



Air Quality Assessment:
72 Lower Mortlake Road
(Avalon House),
Richmond upon Thames

May 2024



Experts in air quality
management & assessment

Document Control

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Executive Summary

The air quality impacts associated with the proposed commercial redevelopment of 72 Mortlake Road (Avalon House), in the London Borough of Richmond upon Thames (LBRuT), have been assessed. The Proposed Development will consist of the partial demolition and extension of an existing commercial building to provide additional commercial floorspace, rear and rooftop terraced amenity area and other associated works.

The Proposed Development will reduce the existing amount of car-parking provision by four spaces and therefore the amount of daily traffic associated with the Proposed Development will decrease. Sustainable forms of transport to and from the Proposed Development will be encouraged through the adoption of a Travel Plan and Delivery and Servicing Plan, and all car parking spaces will include electric vehicle charging infrastructure.

The proposals involve the removal of the existing boilers and mechanical plant equipment, replacing them with Air Source Heat Pumps and installation of solar photovoltaic panels to ensure fully electric provision of energy and heating.

There will be no significant operational effects at any existing, sensitive receptor; a slight beneficial, but not significant, impact is anticipated.

During the construction works, a range of best practice mitigation measures will be implemented to reduce dust emissions and the overall effect will be 'not significant'; appropriate measures have been set out in this report, to be included in the Dust Management Plan for the works.

Overall, the construction and operational air quality effects of the Proposed Development are judged to be 'not significant'.

The Proposed Development has also been shown to meet the London Plan's requirement that new developments are at least 'air quality neutral'.

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1 Introduction

1.1 This report describes the potential air quality impacts associated with the proposed commercial redevelopment of 72 Lower Mortlake Road, London Borough of Richmond upon Thames (LBRuT) (the 'Proposed Development'). The Proposed Development will consist of the partial demolition and extension of an existing commercial building to provide office and other commercial space. Specifically, the proposals seek to:

“Remove the existing roof and erection of a roof extension at fourth floor and rear extensions to floors ground – four to accommodate additional commercial floorspace (Class E), provision of rear and rooftop terraced amenity spaces, alterations to the ground floor entrance, recladding and remodelling of the façade, landscaping improvements to the rear carparking area, provision of end of journey and cycle parking facilities, associated building servicing and sustainability improvements, and other associated works”.

1.2 The Proposed Development lies within a borough-wide Air Quality Management Area (AQMA) declared by LBRuT for exceedances of the annual mean nitrogen dioxide (NO₂) objective and annual mean and 24-hour mean PM₁₀ objectives. It is also approximately 200 m to the east of one of the Greater London Authority's (GLA's) air quality Focus Areas; these are locations with high levels of human exposure where the annual mean limit value for NO₂ is exceeded. Whilst the Proposed Development will not introduce new receptors sensitive to air quality (GLA, 2019a), it will lead to changes in vehicle flows on local roads, which might impact on air quality at existing receptors along the affected road network. The main air pollutants of concern related to road traffic emissions are NO₂ and fine particulate matter (PM₁₀ and PM_{2.5}).

1.3 The location of the Proposed Development is shown in Figure 1, along with the nearby Focus Area.

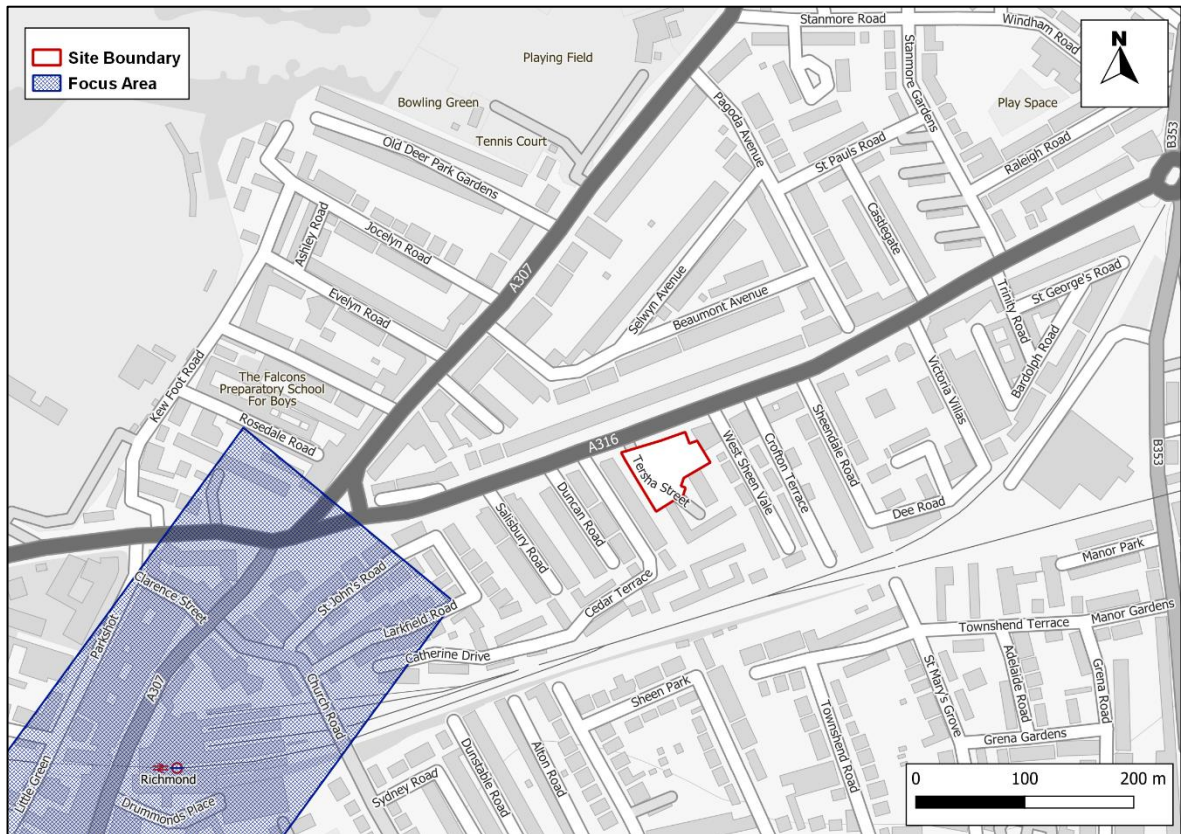


Figure 1: Proposed Development Location and Nearby Focus Area

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- 1.4 The proposals involve the removal of the existing boilers and mechanical plant equipment, replacing them with Air Source Heat Pumps (ASHPs) and installation of photovoltaic panels (PVs) to ensure fully electric provision of energy and heating; there will be no centralised combustion plant and therefore no significant point sources of emissions within the Proposed Development. The development design also does not include any backup power or emergency power generators.
- 1.5 The Greater London Authority's (GLA's) London Plan (GLA, 2021) requires new developments to be air quality neutral. The air quality neutrality of the proposed development has been assessed following the methodology provided in the latest GLA's London Plan Guidance (Air Quality Neutral) (GLA, 2023a).
- 1.6 The GLA has also released Supplementary Planning Guidance on the Control of Dust and Emissions from Construction and Demolition (GLA, 2014b). The SPG outlines a risk assessment approach for construction dust assessment and helps determine the mitigation measures that will need to be applied. LBRuT have also developed a Construction Code of Practice (LBRuT, 2022) which is based

on the GLA's SPG. A construction dust assessment has been undertaken in line with these documents and the appropriate mitigation has been set out.

- 1.7 This report describes existing local air quality conditions (2022) and the potential impacts during operation. The assessment of construction dust impacts focuses on the anticipated duration of the works.
- 1.8 This report has been prepared taking into account all relevant local and national guidance and regulations, and follows a methodology agreed with LBRuT.

2 Policy Context

- 2.1 All European legislation referred to in this report is written into UK law and remains in place.

Air Quality Strategy 2007

- 2.2 The Air Quality Strategy (Defra, 2007) published by the Department for Environment, Food, and Rural Affairs (Defra) and Devolved Administrations, provides the policy framework for air quality management and assessment in the UK. It provides air quality standards and objectives for key air pollutants, which are designed to protect human health and the environment. It also sets out how the different sectors: industry, transport and local government, can contribute to achieving the air quality objectives. Local authorities are seen to play a particularly important role. The strategy describes the Local Air Quality Management (LAQM) regime that has been established, whereby every authority has to carry out regular reviews and assessments of air quality in its area to identify whether the objectives have been, or will be, achieved at relevant locations, by the applicable date. If this is not the case, the authority must declare an AQMA, and prepare an action plan which identifies appropriate measures that will be introduced in pursuit of the objectives.

Air Quality Strategy 2023

- 2.3 The Air Quality Strategy: Framework for Local Authority Delivery 2023 (Defra, 2023a) sets out the strategic air quality framework for local authorities and other Air Quality Partners in England. It sets out their powers and responsibilities, and actions the Government expects them to take. It does not replace other air quality guidance documents relevant to local authorities.

Clean Air Strategy 2019

- 2.4 The Clean Air Strategy (Defra, 2019) sets out a wide range of actions by which the UK Government will seek to reduce pollutant emissions and improve air quality. Actions are targeted at four main sources of emissions: Transport, Domestic, Farming and Industry. At this stage, there is no straightforward way to take account of the expected future benefits to air quality within this assessment.

Reducing Emissions from Road Transport: Road to Zero Strategy

- 2.5 The Office for Low Emission Vehicles (OLEV) and Department for Transport (DfT) published a Policy Paper (DfT, 2018) in July 2018 outlining how the government will support the transition to zero tailpipe emission road transport and reduce tailpipe emissions from conventional vehicles during the transition. This paper affirms the Government's pledge to end the sale of new conventional petrol and diesel cars and vans by 2040, and states that the Government expects the majority of new cars and vans sold to be 100% zero tailpipe emission and all new cars and vans to have significant zero tailpipe emission capability by this year, and that by 2050 almost every car and van should have

zero tailpipe emissions. It states that the Government wants to see at least 50%, and as many as 70%, of new car sales, and up to 40% of new van sales, being ultra-low emission by 2030.

- 2.6 The paper sets out a number of measures by which Government will support this transition, but is clear that Government expects this transition to be industry and consumer led. The Government has recently announced that 80% of new cars and 70% of new vans sold in Great Britain must be zero emission by 2030, increasing to 100% by 2035. If these ambitions are realised then road traffic-related NO_x emissions can be expected to reduce significantly over the coming decades, likely beyond the scale of reductions forecast in the tools utilised in carrying out this air quality assessment.

Environment Act 2021

- 2.7 The UK's new legal framework for protection of the natural environment, the Environment Act (2021) passed into UK law in November 2021. The Act gives the Government the power to set long-term, legally binding environmental targets. It also establishes an Office for Environmental Protection (OEP), responsible for holding the government to account and ensuring compliance with these targets.
- 2.8 The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023 (SI 2023 No. 96) sets two new targets for future concentrations of PM_{2.5}. These targets are described in Paragraph 3.5.

Environmental Improvement Plan 2023

- 2.9 Defra published its 25 Year Environment Plan in 2018 (Defra, 2018a). The Environment Act (2021) requires Defra to review this Plan at least every five years. The Environmental Improvement Plan 2023 (Defra, 2023b) is the first revision. This outlines the progress made since 2018 and adds detail to the goals defined in the 2018 Plan, including that of achieving clean air.
- 2.10 The Environmental Improvement Plan 2023 sets out the new air quality targets which have been set for concentrations of PM_{2.5}. These targets, which are described in more detail in Paragraph 3.5, include the long-term targets in the Statutory Instrument described in Paragraph 2.8, and interim targets to be achieved by 2028.
- 2.11 The 2023 Plan outlines the role of local authorities in helping it meet both its targets and existing commitments. It also outlines the respective roles of industry, agricultural sectors, and the Department for Transport in providing the coordinated action required to meet both its new, and pre-existing targets and commitments.

Planning Policy

National Policies

- 2.12 The National Planning Policy Framework (NPPF) (2023) sets out planning policy for England. It states that the purpose of the planning system is to contribute to the achievement of sustainable development, 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”.

- 2.13 To prevent unacceptable risks from air pollution, Paragraph 180 of the NPPF states that:

“Planning policies and decisions should contribute to and enhance the natural and local environment by...preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air quality”.

- 2.14 Paragraph 191 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”.

- 2.15 More specifically on air quality, Paragraph 192 makes clear that:

“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”.

