles and Office for Zero Emission Vehicles, 2018. *Reducing emissions from road transport: Road to Zero Strategy*
[28] Department for Transport and Office for Zero Emission Vehicles, 2020. *The Ten Point Plan for a Green Industrial Revolution*

pushed back, with the end of the sale of new petrol and diesel cars and vans due to be achieved by 2035.

2.2.36 This plan will see road traffic-related oxides of nitrogen (NO_x) emissions to reduce significantly over the coming decades, likely beyond the scale of reductions forecast in air quality tools used to assess air quality impacts.

2.3 Regional Planning Policy, Strategy and Guidance

London Plan

2.3.1 The London Plan[29] is the third London Plan and was published in March 2021. It brings together the geographical and locational aspects of the Mayor's other strategies, which includes the environment. The plan provides an appropriate spatial strategy that plans for London's growth in a sustainable way.

2.3.2 The London Plan includes one policy that is specifically related to air quality.

2.3.3 Policy SI 1: *Improving air quality*, states:

A. "Development Plans, through relevant strategic, site-specific and area based policies, should seek opportunities to identify and deliver further improvements to air quality and should not reduce air quality benefits that result from the Mayor's or boroughs' activities to improve air quality.

B. To tackle poor air quality, protect health and meet legal obligations the following criteria should be addressed:

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

2. In order to meet the requirements in Part 1, as a minimum:

a) Development proposals must be at least air quality neutral

b) 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 in preference to post-design or retrofitted mitigation measures

c) Major development proposals must be submitted with an Air Quality Assessment. Air quality assessments should show how the development will meet the requirements of B1

d) Development proposals 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, should demonstrate that design measures have been used to minimise exposure.

C. Masterplans and development briefs for large-scale development proposals subject to an Environmental Impact Assessment should consider how local air quality can

[29] Greater London Authority, 2021, *The London Plan 2021.*

be improved across the area of the proposal as part of an air quality positive approach. To achieve this a statement should be submitted demonstrating:

1) How proposals have considered ways to maximise benefits to local air quality, and

2) What measures or design features will be put in place to reduce exposure to pollution, and how they will achieve this.

D. In order to reduce the impact on air quality during the construction and demolition phase 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.

E. Development proposals should ensure that where emissions need to be reduced to meet the requirements of Air Quality Neutral or to make the impact of development on local air quality acceptable, this is done on-site. Where it can be demonstrated that emissions cannot be further reduced by on-site measures, off-site measures to improve local air quality may be acceptable, provided that equivalent air quality benefits can be demonstrated within the area affected by the development."

2.3.4 The London Plan also has several other policies which make reference to air quality. The relevant aspects of these polices can be found in the London Plan document, and include areas such as parking, energy infrastructure and many more.

The Mayor of London Air Quality Strategy

2.3.5 The Mayor of London Air Quality Strategy[30] was published in December 2010 and aims to reduce air pollution in London so that the health of Londoners is improved. In order to achieve this the EU air quality limits values need to be achieved as soon as possible. This will be achieved through a number of measures, some of which include the Congestion charging and London Low Emission Zone (LEZ), development of electric vehicle infrastructure, funding and supporting car clubs. Additional measures are outlined in the document.

The Mayor of London Environment Strategy

2.3.6 The Mayor of London Environment Strategy[31], published in May 2018, integrates every aspect of London's environment into different categorised areas, including air quality. The document includes several transport and non-transport related policy measures outlined in Chapter 4, highlighting the need for improvement in London's air quality and ensuring London is greener, cleaner and ready for the future. The Mayor's main aim is to create a zero emission London by 2050, and aims to do this by outlining a number of proposals.

2.3.7 Policy 4.2.1 states:

"Reduce emissions from London's road transport network by phasing out fossil fuelled vehicles, prioritising action on diesel, and enabling Londoners to switch to more sustainable forms of transport."

2.3.8 Policy 4.2.2 states:

"Reduce emissions from non-road transport sources, including by phasing out fossil fuels."

[30] Greater London Authority, 2010. *The Mayor's Air Quality Strategy.*
[31] Greater London Authority, 2018, *London Environment Strategy.*

2.3.9 Proposals for the following policies include the promotion of more sustainable forms of travel in London as well as proposing a reduction in emission from Non-Road Mobile Machinery (NRMM), construction and demolition sites, homes, workplaces and large-scale generators.

2.3.10 Policy 4.3.1 states:

> *"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."*

2.3.11 Policy 4.3.2 states:

> *"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."*

2.3.12 Policy 4.3.3 states:

> *"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."*

2.3.13 Policy 4.3.4 states:

> *"Work to reduce exposure to indoor air pollutants in the home, schools, workplace and other enclosed spaces."*

2.3.14 As well as aiming to meet the WHO guidelines by 2030, the proposals for these policies include the switching of fleet vehicles to zero emission capability, implementation of local zero emission zones from 2020, ensure all new large-scale developments are 'Air Quality Positive' and maintain Air Quality Neutral requirements for all developments. Furthermore, the reduction in emissions from wood and other solid fuel burning, using the planning system to reduce indoor exposure though design measures, preventing poor air quality entering the building are all proposed.

The Mayor of London Transport Strategy

2.3.15 In March 2018, the Mayor of London published the Mayors Transport Strategy[32], setting out the Mayor's policies and proposals, enabling transport in London to be reshaped over the next 20 years. The key themes within the strategy are; healthy streets and healthy people, good public transport experiences, new homes and jobs.

2.3.16 Chapter 3, Healthy Streets and Healthy People includes policies 6 and 7 which relate to *"Improving air quality and the environment".*

2.3.17 Policy 6 states:

> *"The Mayor, through TfL and the boroughs, and working with stakeholders, will take action to reduce emissions – in particular diesel emissions – from vehicles on London's streets, to improve air quality and support London reaching compliance with UK and EU legal limits as soon as possible. Measures may include retrofitting vehicles with equipment to reduce emissions, promoting electrification, road charging, the imposition of parking charges/ levies, responsible procurement, the making of traffic restrictions/ regulations and local actions."*

2.3.18 Policy 7 states:

[32] Greater London Authority, 2018. *Mayor's Transport Strategy.*

"The Mayor, through TfL and the boroughs, and working with stakeholders, will seek to make London's transport network zero emission by 2050, contributing towards the creation of a zero carbon city, and also to deliver further improvements in air quality to help meet tighter air quality standards, including achieving a health-based target of 10 µg/m^3 for $PM_{2.5}$ by 2030. London's streets and transport infrastructure will be transformed to enable zero emission operation, and the switch to ultra low and zero emission technologies will be supported and accelerated."

2.3.19 A number of proposals have been included in the document in order to achieve these policies, some of which include the expansion of the Ultra Low Emission Zone (ULEZ) in 2021 (which has been implemented as of October 2021) and adoption of Ultra Low Emission vehicles in the Greater London Authority (GLA) fleet. Further proposals are outlined in the document. To note, the ULEZ was expanded on the 29th August 2023 and now covers all of London's boroughs and the City of London.

Transport for London – Healthy Streets for London

2.3.20 The Heathy Streets for London[33] document was published in February 2017, and sets how Transport for London (TfL) will put people and their health at the centre of decision making.

2.3.21 Chapter 2, *Why Healthy Streets?* sets out how TfL will make London's streets healthier:

"A sustainable city

Improving air quality is vital to making London's streets healthier. Air pollution affects the health of everyone in London and unfairly impacts on the most vulnerable people in our community. Road transport is responsible for 50 per cent of the main air pollutants, so we have an important role to play in improving air quality. The Mayor is consulting on an ambitious package of air quality proposals, including bringing forward and expanding the Ultra Low Emission Zone. The 50 per cent reduction in specific harmful emissions these proposed measures are expected to deliver will help to improve London's streets. The Mayor's Air Quality Fund will continue to target pollution hotspots, the Low Emission Neighbourhoods programme will help London boroughs improve local air quality and Low Emission Bus Zones will prioritise the greenest buses on the worst polluted routes.

Introducing more trees and greenery creates more attractive public spaces, increases biodiversity and helps to mitigate the impacts of air pollution. Greener streets can deliver against all of the Healthy Streets Indicators and can contribute to London's resilience to the consequences of climate change, such as extreme weather events like flooding and heatwaves."

Greater London Authority – Air Quality Neutral. London Plan Guidance.

2.3.22 The GLA adopted this guidance[34] in February 2023, which replaced the previous version. The guidance sets out benchmarks that developments should meet in order to be 'Air Quality Neutral.' The purpose of the document is to ensure development do not contribute to air pollution beyond the allowable benchmarks.

[33] Transport for London, 2017. *Healthy Streets for London*
[34] Greater London Authority, 2023. *Mayor of London. London Plan Guidance. Air Quality Neutral.*

Greater London Authority – Air Quality Positive. London Plan Guidance.

2.3.23 The GLA adopted this guidance[35] in February 2023, and sets out to ensure that developments deliver an 'Air Quality Positive' approach, with planners, designers, architects and air quality experts expected to show what measures have been considered within the design of a scheme. It should be noted that an 'Air Quality Positive' approach should be applied to large-scale developments subject to an Environmental Impact Assessment (EIA), which this development is not subject to.

Greater London Authority – The Control and Dust and Emission During Construction and Demolition Supplementary Planning Guidance

2.3.24 The GLA released the *Control of Dust and Emissions during Construction and Demolition* Supplementary Planning Guidance (SPG)[36] document in July 2014. The guidance seeks to reduce emissions of dust and PM_{10} from demolition and construction activities in London. It also aims to manage emissions of NO_x from construction and demolition machinery. The SPG document:

- Provides more detailed guidance on the implementation of all relevant policies in the London Plan and the Mayor's Air Quality Strategy to neighbourhoods, boroughs, developers, architects, consultants and any other parties involved in any aspect of the demolition and construction process;
- Sets out the methodology for assessing the air quality impacts of construction and demolition in London; and
- Identifies good practice for mitigating and managing air quality impacts that is relevant and achievable, with the overarching aim of protecting public health and the environment.

2.3.25 The principles of the SPG apply to all developments in London as their associated demolition and construction activities may all contribute to poor air quality unless properly managed and mitigated.