- 2.16 The NPPF is supported by Planning Practice Guidance (PPG) (Ministry of Housing, Communities & Local Government, 2019), which includes guiding principles on how planning can take account of the impacts of new development on air quality. The PPG states that:

“Defra carries out an annual national assessment of air quality using modelling and monitoring to determine compliance with Limit Values. It is important that the potential impact of new development on air quality is taken into account where the national assessment indicates that relevant limits have been exceeded or are near the limit, or where the need for emissions reductions has been identified”.

2.17 Regarding plan-making, the PPG states:

“It is important to take into account air quality management areas, Clean Air Zones and other areas including sensitive habitats or designated sites of importance for biodiversity where there could be specific requirements or limitations on new development because of air quality”.

2.18 The role of the local authorities through the LAQM regime is covered, with the PPG stating that a local authority Air Quality Action Plan *“identifies measures that will be introduced in pursuit of the objectives and can have implications for planning”*. In addition, the PPG makes clear that *“Odour and dust can also be a planning concern, for example, because of the effect on local amenity”*.

2.19 Regarding the need for an air quality assessment, the PPG states that:

“Whether air quality is relevant to a planning decision will depend on the proposed development and its location. Concerns could arise if the development is likely to 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”.

2.20 The PPG sets out the information that may be required in an air quality assessment, making clear that:

“Assessments need to be proportionate to the nature and scale of development proposed and the potential impacts (taking into account existing air quality conditions), and because of this are likely to be locationally specific”.

2.21 The PPG also provides guidance on options for mitigating air quality impacts, as well as examples of the types of measures to be considered. It makes clear that:

“Mitigation options will need to be locationally specific, will depend on the proposed development and need to be proportionate to the likely impact. It is important that local planning authorities work with applicants to consider appropriate mitigation so as to ensure new development is appropriate for its location and unacceptable risks are prevented”.

London-Specific Policies

2.22 The key London-specific policies are summarised below, with more detail provided, where required, in Appendix A1.

The London Plan

2.23 The London Plan (GLA, 2021) sets out an integrated economic, environmental, transport and social framework for the development of London over the next 20-25 years. The key policy relating to air quality is Policy SI 1 on *Improving air quality*, Part B1 of which sets out three key requirements for developments:

“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”.*

2.24 The Policy then details how developments should meet these requirements, stating:

“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 retro-fitted 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”.*

2.25 Part C of the Policy introduces the concept of Air Quality Positive for large-scale development, stating:

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

- 2.26 While the Proposed Development is a large-scale development, it is not subject to an Environmental Impact Assessment, therefore an Air Quality Positive statement is not necessary.
- 2.27 Regarding construction and demolition impacts, Part D of Policy SI 1 of the London Plan states:
- “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”.*
- 2.28 Part E of Policy SI 1 states the following regarding mitigation and offsetting of emissions:
- “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”.*
- 2.29 The explanatory text around Policy SI 1 of the London Plan states the following with regard to assessment criteria:
- “The Mayor is committed to making air quality in London the best of any major world city, which means not only achieving compliance with legal limits for Nitrogen Dioxide as soon as possible and maintaining compliance where it is already achieved, but also achieving World Health Organisation targets for other pollutants such as Particulate Matter.*
- The aim of this policy is to ensure that new developments are designed and built, as far as is possible, to improve local air quality and reduce the extent to which the public are exposed to poor air quality. This means that new developments, as a minimum, must not cause new exceedances of legal air quality standards, or delay the date at which compliance will be achieved in areas that are currently in exceedance of legal limits. Where limit values are already met, or are predicted to be met at the time of completion, new developments must endeavour to maintain the best ambient air quality compatible with sustainable development principles.*
- Where this policy refers to ‘existing poor air quality’ this should be taken to include areas where legal limits for any pollutant, or World Health Organisation targets for Particulate Matter, are already exceeded and areas where current pollution levels are within 5 per cent of these limits”¹.*
- 2.30 The London Plan includes a number of other relevant policies, which are detailed in Appendix A1.

¹ The London Plan was developed based on a World Health Organisation guideline for PM_{2.5} of 10 µg/m³ (see Paragraph 2.31).

London Environment Strategy

- 2.31 The London Environment Strategy was published in May 2018 (GLA, 2018a). The strategy considers air quality in Chapter 4; the Mayor's main objective is to create a "zero emission London by 2050". Policy 4.2.1 aims to "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". The strategy sets a target to achieve, by 2030, the guideline value for PM_{2.5} which was set by the World Health Organisation (WHO) in 2005. An implementation plan for the strategy has also been published which sets out what the Mayor will do between 2018 and 2023 to help achieve the ambitions in the strategy.

Mayor's Transport Strategy

- 2.32 The Mayor's Transport Strategy (GLA, 2018b) sets out the Mayor's policies and proposals to reshape transport in London over the next two decades. The Strategy focuses on reducing car dependency and increasing active sustainable travel, with the aim of improving air quality and creating healthier streets. It notes that development proposals should "be designed so that walking and cycling are the most appealing choices for getting around locally".

GLA SPG: Sustainable Design and Construction

- 2.33 The GLA's SPG on Sustainable Design and Construction (GLA, 2014a) was revoked upon publication of the new London Plan, but it is understood that GLA still expects the emission standards set within it for gas-fired boilers, Combined Heat and Power (CHP) and biomass plant to be met.

GLA SPG: The Control of Dust and Emissions During Construction and Demolition

- 2.34 The GLA's SPG on The Control of Dust and Emissions During Construction and Demolition (GLA, 2014b) outlines a risk assessment based approach to considering the potential for dust generation from a construction site, and sets out what mitigation measures should be implemented to minimise the risk of construction dust impacts, dependent on the outcomes of the risk assessment. This guidance is largely based on the Institute of Air Quality Management's (IAQM²'s) guidance (IAQM, 2024), and it states that "the latest version of the IAQM Guidance should be used".

GLA LPG: Air Quality Neutral

- 2.35 The GLA's Air Quality Neutral LPG outlines the assessment approach for determining whether a development is Air Quality Neutral (GLA, 2023a). The guidance sets out benchmarks for the maximum allowable emissions of NO_x and particulate matter based on the size and use class of the proposed development. To determine whether the development is Air Quality Neutral, the building and transport emissions from the proposed development are compared to these benchmarks.

² The IAQM is the professional body for air quality practitioners in the UK.

Air Quality Focus Areas

2.36 The GLA has identified 160 air quality Focus Areas in London. These are locations that not only exceed the annual mean limit value for NO₂, but also have high levels of human exposure. They do not represent an exhaustive list of London's air quality hotspot locations, but locations where the GLA believes the problem to be most acute. They are also areas where the GLA considers there to be the most potential for air quality improvements and are, therefore, where the GLA and Transport for London (TfL) will focus actions to improve air quality. The Proposed Development is located within approximately 200 m of the Richmond Town Centre Air Quality Focus Area.

Local Transport Plan

2.37 The LBRuT Third Local Implementation Plan (LIP3) sets out a programme of measures and schemes to implement the Mayor's Transport Strategy within the Borough (LBRuT, 2019). It aims to achieve nine outcomes through the adoption of 14 over-arching objectives, with 57 objectives linked to specific outcomes. These include to:

"Reduce the environmental impacts and pollution levels due to transport, and encourage improvements in air quality, particularly near schools, town centres, along major roads and areas that already exceed acceptable air quality standards."

2.38 Three LIP3 projects and programmes link to the Mayor's Transport Strategy outcomes. These are:

- *"Electric vehicle charge points*
- *Air quality infrastructure and monitoring (air quality monitoring, green walls, air filters, etc)*
- *Air quality revenue (campaigns, awareness, behaviour change, focused on schools and town centres)".*

Local Policies

2.39 The LBRuT Local Plan was adopted in July 2018 (LBRuT, 2018). One of the strategic objectives within this Plan is to:

"Reduce or mitigate environmental impacts and pollution levels (such as air, noise, light, odour, fumes, water and soil) and encourage improvements in air quality, particularly along major roads and areas that already exceed acceptable air quality standards."

2.40 More specifically, Policy LP 10 concerns local environmental impacts, pollution and land contamination. In terms of air quality, Policy LP 10 states:

"The Council promotes good air quality design and new technologies. Developers should secure at least 'Emissions Neutral' development. To consider the impact of introducing new developments in areas already subject to poor air quality, the following will be required:

1. *An air quality impact assessment, including where necessary, modelled data;*
2. *Mitigation measures to reduce the development's impact upon air quality, including the type of equipment installed, thermal insulation and ducting abatement technology;*
3. *Measures to protect the occupiers of new developments from existing sources;*
4. *Strict mitigation for developments to be used by sensitive receptors such as schools, hospitals and care homes in areas of existing poor air quality; this also applies to proposals close to developments used by sensitive receptors."*

2.41 LBRT is currently working on a new Local Plan; consultation on the Draft Local Plan took place between June and July 2023. The Draft Local Plan (LBRuT, 2023a) includes Policy 53: Local Environmental Impacts, which states in relation to air quality:

"D. The Council promotes good air quality design and new technologies. All developments must comply with the new London Plan 2021 Policy SI1 Improving Air Quality.

E. Major developments and large-scale development subject to an Environmental Impact Assessment (EIA) are required to achieve "Air Quality Positive".

F. All developments must be at least "Air Quality Neutral". Proposals that would materially increase exceedances of local air pollutants will be resisted unless the development mitigates this impact through physical measures and/or financial contributions to implement proposals in Richmond's Local Air Quality Management Plan.

G. To consider the impact of introducing new developments in areas already subject to poor air quality, the following will be required:

1. *an air quality impact assessment, including where necessary modelled data; this also applies to change of use to residential at street level;*
2. *mitigation measures to reduce the development's impact upon air quality, including the type of equipment installed, thermal insulation and ducting abatement technology;*
3. *measures to protect the occupiers of new developments from existing sources;*
4. *strict mitigation for developments to be used by sensitive receptors such as schools, hospitals and care homes in areas of existing poor air quality; this also applies to proposals close to developments used by sensitive receptors;*
5. *mitigation measures to reduce the impact of transport from the development upon air quality, including support for active travel, electric vehicles and car club membership.*

H. The Council will require financial contributions towards off-site air quality measures where a proposed development is not air quality neutral, or mitigation measures do not reduce the impact

upon poor air quality. Specific guidance for air quality in new developments is set out in the Council's Air Quality SPD (2020)."

Air Quality Supplementary Planning Document (SPD)

2.42 The LBRuT Air Quality Supplementary Planning Document (SPD) was adopted in June 2022 and aims to provide a consistent approach to new development (LBRuT, 2020a). It provides advice on:

- *"the implementation of Policy LP 10, Part B. Air Quality [of the LBRuT Local Plan];*
- *designing new developments to minimise the effects on the local community as well as avoiding introducing new exposure in areas of poor air quality;*
- *the assessment of air quality impacts of development; and*
- *appropriate mitigation measures."*

2.43 The SPD has been utilised in this assessment.

Sustainable Construction Checklist Guidance Document SPD

2.44 The LBRuT Sustainable Construction Checklist Guidance Document SPD (LBRuT, 2020c) was adopted in June 2020, and forms a mandatory part of the planning application for residential developments providing one or more new dwellings, or 100 m² or more floor space for non-residential developments. It provides a list of relevant policies relating to energy use and pollution, including pollution during the construction process, and incorporates policies outlined in the adopted Local Plan.

2.45 Section 2 of the SPD states the following in relation to electric vehicle charging points:

"The London Plan requires 20% of parking space to have active provision for electric vehicle charging and 80% passive provision. The Council's ambition is that charging facilities are provided in such a way as to enable direct access to charging facilities for all vehicles. Consequently, the Council supports development making provision for 100% active electric vehicle parking. This does however not mean that every parking space where parking is shared communally needs to be equipped with a charging point, as one fast or rapid charging point may cater for many vehicles. Applicants will need to demonstrate that their development would be able to operate satisfactorily in the future expectation of all vehicles being electrically powered."

Construction Code of Practice

2.46 The LBRuT Construction Code of Practice was adopted in January 2022 and details measures that should be employed by construction sites in order to minimise environmental disturbance to sensitive receptors such as local residents, schools, hospitals and businesses (LBRuT, 2022).

- 2.47 The measures detailed in the document are based upon those outlined in the GLA's guidance on the *Control of Dust and Emissions during Construction and Demolition SPG* (2014a).

Building Standards

- 2.48 Part F(1) of Schedule 1 of the Building Regulations 2010 as amended June 2022 (Ministry of Housing, Communities & Local Government, 2022) places a duty on building owners, or those responsible for relevant building work³, to ensure adequate ventilation is provided to building occupants.
- 2.49 Approved Document F (HM Government, 2021a), which accompanies the Building Regulations, explains that care should be taken to minimise entry of external air pollutants. Specific steps should be taken to manage ventilation intakes where the building is near to a significant source of emissions, or if local ambient concentrations exceed values set in the Air Quality Standards Regulations 2010 (see Paragraph 3.11, later). These steps include maximising the distance between emission source and air intake, considering likely dispersion patterns, and considering the timing of pollution releases when designing the ventilation system.
- 2.50 Part S(1) of Schedule 1, and Regulation 44D, of the Building Regulations 2010 (Ministry of Housing, Communities & Local Government, 2022) define a requirement for the provision of infrastructure for charging electric vehicles. Precise requirements are explained further within Approved Document S (HM Government, 2021b) and depend on the overall number of parking spaces provided and the average financial cost of installation.
- 2.51 Compliance with the Building Regulations is not required for planning approval, but it is assumed that the Regulations will be complied with in the completed development.

Air Quality Action Plans

National Air Quality Plan

- 2.52 Defra has produced an Air Quality Plan to tackle roadside NO₂ concentrations in the UK (Defra, 2017); a supplement to the 2017 Plan (Defra, 2018b) was published in October 2018 and sets out the steps Government is taking in relation to a further 33 local authorities where shorter-term exceedances of the limit value were identified. Alongside a package of national measures, the 2017 Plan and the 2018 Supplement require those identified English Local Authorities (or the GLA in the case of London Authorities) to produce local action plans and/or feasibility studies. These plans and feasibility studies must have regard to measures to achieve the statutory limit values within the shortest possible time, which may include the implementation of a Clean Air Zone (CAZ). There is currently no straightforward way to take account of the effects of the 2017 Plan or 2018 Supplement

³ Building work is a legal term for work covered by the Building Regulations. With limited exemptions, the Regulations apply to all significant building work, including erecting or extending a building.

in this assessment; however, consideration has been given to whether there is currently, or is likely to be in the future, a limit value exceedance in the vicinity of the Proposed Development. This assessment has principally been carried out in relation to the air quality objectives, rather than the limit values that are the focus of the Air Quality Plan.

Local Air Quality Action Plan

2.53 As outlined in paragraph 1.2, the LBRuT declared a borough-wide AQMA in 2000 for exceedances of the annual mean NO₂ objective and the annual mean and 24-hour mean PM₁₀ objectives. The LBRuT's most recent Air Quality Action Plan details action in which LBRuT will take to improve air quality across the borough for the period between 2020 and 2025 (LBRuT, 2020b). The Plan focuses on the following five priorities:

- *“Monitoring of air quality”*
- *“Changing our environment”* – to encourage sustainable and active transport and promote electric vehicle uptake
- *“Changing behaviour”* – including campaigns and initiatives and improving communication
- *“Tackling pollution”* – such as anti-idling initiatives, dealing with bonfires and regulating demolition and construction activities.
- *“Protecting our schools”*.

3 Assessment Criteria

- 3.1 The Government has established a set of air quality standards and objectives to protect human health. The 'standards' are set as concentrations below which effects are unlikely even in sensitive population groups, or below which risks to public health would be exceedingly small. They are based purely upon the scientific and medical evidence of the effects of an individual pollutant. The 'objectives' set out the extent to which the Government expects the standards to be achieved by a certain date. They take account of economic efficiency, practicability, technical feasibility and timescale. The objectives for use by local authorities are prescribed within the Air Quality (England) Regulations (2000) and the Air Quality (England) (Amendment) Regulations (2002).
- 3.2 The UK-wide objectives for NO₂ and PM₁₀ were to have been achieved by 2005 and 2004 respectively, and continue to apply in all future years thereafter. Measurements across the UK have shown that the 1-hour NO₂ objective is unlikely to be exceeded at roadside locations where the annual mean concentration is below 60 µg/m³ (Defra, 2022). Measurements have also shown that the 24-hour mean PM₁₀ objective could be exceeded at roadside locations where the annual mean concentration is above 32 µg/m³ (Defra, 2022).
- 3.3 The objectives apply at locations where members of the public are likely to be regularly present and are likely to be exposed over the averaging period of the objective. The GLA explains where these objectives will apply in London (GLA, 2019a). The annual mean objectives for NO₂ and PM₁₀ are considered to apply at the façades of residential properties, schools, hospitals and care homes etc., the gardens of residential properties, school playgrounds and the grounds of hospitals and care homes. The 24-hour mean objective for PM₁₀ is considered to apply at the same locations as the annual mean objective, as well as at hotels. The 1-hour mean objective for NO₂ applies wherever members of the public might regularly spend 1-hour or more, including outdoor eating locations and pavements of busy shopping streets.
- 3.4 For PM_{2.5}, the objective set by Defra for local authorities is to work toward reducing concentrations without setting any specific numerical value. In the absence of a numerical objective, it is convention to assess local air quality impacts against the limit value (see Paragraph 3.11), originally set at 25 µg/m³ and currently set at 20 µg/m³.
- 3.5 Defra has also recently set two new targets, and two new interim targets, for PM_{2.5} concentrations in England. One set of targets focuses on absolute concentrations. The long-term target is to achieve an annual mean PM_{2.5} concentration of 10 µg/m³ by the end of 2040, with the interim target being a value of 12 µg/m³ by the start of 2028⁴. The second set of targets relate to reducing overall population

⁴ Meaning that it will be assessed using measurements from 2027. The 2040 target will be assessed using measurements from 2040. National targets are assessed against concentrations expressed to the nearest whole number, for example a concentration of 10.4 µg/m³ would not exceed the 10 µg/m³ target.

exposure to PM_{2.5}. By the end of 2040, overall population exposure to PM_{2.5} should be reduced by 35% compared with 2018 levels, with the interim target being a reduction of 22% by the start of 2028.

3.6 Defra will assess compliance with the population exposure targets by averaging concentrations measured at its own background monitoring stations. This will not consider small changes over time to precisely where people are exposed (such as would relate to exposure introduced by a new development). Furthermore, as explained in Paragraph 2.11, all four new targets provide metrics against which central Government can assess its own progress. While local authorities have an important role delivering the required improvements, these are expected to relate to controlling emissions and not to directly assessing PM_{2.5} concentrations against the targets.

3.7 In March 2023, the Department for Levelling Up, Housing and Communities (DLUHC, 2023) explained that the new PM_{2.5} targets will:

“need to be integrated into the planning system, and in setting out planning guidance for local authorities and businesses, we will consider the specific characteristics of PM_{2.5}. The guidance will be forthcoming in due course, until then we expect local authorities to continue to assess local air quality impacts in accordance with existing guidance.”

3.8 Defra has also provided advice (Defra, 2023c) which explains that there is no current requirement to consider the new PM_{2.5} targets in planning decisions and that guidance to local planning authorities will be forthcoming before this position changes. In the future, when planning decisions do need to consider the new targets, the expectation is that this will focus on reducing emissions from new development rather than there being a direct requirement for planning-related air quality assessments to predict PM_{2.5} concentrations.

3.9 For the time being, therefore, no assessment is required, and indeed no robust assessment is possible, in relation to the new PM_{2.5} targets and they are not considered further.

3.10 As explained in Paragraph 2.31, the GLA has set a target to achieve an annual mean PM_{2.5} concentration of 10 µg/m³ by 2030. This target was derived from an air quality guideline set by WHO in 2005. In 2021, WHO updated its guidelines, but the London Environment Strategy (GLA, 2018a) considers the 2005 guideline of 10 µg/m³. While there is no explicit requirement to assess against the GLA target of 10 µg/m³, it has nevertheless been included within this assessment.

3.11 EU Directive 2008/50/EC (The European Parliament and the Council of the European Union, 2008) sets limit values for NO₂, PM₁₀ and PM_{2.5}, and is implemented in UK law through the Air Quality Standards Regulations (2010)⁵. The limit values for NO₂ and PM₁₀ are the same numerical concentrations as the UK objectives, but achievement of the limit values is a national obligation rather than a local one and concentrations are reported to the nearest whole number. In the UK, only

⁵ As amended through The Air Quality Standards (Amendment) Regulations 2016 and The Environment (Miscellaneous Amendments) (EU Exit) Regulations 2020.

monitoring and modelling carried out by UK Central Government meets the specification required to assess compliance with the limit values. Central Government does not normally recognise local authority monitoring or local modelling studies when determining the likelihood of the limit values being exceeded, unless such studies have been audited and approved by Defra and DfT's Joint Air Quality Unit (JAQU).

3.12 The relevant air quality criteria for this assessment are provided in Table 1.

Table 1: Air Quality Criteria for NO₂, PM₁₀ and PM_{2.5}

Pollutant	Time Period	Value
NO ₂	1-hour Mean	200 µg/m ³ not to be exceeded more than 18 times a year
	Annual Mean	40 µg/m ³
PM ₁₀	24-hour Mean	50 µg/m ³ not to be exceeded more than 35 times a year
	Annual Mean	40 µg/m ³
PM _{2.5}	Annual Mean	20 µg/m ³ ^a
	Annual Mean	10 µg/m ³ by 2030

^b There is no numerical PM_{2.5} objective for local authorities (see Paragraph 3.4). Convention is to assess against the UK limit value which is currently 20 µg/m³.

Construction Dust Criteria

3.13 There are no formal assessment criteria for dust. In the absence of formal criteria, the approach developed by the IAQM (2024) has been used (the GLA's SPG (GLA, 2014b) recommends that the assessment be based on the latest version of the IAQM guidance). Full details of this approach are provided in Appendix A2.

Screening Criteria

3.14 Environmental Protection UK (EPUK) and the IAQM recommend a two-stage screening approach (Moorcroft and Barrowcliffe et al, 2017) to determine whether emissions from road traffic generated by a development have the potential for significant air quality impacts. The approach, as described in Appendix A3, first considers the size and parking provision of a development; if the development is residential and is for fewer than ten homes or covers less than 0.5 ha, or is non-residential and will provide less than 1,000 m² of floor space or cover a site area of less than 1 ha, and will provide ten or fewer parking spaces, then there is no need to progress to a detailed assessment.

3.15 The second stage then compares the changes in vehicle flows on local roads that a development will lead to against specified screening criteria. The screening thresholds (described in full in Appendix A3 inside an AQMA) are a change in flows of more than 25 Heavy Duty Vehicles (HDVs) or 100 Light Duty Vehicles (LDVs) per day; outside of an AQMA the thresholds are 100 HDVs or 500 LDVs. Where these criteria are exceeded, a detailed assessment is likely to be required, although

the guidance advises that *“the criteria provided are precautionary and should be treated as indicative”*, and *“it may be appropriate to amend them on the basis of professional judgement”*.

4 Assessment Approach

Consultation

- 4.1 The assessment follows a methodology agreed with LBRuT via email correspondence between Carol Lee (Principal Environmental Health Pollution Practitioner (Air Quality) at LBRuT) and Will Wrench (Air Quality Consultants) on 5th April 2024. In addition to the methodology used in this assessment, the Officer advised on air quality mitigation, stating that the Proposed Development should include a robust travel and service plan to encourage sustainable transport and combined or reduced deliveries.

Existing Conditions

- 4.2 Existing sources of emissions and baseline air quality conditions within the study area have been defined using a number of approaches:
- industrial sources that may affect the area have been identified using Defra's Pollutant Release and Transfer Register (Defra, 2024b);
 - local sources have been identified through examination of the LBRuT's Air Quality Review and Assessment reports;
 - information on existing air quality has been obtained by collating the results of monitoring carried out by the local authority;
 - background concentrations have been defined using Defra's 2018-based background maps (Defra, 2024a). These cover the whole of the UK on a 1x1 km grid. The background annual mean NO₂ maps for 2022 have been calibrated against concurrent measurements from Outer London monitoring sites (AQC, 2023). The calibration factor calculated has also been applied to future year backgrounds. Mapped background concentrations of PM₁₀ and PM_{2.5} have not been adjusted;
 - whether or not there are any exceedances of the annual mean limit value for NO₂ along roads close to the Proposed Development has been identified using the maps of roadside concentrations published by Defra (2020). These are the maps used by the UK Government, together with the results from national Automatic Urban and Rural Network (AURN) monitoring sites that operate to the required data quality standards, to identify and report exceedances of the limit value. The national maps of roadside PM₁₀ and PM_{2.5} concentrations (Defra, 2024c), which are available for the years 2009 to 2019, show no exceedances of the limit values anywhere in the UK in 2019; and
 - information on existing particulate dust concentrations has been obtained through examination of the London Atmospheric Emissions Inventory (LAEI) database produced by

the GLA (GLA, 2023b). These predicted concentrations cover the whole of the GLA area at 20 m grid resolution.