2.3.26 To note, the GLA (2014) guidance states the following:

> *"The approach outlined below is based on the site evaluation process set out in the Institute of Air Quality Management's (IAQM) 2014 Guidance on the Assessment of dust from demolition and construction. This guidance is periodically updated and, therefore, the latest version of the IAQM Guidance should be used."*

2.3.27 Based on this, the latest IAQM Guidance (the *Guidance on the Assessment of Dust from Demolition and Construction* (2024)[37] document has been used to inform this assessment.

2.4 Local Planning Policy

Camden Local Plan 2017

2.4.1 The Camden Council (CC) *Camden Local Plan 2017*[38] was adopted in 2017 and sets out the Council's planning policies, aiming to ensure Camden continues to have robust, effective and up-to-date planning policies. One of the strategic objectives, Strategic Objective 8, relates to air quality, and aims to:

[35] Greater London Authority, 2023. *Mayor of London. London Plan Guidance. Air Quality Positive.*
[36] Greater London Authority, 2014. *The Control of Dust and Emission During Construction and Demolition. Supplementary Planning Guidance.*
[37] Institute of Air Quality Management, 2024. *Guidance on the Assessment of Dust from Demolition and Construction.'*
[38] Camden Council 2017. *Camden Local Plan.*

"To promote sustainable transport for all and to make Camden a better place to cycle and walk around, to reduce air pollution, reliance on private cars and congestion and to support and promote new and improved transport links"

2.4.2 The following policy has been included as it relates to air quality.

2.4.3 Policy CC4, *Air Quality*, states:

"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."

Camden Planning Guidance Air Quality

2.4.4 The Camden Planning Guidance for Air Quality (2021) (CPGAQ)[39] supports the policies in the Camden Local Plan 2017. The guidance is consistent with the Local Plan and forms a Supplementary Planning Document (SPD) which is a material consideration in planning conditions. This document has been considered within this AQA.

2.5 Air Quality Action Plans

National Air Quality Action Plan

2.5.1 The Department for Environment, Food & Rural Affairs (DEFRA) has produced an Air Quality Plan[40] to tackle roadside NO_2, throughout the United Kingdom. Along with a package of infrastructure, initiatives and grants, the plan requires local authorities to produce local action plans by March 2018, with the aim of reducing the air quality concentrations below the objective as soon as practically possible, should they be predicting exceedances of the air quality objectives beyond 2020.

[39] Camden Council, 2021. *Camden Council Planning Guidance Air Quality*.
[40] Department for Environment Food & Rural Affairs & Department for Transport, 2017. *UK plan for tackling roadside nitrogen dioxide concentrations.*

Local Air Quality Action Plan

2.5.2 The Camden Clean Air Action Plan (CCAAP)[41] and Camden Clean Air Strategy[42] is a two part document which sets out Camden's approach for improving air quality and protecting health from exposure to air pollution in Camden. The Clean Air Strategy has six defining principles:

- We must do everything we can to realise Camden's citizens' vision for a borough in which no person experiences ill health as a result of the air they breathe;
- Air pollution can affect anyone, at any stage of life;
- Some people are more severely affected by air pollution because they are exposed to more of it, or because they have existing health vulnerabilities, and we must tackle this health inequity;
- We must all take action, collectively and individually, to reduce our contribution and exposure to air pollution;
- Clean air is better for our health now and in the future; and
- We can address air pollution, the climate crisis and wellbeing together

2.5.3 For specific measures outlined by CC, please refer to the AQAP and the latest Air Quality Annual Status Report (ASR)[43].

[41] Camden Council, 2023. *Camden Clean Air Action Plan 2023 - 2026.*
[42] Camden Council, 2019. *Camden Clean Air Strategy.*
[43] Camden Council, 2023. *London Borough of Camden Air Quality Annual Status Report for 2022.*

3 Assessment Approach

3.1 Demolition / Construction Phase – Dust Risk Assessment

3.1.1 There is currently no formal assessment criterion for dust, therefore, the approach developed and published by the Institute of Air Quality Management (IAQM), in the *Guidance on the Assessment of Dust from Demolition and Construction* (2024) document has been utilised as part of this assessment. The approach consists of a five step process to assess the potential level of risks, (Large, Medium, Small or Negligible), regarding the four main phases of development (demolition, earthworks, construction, and trackout). The assessment includes consideration of pre-mitigation and post-mitigation impacts, based upon the scale and nature of the proposed development.

3.1.2 The main air quality impacts that may arise during demolition and construction activities are:

- Dust deposition, resulting in the soiling of surfaces;
- Visible dust plumes, which are evidence of dust emissions;
- Elevated PM_{10} and $PM_{2.5}$ concentrations, as a result of dust generating demolition and construction activities; and
- An increase in concentrations of NO_2 due to exhaust emissions from vehicles and equipment.

3.1.3 In relation to the most likely impacts, the guidance states the following:

> *"The most common impacts are dust soiling and increased ambient PM_{10} concentrations due to dust arising from activities on the site. Dust soiling will arise from the deposition of particulate matter in all size fractions.*
>
> *[...]*
>
> *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."*

3.1.4 The approach states that an assessment will normally be required where there are either:

- Human receptors within 250 m of the site boundary, and/or within 50 m of the routes used by construction vehicles on the local highway network and up to 250 m from site entrances; and/or
- Ecological receptors within 50 m of the site boundary, or within 50 m of the route(s) used by construction vehicles on the public highway, up to 250 m from the site entrance(s).

3.1.5 An ecological receptor refers to any sensitive habitat that is susceptible to dust soiling. For locations with a statutory designation, such as Ramsar Conservation Sites, Sites of Specific Scientific Interest (SSSI), Special Areas of Conservation (SACs) and Special Protection Areas (SPAs), consideration should be given as to whether the specific site is sensitive to dust. Some non-statutory sites, (such as local wildlife sites and ancient woodlands) may also have to be considered if appropriate.

3.1.6 The degree of risk is then derived from the level of the risk, and the sensitivity of the receptor being considered. To note, not all the criteria for a particular risk class need to be met for magnitude or significance. It is suggested in the IAQM (2024) guidance that other criteria, (such as professional judgement) can be used to justify the assessment.

3.1.7 The full dust risk assessment methodology is set out in Appendix A.

3.2 Operational Phase

Camden Council Planning Guidance on Air Quality

3.2.1 In accordance with the CPGAQ, an air quality assessment is required where any of the following apply:

- major applications where occupants will be exposed to poor air quality (along a busy road, diesel railway lines or in a generally congested area);
- development that has potential to significantly change road traffic on a busy road;
- the development has more than 75 new residences;
- commercial developments with a floorspace of 2,500 sqm or more;
- developments that include biomass boilers or CHP (combined heat and power) and connections to existing decentralised energy networks (whereby the increased capacity is not already covered by an existing AQA);
- substantial earthworks or demolition; and
- development that introduces sensitive uses into an area of poor air quality.

Environmental Projection UK & Institute of Air Quality Management

3.2.2 Another key guidance document which has been used to determine the potential for impacts upon air quality is the Environmental Protection UK (EPUK) & IAQM (2017)[44] *Land-Use Planning and Development Control: Planning for Air Quality* document.

3.2.3 This guidance document provides indicative screening criterion for when a full impact assessment is required. The following screening criterion has been considered for this AQA:

Local Highway Network

Stage 1 – Criteria to proceed to Stage 2:

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

Stage 2 – Indicative criteria to proceed to an impact assessment:

- A change of cars / LDVs (light duty vehicles) flow of:
  - More than 100 AADT within or adjacent to an AQMA; or

[44] Environmental Protection UK (EPUK) and Institute of Air Quality Management (IAQM), 2017. *Land-use Planning & Development Control: Planning for Air Quality.*

- More than 500 AADT elsewhere.

- A change of HDVs (heavy duty vehicles) flow of:
  - More than 25 AADT within or adjacent to an AQMA; or
  - More than 100 AADT elsewhere.

3.2.4 Should these criteria not be met, then the guidance document considers air quality impacts associated with a scheme to be 'insignificant' and no further assessment is required.

3.2.5 As the proposed development comprises > 1,000 m^2 of floor space but no car parking is set to be created, a screening of the proposals against Stage 2 of the criteria is not required.

3.2.6 Therefore, in line with the EPUK & IAQM (2017) guidance, a full impact assessment has been scoped out of this assessment, and the traffic emission impacts are anticipated to be 'insignificant.'

3.2.7 Nonetheless, an exposure assessment for the application site has been undertaken using data from the local authority monitoring location closest to the application site and the LAEI[45] database, to assess whether the site is suitable for short-to-medium term exposure.

3.3 Operational Phase – Rail Emissions

3.3.1 A consideration has been made for the proximity of the railway which sits above the application site. Since this rail line (the North London Line) is not listed in the DEFRA Local Air Quality Management Technical Guidance (TG22)[46] "Rail Line with a Heavy Traffic of Diesel Passenger Trains" table, it can be considered that this rail line would not lead to a notable impact on exposure of SO_2 or NO_2 emissions and therefore has not been considered further.

3.4 Significance Impact Criteria

Dust Risk Impacts

3.4.1 The IAQM (2024) guidance does not provide a method for assessing the significance of effects before mitigation and advises that pre-mitigation significance should not be determined. With appropriate mitigation in place, (as set out in Section 8 and Appendix B) the IAQM (2024) guidance is clear that the residual effect will normally be 'not significant'.

Operational Impacts

3.4.2 The EPUK & IAQM (2017) guidance is clear in stating that if the Stage 1 criteria is triggered, and if none of the criteria set out in Stage 2 are met, then there is no requirement to carry out an air quality assessment on the impact of the proposed development on the local area. The impacts are considered to have 'insignificant' effects on this basis.

3.5 Assessment Uncertainty

3.5.1 There are uncertainties when considering both measured pollution concentrations.

3.5.2 The background air quality concentrations have been taken from the DEFRA background mapping. The DEFRA website[47] includes estimated background air pollution data for NO_x, NO_2, PM_{10} and $PM_{2.5}$ for each

[45] Greater London Authority and Transport for London. London Atmospheric Emissions (LAEI) 2019. Accessible at: https://data.london.gov.uk/dataset/london-atmospheric-emissions-inventory--laei--2019
[46] Department for Environment Food & Rural Affairs, 2022. Local Air Quality Management Technical Guidance (TG22).
[47] Department for Environmental Food and Rural Affairs. Accessible at: https://uk-air.defra.gov.uk/data/laqm-background-maps?year=2021

1km by 1km OS grid square. Background pollutant concentrations are modelled from the base year of 2021 and based on ambient monitoring and meteorological data from 2021. The 2021 mapping includes projections for future years, up to currently 2040. Furthermore, the concentrations are modelled at a standard 'living height,' which has been averaged across the grid square.

3.5.3 There is discrepancy between the concentrations mapped by DEFRA and those recorded at local background sites. Therefore, a calibration factor has been derived from the ratio between monitored background concentrations (local authority monitoring) and DEFRA background mapped concentrations for NO_2, PM_{10} and $PM_{2.5}$ to improve the accuracy of the background concentrations. This is also supported by TG22, which states:

> *"Where a model has been used to predict background concentrations (for example based on an emissions inventory), the modelled background concentrations should also be verified and where necessary adjusted.*
>
> *If national background maps are used, these should first be compared against any local monitoring to check they are representative of the area. In most cases there is good agreement with local monitoring, but some locations may not agree. Local authorities are not expected to verify and adjust the national background maps. Where these estimates do not agree with local monitoring, either local monitoring may be used, or local authorities may consider adjusting the background maps."*

3.5.4 The background NO_2 concentrations have been calibrated against data measured in 2023 at one automatic and three diffusion tube monitoring locations operated by CC. The background PM_{10} concentrations have been calibrated against data measured in 2023 at two automatic monitoring location and background $PM_{2.5}$ concentrations have been calibrated against data measured in 2023 at one automatic monitoring location. The calibration process is set out in Appendix C.

4 Baseline Conditions

4.1 Air Quality Review and Assessment

4.1.1 Under the Air Quality Strategy, there is a duty on all local authorities to consider the air quality within their boundaries and to report annually to DEFRA.

4.1.2 LAQM has been assessed by CC through the national Review and Assessment process and in fulfilment of Part IV of the Environmental Act 1995.

4.1.3 At the time of writing, CC have declared an AQMA for the whole jurisdiction, for exceedances of the NO_2 annual mean objective, as well as the PM_{10} 24-hour mean objective.

4.1.4 In 2016, the GLA identified 186 AQFAs where concentrations of NO_2 exceed the annual mean objective and have high levels of human exposure. Transport for London (TfL) have since reviewed the focus areas in line with the updated 2019 LAEI air quality data, and the number of AQFAs has been reduced to 160 areas. These areas are identified as requiring air quality improvements and is where the GLA believe the problems to be most acute. The application site is located in close proximity to the 'Camden High Street from Mornington Cresent to Chalk Farm and Camden Road' AQFA, as illustrated in Figure 4.1.

4.2 Local Air Quality Monitoring

4.2.1 CC undertook automatic monitoring at five sites in 2023, the latest monitoring year data is available for. To support the automatic monitoring, CC have an extensive network of non-automatic NO_2 diffusion tubes, located across their jurisdiction. A review of the available data submitted in the latest ASR indicates that both automatic and diffusion tube monitoring was undertaken close to the application site, as illustrated in Figure 4.1 and Figure 4.2.

4.2.2 Table 4.1 sets out the NO_2 annual mean monitoring data and Table 4.2 sets out the NO_2 1-hour mean monitoring data, collected for the period of 2019-2023, for the closest monitoring sites.

Figure 4.1: Local Authority Automatic Monitoring Locations

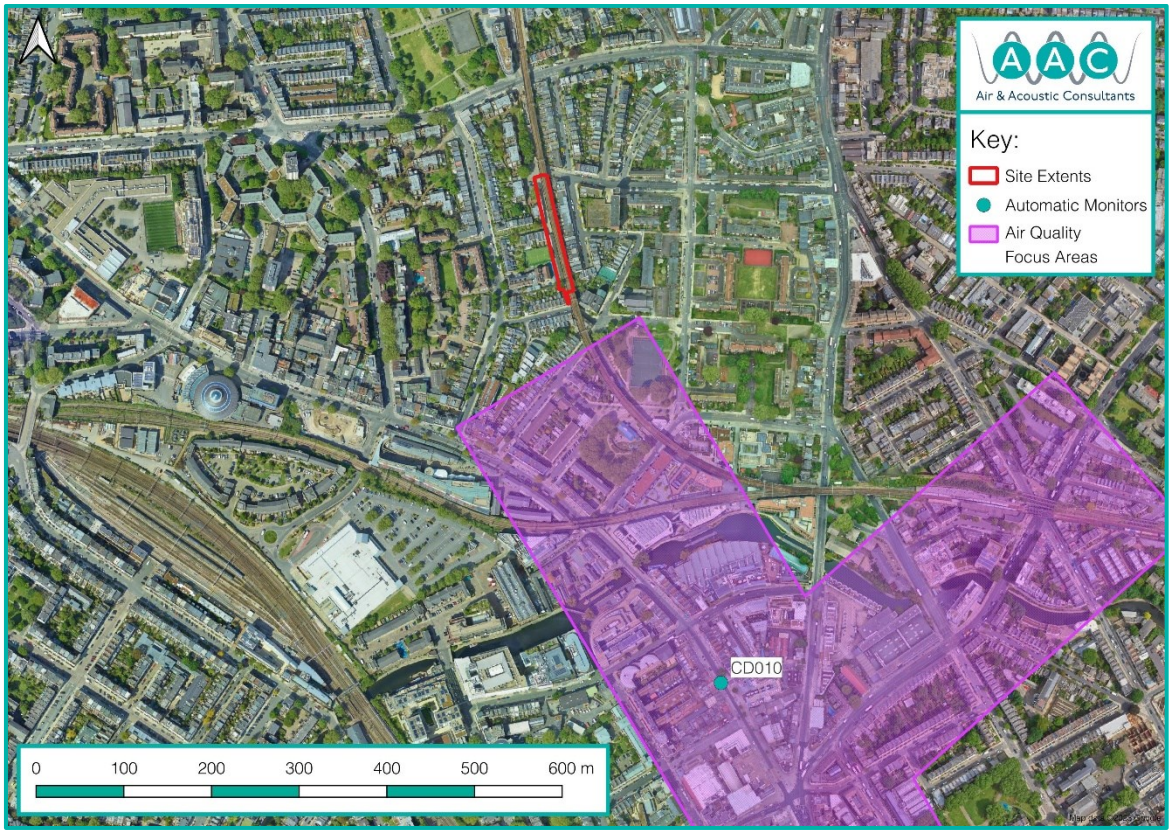


Figure 4.2: Local Authority Diffusion Tube Monitoring Locations

Table 4.1: Summary of NO_2 Annual Mean Air Quality Monitoring

ID	Type	Annual Mean (µg/m^3)				
		2019	2020	2021	2022	2023
Automatic Monitoring						
CD010	Roadside	-	-	30	29	28
Diffusion Tubes						
CAM66	Roadside	34.47	23.7	24.46	23.62	27.17
CAM68	Roadside	32.23	21.65	21.67	22.79	22.94
CAM122	Roadside	31.74	24.89	20.65	18.49	18.40
CAM123	Roadside	31.8	26.13	20.65	21.42	19.64
CAM133	Roadside	28.09	22.1	17.93	19.94	18.03
CAM136	Roadside	36.73	30.33	29.4	27.76	31.06
Objective		40				

Table 4.2: Summary of NO_2 1-hour Mean Air Quality Monitoring

ID	Type	Annual Mean (µg/m^3)				
		2019	2020	2021	2022	2023
Automatic Monitoring						
CD010	Roadside	-	-	0	0	0
Objective		< 18 times/year				

4.2.3 The air quality monitoring carried out closest to the application site shows a compliance of the NO_2 annual mean objective, for the period 2019 - 2023.

4.2.4 To note, due to the impact of the COVID-19 pandemic on traffic, 2020 and 2021 concentrations are not considered to be representative of 'typical' air quality concentrations. Whilst it is expected that as a result of the COVID-19 pandemic that behavioural changes have occurred (such as hybrid working patterns), data on the impact of this on air quality long-term is currently limited to monitoring data collected in 2022 and 2023 (as 2024 data is not available at the time of writing), therefore long-term conclusions cannot be drawn, but early evidence across the country is showing a general reduction.

4.3 Mapped Background Concentrations

DEFRA Background Concentrations

4.3.1 The calibrated projected background pollutant concentrations for 2024, covering the closest OS grid square to the application site, are provided in Table 4.3.

Table 4.3: Estimated Annual Mean Background Pollutant Concentrations (µg/m^3)

Pollutant	2024
NO_2	14.5
PM_{10}	11.8
$PM_{2.5}$	7.4

Notes: Data presented are derived from the ordinance survey grid references E:528500, N:184500

London Atmospheric Emissions Inventory Mapped Concentrations

4.3.2 As the application site is located within a AQMA and AQFA, indicating an area of very poor air quality, LAEI concentrations have been derived to assess the concentrations at and surrounding the application site, to gain a better understanding of the potential mid-to-long-term exposure at the application site.

4.3.3 The LAEI is a database of emission estimates for NO_x, PM_{10}, $PM_{2.5}$ and CO_2, modelled for a 2019 base year at ground level using an atmospheric dispersion model, and projected to a 2025 and 2030 future years.

4.3.4 The mapped 2025 annual mean concentrations of NO_2, PM_{10} and $PM_{2.5}$ for the application site and surrounding area at a 20 m grid resolution are set out in Figure 4.3, Figure 4.4 and Figure 4.5 respectively. Figure 4.6 sets out the number of PM_{10} daily means exceeding 50 µg/m^3 annually.