Construction Impacts

- 4.3 The construction dust assessment considers the potential for impacts within 250 m of the site boundary, or within 50 m of roads used by construction vehicles. The assessment methodology is follows the GLA's SPG on the Control of Dust and Emissions During Construction and Demolition (GLA, 2014b), which is based on that provided by IAQM (2024). This follows a sequence of steps. Step 1 is a basic screening stage, to determine whether the more detailed assessment provided in Step 2 is required. Step 2a determines the potential for dust to be raised from on-site works and by vehicles leaving the site. Step 2b defines the sensitivity of the area to any dust that may be raised. Step 2c combines the information from Steps 2a and 2b to determine the risk of dust impacts without appropriate mitigation. Step 3 uses this information to determine the appropriate level of mitigation required to ensure that there should be no significant impacts. Appendix A2 explains the approach in more detail.

Road Traffic Impacts

- 4.4 The first step in considering the road traffic impacts of the proposed development has been to screen the development and its traffic generation against the criteria set out in the EPUK/IAQM guidance (Moorcroft and Barrowcliffe et al, 2017), as described in Paragraph 3.14 and detailed further in Appendix A3. Where impacts can be screened out there is no need to progress to a more detailed assessment.

Assessment of Significance

Construction Dust Significance

- 4.5 Guidance from IAQM (2024) is that, with appropriate mitigation in place, the effects of construction dust will be 'not significant'. This is the latest version of the guidance upon which the assessment methodology set out in the GLA guidance (GLA, 2014b) is based (the GLA guidance advises that the latest version of the IAQM guidance should always be used). The assessment thus focuses on determining the appropriate level of mitigation so as to ensure that effects will normally be 'not significant'.

Operational Significance

- 4.6 There is no official guidance in the UK in relation to development control on how to assess the significance of air quality impacts. The approach developed jointly by EPUK and the IAQM (Moorcroft and Barrowcliffe et al, 2017) has therefore been used. The overall significance of the air quality impacts is determined using professional judgement; the experience of the consultants preparing

the report is set out in Appendix A4. Full details of the EPUK/IAQM approach are provided in Appendix A3.

‘Air Quality Neutral’

- 4.7 The GLA’s London Plan Guidance (Air Quality Neutral) (GLA, 2023a) sets out guidance on how an ‘air quality neutral’ assessment should be undertaken. It also provides a methodology for calculating an offsetting payment if a development is not ‘air quality neutral’ and it is not possible to identify or agree appropriate and adequate mitigation.
- 4.8 Appendix A5 sets out the emissions benchmarks from the guidance. The approach has been to calculate the emissions from the development and to compare them with these benchmarks.

5 Baseline Conditions

Relevant Features

- 5.1 The Proposed Development is located approximately 500 m to the northeast of Richmond train station. It is bounded by the A316 road to the north and residential properties to the south, east and west. Existing residential properties also comprise the majority of the area to the north of the A316.
- 5.2 The Proposed Development is located within the borough-wide AQMA and approximately 200 m east of the Richmond Town Centre air quality Focus Area, as highlighted in Figure 1.

Industrial Sources

- 5.3 No significant industrial sources have been identified that are likely to affect the proposed development, in terms of air quality (Defra, 2024b).

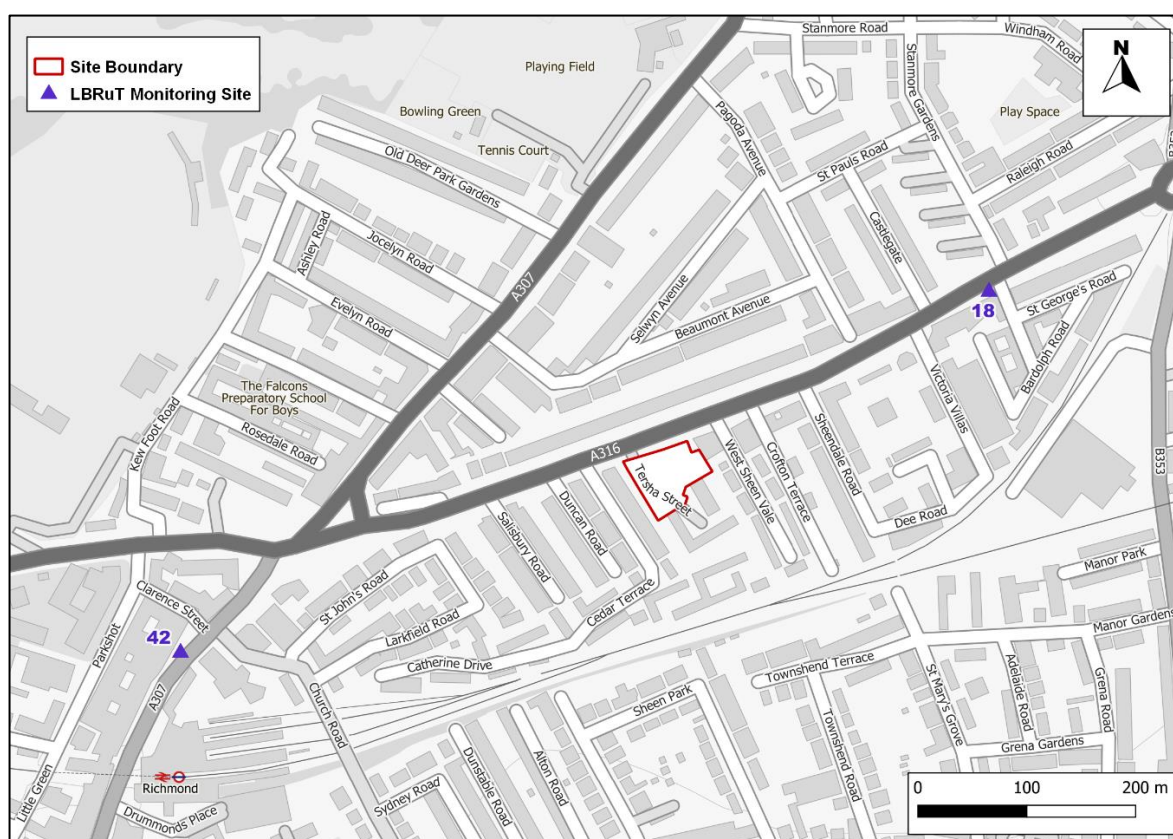
Local Air Quality Monitoring

- 5.4 LBRuT operates three automatic monitoring stations within its area, however, none of these are near to the Proposed Development; the closest being almost 3 km away in Twickenham. LBRuT also operates a number of NO₂ monitoring sites using diffusion tubes prepared and analysed by Gradko (using the 50% TEA in acetone method). These include one deployed kerbside adjacent to the A316 (site 18), approximately 300 m west of the Proposed Development, and one located roadside to the A307 (site 42), approximately 450 m west of the Proposed Development. Annual mean results for the years 2017 to 2022 are summarised in Table 2. The monitoring locations are shown in Figure 2. The monitoring data have been taken from LBRuT's 2022 Annual Status Report (LBRuT, 2023).
- 5.5 While 2020 and 2021 results have been presented in this Section for completeness, they are not relied upon in any way as they will not be representative of 'typical' air quality conditions due to the considerable impact of the Covid-19 pandemic on traffic volumes and therefore pollutant concentrations.

Table 2: Summary of Annual Mean NO₂ Monitoring (2017-2022) (µg/m³)^{a, b}

Site No.	Site Type	Location	2017	2018	2019	2020	2021	2022
18	Kerbside	Lower Mortlake Road, Richmond (near Trinity Road)	58	46	46	41	39	30
42	Roadside	The Quadrant/Kew Road, Richmond	89	72	62	60	54	41
Objective			40					

- ^a Exceedances of the objectives are shown in bold and those over 60 µg/m³, and therefore suggesting possible exceedances of the short-term NO₂ objective (Defra, 2022), are also underlined.
- ^b The 2020 and 2021 monitoring results will have been affected by the Covid-19 pandemic so may not represent current conditions in the local area (discussed above).

**Figure 2: Monitoring Locations**

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- 5.6 As shown in Table 2, exceedances of the annual mean NO₂ objective occurred at monitoring site 18 from 2017 to 2020 and at site 42 in all years presented. Concentrations at site 18 were well below the objective in 2022. Situated along the A316, site 18 is considered most representative of

concentrations within the vicinity of the Proposed Development, with site 42 situated along the A307 which is surrounded by canyon-like features, close to Richmond train station. Concentrations have declined at both sites in all consecutive years between 2017 and 2022.

- 5.7 Annual mean NO₂ concentrations have exceeded 60 µg/m³ between 2017 and 2019 at site 42, suggesting exceedances of the 1-hour mean NO₂ objective were possible.
- 5.8 No monitoring of PM₁₀ or PM_{2.5} concentrations is undertaken within approximately 3 km of the Proposed Development.

Exceedances of Limit Value

- 5.9 There are several AURN monitoring sites within the Greater London Urban Area that have measured exceedances of the annual mean NO₂ limit value (Defra, 2023d). Furthermore, Defra's roadside annual mean NO₂ concentrations (Defra, 2024c), which are used to identify and report exceedances of the limit value, identify exceedances of this limit value in 2019 along many roads in London, including the A316 adjacent to the Proposed Development. The Greater London Urban Area has thus been reported as exceeding the limit value for annual mean NO₂ concentrations. Defra's predicted concentrations for 2025 (Defra, 2020) do not identify any exceedances within 1 km of the application site. As such, there is considered to be no risk of a limit value exceedance in the vicinity of the proposed development by the time that it is operational.
- 5.10 Defra's Air Quality Plan requires the GLA to prepare an action plan that will "*deliver compliance in the shortest time possible*", and the 2015 Plan assumed that a CAZ was required. The GLA has already implemented an LEZ and a ULEZ, thus the authority has effectively already implemented the required CAZ. These have been implemented as part of a package of measures including 12 Low Emission Bus Zones, Low Emission Neighbourhoods, the phasing out of diesel buses and taxis and other measures within the Mayor's Transport Strategy.

Background Concentrations

- 5.11 Estimated background concentrations within the vicinity of the Proposed Development are set out in Table 3 and are all well below the objectives. Concentrations of PM_{2.5} are above the GLA target, although this is common throughout Greater London.

Table 3: Estimated Annual Mean Background Pollutant Concentrations in 2022 and 2025 ($\mu\text{g}/\text{m}^3$)

Year	NO ₂	PM ₁₀	PM _{2.5}
2022	18.4	17.0	11.5
2025	16.6	16.4	11.1
Objective / GLA target	40	40	20/10 ^a

^a The 20 $\mu\text{g}/\text{m}^3$ PM_{2.5} objective, which was to be met by 2020, is not in Regulations and there is no requirement for local authorities to meet it. 10 $\mu\text{g}/\text{m}^3$ is the GLA target for annual mean PM_{2.5}; again, there is no requirement for local authorities to meet this.

6 Construction Phase Impact Assessment

Construction Traffic

- 6.1 It is anticipated that no more than 20 heavy vehicles will access the site on any given day, therefore the additional heavy vehicle movements on local roads will be well below the 25 AADT screening criterion recommended by EPUK/IAQM guidance (Moorcroft and Barrowcliffe et al, 2017). It is, therefore, not considered necessary to assess the impacts of traffic emissions during the construction phase and it can be concluded that the Proposed Development will not have a significant impact on local roadside air quality as a result of construction traffic emissions.

On-Site Exhaust Emissions

- 6.2 The IAQM guidance (IAQM, 2024) states:

“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. For site plant and on-site traffic, consideration should be given to the number of plant/vehicles and their operating hours and locations to assess whether a significant effect is likely to occur”.

- 6.3 The Proposed Development is relatively small, therefore the number of NRMM able to operate at any one time will be limited. In line with the LBRuT Construction Code of Practice and the GLA's Control of Dust and Emissions During Construction and Demolition SPG, and as described in Appendix A6, NRMM are expected to comply with emissions standards. Additionally, there will be no idling when vehicles are not in use, and machinery will be located away from sensitive receptors as far as possible. It is judged that there no risk of significant effects at existing receptors as a result of on-site machinery emissions.

Construction Dust and Particulate Matter Emissions

- 6.4 The construction works will give rise to a risk of dust impacts during demolition, earthworks and construction, as well as from trackout of dust and dirt by vehicles onto the public highway. Step 1 of the assessment procedure is to screen the need for a detailed assessment. There are receptors within the distances set out in the guidance (see Appendix A2), thus a detailed assessment is required. The following section sets out Step 2 of the assessment procedure.