Figure 4.3: LAEI Mapped Annual Mean NO_2 Concentrations

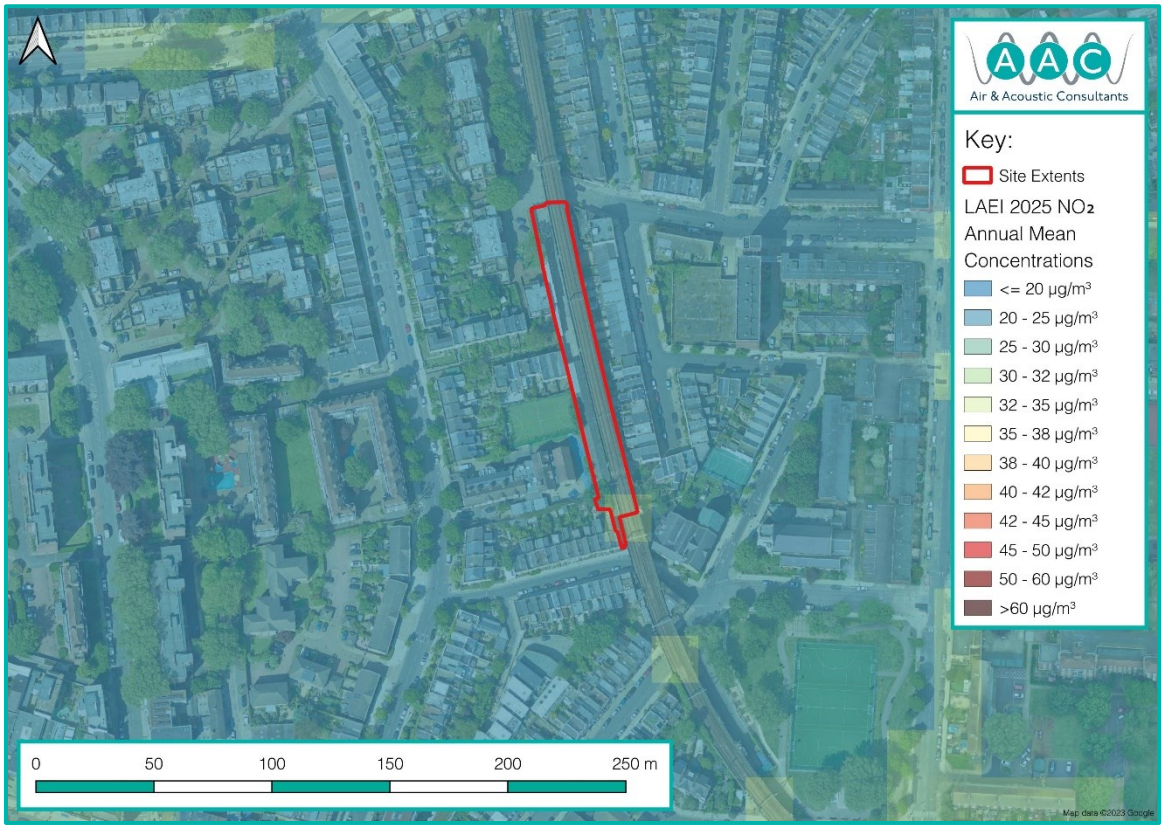


Figure 4.4: LAEI Mapped Annual Mean PM_{10} Concentrations

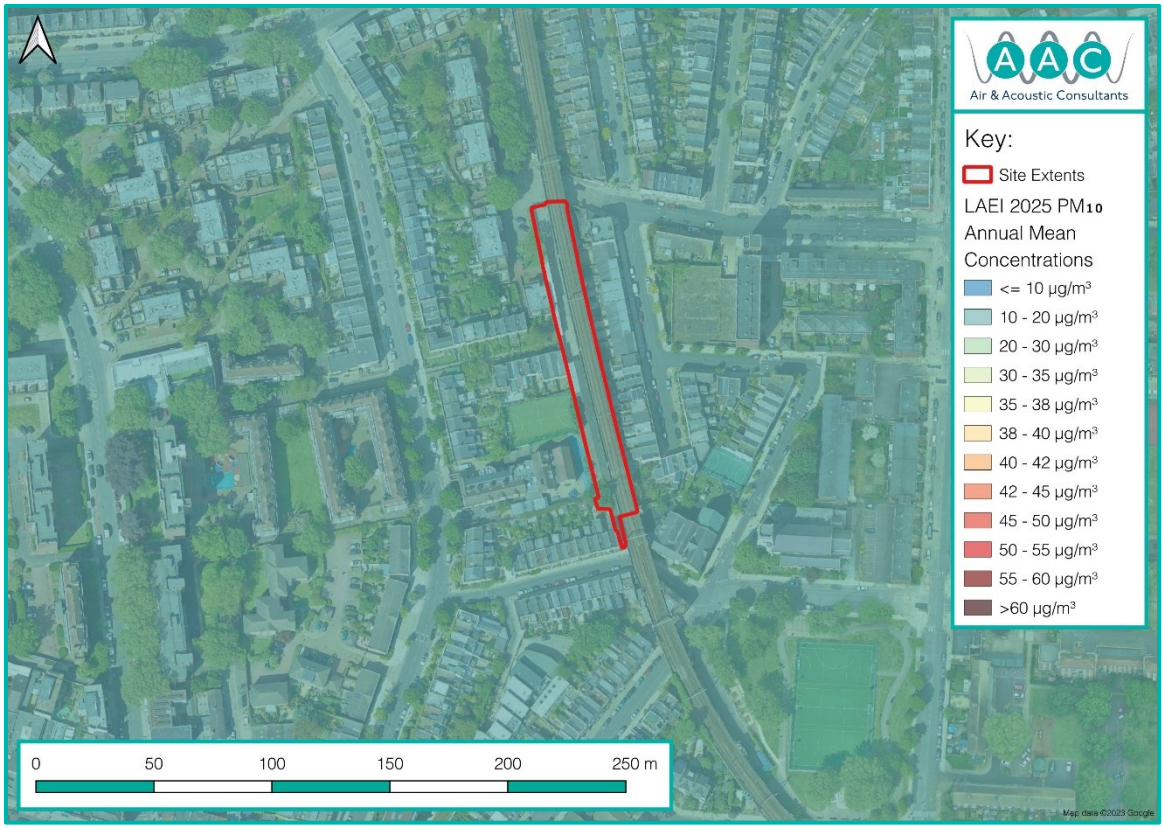


Figure 4.5: LAEI Mapped Annual Mean $PM_{2.5}$ Concentrations

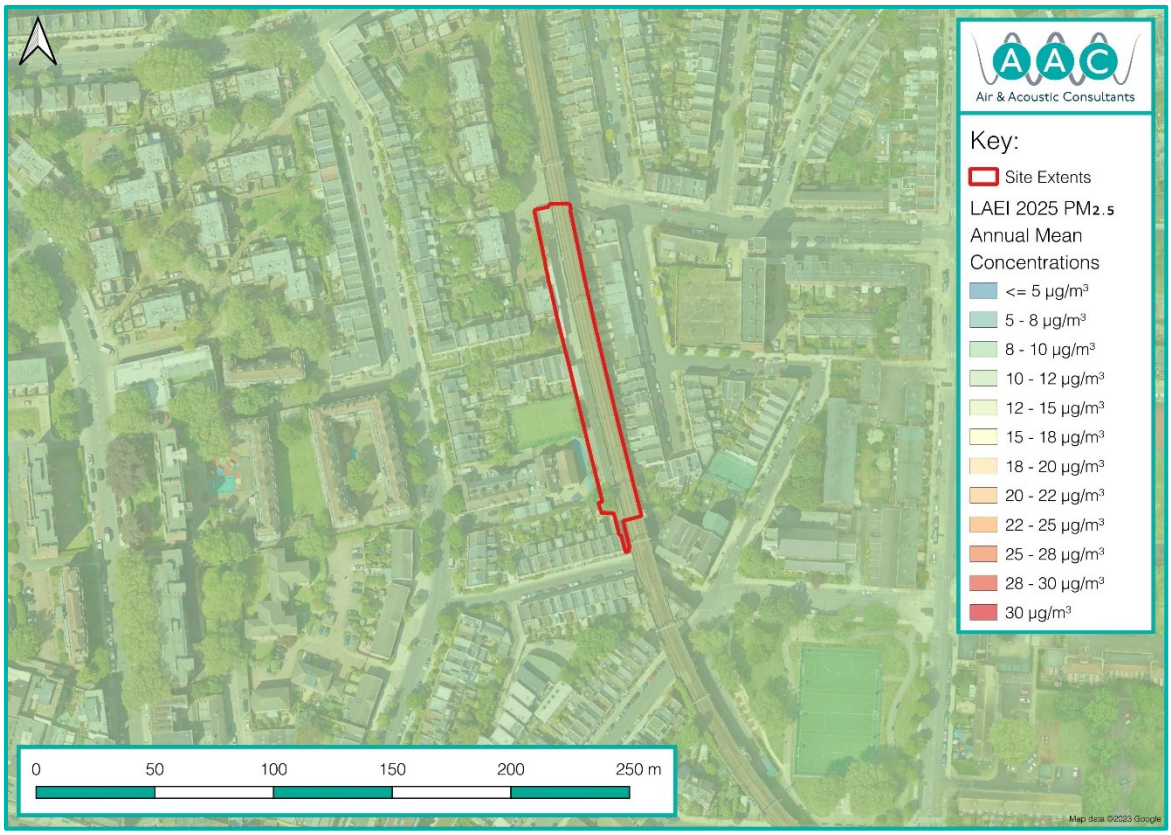
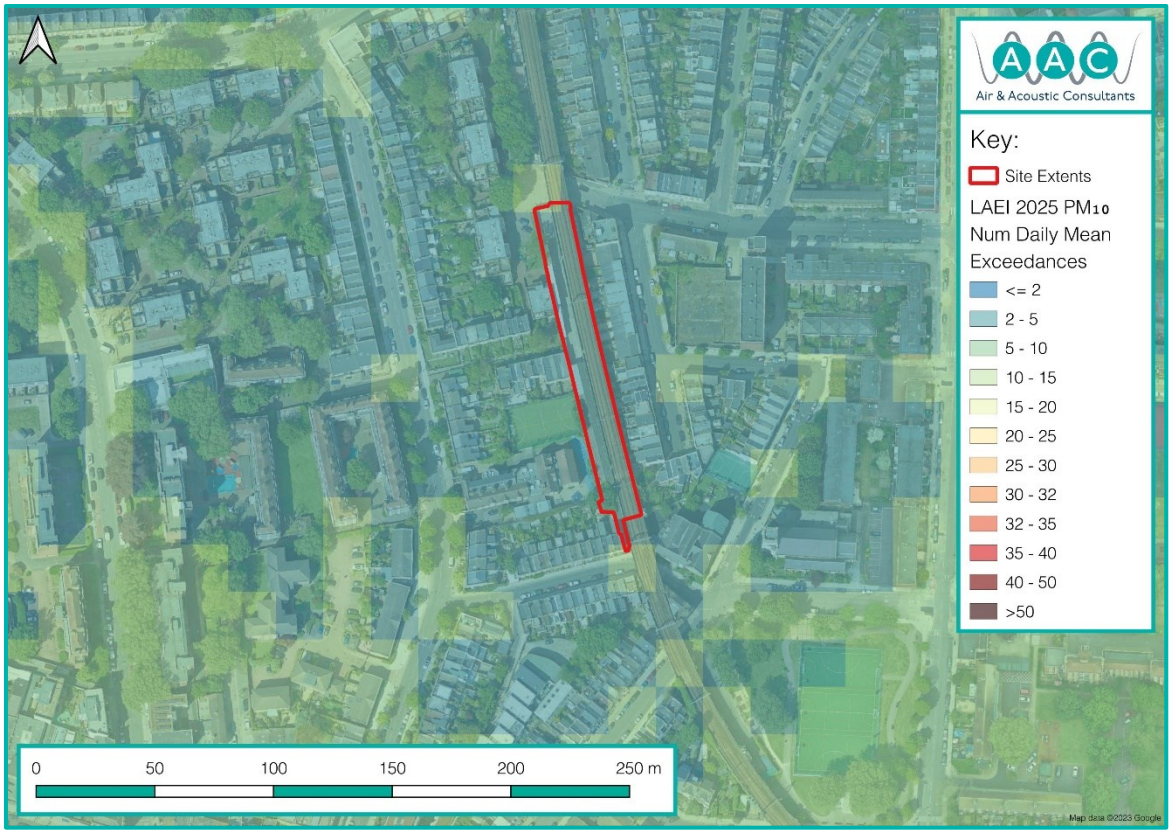


Figure 4.6: LAEI Number of Daily PM_{10} Means Exceeding 50 µg/m^3



4.3.5 The LAEI mapped concentrations suggest that concentrations across the application site are within the annual mean objectives/limits for NO_2, PM_{10} and $PM_{2.5}$, with the PM_{10} 24-hour objective not exceeded across the site.

5 Dust Risk Assessment

5.1 Introduction

5.1.1 The assessment of demolition and construction activities has focused on demolition, earthworks, construction and trackout activities at the application site in line with the IAQM (2024) guidance methodology (as set out in Appendix A). A summary of the assessment is provided below.

5.2 Screening for a Full Assessment

5.2.1 Having reviewed the site location, it is evident that the site has a number of human receptors within 250 m of the site boundary, therefore a detailed dust impact assessment is required.

5.2.2 A review of the DEFRA Magic website[48] indicates that no ecological site is present within the immediate surrounding area. As per box 1 of the IAQM (2024) guidance, as no site is within 50 m of the boundary of the site or construction vehicular routes (up to 250 m from the site), therefore, an assessment of the impact of the demolition and construction phase on this receptor has been scoped out.

5.3 Potential Dust Emission Magnitude

Demolition

5.3.1 A review of the proposals indicates that minor demolition works will occur at Arches 29 – 31 as well as Arch 38. The total building volume is <12,000 m^3 and the building material is of medium dust potential. Therefore, in line with Table A.1 as set out in Appendix A, and professional judgment, the magnitude of potential dust release from demolition activities is **Small**.

Earthworks

5.3.2 It is anticipated that no significant earthworks will occur and therefore the magnitude of potential dust release from earthworks activities is classified as **Negligible**.

Construction

5.3.3 The total building volume to be constructed is unknown. However, considering the floor area of the site, the likelihood that the majority of construction would take place indoors and the material being used, in line with Table A.1, as set out in Appendix A, and professional judgement, the magnitude of potential dust release from construction activities is classified as **Small**.

Trackout

5.3.4 The number of daily HGV vehicles movements which may track out dust and dirt is unknown, but it is considered that there would be no more than 20 outward HGV movements per day. Therefore, in line Table A.1 as set out in Appendix A, and professional judgment, the magnitude of potential dust release from trackout activities is classified as **Small**.

[48] Natural England. MAGIC. Accessible at: https://magic.defra.gov.uk/

Summary

5.3.5 Table 5.1 summarises the dust emission magnitude for the proposed development.

Table 5.1: Summary of Dust Emission Magnitude

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

5.4 Sensitivity of Area

5.4.1 Step 2B considers the number and the sensitivity of the receptors. A consideration is also made for the background PM_{10} concentrations when looking at human health impacts (which is based upon the DEFRA background concentrations in Table 4.3. Buffer zones are set out in Figure 5.1, Figure 5.2 and Figure 5.3 to illustrate the number of receptors in proximity to the site that could be impacted by dust as a result of the demolition, construction and trackout activities.