Potential Dust Emission Magnitude

Demolition

- 6.5 There will be a requirement to demolish the upper floors and entrance bay of the existing brick/stone and metal-clad building. The total volume is currently unknown, although the approximate total volume is not anticipated to exceed 12,000 m³. The method of demolition has not yet been decided.

Should a mobile crusher be used on site before removal of the material a valid Environmental Permitting Regulations permit may be required. Based on the example definitions set out in Table A2.1 in Appendix A2, the dust emission class for demolition is considered to be *small*.

Earthworks

- 6.6 The proposals involve a new small side extension and landscaping, totalling less than 1,000 m². There is anticipated to be little excavation, moving of soil and breaking-up of up foundations and paved area.
- 6.7 The characteristics of the soil at the site have been defined using the British Geological Survey's UK Soil Observatory website (British Geological Survey, 2024), as set out in Table 4. Overall, it is considered that, when dry, this soil has the potential to be moderately dusty.

Table 4: Summary of Soil Characteristics

Category	Record
Soil Layer Thickness	Deep
Soil Parent Material Grain Size	Mixed (Arenaceous ^a – Rudaceous ^b)
European Soil Bureau Description	River Terrace Sand/Gravel
Soil Group	Light (Sandy) to Medium (Sandy)
Soil Texture	Sand to Sandy Loam ^c

^a grain size 0.06 – 2.0 mm.

^b grain size > 2.0 mm.

^c a loam is composed mostly of sand and silt.

- 6.8 Based on the example definitions set out in Table A2.1 in Appendix A2, the dust emission class for earthworks is considered to be *small*.

Construction

- 6.9 The Proposed Development involves the roof extension of the existing brick/stone and metal-clad building, and brick-built side extension. The total building volume is currently not known, although it is not anticipated to exceed 12,000m³. The construction will take place over a 12 to 18-month period. Based on the example definitions set out in Table A2.1 in Appendix A2, the dust emission class for construction is considered to be *small*.

Trackout

- 6.10 There is anticipated to be a maximum of 20 outward heavy vehicle movements per day, which may track out dust and dirt. There is likely to be little to no unpaved surface over which vehicles would travel. Based on the example definitions set out in Table A2.1 in Appendix A2, the dust emission class for trackout is considered to be *small*.

6.11 Table 5 summarises the dust emission magnitude for the Proposed Development.

Table 5: Summary of Dust Emission Magnitude

Source	Dust Emission Magnitude
Demolition	Small
Earthworks	Small
Construction	Small
Trackout	Small

Sensitivity of the Area

- 6.12 This assessment step combines the sensitivity of individual receptors to dust effects with the number of receptors in the area and their proximity to the site. It also considers additional site-specific factors such as topography and screening, and in the case of sensitivity to human health effects, baseline PM₁₀ concentrations.
- 6.13 The IAQM guidance, upon which the GLA's guidance is based, explains that residential properties are 'high' sensitivity receptors to dust soiling, while places of work are 'medium' sensitivity receptors (Table A2.2 in Appendix A2). Residential properties are also classified as being of 'high' sensitivity to human health effects, while places of work are classified as being of 'medium' sensitivity. There are approximately 28 residential properties within 20 m of the site (see Figure 3).



Figure 3: 20 m Distance Band around the Site Boundary

Imagery ©2024 Bluesky, Getmapping plc, Infoterra Lid & Bluesky, Maxar Technologies, The Geoinformation Group, Map data ©2024.

- 6.14 The IAQM guidance (IAQM, 2024) explains that there is a risk of material being tracked 250 m from the site exit. Since it is not known which roads construction vehicles will use, it has been assumed that all possible routes could be affected. There are approximately 135 residential properties within 20 m of the roads along which material could be tracked (see Figure 4).



Figure 4: 20 m Distance Band around Potential Roads Used by Construction Traffic Within 250 m of the Site Exit

Imagery ©2024 Bluesky, Getmapping plc, Infoterra Lid & Bluesky, Maxar Technologies, The Geoinformation Group, Map data ©2024.

Sensitivity of the Area to Effects from Dust Soiling

- 6.15 Using the information set out in Paragraph 6.13 and Figure 3 alongside the matrix set out in Table A2.3 in Appendix A2, the area surrounding the onsite works is of 'high' sensitivity to dust soiling. Using the information set out in Paragraph 6.14 and Figure 4 alongside the same matrix, the area is also of 'high' sensitivity to dust soiling due to trackout.

Sensitivity of the Area to any Human Health Effects

- 6.16 The matrix in Table A2.4 in Appendix A2 requires information on the baseline annual mean PM₁₀ concentration in the area. It is considered that the modelled 2025 LAEI concentrations (GLA, 2023b) will best represent conditions at the residential properties close to the site that could be affected by dust emissions, the maximum concentration being 30.5 µg/m³. Using the information set out in Paragraphs 6.13 and Figure 3 alongside the matrix in Table A2.4 in Appendix A2, the area surrounding the onsite works is of 'high' sensitivity to human health effects. Using the information set out in Paragraph 6.14 and Figure 4 alongside the same matrix, the area surrounding roads along which material may be tracked from the site is also of 'high' sensitivity.

Sensitivity of the Area to any Ecological Effects

- 6.17 The guidance only considers designated ecological sites within 50 m to have the potential to be impacted by the construction works. There are no designated ecological sites within 50 m of the site boundary or those roads along which material may be tracked, thus ecological impacts will not be considered further.

Summary of the Area Sensitivity

- 6.18 Table 6 summarises the sensitivity of the area around the proposed construction works.

Table 6: Summary of the Area Sensitivity

Effects Associated With:	Sensitivity of the Surrounding Area	
	On-site Works	Trackout
Dust Soiling	High Sensitivity	High Sensitivity
Human Health	High Sensitivity	High Sensitivity

Risk and Significance

- 6.19 The dust emission magnitudes in Table 5 have been combined with the sensitivities of the area in Table 6 using the matrix in Table A2.6 in Appendix A2, in order to assign a risk category to each activity. The resulting risk categories for the four construction activities, without mitigation, are set out in Table 7. These risk categories have been used to determine the appropriate level of mitigation as set out in Section 9 (step 3 of the assessment procedure).

Table 7: Summary of Risk of Impacts Without Mitigation

Source	Dust Soiling	Human Health
Demolition	Medium Risk	Medium Risk
Earthworks	Low Risk	Low Risk
Construction	Low Risk	Low Risk
Trackout	Low Risk	Low Risk

- 6.20 The IAQM 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, the IAQM guidance is clear that the residual effect will normally be 'not significant' (IAQM, 2024).

7 Operational Phase Impact Assessment

Impacts at Existing Receptors

- 7.1 The Proposed Development is to involve the reduction in the capacity of the existing car-park from 29 to 25 spaces. Consequently, the project transport consultant advises that there will be a reduction in daily vehicle trips associated with the Proposed Development. As such, it can be concluded that the Proposed Development will not have a significant impact on local roadside air quality; rather a slight beneficial impact on existing conditions is likely.

Significance of Operational Air Quality Effects

- 7.2 The operational air quality effects without mitigation are judged to be 'not significant'. This professional judgement is made in accordance with the methodology set out in Appendix A3 and takes account of the assessment that:
- that there will be a reduction in development-generated traffic; and
 - the Proposed Development will generate heat and hot water via ASHPs and solar PV.

8 'Air Quality Neutral'

- 8.1 The purpose of the London Plan's requirement that development proposals be 'air quality neutral' is to prevent the gradual deterioration of air quality throughout Greater London. The 'air quality neutrality' of a proposed development, as assessed in this section, does not directly indicate the potential of the Proposed Development to have significant impacts on human health (this has been assessed separately in the previous section). The air quality neutral assessment has been undertaken using the latest GLA's London Plan Guidance (Air Quality Neutral) (GLA, 2023a).

Building Emissions

- 8.2 The Proposed Development will have an all-electric energy strategy so does not include any combustion plant for the routine provision of electricity, heating or hot water and will therefore have no direct building emissions. The Proposed Development is, therefore, better than air quality neutral in terms of building emissions.

Road Transport Emissions

- 8.3 The Proposed Development involves the reduction in the number of on-site car-parking spaces. The project transport consultants have advised that this will lead to a reduction in development-generated vehicle trips. The GLA's Air Quality Neutral guidance is clear that the assessment of road transport emissions within an assessment of air quality neutrality is not required for developments which do not include additional emissions sources:
- 8.4 *"Developments, including major developments, that do not include additional emissions sources are assumed to be Air Quality Neutral and to meet the Air Quality Neutral benchmarks. As such, there is no need to do an AQN Assessment. This would include, for example, developments that have no additional motor vehicle parking, do not lead to an increase in motor vehicle movements, and do not include new combustion plant such as gas-fired boilers."*
- 8.5 The Proposed Development is therefore air quality neutral in terms of transport emissions.

Summary

- 8.6 As the traffic generation from the Proposed Development is anticipated to decrease with a reduction in the available on-site car-parking provision, and that the Proposed Development has an all-electric energy strategy, it therefore complies with the requirement that all new developments in London should be at least air quality neutral.

9 Mitigation

Good Design and Best Practice

- 9.1 The EPUK/IAQM guidance advises that good design and best practice measures should be considered, whether or not more specific mitigation is required.
- 9.2 The EPUK/IAQM guidance predates the recent publication by Defra of long-term air quality targets for PM_{2.5}. While it is not appropriate to determine individual planning applications based on whether future PM_{2.5} concentrations in an area will be above or below the concentration target, it is nevertheless appropriate that new development contributes to meeting the national targets by ensuring that air quality is taken into account in development design.
- 9.3 The Proposed Development incorporates the following good design and best practice measures, taking into account the LBRuT Air Quality SPD, which have been accounted for in the assessment as far as is possible:
- provision of four fewer car parking spaces than the existing provision, thereby limiting the use of private vehicles to access the Proposed Development;
 - provision of active electric vehicle charging facilities for all new and existing parking spaces, exceeding the requirements of Policy T6.1 of the London Plan and the LBRuT Sustainable Construction Checklist;
 - provision of a detailed travel plan and Delivery and Servicing Plan (DSP) setting out measures to encourage sustainable means of transport (public, cycling and walking) and combined or reduced deliveries;
 - provision of pedestrian and cycle access to the new development, including cycle parking in line with London Plan requirements (61 long stay and ten short stay cycle spaces);
 - provision of showers and changing facilities in close proximity to the cycle parking to encourage biking and other sustainable modes of travel to and from the Proposed Development;
 - provision of mechanical ventilation via high efficiency central air handling units (AHUs) incorporating heat recovery and filtration, with air extracted from roof level to provide the cleanest possible air to building occupants;
 - use of ASHPs and PVs to avoid the need for on-site combustion for the provision of energy and heating; and
 - use of green infrastructure, which offer some benefit to local air quality (GLA, 2019b).

Recommended Mitigation

Construction Impacts

- 9.4 Measures to mitigate dust emissions will be required during the construction phase of the development in order to minimise effects upon nearby sensitive receptors.
- 9.5 The site has been identified as a *Medium Risk* site during demolition and *Low Risk* during earthworks, construction and for trackout, as set out in Table 7. The GLA's SPG on *The Control of Dust and Emissions During Construction and Demolition* (GLA, 2014b), on which the LBRuT Construction Code of Practice is based, describes measures that should be employed, as appropriate, to reduce the impacts, along with guidance on what monitoring should be undertaken during the construction phase. This includes development of Dust Management Plan (DMP) prior to construction, within which a Construction Logistics Plan (CLP) is to be detailed, outlining the steps that will be taken to minimise the impact of deliveries and waste transport. This reflects best practice experience and has been used, together with the professional experience of the consultant who has undertaken the dust impact assessment and the findings of the assessment, to draw up a set of measures that should be incorporated into the specification for the works. These measures are described in Appendix A6.
- 9.6 The GLA's guidance suggests that, for a Medium Risk site, automatic monitoring of particulate matter (as PM₁₀) will be required. It also states that, on certain sites, it may be appropriate to determine the existing (baseline) pollution levels before work begins. However, the guidance is clear that the Local Authority should advise as to the appropriate air quality monitoring procedure and timescale on a case-by-case basis.
- 9.7 Where mitigation measures rely on water, it is expected that only sufficient water will be applied to damp down the material. There should not be any excess to potentially contaminate local watercourses.