Figure 5.1: Demolition Dust Risk Buffers

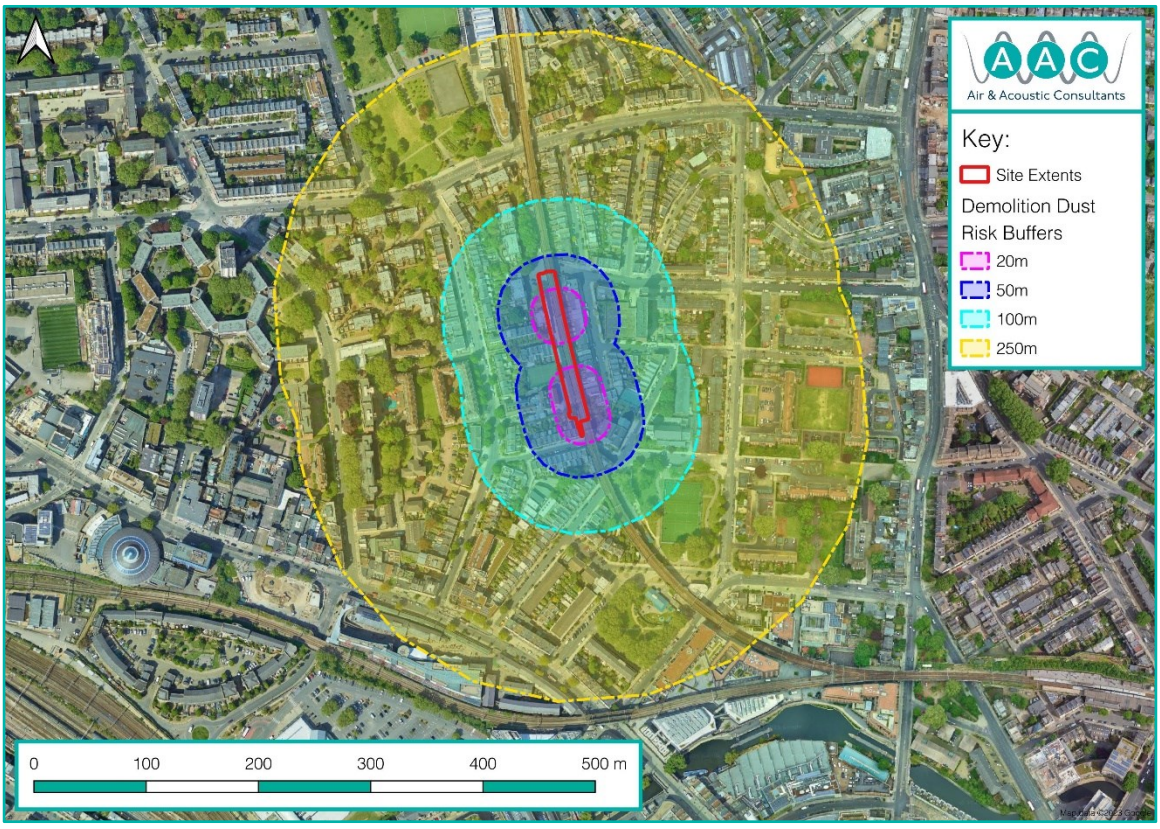


Figure 5.2: Earthworks and Construction Dust Risk Buffers

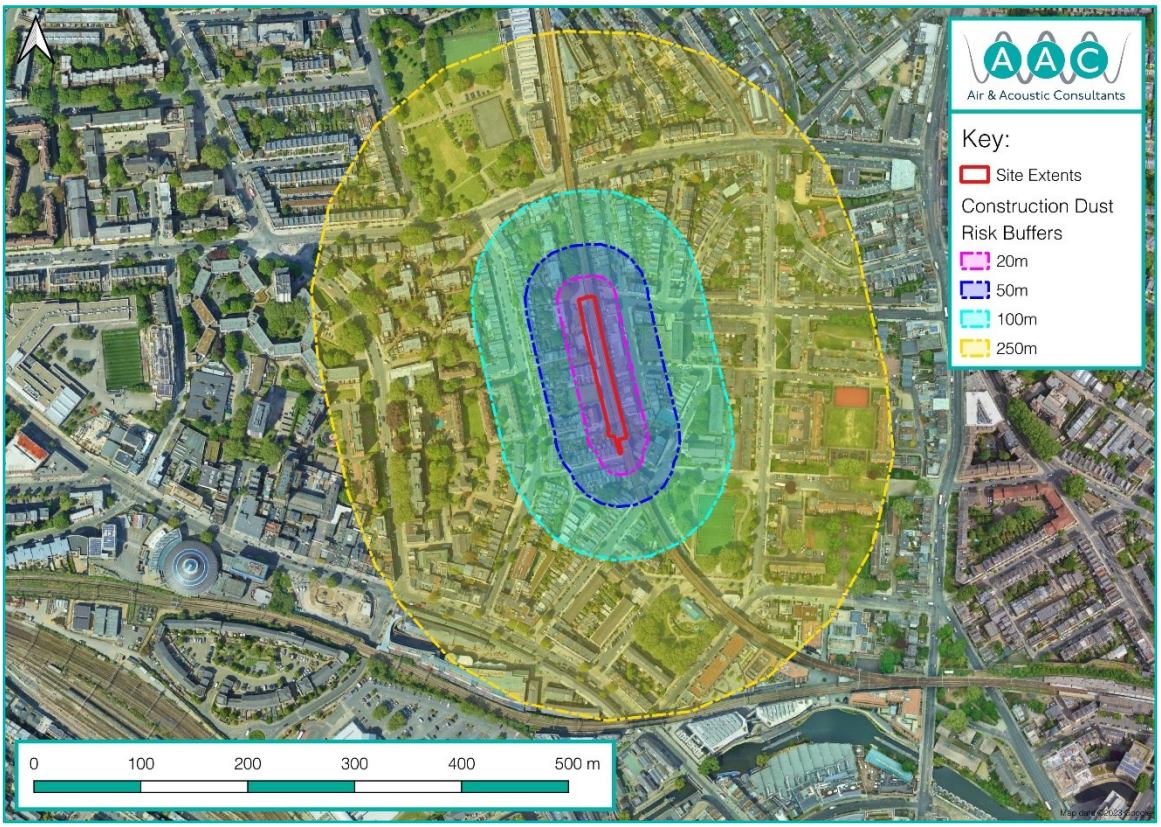
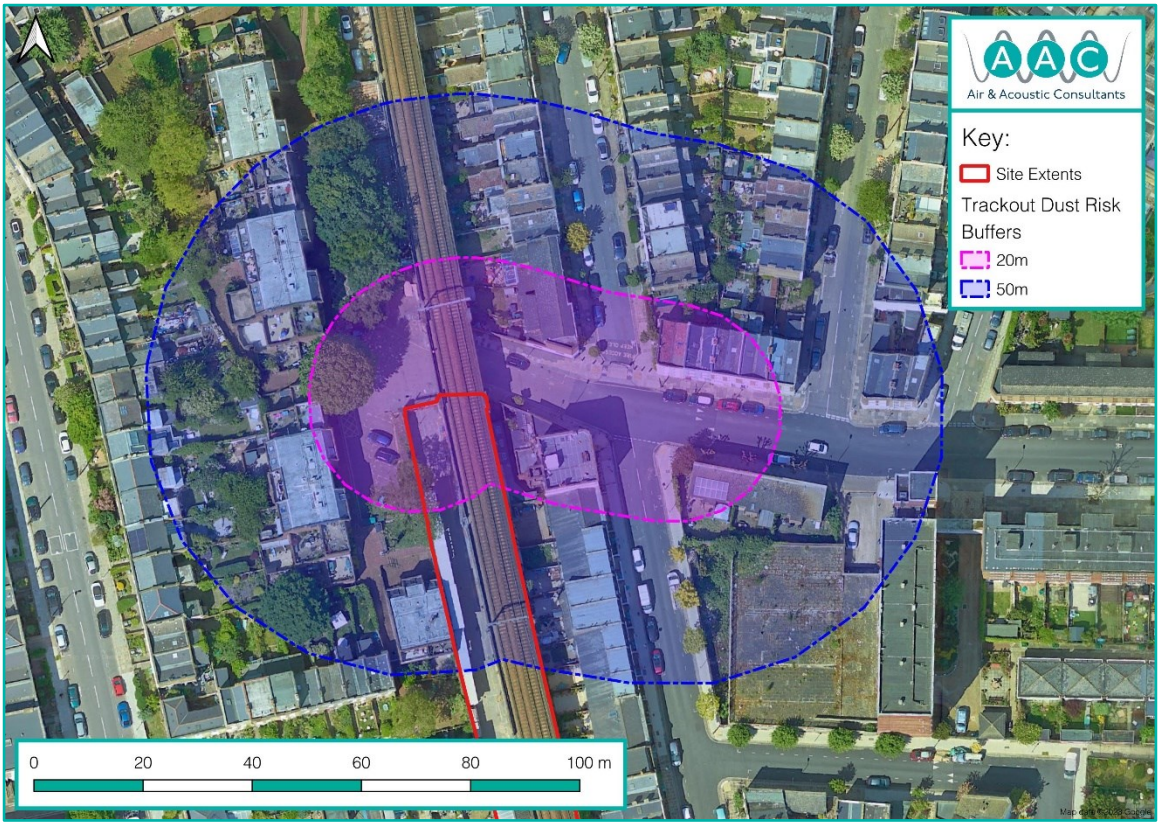


Figure 5.3: Trackout Dust Risk Buffers



Effects of Dust Soiling

5.4.2 The presence of > 100 'High' sensitivity receptors (two schools) within approximately 20 m of the demolition area boundary, indicates that the area around the demolition area has a '**High'** sensitivity (Based upon Table A.3 in Appendix A) for demolition activities.

5.4.3 The presence of > 100 'High' sensitivity receptors within approximately 20 m of the application site boundary, indicates that the area around the site has a **'High'** sensitivity (Based upon Table A.3 in Appendix A) for construction activities.

5.4.4 The routing of construction vehicles is assumed to be out of the north of the site, heading east along Castle Road. Therefore, receptors have been considered along this road with consideration that the impact declines with distance from the site, in line with the prior IAQM *Guidance on the Assessment of Dust from Demolition and Construction* (2016)[49] which suggested that trackout may occur along the public highway up to 50 m from small sites. For trackout, there are between 10-100 'High' sensitivity human (residential) receptors within 20 m of where trackout may occur (for a distance of up to 50 m from the site access). This would be considered a **'High'** sensitivity (Based upon Table A.3 in Appendix A) for trackout activities.

Effects on Human Health

5.4.5 The presence of > 100 'High' sensitivity receptors within approximately 20 m of the demolition area, and the background PM_{10} concentrations being under 24 µg/m^3 (as set out in Table 4.3), would indicate that the area has a '**Medium'** sensitivity (Based upon Table A.4 in Appendix A) for demolition activities.

5.4.6 The presence of > 100 'High' sensitivity receptors within approximately 20 m of the application site boundary, and the background PM_{10} concentrations being under 24 µg/m^3 (as set out in Table 4.3), would indicate that the area has a '**Medium'** sensitivity (Based upon Table A.4 in Appendix A) for construction activities.

5.4.7 The routing of construction vehicles is set out in paragraph 5.4.4. For trackout, there are between 10 - 100 'High' sensitivity human (residential) receptors within 20 m of where trackout may occur (for a distance of up to 50 m from the site access). Along with the background PM_{10} concentrations being below 24 µg/m^3 (as set out in Table 4.3), it would indicate the area will have a '**Low**' sensitivity (Based upon Table A.4 in Appendix A) for trackout activities.

5.5 Risk and Significance

5.5.1 The dust emission magnitude (set out in Table 5.1) is combined with the sensitivity of the area assessment (set out in Section 5.4), in line with Table A.6 of Appendix A. The resulting risk categories for the demolition and construction activities, without mitigation, are set out in Table 5.2.

Table 5.2: Summary of Dust Risk to Define Site-Specific Mitigation

Activity	Demolition	Earthworks	Construction	Trackout
Dust Soiling	Medium Risk	Negligible	Low Risk	Low Risk
Human Health	Low Risk	Negligible	Low Risk	Negligible
Ecological	Negligible	Negligible	Negligible	Negligible

[49] Institute of Air Quality Management, 2016. *Guidance on the Assessment of Dust from Demolition and Construction.'*

5.5.2 As previously advised, the IAQM (2024) guidance does not provide a method for assessing the significance of effects before mitigation and advises that pre-mitigation significance should not be determined. With appropriate mitigation in place, (as set out in Section 8 and Appendix B) the IAQM (2024) guidance is clear that the residual effect will normally be '**not significant**.'

6 Operational Impacts

6.1 Traffic Emissions

6.1.1 As set out in Paragraph 3.2.5, in line with the EPUK & IAQM (2017) guidance, a full impact assessment has been scoped out of this assessment, and the traffic emission impacts associated with the proposed development are anticipated to be '**insignificant.**'

6.1.2 Additionally, in accordance with the CPGAQ, none of the criteria for a full air quality assessment are met, and therefore there is no requirement in line with this document to carry out a full assessment.

6.2 Future Exposure

LAEI Exposure Assessment

6.2.1 Since the application site is located in close proximity to an AQFA, an assessment has been undertaken to understand potential short-to-medium term exposure at the application site.

6.2.2 CC have a series of monitoring sites throughout their jurisdiction. A review of the non-automatic monitoring closest to application site (CAM 68 and CAM133) suggests that concentrations are within the NO_2 annual mean objective in 2023, the latest representative year. Furthermore, the nearest automatic monitoring location complied with the NO_2 1-hour mean objective in 2023, the latest representative year.

6.2.3 In the absence of suitable representative local authority monitoring data for PM_{10} and $PM_{2.5}$, the LAEI mapped concentrations have been used to advise upon potential exposure of these pollutants at the application site.

6.2.4 The modelled 2025 annual mean concentrations (set out in Section 4) suggest that the PM_{10} annual mean, the number of daily mean PM_{10} exceedances and the $PM_{2.5}$ annual mean concentrations at the application site comply with the relevant objectives / limits.

6.3 Plant Emissions

6.3.1 Plant requirements are subject to fit out by occupiers. It is understood that at this stage, no plant is to be included at the site and therefore no further assessment of plant emissions have been included. An updated assessment will be required if these details are not correct or the refurbishment proposes alternative combustion plants.

7 Air Quality Neutral Assessment

7.1 Introduction

7.1.1 As set out in Policy SI 1 of the London Plan, developments are required to be at least 'Air Quality Neutral' and not lead to further deterioration of existing poor air quality.

7.1.2 The air quality neutral assessment has considered the methodology outlined in the Mayor of London (2023) *Air Quality Neutral London Planning Guidance (LPG)* document.

7.1.3 Within this document, benchmarks have been provided in relation to building and transport emissions, together with a methodology for calculating the building and transport related emissions for a particular development depending on land use.