Road Traffic Impacts

- 9.8 The assessment has demonstrated that the overall air quality effect of the Proposed Development will be 'not significant'; it will not introduce any new exposure into areas of unacceptable air quality, nor will the development-generated traffic emissions have a significant impact on local air quality. It is, therefore, not considered appropriate to propose further mitigation measures for this development.
- 9.9 Measures to reduce pollutant emissions from road traffic are principally being delivered in the longer term by the introduction of more stringent emissions standards, largely via European legislation (which is written into UK law). The local air quality action plan that the GLA is required to produce in order to address limit value exceedances in its area will also help to improve air quality. LBRuT's Air Quality Action Plan will also be helping to deliver improved local air quality.

Air Quality Neutral

- 9.10 The assessment has demonstrated that the Proposed Development is air quality neutral and therefore mitigation of building or transport emissions is not required.

10 Residual Impacts

Construction

- 10.1 The IAQM guidance, on which the GLA's guidance is based, is clear that, with appropriate mitigation in place, the residual effects will normally be 'not significant'. The mitigation measures set out in Section 9 and Appendix A6 are based on the GLA guidance. With these measures in place and effectively implemented the residual effects are judged to be 'not significant'.
- 10.2 The IAQM guidance does, however, recognise that, even with a rigorous dust management plan in place, it is not possible to guarantee that the dust mitigation measures will be effective all of the time, for instance under adverse weather conditions. During these events, short-term dust annoyance may occur, however, the scale of this would not normally be considered sufficient to change the conclusion that overall the effects will be 'not significant'.

Operation

- 10.3 The residual impacts will be the same as those identified in Section 7. The overall effects of the Proposed Development will be 'not significant'.

11 Conclusions

- 11.1 The assessment has considered the impacts of the Proposed Development on local air quality in terms of dust and particulate matter emissions during construction, and emissions from road traffic generated by the completed and occupied development. It has also considered whether or not the Proposed Development is air quality neutral (as required by the London Plan).

Construction Impacts

- 11.2 The construction works have the potential to create dust. During construction it will therefore be necessary to apply a package of mitigation measures to minimise dust emissions. Appropriate measures have been recommended and, with these measures in place, it is expected that any residual effects will be 'not significant'.

Operational Impacts

- 11.3 The Proposed Development does not include any on-site combustion for the routine provision of energy and there is anticipated to be a reduction in traffic flows generated by the Proposed Development on the local road network owing to a reduction in car-parking provision. Therefore, the Proposed Development will have a negligible effect on local air quality.
- 11.4 A number of best practice measures have also been included within the design of the Proposed Development to reduce its impact on air quality.
- 11.5 The overall air quality effects of the completed and operational Proposed Development are therefore judged to be 'not significant'.

Air Quality Neutral

- 11.6 As the development does not include any on-site combustion plant for the routine provision of energy, and there will be a reduction in development-generated traffic, the Proposed Development therefore complies with the requirement that all new developments in London should be at least air quality neutral.

Policy Implications

- 11.7 Taking into account these conclusions, it is judged that the Proposed Development is consistent with Paragraph 191 of the NPPF, being appropriate for its location in terms of its effects on the local air quality environment. It is also consistent with Paragraph 192, as it will not affect compliance with relevant limit values or national objectives.

11.8 The Proposed Development is also consistent with Policy LP 10 of the LBRuT Local Plan and LBRuT's Air Quality SPD, as it minimises and even reduces its impact on local air quality and is an 'Emissions Neutral' development.

11.9 The Proposed Development is compliant with Policy SI 1 of the London Plan in the following ways:

- it will not lead to further deterioration of existing poor air quality;
- it will not cause or extend and exceedances of legal air quality limits;
- it will not create new exposure to poor air quality; and
- it is air quality neutral.

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13 Glossary

AADT	Annual Average Daily Traffic
AQC	Air Quality Consultants
AQMA	Air Quality Management Area
AURN	Automatic Urban and Rural Network
BEB	Building Emissions Benchmark
CAZ	Clean Air Zone
CLP	Construction Logistics Plan
Defra	Department for Environment, Food and Rural Affairs
DfT	Department for Transport
DMP	Dust Management Plan
DSP	Delivery and Servicing Plan
EPUK	Environmental Protection UK
EU	European Union
EV	Electric Vehicle
Exceedance	A period of time when the concentration of a pollutant is greater than the appropriate air quality objective. This applies to specified locations with relevant exposure
Focus Area	Location that not only exceeds the annual mean limit value for NO ₂ but also has a high level of human exposure
GIA	Gross Internal Floor Area
GLA	Greater London Authority
HDV	Heavy Duty Vehicles (> 3.5 tonnes)
HGV	Heavy Goods Vehicle
HMSO	Her Majesty's Stationery Office
IAQM	Institute of Air Quality Management
JAQU	Joint Air Quality Unit
LAEI	London Atmospheric Emissions Inventory
LAQM	Local Air Quality Management
LB	London Borough

LBRuT	London Borough of Richmond Upon Thames
LDV	Light Duty Vehicles (<3.5 tonnes)
LEZ	Low Emission Zone
LGV	Light Goods Vehicle
µg/m³	Microgrammes per cubic metre
NO	Nitric oxide
NO₂	Nitrogen dioxide
NO_x	Nitrogen oxides (taken to be NO ₂ + NO)
NPPF	National Planning Policy Framework
NRMM	Non-road Mobile Machinery
OEP	Office for Environmental Protection
Objectives	A nationally defined set of health-based concentrations for nine pollutants, seven of which are incorporated in Regulations, setting out the extent to which the standards should be achieved by a defined date. There are also vegetation-based objectives for sulphur dioxide and nitrogen oxides
OLEV	Office for Low Emission Vehicles
PM₁₀	Small airborne particles, more specifically particulate matter less than 10 micrometres in aerodynamic diameter
PM_{2.5}	Small airborne particles less than 2.5 micrometres in aerodynamic diameter
PPG	Planning Practice Guidance
SPG	Supplementary Planning Guidance
SPD	Supplementary Planning Document
Standards	A nationally defined set of concentrations for nine pollutants below which health effects do not occur or are minimal
TEA	Triethanolamine – used to absorb nitrogen dioxide
TEB	Transport Emissions Benchmark
TfL	Transport for London
ULEZ	Ultra Low Emission Zone
WHO	World Health Organisation
ZEC	Zero Emission Capable

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A1 London-Specific Policies and Measures

London Plan

Development Plans

- A1.1 Policy SI 1 of the London Plan (GLA, 2021) states the following regarding strategic development plans:

“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.”

Electric Vehicle Charging

- A1.2 To support the uptake of zero tailpipe emission vehicles, Policy T6.1 of the London Plan states:

“All residential car parking spaces must provide infrastructure for electric or Ultra-Low Emission vehicles. At least 20 per cent of spaces should have active charging facilities, with passive provision for all remaining spaces”.

London Environment Strategy

- A1.3 The air quality chapter of the London Environment Strategy sets out three main objectives, each of which is supported by sub-policies and proposals. The Objectives and their sub-policies are set out below:

“Objective 4.1: Support and empower London and its communities, particularly the most disadvantaged and those in priority locations, to reduce their exposure to poor air quality.

- Policy 4.1.1 Make sure that London and its communities, particularly the most disadvantaged and those in priority locations, are empowered to reduce their exposure to poor air quality*
- Policy 4.1.2 Improve the understanding of air quality health impacts to better target policies and action*

Objective 4.2: Achieve legal compliance with UK and EU limits as soon as possible, including by mobilising action from London Boroughs, government and other partners

- Policy 4.2.1 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*
- Policy 4.2.2 Reduce emissions from non-road transport sources, including by phasing out fossil fuels*

- *Policy 4.2.3 Reduce emissions from non-transport sources, including by phasing out fossil fuels*
- *Policy 4.2.4 The Mayor will work with the government, the London boroughs and other partners to accelerate the achievement of legal limits in Greater London and improve air quality*
- *Policy 4.2.5 The Mayor will work with other cities (here and internationally), global city and industry networks to share best practice, lead action and support evidence based steps to improve air quality*

Objective 4.3: Establish and achieve new, tighter air quality targets for a cleaner London by transitioning to a zero emission London by 2050, meeting world health organization health-based guidelines for air quality

- *Policy 4.3.1 The Mayor will establish new targets for PM_{2.5} and other pollutants where needed. The Mayor will seek to meet these targets as soon as possible, working with government and other partners*
- *Policy 4.3.2 The Mayor will encourage the take up of ultra low and zero emission technologies to make sure London's entire transport system is zero emission by 2050 to further reduce levels of pollution and achieve WHO air quality guidelines*
- *Policy 4.3.3 Phase out the use of fossil fuels to heat, cool and maintain London's buildings, homes and urban spaces, and reduce the impact of building emissions on air quality*
- *Policy 4.3.4 Work to reduce exposure to indoor air pollutants in the home, schools, workplace and other enclosed spaces"*

A1.4 While the policies targeting transport sources are significant, there are less obvious ones that will also require significant change. In particular, the aim to phase out fossil-fuels from building heating and cooling and from NRMM will demand a dramatic transition.

Low Emission Zone (LEZ)

A1.5 The LEZ was implemented as a key measure to improve air quality in Greater London. It entails charges for vehicles entering Greater London not meeting certain emissions criteria, and affects diesel-engined lorries, buses, coaches, large vans, minibuses and other specialist vehicles derived from lorries and vans. Since 1 March 2021, a standard of Euro VI has applied for HGVs, buses and coaches, while a standard of Euro 3 has applied for large vans, minibuses and other specialist diesel vehicles since 2012.

Ultra Low Emission Zone (ULEZ)

A1.6 London's Ultra-Low Emission Zone (ULEZ), originally covering the congestion charge zone, came into force in April 2019, and was expanded outward to the North and South Circular Roads in October 2021. The ULEZ was expanded again to cover all London Boroughs (excluding the M25) at the end of August 2023. The ULEZ currently operates 24 hours a day, 7 days a week. All cars, motorcycles, vans and minibuses are required to meet exhaust emission standards (ULEZ standards) or pay an additional daily charge to travel within the zone. The ULEZ standards are Euro 3 for motorcycles, Euro 4 for petrol cars, vans and minibuses and Euro 6 for diesel cars, vans and minibuses. The ULEZ does not include any requirements relating to heavy vehicle (HGV, coach and bus) emissions, as these are addressed by the amendments to the LEZ described in Paragraph A1.5.

Other Measures

A1.7 Since 2018, all taxis presented for licencing for the first time had to be zero emission capable (ZEC). This means they must be able to travel a certain distance in a mode which produces no air pollutants, and all private hire vehicles (PHVs) presented for licensing for the first time had to meet Euro 6 emissions standards. Since January 2020, all newly manufactured PHVs presented for licensing for the first time had to be ZEC (with a minimum zero emission range of 10 miles). The Mayor's aim is that the entire taxi and PHV fleet will be made up of ZEC vehicles by 2033.

A1.8 The Mayor has also proposed to make sure that TfL leads by example by cleaning up its bus fleet, implementing the following measures:

- TfL will procure only hybrid or zero emission double-decker buses from 2018;
- a commitment to providing 3,100 double decker hybrid buses by 2019 and 300 zero emission single-deck buses in central London by 2020;
- introducing 12 Low Emission Bus Zones by 2020;
- investing £50m in Bus Priority Schemes across London to reduce engine idling; and
- retrofitting older buses to reduce emissions (selective catalytic reduction (SCR) technology has already been fitted to 1,800 buses, cutting their NOx emissions by around 88%).

A2 Construction Dust Assessment Procedure

A2.1 The criteria developed by IAQM (2024), upon which the GLA's guidance is based, divide the activities on construction sites into four types to reflect their different potential impacts. These are:

- demolition;
- earthworks;
- construction; and
- trackout.

A2.2 The assessment procedure includes the four steps summarised below:

STEP 1: Screen the Need for a Detailed Assessment

A2.3 An assessment is required where there is a human receptor within 250 m of the boundary of the site and/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), or where there is an ecological receptor within 50 m of the boundary of the site and/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).

A2.4 Where the need for a more detailed assessment is screened out, it can be concluded that the level of risk is *negligible* and that any effects will be 'not significant'. No mitigation measures beyond those required by legislation will be required.

STEP 2: Assess the Risk of Dust Impacts

A2.5 A site is allocated to a risk category based on two factors:

- the scale and nature of the works, which determines the potential dust emission magnitude (Step 2A); and
- the sensitivity of the area to dust effects (Step 2B).