7.2 Building Emissions

7.2.1 As the refurbishment will see > 1,000 m^2 of floor space created, the site is considered 'Minor Development' in line with the Ministry of Housing, Communities and Local Government (2015) *Planning Applications Decisions - Major and Minor Developments, England, District by Outcome*[50].

7.2.2 However, as is standard with arch developments, no heating systems are to be implemented at this stage of the development process. Any heating requirements would be dictated by the end user and are not yet specified.

7.2.3 On this basis, the assessment of the building emissions indicates the impacts are considered to be '**air quality neutral.**'

7.2.4 To note, this is an indicative assessment and it is suggested that a planning condition is placed on the development that any heating arrangements which the end user wishes to utilise be screened against the air quality neutral process, prior to installation.

7.3 Transport Emissions

7.3.1 The proposed development is classified as 'car-free', with only delivery and servicing trips anticipated for the proposed development.

7.3.2 To note, with regards to the servicing trips, the guidance states:

> *"The TEB only estimates car or light van trips undertaken directly by the development occupiers (residents, businesses etc and their staff / customers). The TEB does not include 'operational' trips generated by the developments. Deliveries and servicing, taxis or heavy vehicle movements from non-occupiers' assessment of these trips, for example, should be captured in the wider air quality impact assessment where one is required and should therefore be excluded from TEB calculations."*

7.3.3 On this basis, as the proposed development is considered 'car free' the assessment of the transport emissions indicates the impacts are considered to be '**air quality neutral**.'

[50] Ministry of Housing, Communities and Local Government, 2015. *Planning Applications Decisions – Major and Minor Developments, England, District by Outcome.*

8 Mitigation Measures

8.1 Dust Risk Activities

8.1.1 A dust risk assessment has been undertaken in Section 5 and the outcome of which has been utilised within this section to advise upon the adequate level of mitigation that will be required.

8.1.2 A range of measures are suggested, which could be utilised during the construction phase are set out below. These are taken from the IAQM (2024) document, and should be used to reduce the impacts of the construction phase on the local sensitive receptors.

8.1.3 Further general guidance on potential mitigation measures can be found in Appendix B.

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).
- Ensure effective water suppression is used during demolition operations. Hand held sprays are more effective than hoses attached to equipment as the water can be directed to where it is needed. In addition high volume water suppression systems, manually controlled, can produce fine water droplets that effectively bring the dust particles to the ground.
- Avoid explosive blasting, using appropriate manual or mechanical alternatives.
- Bag and remove any biological debris or damp down such material before demolition.

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

- Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use.
- Avoid dry sweeping of large areas.
- Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.
- Record all inspections of haul routes and any subsequent action in a site log book.

8.2 Non-Road Mobile Machinery (NRMM)

8.2.1 All NRMM will comply with the following guidance as set out in the Cleaner Construction for London (CCfL) and Mayor of London (2024) Non-Road Mobile Machinery (NRMM) Practical Guide v.6[51].

8.2.2 New requirements come into force on 1st January 2025 are most relevant to this AQA.

[51] Cleaner Construction for London (CCfL) and Mayor of London (2024). *Non-Road Mobile Machinery (NRMM) Practical Guide v.6*

8.2.3 The requirements are:

> *"From 1st January 2025 the CAZ, Opportunity Areas and Greater London zones will no longer have different emission standards. All NRMM on all sites within Greater London will be required to meet Stage IV as a minimum. Constant speed engines will continue to be required to meet Stage V"*

8.2.4 In certain circumstances the supply of compliant equipment can be limited and retrofit solutions are not available for all types and sizes of machine. Therefore, the GLA will continue to manage requests for exemptions on a case by case basis. Exemptions can be applied for on the NRMM online register. Retrofits listed on the Energy Saving Trust Website[52] will only be accepted. In limited circumstances an exemption for individual machines that do not meet the emission standards and cannot be retrofitted can be applied for, which should be agreed with the GLA.

8.2.5 Use of NRMM will be minimised as much as possible and electric or battery powered alternatives will be used as a preference. If NRMM under 37kW is to be used, use of the equipment will be minimised and kept as far away from sensitive receptors as is practicable. NRMM where the power output is less than 37kW will be fitted with an after-treatment device (DPF) stated on the approved list managed by the Energy Saving Trust; the ongoing conformity of plant retrofitted with suitable after treatment devices, to a defined performance standard, should be ensured through a programme of on-site checks

8.2.6 All NRMM for engines of 37kW-560kW for the construction works will be registered on the NRMM register (www.london.gov.uk/what-we-do/environment/pollution-and-air-quality/non-road-mobile-machinery-register/login/register) prior to the commencement of works. All relevant machinery emissions information and documentation will be stored and summarised within the electronic filing system. The project will record the plant details on a spreadsheet, or similar, and the NRMM online register[53] will be completed and maintained by the project administrative support and overseen by the site manager. The project team will co-operate with local authority inspections and provide the requisite information as required.

8.3 Operational

Operational Mitigation

8.3.1 The results of the air quality assessment demonstrated that the air quality impacts are anticipated to be '**insignificant**.' To note, the EPUK & IAQM (2017) guidance, which reiterates the PPG, states:

> *"Mitigation options where necessary, will depend on the proposed development and should be proportionate to the likely impact."*

8.3.2 Therefore, on the basis that the impacts identified in Section 5 are '**insignificant**', and the refurbishment has been identified as being '**air quality neutral**' in Section 7, no mitigation measures are deemed necessary.

[52] Energy Saving Trust. Non-road mobile machinery certification. Accessible at: https://energysavingtrust.org.uk/service/non-road-mobile-machinery-certification/
[53] https://www.london.gov.uk/what-we-do/environment/pollution-and-air-quality/non-road-mobile-machinery-register/login/register

9 Summary & Conclusions

9.1 Baseline

9.1.1 The application site is situated at Castle Mews, Camden, London. The application site is located within an AQMA. Furthermore, the application site is located in close proximity to the 'Camden High Street from Mornington Cresent to Chalk Farm and Camden Road' AQFA.

9.1.2 The air quality monitoring carried out closest to the application site shows a compliance of the NO_2 annual mean objective from the period 2019 -2023. The LAEI modelled concentrations suggest compliance with the PM_{10} annual mean objective, the number of daily mean PM_{10} exceedances and the $PM_{2.5}$ annual mean limit at the application site.

9.2 Demolition and Construction Phase

9.2.1 A dust risk assessment has been undertaken for the demolition and construction phases associated with the proposed development, in accordance with IAQM (2024) guidance, as set out in Appendix A.

9.2.2 Following the successful implementation of the suggested mitigation measures, the residual effects of dust and emissions from demolition and construction activities upon the local area and sensitive receptors, although adverse, will be temporary and '**not significant**.'

9.3 Operational Phase – Human Receptors

9.3.1 The AQA indicates that the impacts associated with the proposed development would be '**insignificant**,' in line with the EPUK & IAQM (2017) guidance, with concentrations of NO_2, PM_{10} and $PM_{2.5}$ not exceeding their relevant air quality objectives/limits which apply, based on the level of sensitivity of future receptors at the site.

9.4 Air Quality Neutral Assessment

9.4.1 The results of the air quality neutral assessment suggested the proposed development can be classified as '**air quality neutral**' for both transport and building emissions.

9.5 Conclusion

9.5.1 The proposed development is therefore expected to comply with all relevant national, regional and local air quality policy.

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Appendices

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APPENDIX A –DUST RISK ASSESSMENT METHODOLOGY

The effects associated with the site preparation, earthworks and construction phase of the Proposed Scheme have been determined qualitatively using criteria provided in the IAQM (2024) guidance and professional judgement.

The significance of effects associated with the site preparation, earthworks and construction phase of the Proposed development has been determined qualitatively and involved the following tasks:

- Evaluation of the proposed Site layout, to evaluate size of the Site and possible site construction activities that could generate dust and PM_{10}, their likely location and duration. No information on the precise construction plan was available at the time of undertaking the current assessment and hence assumptions were made;
- Collection and appraisal of meteorological data related to wind speed, direction and frequency, and precipitation for the local and wider area;
- Identification of any natural shelters, such as trees, likely to reduce the risk of wind-blown dust;
- In the case of PM_{10}, mapping of local background concentrations;
- Assessing the potential distance which the construction traffic will travel across unpaved roads on the construction Site, prior to accessing the local road network (referred to as 'trackout');
- Identification of the location and type of sensitive receptors within 250m of the boundary of the Site and/or within 50m of the route(s) used by construction vehicles on the public highway, up to 250m from the Site entrance(s) (at-risk receptors);
- Indication of the number of receptors and sensitivity types at different distances from the Site boundary (or dust generating activities wherever known);
- Assessment of the risk of dust and PM_{10} effects arising using three risk categories: low risk, medium risk, and high risk. The Site was allocated to a risk category based on two factors:
    - The scale and nature of the works, which determined the magnitude of potential dust emissions classed as: small, medium or large; and
    - The type and proximity of receptors, considered separately for human and ecological receptors, which determined the sensitivity of the area.

The criteria developed by IAQM is divides the activities on construction sites into four different types to assess their different level of impacts upon receptors. These are:

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

The assessment procedure includes four steps summarised below:

STEP 1 - SCREENING THE NEED FOR A FULL ASSESSMENT

The following screening criterion has been applied to the assessment: An assessment will normally be required where there is:

- A 'human' receptor within:
    - 250m of the Site boundary; or
    - 50m of the route(s) used by construction vehicles on the public highway, up to 250m from the site entrance(s).
- An 'ecological' receptor within:
    - 50m of the Site boundary; or
    - 50m of the route(s) used by construction vehicles on the public highway, up to 250m from the site entrance(s).

Should this criterion not be met it can be concluded that the level of risk upon receptors is negligible and there the effects are not significant, and therefore no mitigation measures will be required.

STEP 2 - ASSESS THE RISK OF DUST ARISING

The Site is given a risk classification based upon the following two factors:

- The scale and nature of the construction works, to provide the potential dust emission magnitude (Step 2A); and
- The sensitivity of the area / receptors to the dust impacts (Step 2B).

These two factors are combined in Step 2C, which is to determine the risk of dust impacts with no mitigation applied. The risk categories assigned to the site may be different for each of the four potential sources of dust (demolition, earthworks, construction and trackout).

STEP 2A - DEFINE THE POTENTIAL DUST EMISSION MAGNITUDE

The dust magnitude is categorised by the following:

- Small;
- Medium; or
- Large.

The IAQM provide a brief description upon what could apply for each classification (as set out in Table A.1) and should be based upon professional judgement.

Table A.1: Dust Magnitude Classification

Magnitude Class	Classification Description
	Demolition
Large	Total building volume >75,000 m^3, potentially dusty construction material (e.g. concrete), on-site crushing and screening, demolition activities >12 m above ground level.
Medium	Total building volume 12,000 m^3 – 75,000 m^3, potentially dusty construction material, demolition activities 6-12 m above ground level
Small	Total building volume <12,000 m^3, construction material with low potential for dust release, (e.g. metal cladding or timber), demolition activities <6 m above ground, demolition during wetter months.
	Earthworks
Large	Total site area >110,000 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 >6 m in height
Medium	Total site area 18,000 m^2 – 110,000 m^2, moderately dusty soil type (e.g. silt), 5-10 heavy earth moving vehicles active at any one time, formation of bunds 3m - 6m in height
Small	Total site area less than 18,000 m^2. Soil type with large grain size (e.g. sand), < 5 heavy earth moving vehicles active at any one time, formation of bunds < 3 m in height.
	Construction
Large	Total building volume >75,000 m^3, on site concrete batching, sandblasting.
Medium	Total building volume 12,000 m^3 – 75,000 m^3, potentially dusty construction material (e.g. concrete), on site concrete batching
Small	Total building volume below 12,000 m^3, construction material with low potential for dust release (e.g. metal cladding or timber).
	Trackout
Large	>50 HDV (>3.5t) outward movements in any one day, potentially dusty surface material (e.g. high clay content), unpaved road length >100 m

Magnitude Class	Classification Description
Medium	20-50 HDV (>3.5t) outward movements in any one day, moderately dusty surface material (e.g. high clay content), unpaved road length 50 m – 100 m
Small	<20 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 sensitivity of the area / receptor is defined by taking account of the following factors and the criteria set out in Table A.2 to Table A.5.

- The type of receptors in the area;
- The distance and number of receptors; and
- Background PM_{10} concentrations.

Table A.2: Defining Receptor Sensitivity

Receptor Sensitivity	Human	Ecological
High	Very densely populated area, 10-100 dwellings within 20 m of site. Annual mean concentrations of PM_{10} close to/in exceedance of the national objective (40 $\mu g/m^3$). Very sensitive receptors (e.g. residential properties, hospitals, schools, care homes).	Internationally or nationally designated site, the designated features may be affected by dust soiling. A location where there is dust sensitive species present.
Medium	Densely populated area, 1-10 dwellings within 20 m of site. Annual mean concentrations of PM_{10} below the national objective (> 28 $\mu g/m^3$). Medium sensitivity receptors (e.g. office and shop workers).	Nationally designated site where the features may be affected by dust deposition. A location with a particularly important plant species where its dust sensitivity is unknown.
Low	Sparsely populated area, 1 dwelling within 20 m of site. Annual mean concentrations well below the national objectives (<$\mu g/m^3$). Low sensitivity receptors (e.g. public footpaths, playing fields, shopping streets).	Locally designated site where the features may be affected by dust deposition.

Table A.3: Sensitivity of the Area to Effects on People and Property from Dust Soiling

Receptor Sensitivity	Number of Receptors	Distance from the Source (m)			
		20	50	100	250
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 A.4: Sensitivity of the Area to Human Health Effects

Receptor Sensitivity	Annual Mean PM_{10}	Number of Receptors	Distance from the Source (m)			
			<20	<50	<100	<250

High	>32 µg/m^3	>100	High	High	High	Medium
		10 – 100	High	High	Medium	Low
		1 – 10	High	Medium	Low	Low
	28 – 32 µg/m^3	>100	High	High	Medium	Low
		10 – 100	High	Medium	Low	Low
		1 – 10	High	Medium	Low	Low
	24 – 28 µg/m^3	>100	High	Medium	Low	Low
		10 – 100	High	Medium	Low	Low
		1 – 10	Medium	Low	Low	Low
	<24 µg/m^3	>100	Medium	Low	Low	Low
		10 – 100	Low	Low	Low	Low
		1 – 10	Low	Low	Low	Low
Medium	>32 µg/m^3	>10	High	Medium	Low	Low
		1 – 10	Medium	Low	Low	Low
	28 – 32 µg/m^3	>10	Medium	Low	Low	Low
		1 – 10	Low	Low	Low	Low
	24 – 28 µg/m^3	>10	Low	Low	Low	Low
		1 – 10	Low	Low	Low	Low
	<24 µg/m^3	>10	Low	Low	Low	Low
		1 – 10	Low	Low	Low	Low
Low	-	>1	Low	Low	Low	Low

Table A.5: Sensitivity of the Area to Ecological Effects

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

STEP 2C – DEFINE THE RISK OF IMPACTS

The dust emission magnitude determined at Step 2A is combined with the sensitivity of the area determined at Step 2B to determine the risk of impacts with no mitigation applied. The IAQM provides the matrix in Table A.6 as a method of assigning the level of risk for each activity.

Table A.6: Defining the Risk of Dust Impacts

Sensitivity of the Area	Dust Emission Magnitude		
	Large	Medium	Small
Demolition			
High	High Risk	Medium Risk	Medium Risk

Medium	High Risk	Medium Risk	Low Risk
Low	Medium Risk	Low Risk	Negligible
	Earthworks		
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible
	Construction		
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible
	Trackout		
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible

STEP 3 – INDENTIFY THE NEED FOR SITE SPECIFIC MITIGATION

From the identification of the risk of impacts with no mitigation, it is possible to determine the specific mitigation measures that can be applied in relation to the level of risk associated with the construction activity. The mitigation measures described below are suggested as measures that could be utilised. Specific measures of which are included in Section 8 (and general mitigation measures are set out in Appendix B) of this report.

STEP 4 – DETERMINE SIGNIFICANT IMPACTS

The IAQM does not provide a method for assessing the significance of effects before mitigation and advises that pre-mitigation significance should not be determined. With appropriate mitigation in place, the IAQM guidance is clear that the residual effect will normally be 'not significant.'

APPENDIX B – GENERAL DUST MITIGATION MEASURES

The following highly recommended and desirable best practice measures have been taken from the IAQM (2024) *Guidance on the Assessment of Dust from Demolition and Construction* document. Developers should implement the appropriate dust and pollution control measures set out below to ensure the air quality impacts of construction and demolition are minimised and any mitigation measures employed are effective.

These will need to be written into a dust management plan (DMP), which should be approved by the local planning authority prior to commencement of work on site. For major sites, the DMP may be integrated into a Code of Construction Practice or the Construction Environmental Management Plan, and compliance monitoring may be required.

The following measures are based on 'Medium Risk' sites, which has been determined in the Construction Dust Impact Assessment section.

COMMUNICATIONS

- Develop and implement a stakeholder communications plan that includes community engagement before work commences on site;
- Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager;
- Display the head or regional office contact information; and
- 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. In London additional measures may be required to ensure compliance with the Mayor of London's guidance. The DMP may include monitoring of dust deposition, dust flux, real time PM_{10} continuous monitoring and/or visual inspections.

DUST MANAGEMENT

Site Management

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

Monitoring

- 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 window sills within 100 m of site boundary, with cleaning to be provided if necessary. 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;
- Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the local authority when asked;
- Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions; and
- Agree dust deposition, dust flux, or real-time PM_{10} continuous monitoring locations with the Local Authority. Where possible commence baseline monitoring at least three months before work commences on site or, if it a large site, before work on a phase commences. Further guidance is provided by IAQM on monitoring during demolition, earthworks and construction.

Preparing and maintaining the site

- Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible;
- Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site;
- Fully enclose site or specific operations where there is a high potential for dust production and the site is actives for an extensive period;
- Avoid site runoff of water or mud;
- Keep site fencing, barriers and scaffolding clean using wet methods;
- 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 ensure they are kept covered; and
- Cover, seed or fence stockpiles to prevent wind whipping.

Operating vehicle/machinery and sustainable travel

- Ensure all on-road vehicles comply with the requirements of the London Low Emission Zone and the London NRMM standards, where applicable;
- Ensure all vehicles switch off engines when stationary - no idling vehicles;
- Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable;
- Impose and signpost a maximum-speed-limit of 15 mph on surfaced and 10 mph on unsurfaced haul roads 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);
- 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 suppression/mitigation, using non-potable water where possible and appropriate;
- Use enclosed chutes and conveyors and covered skips;
- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate; and
- 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

- No bonfires and burning of waste materials.

APPENDIX C – BACKGROUND CALIBRATION PROCESS

Table C.1: NO_2 Background Calibration Factor

Pollutant	Monitoring Sites			
	BL0	CAM73	CAM75	CAM79
Measured Concentration (µg/m^3)	24	17.74	14.72	21.3
Mapped Concentration (µg/m^3)	31.7	31.7	19.9	29.8
Calibration Factor	0.8	0.6	0.7	0.7
Average Calibration Factor	0.7			

Notes: Data rounded.
Mapped concentrations taken from the closest grid square derived from the DEFRA background maps for 2023.

Table C.2: PM_{10} Background Calibration Factor

Pollutant	Monitoring Sites
	BL0
Measured Concentration (µg/m^3)	13
Mapped Concentration (µg/m^3)	18.2
Calibration Factor	0.7

Notes: Data rounded.
Mapped concentrations taken from the closest grid square derived from the DEFRA background maps for 2023.

Table C.3: $PM_{2.5}$ Background Calibration Factor

Pollutant	Monitoring Sites
	BL0
Measured Concentration (µg/m^3)	8
Mapped Concentration (µg/m^3)	9.7
Calibration Factor	0.8

Notes: Data rounded.
Mapped concentrations taken from the closest grid square derived from the DEFRA background maps for 2023.

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