A2.6 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

A2.7 Dust emission magnitude is defined as either 'Small', 'Medium', or 'Large'. The IAQM guidance explains that this classification should be based on professional judgement, but provides the examples in Table A2.1.

Table A2.1: Examples of How the Dust Emission Magnitude Class May be Defined

Class	Examples
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 to due 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 3 m – 6 m in height.
Small	Total site area <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 <12,000 m ³ , construction material with low potential for dust release (e.g. metal cladding or timber)
Trackout ^a	
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
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 HDV (>3.5t) outward movements in any one day, surface material with low potential for dust release, unpaved road length <50 m

^a These numbers are for vehicles that leave the site after moving over unpaved ground.

Step 2B – Define the Sensitivity of the Area

A2.8 The sensitivity of the area is defined taking account of a number of factors:

- the specific sensitivities of receptors in the area;
- the proximity and number of those receptors;
- in the case of PM₁₀, the local background concentration; and
- site-specific factors, such as whether there are natural shelters to reduce the risk of wind-blown dust.

A2.9 The first requirement is to determine the specific sensitivities of local receptors. The IAQM guidance recommends that this should be based on professional judgment, taking account of the principles in

Table A2.2. These receptor sensitivities are then used in the matrices set out in Table A2.3, Table A2.4 and Table A2.5 to determine the sensitivity of the area. Finally, the sensitivity of the area is considered in relation to any other site-specific factors, such as the presence of natural shelters etc., and any required adjustments to the defined sensitivities are made.

Step 2C – Define the Risk of Impacts

A2.10 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 guidance provides the matrix in Table A2.6 as a method of assigning the level of risk for each activity.

STEP 3: Determine Site-specific Mitigation Requirements

A2.11 The IAQM guidance provides a suite of recommended and desirable mitigation measures which are organised according to whether the outcome of Step 2 indicates a low, medium, or high risk. The list provided in the IAQM guidance has been used as the basis for the requirements set out in Appendix A6.

STEP 4: Determine Significant Effects

A2.12 The IAQM 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, the IAQM guidance is clear that the residual effect will normally be 'not significant'.

A2.13 The IAQM guidance recognises that, even with a rigorous dust management plan in place, it is not possible to guarantee that the dust mitigation measures will be effective all of the time, for instance under adverse weather conditions. The local community may therefore experience occasional, short-term dust annoyance. The scale of this would not normally be considered sufficient to change the conclusion that the effects will be 'not significant'.

Table A2.2: Principles to be Used When Defining Receptor Sensitivities

Class	Principles	Examples
Sensitivities of People to Dust Soiling Effects		
High	users can reasonably expect enjoyment of a high level of amenity; or the appearance, aesthetics or value of their property would be diminished by soiling; and the people or property would reasonably be expected to be present continuously, or at least regularly for extended periods, as part of the normal pattern of use of the land	dwellings, museum and other culturally important collections, medium and long term car parks and car showrooms
Medium	users would expect to enjoy a reasonable level of amenity, but would not reasonably expect to enjoy the same level of amenity as in their home; or the appearance, aesthetics or value of their property could be diminished by soiling; or the people or property wouldn't reasonably be expected to be present here continuously or regularly for extended periods as part of the normal pattern of use of the land	parks and places of work
Low	the enjoyment of amenity would not reasonably be expected; or there is property that would not reasonably be expected to be diminished in appearance, aesthetics or value by soiling; or there is transient exposure, where the people or property would reasonably be expected to be present only for limited periods of time as part of the normal pattern of use of the land	playing fields, farmland (unless commercially-sensitive horticultural), footpaths, short term car parks and roads
Sensitivities of People to the Health Effects of PM₁₀		
High	locations where members of the public may be exposed for eight hours or more in a day	residential properties, hospitals, schools and residential care homes
Medium	locations where the people exposed are workers, and where individuals may be exposed for eight hours or more in a day.	may include office and shop workers, but will generally not include workers occupationally exposed to PM ₁₀
Low	locations where human exposure is transient	public footpaths, playing fields, parks and shopping streets
Sensitivities of Receptors to Ecological Effects		
High	locations with an international or national designation and the designated features may be affected by dust soiling; or locations where there is a community of a particularly dust sensitive species	Special Areas of Conservation with dust sensitive features
Medium	locations where there is a particularly important plant species, where its dust sensitivity is uncertain or unknown; or locations with a national designation where the features may be affected by dust deposition	Sites of Special Scientific Interest with dust sensitive features
Low	locations with a local designation where the features may be affected by dust deposition	Local Nature Reserves with dust sensitive features

Table A2.3: Sensitivity of the Area to Dust Soiling Effects on People and Property ⁶

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 A2.4: Sensitivity of the Area to Human Health Effects ⁶

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

⁶ For demolition, earthworks and construction, distances are taken either from the dust source or from the boundary of the site. For trackout, distances are measured from the sides of roads used by construction traffic. Without mitigation, trackout may occur from roads up to 250 m, as measured from the site exit. The impact declines with distance from the site, and it is only necessary to consider trackout impacts up to 50 m from the edge of the road.

Table A2.5: Sensitivity of the Area to Ecological Effects ⁶

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

Table A2.6: Defining the Risk of Dust Impacts ⁶

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

A3 EPUK & IAQM Planning for Air Quality Guidance

A3.1 The guidance issued by EPUK and IAQM (Moorcroft and Barrowcliffe et al, 2017) is comprehensive in its explanation of the place of air quality in the planning regime. Key sections of the guidance not already mentioned above are set out below.

Air Quality as a Material Consideration

“Any air quality issue that relates to land use and its development is capable of being a material planning consideration. The weight, however, given to air quality in making a planning application decision, in addition to the policies in the local plan, will depend on such factors as:

- *the severity of the impacts on air quality;*
- *the air quality in the area surrounding the proposed development;*
- *the likely use of the development, i.e. the length of time people are likely to be exposed at that location; and*
- *the positive benefits provided through other material considerations”.*

Recommended Best Practice

A3.2 The guidance goes into detail on how all development proposals can and should adopt good design principles that reduce emissions and contribute to better air quality management. It states:

“The basic concept is that good practice to reduce emissions and exposure is incorporated into all developments at the outset, at a scale commensurate with the emissions”.

A3.3 The guidance sets out a number of good practice principles that should be applied to all developments that:

- include 10 or more dwellings;
- where the number of dwellings is not known, residential development is carried out on a site of more than 0.5 ha;
- provide more than 1,000 m² of commercial floorspace;
- are carried out on land of 1 ha or more.

A3.4 The good practice principles are that:

- New developments should not contravene the Council’s Air Quality Action Plan, or render any of the measures unworkable;
- Wherever possible, new developments should not create a new “street canyon”, as this inhibits pollution dispersion;

- Delivering sustainable development should be the key theme of any application;
- New development should be designed to minimise public exposure to pollution sources, e.g. by locating habitable rooms away from busy roads;
- The provision of at least 1 Electric Vehicle (EV) “rapid charge” point per 10 residential dwellings and/or 1000 m² of commercial floorspace. Where on-site parking is provided for residential dwellings, EV charging points for each parking space should be made available;
- Where development generates significant additional traffic, provision of a detailed travel plan (with provision to measure its implementation and effect) which sets out measures to encourage sustainable means of transport (public, cycling and walking) via subsidised or free-ticketing, improved links to bus stops, improved infrastructure and layouts to improve accessibility and safety;
- All gas-fired boilers to meet a minimum standard of <40 mgNO_x/kWh;
- Where emissions are likely to impact on an AQMA, all gas-fired CHP plant to meet a minimum emissions standard of:
 - Spark ignition engine: 250 mgNO_x/Nm³;
 - Compression ignition engine: 400 mgNO_x/Nm³;
 - Gas turbine: 50 mgNO_x/Nm³.
- A presumption should be to use natural gas-fired installations. Where biomass is proposed within an urban area it is to meet minimum emissions standards of 275 mgNO_x/Nm³ and 25 mgPM/Nm³.

A3.5 The guidance also outlines that offsetting emissions might be used as a mitigation measure for a proposed development. However, it states that:

“It is important that obligations to include offsetting are proportional to the nature and scale of development proposed and the level of concern about air quality; such offsetting can be based on a quantification of the emissions associated with the development. These emissions can be assigned a value, based on the “damage cost approach” used by Defra, and then applied as an indicator of the level of offsetting required, or as a financial obligation on the developer. Unless some form of benchmarking is applied, it is impractical to include building emissions in this approach, but if the boiler and CHP emissions are consistent with the standards as described above then this is not essential”.

A3.6 The guidance offers a widely used approach for quantifying costs associated with pollutant emissions from transport. It also outlines the following typical measures that may be considered to offset emissions, stating that measures to offset emissions may also be applied as post assessment mitigation:

- Support and promotion of car clubs;
- Contributions to low emission vehicle refuelling infrastructure;
- Provision of incentives for the uptake of low emission vehicles;
- Financial support to low emission public transport options; and
- Improvements to cycling and walking infrastructures.

Screening

Impacts of the Local Area on the Development

“There may be a requirement to carry out an air quality assessment for the impacts of the local area’s emissions on the proposed development itself, to assess the exposure that residents or users might experience. This will need to be a matter of judgement and should take into account:

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

Impacts of the Development on the Local Area

A3.7 The guidance sets out two stages of screening criteria that can be used to identify whether a detailed air quality assessment is required, in terms of the impact of the development on the local area. The first stage is that you should proceed to the second stage if any of the following apply:

- 10 or more residential units or a site area of more than 0.5 ha residential use; and/or
- more than 1,000 m² of floor space for all other uses or a site area greater than 1 ha.

A3.8 Coupled with any of the following:

- the development has more than 10 parking spaces; and/or
- the development will have a centralised energy facility or other centralised combustion process.

A3.9 If the above do not apply then the development can be screened out as not requiring a detailed air quality assessment of the impact of the development on the local area. If they do apply then you proceed to stage 2, which sets out indicative criteria for requiring an air quality assessment. The stage 2 criteria relating to vehicle emissions are set out below:

- the development will lead to a change in LDV flows of more than 100 AADT within or adjacent to an AQMA or more than 500 AADT elsewhere;
- the development will lead to a change in HDV flows of more than 25 AADT within or adjacent to an AQMA or more than 100 AADT elsewhere;
- the development will lead to a realigning of roads (i.e. changing the proximity of receptors to traffic lanes) where the change is 5m or more and the road is within an AQMA;
- the development will introduce a new junction or remove an existing junction near to relevant receptors, and the junction will cause traffic to significantly change vehicle acceleration/deceleration, e.g. traffic lights or roundabouts;
- the development will introduce or change a bus station where bus flows will change by more than 25 AADT within or adjacent to an AQMA or more than 100 AADT elsewhere; and
- the development will have an underground car park with more than 100 movements per day (total in and out) with an extraction system that exhausts within 20 m of a relevant receptor.

A3.10 The criteria are more stringent where the traffic impacts may arise on roads where concentrations are close to the objective. The presence of an AQMA is taken to indicate the possibility of being close to the objective, but where whole authority AQMAs are present and it is known that the affected roads have concentrations below 90% of the objective, the less stringent criteria are likely to be more appropriate.

A3.11 On combustion processes (including standby emergency generators and shipping) where there is a risk of impacts at relevant receptors, the guidance states that:

“Typically, any combustion plant where the single or combined NO_x emission rate is less than 5 mg/sec is unlikely to give rise to impacts, provided that the emissions are released from a vent or stack in a location and at a height that provides adequate dispersion. As a guide, the 5 mg/s criterion equates to a 450 kW ultra-low NO_x gas boiler or a 30kW CHP unit operating at <95mg/Nm³.

In situations where the emissions are released close to buildings with relevant receptors, or where the dispersion of the plume may be adversely affected by the size and/or height of adjacent buildings (including situations where the stack height is lower than the receptor) then consideration will need to be given to potential impacts at much lower emission rates.

Conversely, where existing nitrogen dioxide concentrations are low, and where the dispersion conditions are favourable, a much higher emission rate may be acceptable”.

A3.12 Should none of the above apply then the development can be screened out as not requiring a detailed air quality assessment of the impact of the development on the local area, provided that professional judgement is applied; the guidance importantly states the following:

“The criteria provided are precautionary and should be treated as indicative. They are intended to function as a sensitive ‘trigger’ for initiating an assessment in cases where there is a possibility of significant effects arising on local air quality. This possibility will, self-evidently, not be realised in many cases. The criteria should not be applied rigidly; in some instances, it may be appropriate to amend them on the basis of professional judgement, bearing in mind that the objective is to identify situations where there is a possibility of a significant effect on local air quality”.

A3.13 Even if a development cannot be screened out, the guidance is clear that a detailed assessment is not necessarily required:

“The use of a Simple Assessment may be appropriate, where it will clearly suffice for the purposes of reaching a conclusion on the significance of effects on local air quality. The principle underlying this guidance is that any assessment should provide enough evidence that will lead to a sound conclusion on the presence, or otherwise, of a significant effect on local air quality. A Simple Assessment will be appropriate, if it can provide this evidence. Similarly, it may be possible to conduct a quantitative assessment that does not require the use of a dispersion model run on a computer”.

A3.14 The guidance also outlines what the content of the air quality assessment should include, and this has been adhered to in the production of this report.

Assessment of Significance

A3.15 There is no official guidance in the UK in relation to development control on how to describe the nature of air quality impacts, nor how to assess their significance. The approach within the EPUK/IAQM guidance has, therefore, been used in this assessment. This approach involves a two stage process:

- a qualitative or quantitative description of the impacts on local air quality arising from the development; and
- a judgement on the overall significance of the effects of any impacts.

A3.16 The guidance recommends that the assessment of significance should be based on professional judgement, with the overall air quality impact of the development described as either ‘significant’ or ‘not significant’. In drawing this conclusion, the following factors should be taken into account:

- the existing and future air quality in the absence of the development;
- the extent of current and future population exposure to the impacts;
- the influence and validity of any assumptions adopted when undertaking the prediction of impacts;
- the potential for cumulative impacts and, in such circumstances, several impacts that are described as '*slight*' individually could, taken together, be regarded as having a significant effect for the purposes of air quality management in an area, especially where it is proving difficult to reduce concentrations of a pollutant. Conversely, a '*moderate*' or '*substantial*' impact may not have a significant effect if it is confined to a very small area and where it is not obviously the cause of harm to human health; and
- the judgement on significance relates to the consequences of the impacts; will they have an effect on human health that could be considered as significant? In the majority of cases, the impacts from an individual development will be insufficiently large to result in measurable changes in health outcomes that could be regarded as significant by health care professionals.

A3.17 The guidance is clear that other factors may be relevant in individual cases. It also states that the effect on the residents of any new development where the air quality is such that an air quality objective is not met will be judged as significant. For people working at new developments in this situation, the same will not be true as occupational exposure standards are different, although any assessment may wish to draw attention to the undesirability of the exposure.

A3.18 A judgement of the significance should be made by a competent professional who is suitably qualified. A summary of the professional experience of the staff contributing to this assessment is provided in Appendix A4.

A4 Professional Experience

Jessica Muirhead BSc (Hons), MSc, PhD, CSci, MIEEnvSci, MIAQM

Dr Jessica Muirhead is an Associate Director with AQC with over 18 years experience in Air Quality consultancy. Prior to joining AQC in 2024, she spent eleven years at AECOM leading the Air Quality Team's Urban Regeneration and Solar Farm work streams. She has been responsible for delivering numerous air quality assessments for planning applications and Development Consent Orders (DCOs) including Environmental Impact Assessments (EIAs) across London and the UK. She spent a year as Technical Advisor to the Greater London Authority delivering training workshops to the London Boroughs, reviewing referrable planning applications and responding to queries on air quality positive and air quality neutral. Jess also has extensive experience providing technical peer reviews for a number of Planning Authorities in the UK, and for The Royal Commission for Al Ula in Saudi Arabia. In joining AQC, Jess will provide further expertise in major developments within Greater London as well as DCO renewable energy applications.

Jack Buckley, BSc (Hons) MSc MIEEnvSc MIAQM

Mr Buckley is a Principal Consultant with AQC. He has seven years' experience in the field of air quality, carrying out technical work for a range of projects, including road and rail infrastructure schemes, residential and mixed-use developments and industrial facilities. Jack has produced air quality, greenhouse gas and climate change assessments for numerous EIA schemes, using qualitative and quantitative methods, and has air quality monitoring experience. He also has a strong understanding of relevant local, regional and national policies, having been seconded to the Greater London Authority to undertake technical reviews of planning applications, and has assisted in the development of new Air Quality Neutral and Air Quality Positive guidance. Jack completed a BSc (Hons) in Chemistry and an MSc in Environmental Science and Management, with both dissertations investigating the performance of low-cost air quality sensors. He is a Member of both the Institute of Air Quality Management and the Institution of Environmental Sciences.

Will Wrench, BSc (Hons) AMIEEnvSc

Mr Wrench is an Assistant Consultant with AQC. Since joining the company in February 2022, he has undertaken numerous air quality assessments, both qualitatively and quantitatively using atmospheric dispersion modelling, to accompany planning applications. He has been involved in monitoring and assessment work across a range of projects, including residential, aviation, and Environmental Impact Assessments (EIAs). The assessments have considered the effects on both human health and ecological habitats, and involved Air Quality Neutral and Positive statements. During 2023, Mr Wrench was involved in emissions support work for the Sustainable Development Team at the Rail Safety and Standards Board (RSSB). Prior to joining AQC, he completed a BSc degree with Honours in Ecological and Environmental Sciences at the University of Edinburgh, where

he undertook air quality modelling projects, screening assessments and gained extensive experience of data processing and report writing. He is an Associate Member of the Institution of Environmental Sciences and Affiliate Member of the Institute of Air Quality Management.

A5 'Air Quality Neutral'

- A5.1 The GLA's London Plan Guidance; Air Quality Neutral (GLA, 2023a) provides an approach to assessing whether a development is air quality neutral. The approach is to compare the expected emissions from the building's energy use and vehicle trips against defined benchmarks for buildings and transport in London.
- A5.2 The benchmarks for heating and energy plant (termed 'Building Emissions Benchmarks' or 'BEBs') are set out in Table A5.1, while the 'Transport Emissions Benchmarks' ('TEBs') are set out in Table A5.2.
- A5.3 The average trip length and average emission per vehicle are required if there is a need to calculate offset payments. The values given by GLA are set out in Table A5.3 and Table A5.4 respectively.

Table A5.1: Building Emissions Benchmark NO_x Emission Rates (gNO_x/m²/annum) ^a

Land Use ^b	Individual Gas Boilers	Gas Boiler Network	CHP + Gas Boiler Network	Heat Pumps + Gas Boiler Network
Residential (including student accommodation and large-scale purpose-built shared living development)	3.5	5.7	7.8	5.7
Retail	0.53	0.97	4.31	0.97
Restaurants and bars	1.76	3.23	14.34	3.23
Offices	1.43	2.62	11.68	2.62
Industrial	1.07	1.95	8.73	1.95
Storage and distribution	0.55	1.01	4.5	1.01
Hotel	9.47	15.42	38.16	15.42
Care homes and hospitals	9.15	14.90	36.86	14.90
Schools, nurseries, doctors' surgeries, other non-residential institutions	0.90	1.66	7.39	1.66
Assembly and leisure	2.62	4.84	21.53	4.84

^a Solid and liquid biomass appliances also emit fine particulate matter in addition to NO_x. The benchmark emission rate for particulate matter is zero.

^b Separate use classes for commercial uses, including retail and offices, have now been replaced by use class E. If these separate uses are specified in the development proposal, they should be used for this assessment. Where the intended use is not specified, or where use class E has been specified, the benchmark for retail should be used.

Table A5.2: Benchmark Trip Rates

Land Use	Annual trips per	Benchmark Trip Rates		
		Central Activities Zone (CAZ)	Inner London (excluding CAZ)	Outer London
Residential (including student accommodation and large-scale purpose-built shared living development)	dwelling	68	114	447
Office / Light Industrial	m ² (GIA)	2	1	16
Retail (Superstore)	m ² (GIA)	39	73	216
Retail (Convenience)	m ² (GIA)	18	139	274
Restaurant / Café	m ² (GIA)	64	137	170
Drinking establishments	m ² (GIA)	0.8	8	N/A
Hot food takeaway	m ² (GIA)	N/A	32.4	590
Industrial	m ² (GIA)	N/A	5.6	6.5
Storage and distribution	m ² (GIA)	N/A	5.5	6.5
Hotels	m ² (GIA)	1	1.4	6.9
Care homes and hospitals	m ² (GIA)	N/A	1.1	19.5
Schools, nurseries, doctors' surgeries, other non-residential institutions	m ² (GIA)	0.1	30.3	44.4
Assembly and leisure	m ² (GIA)	3.6	10.5	47.2

Table A5.3: Emission factors per vehicle-km

Pollutant	Emission factors (g/veh-km)		
	Central Activities Zone (CAZ)	Inner London ^a (excluding CAZ)	Outer London ^a
NO _x	0.48	0.39	0.35
PM _{2.5}	0.036	0.032	0.028

^a Inner London and Outer London as defined in the London Plan (GLA, 2021).

Table A5.4: Average Distance Travelled by Car per Trip

Land use	Distance (km)		
	Central Activity Zone	Inner	Outer
Residential	4.2	3.4	11.4
Office	3.0	7.2	10.8
Retail	9.2	5.5	5.4

A6 Construction Mitigation

A6.1 Table A6.1 presents a set of best-practice measures from the GLA guidance (GLA, 2014b) that should be incorporated into the specification for the works. These measures should be written into a Dust Management Plan. Some of the measures may only be necessary during specific phases of work, or during activities with a high potential to produce dust, and the list should be refined and expanded upon in liaison with the construction contractor when producing the Dust Management Plan.

Table A6.1: Best-Practice Mitigation Measures Recommended for the Works

Measure	Desirable	Highly Recommended
Site Management		
Develop and implement a stakeholder communications plan that includes community engagement before work commences on site		✓
Develop a Dust Management Plan (DMP)		✓
Display the name and contact details of person(s) accountable for air quality pollutant emissions and dust issues on the site boundary		✓
Display the head or regional office contact information		✓
Record and respond to all dust and air quality pollutant emissions complaints		✓
Make a complaints log available to the local authority when asked		✓
Carry out regular site inspections to monitor compliance with air quality and dust control procedures, record inspection results, and make an inspection log available to the Local Authority when asked		✓
Increase the frequency of site inspections by those accountable for dust and air quality pollutant emissions issues when activities with a high potential to produce dust and emissions are being carried out and during prolonged dry or windy conditions		✓
Record any exceptional incidents that cause dust and air quality pollutant emissions, either on or off the site, and ensure that the action taken to resolve the situation is recorded in the log book		✓
Preparing and Maintaining the Site		
Plan the 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 active for an extensive period		✓
Install green walls, screens or other green infrastructure to minimise the impact of dust and pollution	✓	
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 cover as described below		✓
Cover, seed, or fence stockpiles to prevent wind whipping		✓
Carry out regular dust soiling checks of buildings within 100 m of site boundary and provide cleaning if necessary	✓	
Put in place real-time dust and air quality pollutant monitors across the site and ensure they are checked regularly		✓
Agree monitoring locations with the Local Authority		✓
Where possible, commence baseline monitoring at least three months before work begins		✓
Operating Vehicle/Machinery and Sustainable Travel		
Ensure all on-road vehicles comply with the requirements of the London LEZ (and ULEZ)		✓
Ensure all Non-road Mobile Machinery (NRMM) comply with London's NRMM emission standards. Currently, NRMM used on any site within Greater London are required to meet Stage IIIB of EU Directive 97/68/EC (The European Parliament and the Council of the European Union, 1997) and its subsequent amendments as a minimum, while NRMM used on any site within the Central Activity Zone, Canary Wharf or one of London's Opportunity Areas are required to meet Stage IV of the Directive as a minimum. The Proposed Development <u>is not</u> within an area where this stricter requirement applies. From January 2025, NRMM used anywhere in London will be required to meet stage IV, while from January 2030 the stage V standard will apply. From January 2040 only zero emission machinery will be allowed.		✓
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 work areas..	✓	
Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials		✓
Implement a Travel Plan that supports and encourages sustainable staff 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, conveyors and covered skips		✓
Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate		✓

Ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods		✓
Waste Management		
Reuse and recycle waste to reduce dust from waste materials		✓
Avoid bonfires and burning of waste materials		✓
Measures Specific to 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 water suppression is used during demolition operations.		✓
Avoid explosive blasting, using appropriate manual or mechanical alternatives		✓
Bag and remove any biological debris or damp down such material before demolition		✓
Measures Specific to 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	✓	
Measures Specific to Trackout		
Regularly use a water-assisted dust sweeper on the access and local roads, as necessary, to remove any material tracked out of the site	✓	
Avoid dry sweeping of large areas	✓	
Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport	✓	